AAIS FLAMES

Fire Loss Assignment & Mitigation Evaluation Score

FLAMES Mitigation Evaluation Score

Guidance Document

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FLAMES Overview

FLAMES (Fire Loss Assignment & Mitigation Evaluation Score) is a new, modern, and meaningful evaluation score that insurers across the country will use to evaluate local fire protection and risk mitigation outcomes. There are two parts of the FLAMES score: the Fire Loss Assignment portion and the Mitigation Evaluation Score portion.

AAIS has calculated a Fire Loss Assignment for every ZIP code in the country using standard insurance industry modeling techniques. This score predicts the anticipated frequency and severity of fire losses in each ZIP code. Each ZIP code in the country will be assigned a Fire Loss Assignment regardless of whether that community chooses to participate in the FLAMES Mitigation Evaluation Score. These assignments are actuarially considered a debit, meaning the best assignments, a '1', will result in no impact, and worse assignments, up to '10', will likely result in higher premiums, which will be described in more detail below.

The second part of FLAMES is the Mitigation Evaluation Score. This part measures the effectiveness of mitigation, prevention, and Community Risk Reduction (CRR) efforts at the local level. The Mitigation Evaluation Score portion of the score is actuarially considered a credit and can potentially reduce the amount of premiums residents pay. While it is optional whether a community or fire department chooses to participate in the Mitigation Evaluation Score, doing so is anticipated to positively impact its community by improving the cumulative score.

This document provides detailed information about the FLAMES Mitigation Evaluation Score. It is intended for fire department personnel, state fire marshal leaders, emergency management practitioners, and local officials to understand how the FLAMES Mitigation Evaluation Score works, how the data is collected and analyzed, and how each community can use this score to inform and enhance local mitigation efforts. It will also provide a brief overview of the role of insurance advisory organizations, like AAIS, and will discuss how insurance ratings like this one can be used by insurance carriers to determine premiums. This document will outline the various topics, risks, and perils that are covered by the Key Performance Indicators (KPIs) used to determine the Mitigation Evaluation Score. However, the specific text of each question is not included in this document. For the full list of KPIs, please reference the *FLAMES Mitigation Evaluation Score Key Performance Indicators (KPIs) List* document or the FLAMES Mitigation Evaluation Score data portal at FLAMES.AAISdirect.com.

AAIS Background and the Role of Insurance Advisory Organizations

History of AAIS

The American Association of Insurance Services (AAIS) was established in 1936 and serves as the only national, not-for-profit, and membership-based insurance advisory organization. Today, AAIS develops model insurance programs and policy materials for carriers to comply with ever-changing legislation and address emerging issues and risks.

Rating public fire protection has been a key feature of the role of insurance advisory organizations for generations. AAIS has had a lesser-known rating methodology for public fire protection for decades. Substantial feedback from both the insurance industry and fire service supports the need for a more modern approach. FLAMES offers a solution by reimagining how the insurance industry rates public fire protection.

Regulatory Oversight and Approvals

The insurance industry is heavily regulated. These regulations ensure that carriers remain financially solvent to pay future losses and obligations, maintain proper ethics, and prevent carriers from using discriminatory actions or practices. Most importantly, these regulations protect consumers from excessive rates and unfair practices.

Insurance Commissioners and Departments of Insurance

Each state (and the District of Columbia and Puerto Rico) has an insurance commissioner and department of insurance that oversees and regulates the insurance marketplace within their respective jurisdiction. There is a Federal Insurance Office, but for all intents and purposes, insurance remains regulated and approved at the state level. In many states, the insurance commissioner and department of insurance may have different official titles, and their offices may have different names; for this document, all persons who perform the role of an insurance commissioner as such are referred to as “Commissioner,” and the entity that they manage as the Department of Insurance, or simply “DOI” throughout this document.

Filed Products and Services

All insurance policy language, rating algorithms used to determine how much an individual risk is charged in premium, catastrophic risk models used to estimate the impact of various types of natural disasters, and fire protection ratings such as FLAMES must be submitted to and approved by each respective state’s DOI before they can legally be used or sold within that state. As noted above, the DOI then reviews the filings and ensures that the proposed insurance products comply with that state’s laws, regulations, and requirements. The filings are also reviewed actuarially to ensure the

proposed rates (premium to be collected) are reasonable and not excessive, inadequate, or unfairly discriminatory.

National Association of Insurance Commissioners (NAIC)

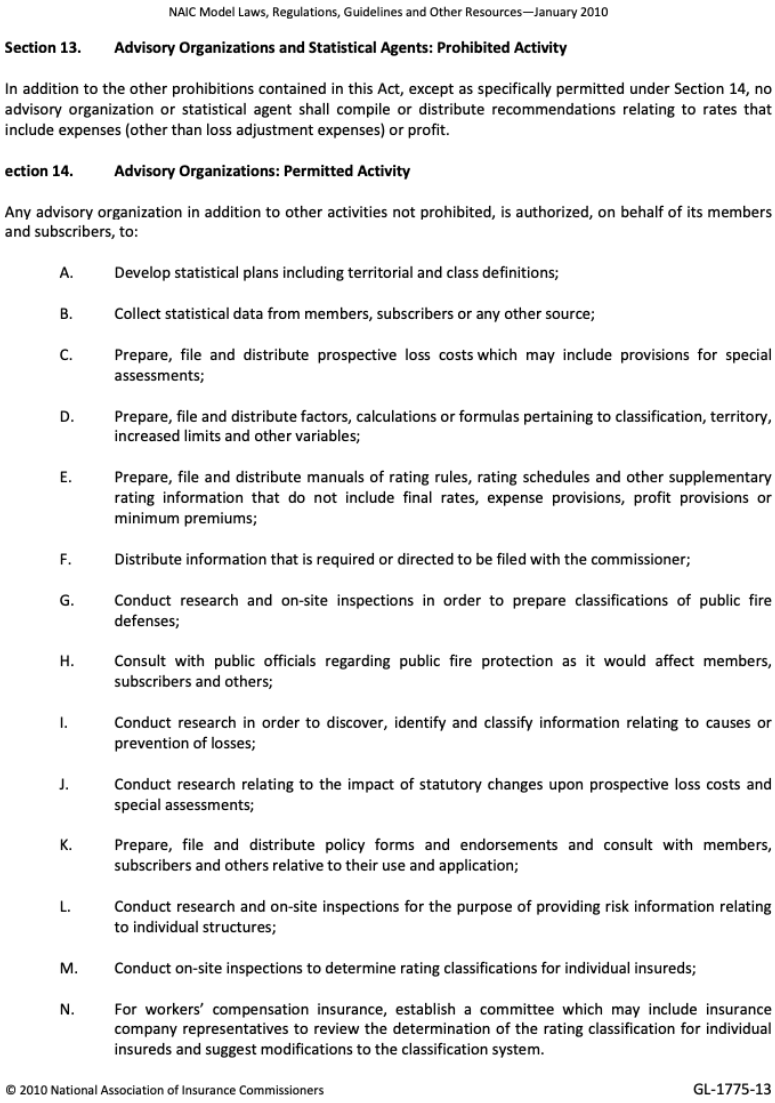
The National Association of Insurance Commissioners (NAIC) is an organization that is comprised of the Insurance Commissioners from across the country and is intended to be a forum for addressing shared experiences, practices, and challenges. Where appropriate and feasible, the NAIC also helps coordinate and facilitate consistent and standardized approaches for managing specific processes and practices. This mission can be traced back to its original founding as the National Convention of Insurance Commissioners in New York in 1871:

> *First, the delegates decided that there were benefits arising from agreements related to the discretionary powers of the commissioners. Specifically noted in this area were agreements related to terms and nomenclature. The second area was legislation. The convention observed that, while it could not enact laws, that it could influence them. (NAIC.org/150-timeline)*

This role of bringing the various insurance commissioners and their staff together to collectively solve and learn from one another continues today. One area where the NAIC has impacted the fire service is the creation of the NAIC Model Law - Property & Casualty Model Rating Law (GL-1775).

Model Law for Advisory Organizations

One of the key benefits of the model law is that it outlines the responsibilities and functions of insurance advisory organizations, such as AAIS and others. Moreover, the model law clarifies the limitations and requirements that allow advisory organizations to collect and consolidate data and information from many otherwise competitive enterprises that might otherwise give rise to antitrust concerns. The insurance industry needs to consolidate data and information from across all carriers to help ensure carriers collect sufficient premium to pay out expected losses. Looking at one company's previous losses alone is likely insufficient to predict future losses in each area or in each line of business. Advisory organizations exist as an independent entity that consolidates, analyzes, and publishes this consolidated information providing carriers information to determine whether sufficient premium is available to cover expected losses. Without such information, the entire market could collapse.



NAIC Model Laws, Regulations, Guidelines and Other Resources—January 2010

Section 13. Advisory Organizations and Statistical Agents: Prohibited Activity

In addition to the other prohibitions contained in this Act, except as specifically permitted under Section 14, no advisory organization or statistical agent shall compile or distribute recommendations relating to rates that include expenses (other than loss adjustment expenses) or profit.

ection 14. Advisory Organizations: Permitted Activity

Any advisory organization in addition to other activities not prohibited, is authorized, on behalf of its members and subscribers, to:

A. Develop statistical plans including territorial and class definitions;

B. Collect statistical data from members, subscribers or any other source;

C. Prepare, file and distribute prospective loss costs which may include provisions for special assessments;

D. Prepare, file and distribute factors, calculations or formulas pertaining to classification, territory, increased limits and other variables;

E. Prepare, file and distribute manuals of rating rules, rating schedules and other supplementary rating information that do not include final rates, expense provisions, profit provisions or minimum premiums;

F. Distribute information that is required or directed to be filed with the commissioner;

G. Conduct research and on-site inspections in order to prepare classifications of public fire defenses;

H. Consult with public officials regarding public fire protection as it would affect members, subscribers and others;

I. Conduct research in order to discover, identify and classify information relating to causes or prevention of losses;

J. Conduct research relating to the impact of statutory changes upon prospective loss costs and special assessments;

K. Prepare, file and distribute policy forms and endorsements and consult with members, subscribers and others relative to their use and application;

L. Conduct research and on-site inspections for the purpose of providing risk information relating to individual structures;

M. Conduct on-site inspections to determine rating classifications for individual insureds;

N. For workers' compensation insurance, establish a committee which may include insurance company representatives to review the determination of the rating classification for individual insureds and suggest modifications to the classification system.

 GL-1775-13

Figure 1: NAIC Model Law

In addition to consolidating and analyzing data from insurance companies, the Model Law also explicitly states that advisory organizations shall evaluate and rate local fire protection resources and capabilities. These ratings are intended to ensure that insurance carriers take sufficient premium for expected losses. This is based on the idea that the better the fire department is, the lower the expected fire losses are likely to be.

Actuarial Ethics and Best Practices

The history of the financial services industry (which includes both banks and insurance, among others) is stained by historical practices often referred to as 'redlining,' whereby certain neighborhoods and groups of people were excluded from being able to obtain loans, mortgages, and insurance coverage. These practices created barriers for various groups, most commonly African Americans and ethnic minority groups, from being able

to purchase and protect homes and businesses, and the security and wealth that can be accumulated from those investments. As a result of those historical bad acts, the insurance industry has created a series of checks and balances to ensure that insurance coverages and rates are not unfairly discriminatory.

The term ‘unfairly discriminatory’ is important because the very purpose of insurance is to distinguish, or in other words discriminate, between various types of risks to identify risks likely to have higher claims and thus higher premium versus risks likely to have fewer claims and thus lower premium. Figuring out how to fairly and ethically discriminate between higher risks and lower risks in ways that are both mathematically sound and ethically appropriate led to the creation of professional societies such as the Casualty Actuarial Society (CAS) and the American Academy of Actuaries (AAA), which set professional standards, promulgate research on actuarial best practices, and credential actuaries based upon a set of rigorous criteria. In particular, the CAS has developed a set of written Actuarial Standards of Practice (ASOPs) that actuaries are beholden to.

All rating products in the property & casualty industry, such as the FLAMES methodology, should also comply with the ASOPs promulgated by the Actuarial Standards Board (ASB). ASOP No. 12 on Risk Classification (for All Practice Areas) pertains to the development of insurance risk classification methodologies such as FLAMES. So, while there are many existing fire risk models developed by community groups and academics, these cannot be used by insurers unless they have undergone this level of scrutiny and approval.

Research-Informed Paradigm Shift from Response to Mitigation

The insurance industry has placed renewed focus on the concept of mitigation and loss control practices. Catastrophic insurance losses like hurricanes and wildfires are only the most visible evidence that simply focusing on taking on enough premium to cover losses is not enough in our modern climate. That same realization—the need for more proactive effort to prevent and mitigate losses of all types—is more important than ever. This same realization has been underway in the fire service as well. In the fire service, that paradigm shift is known as Community Risk Reduction (CRR).

UL – Fire Safety Research Institute

A growing body of research has highlighted the changing nature of modern fires. UL (formerly known as Underwriters Laboratories) has conducted a series of studies that have highlighted how changes in the built environment, architectural styles, and interior furnishings have all contributed to fires that more rapidly transition to flashover and more rapidly result in structural failures. With the decrease in times to flashover, less

containment from open-floor-plan homes, and homes furnished with large volumes of synthetic materials that have higher heat release rates, the time available for a fire department to arrive on scene and interrupt a small fire before it transitions to a total loss has shrunk.

Figure 2: UL FSRI Illustration of changing fire environment

To put it bluntly, if a fire breaks out in a modern home the fire department typically cannot drive fast enough to prevent significant economic losses to the property owner, the community, and the insurance company. So, another way to interpret this research is that the historical insurance practice of measuring the distance of specific properties from fire stations and water supplies, while providing important insights, is no longer sufficient to predict or estimate fire losses.

Moreover, research has shown that when fire departments and other affiliated organizations engage in focused, coordinated, and sustained community risk reduction (mitigation) activities, there is a significant and persistent reduction in fire losses. This has been demonstrated in three countries: England, Canada, and the United States.

England

In England, all fire services were required to begin conducting Home Fire Safety Visits in the highest fire risk homes as part of legislation in 2004. As a result of fire services and other partner agencies conducted large numbers of Home Fire Safety Visits across the country. As a result there was over a 50% drop in the total number of fires across

the whole country in the ten years after that legislation.[1] Some areas, including Merseyside (which includes Liverpool), saw reductions of 70% in fires across their service area when the fire department expanded their engagement with people in their homes and neighborhoods about how to reduce common fire risks.[2]

The graph below, using data from the British Home Office, highlights the substantial reduction in the total number of fires across the country, as well as the substantial number of home fire safety visits conducted across the country that corresponded with the significant reduction in fires countrywide.

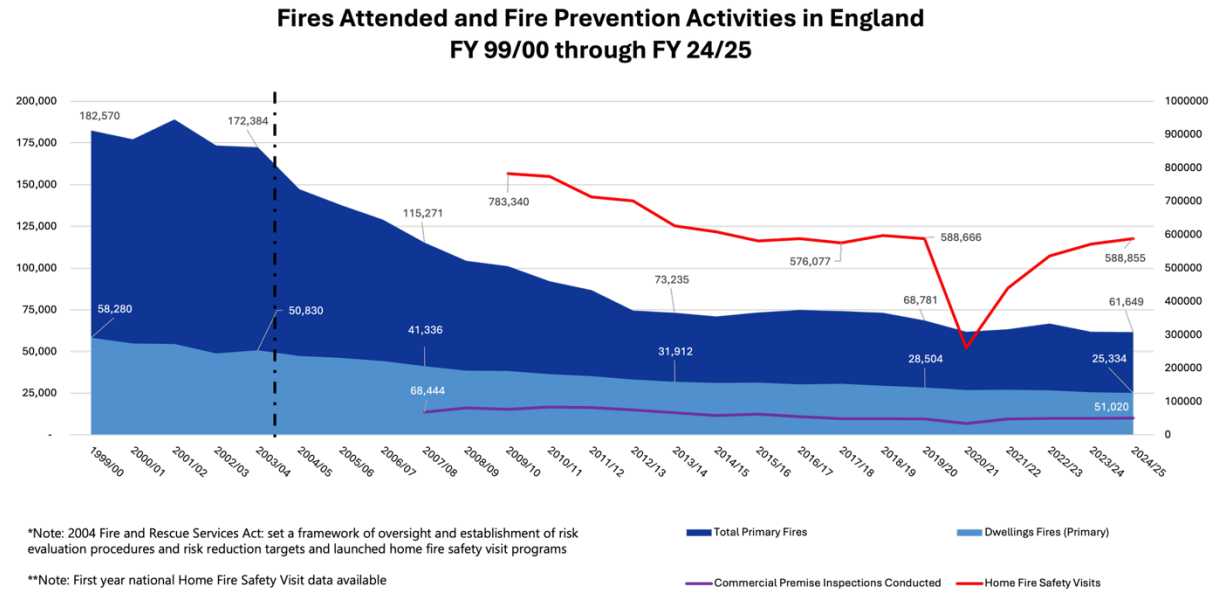


Figure 3: British Home Office Statistics on Fires and Home Fire Safety Visits

Canada

In Surrey, British Columbia, officials implemented a similar program of home fire safety visits where they visited 121,000 homes over a 12-year period and saw an 80% decrease in fires across the city.[3] And of the fires that did occur, 94% were confined to the object of origin, meaning the severity of the fire losses was greatly reduced as well.

[1] In FY2003/04, there were 172,384 primary fires across the whole of England, and by FY2013/14, there were only 73,235 primary fires, a 57.5% decrease. Primary fires dropped further to 61,649 by FY2024/25, a 64.2% decrease from the time the original legislation was put in place. Specifically for primary dwelling fires, there were 50,830 in FY2003/04, 31,912 in FY2013/14, and 25,334 by FY2024/25. This represents a 50.1% decrease since the legislation was put in place. Note: "FY" here represents the Fiscal Year, which in the UK runs from April 6th to April 5th of following year and is denoted by the British nomenclature of YYYY/YY.

[2] Waring, S., Fielding, J., & Thomas, M., (2024) Examining the effectiveness and economic benefits of home fire safety visits. Journal of Risk Research, 27 (11): 1341-1357.

[3] Thomas, L., Garis, L., Morris, S., & Biantoro, C. (2020) Journey of HomeSafe: Community Risk Reduction in Surrey – Analyses from Surrey Historical Data, Centre for Public Safety & Criminal Justice Research, University of the Fraser Valley.

United States

Here in the U.S., the American Red Cross and the Kankakee Fire Department in Illinois partnered to saturate the city with smoke alarms through focused home fire safety visits. They visited 3,300 homes and installed approximately 10,000 smoke alarms. According to program evaluation research conducted by NORC,[4] homes that did not receive a home visit and smoke alarm installation experienced a rate of fires that was 73% higher than homes that did participate in the home safety visit program. The fire loss estimates from the fire department data were two times greater for homes that did not participate in a home visit.

The best fire outcome is the one that doesn't occur. The evidence is clear: communities that engage in meaningful mitigation programs see significant reductions in both the frequency and severity of fires. By changing the focus of insurance ratings of public fire protection from predominantly measuring suppression resources and capabilities to measuring community risk reduction and other mitigation activities, this methodology will provide an important incentive for communities to engage in meaningful efforts to reduce the likelihood and severity of fires and other emergencies in their communities.

What has been missing in the United States is a meaningful and robust incentive to drive more fire departments and communities to embrace and invest in coordinated and sustained CRR efforts. AAIS's FLAMES Mitigation Evaluation Score provides such an incentive to encourage communities to make a wholesale investment in CRR and meaningful mitigation activities to prevent and minimize losses, rather than simply responding quickly once a loss has already begun.

Key Performance Indicators of Local Mitigation Activities

The FLAMES Mitigation Evaluation Score methodology is based upon a series of Key Performance Indicators (KPIs) intended to evaluate local risk mitigation activities. In total, there are currently 352 KPIs that comprise the FLAMES Mitigation Evaluation Score methodology. However, the methodology is intended to evaluate only the most relevant risks and mitigation activities in each community. Each community is only going to see the most appropriate and relevant KPI questions and will not see or be asked the KPIs that are not applicable.

Ensuring KPIs Relate to Specific Risks in a Community

The key feature of the FLAMES Mitigation Evaluation Score methodology is the recognition that since communities have and experience different types of risks, the questions each community will be asked will differ so that communities are only

[4] Heffeman, M., Gelfand, K., & Hallman, V. (2020) Case Study: Home Fire Prevention Program – Kankakee, IL.

answering questions that are relevant to their community. This does not mean that there are lower standards, or conversely higher standards, in some communities compared to others. Rather, it simply means the specific questions are tailored to the risks determined to be relevant in each community, and questions determined not to be as relevant will not be asked. Each community will be asked and can answer the same number of KPI questions and thus will have the opportunity to gain the same number of total points.

How the KPIs Were Developed

These KPIs were developed with extensive input and feedback from subject matter experts across the industry and those with specific expertise in the individual topics. This input and feedback were gathered over the course of multiple years and through various mediums. The KPIs were also publicized and opened for public comment through a series of public feedback forms that were each open for over a month. Several of the KPIs were modified, clarified, or revised based upon the feedback received as part of the public input process. It is anticipated that the KPIs will be further enhanced, clarified, and modified in the future based upon feedback and insights received from users and subject matter experts.

How the KPIs Will Be Revised

AAIS welcomes feedback, input, and suggested revisions to the KPIs from all established users and encourages other interested parties to provide feedback or insights in writing. At least annually, AAIS will examine any feedback and input received about the KPI questions. Moreover, AAIS welcomes suggestions for new perils or topics that are not currently included in the existing KPIs as new risks or perils emerge. Any substantive changes to the text of the KPIs, or the addition of new KPIs, will typically need to be approved by the respective DOIs. It is anticipated that updates to the KPIs will only be made and filed no more frequently than every five years. Where appropriate, AAIS may make modifications to the supporting clarification material or other related resources to assist users or clarify points of confusion that emerge.

How It Was Determined What Natural Disasters Are Most Likely to Impact a Community

The FLAMES Mitigation Evaluation Score asks communities KPI questions about universal disaster mitigation and business continuity practices that apply to all communities, and tailored questions related to the three natural disaster types, or natural catastrophe perils, that are likely to result in the greatest damage and losses in that specific area. The top three perils have been determined for every county in the U.S. by the National Risk Index (NRI), developed for and maintained by the Federal

Emergency Management Agency (FEMA).[5] For each county, the Expected Annual Loss Totals (EALTs) for each of the natural catastrophe perils was compared and the top three were selected. EALTs are a commonly used metric across the industry.

> *Expected Annual Loss (EAL) represents the average economic loss in dollars resulting from natural hazards each year. It is calculated for each hazard type and quantifies loss for relevant consequence types: buildings, people, and agriculture.*
>
> *As the natural hazards' component of the National Risk Index, an Expected Annual Loss score and rating represent a community's relative level of expected losses each year when compared to all other communities at the same level. An Expected Annual Loss score is positively associated to a community's risk; thus, a higher Expected Annual Loss score results in a higher Risk Index score.*[6]

Using EALs allows each of the different types of losses to be compared equitably since the risk is normalized to a dollar value, allowing distinct types of risks to be compared on the same scale.

This formula factors in the risk to human life, in addition to economic losses. The likelihood of injuries and deaths is factored in using the common methodology used by economists known as the Value of Statistical Life (VSL). While it may seem odd or perhaps even crude, economists have developed the VSL to ensure that saving lives and reducing injuries can be accounted for when calculating economic impacts. The NRI calculated that every death and every 10 injuries equate to $11.6 million in economic loss. So, using EALTs includes both the potential for economic losses and risks to people.

The list of 18 perils from the NRI dataset was consolidated into 12 perils for this purpose. The NRI includes various ratings and calculations for these 18 perils: Avalanche, Coastal Flooding, Cold Wave, Drought, Earthquake, Hail, Heat Wave, Hurricane, Ice Storm, Landslide, Lightning, Inland Flooding,[7] Strong Wind, Tornado, Tsunami, Volcanic Activity, Wildfire, Winter Weather. For these purposes, some of the perils that have similar mitigation strategies were consolidated. For the consolidated

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[5] More information about the National Risk Index and the methodology. FEMA recently consolidated the National Risk Index data into the Resiliency Analysis and Planning Tool (RAPT), where it previously was a standalone dataset. More information about the RAPT data.

[6] Expected Annual Loss (EAL).

[7] Between the 2021 version of the National Risk Index and the 2025 version, the terminology was changed from *Riverine Flooding* to *Inland Flooding*. This is not simply a matter of semantics and reflects an important distinction. Inland Flooding includes both fluvial flooding (riverine flooding) and pluvial flooding (rain-based flooding, such as flash floods, inundation from runoff, and similar types of flooding that may not originate from a river). The latter term *Inland Flooding* is more comprehensive and useful, as increased flooding and flood losses have emerged in areas well away from water bodies that people often associate with flooding.

perils, the EAL Totals are summed before the selection of the top three perils for that county.

Tornados are a form of Severe Convective Storms and could justifiably be included in the consolidated Severe Convective Storms peril. However, by doing so, the EALTs for Severe Convective Storms were so high that the combined peril resulted in being in the top three for an inordinate number of counties. Moreover, the mitigations for tornados are often different from other Severe Convective Storm perils such as Hail or Lightning, so those were kept separate for this purpose.

The final list of 12 perils for the FLAMES Mitigation Evaluation Score is: Coastal Flooding, Earthquake, Heat Wave & Drought, Hurricane, Landslide & Avalanche, Inland Flooding, Severe Convective Storms (excluding Tornado), Tornado, Tsunami, Volcanic Activity, Wildfire, Winter Storms. See the table below for a list of all of the perils that are included in at least one county in each state.

AAIS utilized the EALs at the county level to determine the top three perils. The NRI provides the EALs at the Census Tract level, which is much smaller and equivalent to a large neighborhood. While it is possible that some of the natural catastrophe perils are very location-specific and may not be applicable to the entire area—for example, flood risk—using the county level data allows the FLAMES Mitigation Evaluation Score to be deployed at scale. Local fire departments, emergency management agencies, and other entities are encouraged to review and potentially use the NRI at the Census Tract level to plan and prioritize their mitigation efforts, in addition to other existing risk prioritization tools their community might already use.

	Wildfire	Hurricane	Severe Convective Storm	Tornado	Riverine Flooding	Coastal Flooding	Earthquake	Landslide & Avalanche	Heat Wave & Drought	Tsunami	Volcanic Activity	Winter Storms
AL	X	X	X	X	X		X		X			X
AK	X		X	X	X	X	X	X		X	X	X
AZ	X		X	X	X		X	X	X			X
AR	X	X	X	X	X		X	X	X			X
CA	X		X	X	X	X	X	X	X	X	X	X
CO	X		X	X	X		X	X	X			X
CT		X	X	X	X	X	X		X			X
DE	X	X	X	X	X	X			X			
DC		X	X	X	X		X					
FL	X	X	X	X	X	X	X		X			X
GA	X	X	X	X	X	X	X	X	X			X
HI	X	X			X	X	X			X	X	
ID	X		X	X	X		X	X	X			X
IL			X	X	X		X		X			X
IN			X	X	X		X		X			X
IA	X		X	X	X			X	X			X
KS	X		X	X	X		X	X	X			X
KY	X		X	X	X		X	X	X			X
LA	X	X	X	X	X	X	X		X			X
ME		X	X	X	X	X	X		X			X
MD	X	X	X	X	X	X			X			X
MA		X	X	X	X	X	X		X			X
MI	X	X	X	X	X	X	X	X	X			X
MN	X		X	X	X			X	X			X
MS	X	X	X	X	X	X	X		X			X
MO	X		X	X	X		X	X	X			X
MT	X		X	X	X		X	X	X			X
NE	X		X	X	X			X	X			X
NV	X		X		X		X	X	X			X
NH		X	X	X	X	X	X	X				X
NJ	X	X	X	X	X	X	X		X			X
NM	X		X	X	X		X	X	X			X
NY		X	X	X	X	X	X		X			X
NC	X	X	X	X	X	X	X	X	X			X
ND	X		X	X	X			X	X			X
OH	X	X	X	X	X	X	X	X	X			X
OK	X		X	X	X		X		X			X
OR	X		X	X	X	X	X	X	X	X	X	X
PA	X	X	X	X	X	X		X	X			X
RI		X	X	X	X	X	X		X			X
SC	X	X	X	X	X	X	X		X			X
SD	X		X	X	X			X	X			X
TN	X	X	X	X	X		X	X	X			X
TX	X	X	X	X	X	X	X	X	X			X
UT	X		X	X	X		X	X	X			X
VT		X	X	X	X		X	X				X
VA	X	X	X	X	X	X	X	X	X			X
WA	X		X	X	X	X	X	X	X	X	X	X
WV	X	X	X	X	X		X	X	X			X
WI	X		X	X	X	X		X	X			X
WY	X		X	X	X		X	X	X			X

Figure 4: Natural Catastrophe Perils by State

While the FLAMES Mitigation Evaluation Score will only have questions about the top three perils in the county, it is anticipated that many communities will undertake mitigation activities for more than those top three. Nothing in this methodology is intended to prevent, exclude, or discourage communities from pursuing mitigation activities for natural disasters beyond those top three. Moreover, it is anticipated that some communities may choose to review the KPIs for additional perils and include them in their own internal program evaluations and analyses.

Determining What Community Risk Reduction (CRR) Topics Are the Highest Priority in a Community

The FLAMES Mitigation Evaluation Score methodology also asks about the top three CRR priorities in each community. Again, it is anticipated that most communities will have more than three CRR priorities and that the CRR priorities are likely to be highly localized and may differ across the community. In this case, the community will determine and select the top three topics, and the KPI questions will focus on these topics. The local community likely knows better than anyone what its top risks and priorities are and is therefore best suited to determine what topics it should be evaluated on.

The list of topics was developed to cover a diverse and comprehensive set of possible CRR topics so that they apply to a wide range of communities. The types of priorities range from types of high-risk occupancies (such as industrial & manufacturing facilities, farms & agribusinesses, or airports), types of property conditions (such as vacant, abandoned, & structurally compromised buildings, buildings under construction, or hoarding & heavy contents), and types of life safety risks (such as fall injuries, carbon monoxide poisoning, and drowning & water safety).

It is anticipated that the list of CRR priorities will grow and expand in future years as new risks and concerns emerge and as AAIS achieves consensus among subject matter experts about what questions are most important to evaluate for each new topic. AAIS encourages users and subject matter experts to contact the FLAMES Support Team to provide feedback or insights.

Mitigation Topics That Do Not Apply in Specific Jurisdictions

It is expected that some topics or perils may not apply within specific states. Moreover, some topics or perils may present regulatory complexities or political sensitivities in specific states. For example, mitigation KPIs related to cannabis manufacturing and production may be very important in some states dealing with the challenges of managing the safety of this growing industry, but the topic may be prohibited or not relevant in other states based upon different legal and regulatory requirements. AAIS has built in the ability to exclude specific topics and questions so that fire departments and communities in specific states will not see those questions as options when AAIS has been notified by the respective Department of Insurance to exclude those topics.

Points and Scoring

The FLAMES Mitigation Evaluation Scores are determined by the answers provided to a series of KPI questions. These KPIs cover a comprehensive list of risks and perils found in various types of communities, and the activities, programs, and practices completed that are intended to mitigate those risks. Communities that have robust programs and

services intended to mitigate risks are anticipated to experience fewer adverse incidents, reduced losses, and faster recovery from those incidents. Communities that understand their risks, have developed and tailored strategies to address those risks, and are proactively working to reduce those risks through a myriad of approaches are going to fare better than communities that do not. This methodology is intended to distinguish between communities that are taking a “wait-and-see” approach compared to those communities that are taking proactive efforts to prevent adverse outcomes. The points are intended to recognize, reward, and incentivize communities to put these sorts of proactive programs, services, and practices into place.

Distribution of Mitigation KPIs

The KPIs are intended to comprehensively measure the extent to which a community has developed and delivered risk mitigation programs and services. The use of the term “community” is intentional in that the KPIs measure what various agencies, organizations, or entities have completed. In many cases, the activities being measured will likely be completed by the fire department. However, many other mitigation activities and programs may be completed or managed by other government agencies, community organizations, or groups. It is less important which agency, entity, or group completed the mitigation activity. It is more important that the mitigation activity was completed, documented, and provided to AAIS to be evaluated.

The KPIs are broken into five themes. In total, each community will be asked 181 KPI questions, of which 115 KPIs are graded questions. The table below highlights the distribution of the KPIs across the various topics and types of questions.

Themes	Topics	Question Type	KPIs to Answer	Points Per KPI	Total Points	Percent of Total Points
Fire Department Resources		Profile questions	42	0	**0**	
		Basic questions	16	2	**32**	
		Advanced questions	11	3	**33**	
		Provide hydrant flow test data	1	5	**5**	
		Provide hydrant point file	1	3	**3**	
	9		29 (71)		**73**	**12%**
Code and Mitigation Effectiveness		Basic questions	15	5	**75**	
		Advanced questions	10	10	**100**	
	5		25 (25)		**175**	**29%**
Fire Risk Mitigation		Denominator questions	5	0	**0**	
		Priority questions	5	0	**0**	
		Basic questions	15	5	**75**	
		Advanced questions	10	10	**100**	
		Provide CRA document	1	1	**1**	
	5		26 (36)		**176**	**29%**
Natural Catastrophe Mitigation		Denominator questions	4	0	**0**	
		Priority questions	4	0	**0**	
		Basic questions	12	5	**60**	
		Advanced questions	8	10	**80**	
	4		20 (28)		**140**	**23%**
CRR Mitigation Priorities		Denominator questions	3	0	**0**	
		Priority questions	3	0	**0**	
		Basic questions	9	2	**18**	
		Advanced questions	6	3	**18**	
	7		15 (21)		**36**	**6%**
		Total Graded KPIs (Total KPIs)	**115 (181)**	**Total Points**	**600**	**100%**

Figure 5: Distribution of Topics and Points

The specific KPI questions each community sees will differ for some perils based upon the types of risks in their community, but each community will be asked the same number of KPI questions and have the opportunity to gain the same number of potential points.

How Points are Awarded

For each KPI, community representatives, often fire department personnel, will enter the number of interventions, activities, or programs completed in each ZIP code over the applicable time period for each question. All valid data submitted by all communities in

that year and the previous two years[8] will be analyzed by AAIS to determine the quartile cut points for that question. This approach ensures that the cut points for each KPI question are dynamic, reasonable, and achievable, since they are based upon actual performance across all communities.

By using multiple years of data, this approach will smooth potential data volatility year over year and help communities set strategic goals by using anticipated cut points based on past trends. Since the cut points are determined based on a rolling set of data, they are anticipated to differ year to year and increase over time as more communities participate and engage in effective mitigation efforts. The use of quartile cut points will also ensure that communities are striving for continuous improvement. The point allocation broken down by quartiles for each question are distributed like this:

	Basic Question (5 pts)	Advanced Question (10 pts)
4th Quartile (Top Scores)	5 points	10 points
3rd Quartile	3.75 points	7.5 points
2nd Quartile	2.5 points	5 points
1st Quartile (Lowest Scores)	1.25 point	2.5 points
No data provided	0 points	0 points

Figure 5: KPI Point Allocation by Quartiles

Common Question: Why don't you just define the number of interventions we need to get a top score?

The traditional approach to defining cut points tends to use set and often arbitrary cut points that rarely, if ever, change. For instance, there could be a set threshold of the number of smoke alarms that need to be installed in each ZIP code to achieve each score, such as this example:

Traditional Approach to Scoring with Defined Cut Points	
Install 76 or more smoke alarms per ZIP code	4 Points
Install up to 75 smoke alarms per ZIP code	3 Points
Install up to 50 smoke alarms per ZIP code	2 Points
Install up to 25 smoke alarms per ZIP code	1 Point
Install 0 smoke alarms per ZIP code	0 Points

Figure 6: Example of a legacy approach using defined cut points that was not used here

While this is certainly more straightforward, setting defined and often arbitrary cut points has a number of significant limitations that make the approach unsuitable for modern evaluations.

[8] With the initial roll out of this methodology, there will be some modifications in the first three years. In the first year, the quartiles will be determined based upon the data submitted in that year only. The second year will include the first two years only.

1. It fails to encourage communities to continue to improve. Using the example above, once a community reaches the top score there is no incentive to install the 77th or 78th smoke alarm.
2. It fails to reflect current and realistic levels of activities. In the early years, the defined cut points would likely be aspirational or out of reach for most. However, as more communities begin to participate, the defined cut points eventually will become less impactful, and scores will become inflated as most communities will have reached the standard.
3. It fails to take into consideration differences among communities. For example, installing 20 smoke alarms in a small community will likely have far greater impact than installing 20 smoke alarms in a large community.

Using quartiles to determine cut points addresses many of the key limitations of traditional approaches.

1. Agencies will have an incentive to continually improve and increase their mitigation activities because as more communities participate and as more active communities participate, the relative position of the score cut points (quartiles) will change.
2. Since the cut points reflect actual data submitted by other communities, the cut points for each activity or program will be realistic.
3. At least a quarter of the communities that submit data for each KPI will receive the highest number of points for that KPI. This provides important recognition for communities as they evaluate and celebrate the programs that are excelling.
4. Since there is not yet a comprehensive national dataset of each of the activities in all of the KPIs, it is not yet feasible to define empirical, research-driven cut points, making this the most fair and equitable way to set thresholds.

How Points Awarded Translate to Scores

Scores for the FLAMES Mitigation Evaluation Score represent a total of 600 possible points. The cumulative number of points awarded will be used to determine the final score rank. The cumulative points that fall between the numbers below will translate into the following nominal categories, which will be used to determine the awarded credits and associated actuarial factors:

Awarded Mitigation Points Between:		
Score Rank	**Highest**	**Lowest**
Exemplary	**600**	**451**
Leading	**450**	**301**
Adequate	**300**	**151**
Lagging	**150**	**1**
Lacking (Data)	**0**	**0**

Figure 7: Points to Score Allocation Crosswalk

Communities That Opt Not to Participate

Communities that opt not to participate in the FLAMES Mitigation Evaluation Score will be classified as “Lacking Data,” truncated to “Lacking,” and assigned 0 points, which translates to a factor of 1.000. As noted above, an actuarial factor of 1.000 does not have a negative impact on the potential premium charged. Those communities will, however, miss out on the opportunity to gain potential credit factors (any factor below 1.000, such as 0.950, is a credit) that would likely reduce the premiums charged.

What If a Community Does Not Complete Specific Mitigation Activities?

It is anticipated that some communities will find that they do not currently perform some or potentially most of the mitigations being evaluated in the KPIs. The KPIs can be seen as stretch goals for those communities and can serve as a roadmap for those communities looking to expand the depth and breadth of their mitigation activities and programs in the future.

Even in communities that determine that they are not performing many of the activities, they are encouraged to submit the data about the mitigation activities they are performing, even if they seem like an insignificant number of activities. By submitting some data about the activities and programs that have been done, it will ensure that their community receives some points. Moreover, it is likely that other agencies, organizations, or groups within the community might be doing some of these mitigation activities that the fire department or municipal government is not engaged in or perhaps even aware of.

Since all Mitigation Evaluation Score KPIs are on a credit basis, not completing a particular mitigation activity or submitting data for that KPI will not negatively impact the community, but it will simply represent a missed opportunity to increase the potential credits that may have reduced the premium paid by property owners in the community who are insured by companies that use FLAMES scores. Put another way, it represents a missed opportunity to gain optional “Extra Credit” points but does not otherwise impact residents.

How Long Are Scores and Credits Valid?

One of the biggest lessons learned from legacy fire protection rating methodologies is that once a fire department achieves a top rating, they often have little incentive to continue to improve. AAIS’s approach prioritizes continuous performance improvement. All FLAMES Mitigation Evaluation Scores will be valid for three (3) calendar years. After the third year, the points will degrade at a rate of 25% of the original score in each subsequent year unless superseded by a new evaluation. After seven (7) years (from the time the data was originally submitted), the score will degrade to 0 (0%), meaning there will be no credits awarded until new data is submitted. If new data is submitted

and it results in earning fewer points than were previously earned, the most recent data submitted and the points earned will supersede, even if lower.

For example, here are three fictional communities. Their scores for each year are illustrated along with the percent of the original score on which it is based.

Community A – ZIP Code 12345: **They participate once and do not participate again.**

Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Submits data, earns 300 of possible 600 points, which goes into effect Jan 1 of the following year.	300/600 Points (100%)	300/600 Points (100%)	300/600 Points (100%)	225/600 Points (75%)	150/600 Points (50%)	75/600 Points (25%)	0/600 Points (0%)

Community B – ZIP Code 45678: **They participate every five years. *In year five, they resubmit data and get a better score, 375 of 600, which goes into effect January 1 of the following year.**

Year 0	Year 1	Year 2	Year 3	Year 4	Year 5*	Year 6	Year 7
Submits data, earns 180 of possible 600 point, which goes into effect Jan 1 of the following year.	180/600 Points (100%)	180/600 Points (100%)	180/600 Points (100%)	135/600 Points (75%)	90/600 Points (50%)	375/600 Points (100%)	375/600 Points (100%)

Community C – ZIP Code 78901: **They participate every three years. *In year three, they resubmit data and get a better score, 475 of 600, which goes into effect January 1 of the following year. **In year six, they resubmit again and earn a slightly lower score.**

Year 0	Year 1	Year 2	Year 3*	Year 4	Year 5	Year 6**	Year 7
Submits data, earns 350 of possible 600 points, which goes into effect Jan 1 of the following year.	350/600 Points (100%)	350/600 Points (100%)	350/600 Points (100%)	475/600 Points (100%)	475/600 Points (100%)	475/600 Points (100%)	425/600 Points (100%)

Figure 8: Illustration of three fictional communities to highlight how the scores degrade after three years unless new data is submitted

The points degrade over time intentionally to encourage communities to continue to invest and prioritize ongoing mitigation efforts. It is anticipated that over time, some risks and community priorities may change as programs begin to have success and reduce the occurrence or prevalence of particular problems. This approach encourages communities to continuously evaluate their highest priority needs and match their programming and outreach accordingly. This model aligns with other best-practice approaches across the industry focused on continuous improvement.

Commission on Fire Accreditation International (CFAI) – Fire Department Accreditation

Fire departments that have successfully completed the CFAI accreditation process can receive prima facie credit for specific Mitigation Evaluation Score KPIs that overlap with various accreditation Performance Indicators and Core Competencies. A list of the specific Mitigation Evaluation Score KPIs eligible for prima facie credit is listed in Annex 1 at the end of this document. In order to receive credit for being an accredited agency, fire departments will have to create an account and confirm all ZIP codes entirely or partially within their agency's primary jurisdiction. Accredited status will be validated by way of the CFAI Accredited Agency lists updated annually on the Center for Public Safety Excellence (CPSE) website.[9]

Fire departments that are formally engaged in the CFAI accreditation process but have not yet achieved accredited status can claim partial credit for the respective KPIs. The table below outlines the points awarded for each of the specifically denoted KPIs for the various levels of accreditation engagement.

Fire Department CFAI Status	Basic Questions	Advanced Questions
Current CFAI Accredited Status	2 points	3 points
Current CFAI Candidate Status	1.5 points	2.25 points
Current CFAI Applicant Status	1 point	1.5 points
Current CFAI Registered Status	0.5 points	0.75 point

Figure 9: Prima facie credit awarded for fire departments that are involved in the CFAI Accreditation process

All fire departments are still strongly encouraged to provide answers to all of the KPIs, even those for which they receive prima facie credit. In particular, fire departments that receive partial credit are encouraged to complete the KPI questions. Fire departments that receive partial credit and submit data to those respective KPI questions will receive a score for the KPI questions and the prima facie award and will be awarded the points for whichever is higher. For example, a fire department that is a CFAI Registered Agency and submits data for each of the KPIs where prima facie credit is offered, and whose submitted data ranks in the top quartile of all communities, will earn either 2 points or 3 points (Basic Questions or Advanced Questions, respectively) but their prima facie recognition would only earn them 0.5 or 1 point, respectively. They would be awarded the points for the data submitted since it resulted in more points for those questions.

[9] The list of currently CFAI accredited fire departments is published by CPSE

Key Dates and Deadlines

Data will be collected from communities from January through September 30th each year. The data submitted by the deadline will be analyzed and calculated from October through November 30th each year. The scores will be announced no later than December 10th each year and will go into effect on January 1st of the following year.

Timelines

January 1: All FLAMES Mitigation Evaluation Scores for that year go into effect

January 1: Data collection period opens for forthcoming year

September 30: Data collection period ends (**Deadline**)

October 1: Analysis and reporting period begins

October 31: If permitted, corrections and revisions due

December 10: Scores are announced and insurance companies are notified of the updates scores for each ZIP code

Data Collection Period

Data may be entered into the FLAMES Mitigation Evaluation Score survey tool at any time from January 1st through September 30th of each calendar year. The tool is designed to allow users to come back and enter data at multiple times during different sessions. It is anticipated that it will take time to gather, consolidate, analyze, and submit data for each of the questions.

While it is understood that some people may be inclined to put in placeholder data into some of the fields, keep in mind that putting a value in the field will impact the progress calculators and may give you inaccurate feedback about how many questions have been completed or how many are left to complete. Moreover, please review submissions to ensure placeholder data has been removed or replaced before the final submission.

Data Analysis and Reporting Period

Late submissions will not be accepted except with the express permission and the sole discretion of AAIS. All data submitted by the submission deadline will be evaluated by extensive automated and manual quality assurance processes to ensure the data is complete, reasonable, and verifiable. Data anomalies will be verified at the sole discretion of AAIS and, if permitted, any corrections must be submitted no later than October 31st. The points will be computed and scores assigned no later than December 10th of each calendar year.

Data Errors, Anomalies, and Fraud

All data submitted will be validated and reviewed by AAIS for quality assurance to ensure the data represents actual, verifiable, truthful activities, programs, or engagements. Data that is found to be erroneous, inaccurate, incomplete, or potentially fraudulent will be flagged, and AAIS will request that the agency that supplied the information address, verify, and provide information responsive to the issue or anomaly. Corrections or revisions may be allowed at the sole discretion of AAIS.

Data errors determined to be intentional, egregious, or fraudulent will not be scored or awarded points for the KPIs in question. In the event that identified data anomalies indicate potential impacts on other KPIs submitted by the same agency, person, or entity, AAIS reserves the right to withhold any Mitigation Evaluation Score or factor assignment for the respective ZIP codes until such time the data can be verified or withdrawn, even if that means the assignment of a 1.000 factor for that reporting period.

Appeals and Disputed Points Assignments

Registered and authorized FLAMES Mitigation Evaluation Score users may request additional clarification or dispute point awards and score allocations. Requests for clarifications or disputes must be received by AAIS within 60 calendar days from the official publication of the FLAMES Mitigation Evaluation Scores. Authorized users must submit the written request for clarification or to appeal the points award and score allocation via email to FLAMES@AAISonline.com to seek resolution or clarification. AAIS has 14 business days to respond. Such response may provide clarification, request additional information, or otherwise respond to the disputed points awards and score allocation.

The AAIS Vice President of Actuarial Services reviews all appeals disputing point awards and score allocations. Any decision by the AAIS Vice President of Actuarial Services to modify the response and decision previously issued will be issued within 60 days after receipt of the request to appeal. All decisions made by the AAIS Vice President of Actuarial Services are final.

Property owners, community members, and other third parties may not dispute the point awards or score allocation for any individual ZIP code or territory. Nor can property owners, community members, or other third parties submit data on behalf of any ZIP code or territory. All submissions of data shall be made by a registered and authorized FLAMES Mitigation Evaluation Score user. In the event that the local fire department or emergency management agency opts not to participate or simply does not respond, other duly authorized representatives of the municipality or other local government body can register to become an authorized FLAMES Mitigation Evaluation Score user.

Score Publication & Data Reports

Official Publication of Mitigation Evaluation Scores

No later than December 10th of each year, AAIS will publish a list of the Mitigation Evaluation Scores for all ZIP codes, including those ZIP codes without any data submitted. The list of all ZIP codes and their associated scores will be available to all AAIS Member insurance companies through the AAISdirect platform. There will be an official announcement through an AAIS Bulletin that the scores have been published and are available to AAIS Members or DOIs. To sign up to receive AAIS Bulletins, please contact Membership@AAISonline.com or FLAMES@AAISonline.com. State Fire Marshal's Offices and DOIs can request to receive an annual report of all of the ZIP codes and the associated scores in their state by contacting FLAMES@AAISonline.com.

The awarded Mitigation Evaluation Scores go into effect on January 1st of the following year and remain valid for the totality of the respective calendar year.

As is common across the insurance industry, AAIS Members have the discretion to decide how and when they opt to adopt or update FLAMES ratings and Mitigation Evaluation Scores. While it is our intention that Members will integrate the latest Mitigation Evaluation Scores into their programs on an annual basis, adoption and revision timelines are the sole responsibility and decision of the individual Members companies.

Reports and Outputs

Submission Report

Every community that submits data will be able to view and export a report that includes all of the KPIs that were answered, omitted, and the answers that were submitted. This report will not include a score or any other valuation. The purpose is simply to provide the agency with documentation of the answers that were submitted and received.

Score Report

AAIS will provide each registered community with a customized digital report of the data they submitted and the scores they earned based upon that data for each of the ZIP codes within their community. These reports will include the relative position of the data submitted compared to aggregate data from other similar communities. The score report will only be made available to the specific agencies that cover each ZIP code.

The report will include additional insights and analyses to help communities identify opportunities to improve their scores and enhance their Community Risk Reduction and Emergency Management efforts. Moreover, since the scores will likely differ across the various ZIP codes in each jurisdiction, the report will also highlight those areas where

the community is doing well and areas within the community where focus in the future will improve scores and have a greater impact.

Who Can See the Data

The raw data submitted as part of the FLAMES Mitigation Evaluation Score will remain confidential and will not be shared with any outside agency or entity. The raw data will be analyzed to determine the points awarded for each KPI question. Each agency that submits data will be provided an output of the data submitted. This can be used for quality assurance purposes.

Each department will be able to see the data they submitted, but that data will not be shared by us with any outside party. Similarly, any other party will not be able to see the raw data submitted by any other community or other agencies. Departments will be able to see the relative position of their scores compared to other communities. So, they will be able to see where their data and the associated scores rank compared to other communities.

The scores published for each ZIP code in the annual AAIS FLAMES Mitigation Evaluation Scores for each respective year will only include the nominal scores awarded, such as “Leading,” not the points earned. Where requested, AAIS will provide State Fire Marshal’s Offices and DOIs with more detailed reports that may include the list of ZIP codes, the nominal scores awarded, the cumulative points awarded, and any other pertinent information.

How FLAMES Rating Factors Will Be Used

How Insurers Typically Use Ratings to Determine Premium

A common question asked by fire service professionals, elected officials, and community members is: How do insurance companies use rating scores, like FLAMES, to determine how much premium to charge their insureds? While every insurance company is likely to use the scores differently or assign different factors to the scores, the general process by which scores are used to determine premiums follows typical patterns.

The first step in this process typically is for actuaries to calculate the Loss Cost for a particular line of business (type of coverage) for each area, typically a ZIP code. The Loss Cost, also referred to as Pure Premium, is the base amount of premium that an insurer would need to charge in each ZIP code in order to break even based on data from previous claims and the costs typically associated with handling claims. Advisory organizations, like AAIS, consolidate loss and exposure data from a wide range of competing insurance carriers to give a more comprehensive and predictive estimate of likely losses in a given area than any individual carrier could estimate using its own

small and non-representative sample of losses. It is important to note that the Loss Cost developed by advisory organizations like AAIS excludes any profit margins, overhead, or other proprietary expenses that insurers would consider. Typically, each state's DOI has to review and approve the proposed Loss Costs for every ZIP code in their jurisdiction to ensure the rates are adequate to cover anticipated losses, but are not unreasonable, before insurance carriers can adopt and use those rates.

The next and most important concept to understand in this process is the concept of factors. These Loss Costs would apply to a typical property in that ZIP code; however, most properties aren't typical and likely vary considerably in terms of the type of building, how it is used, construction materials used, and previous claims by the owner. That is where factors come in to play to fine-tune the premium to the nuances of the specific property. Insurance factors or rating factors are multiplication variables. Any factor above 1.000 is considered a debit and will increase the price of the premium, and any factor below 1.000 is considered a credit and will decrease the price of the premium. Following the same logic, any factor of 1.000 exactly will cause the price to stay the same.

Consider this overly simplified, fictional example to illustrate how factors affect premium. It is simply a multiplication exercise. For this fictional illustration, all of the other factors remain consistent to highlight how different fire loss factors and mitigation evaluation score factors could impact the premium charged:

Base Example: House in Community with **Excellent Fire Loss Score & Lacking Mitigation Evaluation Score**	**Example 1:** House in Community with **Poor Fire Loss Score & Lacking Mitigation Evaluation Score**
$28.75 (Base Loss Cost for ZIP Code 99999)	**$28.75** (Base Loss Cost for ZIP Code 99999)
X 1.02 (Crime Rating Factor)	X 1.02 (Crime Rating Factor)
X 1.01 (Building Construction Factor)	X 1.01 (Building Construction Factor)
X 0.98 (Roof Condition Factor)	X 0.98 (Roof Condition Factor)
X 1.03 (Previous Claims Factor)	X 1.03 (Previous Claims Factor)
X 1.00 (Many Other Factors)	X 1.00 (Many Other Factors)
X **1.00** (Fire Loss Rating Factor)	X **1.70** (Fire Loss Rating Factor)
X **1.00** (Mitigation Evaluation Rating Factor)	X **1.00** (Mitigation Evaluation Rating Factor)
= **$29.90** per $1,000 of coverage	= **$50.82** per $1,000 of coverage
X $150,000 coverage	X $150,000 coverage
= **$4,484.50** Total Premium	= **$7,623.00** Total Premium

Example 2: House in Community with **Moderate Fire Loss Score & Adequate Mitigation Evaluation Score**	**Example 3:** House in Community with **Excellent Fire Loss Score & Exemplary Mitigation Evaluation Score**
$28.75 (Base Loss Cost for ZIP Code 99999)	**$28.75** (Base Loss Cost for ZIP Code 99999)
X 1.02 (Crime Rating Factor)	X 1.02 (Crime Rating Factor)
X 1.01 (Building Construction Factor)	X 1.01 (Building Construction Factor)
X 0.98 (Roof Condition Factor)	X 0.98 (Roof Condition Factor)
X 1.03 (Previous Claims Factor)	X 1.03 (Previous Claims Factor)
X 1.00 (Many Other Factors)	X 1.00 (Many Other Factors)
X **1.30** (Fire Loss Rating Factor)	X **1.00** (Fire Loss Rating Factor)
X **0.96** (Mitigation Evaluation Rating Factor)	X **0.80** (Mitigation Evaluation Rating Facto
= **$38.87** per $1,000 of coverage	= **$23.92** per $1,000 of coverage
X $150,000 coverage	X $150,000 coverage
= **$5,829.85** Total Premium	= **$3,588.00** Total Premium

Figure 10: Illustration of Impact of Rating Factors on Premium

If the change in the public fire protection rating factor used by an insurance carrier is small, for example from 1.02 to a 1.018, then it will likely be a very small change in the amount of premium that is charged. Since other factors or the base amount of pure premium calculated for that ZIP code may have changed at the same time, the changes in the public fire protection factor may end up negligible for small properties. Larger properties and other properties paying much higher insurance premiums are likely to see the impact in these changes in the factor more substantially.

Impact on Communities & Outcomes

Benefits to Community Members

There are a number of direct and intrinsic benefits to the communities that participate in the FLAMES Mitigation Evaluation Score process. The most obvious and direct benefit is the potential for credit factors[10] that could be applied to properties that have insurance through carriers who use AAIS's programs and adopt the FLAMES rating factors to determine premium. Any rating factor that has an assigned value below 1.000 will have the impact of reducing the premium. So, in short, a community with a better Mitigation Evaluation Score is likely to pay less for their insurance premiums.

[10] Credit factors are only applicable when approved by each state's DOI and the individual factors approved may differ from state to state based upon their own processes and determination. Moreover, individual carriers can choose to modify the associated factors based upon their own loss experience data and policies.

Benefits to a Community

There are less tangible but no less important benefits to communities that participate in FLAMES. One of the outcomes of the FLAMES Mitigation Evaluation Score is to incentivize communities to prioritize and enhance their risk identification practices and risk mitigation activities. Participating in the FLAMES Mitigation Evaluation Score can help communities evaluate their own programs and processes to reduce risk. While the KPIs likely miss some other program evaluation measures that local agencies might prioritize and some communities and agencies may disagree with some of the measures being evaluated, there is value in using a consistent methodology and consistent data points to evaluate across communities.

Moreover, since the evaluation extends well beyond simply rating the fire department to measure how well a community is addressing a number of different risks and perils the community faces, the FLAMES Mitigation Evaluation Score will benefit by engaging more organizations, people, and processes in the effort to reduce risks in the whole community.

Benefits to the Fire Service

Insurance ratings have long been a point of pride for many fire departments. Fire departments have used legacy rating methodologies to focus their efforts and as part of their decision-making calculations about where to spend money, how to allocate their resources, and which programs to prioritize. A community's FLAMES Mitigation Evaluation Scores for the various ZIP codes the department covers (in part or in whole) will highlight the areas where the fire department is doing well as well as identify new areas of focus.

Getting Started

Conversations and Relationships to Begin Having Locally

The FLAMES Mitigation Evaluation Score methodology differs considerably from legacy approaches. The new approach moves beyond simply evaluating fire risk to include other types of risks and perils including natural disasters and CRR priorities. This methodology is not an evaluation of the fire department as much as it is an evaluation of what the entire community has done to mitigate the various risks. As such, various organizations, entities, and departments likely have data and information necessary to completely answer the various KPI questions. Since all communities are structured differently in terms of which agencies, departments, and job functions fall under different organizational structures, the agencies needed to be consulted may differ from other communities.

If robust relationships with these various entities do not exist, or if data about these activities are not already shared, it will be important to begin these conversations soon.

This list is not exhaustive, but at a minimum, communities may want to begin discussing these KPI questions with the following entities:

- Emergency Management
- Water Department
- Emergency Communication Center
- Primary PSAP if 911 calls are first routed through a regional or state PSAP
- EMS Provider
- Code Enforcement
- Building and Planning Department
- Public Health Department
- Floodplain or Stormwater Management
- American Red Cross Chapter
- Safe Kids Chapters
- Area Agency on Aging or Senior Focused Organizations
- Police and Traffic Safety Teams
- Faith Groups that Provide Outreach Programs
- Port or Harbor Agency
- Civic and Fraternal Groups (Lions, Rotary, Masons, Elks, Shriners, etc.)
- Water Safety Team & Pool Inspection Team
- Hoarding Task Forces
- Executives and Safety Personnel at Key High Risk Facilities in a Jurisdiction

Datasets Needed

There are a number of datasets that will likely be needed to query, or at least have access to, in order to answer all of the KPI questions. These datasets might include:

- Records Management System (RMS) data
- Fire inspection records
- Fire investigation records
- Pre-incident planning records
- Smoke alarm installation records
- Hydrant inventory and maintenance records

It is anticipated that, at least initially, some of the questions may be difficult to answer because there may not be sufficient information of that type collected in the past. Alternatively, it may refer to processes that are documented on legacy spreadsheets or paper records that might be harder to rapidly answer. The FLAMES Mitigation Evaluation Score may create further incentives for agencies to move to more automated and digital methods of documenting various mitigation activities.

Can an RMS Vendor Help Answer These Questions?

AAIS is working with several of the software vendors that provide data collection and records management services to fire departments to create automated reports to be able to easily query the data relevant to various KPIs from their systems. It is anticipated that over time more software vendors will make this functionality available. The software vendors will not be able to submit the data to AAIS on an agency's behalf, but it is anticipated that the creation of processes to query and extract the data from their systems should help agencies rapidly answer the various KPI questions.

Annex of Reference Materials

Annex 1 – CFAI Accreditation Model

The Commission on Fire Accreditation International (CFAI) Accreditation process is overseen by the Center for Public Safety Excellence (CPSE). The accreditation Self-Assessment Model (SAM) is based on a series of performance indicators and core competencies outlined in the Fire and Emergency Services Self-Assessment Model (FESSAM), covering all aspects of modern fire departments.

> *Today's FESSAM (11th Edition) contains 250 individual performance indicators that help to define the agency's compliance. Eleven separate categories focus these performance indicators into specific criterion. In the end, an agency seeking CFAI accreditation will have described and appraised every aspect of their organization. When program gaps are identified, a plan for improvement is developed. All performance measurements are supported with up-to-date reference material.*[11]

The fire department conducts a comprehensive self-assessment and writes specific responses to each of the 250 performance indicators. Once completed, a team of peer assessors from other fire departments involved in the accreditation process reviews the submitted self-assessment materials and conducts an evaluation, including a site visit, to verify and validate that the responses and conclusions are consistent with the stringent standards outlined in the FESSAM. Those materials, including an evaluation report from the peer assessment team, are then presented to the CFAI commissioners who review the materials and findings and vote on whether to award accredited status to the candidate agency. The accredited agency status is valid for five years, at which time an agency must complete the entire process again. As of late 2025, there are 326 accredited fire departments in the United States; these cover approximately 14% of the U.S. population.

Annex 2 – Mitigation Evaluation Score KPI to CFAI Performance Indicator and Core Competency Crosswalk

This crosswalk is intended to identify the specific Mitigation Evaluation Score KPI questions that can earn prima facie credit for a fire department that is Commission on Fire Accreditation International (CFAI) accredited, or that is working their way towards accreditation.

> *KPI 64: Is the agency currently accredited through the Commission on Fire Accreditation International (CFAI)?*

[11] CFAI Self-Assessment Model (SAM) description

Fire departments that are accredited are awarded full credit for the following KPI questions. Fire departments that are formally working towards CFAI Accreditation can be awarded partial credit for the following KPI questions.

KPI Number	Topic	KPI Question	Measure Category	Points Possible
KPI 040	Emergency Communications Capabilities	In the past year, what percent of telecommunicators received at least 24 hours of continuing education?	Basic	2
KPI 041	Emergency Communications Capabilities	In the past three years, what percent of emergency calls for service received criteria-based instructions to reduce losses or improve outcomes?	Basic	2
KPI 042	Emergency Communications Capabilities	Does the Authority Having Jurisdiction (AHJ) have a robust process and tested system for locating wireless callers and/or directing emergency resources to specific locations during emergencies in non-addressable locations?	Basic	2
KPI 043	Emergency Communications Capabilities	In the past year, has the ECC/PSAP conducted at least one large-scale fail-over transfer procedure test where the majority of calls are re-routed to a backup PSAP or alternative facility to ensure continuity of operations during a large-scale system failure?	Advanced	3
KPI 044	Emergency Communications Capabilities	In the past three years, how many months has the ECC/PSAP been below 90% of the recommended number of filled Full Time Equivalent (FTE) telecommunicator positions according to a staffing assessment methodology adopted by the Authority Having Jurisdiction (AHJ)?	Advanced	3
KPI 045	Emergency Call Handling	In the past three years, what is the percent of E911 calls (that required a fire department emergency response) that had a Call Answering Time of less than 20 seconds?	Basic	2
KPI 046	Emergency Call Handling	In the past three years, what is the 90th percentile Alarm Transfer Time for E911 calls (that required a fire department emergency response) in seconds?	Basic	2
KPI 047	Emergency Call Handling	In the past three years, what is the 90th percentile total Alarm Handling Time for E911 calls (that required a fire department emergency response) in seconds?	Basic	2
KPI 048	Emergency Call Handling	In the past three years, what is the 90th percentile Alarm Handling Time for E911 calls where the Reporting Party spoke a language other than English?	Advanced	3
KPI 049	Emergency Call Handling	In the past three years, what percent of E911 calls (that required a fire department emergency response) were reviewed for quality assurance purposes?	Advanced	3
KPI 050	Hydrants & Water Supply	Currently, how many fire hydrants are in each ZIP code?	Basic	2

KPI 051	Hydrants & Water Supply	In the past year, what percent of hydrants have been confirmed to be functional in each ZIP code?	Basic	2
KPI 052	Hydrants & Water Supply	In the past three years, how many hours of hands-on training have operational personnel completed in tanker/tender operations, water shuttle operations, and/or other water supply processes when hydrants are not functional or available?	Basic	2
KPI 053	Hydrants & Water Supply	In the past three years, what percent of non-hydrant water supplies (dry hydrants, cisterns, private water tanks, etc.) have been tested, flushed, or otherwise confirmed to be in operable condition in each ZIP code?	Advanced	3
KPI 054	Hydrants & Water Supply	In the past three years, what percent of the hydrants within 1000 feet of identified target hazards in each ZIP code has the Authority Having Jurisdiction (AHJ), water utility, or other entity completed NFPA 291 (or equivalent) flow tests to ensure the ability to achieve Needed Fire Flow volume?	Advanced	3
KPI 070	Response Data	For the past three years, what is the 90th percentile "Turnout Time" for all types of fire or potential fire incidents in seconds in each ZIP code?	Basic	2
KPI 071	Response Data	In the past three years, what is the 90th percentile "Unit Response Time" in seconds from the time the dispatch alert (alarm) initiates until the arrival of the first qualifying unit on the scene in each ZIP code?	Basic	2
KPI 072	Response Data	In the past three years, what is the 90th percentile "Control Time" in seconds from the time of the first suppression unit's arrival and the point when the situation is reported to be under control or the event's process of loss has been stopped in each ZIP code?	Basic	2
KPI 073	Response Data	In the past three years, what is the 90th percentile "Water On Fire Time" in seconds from the arrival of the first apparatus with suppression capabilities to the time the primary attack line flows water or the incident commander announces "water on fire" in each ZIP code?	Advanced	3
KPI 074	Response Data	In the past three years, what percent of residential structure fires were confined to the object of or room of origin in each ZIP code?	Advanced	3
KPI 075	Geographic Coverage & Analytics	Currently, how many full-time equivalent analysts does the department have whose skills are equivalent to the roles defined in NFPA 1022?	Basic	2

KPI 076	Geographic Coverage & Analytics	What percent of the ZIP code is beyond a five-minute drive from all current fire stations based upon a GIS-based drive time analysis (isochrones), completed in the past three years, based upon observed road speeds, traffic impediments, and apparatus maneuverability from each fire station?	Basic	2
KPI 077	Geographic Coverage & Analytics	In the past three years, how many response outliers were reviewed, evaluated, and signed off by someone in a leadership capacity to identify performance improvement opportunities and/or technical problems?	Basic	2
KPI 078	Geographic Coverage & Analytics	In the past three years, has the department completed or revised a comprehensive Standards of Cover (SOC) analysis that covers each ZIP code?	Advanced	3
KPI 079	Geographic Coverage & Analytics	In the past three years, has the department created a written Community Risk Reduction Plan with at least three (3) SMART Goals to reduce incidents or risk identified as part of a comprehensive Community Risk Assessment (CRA)?	Advanced	3
			Total Potential Prima Facie Points	60