Fire Code

Section 503 and Appendix D

FITES

March 4, 2026

Why We're Here

- December 2 referral of:
  - Sections 503.2.1, 503.2.2, and 503.4.1
  - Appendix D, including section D105.2
- …to develop and recommend revisions for Council consideration by April 2026.
- To provide additional data to detail impacts that have not been fully discussed.

Sections 503.2.1 & 503.2.2

- Requires an unobstructed width of not less than 20 feet…and an unobstructed vertical clearance of not less than 13 feet 6 inches.
- The fire code official can require additional width to ensure safe and effective fire or rescue operations.
- Has been adopted by Council as part of Berkeley's code since at least 2008

Section 503.4.1 and Traffic Calming

- It requires fire department review
- Dozens of projects have been implemented in partnership with Public Works
- Fire has not been a bottleneck or dead-end
- It does not ban traffic calming devices
- Has been in Berkeley's code since at least 2008

Appendix D

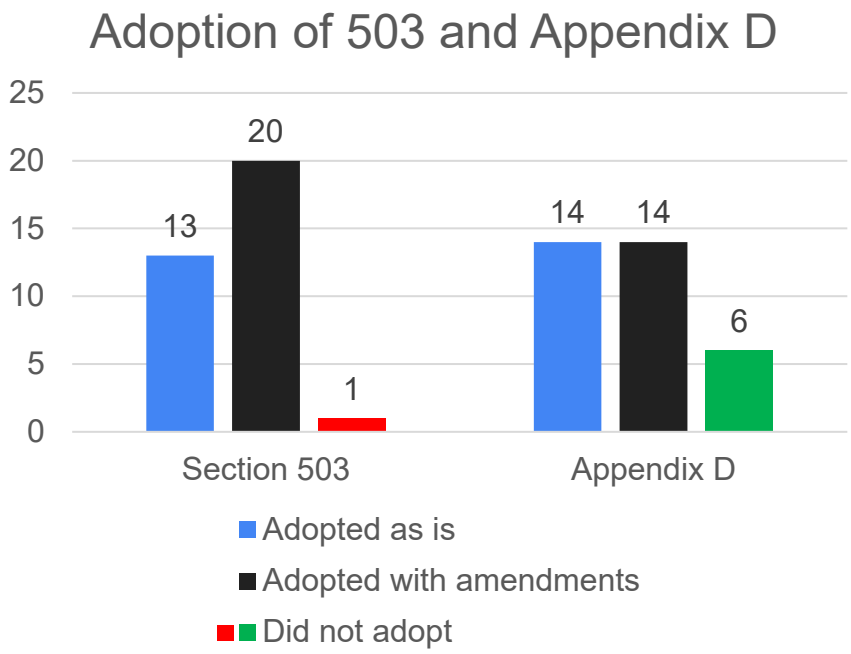
- Provides more detailed, prescriptive standards for roads
- Applied especially near taller buildings and immediately adjacent to fire hydrants
- Helps determine when wider roadways are needed for complex emergencies
- Has been adopted by Council as part of Berkeley's code since at least 2008

Section 503 and Appendix D Survey

A survey was sent to all members of the California Fire Chiefs Association, 34 agencies responded, which cover rural and urban communities:

*Albany, Calistoga, Contra Costa County (13 Cities), Fresno, Cosumnes , County of Sonoma, El Dorado Hills, Fremont, Fullerton, Hayward, Lakeside, Livermore Pleasanton, Marin County, Menlo Park, Monterey County, Murrieta *, Newport Beach *, Daly City, Pacifica, & Brisbane, Oakland, Orange County * (23 Cities), Petaluma, Piedmont, Rancho Cucamonga *, San Bruno, San Jose, San Ramon, Santa Barbara County, Santa Clara County (7 Cities), Santa Rosa, Sonoma Valley, South Pasadena, South San Francisco, and Southern Marin*

- *Red = Did not adopt Section 503*
- *Green = Did not adopt Appendix D*
- ** Established a standalone design guide that replaced Appendix D or amended Section 503 to integrate provisions of Appendix D*



History of Application in Berkeley

- Section 503 and Appendix D have been in place for almost 20 years
- Approved substantial multifamily housing
- Implemented major bike, bus, and traffic-calming projects
- Approved hundreds of special events and streetscape improvements

Examples: Transportation Safety Projects

- Recent projects reviewed and approved include:
  - Bancroft Way Bus and Bike Lane
  - Fulton Street Bike Lane/Calming
  - MLK Jr Way Calming and Pedestrian Islands
  - Downtown Shattuck Avenue Reconfiguration
  - Delaware Bike Lane, Speed Hump/BART Improvements
  - Gilman Street Traffic Roundabouts, Interchange, and protected bike lanes
  - University Avenue at Marina Blvd. Roundabout
  - Dana Street Bike Lane
  - Southside Complete Streets
  - San Pablo Parallel Streets Project (@ 100% design)

Examples: Multifamily Housing Projects

- Multifamily developments approved and built with these sections in-force:
  - 2137 Dwight Way – 8-story mixed use
  - 2587 Telegraph Avenue – 8-story mixed use
  - 1701 San Pablo Avenue – 6-story mixed use
  - 1598 University Avenue – 8-story mixed use
  - 2016 Ashby Avenue – 8-story mixed use
  - 2435 Haste Street – 8-story mixed use
  - 1773 Oxford Street – 5-story apartments
  - 2328 Channing Way – 4-story behind historic building
  - And many, many more…

Vehicle Width Comparison

- There is a spectrum of vehicles that must be considered when designing a street
- These vehicles require a safe width to operate without consequences
- Narrow lanes, parked cars off the curb, and opposing traffic all increase collision risk

VEHICLE COMPARISON

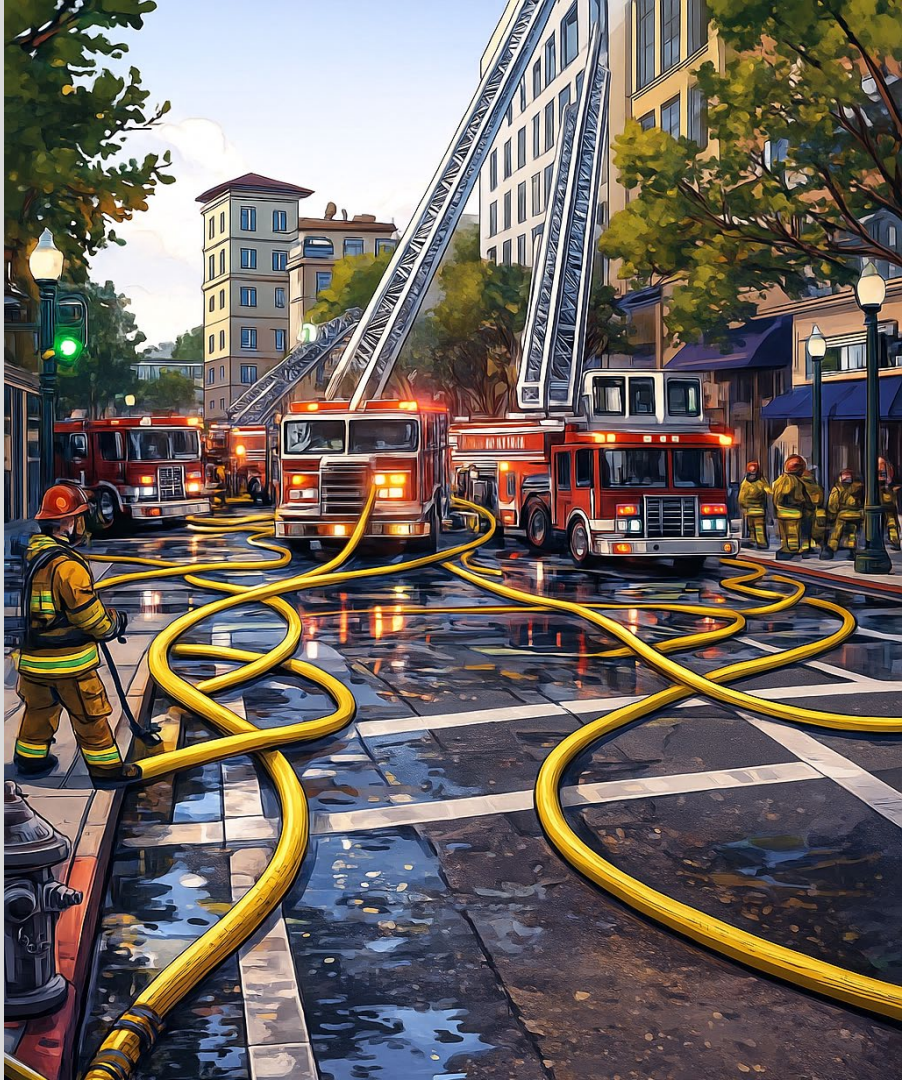
Vehicle	Chassis	With Mirrors	Min/Pref Lane Width
AC Transit	8.6 ft	10.0 ft	11 ft *
Refuse Truck	8.5 ft	10.1 ft	11 ft ^
Fire Engine	8.0 ft	9.0 ft	11 ft ^

** AC Transit Design Guide, Page 19: https://www.actransit.org/sites/default/files/2025-03/March%202025%20TSDG.pdf*

^ Reduced through the design process when localized conditions allow

Firefighting in Tall Buildings

- Initial response of 13 apparatus and 37 firefighters
- Aerial ladders must be positioned between 15 and 30 ft from the building
- Outriggers extend to 14 feet and are needed to operate aerial ladders
- Multiple large hose lines are laid from hydrants to fire engines



Role of Appendix D

- Focuses on:
  - Taller buildings (typically more than three stories)
  - Large or higher-risk occupancies
- Provides clear guidance on when widths greater than 20 ft are needed
- Creates predictable standards for designers and plan checkers

3 Stories

10 Stories

If Appendix D Were Removed

- Standards will not be as transparent
- More potential for variability over time
- Potentially a more difficult process for developers, traffic engineers, and event organizers

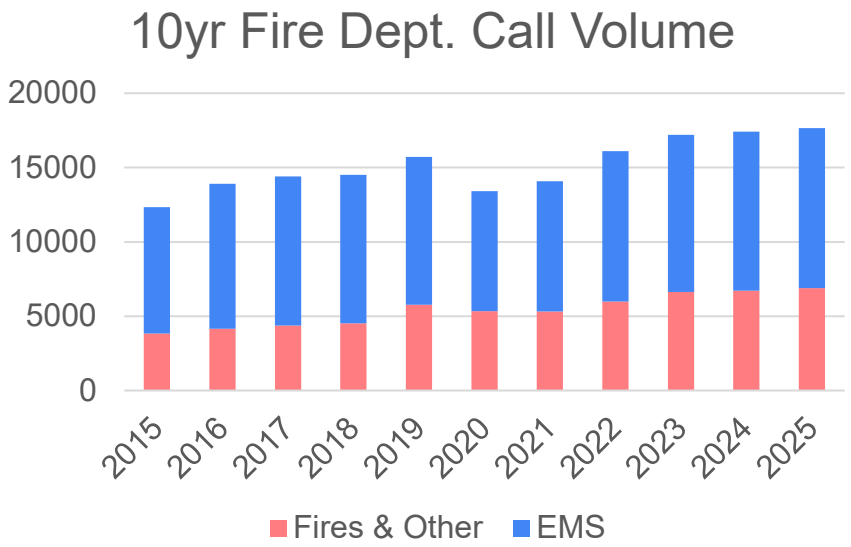
Public Safety Impacts from Roadway Design

Vision 0 and Emergency Operations

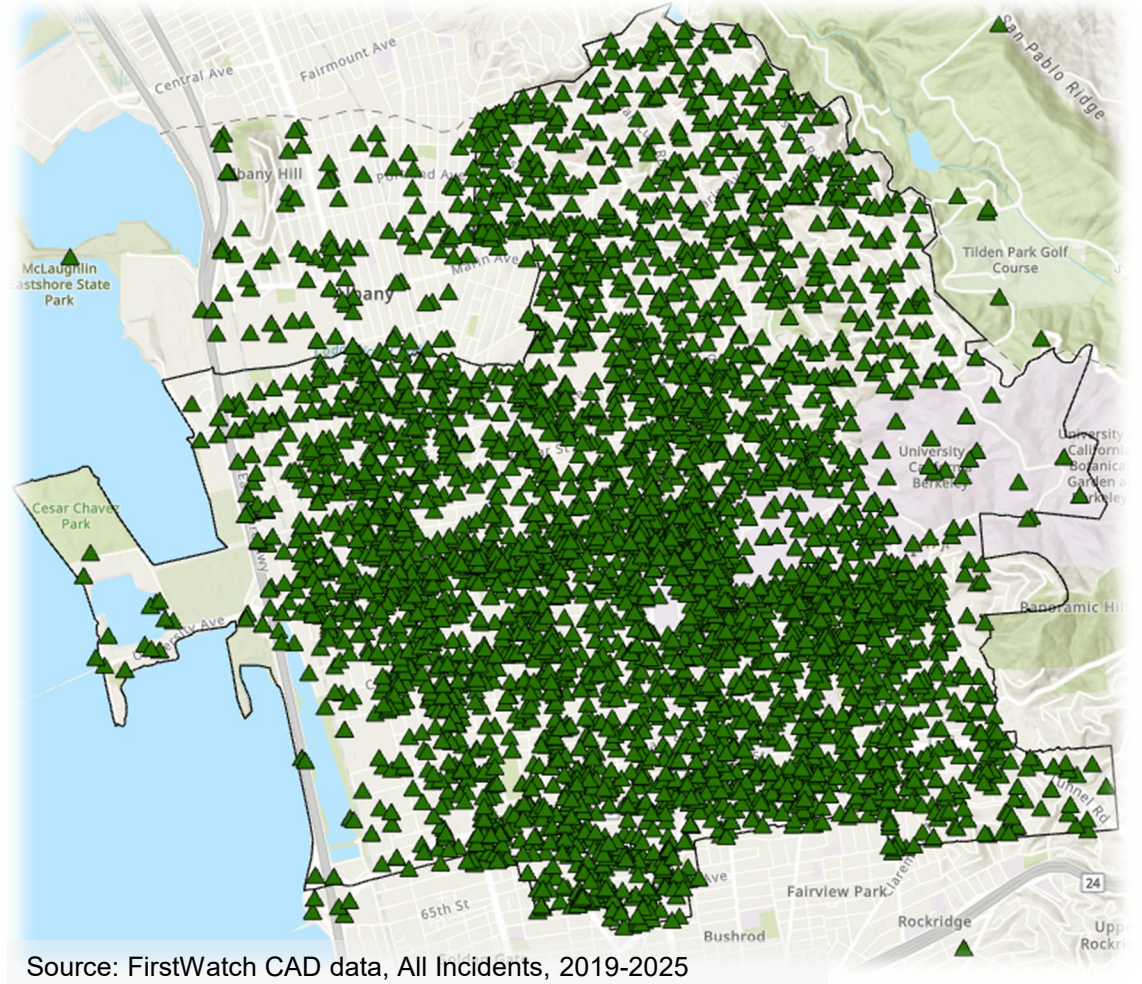
Two Critical Missions focused on Saving Lives

Other Impacts to Roadway Design

- Total call volume rises between 1.5–7% per year
- Cumulative rise of 43% over last 10 years
  - EMS: 27% Increase
  - Fires & Other Calls: 80% Increase

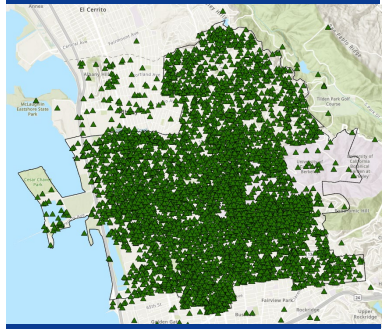


All Responses 2025 (17,659 Calls for Service)

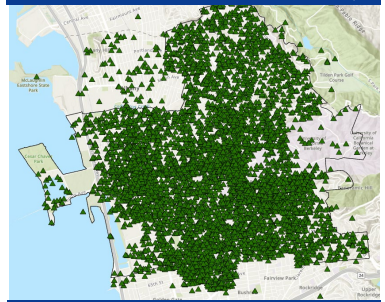


Source: FirstWatch CAD data, All Incidents, 2019-2025

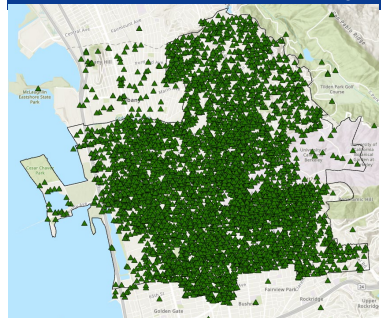
2019 (15,720 incidents)



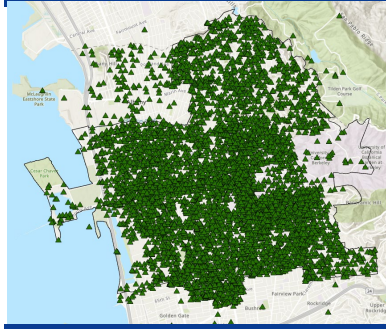
2020 (13,412 incidents) - 15%



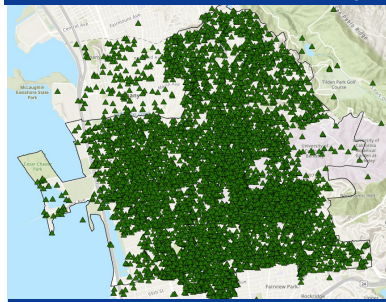
2021 (14,070 incidents) +5%



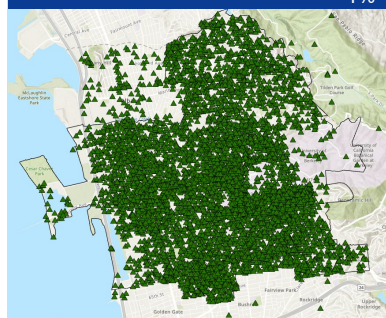
2022 (16,104 incidents) +14%



2023 (17,195 incidents) +8%



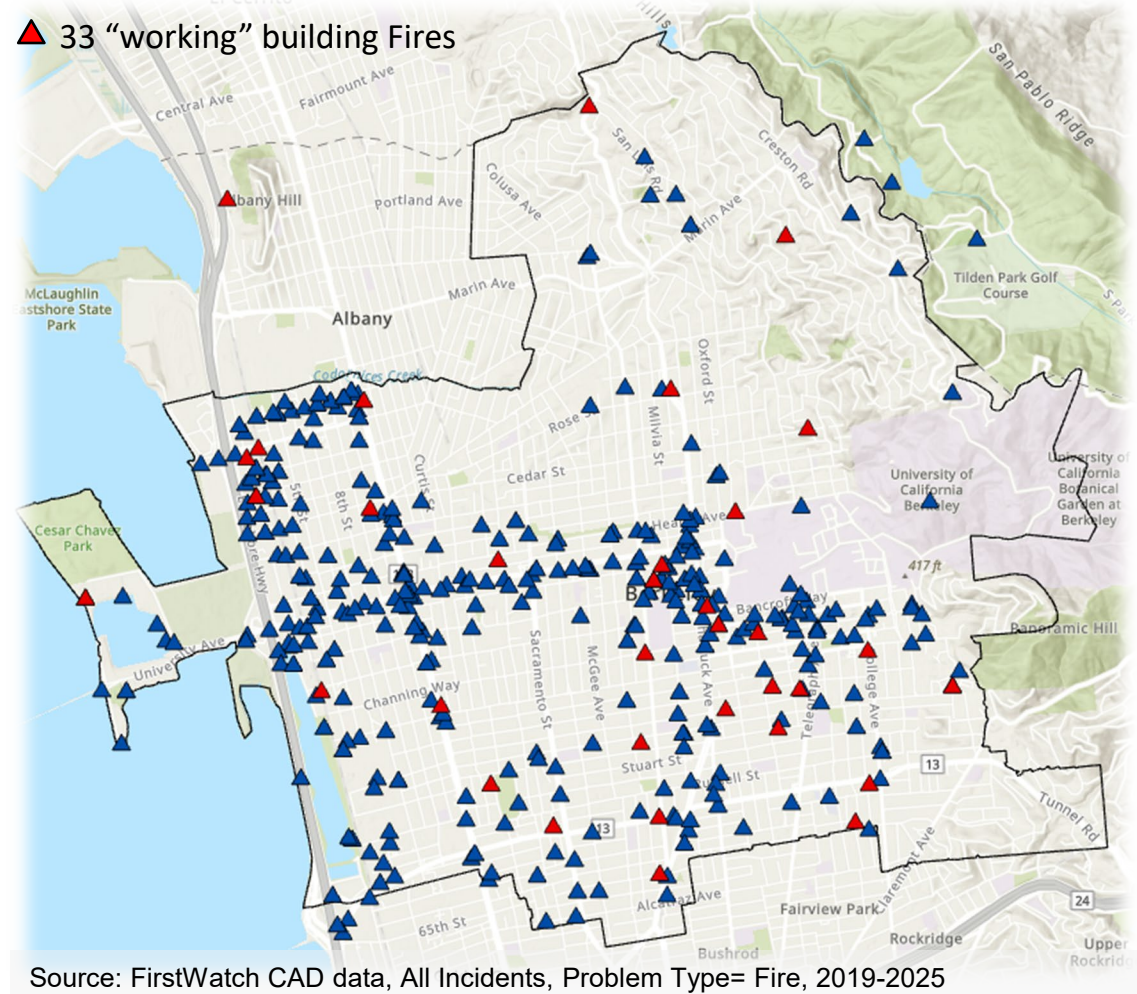
2024 (17,424 incidents) 1%



Fires 2025 (489 Incidents)

⬇ -2%

▲ 33 “working” building Fires

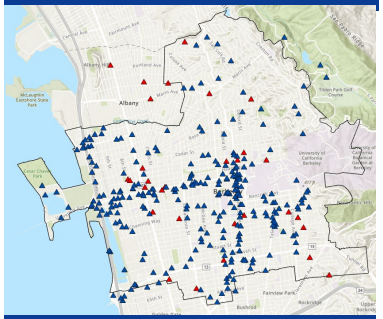


Source: FirstWatch CAD data, All Incidents, Problem Type= Fire, 2019-2025

2019 (320 incidents)

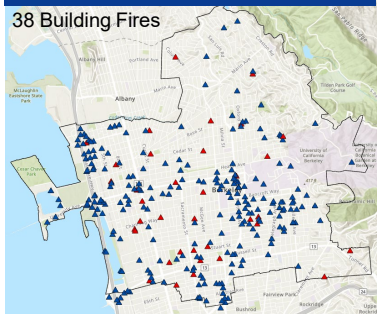
29 Building Fires

2020 (384 incidents)



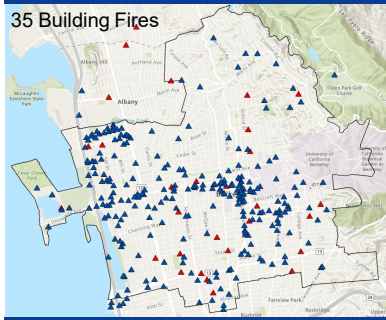
2021 (350 incidents)

38 Building Fires



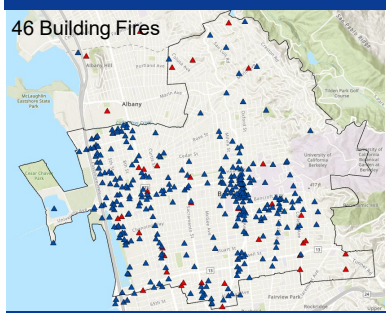
2022 (379 incidents)

35 Building Fires



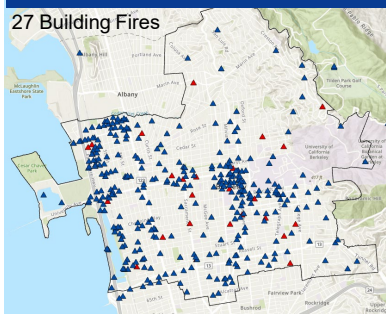
2023 (492 incidents)

46 Building Fires

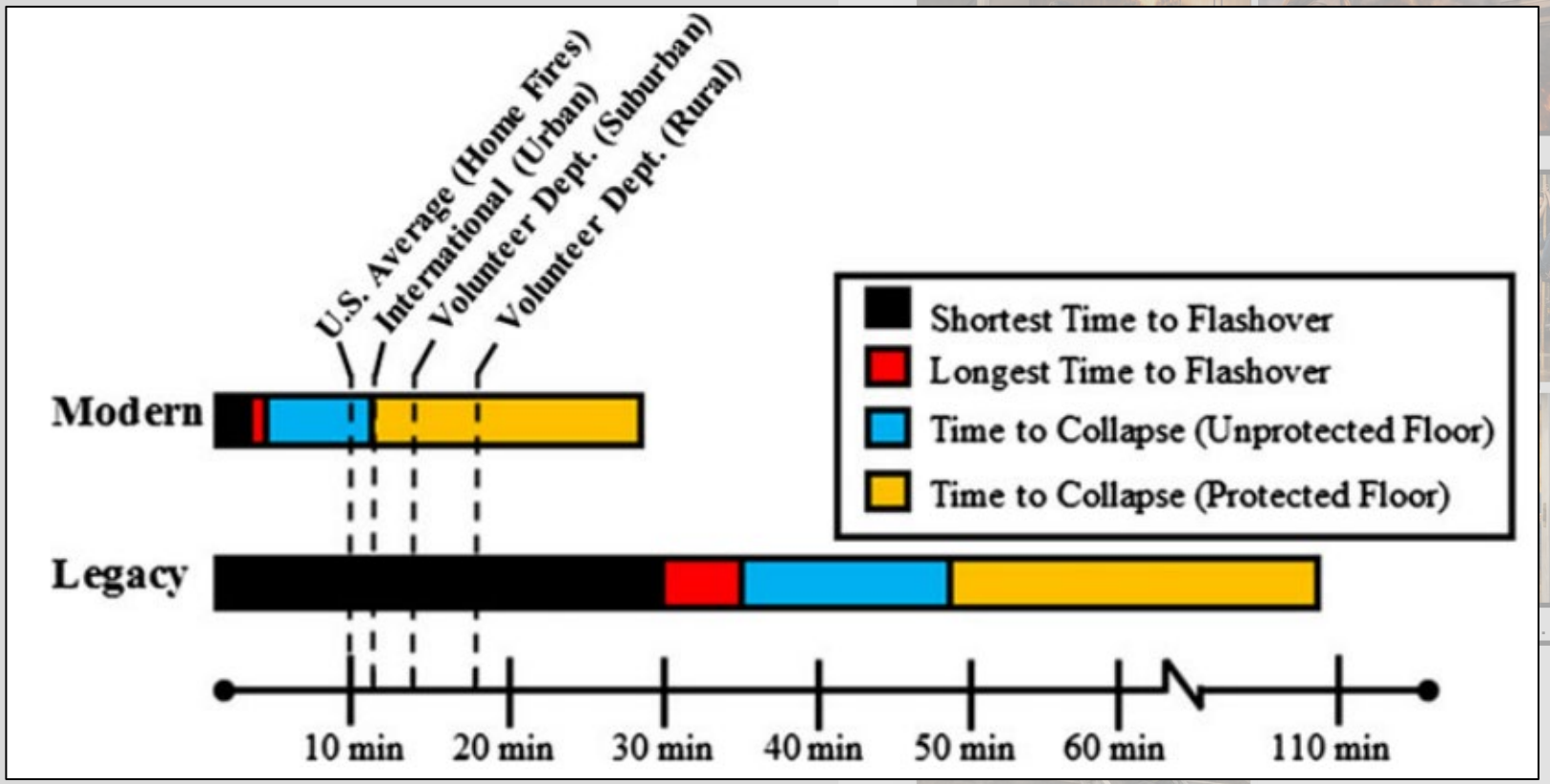


2024 (498 incidents)

27 Building Fires



Modern Fires Are Different

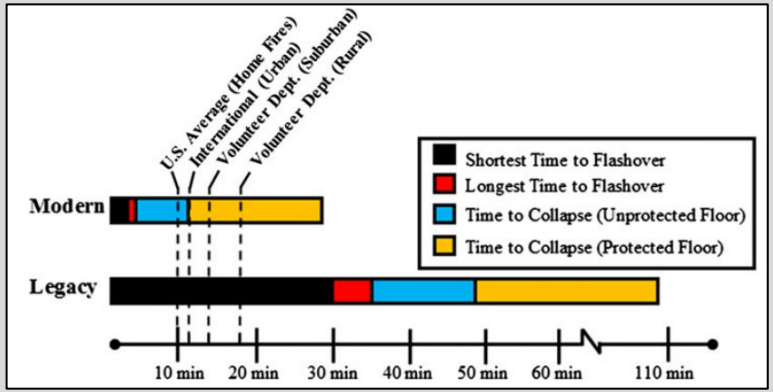


Reference: Analysis of Changing Residential Fire Dynamics and Its Implications on Firefighter Operational Timeframes (2011), Kerber

…Intervention Time

Why Response Times Matter: Fires

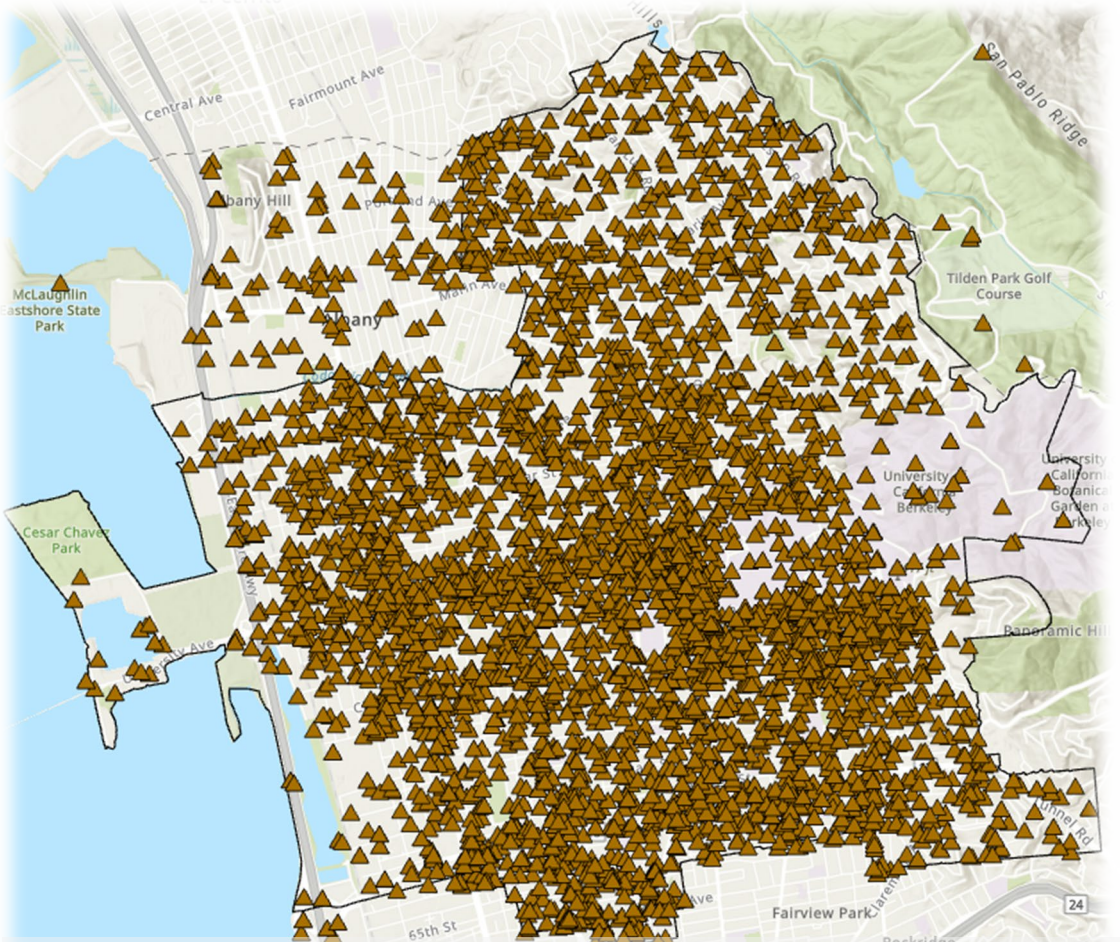
- Modern furniture and construction materials commonly contain polyurethane foam and plastics.
- As a result, today's structure fires burn hotter, spread faster, and generate dense, toxic smoke fueled by these petroleum-based materials.
- Fire growth now doubles in size every 30–60 seconds, reducing average escape time from 30 minutes in the past to approximately 3 minutes today.



Reference: Analysis of Changing Residential Fire Dynamics and Its Implications on Firefighter Operational Timeframes (2011), Kerber – UL FSRI

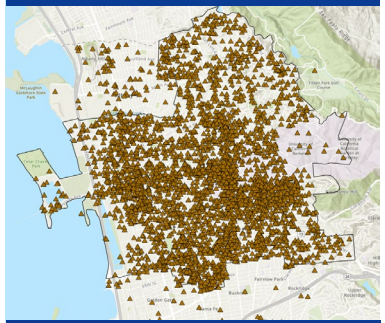
Building Fire Response

All Medical 2025 (11,453 Calls for Service) ⬆ +7%

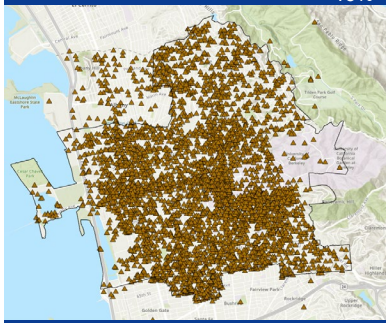


Source: FirstWatch CAD data, All Incidents, Problem Type = Medical Emergency, 2019-2025

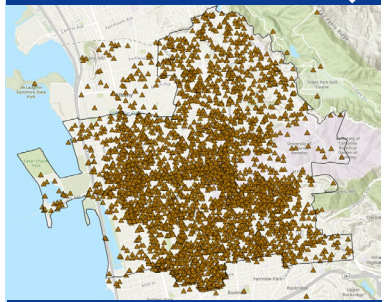
2019 (9,948 incidents)



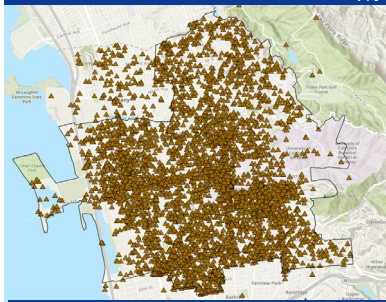
2022 (10,147 incidents) ⬆ +16%



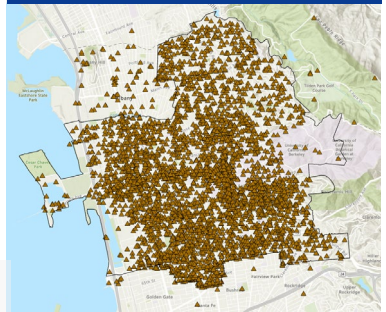
2020 (8,093 incidents) ⬇ - 18%



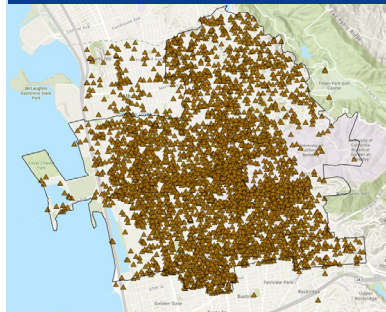
2023 (10,560 incidents) ⬆ +4%



2021 (8,789 incidents) ⬆ +9%



2024 (10,720 incidents) ⬆ +2%

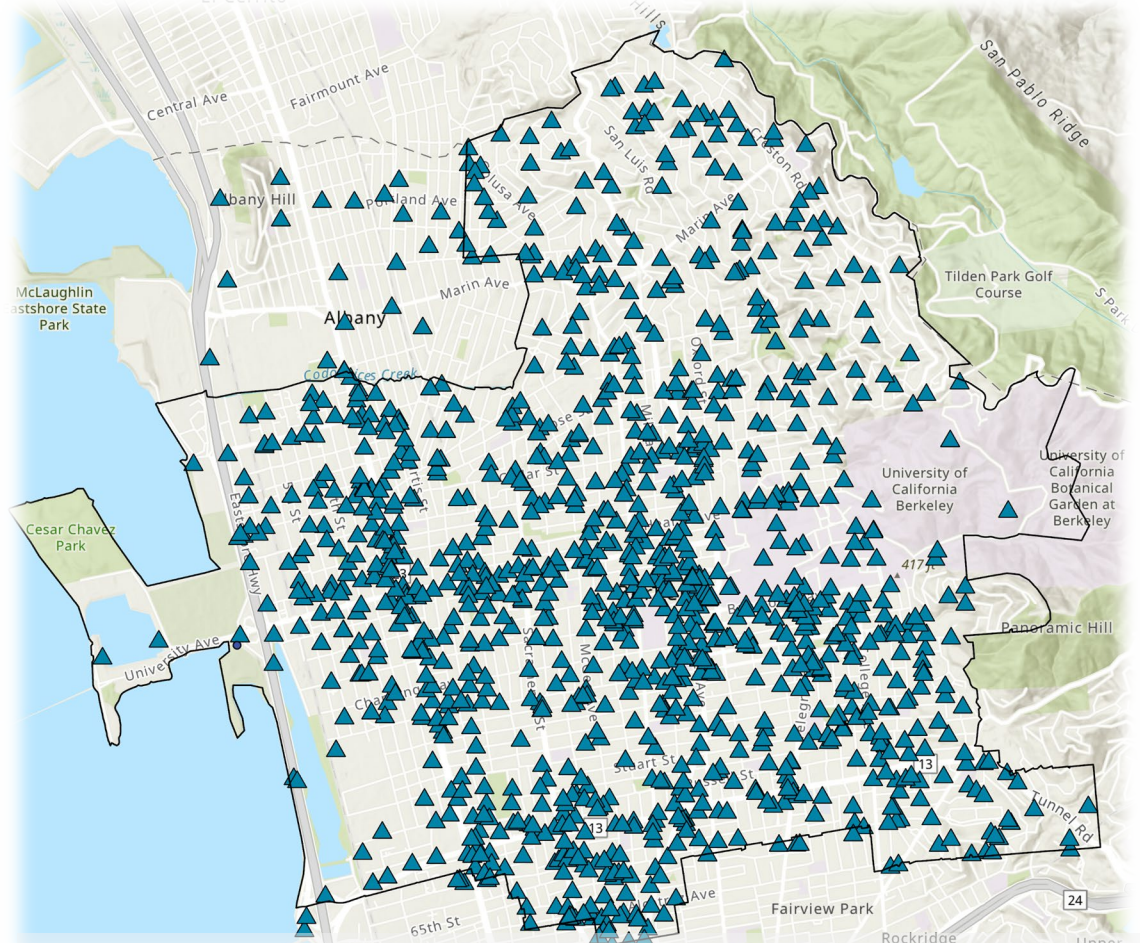


Why Response Times Matter: EMS

- In responding to a cardiac arrest incident, each minute of delayed defibrillation reduces survival chances by 10%
- In FY25 the BFD responded to 67 people in cardiac arrest, because of the chain of survival **15 (23%) of them walked out of the hospital neurologically intact**
- This is an impressive ~**10% higher** than the normal County, State and National average

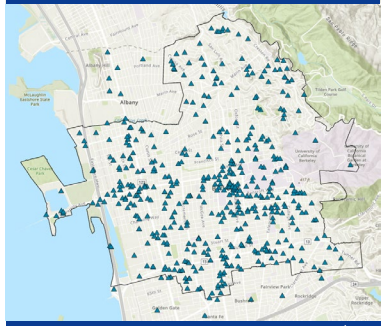
References: City of Berkeley FY25 Cardiac Arrest Registry to Enhance Survival (CARES) data; and National Institute of Health (NIH), Wik L, Hansen TB, Fylling F, et al. Delaying Defibrillation to Give Basic Cardiopulmonary Resuscitation to Patients with Out-of-Hospital Ventricular Fibrillation: A Randomized Trial. JAMA. 2003;289(11):1389–1395. doi:10.1001/jama.289.11.1389

Critical Interventions 2025 (2,134 Incidents) ⬆ +27%

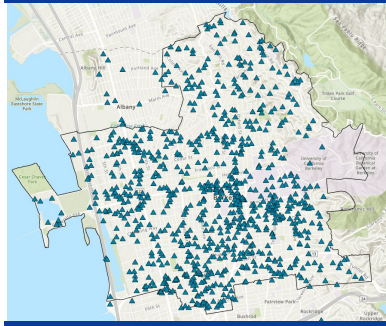


Source: FirstWatch CAD and PCR data, Critical Interventions, 2019-2025

2019 (865 incidents)

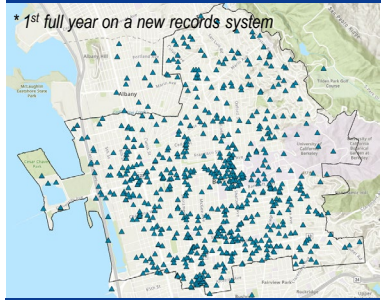


2022 (1,430 incidents) ⬆ +27%

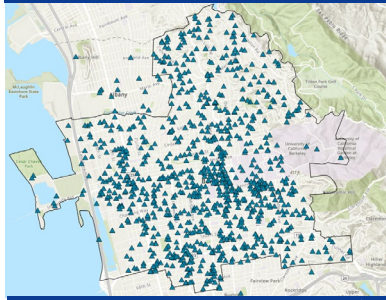


2020 (1,094 incidents*) ⬆ +26%

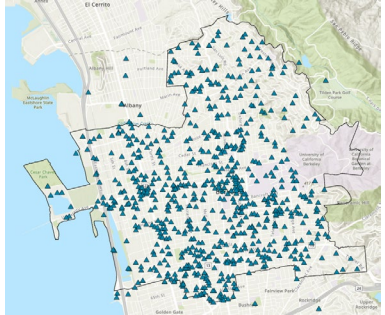
** 1st full year on a new records system*



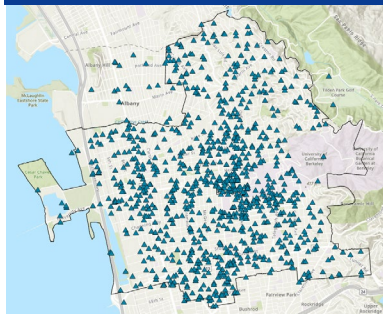
2023 (1,696 incidents) ⬆ +18%



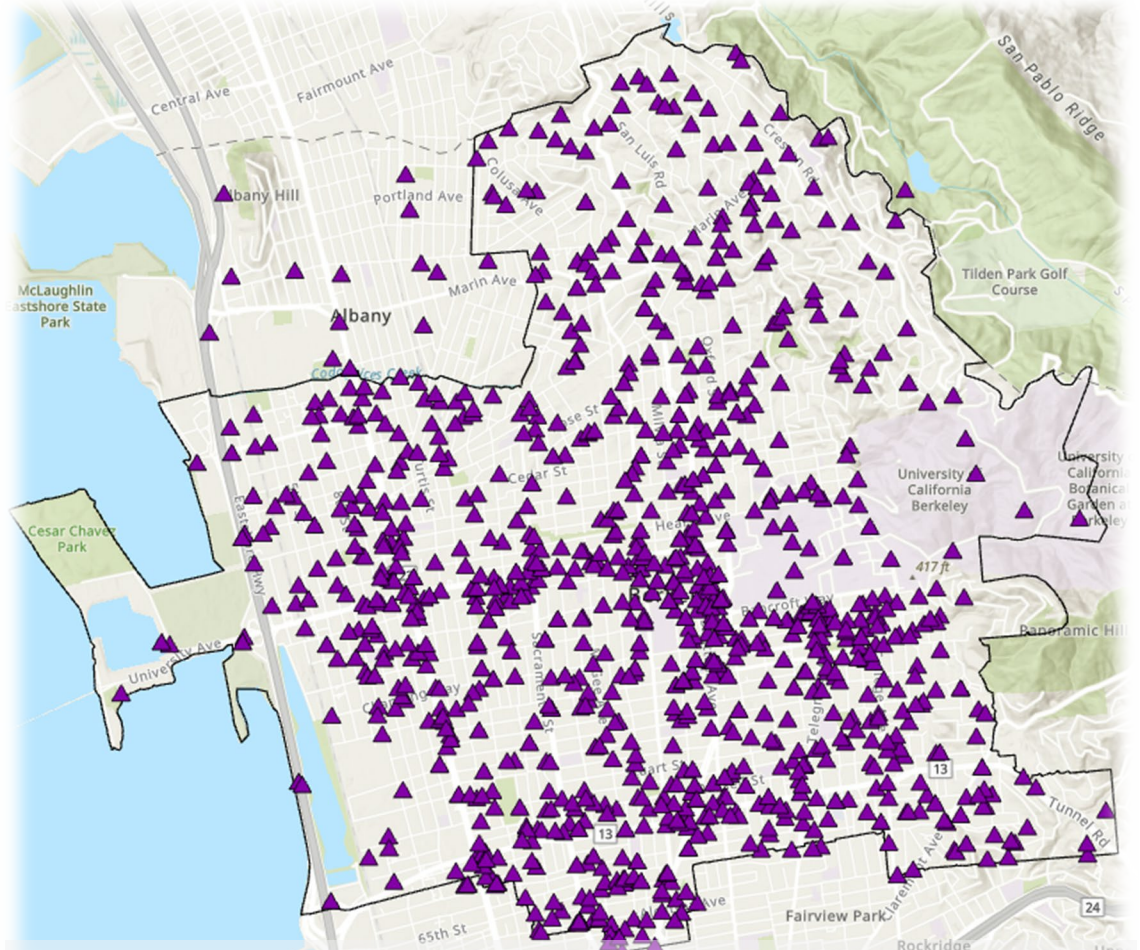
2021 (1,128 incidents) ⬆ +3%



2024 (1,674 incidents) ⬆ +1%

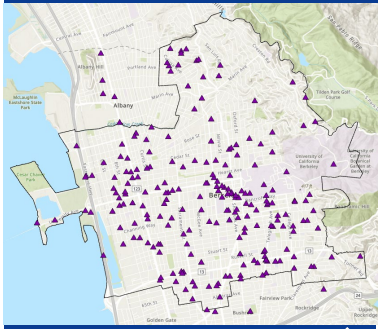


Code 3 Returns 2025 (1,350 Incidents) ⬆ +2%



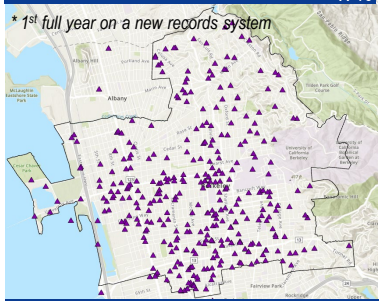
Source: FirstWatch CAD and PCR data, Code 3 Return, Destination= Any Hospital, 2019-2025

2019 (295 incidents)

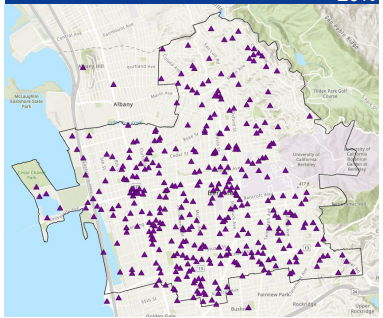


2020 (434 incidents*) ⬆ +47%

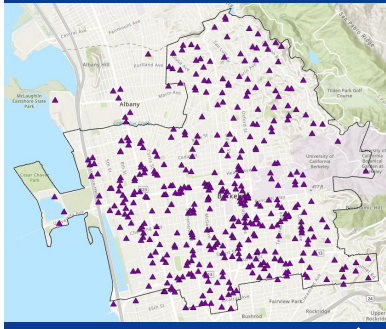
* 1st full year on a new records system



2021 (522 incidents) ⬆ +20%

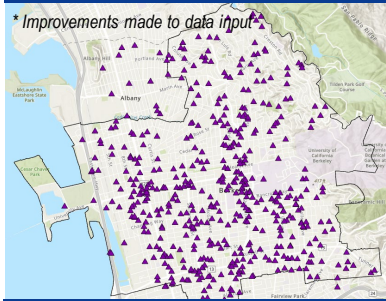


2022 (569 incidents) ⬆ +9%



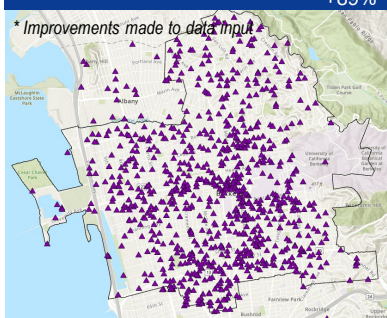
2023 (703 incidents*) ⬆ +24%

* Improvements made to data input



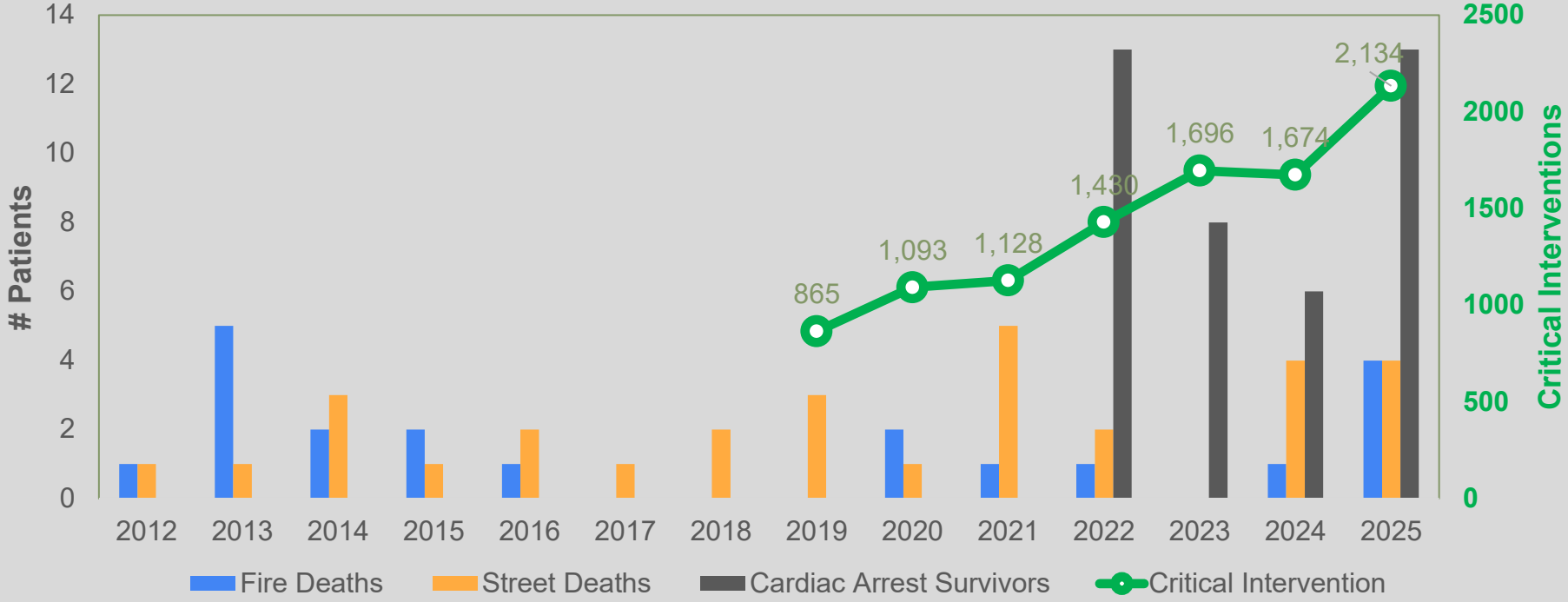
2024 (1,318 incidents*) ⬆ +89%

* Improvements made to data input



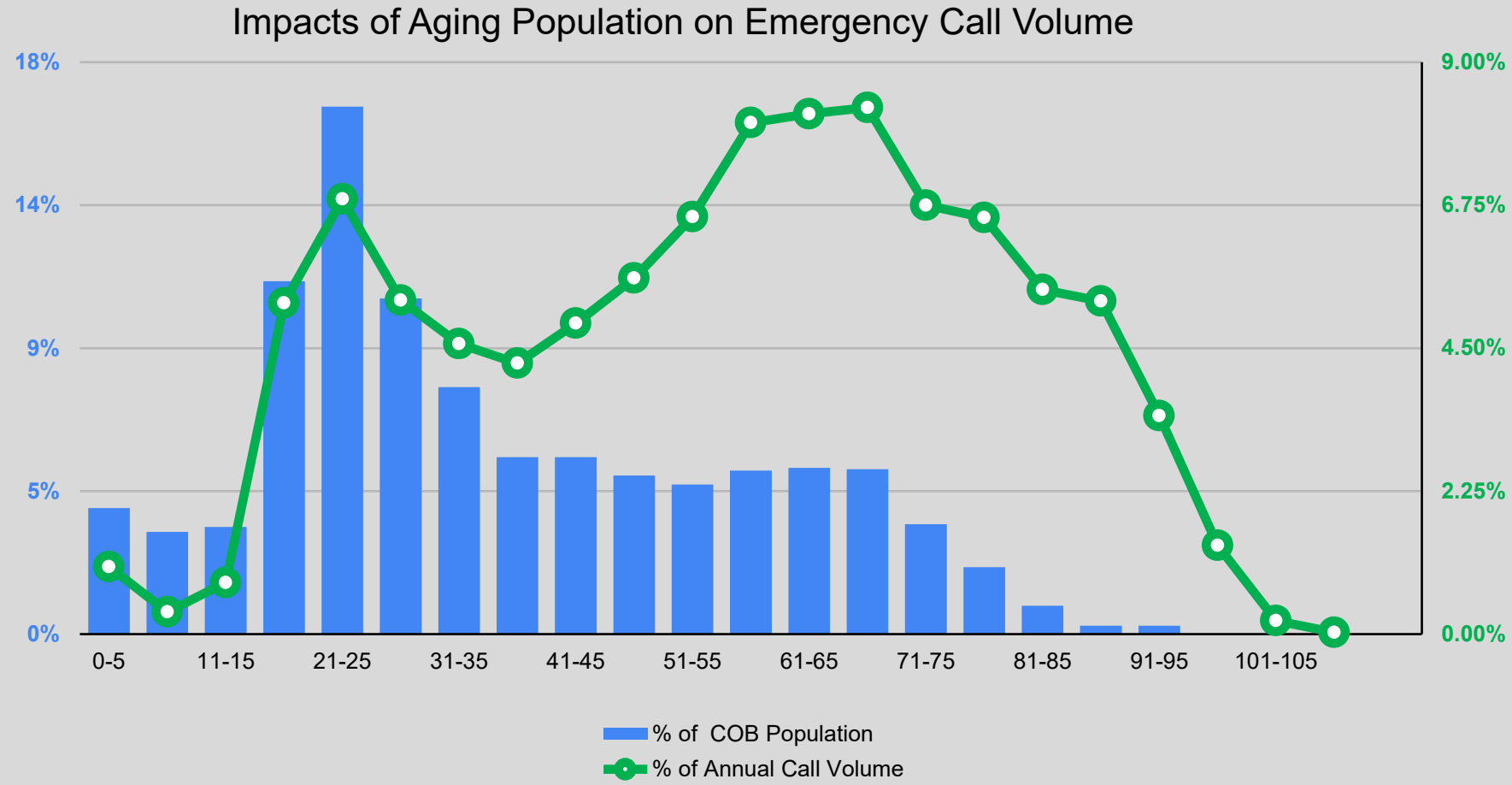
2 Axis

Fire, Street Deaths & Cardiac Arrest Survival / Unique Patients Who Received a Critical Intervention



Note: From 2015 to 2021 there were 48 survivors, but the data is not separated by year and thus not included on the chart.

Reference: 2012 – 2025 Berkeley Police Transparency Hub and Berkeley Fire National Fire Incident Reporting System (NFIRS) and Electronic Health Record (EHR) Data


Impacts of Aging Population on Emergency Call Volume
18%
14%
9%
5%
0%
9.00%
6.75%
4.50%
2.25%
0.00%
0-5
11-15
21-25
31-35
41-45
51-55
61-65
71-75
81-85
91-95
101-105
% of COB Population
% of Annual Call Volume

Two Goals, both focused on Saving Lives

- Transportation design effectively reduces severe injuries, but they can also delay emergency response
- Fire supports using design to help eliminate severe and fatal injuries while ensuring solutions allow first responders to respond to all emergencies without delay
- This dual goal has at times created perceptions of competing priorities
- Both objectives, safer streets and timely emergency response, are essential to saving lives

Impacts of Elongated Response Times

- Proposed changes to Section 503 and Appendix D may affect emergency response travel times.
- Increased travel times can influence fire spread, patient outcomes and overall service performance; maintaining efficient response times is important to support community health and safety.
- If response travel times are extended, the department may evaluate options such as additional infill stations, staffing adjustments to help maintain established service levels.

Staff Recommendation

- Retain current fire code inclusive of Section 503 and Appendix D
- Bring Staff back to FITES to address any emerging or specific issues
- Reaffirm support for Mayor Ishi's January 20, 2026 resolution: *Refer to the City Manager the Development of Comprehensive Transportation Design Standards*

Questions