



City of Hanford
Fire Department

White Paper:
Fire Protection Provided from
Surrounding Jurisdiction

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Current Staffing Around Central Valley

Fire Departments around the country utilize Verisk, formally the Insurance Services Office (ISO) and the National Fire Protection Association (NFPA) to evaluate and measure the abilities. Verisk and ISO ratings are interchangeable, but most people are more familiar with using ISO. ISO matrices are established based on a static system without considering response patterns, call volumes, and availability of resources. ISO classification is utilized by insurance companies to establish rates for customers. 47% of the ISO rating comes from the fire department. The National Institute of Science and Technology (NIST) became involved with fire suppression and prevention to reduce the firefighter and civilian lives lost in fires. NIST coordinated with several organizations to develop time standards that are capable of being reproduced by any organization. Therefore, NIST became the most reliable source for resource time standards. NFPA adopted NIST recommendations in developing their standards.

Hanford Fire Department is an island in that we are not surrounded by like resources. Kings County responds primarily with 2.0 staffing from most of their stations. Kings County Station 4 and 5 are the closest stations to assist Hanford as part of the Automatic Aid Agreement. Station 4 is staffed with 3 firefighters but is often used to cover Corcoran when they are assigned to an extended call. Additionally, the High-Speed Rail is paying for Kings County to move this station further south, eliminating its reliability for establishing an effective workforce within time standards to Eastern Hanford. Lemoore and Laton are all volunteer departments and cannot be counted on for a rapid and reliable response. Through the data collected from NIST, the NFPA has established an effective response force for fireground minimum staffing levels. At best and with our automatic aid agreement, the City of Hanford can handle a low-level structure response without requesting out of region resources.

FIRE SUPPRESSION

City	Population	Current ISO Rating (2016)	Fire Stations per Population (rounded to nearest 1000)	Minimum Firefighters per 1,000 Population	Engine / Truck Staffing	Shift Battalion Chiefs
Bakersfield	403,455	2	1 per 29,000 (14)	.49 (199)	3 / 4	Yes
Clovis	120,124	2	1 per 21,000 (6)	.47 (57)	3 / 3	Yes
Delano	51,428	Kern County	Kern County	Kern County	Kern County	Yes
Dinuba	24,563	4	1 per 25,000 (1)	.85 (21)	2.0 / Augmented by Ambulance Staff	No
Fresno	542,107	3	1 per 26,000 (21)	.55 (300)	3 / 3	Yes
Manteca	83,498	2	1 per 17,000 (5)	.66 (55)	3 / 3	Yes
Merced	86,333	2	1 per 17,000 (5)	.66 (57)	3 / 3	Yes
Porterville	62,623	3	1 per 21,000 (3)	.62 (39)	3	Yes
Tulare	68,875	2	1 per 23,000 (3)	.52 (36)	3 / 2	Yes
Visalia	141,384	4	1 per 24,000 (6)	.47 (66)	3 / 3	Yes
Hanford	59,167	2	1 per 20,000 (3)	.49 (27)	3	No

Comparisons with Cities used in the Hanford Compensation Study

NOTES:

- Kern County Fire Department has 11 stations with 48 firefighters, within or on the border of Bakersfield City limits staffed will 3 firefighters on engines and trucks. 2 stations run with fully staffed engines and trucks. 2 additional Battalion Chiefs are also staffed in those stations. A JPA allows seamless response for the City of Bakersfield.
- Clovis, Merced, Tulare, and Visalia currently respond with 2 companies out of one station until their new stations are complete. Each agency is currently working on adding an additional fire station. Clovis is expected to open their station in May 2022.

City	Population	Current ISO Rating (2016)	Fire Stations per Population (rounded to nearest 1000)	Firefighters per 1,000 Population	Engine / Truck Staffing	Shift Battalion Chiefs
Hanford	59,167	2	1 per 20,000 (3)	.51 (30)	3	Yes
Hanford	59,167	2	1 per 15,000 (4)	.66 (39)	3	Yes

HFD Statistics adding Shift Battalion Chiefs and Station 4

NOTES:

- Shift Battalion Chiefs count toward achieving an Effective Response Force

COMMUNITY RISK REDUCTION

City	Population	Estimated Inspections	Full-Time Inspectors Including Fire Marshal	Part-Time Inspectors
Bakersfield	403,455	7,000	8	N/A
Clovis	120,124	2,600	3	N/A
Delano	51,428	Kern County	Kern County	Kern County
Dinuba	24,563	800	1	N/A
Fresno	542,107	20,000	20	N/A
Manteca	83,498	4,000	3	N/A
Merced	86,333	3,000	2	N/A
Porterville	62,623	3,200	3	N/A
Tulare	68,875	3,000	2	N/A
Visalia	141,384	9,500	5	N/A
Hanford	59,167	2,200	1	2

Comparisons with Cities used in the Hanford Compensation Study

NOTES:

- Inspections are estimates based on internet search of businesses, apartments, and other mandatory inspections.
- Mandatory inspections are now required to be completed by a full-time employee. Examples of mandatory inspections include apartments, jails, hospitals, and hood systems.
- Inspections listed do not include new construction

REFERENCES:

ISO RATING

ISO collects data for more than 48,000 communities and fire districts throughout the country. These data are then analyzed using a proprietary Fire Suppression Rating Schedule (FSRS). This analysis then results in a PPC (Public Protection Classification) score between 1 and 10 for the community, with Class 1 representing "superior property fire protection" and Class 10 indicating that an area doesn't meet the minimum criteria set by the ISO. In 2013, the revised FSRS was released; it adds an emphasis on a community's effort to limit loss before an incident occurs (fire prevention). ISO rating occur every 4-5 years.

In developing a PPC, the following major categories are evaluated:

- Emergency Communications: Fire alarm and communication systems, including telephone systems, telephone lines, staffing, and dispatching systems.
- Fire Department: The fire department, including equipment, staffing, training, and geographic distribution of fire companies.
- Water Supply: The water supply system, including the condition and maintenance of hydrants and the amount of available water compared to the amount need to suppress fires.
- Fire Prevention: Programs that contain plan review; certificate of occupancy inspections; compliance follow-up; inspection of fire protection equipment; and fire prevention regulations related to fire lanes on area roads, hazardous material routes, fireworks, barbecue grills, and wildland-urban interface areas.
- Public Fire Safety Education Programs: Fire safety education training and programs for schools, private homes, and buildings with large loss potential or hazardous conditions, and a juvenile firesetter intervention program.
- A total of 105.5 points may be awarded based on the following criteria:
 - Emergency Communications Maximum 10 points
 - Fire Department Maximum 50 point
 - Water Supply Maximum 40 points
 - Community Risk Reduction Maximum 5.5 points

NFPA

The National Fire Protection Association (NFPA) is a global self-funded nonprofit organization established in 1896, devoted to eliminating death, injury, property, and economic loss due to fire, electrical, and related hazards.

Vision: We are the leading global advocate for the elimination of death, injury, property, and economic loss due to fire, electrical and related hazards.

Mission: To help save lives and reduce loss with information, knowledge, and passion.

NFPA delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach, and advocacy; and by partnering with others who share an interest in furthering our mission. NFPA membership totals more than 50,000 individuals around the world.

NIST

Fire testing may have started some 2.5 million years ago when one of our ancestors stuck his hand into the first flame and “scientifically” determined that the temperature was too hot to bear. Since that primitive beginning, humans have been on an unending quest to understand, measure and exploit the behavior of fire—and most importantly, to improve our ability to protect life and property from its ravages. Fire testing at NIST, a staple of the agency’s research since the early 1900s, has helped provide much of the data, insights and knowledge demanded by that pursuit. Research has run covered everything from fire safety engineering and firefighting to fire investigation and fire testing to fire data management and intentional burning.

- **Fire Reconstructions:** NIST thoroughly investigates some of the country’s most unique and devastating wildland-urban interface (WUI) and building fires, such as the Charleston Sofa Super Store fire. By studying and reconstructing the behavior and timeline of these fires in detail, NIST makes recommendations, some of which have led to improved codes and standards related to fuel load, sprinklers, egress, and other fire safety considerations.
- **Materials Flammability:** From building materials on the WUI to furniture in the common home, NIST devises test methods and mitigation strategies for reducing the flammability of numerous materials. NIST’s research in this area has bolstered state and federal standards and, in the case of mattress flammability, had a measurable lifesaving impact.
- **Fire Modeling:** NIST developed and continues to update advanced fire modeling software capable of digitally recreating complex fire and smoke behaviors. These free tools have played key roles in cracking forensic cases of residential and industrial fires and supporting studies on and the design of fire protection systems.
- **Smoke Detection:** For decades, NIST has rigorously tested smoke alarms and detectors, like those used in many homes (and in space), to raise the bar for their performance. NIST’s work in this area laid the groundwork for several standards for the sensitivity and installation of these vital technologies.

INSTITUTION OF FIRE ENGINEERS 20/20 VISION

- Vision 20/20 is a project hosted by the Institution of Fire Engineers (IFE) – USA Branch (IFE-USA), a 501(c) (3) non-profit global organization.

- Vision 20/20 Project is guided by a coalition of national organizations and experts exemplifying how collaboration, communication, and commitment to data-based solutions saves lives and property.
- Previous national plans for fire protection have had a great deal in common. President Truman's 1947 Report on Fire Prevention, to the landmark report America Burning, first completed in 1973, and subsequent national reports from Wingspread, Solutions 2000 and others, a common theme for increasing efforts in fire prevention is always emphasized as a key component to the fire safety problem in the United States.
- Still, fire safety efforts continue to be under-funded and under-staffed in almost all fire departments. This approach results in more fires, loss of life and property damage that may normally occur under a different approach of "prevention first". With funding from the U.S. Department of Homeland Security Assistance to Fire Fighters Fire Prevention and Safety Grant program, the Institution of Fire Engineers US Branch has established a steering committee comprised of noted fire service and related agency leaders to guide a national strategic planning process for the fire loss prevention that results in a national plan that will coordinate activities and fire prevention efforts.
- What is different about this plan? This project involves a large number of participants representing all areas of fire prevention as well as other advocates and stakeholders to the plan and its recommended outcomes.
- This project is committed to action, with a few strategic recommendations being converted to a national plan that stakeholders will be asked to support with documentation of specific actions and benchmarks instead of a long list of recommended practices that everyone agrees are important (but then never get completed).
- This project will not create recommendations in a vacuum. Other existing efforts that have identified significant progress toward achieving prevention goals will be considered to avoid competing efforts.

OSHA

The safety of firefighters engaged in interior structural firefighting is the major focus of paragraph (g)(4) of the OSHA Respiratory Protection standard. This provision requires that at least two employees enter the Immediately Dangerous to Life or Health (IDLH) atmosphere and always remain in visual or voice contact with each other. It also requires that at least two employees be located outside the IDLH atmosphere, thus the term, "two in/two out". This assures that the "two in" can monitor each other and assist with equipment failure or entrapment or other hazards, and the "two out" can monitor those in the building, initiate rescue, or call for back-up. One of the "two out" can be assigned another role such as incident commander.