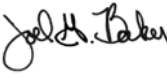




MEMORANDUM

TO: City Manager Office

FROM: Joel G. Baker, Fire Chief 

DATE: January 17, 2025

SUBJECT: Austin Fire Department Position on 2024 IBC Proposed Single Stair changes

The Austin Fire Department (AFD), in collaboration with the Development Services Department (DSD), is working toward adoption of the 2024 International Building Codes (IBC). One high visibility issue has been a local amendment to Code 1006.3.4.2 Single Stair in Certain R-2 Applications (see attached staff Single Stair amendment).

The requested City of Austin Staff proposed amendment in response to [Council Resolution 20240502-094](#) limits usage of single staircases in buildings with a maximum of five stories and requires additional fire protection engineering features and limitations to square footage per floor to mitigate risks. There is a proposal for the 2027 edition of International Code that allows a similar allowance of single staircase to a maximum of four stories. AFD supports the proposal from a *structural engineering perspective*.

To support the proposal from an *operational perspective* AFD would need an additional **three/five** staffed aerial devices put in service. National Fire Protection Association (NFPA) Standard 101 requires two means of escape. Multiple staircases allow one stairwell for fire attack and a second one for resident escape/evacuation. In single staircase buildings, residents caught above where the fire occurs will need to be protected in place and cannot be evacuated via the stairwell. Once a fire attack has commenced that stairwell will be exposed to dangerous heat and products of combustion. This concern is shared by the [International Association of Fire Firefighters and Metro Fire Chiefs Association](#). Additionally, ground ladders are only able to reach the third floor (current code only allows single staircases in buildings up to three stories), so any external evacuation of higher floors would require aerial apparatus with access to all sides of the building.

Additionally, NFPA Standard 1710 sets a response objective for initial full alarm complement to arrive within 8 Minutes for hazards such as residential buildings. AFD has not added an aerial to operation since the mid-1990s. The attached maps show the effects the lack of additional arial trucks have had on response times. *Maps 1 & 2* shows how current aerials response times and how they are not meeting AFD's objective of 8 minute response times for *first* unit on scene. In order to meet AFD's target response goal, aerials should not have more than 5 minutes travel in addition to 3 minute dispatch & turnout time.

Seattle, the most referenced city with single staircases, has 33 fire stations protecting 82.78 square miles. AFD protects 306 square miles with 54 stations. Seattle Fire has a ratio of 1 engine to 2.7 aerial compared to AFD's current 1 engine to 3.9 aerials. With the addition of 5 aerials AFD would match the 1:2.7 ratio. Please see the attached *AFD vs SFD Response Time* to see the comparison of response times over three years.

cc: T.C. Broadnax, City Manager
Jon Fortune, Deputy City Manager
Eddie Garcia, Assistant City Manager
José Roig, DSD Director

TABLE 1006.3.4(1)

STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

<u>STORY</u>	<u>OCCUPANCY</u>	<u>MAXIMUM NUMBER OF DWELLING UNITS</u>	<u>MAXIMUM EXIT ACCESS TRAVEL</u>
<u>Basement, first, second, third, 4th or 5th story above grade plane and occ. roofs over the 1st, 2nd, 3rd or 4th story</u>	<u>R-2^{a, b, c, d}</u>	<u>4 dwelling units</u>	<u>125 feet</u>
<u>Sixth story above grade plane and higher</u>	<u>NP</u>	<u>NA</u>	<u>NA</u>

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is used for R-2 occupancies consisting of dwelling units. For R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 1006.3.4(2).

d. 5-story buildings and 4-story buildings with an occupiable roof above the third story shall also comply with Section 1006.3.4.2.

1006.3.4.2 Single exit 4 or 5 story Group R-2 Occupancies. 4 or 5 story buildings with a single exit for Group R-2 dwelling units shall comply with Table 1006.3.4(1) and all of the following:

1. The net floor area of each floor served by a single exit shall not exceed 4,000 square feet (418.5 m).

2. An exterior exit stairway or interior exit stairway shall be provided at each story served by a single exit. Exit Access Doors into the exit stairway shall swing in the direction of egress travel regardless of the occupant load served.
3. Regardless of the stairway construction type, automatic sprinkler locations in interior exit stairways shall comply with the requirements of NFPA 13 for combustibles stairways.
4. There shall be no more than 20 feet (6096 mm) of travel to the exit stairway from the entry/exit door of any dwelling unit.
5. The exit shall not terminate in an egress court where the court depth exceeds the court width unless it is possible to exit in either direction to the public way.
6. Other occupancies shall not communicate with the Group R occupancy portion of the building or with the single-exit stairway. Exception: parking garages and occupied roofs accessory to the Group R occupancy are permitted to communicate with the exit stairway.
7. The exit serving the Group R occupancy shall not discharge through any other occupancy, including an accessory parking garage.
8. Openings to the interior exit stairway enclosure shall be limited to those required for exit access into the enclosure from normally occupied spaces, those required for egress from the enclosure, and openings to the exterior. Elevators shall not open into the interior exit stairway enclosure.
9. The fire department connection (FDC) shall be located adjacent to, and be visible from, the primary fire department vehicle access location.
10. A manual fire alarm system and automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be provided. Smoke detectors shall be in common spaces outside of dwelling units, including but not limited to gathering areas, laundry rooms, mechanical equipment rooms, storage rooms, interior corridors, interior exit stairways, and exit passageways.
11. Electrical receptacles shall be prohibited in the single exit stairway.
12. Elevator access shall be provided.

INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS

METROPOLITAN FIRE CHIEFS ASSOCIATION



Joint Statement Regarding

SINGLE STAIRWAYS IN MULTIFAMILY BUILDINGS

The International Association of Fire Fighters (IAFF) and Metropolitan Fire Chiefs Association (Metro Chiefs) have joined forces to notify our members and the general public of efforts in some jurisdictions to reduce the number of required exit stairwells and permit a single means of egress in multifamily buildings up to six stories. Current model code requires at least two means of egress in residential occupancies above three stories. These legislative actions are an attempt to supersede the model safety codes, placing occupants and fire fighters at greater risk of injury and death. We must do all we can to defeat these misguided efforts.

Allowing residential structures to be built with exemptions or modifications contrary to decades of research and investigation will jeopardize safety. Put simply, lives will be endangered.

History is filled with examples of incidents where a single means of egress and blocked egress resulted in trapped occupants and loss of life. More concerning is that some state, provincial, and local legislatures are considering reducing established critical life-saving features by circumventing the national code development consensus process. The national code development process ensures equal, non-biased dialogue between all stakeholders to find consensus. Circumventing the code development process jeopardizes the public, building occupants, and first responders.

Much like smoke alarms and carbon monoxide alarms, proper exiting is known to have saved thousands of lives and remains the fundamental building block to life safety. Layered fire prevention measures encompassing multiple means of egress, fire suppression systems, fire-rated construction, automatic fire alarm systems, compartmentalization, and many other codes provide a reasonable, widely accepted, and nationally developed level of protection. Drastic changes, such as those proposed in some jurisdictions, directly contrast with time-tested safety fundamentals.

Model codes and standards are minimum safety requirements established to address identified hazards, including fires, explosions, hazardous materials incidents, natural disasters, and other dangerous events.

In opposing this effort, the IAFF and the Metro Chiefs recognize the following:

1. Single means of egress places residents and fire fighters in danger;
2. Many fire departments lack the personnel and equipment required to combat these types of fires and to safely evacuate large numbers of people from elevated floors through a single means of egress;
3. Operations on ground or aerial ladders are hazardous for trained fire fighters. Removing occupants via ground or aerial devices places them at a greater risk of falls or being struck by debris from the fire scene, particularly individuals who may have mobility issues, disabilities, or other vulnerabilities;
4. Providing emergency responders access to only a single entryway for emergency operations negatively impacts rescue and fire suppression efforts, especially if the single exit is obstructed by occupants attempting to evacuate the structure. This removes the responder's ability to utilize one stairwell for occupant egress and establish suppression operations in the second stairwell;
5. Many of these proposed multifamily dwellings serve our most vulnerable populations and place them at greater risk by degrading the standard of living and life safety;
6. Nationally developed consensus model codes and standards are promulgated based on real data from past tragedies, including fire deaths, injuries, and large dollar losses. In addition, modern fire science and technologies are used to create layered protection in buildings, ensuring and enhancing safety. To comply with portions of the code and promote the elimination of other parts will have devastating consequences;

INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS

METROPOLITAN FIRE CHIEFS ASSOCIATION



The IAFF and IAFC Metro Chiefs demand that state legislatures decline efforts to circumvent the model code process and that established egress requirements be maintained.

While the stated intent of a single-stair exit may simplify the building design, it's essential to consider the loss of known life safety requirements. Existing proposals in some states have incorporated additional safety requirements for multi-story buildings when a single exit is allowed. However, when an exit is an exterior stairway, these safety measures are either impossible to achieve or expressly exempt. Despite proposed tradeoffs, many buildings in those areas feature exterior stairways, and the proposed safety provisions have not been incorporated. This raises questions about the true intent behind these safety alternatives – whether they genuinely prioritize fire fighter and occupant safety or merely serve as a convenient workaround.

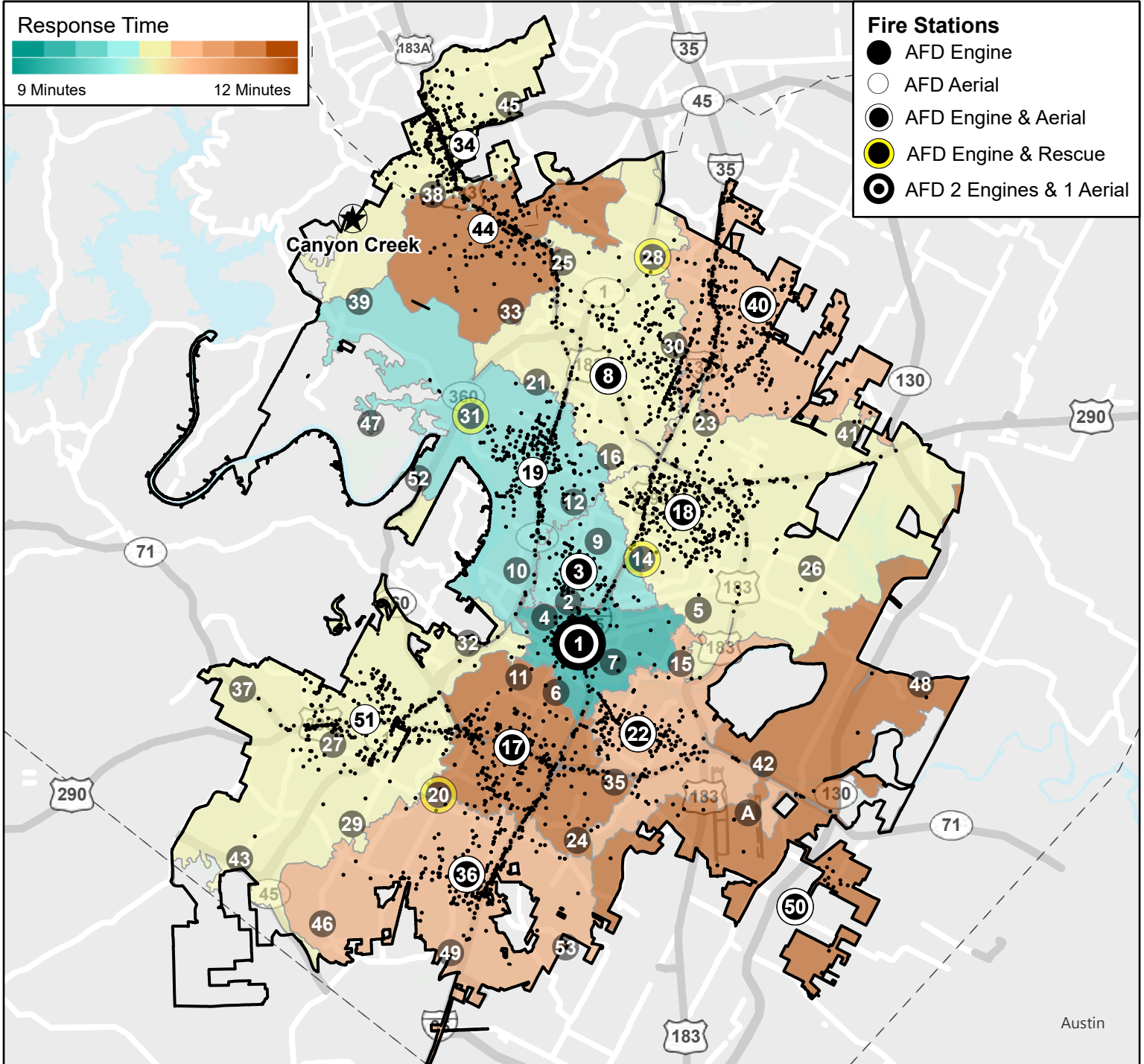
We strongly oppose any changes that lower the minimum safety requirements found in the national consensus model codes and standards.

We implore all stakeholders to continue to collaborate and find workable solutions that maintain fire and life safety as the highest priority.



2024 Aerial Response Times

Emergency incidents with an aerial response. Measured from Call Receipt by AFD/EMS to first aerial arrival on scene. Includes AFD, Auto Aid, Mutual Aid aerial unit responses in City of Austin. Case Base equals VALID Response Times only.



2024 Emergency Incidents 90th Percentile Response Times by Aerial Territory

Ladder 1	396 incidents	09:06	Quint 19	470 incidents	09:29
Ladder 3	149 incidents	09:25	Ladder 22	324 incidents	11:16
Ladder 8	452 incidents	10:44	Quint 34	961 incidents	10:27
Ladder 17	548 incidents	11:44	Ladder 36	282 incidents	11:17
Ladder 18	575 incidents	10:36	Ladder 40	523 incidents	11:22
			Quint 44	298 incidents	11:36
			Quint 50	42 incidents	11:40
			Quint 51	578 incidents	10:34

Created by Austin Fire Department Research & Data Analytics. This map is for general geographic reference only. Territories are based on ESRI's Network Analyst, assuming units are traveling from the home station and does not take into account congestion, construction, or other road conditions that may be present in reality. January 2025.

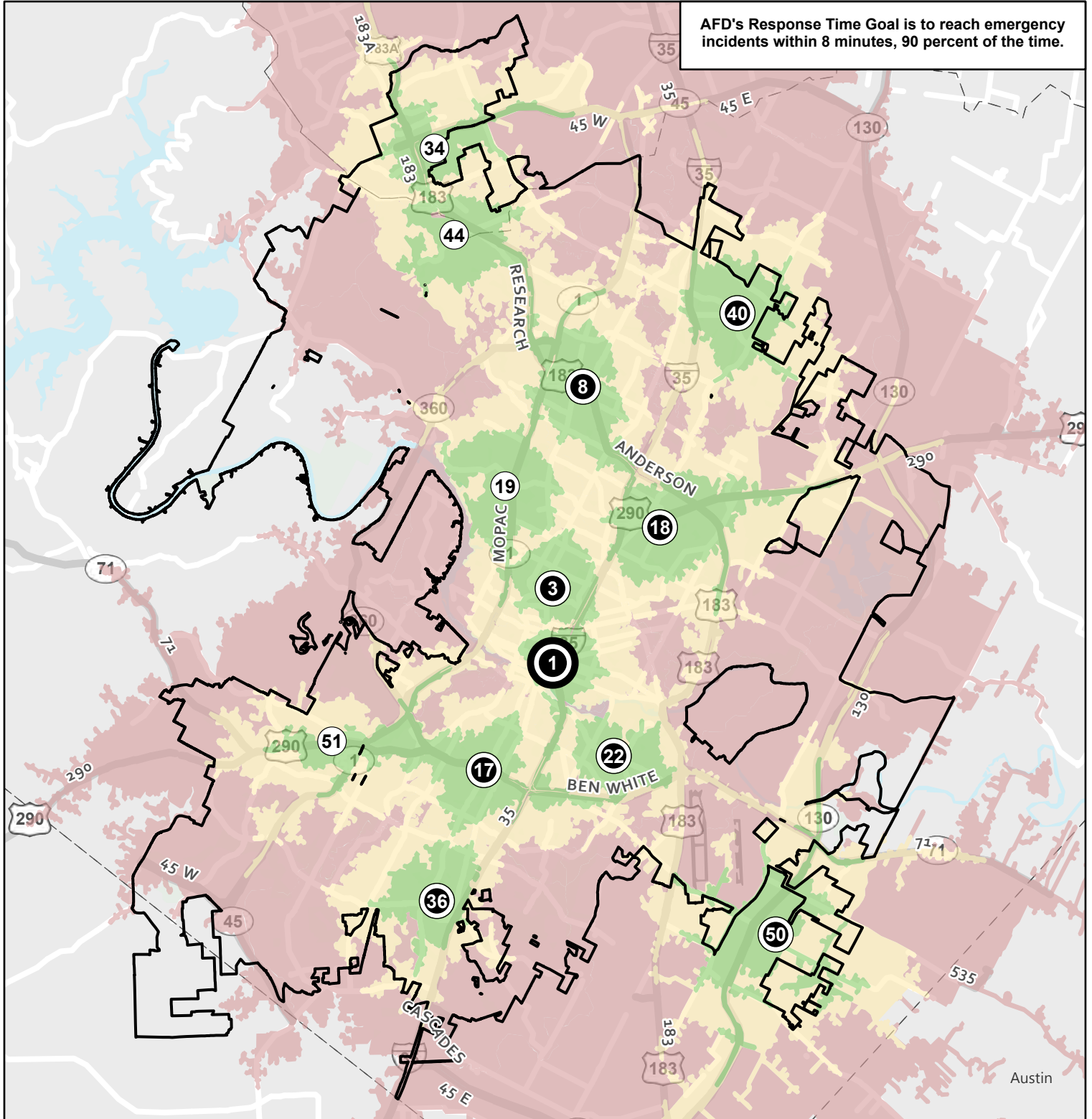


Austin Fire Department




Aerial Modeled Travel Time Capability

January 2025

AFD's Response Time Goal is to reach emergency incidents within 8 minutes, 90 percent of the time.







Fire Stations with a Ladder or Quint

-  AFD 2 Engines & 1 Aerial
-  AFD Engine & Aerial
-  AFD Aerial

Modeled GIS Travel Time from Aerial Stations

Total Response Time = 3 minute dispatch & turnout + travel time

-  < 5 Min Travel Time (Within 8 Min Total Response Time Goal)
-  5 - 8 Min Travel Time (8-11 Min Total Response Time)
-  > 8 Min Travel Time (More than 11 Min Total Response Time)
-  AFD Service Area



AUSTIN FIRE DEPARTMENT

4201 ED BLUESTEIN RD. AUSTIN, TX 78721 P: 512.974.0130 F: 512.974.0141

Table 1

	Seattle Fire Department (SFD)			Austin Fire Department (AFD)		
	2020	2021	2022	2020	2021	2022
	<p>First engine arrival is within 4 minutes <i>SFD response time standard: Arrival of first fire engine is 4 minutes, 90 percent of the time. Measured from unit en route to on-scene.*</i></p>	78%	75%	76%	55%	55%
<p>First full alarm arrival is within 8 minutes <i>SFD response time standard: Arrival of first full alarm assignment is 8 minutes, 90 percent of the time. Measured from unit enroute to on-scene.</i></p>	92%	91%	95%	12%	14%	12%
<p><i>*Note: AFD measures the first arriving frontline unit (to include engines, aerials, rescues, battalion chiefs) from time of call receipt to arrival on-scene, with a goal of 8 minutes, 90 percent of the time. For the purposes of this table, we have mirrored AFD's data to SFD's measurement procedures for apples to apples comparison of performance.</i></p>						