CFAI MODEL INFORMATION TECHNOLOGY SPECIFICATIONS

CFAI 10th Edition

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The following is a compilation of the various items needing to be tracked as part of the 10th edition of the CFAI accreditation model. This list is not intended to be an exhaustive list of data points (spatial or numerical), records, or policies a fire agency may collect or maintain. Nor is an agency required to track each of the items to be become accredited. Rather it is intended to assist agencies when procuring IT systems or developing internal systems to ensure these systems can collect and report the data and manage the records and policies referenced in the CFAI model.

The 10th edition CFAI accreditation model recognizes the importance of Information Technology through Criterion 9D:

- CC 9D.1 Hardware, software and IT personnel are appropriate for the agency's size, function, complexity, and mission.
- 9D.2 Software systems are integrated, and policies are in place addressing data governance, data accuracy and data analysis.
- 9D.3 A comprehensive technology plan is in place to update, evaluate and procure hardware and software.
- 9D.4 A cybersecurity policy is in place to protect the integrity of the infrastructure, including networks, programs and devices, from unauthorized access that could disrupt essential services.

Appendix F of the Quality Improvement for the Fire and Emergency Services manual provides a glossary of terms referenced in the accreditation model. Lastly, Section 3, Phase 1: Community Risk Assessment/Standard of Cover serves as a technical guide for agencies in responding to Category II: Assessment and Planning and developing their community risk assessment and standards of cover document.

The National Fire Protection Association (NFPA) published NFPA 950 *Standard for Data Development and Exchange for the Fire Service* to standardize data for operable information sharing for all-hazards response by describing a digital information structure common to fire and emergency services delivery and management. The NFPA also published a companion piece, NFPA 951 *Guide to Building and Utilizing Digital Information*, to guide organizations in building NFPA 950-compliant systems. Both resources may be beneficial to agencies as they procure IT systems or develop their own.

The list separates spatial data (page 4) from numerical data (page 6) and records (page 11) from policies (page 12). For each of these items the CFAI accreditation model reference is provided. Where applicable, additional information on the requirements for that item is also included.

Spatial data is best understood as a dot on a map. Listed in the table below are the various spatial data points referenced in the CFAI 10th edition accreditation model. The related performance indicator (PI) or core competency (CC) is noted for each data point. Additional information is provided where applicable to further define the spatial data point.

Spatial Data Point	CFAI PI/CC	Additional Information
Service area boundaries	2A.1	
Other services areas	2A.2	Mutual aid, automatic aid, contract areas
Geographical planning zones	2A.3	
Population density	2A.4/2A.6	Total Current, Residential, workforce, tourist, student, special events, daytime, nighttime populations
Transportation systems	2A.6	Features such as highways, street network, waterways, railways, airports, canals, or shipping ports
Area land use	2A.6	Occupancy groups as outlined in adopted fire code
Topography	2A.6	The arrangement of the natural and artificial physical features of an area
Geology	2A.6	Information related to earthquake, volcanic eruption, landslide, and mud slide activity
Physiography	2A.6	Wildland and urban area interface
Climate	2A.6	Weather conditions prevailing in an area, e.g. wind, rain, snow, or ice
Hazards	2A.6	**Natural and Environmental:** Earthquake, Flood, Tornado, Very Heavy Snowstorm, Ice Storm, Landslide, Forest/Wildland Interface, Land cave-ins, Drought, Severe Wind Storm **Medical:** Air Pollution, Water Pollution, Epidemic, Mass Casualty, Structural Collapse **Industrial/Structural:** Petroleum Bulk Storage, Propane Bulk Storage, Underground Pipelines, Hazardous Manufacturing Processes, Hazardous Materials Waste Disposal Facilities, Poisonous Chemicals, Fire Flows That Exceed First Alarm Assignments, Compressed Gas Storage, Nuclear Power Plants, Military Weaponry, Underground and Overground Utilities **Transportation:** Railroads, Major Highways, Airports or Flyways, Marinas/Waterfront, Freight Terminals, River Barge Traffic **Sociological/Domestic Disturbances:** Civil Disorder, Food Shortage, Telecommunications Failure, Water Shortage, Power Failure, Fuel Shortage, Subversive Activity
Demographic	2A.7	Age, gender, ethnicity/race, educational level, income level, special populations
Key employment centers	2A.7	

Spatial Data Point	CFAI PI/CC	Additional Information
Blighted areas	2A.7	Area(s) with deleterious land use and/or the existence of unsafe structures
Critical Infrastructure	2A.9/2B.6	Agriculture, Public Health, Environmental (Water Treatment), Energy, Banking and Finance, National Monuments and Icons, Defense Industrial Base
Fire protection and detection Systems	2B.5/2C.3	Structures with known fire protection and detection systems
Layering of risk assessments	2B.7	
Growth and development trends	2D.3	Area(s) projected to grow and/or change over the near term, e.g. due to proposed changes in local zoning practices
New or changing risk	2D.3	Development that could affect risk, e.g. proposed hazardous materials processing facility
Occupancies inspected	5A.5	Location of all occupancies requiring inspection
Public education deliveries	5B.1	Education/outreach deliveries to audiences such as: Elementary school students Middle or junior high school students High school students Older adults
High risk audiences	5B.3	
Fire Stations/Buildings	6B.2	Fire Stations, Fire Administrative Offices, Training Facilities, Communications Center, Logistics and Supply Center
Water supply sources	9A.4/9A.5	Including hydrant locations

Numerical data may take the form of a number, date, time, or dollar amount. Listed in the table below are the various numerical data points referenced in the CFAI 10th edition accreditation model. The related performance indicator (PI) or core competency (CC) is noted for each data point. Additional information is provided where applicable to further define the numerical data point. Performance data charts information is defined in greater detail on page 9.

Numerical Data Point	CFAI PI/CC	Additional Information
Property Loss	2A.5/2B.3	Number of properties lost and dollar value of property loss due to emergency incidents (3 years for new agencies, 5 years for accredited agencies)
Life Loss	2A.5/2B.3	Number of lives lost due to emergency incidents (3 years for new agencies, 5 years for accredited agencies)
Injuries	2A.5/2B.3	Number of injuries due to emergency incidents (3 years for new agencies, 5 years for accredited agencies)
Environmental Loss	2A.5/2B.3	Information on loss to agency geography (3 years for new agencies, 5 years for accredited agencies) e.g. acres of park burned during wildland fire or waterway contamination due to hazardous materials emergency
Human assets preserved/saved	2A.5/2B.3	Number of lives saved by the agency's emergency mitigation efforts (3 years for new agencies, 5 years for accredited agencies)
Physical assets preserved/saved	2A.5/2B.3	Number of properties saved, and dollar value of properties saved by the agency's emergency mitigation efforts (3 years for new agencies, 5 years for accredited agencies)
Assessed values	2A.7	
Emergency service demands	2B.2	Urgent response where emergency equipment is used by responding unit (i.e. lights and sirens) Agency to provide number/types of incidents for total response area and by planning zone
Non-Emergency service demands	2B.2	Non-urgent response where emergency equipment is used by responding unit Agency to provide number/types of incidents for total response area and by planning zone
First Due	2C.4	Number of personnel/apparatus responding to a particular incident as first due (distribution)
Effective Response Force	2C.4	Number of personnel/apparatus responding to a particular incident as effective response force based on agency's own critical task analysis for each risk class and category (concentration)
Program Outcomes	2C.6	Quantitative outcomes for each Category 5 Program conducted by the agency
Call Processing Time	Numerous	See page 8
Turnout Time	Numerous	See page 8
Travel Time	Numerous	See page 8
Total Response Time	Numerous	See page 8
Performance Gaps	2D.6	Numeric difference between benchmark target and actual baseline performance

Numerical Data Point	CFAI PI/CC	Additional Information
Occupancies inspected	5A.5	Number of occupancies required to be inspected annually Number of occupancies inspected annually Annual numeric difference between occupancies required to be inspected and actually inspected.
Adopted loss reduction goals	5A.6	
Public education contacts	5B.1	Public education interactions with such audiences as: Elementary school students Middle or junior high school students High school students Older adults
Apparatus inspection and testing	6D.5	Inspection and/or testing dates for tracking compliance
Tools, supplies, and small equipment inspection and testing	6E.3	Inspection and/or testing dates for tracking compliance
Tools, supplies, and small equipment inventory control	6E.3	Inventory count
Safety equipment inspection and testing	6F.4	Inspection and/or testing dates for tracking compliance
Safety equipment inventory control	6F.5	Inventory count

Numerical Data Point	CFAI PI/CC	Additional Information
Training equipment and resources inventory control	8C.6	Inventory count
Use of Human Resources	7D	Time individuals/crews spent responding to/conducting: Fire emergencies EMS emergencies All other emergencies Training Code enforcement Public education Apparatus/equipment maintenance Building/grounds maintenance Special projects Ready/standby time
Training Hours	8B.1/8B.5	Total training hours per individual per year as well as training hours for: Classroom/lecture Videos Online training Simulators Outdoor dry drills Outdoor wet drills Multi-company drills With mutual/automatic aid companies
Hydrant Information	9A.4	# of hydrants # of public hydrants # of private hydrants # of hydrants utilized in an emergency response % of hydrants flowing less than 500 gpm, between 500 gpm/1000 gpm, between 1000 gpm/2000 gpm, between 2000 gpm/3000 gpm, above 3000 gpm # of hydrants serviced/inspected by suppression crews # of hydrants referred for maintenance

Agencies are required to compile and provide a separate performance data chart (shown on page 10) for each risk category and risk classification. Standards address minimum performance times based on current research to ensure the best outcomes for your community. Noted below are some points to further clarify the data to be collected in the performance data chart.

- This information is required to be provided at the time of seeking initial accreditation or reaccreditation and to be maintained and presented during each annual compliance report submittal. The performance data for a given year should be populated in the column for that year. The five-year aggregate column (all five years) should include all performance data for that five-year period at the 90th percentile.
- **Risk categories** is to be developed by the agency based on CC 2B.1 with examples including such categorization as low, moderate, high, and maximum. Section 3, Phase 1 of the Quality Improvement for the Fire and Emergency Services book explains in detail how to categorize risk.
- **Risk classification** refers to the emergency response service being provided, i.e., fire suppression, EMS, technical rescue, hazardous materials, aviation rescue and firefighting services, marine and shipboard rescue and firefighting services, wildland fire services, any "other programs" that include an emergency response component.
- Total response time is made up of three key components: alarm handling time, turnout time, and travel time.
- All such times are to be measured in hh:mm:ss.
- Agencies are required to report all six-time measures (**alarm handling, turnout (1st unit), travel (1st unit), travel (effective response force), total response (1st unit), and total response (effective response force)**) distinctly for every emergency incident each year.
    - o Alarm Handling refers to the time from pick-up to dispatch
    - o Turnout Time 1st Unit refers to the turnout time for the first unit to turnout following dispatch
    - o Travel Time 1st Unit refers to the travel time for the first unit to affect the outcome of the emergency incident based on established critical tasking (e.g., ladder or truck for fire incident or any vehicle carrying medical equipment for an EMS incident). It is not necessarily the same as the first dispatched unit, the first unit to turnout, or the first unit on scene.
- Agencies are required to provide the number of events, i.e., the **n-value**, for **total response time (1st unit)** and **total response time (effective response force)**. Agencies are permitted to exclude outlier data only if an established policy for determining and handling outliers has been established. Page 37 of the Quality Improvement for the Fire and Emergency Services book outlines how to develop such a policy.
- Agencies are required to report all times at the 90th percentile; Appendix C of Quality Improvement for the Fire and Emergency Services book provides additional methodologies for calculating the 90th percentile.
- Reporting in the performance data charts can be broken down by two population densities as outlined in the Quality Improvement for the Fire and Emergency Services book:
    - o **Urban** - Census tract/block that contains at least 2,500 people (at least 1,500 of which reside outside institutional group quarters)
    - o **Rural** - Census tract/block with less than 2,500 people

The goal of the performance data charts and specifically the reporting at the 90th percentile is to provide a predictable expectation for service to your community. By tracking such data for 3 years for agencies seeking initial accreditation and for 5 years for agencies seeking reaccreditation, agencies will be able to identify baseline performance and ascertain if they are achieving quality improvement in striving for their benchmark.

(Risk Category) (RiskClass) - 90th Percentile Times - Baseline Performance			2020-2024	2024	2023	2022	2021	2020	Target (Agency Benchmark)
Alarm Handling	Pick-up to Dispatch	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
Turnout Time	Turnout Time 1st Unit	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
Travel Time	Travel Time 1st Unit **Distribution**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
	Travel Time ERF **Concentration**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
			n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
			n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	
	Total Response Time ERF **Concentration**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
			n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	
			n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	

Records, either physical or digital, document an occurrence. Records may include minutes, memos to file, formal reports, or certificates. Listed in the table below are the various records referenced in the CFAI 10th edition accreditation model. The related performance indicator (PI) or core competency (CC) is noted for each record. Records serve as a "paper trail" to allow peer assessment teams to verify and validate an agency's compliance with a given PI or CC. In addition to the record types noted below, an agency may maintain records that support the collection of spatial and numerical data.

Record Type	CFAI PI/CC
Program appraisals	Various
Vulnerability assessment	5D.5
Continuity of Operations Plan	5D.6
Patient care records	5F.5
Personnel compliance with hazmat requirements	5H.2
Exposure records	5H.2
Apparatus/vehicle replacement schedule	6C.2
Tool, supply, small equipment inventory control and maintenance tracking records	6E.4
Safety equipment maintenance, testing, and inspection records	6F.5
Recruitment and selection screening/qualifying devices	7B.3
Steps taken to address identified workplace hazards	11A.3
Near miss reporting	11A.6
Accidents, injuries, legal actions documentation	11A.7
Initial, regular, and rehabilitative medical and fitness evaluations	11B.1
Individual and crew performance-based measurements	8B.3
Training records	8B.5
Training equipment inventory	8C.6
Communication systems interoperability evaluation	9B.9
External agency (mutual aid partners, automatic aid partners, contracted services) agreements	10B.1
Steps taken to address identified workplace hazards	11A.3
Near miss reporting	11A.6
Accidents, injuries, legal actions documentation	11A.7
Initial, regular, and rehabilitative medical and fitness evaluations	11B.1

Policies, which may also be referred to as processes, rules, or guidelines, outline how a task or activity should be conducted. Listed in the table below are the various policies referenced in the CFAI 10ᵗʰ edition accreditation model. The related performance indicator (PI) or core competency (CC) is noted for each policy.

Policy Type	CFAI PI/CC
Governing board conflict of interest	1A.6
Annual budget development	4A.1
Comprehensive internal control framework	4B.2
Risk management	4B.6
Financial support externally	4B.7
Grant management	4B.9
Scene processing, evidence collection, and information sharing for fire investigations	5C.4
Domestic preparedness resource need recording process	5D.4
Fire suppression	5E.2
EMS standing orders/protocols	5F.2
Health Insurance Portability and Accountability Act (HIPAA) or Freedom of Information and Protection of Privacy (FOIP) compliance	5F.5
Human resources administration	7A.3
Recruitment and selection processes	7B.3
Personnel	7C.1
Harassment Prevention	7C.2
Disciplinary system	7C.3
Ethics and conflict of interest	7C.4
Grievance/complaint procedure	7C.5
Position classification system audit process	7D.1
Job descriptions	7D.2
Personnel appraisal system	7D.3
Rates of pay	7E.1
Member benefits	7E.2
Organizational documents (forms, SOPs, SOGs, manuals)	9C.4
Public record retention and destruction	9C.5

Policy Type	CFAI PI/CC
Technology plan	9D.3
Cybersecurity policy	9D.4
Conflict resolution process	10A.4
Workplace hazards reporting, evaluation, addressing, and communication	11A.2
Workplace hazard risk reduction	11A.3
Occupational exposure	11A.4
Occupational health and safety training program	11A.5
Accident/Injury investigation process	11A.7
Deployment of the safety officer	11A.11
Scene accountability	11A.12
Critical incident stress debriefing	11B.4