Category II: Assessment and Planning

Assessment and planning are defined as the processes used to identify the community’s fire protection and other emergency service needs to identify potential goals and objectives. All agencies should have a basic source of data and information to logically and rationally define the organization’s mission. Assessment and planning is critical to the establishment of service level objectives, standards of cover, and ultimately, the quality of program outcomes.

The overall purpose of using these processes is to establish a long-range general strategy for the operation of the system.
Criterion 2A: Documentation of Area Characteristics

The agency collects and analyzes data specific to the distinct characteristics of its legally defined service area(s) and applies the findings to organizational services and services development.

Summary:

The City geographical boundaries are well established and maps illustrate the information for response and planning purposes. The department has divided City and County boundaries into demand zones for response and planning purposes. The City Planning and Finance Departments monitors the demographic and economic factors and make the information available to the department. An established fire incident reporting and database software system maintains the pertinent historical data. Data stated in the performance indicators of this criterion define the risks. Further, the department uses established goals and objectives based on the data, analysis, and planning. Area characteristics are documented in the 2017 Community Risk Assessment Standards of Cover (CRASOC).
Performance Indicators:

2A.1 Service area boundaries for the agency are identified, documented, and legally adopted by the authority having jurisdiction.

Description

The City of Lawrence and Douglas County have defined jurisdictional boundaries established for their respective governments and for the provision of public safety within these boundaries. The City and County have Geographic Information Systems (GIS) to maintain appropriate GIS mapping features. The City of Lawrence and Douglas County have legal boundaries established. Lawrence’s boundaries change often due to growth and subsequent annexation. Douglas County boundaries stay constant. The department has a map system incorporating GIS data and enabling management of street and local highway networks, jurisdictional boundaries, and other geographical data required and/or desired. The department has available on all city computers a GIS viewer that is maintained by city GIS coordinator. This system is available through the Intranet and allows all members access to view the current boundaries. The Douglas County Emergency Communications Center (DGECC) maintains a geo database in the CAD system to dispatch appropriate department or agency to calls for service. The department maintains map books in apparatus in case of computer failures. Boundaries for different planning zones within the services area are documented in the CRASOC.

Appraisal

The current boundaries are established and the GIS data has been maintained. Discussions on ordinances for new annexation require department participation and the inclusion of the appropriate map reference for emergency response. This eliminates the annexation of new areas without the department staff knowledge and ensures the DGECC adjust the computer aided dispatch system for proper recommendations. Accessing the GIS system has been slow due to the necessary bandwidth needed to pass the data and is not as useful at all locations as it could be.
**Plan**

The department will continue to work towards utilizing a network based GIS system with all the features necessary to access to current jurisdictional information. The City Information Technology (IT) department is actively working on plans to install fiber optics at all department facilities to increase the usability of the GIS system.

**References**

Jurisdictional Maps/Street Maps (Available on site)

LDCFM Map Book which shows jurisdictional boundaries (Available on site)

Community Risk Assessment Standards of Cover p.47 and 85
2A.2 Boundaries for other service responsibility areas, such as automatic aid, mutual aid, and contract areas, are identified, documented, and appropriately approved by the authority having jurisdiction.

**Description**
Boundaries for all services areas are identified and documented within the Community Risk Assessment Standards of Cover (CRASOC), mobile data computers (MDC), and physical department map books. Grant Township, an area north of Lawrence is protected by contractual agreement for fire suppression. All city and county boundaries are incorporated into the departments deployment model to mobilize resources based on approval by the authority having jurisdiction.

**Appraisal**
The current processes in place has been effective. In 2017, the department added an ambulance which was positioned in the City of Eudora. Though the department has an agreement with Douglas County and the City of Eudora in Douglas county, the expansion involved the City Manager of Lawrence and the Douglas County Commissioner.

**Plan**
The department will continue to utilize processes in place such as the CRASOC, MDC’s, and Map Books. The department will continue to look into other technology solutions to enhance boundary visibility. The department will also continue to communicate through management channels to the authority having jurisdiction.

**References**
CRASOC page 23
Contract with Grant Township
Map Book (available on-site)
CC 2A.3 The agency has a **documented and adopted methodology** for organizing the response area(s) into geographical planning zones.

**Description**
The department has fourteen planning zones in which to analyze risk as well as service levels. These planning zones are documented in the 2017 CRASOC. There are five demand zones within the City of Lawrence and nine demand zones in the remainder of Douglas County. Each demand zone, divided in smaller zones, becomes the map reference. Map references in rural demand zones are one square mile. Map references in the urban demand zones refer to one-quarter of a square mile. By combining a group of map references, a demand zone was formed that can be analyzed.

The five planning zones within the City of Lawrence are associated with historical response districts and align with map grid references. The planning zones in the City of Lawrence, City of Eudora, and Baldwin City are classified as urban density zones based on the population density within each city. All other zones in the county are classified as rural based on their population density. Population densities are taken using United States Census data and Environmental Systems Research Institute (ESRI) Geographic Information Systems (GIS) software.

**Appraisal**
The department has effectively utilized map reference numbers and planning zones for response planning, hazard planning, and resource evaluation. The planning zones provided a specific evaluation based on population density and geography.

**Plan**
The department will continue to evaluate and implement GIS in conjunction with the fourteen demand zones to analyze needs for the provision of services for the community. The accreditation manager will collaborate with the City’s Information Technology department and look for opportunities to improve on the software system in place.
References

CRASOC (page 40)
Reference maps for planning zones (CRASOC page 86, Zone 1)
The agency assesses the community by planning zone and considers the population density within planning zones and population areas, as applicable, for the purpose of developing total response time standards.

Description

The department analyzes the community’s need for response by working with the city GIS coordinator as well as analyzing historical response data. The GIS data identifies geographic boundaries, planning areas, demographics, economic factors and development patterns. These development patterns include population density as documented in the 2017 CRASOC.

The five planning zones within the City of Lawrence are associated with historical response districts and align with map grid references. The planning zones in the City of Lawrence, City of Eudora, and Baldwin City are classified as urban density zones based on the population density within each city. All other zones in the county are classified as rural based on their population density. Population densities are taken using United States Census data and Environmental Systems Research Institute (ESRI) Geographic Information Systems (GIS) software.

The community risk assessment contributes to risk evaluation, identification of potential risks, analysis of historical data, and determination of risk probability, consequences, and impact. Total response time standards are established with urban population density in seven planning zones: five within the City of Lawrence, one in Baldwin City, and one in the City of Eudora. Seven other planning zones are established throughout Douglas County with rural population density for the purpose identifying total response time standards. The CRASOC identifies benchmark service level objectives and baseline performance.

Appraisal

The department, utilizing methods such as critical tasking, the community risk assessment, population density, and industry research, has been able to determine
response performance expectations and establish an effective response force, and proper
collection and distribution of resources. This method of analysis has proven to be
reliable for the purpose of analyzing response and developing response time standards.

**Plan**
The plan for the department is to continue to analyze response levels, risk, and
deployment of resources by service area. The City will need a precise set of criteria to
ensure the appropriate response levels for all areas as community expansion continues.
The fire chief will communicate through management channels in order to establish
precise response performance expectations.

**References**
CRASOC (page 40 and 86)
2A.5 Data that includes **property, life, injury, environmental, and other associated losses**, as well as the **human and physical assets preserved and or saved**, are recorded for a minimum of three (initial accreditation agencies) to five (currently accredited agencies) immediately previous years.

**Description**

The department uses three different record management system to record incident and incident outcome data. The department uses *Firehouse™* records management system (RMS) for reporting data including fire loss, injury and life loss, property and contents loss. National Fire Incident Reporting System (NFIRS) and Kansas Fire Incident Reporting System (KFIRS) standards determine the format for agency records and reports. Another RMS in place is ESO Solutions, the department’s electronic patient care reporting software system. Lastly, the department’s computer-aided dispatch (CAD) software system is Spillman®.

**Appraisal**

The information storage systems consisting of multiple computer servers are very effective and serve the department well as a legal documentation avenue and planning tool. Quality control of incidents is the biggest challenge. The department has created a series of quality control reports that help ensure the data is accurate. The program ensures the report is complete, but with the exception of NFIRS based rules, the program hasn’t identified all the potential errors at time of entry. Additionally, the department has not been consistent in providing training for data entry into the system. Lastly the department has wanted to expand certain outcome measurements that have not been available for entry within the records management systems.

**Plan**

The department will evaluate its record management systems for outcomes purposes. Designated members will continue to run quality control reports to help improve the consistency of data entered into the system through training and quality assurance review. The departments executive team will enhance the post incident analysis form template in
order to begin capturing additional outcome measurements, not in place within the three current systems.

References
Firehouse (Available on site)
ESO Solutions (Available on site)
Spillman (Available on site)
2A.6 The agency utilizes its adopted planning zone methodology to identify response area characteristics such as population, transportation systems, area land use, topography, geography, geology, physiography, climate, hazards and risks, and service provision capability demands.

Description

The City of Lawrence maintains records from many sources regarding demographics of the City including census records, Planning Department documents and local Chamber of Commerce statistics. The following is a brief list of the information contained in the documents. This data is documented within the 2017 CRASOC.

U.S. Census Data:
- Population breakdowns by age, group and sex
- Household type and size
- Family type and children

Planning Department GIS:
- Zoning
- Topography
- Growth boundaries
- City features
- Permit activity

Chamber of Commerce statistics:
- Tourism
- Commuters into and out of County

Appraisal

The demographic information has allowed the department to plan for future stations and population shifts. The data available to the department has been adequate to permit planning.
Plan
The department will continue to utilize the available data. Through meetings and other processes, the department will continue to work cooperatively with other City departments and businesses to project and prepare services tailored to the demographic needs of the community.

References
2017 CRASOC (pages 23-30 and 38-45)
2A.7 Significant socio-economic and demographic characteristics for the response area are identified, such as key employment types and centers, assessed values, blighted areas, and population earning characteristics.

Description
The department participates with the city administration, other city departments, and city and county commissions to evaluate and plan future service needs. The planning process includes a thorough research of economic indicators. Some of this data, such as population earning characteristics and key employment centers are documented in the 2017 CRASOC.

Appraisal
The department has utilized its previous budgets, historical trends, economic indicators, and current demographic information to identify service needs. This information has been provided to City Administration for use in organizational planning through effective and accurate budget planning. Several organizational needs have been addressed through capital improvement planning and its funds.

Plan
The department will continue to utilize the economic and demographic information provided from the various sources to plan future budgets and expenditures.

References
City of Lawrence Operating and Capital Improvement Budgets
2A.8 The agency identifies and documents all safety and remediation programs, such as fire prevention, public education, injury prevention, public health, and other similar programs, currently active within the response area.

**Description**

The department has several safety and remediation program active within the response area. These include fire prevention efforts both through code enforcement and public education. These programs and efforts are documented in the 2017 CRASOC and departments webpage.

The fire prevention division performs several activities related to safety and remediation, such as: Burn permits and requirements, code enforcement, fire investigations bureau, home fire safety inspection program, plans review, night consultants, and occupant services.

The training division oversees several programs specific to community education and outreach: Greek academy, high school career day, public education visits, public CPR, safety and hazard house, wheeled sports program, and youth fire setter prevention and intervention program.

**Appraisal**

The impact from the programs is something that has not been measured quantitatively other than annual appraisal which capture, mostly activity. It is undetermined what the actual impact relating to outcomes to lives and property has been.

**Plan**

The department will identify specific measures within each program in attempt to capture and associate data with outcomes to lives and property; not only activity.
References

2017 CRASOC (Pages 48-49)
2A.9 The agency identifies critical infrastructure within the planning zones.

**Description**
The department identifying and publishes critical infrastructure within all planning zones associated with the services area in the 2017 CRASOC. The planning zone analysis covers all 14 station response zones which includes rivers, railroads, highways, and airports.

The prevention department or fire chief communicates changes in critical infrastructure to the department through emails.

As development occurs within Douglas County and the City of Lawrence, the Prevention Division works closely with the Planning and Development Services Department, Utilities, and Public Works with an eye toward identifying critical infrastructure.

**Appraisal**
The Prevention Division has been involved in the development process as early as the Initial Inquiry and concept or pre-submital meetings. Through these meetings the need for waterlines, hydrant placement, street size, access needs, and utility locations are determined. Regular feedback is provided as plot plans, subdivision, preliminary and final development plans, and site plans are submitted. Special consideration is given to underground utility locations, notably pipelines. Development projects and review comments are managed within the City Innoprise Community Development software program which has been available to staff and developers.

This information has been updated within each of the planning zones upon the republication of a Community Risk Standards of Cover. This information has not been updated but once every five years specific to planning zones. The prevention division has sent information which effects critical infrastructure out via email, but this information has not been incorporated into specific planning zone documents.
Plan
The current planning and review process works well and will be maintained into the future. The department will investigate solutions to incorporate any updates to critical infrastructure into the CRASOC annually.

References
2017 CRASOC (Pages 17-25 and 85-103)
Innoprise community development (Available on site)
Criterion 2B: All-Hazard Risk Assessment and Response Strategies
The agency identifies and assesses the nature and magnitude of all hazards and risks within its jurisdiction. Risk categorization and deployment impact considers such factors as cultural, economic, historical, and environmental values, and operational characteristics.

Summary:
The department has analyzed risk for each demand zone within the City and County. Unit response and the CAD systems utilize automatic vehicle location (AVL) to deploy the closest appropriate resource needs. A risk analysis of each zone enabled the identification and classification of each risk within a zone. Utilizing the data gathered from this analysis, along with other data including water supply, fire loss data and other variables, the department has created its SOC strategy.
Performance Indicators:

CC 2B.1 The agency has a documented and adopted methodology for identifying, assessing, categorizing, and classifying risks throughout the community or area of responsibility.

Description

The department utilizes two models to assess risk in the community through a three-axis methodology and location-based model.

The three-axis model is taken from the text, *Center for Public Safety Excellence, Community Risk Assessment: Standards of Cover 6th Edition*. This model analyzes risk by classification (fire, emergency medical services, technical rescue, and hazardous materials). This three-axis methodology uses Heron’s formula modified for tetrahedrons to calculate a measure of risk by incorporating three specific values. The three values are scored on a scale of 2 to 10 using (2 being the lowest and 10 highest) using only even numbers. Using the three-risk axis of probability, consequence, and impact; scores are inserted into the formula to calculate a risk rating. Heron’s formula calculates the volume of a tetrahedron representing a mass of risk. Assigning a category of risk based on the degree (low, moderate, high, or maximum) helps identify the relationship between community requirements and commitment of resources. The risk-based polygon provides guidance on a rational strategy for company deployment. The magnitude of risk is determined by the greater the total mass, the greater the risk category level. This methodology is published within the 2017 CRASOC.

The second risk model is named Risk Analysis Profile and Target Occupancies and Risk (RAPTOR). RAPTOR outputs a risk score which categorize occupancies in low, moderate, high, and maximum fire risk. The RAPTOR community risk assessment provides occupancy data for urban areas in the City of Lawrence.
Appraisal
The department’s system of analyzing and evaluating risk factors has been effective in designing a deployment model tailored to the risk of the community. Both models have served two primary purposes, identifying locations of risk within the community and establishing a hierarchy or risk based on a scoring metric. The two models have yet to be blended into a singular risk assessment system, which establishes risk associated with a deployment metric based on the location, and or occupancy type. The three-axis model has established risk specific to a hazard type within the community relative to probability, consequence, and impact, however blending deployment with levels of risk by occupancy or location still needs to be developed.

Plan
The accreditation manager will work coordinate with the fire chief to enhance the risk assessment methodology design by January 2019.

References
Center for Public Safety Excellence, Community Risk Assessment: Standards of Cover, 6th Edition (page 96)
2017 CRASOC (pages 70-82)
2B.2 The historical emergency and non-emergency service demands frequency for a minimum of three immediately previous years and the future probability of emergency and non-emergency service demands, by service type, have been identified and documented by planning zone.

Description
The department analyzes historical response time performance against risk category and class. High-risk fire and ems incidents of a period of the last five years are mapped and published in the 2017 CRASOC. The map identifies the location and frequency of quality response time responses.

Appraisal
The maps in the CRASOC have assisted the department to identify where response gaps are in the community, and where these gaps may be impacted by community development. This information was used to assist in the formulation of time-based recommendations to maintain or enhance response time quality to the community.

The focus on organizational demands has been on emergency response performance. Non-emergency demand has not been evaluated from the stand point of how it impacts the standard of cover. The impact of non-emergency medical transfers should be monitored closely. The commit time of units on these incident types is significant due to definitive care facilities being located thirty miles or more away from the City of Lawrence. Emergency resources are used for non-emergency incident type responses.

Plan
The accreditation manager will aggregate non-emergency data and produce a report to the fire chief by August 2018. This data will influence recommendations moving into the future related to resource needs. The accreditation manager will collaborate with City GIS staff to continue expand these maps to include other risk classifications and categories. Additional maps will be published by January 2019.
References

2017 CRASOC (pages 137-145)
2B.3 Event consequence loss and save data that includes property, life, injury, environmental, and other losses and saves are assessed for three (initial accreditation agencies) to five (currently accredited agencies) immediately previous years.

**Description**
Loss data is collected within the departments records management system. Life loss data is assessed from all risk classes over the past five years: fire, EMS, technical rescue, and hazardous materials. Life loss associated with the EMS risk class is assessed as cardiac arrest survivability rates. Life loss associated with the fire, technical rescue, and hazardous material risk classes are assessed as lives lost in high risk events. Property loss, specifically, flame-spread in NFIRS code 111 event’s is tracked, and a baseline is identified over the past five years. Save data, other than cardiac arrest saves, are not assessed.

**Appraisal**
Outcome data, specifically save data, has not effectively been assessed and analyzed. The records management systems are not constructed around all of the data points which would have told the complete outcome story. For example, the state of fire upon receiving notification and how response quality affected the spread of fire. Response quality impacts an outcome, but the state and size of the hazard upon notification needs to be captured in order to tell the complete story and identify opportunities for improvement.

**Plan**
The accreditation manager will work with the fire chief to enhance the post-incident analysis document to capture specific data point which will assist in tracking loss and save data for regularly.

**References**
Cardiac Arrest save rates 2013-2017
Flame Spread in building fires 2013-2017
CC  2B.4  The agency’s risk identification, analysis, categorization, and classification methodology has been utilized to determine and document the different categories and classes of risks within each planning zone.

Description
The department’s two risk assessment tools identify, categorize, and classify risk. The 2017 CRASOC documents specific risks associated with fire, EMS, technical rescue, and hazardous materials, unique to each planning zone qualitatively. This risk identification includes airports, railroads and roadways, construction types influencing fire propagation, population density, rivers, special occupancy types, and specific target hazards.

Appraisal
The department’s application of risk assessment using the two different risk tools has produced quantifiable measures of risk throughout all service areas. These tools have been focused on two elements for identifying risk. First, incident dispatch types were used in the three-axis methodology which calculated risk quantitatively based on probability, consequence, and impact. Second, the RAPTOR model locates fire risk based on occupancy specific information and produces a quantifiable measure of risk based on several elements of measure. The department should enhance its risk assessment methodology to blend the two tools together in order to more specifically identify risk by category and class within each planning zone.

Plan
The accreditation manager will network with the regional accreditation consortium to identify several strategies for risk assessment enhancement. A proposed new tool will be recommended to the fire chief and rolled out in January 2019.

References
2017 CRASOC (pages 85-103)
2B.5 Fire protection and detection systems are incorporated into the risk analysis.

**Description**
The department’s RAPTOR risk assessment tool takes several building and occupancy factors into consideration for the development of a risk assessment score. Fire suppression systems is one of the factors. Elements which influence the fire suppression score are: present, partial system present, none present, and undetermined. The scoring metric for RAPTOR is published in the CRASOC.

**Appraisal**
The department has performed the RAPTOR assessment on existing buildings to identify high risk occupancies related to fire. The department has not applied this data in conjunction with GIS technology.

**Plan**
The department will continue to look for opportunities to enhance the RAPTOR tool and coordinate with City GIS to apply the data geographically so that the data can be visualized across the community.

**References**
Sample RAPTOR score (available on site)
2017 CRASOC (pages 178-185)
2B.6 The agency assesses critical infrastructure within the planning zones for capabilities and capacities to meet the demands posed by the risks.

Description
The department documents the existence of critical infrastructure throughout the community and each planning zone. This information is published within the 2017 CRASOC. The CAD system uses information available such as AAVL and current road construction to identify the appropriate resource to respond.

Appraisal
This information has been uploaded in the 2017 CRASOC, but has only been done so during the development of the document every five years. Changes in the community’s infrastructure has been communicated which they occur through email to all personnel, but hasn’t been published specifically by planning zone.

Plan
The accreditation manager will develop a reference guide to assist with the association of location and map references, in addition to the planning zone, when changes occur in the future related to critical infrastructure.

References
2017 CRASOC (pages 18-22, 85-103)
**Criterion 2C: Current Deployment and Performance**

The agency identifies and documents the nature and magnitude of the service and deployment demands within its jurisdiction. Based on risk categorization and service impact considerations, the agency’s deployment practices are consistent jurisdictional expectations and with industry research. Efficiency and effectiveness are documented through quality response measurements that consider overall response, consistency, reliability, resiliency, and outcomes throughout all service areas. The agency develops procedures, practices, and programs to appropriately guide its resource deployment.

**Summary:**

The department uses the CRASOC to identify and incorporate risk, responsibility areas, demographics, and socio-economic factors which serve as the basis for the current response strategy provision. This risk assessment includes hazards associated with fire, emergency medical services, technical rescue, and hazardous materials to develop a consistent response strategy for all service programs.

The department follows a policy which documents its methodology for monitoring its quality of emergency response performance. This methodology primarily relies on the accreditation manager to produce and monitor data which is communicated to the manager’s group/executive staff. The critical task analysis is performed for each risk category and classification. All components of total response time for risk category and class are consistent and reliable for the entire response area based on two primary categories performance segregation, urban and rural.

The department assesses its level of performance of emergency services and identifies time specific recommendations to a minimum, maintain its level of service to serve a rapidly growing community. These recommendations are published in the 2017 CRASOC, establishing immediate (within 18 months), short-term (within 36 months) and long-term (within the next five years) recommendations.
Performance Indicators:
CC 2C.1 Given the levels of risks, area of responsibility, demographics, and socio-economic factors, the agency has determined, documented, and adopted a methodology for the consistent provision of service levels in all service program areas through response coverage strategies.

Description
The department uses the Community Risk Assessment Standards of Cover to identify and incorporate risk, responsibility areas, demographics, and socio-economic factors which serve as the basis for the current response strategy provision. This risk assessment includes hazards associated with fire, emergency medical services, technical rescue, and hazardous materials to develop a consistent response strategy for all service programs.

The department has a policy for response performance which establishes output measurement objectives for risk class and category. A compliance methodology is in place to monitor and identify trends which may threaten the provision service level quality.

Appraisal
The department has performed several tasks which were included in the formulation of risk identification, classification, and categorization. Specifically, critical tasks to mitigate hazards associated with risk classes which influence the quality of outcomes to the community. The department should identify specific service level expectations relating to coverage strategies and outcome quality, versus output quality.

Plan
The accreditation manager will work in conjunction with the fire chief and executive staff in order to identify organizational outcome objectives relative to risk class. This focus will potentially influence critical tasking and response coverage strategies in the future. The risk class outcome objectives will be identified and incorporated into department policy by January 2019.
References

2017 CRASOC

SOP 103.20 Response Performance and Outcomes
The agency has a documented and adopted methodology for monitoring its quality of emergency response performance for each service type within each planning zone and total response area.

**Description**
The department follows a policy which documents its methodology for monitoring its quality of emergency response performance. This methodology primarily relies on the accreditation manager to produce and monitor data which is communicated to the manager’s group/executive staff. The current methodology includes monitoring of annual response performance for the whole response area and the reliability of benchmark response travel time on high risk fire and ems events by planning zone. A more diversified compliance methodology is in place for 2018. This monitoring methodology is documented in the 2017 CRASOC.

**Appraisal**
The compliance methodology prior to 2018 isolated the knowledge, skill, and ability of how to perform these task with the accreditation manager. The accreditation manager resigned in January of 2018, resulting in a gap for compliance monitoring organizationally. The department has identified a need to increase its capabilities related to compliance monitoring through both human and technology resources. This need extends beyond the position of the accreditation manager in order for the department to effectively and sustainably monitor how the rapidly growing community is affecting response time quality and ultimately outcomes. It was identified in the 2017 CRASOC as an immediate recommendation to add an FTE within the administrative division. This position could assist in sustaining the level of compliance monitoring needed in the future.

**Plan**
The interim accreditation manager will communicate with the fire chief on resources needs in order to create a more effective compliance methodology system in the future.

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

Description
The department risk assessment tool RAPTOR considers fire protection systems and detection systems in the formulation of an occupants risk score. This data is captured in the Firehouse™ record management system. In 2017, the department updated its deployment model to incorporate deployment levels by fire alarm criteria. This is reflected in standard operating procedure.

Appraisal
The new deployment matrix has been in place since August of 2017. It is undetermined how the changes have influences output and outcomes.

Plan
The accreditation manager will communicate with the department’s executive staff to gather information on the effectiveness of the new matrix specifically with fire alarms.

References
2017 CRASOC, RAPTOR (pages178-185)
SOP 202.10 Alarms and Responses
CC 2C.4 **A critical task analysis of each risk category and risk class has been conducted** to determine the first-due and effective response force capabilities, and a **process is in place to validate and document the results.**

**Description**
The critical task analysis is performed for each risk category and classification. The analysis is documented with the 2017 CRASOC. The training division conducts annual skill evaluations utilizing checklist and scenarios to help analyze the critical task analysis. Critical task analysis for special operations teams are developed by team managers after analyzing incident types and roles that need to be filled per SOP.

**Appraisal**
The current systems have been adequate in identifying resource needs to mitigate tasks for all risk categories and classes. In 2017, the department began working towards the Blue Card Command® system. As part of that model, in August the department began sending an additional fire apparatus on level 1 building fires to function as the on-deck crew. This has not been formally established as a critical task, but remains to be evaluated should it need to become one.

**Plan**
The department will continue to look at critical tasking and ensure the basic types of response have well thought out critical tasking and not simply all task. These critical tasks will lead to the adjustment of the SOC and the alarms and responses SOP. The accreditation manager will communicate with the department executive staff and determine if the on-deck crew should be incorporated into the ERF. The ERF will be updated to reflect any organizational changes in January of 2019.

**References**
2017 CRASOC (pages 104-108)
NFPA 1410 drills data
CC 2C.5 The agency has identified the total response time components for delivery of services in each service program area and found those services consistent and reliable within the entire response area.

**Description**

All components of total response time for risk category and class are consistent and reliable for the entire response area based on two primary categories performance segregation, urban and rural. The department’s total response time components for the delivery of service in each service program are documented in two places, the 2017 CRASOC and department policy 103.20 Response Performance and Outcomes. These response time data measurements are further categorized by population density aggregated by reflective planning zones.

In the 2017 CRASOC, historical “baseline” data reflects emergency response performance from 2012 through 2016 by each risk category and classification. This data was used to publish the 2017 CRASOC.

Department policy 103.20 Response Performance and Outcomes includes the most up-to-date response data and is used to establish both baseline and benchmark response performance objectives. The data used in this policy includes 2013 through 2017 by risk category and class.

**Appraisal**

Response time performance gaps existed in several areas. Within all categories and classes of risk, alarm handling frequently doubled the benchmark. Travel times exceeded expectations organizationally both for the first due and ERF, but was consistent over the response area. Time specific recommendations have been published in the 2017 CRASOC to at minimum maintain the current service level.

**Plan**
The department will continue to communicate through management channels its response performance and the trending associated with its quality. The department will communicate the need to consider CRASOC recommendations in order to continue to at minimum, maintain its current level of service.

References
2017 CRASOC (pages 110-170)
SOP 103.20 Response Performance and Outcomes
2C.6 The agency has identified the total response time components for delivery of services in each service program area and assessed those services in each planning zone.

Description
The department does not currently evaluate all components of response time quality in each service program area by planning zone. It does assess the service level quality by planning zone pertaining to reliability of high risk first due travel time response quality for fire and EMS. This data is documented in the 2017 CRASOC.

Appraisal
The department has been challenged in resource capacity in order to routinely mine and produce reports which would provide this level of community intelligence.

Plan
The accreditation manager will communicate with the fire chief to identify resource solutions to address the capacity challenges for this level of analysis.

References
2017 CRASOC (pages 114-115)
The agency has identified efforts to maintain and improve its performance in the delivery of its emergency services for the past three (initial accreditation agencies) to five (currently accredited agencies) immediately previous years.

**Description**
The department assesses its level of performance of emergency services over the past five years and identifies time specific recommendations to a minimum, maintain its level of service to serve a rapidly growing community. These recommendations are published in the 2017 CRASOC, establishing immediate (within 18 months), short-term (within 36 months) and long-term (within the next five years) recommendations.

**Appraisal**
The effectiveness of the process is unknown. This process has included historical performance trends, current and future community data which may impact its service delivery. It is unknown how effective this system of analysis has been as it has just occurred and has yet to be actioned.

**Plan**
The accreditation manager and fire chief will continue to work with the City and monitor performance trends. The department will update recommendations based on these findings annually. This information will be communicated through management channels to assist in operating and CIP budget planning.

**References**
2017 CRASOC (pages 4-6)
2C.8 The agency’s resiliency has been assessed through its deployment policies, procedures, and practices.

**Description**

The department resiliency is currently measured based on the reliability to provide a quality first due response on high risk events, specifically fire and EMS. This reliability is based on the percentage of time a qualifying first due unit arrives on scene within a benchmark travel time quality, by planning zone. This is documented in the 2017 CRASOC. The department does not measure its reliability for an effective response force. Currently the department’s provision is to provide resources to staff an ERF for one structure fire.

**Appraisal**

The department has not evaluated its reliability of service other than what is documented in the baseline performance tables. This data is reflective of when department resources provided the response.

**Plan**

The accreditation manager will work with the fire chief to track resource resiliency within the department. The system will be in place by August 2018.

**References**

2017 CRASOC (pages 114-115).
**Criterion 2D: Plan for Maintaining and Improving Response Capabilities**

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

**Summary:**

The department has a published methodology for monitoring performance adequacies, reliabilities, resiliencies and opportunities for improvement. These processes are documented in two places: the 2017 CRASOC and department SOP 103.20 Response Performance and Outcomes. The department publishes an annual report which includes several aspects of organizational development. The annual report includes changes in staff and organizational demand such as trends in operational or prevention activity. The report identifies what is on the horizon organizationally relating to organizational growth.

Response times are monitored following a compliance schedule. The monthly activity report includes turnout performance and response time performance on structure fires; this data is trended against department benchmarks. The department publishes a continuous improvement plan represented in its strategic plan. Recommendations for organizational improvement are drawn from multiple sources including the 2017 CRASOC, program appraisals, and other executive/management staff recommendations.
Performance Indicators:
CC 2D.1 The agency has documented and adopted methodology for assessing performance adequacies, consistencies, reliabilities, resiliencies, and opportunities for improvement for the total response area.

Description
The department has a published methodology for monitoring performance adequacies, reliabilities, resiliencies and opportunities for improvement. These processes are documented in two places: the 2017 CRASOC and SOP 103.20 Response Performance and Outcomes. The department has several working groups for different layers of compliance monitoring. This new compliance monitoring model provides different levels of monitoring at different time intervals. The purpose of assessing performance is to identify opportunities for improvement through routine monitoring.

Appraisal
The departments previous compliance monitoring was not regimented other than a monthly activity report which evaluated some performance measures, but mostly department activity. The department has been challenged to stay up on its compliance monitoring, particularly response time by risk category and classification.

Plan
With the new compliance model being a more regimented look at performance, the department will need to make this a priority relating to resources and technology to support this need. The interim accreditation manager will communicate to the fire chief to identify specific resource needs in order to produce this information more routinely.

References
2017 CRASOC (pages 173-177)
SOP 103.20 Response Performance and Outcomes
2D.2 The agency continuously monitors, assesses, and internally reports, at least quarterly, on the ability of the existing delivery system to meet expected outcomes and identifies the remedial actions most in need of attention.

**Description**

The department’s compliance methodology documented in the 2017 CRASOC identifies a compliance reporting schedule of monthly, quarterly, and annual reports. Specific measures for each compliance interval are documented in the CRASOC and also in department policy 130.20 Response Performance and Outcomes.

**Appraisal**

The compliance monitoring schedule prior to the publication of the 2017 CRASOC included general activity and some performance measurements which were published in the monthly activity report. This activity report though effective in identifying activity trended against previous planning periods, did not adequately trend response time compliance, specifically travel time by risk category and class. The report did however monitor turn out time routinely.

**Plan**

The accreditation manager will communicate with the fire chief to ensure all reports identified in the compliance methodology are able to be sustained. Challenges which arise due to technology or capacity will be communicated immediately.

**References**

2017 CRASOC (pages 173-177)

SOP 130.20 Response Performance and Outcomes
CC 2D.3 The performance monitoring methodology identifies, at least annually, future external influences, altering conditions, growth and development trends, and new or changing risks, for purposes of analyzing the balance of service capabilities with new conditions or demands.

Description
The department publishes an annual report which includes several aspects of organizational development. The report includes changes in staff and organizational demand such as trends in operational or prevention activity. The report identifies what is on the horizon organizationally relating to organizational growth, which is planned and or funded through capital improvement funds. Additionally, the fire chief with assistance from the accreditation manager, is responsible for annually reporting with the authority having jurisdiction regarding operational gaps. This is documented in the 2017 CRASOC.

Appraisal
The department has published an annual report which included several components of measure, but could be enhanced. Additional performance measurements could be included in the document, such as organizational outcomes. The fire chief has communicated with the city manager routinely pertaining to organizational needs, however the communication has not been documented formally.

Plan
The accreditation manager will communicate with the fire chief on including additional information into the annual report pertaining to organizational outcomes. The fire chief will create a city manager message which will be published to include new or changing risks and the balance of service capabilities.

References
2016 Annual Report
2D.4 The performance monitoring methodology supports the annual assessment of the efficiency and effectiveness of each service program at least annually in relation to industry research.

**Description**
The department uses consensus standards such as *NFPA 1710 Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* and *NFPA 1410 Standard on Training for Initial Emergency Scene Operations*, along with the *National Institute of Standards and Technology (NIST) Report on Fireground Field Experiments* to guide several efforts related to organizational measures. Examples are resource needs related to critical tasking and components of total response time published in the 2017 CRASOC. This benchmarking is primarily focused on output quality and not outcome quality.

**Appraisal**
The department has not evaluated outcome quality in relation to industry research and or benchmarking.

**Plan**
The accreditation manager along with the departments executive staff will identify industry benchmark outcome measures based on research to trend against. One example will be the Cardiac Arrest Registry to Enhance Survival (CARES) system for cardiac arrest outcomes. These measures will be presented to the fire chief and trended beginning in 2019. Once these benchmarks are identified, the department will infuse them into its compliance monitoring methodology.

**References**
2017 CRASOC (page 125)
NFPA 1410 drills data
NIST Study
2D.5 Impacts of incident mitigation program efforts, (such as community risk reduction, public education, and community service programs), are considered and assessed in the monitoring process.

**Description**
The department currently quantifies incident mitigation program efforts by activity and not the impact or outcome. One measure which could be used is the amount of fire related incidents by year trended. Fire related incidents are decreasing over the past few years.

**Appraisal**
The department has not focused on impacts or outcomes when assessing program effectiveness. Department administration has communicated to program managers to direct the perspective of program assessment more to focus on outcome assessment and not only activity.

**Plan**
Program managers who oversee mitigation efforts will identify performance measurement focused on the outcomes of their perspective program. These measures will be identified in 2018 to be measured in 2019.

**References**
2017 Annual Report
CC 2D.6  **Performance gaps for the total response area, such as inadequacies, inconsistencies, and negative trends, are determined at least annually.**

**Description**
Response times are monitored following a compliance schedule. The monthly activity report includes turnout performance and response time performance on structure fires; this data is trended against department benchmarks. The department publishes response time performance gaps for the total response area specific to risk category and classification in the 2017 CRASOC.

**Appraisal**
The department has determined the performance gaps and negative trends, but was challenged due to capacity to complete these reports on regular time schedules. The department was challenged to aggregate response performance data in 2017, resulting in accreditation documents to be delayed and ultimately a delay letter from the Commission on Fire Accreditation International (CFAI). In 2017, the department as part of a workforce reduction for cost, lost an administrative assistant. The absence of this position in conjunction with other succession and attrition challenges led to prolonged task completion.

**Plan**
The department will request for the return of the administrative support position to be funded again through the budgetary process. The department is also investigating technology solutions which may assist in the efficiency of task completion.

**References**
Monthly Activity Report example
2017 CRASOC (pages 161-170)
CC 2D.7 The agency has systematically developed a continuous improvement plan that details actions to be taken within an identified timeframe to address existing gaps and variations.

Description
The department publishes a continuous improvement plan represented in its strategic plan. Recommendations for improvement are drawn from multiple sources including the 2017 CRASOC, program appraisals, and other executive/management staff recommendations. The strategic plan is updated annually with identified timeframes to address organizational gaps and variations of need.

Appraisal
The department has relied upon the quality of the three organizational assessment processes to guide its continuous improvement plan. This has been effective to assist budgetary authorization and CIP allocation of funds to assist the department towards its continuous improvement goals.

Plan
The department will continue to use the current organizational assessment process and strategic plan to guide the identification and allocation of resources to address existing gaps and variations.

References
Strategic plan
2017 CRASOC (pages 171-172)
Program Appraisal example
2D.8 On at least an annual basis, the agency formally notifies the authority having jurisdiction (AHJ) of any gaps in the operational capabilities and capacity of its current delivery system to mitigate the identified risks within its service area, as identified in its standards of cover.

Description
The fire chief communicates with the city manager on all gaps of operational capabilities and capacity. The fire chief sends the monthly activity report to the city manager and all other members of the City’s executive team. Within the report are some response performance measurements. These performance measurements are turnout time by month, total response time (TRT) for structure fires by quarter, TRT for EMS calls in the city, and TRT for all EMS calls in all service area. In addition to response performance, the report includes trended activity for risk classifications of fire and EMS and demand trended against the previous year.

Although this information would lend towards capacity, the report does not indicate when capacity is reached or the departments capabilities are threatened by new information. The report does not specifically document the departments capabilities and capacities, but is focused on activity and the demand on current resources.

Appraisal
The monthly activity report has been effective in regularly providing information to the city manager and executive team by its completion and communication. The information however, has been primary focused on trending demand and activity. Additionally, the communication of department capabilities and capacities has been framed and directed towards the City’s management team and not the commission or community.

Plan
The fire chief will prepare an annual report which will be submitted to the city manager providing an update related to department capabilities and capacities framed around a
message to the city commission and community. This report will be submitted to the city manager by August 2018.

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

Description
The fire chief communicates with the city manager on all gaps of operational capabilities, capacity, and the level of service provided. The fire chief sends the monthly activity report to the city manager and all other member of the City’s executive team. In addition to the monthly report, the fire chief communicates with the city manager and management team monthly related to emerging issues which impact its ability to continue to deliver the expected level of service. This communication is not formally documented.

Appraisal
The department has not documented its communication to the AHJ related to emerging issues which impact the expected level of service.

Plan
The fire chief will prepare an annual report which will be submitted to the city manager providing an update related to department capabilities, capacities, and threats to the department’s level of service. This will be framed in a digestible format for the city commission and community. This report will be submitted to the city manager by August 2018.

References
Monthly Activity Report
2D.10 The agency interacts with external stakeholders and the AHJ at least once every three years, to determine the stakeholders’ and AHJ’s expectations for types and levels of services provided by the agency.

**Description**
The department interacts with external stakeholders once every five years during a community-driven strategic planning process. External feedback is received pertaining to department priorities by program and positive/negative feedback. This data is collected and published in the 2016-2021 Strategic Plan. The fire chief communicates with the city manager routinely and receives feedback on organizational expectations, however, they are not documented.

The department does not currently communicate with external stakeholders and the AHJ together to establish expectations for types and level of services provided by the agency.

**Appraisal**
The department has communicated with the AHJ multiple times annually; however, it has not been documented. The department has not communicated to external stakeholders related to expectations for types and levels of services provided every three years.

**Plan**
The department will communicate and develop a plan with the city manager to approach external stakeholders in order to identify clear expectations for types and levels of service provided by the department.

**References**
2016-2021 Strategic Plan