UFF Position Statement:

Fire Department Operational Performance Measures

Data driven decision making is key in today's fire service. Given the potential impact and the need for quality data to inform these decisions, the Urban Fire Forum and the Metropolitan Fire Chiefs support and promote a dynamic series of operational performance measures. These measures are intended to assess department's response availability, optimize its capability to arrive and mitigate an incident, and evaluate effectiveness of on-scene operational performance. Leaders must seek optimal performance in every deployment thereby leading to positive outcomes for firefighters, civilians, and any property involved.

Performance measures can be used to learn, improve, and optimize fire department operations. Performance measures can also be used to establish benchmarks for a department's performance, provide comparative metrics for other departments and identify and promote best practices.

Performance measures may be deemed core or developmental. Measures are deemed core if a guideline or standard exists for that indicator, otherwise the measures are deemed to be developmental. As more data becomes available for a developmental measure, standards can be established making it a core metric. Additionally, new indicators and measures may be added as data are available for collection.

Need for Operational Performance Measures in Fire Departments

Performance measures are necessary to (1) allow departments to determine a baseline performance level according to the indicators; (2) establish goals based on current performance; (3) determine the gap between desired goals and current performance levels (i.e., where we are v. where we want to be); (4) track progress toward achieving goals; (5) benchmark and compare performance between departments; (6) identify problems and causes; and, (7) plan for the future. Once fire departments can be measured according to the same indicators, standards based on best practices can be more easily established.

Implications of Performance Measurement in Fire Departments

Fire department performance should be measured according to indicators of quality and effectiveness that are established for the emergency response system. Measuring fire department performance using appropriate indicators is expected to (1) provide continuous measurement of quality in the system; (2) identify areas of excellence; (3) highlight sentinel events; (4) verify effectiveness of a corrective action; (5) allow comparison of the department to established operational standards; and, (6) contribute to establishing new standards for performance.

Fire Department performance measures are necessary to guide policy makers in critical decisions regarding system deployment and to safeguard against poor quality operations. Valid and reliable measures are needed to assist fire service leaders to ensure availability and capability of response, efficient and effective use of resources, and quality operations.

Fire Suppression and EMS Performance Measures

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Alarm Processing	The time interval from when the alarm is acknowledged at the communication center until response information begins to be transmitted via voice or electronic means to emergency response facilities (ERFs) and emergency response units (ERUs).	Communication and dispatch components play a role in the efficiency and overall system deployment and response. Therefore, the communications component must be measured to assess the quality of its individual operations.	NFPA 1221 NFPA 1710	Process	Core[1]	90% of calls processed in not more than 64 seconds, or 95% of calls processed in not more than 106 seconds	Percentage of all fire, rescue, and EMS calls processed by the agency actually dispatching the responding unit 64 seconds or less.	CAD, Dispatch Log, recorded communication archives, Dispatch administrator.

---

[1] Measures are deemed core if a guideline or standard exists for that indicator, otherwise the measures are deemed to be developmental.

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Turnout Time	The time interval that begins when the emergency response facilities (ERFs) and emergency response units (ERUs) notification process begins by either an audible alarm, visual annunciation or both and ends at the beginning point of travel time.	The time from alert to wheels turning provides an indication of the state of readiness of personnel. Minimizing this time is crucial to an immediate response.	NFPA 1710	Process	Core	90% of all fire and special operations responses turned out in less than 80 seconds. 90% of all EMS responses turned out in 60 seconds.	Percentage of all fire, responses turned out in 80 seconds or less? Percentage of rescue and EMS responses turned out in 60 seconds or less?	CAD, RMS, MDT, Dispatch logs, Response Unit Station log, Recorded Communication Archives, Response reports.

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Travel Time	The time interval that begins when a unit is en route to the emergency incident and ends when the unit arrives at the scene.	This measurement is indicative of the system's capability to adequately staff, locate, and deploy response resources. It is also indicative of responding personnel's knowledge of the area or dispatcher instruction for efficient travel.	NFPA 1710	Process	Core	a. First responding company with minimum of 4 persons = 90% of the time in 4 minutes. b. Full alarm effective response force assembled on scene for EMS, low and medium hazard structure fires = 90% of the time in 8 minutes. c. Full alarm effective response force assembled on scene for high hazard structures = 90% of the time in 10 minutes 10 seconds.	Percentage of all Fire/EMS responses that achieve first responder engine travel time of 4 minutes or less. Percentage of all low and medium hazard Fire responses that achieve full alarm travel time of 8 minutes or less. Percentage of all high hazard Fire responses that achieve full alarm travel time of 10 minutes or less.	CAD, RMS, Dispatch logs, response Unit Station log, Computerized/ Recorded Communications Archive, Call documentation reports.

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Total Response Time	The time interval from the receipt of the alarm at the dispatching agency to when the first emergency response unit is initiating action or intervening to control the incident.	This measurement is indicative of the system's capability to adequately staff, locate, and deploy response resources. This measure is also an indication of crew training and skills proficiency for initial actions.	NFPA 1710	Process	Core	a. First responding company with minimum of 4 persons = 90% of the time in 7 minutes.[2] b. Full alarm effective response force assembled on scene for EMS, low and medium hazard structures = 90% of the time in 11 minutes.[3] c. Full alarm effective response force assembled on scene high hazard = 90% of the time in 11 minutes.[4]	Percentage of all Fire/rescue responses that achieve first responding engine travel time of 4 minutes 0 seconds or less. Percentage of all fire responses that achieve full alarm assignment effective response force assembly in 8 minutes 0 seconds or less.	CAD, RMS, Dispatch logs, response Unit Station log, Computerized/ Recorded Communications Archive, Call documentation reports.

---

[2] Includes alarm processing (60 sec), turnout time (60 sec), travel time (4 min) and intervention time estimate (60 sec) = 7 min
[3] Includes alarm processing (60 sec), turnout time (60 sec), travel time (8 min) and intervention time estimate (60 sec) = 11 min
[4] Includes alarm processing (60 sec), turnout time (60 sec), travel time (10 min) and intervention time estimate (60 sec) = 13 min

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Fire Company Staffing	Number of on-duty fire suppression members sufficient to perform necessary fire-fighting operations given the expected conditions. Operating fire companies shall be staffed with a minimum of 4 on-duty members. High number of incidents / geographical restrictions= minimum of 5 on-duty Tactical hazards /dense urban area = 6 minimum on-duty	Properly matching resources to the risk environment into which firefighters respond makes the department less vulnerable to firefighter injury/death, civilian injury/death, and property loss.	NFPA 1710	Process	Core	Company Staffing = minimum 4 on duty High volume/geographic restrictions = minimum 5 on duty Tactical hazards dense urban area = minimum 6 on duty	**Initial Measure** Percentage of responses that receive an initial responding company staffed with a minimum of 4 firefighters.	Standard Operating Procedures, Departmental Policy, Staffing Records.

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Initial Full Alarm ------------- **Effective Response Force**	Those personnel, equipment, and resources ordinarily dispatched upon notification of a structure fire.	Properly matching resources to the risk environment into which firefighters respond makes the department less vulnerable to firefighter injury/death, civilian injury/death, and property loss.	NFPA 1710	Structure	Core	Low hazard = 15 firefighters Medium hazard = 28 firefighters[5] High hazard = 43 firefighters[6]	Percentage of structure fire responses in which initial full alarm assignment for low and medium hazard responses was assembled on scene within 8 minutes. Percentage of structure fire responses in which initial full alarm assignment for high hazard responses was assembled on scene within 10min/10 sec.	CAD, Dispatch log, recorded communication archives, Dispatch administrator, Call log, response time data.

---

[5] 26 fire fighters if the department does not provide EMS patient transport
[6] 39 fire fighters if the department does not provide EMS patient transport

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Water on Fire Time	Time of first water on fire	Indication of timely on scene intervention to reduce risk escalation This measure is also an indication of crew training and skills proficiency for initial actions to reduce risk escalation and stop the emergency.	None	Outcome	Developmental[7]	TBD	**Water on fire time for 90% of fire responses.**	CAD, Recorded communication archives, incident command log
Primary Search Complete Time	Time of completion of the initial coordinated and systematic process of locating and removing a victim or victims, from a structure or other defined area.	Indication of timely on scene intervention to reduce risk to trapped occupants.	None	Process	Developmental	TBD	**Primary search complete time for 90% of fire responses.**	Recorded communication archives, incident command log

---

[7] Measures are deemed core if a guideline or standard exists for that indicator, otherwise the measures are deemed to be developmental.

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
BLS arrival on Scene	A specific level of prehospital medical care provided by trained responders, focused on rapidly evaluating a patient's condition; maintaining a patient's airway, breathing, and circulation; controlling external bleeding; preventing shock; and preventing further injury or disability by immobilizing potential spinal or other bone fractures.	Indication of appropriate deployment of BLS resources	NFPA 1710	Process	Core	240 seconds or less travel time for the arrival of a unit with A first responder with automatic external defibrillator (AED) or higher-level capability at an emergency medical incident	**Percentage of EMS responses with BLS arrival in 4 minutes or less**	CAD, RMS, ePCRs,

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
ALS arrival on Scene	Emergency medical treatment beyond basic life support that provides for advanced airway management including intubation, advanced cardiac monitoring, defibrillation, establishment and maintenance of intravenous access, and drug therapy.	Indication of appropriate deployment of ALS resources	NFPA 1710	Process	Core	480 seconds or less travel time for the arrival of an advanced life support (ALS) unit at an emergency medical incident. [8]	Percentage of EMS responses with ALS arrival in 8 minutes or less	CAD, RMS, ePCRs,

---

[8] *Provided that a first responder with AED or basic life support (BLS) unit arrived in 240 seconds or less travel time

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
At Patient Side	Time of first patient (victim) contact	Indication of timely on scene intervention to reduce risk escalation This measure is also an indication of crew training and skills proficiency for initial actions to reduce risk escalation and stop the emergency.	None	Outcome	Developmental[9]	TBD	**At Patient Side time for 90% of fire responses.**	CAD, Recorded communication archives, incident command log
Time on Assignment	Total time unit(s) is engaged on an incident from time of dispatch to the time available for another response.	As system demand increases, the availability of units decreases and the travel time for available units increases. Assessing and highlighting trends in time of unit engagement will provide indicators related to locating and/or adding resources within the system	None	Structural	Developmental	Maintain minimum of 25% of frontline fleet availability 85% of the time[10]	Percentage of the time are response units are engaged in a given period	CAD data

---

[9] Measures are deemed core if a guideline or standard exists for that indicator, otherwise the measures are deemed to be developmental.

[10] *Calculated on 24-hour basis—reported weekly/monthly/quarterly/annually

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Back-to-Back Responses	The dispatch of a unit within 10 minutes or becoming available	As demand on a system increases, the number and frequency of back-to-back incidents likely increases. Accounting for these increases in back-to-back responses will provide guidance related to locating and/or adding resources within the system	None	Structural	Developmental	TBD	Percentage of incidents assigned to a responding unit within 10 minutes of becoming available in a given time period	CAD data

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Count of Incidents per hour	The total number of emergency events to which apparatus are assigned within any one-hour time interval. These incidents are measured in one-hour intervals though the total time assigned to a particular incident may be shorter or longer than a single hour	An accurate assessment of demand must include more than total alarms counting and instead focus on the continuous nature of time. To make decisions related to the depth of demand, department administrators should be able to determine the frequency of incidents per hour. Assessing demand per hour indicates not only where requests from service are occurring, but also what specific resources are responding to the request, per hour of the day.	None	Structural	Developmental	TBD	Count of incidents per hour	CAD data

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Incidents Location Per Hour	The location of emergency events to which apparatus are assigned within any one-hour time interval. These incidents are measured in one-hour intervals though the total time assigned to a particular incident may be shorter or longer than a single hour	An accurate assessment of demand must include more than alarm counting and instead focus on the continuous nature of time. To make decisions related to the depth of demand, department administrators should be able to determine the location of incidents per hour. Assessing demand per hour indicates not only where requests from service are occurring, but also what specific resources are responding to the request. This metric captures the geographical distribution of events by hour of the day.	None	Structural	Developmental	TBD	Geographic location or first due response area where incidents occur per hour	CAD data

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Count of Cover Incidents	Refers to the number of emergencies to which fire department mobile and personnel resources are dispatched to intervene and mitigate an emergent situation <u>outside</u> their first-due area. A cover incident is typically a result of the first-due personnel and apparatus being engaged on another emergency at the same time. In a back-up or cover incident, one or more apparatus may be required to respond from further away to intervene and mitigate the emergency.	Conceptually, a unit is considered busy based on the total volume of calls. However, there is little discussion related to the portion of a unit's volume that was assigned because the primary unit in a designated geographic first due area was unavailable. This metric is used to examine how many incidents occurred that could not be addressed by a primary response unit.	None	Structural	Developmental	TBD	Number of cover incidents in a given time period	CAD data

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Location of Cover Incidents	Refers to the location to which fire department mobile and personnel resources are dispatched to intervene and mitigate an emergent situation outside their first-due area. A cover incident is typically a result of the first-due personnel and apparatus being engaged on another emergency at the same time. In a back-up or cover incident, one or more apparatus may be required to respond from further away to intervene and mitigate the emergency.	Conceptually, a unit is considered busy based on the total volume of calls. However, there is little discussion related to where the unit was actually responding to the requests. This metric is used to examine where incidents occurred that could not be addressed by a primary response unit.	None	Structural	Developmental	A unit should be able to handle 85% of calls in its primary response area.	Geographic location or first due response area where cover incidents occur per hour	CAD data

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Travel Time in Relation to Number of Units Engaged	The time period from en route to on scene for individual units when multiple units are engaged on different incidents	As demand increases so does the travel time from other units that must travel from further away from their respective first due areas to meet demand. Understanding the change in response times helps administrators better allocate resources to meet demand.	None	Process	Developmental	TBD	Overall Department travel time [response time] change with increased demand	CAD data

Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Established Standard	Measure Type	Measure Status	Performance Goal	Performance Measure	Data Element Source
Duration of Time First Responding Apparatus are on the Scene Before a Transport Unit Arrives	The length of time between first response apparatus on scene and arrival of transport ambulance on scene	Long wait periods reduce availability of first response units and indicate insufficient resources and/or insufficient resource allocation. Contracted ambulance services frequently maintain their own dispatch system allowing little control by fire department to assess resources deployed. Tracking on scene arrival times of contracted ambulance services enhances transparency.	NFPA 1710	Process	Core	An ambulance on the scene within 8 minutes or less 90% of the time.	Time period between the first arriving unit on the scene and the arrival of a transport unit [ambulance].	CAD