Do Response Times Matter?

Analysing the Impact of Response Times to Fire and Rescue Incidents

June 2025

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Do Response Times Matter? Re-introducing the question

Background

Back in 2019, I set out to explore the relationship between how quickly fire and rescue services respond to incidents, and how that affects outcomes. That research was presented at the LGA Fire Conference and developed into an article for *FIRE Magazine* titled *Do Response Times Matter?* The deliberately provocative title generated lively debate – while the statistical evidence was mixed, most practitioners instinctively agreed: response times still matter. The real questions were *how much* they matter, and *how we measure* their importance.

Fast forward to 2025, and these questions feels even more pressing. Average response times have continued to rise across England, particularly in the past two to three years. Meanwhile, services face growing pressure, not only from constrained budgets, but from increasing operational complexity, stretched crewing models, and rising public expectation. So, the question stands: **how much does response time actually influence the outcome of an incident?**

This new piece of analysis returns to the question with fresh data and a more refined approach. Using ten years of incident-level data from 2014 to 2024, I explore the trends in response times and incident outcomes across three key incident types:

- Accidental Dwelling Fires (ADFs)
- Other Building Fires (OBFs)
- Road Traffic Collisions (RTCs)

By separating the analysis in this way, we can look more closely at the different risks associated with each. The aim is not to offer a one-size-fits-all answer, but to provide a clearer understanding of the patterns and what they might mean for how services manage resources, report performance, and engage with communities. As a consultant working with FRSs nationally, I hope this work not only sparks debate, but contributes to evidence-based operational planning and service improvement.

Context

Since I first posed this question in 2019, the national conversation around response times has grown sharper. Recent inspections by His Majesty's Inspectorate of Constabulary and Fire & Rescue Services (HMICFRS) reveal a varied picture in how effectively services are responding to emergencies, with concerns where:

- Attendance standards were unclear or inconsistently applied.
- Response strategies were not aligned with local risk.
- Services could not demonstrate how they were maintaining effective emergency response with current resources.

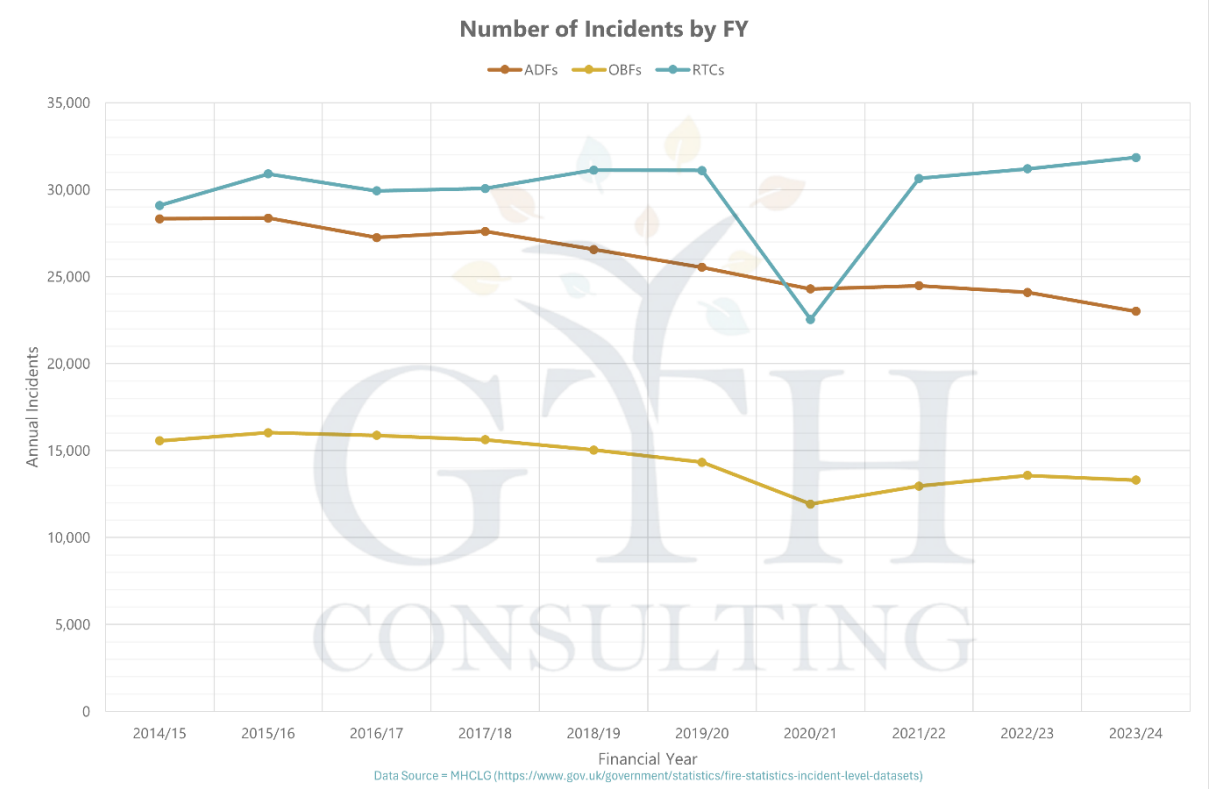
Response times remain one of the most visible and politically sensitive performance indicators for the fire and rescue sector. While it is imperative to recognise the complexity of local resourcing and geography, it's clear that rising response times**,** especially where unanalysed or unchecked**,** are an emerging risk to public confidence.

The ability to reach people quickly in their moment of greatest need remains at the heart of what a fire and rescue service is expected to do. Despite efforts to shift emphasis toward prevention and protection, public opinion is still closely tied to the expectation that fire crews will arrive quickly when needed. That expectation is not going away.

Recent Trends in Incident Demand

Over the past decade, the volume and nature of emergency incidents attended by fire and rescue services have evolved significantly. The three incident types analysed in this article (ADFs, OBFs and RTCs) collectively represent a large and traditionally high-risk proportion of operational demand.

Encouragingly, **ADFs and OBFs have shown consistent year-on-year reductions**. This trend reflects the positive impact of fire safety legislation and long-term prevention strategies within FRSs. RTCs have remained relatively stable over the past ten years, other than a dip during national lockdowns. Some services have seen slight increases in line with national traffic patterns and infrastructure pressures, particularly following the pandemic.



However, as I discussed in a recent Blog Post, this is not the whole picture. Although these three categories are either declining or stable, other types of incident demand are increasing, most notably:

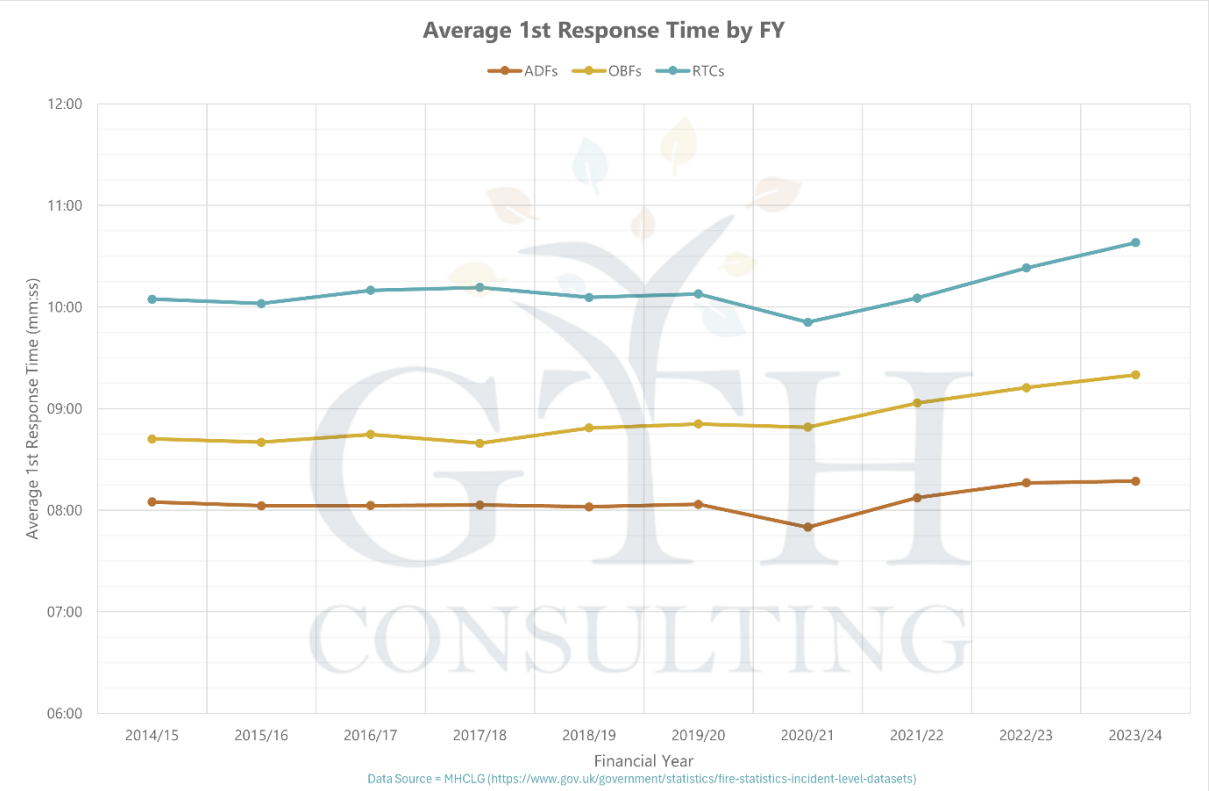
- Calls to assist other agencies, including the ambulance and police services.
- A rise in special service calls such as entry/exit incidents, flooding, and lift releases.
- Growing complexity in rescue and safeguarding-related incidents.

In short, demand is not disappearing, but it is shifting, meaning that **fire and rescue services are dealing with a broader, more complex workload than ever before**.

Increasing Response Times

Despite reductions in overall incident volume for ADFs and OBFs, response times across these and other categories have not improved, in fact, they have worsened. The early part of the decade showed relative stability, but the last two to three years have brought a noticeable deterioration. Comparing data from 2014/15 and 2015/16 to the most recent two years (2022/23 and 2023/24), the mean average increases in first response times are:

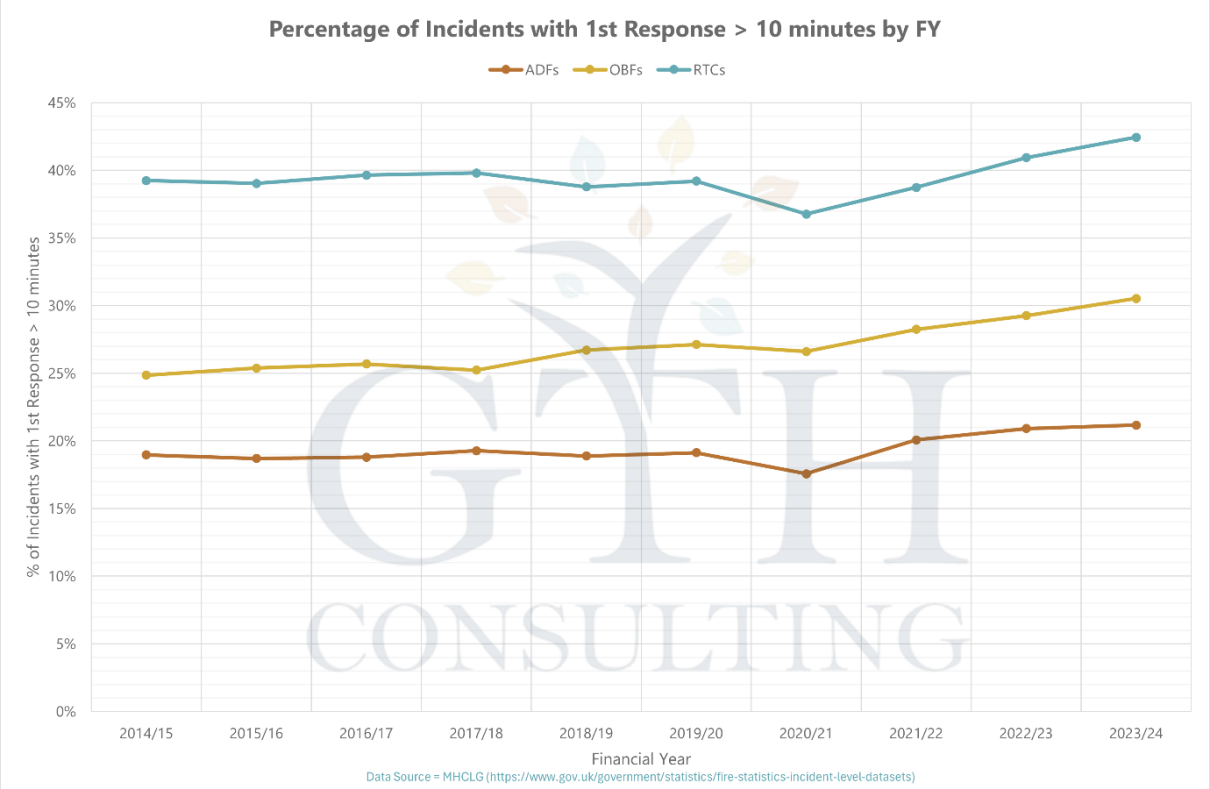
- Accidental Dwelling Fires: +13 seconds
- Other Building Fires: +35 seconds
- Road Traffic Collisions: +28 seconds



From my work with multiple services, I recognise that averages alone don't tell the whole story. To address this, I've also examined the proportion of incidents with first response times exceeding ten minutes, and the pattern remains the same. **Despite lower incident volumes, response times are increasing**.

This suggests that wider operational pressures, including appliance availability, crewing arrangements, and staff retention challenges, are beginning to outweigh the benefits of reduced demand in traditional fire-related incidents.

As highlighted in recent HMICFRS inspections, these performance shifts raise questions around strategic response planning. For many services, there is a growing need to rebalance resource models, set realistic attendance standards, and clearly communicate expectations, both internally and to the communities they serve.


Percentage of Incidents with 1st Response > 10 minutes by FY
ADFs
OBFs
RTCs
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
% of Incidents with 1st Response > 10 minutes
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
2021/22
2022/23
2023/24
Financial Year
Data Source = MHCLG (https://www.gov.uk/government/statistics/fire-statistics-incident-level-datasets)

Analysing the Impact of Response Times

Approach

This analysis explores the relationship between fire and rescue service **response times** and **incident outcomes**, with a specific focus on ADFs, OBFs and RTCs. The aim is to understand whether longer response times are associated with more severe outcomes for each category.

The findings are based on incident-level datasets from the Ministry of Housing, Communities and Local Government (MHCLG), which is based on the Incident Recording System (IRS) data for the period April 2014 to March 2024 (the most recent ten years of published data). Specifically, the analysis draws on the time between **call receipt and arrival** of the first appliance (used as the measure of response time) and key outcome indicators including:

- Casualties or fatalities
- Rescues and evacuations
- Extent of fire spread and fire damage
- Number of vehicles attending the incident
- Time spent at scene

The data has been grouped by response time intervals, and the percentage of incidents with each outcome calculated within each band. This allows for comparison of how often particular outcomes occur at different response times, across the three selected incident types. Two response time groupings are used from the MHCLG data:

- Individual Minutes (e.g. 1 to 2 mins, 2 to 3 mins, etc.) for detailed charts
- Grouped Intervals (e.g. 0 to 5 mins, 5 to 10 mins, etc.) to highlight key differences

Limitations

While the analysis highlights national-level trends and relationships, several important caveats should be kept in mind:

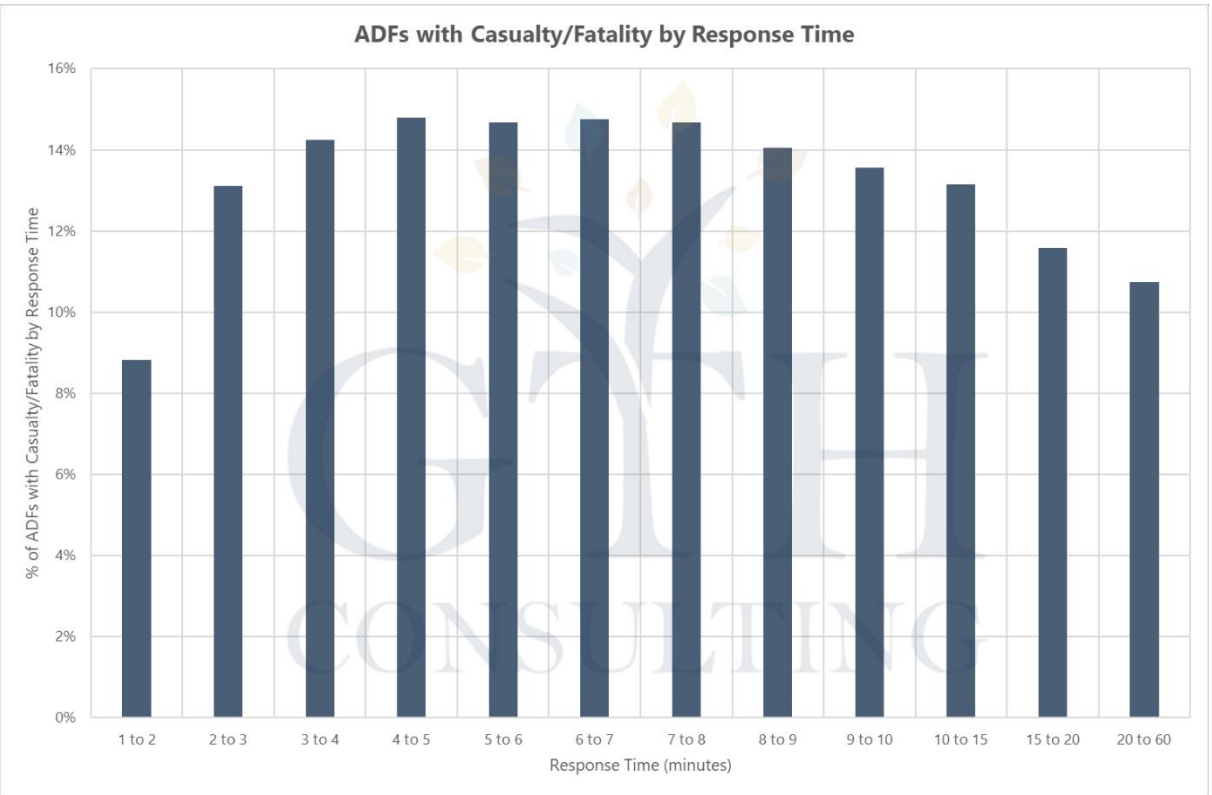
- **National focus**: This analysis is based on aggregated data for all fire and rescue services in England. It does not reflect local variation in risk, geography, service structure, or operational policy. Urban and rural services face very different challenges, and individual service-level data may present different patterns.
- **Correlation, not causation**: This is a descriptive analysis, not a causal one. While patterns can be observed between response time and outcomes, these should not be taken as evidence that one directly causes the other.
- **Timing of harm**: In many serious incidents, the most significant harm (e.g. injury or fatality) may occur before the fire service is even alerted. This can mask any benefits of a faster response.
- **Missing influencing factors**: The analysis has not evaluated factors like property type or construction, time of day, occupant vulnerability, socio-economic context or detection and alert systems that could affect outcomes.
- **Data quality**: Some records are incomplete or might be categorised inconsistently between FRSs. Incidents with missing response time data were excluded.

Accidental Dwelling Fires

Although accidental dwelling fires (ADFs) remain a significant part of a fire and rescue service's workload, they have declined steadily over the past two decades. Nevertheless, they will always represent a core function and carry significant potential impacts on life, property, and local communities. So, how do outcomes vary depending on response time?

Harm to People: A Counterintuitive Trend?

Looking at outcomes involving **casualties, fatalities** and **rescues**, one might expect to see a clear link whereby longer response times result in a worse outcome. But in the case of ADFs, and as was evident in the 2019 study, this is not what the data shows.



In fact, the highest rates of casualties/fatalities occur at fires with the fastest response times:

- 14.5% of ADFs with a response under 10 minutes result in a casualty or fatality. This is higher than for slower responses: when the first response time exceeds 20 minutes, only 10.7% of incidents result in a casualty or fatality.
- Rescue rates follow a similar pattern: 6.4% of ADFs with a response under 10 minutes result in a rescue, falling to under 4% when response times are greater than 15 minutes.

This may seem counterintuitive, but makes more sense when we consider where and how these fires typically occur. From the NFCC's *Definition of Risk (DoR)* project into dwelling fire risk, and other research in the area, we know that *generally* the most dangerous fires, i.e., those involving higher risk to life and property, are typically in **urban areas** with:

- Denser housing and multi-occupancy buildings

- Greater social vulnerability
- Higher baseline risk due to property condition or occupant needs

Crucially, these are also the areas with better station coverage. In effect, **the most serious incidents are also the ones that receive the fastest response**. The ADFs with the most severe human outcomes are not typically the result of delayed response, but rather a reflection of inherent risk. They are, simply put, the most dangerous fires.

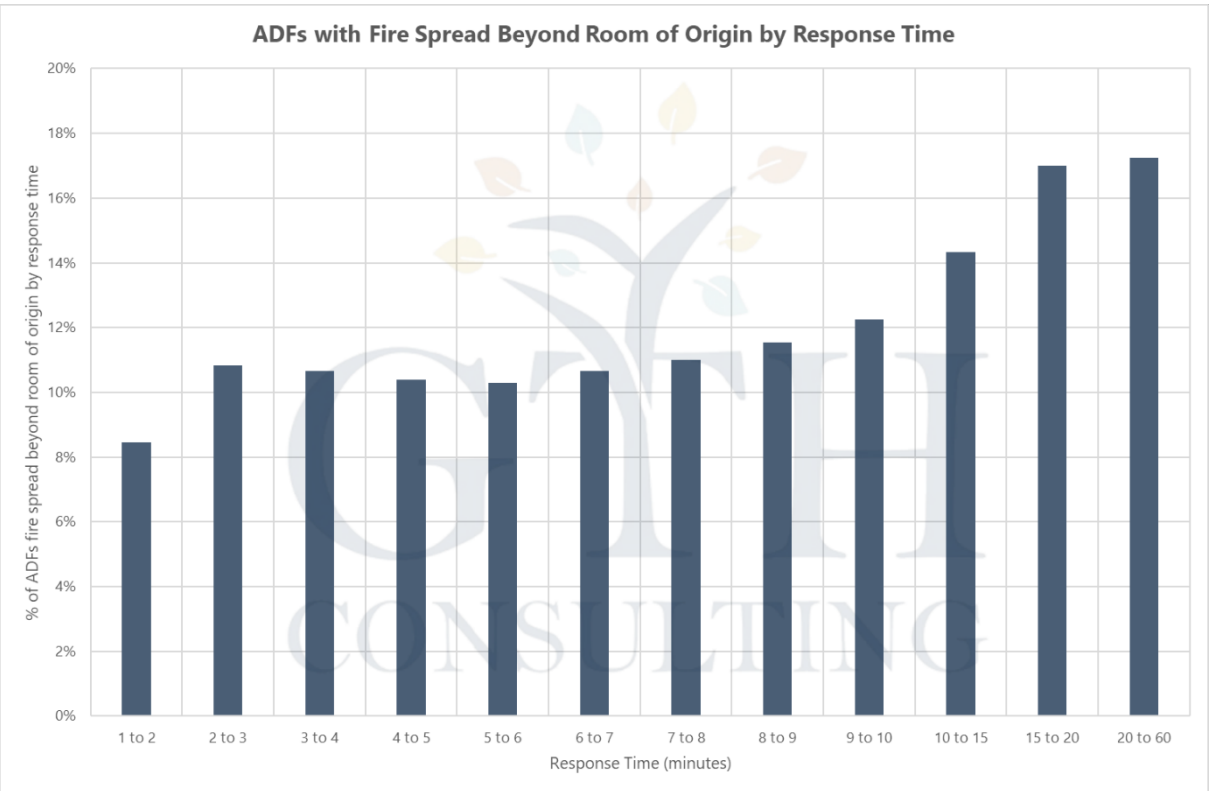
Another important factor is that in many severe ADFs, the harm has already occurred before the fire is even reported. Several studies have highlighted how delayed escape, or the vulnerability of occupants can mean that the fire service is only alerted *after* a casualty has already taken place.

The data on casualties, fatalities and rescues by response time challenges the assumption that faster response always equates to better outcomes. It also highlights the limitations of using response time as a simple proxy for performance.

Property Damage and Escalation: Where Response Time Matters More?

When we turn to **property-related outcomes**, a clearer relationship with response time becomes evident. One of the consequence measures used in the NFCC DoR project is whether the fire spreads beyond the room of origin. The proportion of ADF incidents where this occurs increases with longer response times:

- 0-10 minutes = 10.9% (spread beyond room of origin)
- 10-15 minutes = 14.3%
- 15 minutes or more = 17.1%

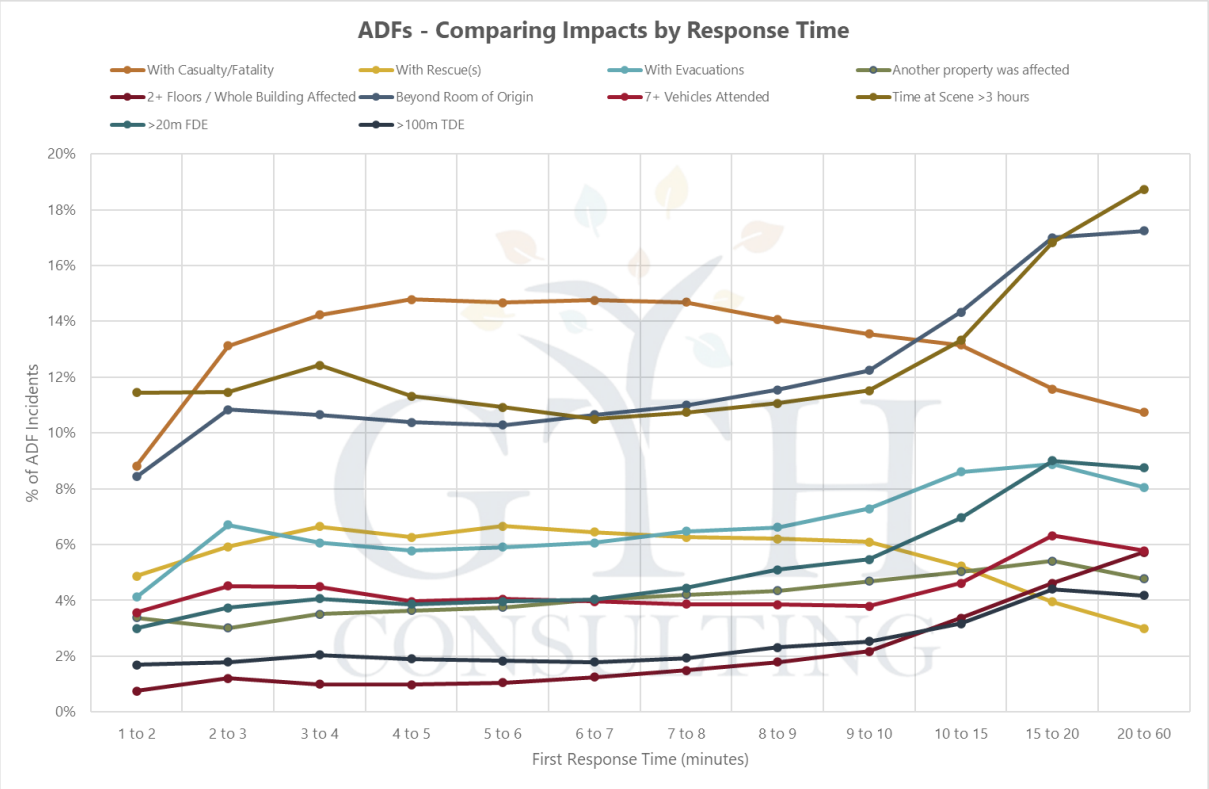


The mean response time for an incident that is confined to the room of origin is **40 seconds shorter** than for those that spread beyond (8m00s compared to 8m40s).

Using a range of measures from the national data, we see more consistent trends when it comes to proxies for property impact and escalation:

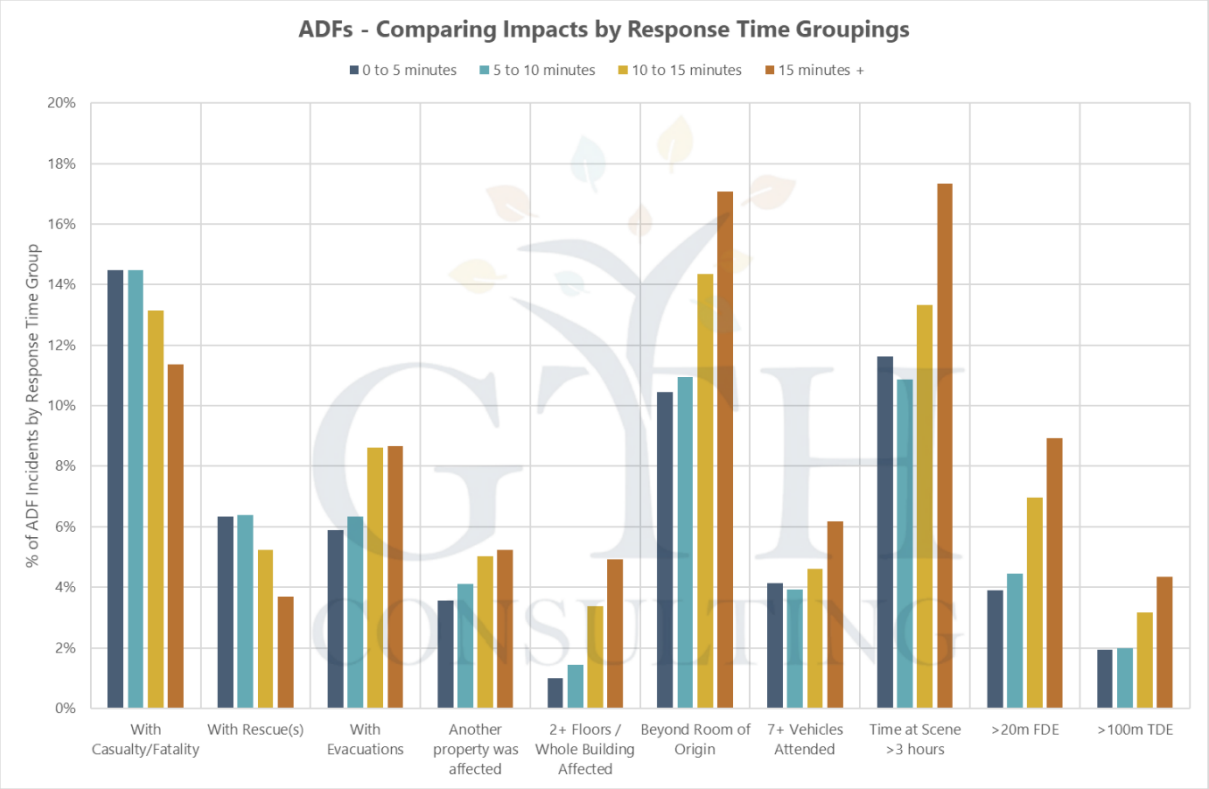
- Longer response times are associated with greater structural damage, both for 'fire damage' and 'total damage' reporting metrics.
- The percentage of incidents affecting another property increases steadily as response time rises.
- The proportion requiring 7+ vehicles or resulting in time at scene durations of 3+ hours also increases for slower responses.

So, while response time may not directly determine whether a person is rescued or harmed, it does appear to influence the scale and resource intensity of the incident.



The chart above illustrates the relationships between response time and ten different measures used to assess the impact of ADFs. Notably, the profile for 'life risk' measures (casualties, fatalities, rescues) is distinct from the pattern for property and resource-related indicators. To show this more clearly, response times have been grouped into five-minute bands for each of the ten measures.

Interestingly, there is little difference between response times of 0–5 minutes and 5–10 minutes across any of the measures. The more significant shifts appear when response times exceed 10 minutes, and especially 15+ minutes. This may be an important consideration for FRSs when defining suitable response time standards or communicating performance externally.


ADFs - Comparing Impacts by Response Time Groupings
0 to 5 minutes
5 to 10 minutes
10 to 15 minutes
15 minutes +
% of ADF Incidents by Response Time Group
20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
With Casualty/Fatality
With Rescue(s)
With Evacuations
Another property was affected
2+ Floors / Whole Building Affected
Beyond Room of Origin
7+ Vehicles Attended
Time at Scene >3 hours
>20m FDE
>100m TDE

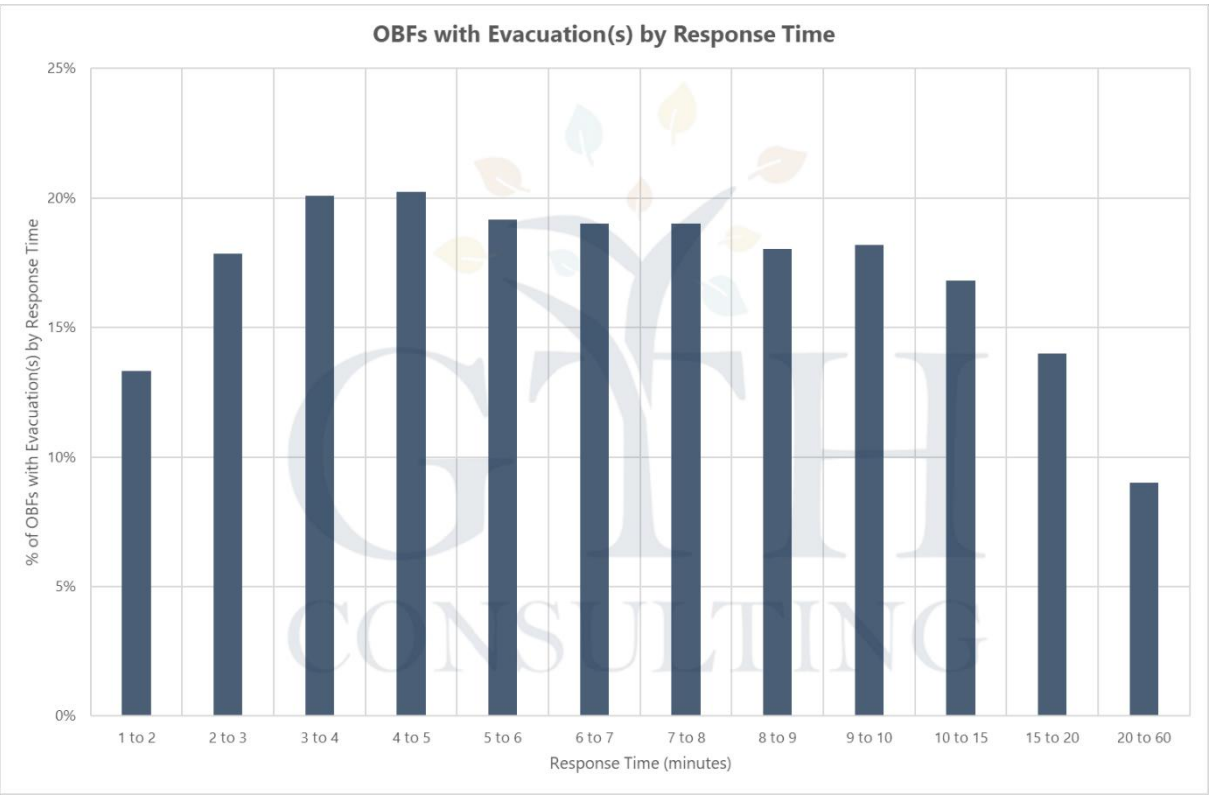
Other Building Fires

Although Other Building Fires (OBFs) account for a smaller volume of incidents than ADFs, they may present more complex challenges in terms of building design, occupancy type, and operational requirements. In total, 144,000 such fires were included in this dataset, compared to 259,000 ADFs. While the frequency is lower, the potential for rapid fire development and significant consequence is often higher.

Casualties, Rescues, and Evacuations

Unlike in ADFs, the proportion of **casualties and rescues** in OBFs does not show a consistent correlation with response time. Casualties are recorded in around 5% of OBFs, and there is no meaningful trend across the response time bands. Similarly, rescues remain low at every level, fluctuating between 1.4% and 3.3% without a clear correlation. This may reflect the fact that many non-residential buildings are unoccupied at night, or have better escape provisions.

However, the **rate of evacuations** shows a more surprising and consistent pattern. They are recorded in nearly 20% of incidents with the fastest response (0 to 5 minutes), but this proportion drops steadily as response time increases, down to 12.7% for incidents where the response took more than 15 minutes. This counterintuitive finding stands in contrast to ADFs, where evacuation rates were relatively flat across all response time bands.



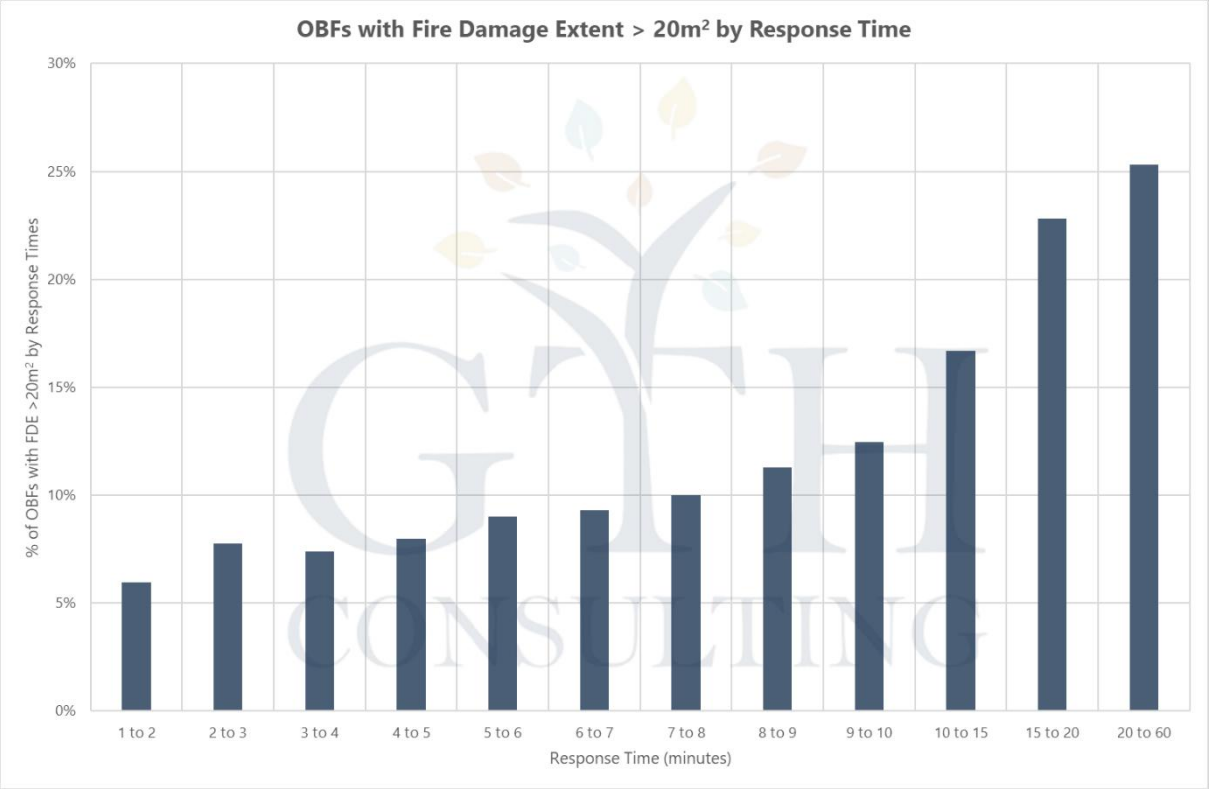
It may suggest that where crews arrive quickly, there is more scope to manage evacuations proactively, or more likelihood of formal evacuation being recorded. At slower response times, buildings may be cleared before FRS arrival, or fires may be sufficiently developed that evacuation is no longer practical or necessary. Alternatively, it may reflect the nature of buildings involved: more complex or high-occupancy premises (e.g. hospitals, schools,

hotels) may attract a faster response by function of their location, while also being more likely to involve structured evacuations.

This trend highlights that while response time may not directly affect casualty or rescue rates in OBFs, it does appear to influence how incidents are managed on scene, with faster arrival supporting earlier protective actions.

Fire Spread and Structural Impact

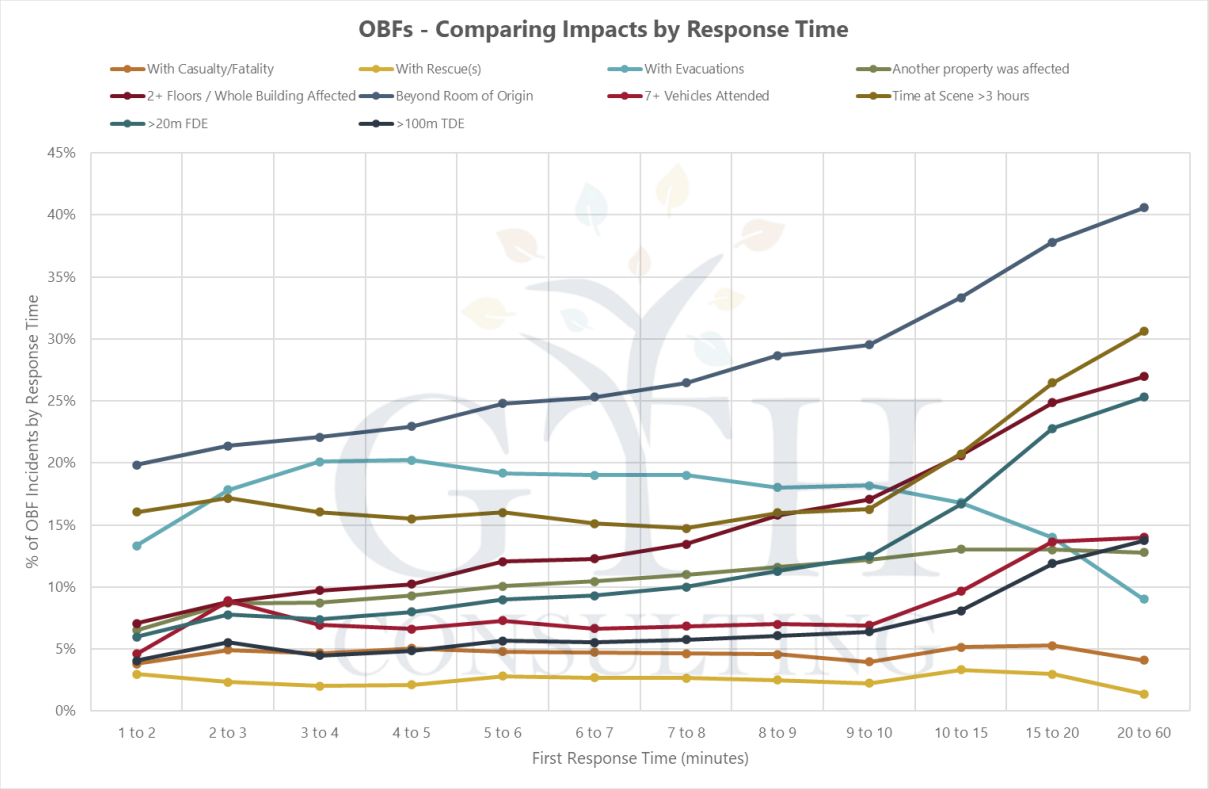
As with ADFs, when we turn to **property-related outcomes**, a more expected relationship with response time does emerge. As an example of the correlation between longer response times and greater impact of fire, we can look at the proportion of OBFs with more than 20m^2 of **fire damage extent** (FDE). In this case, there is an almost linear rise in fires that breach this damage threshold as response times increase.

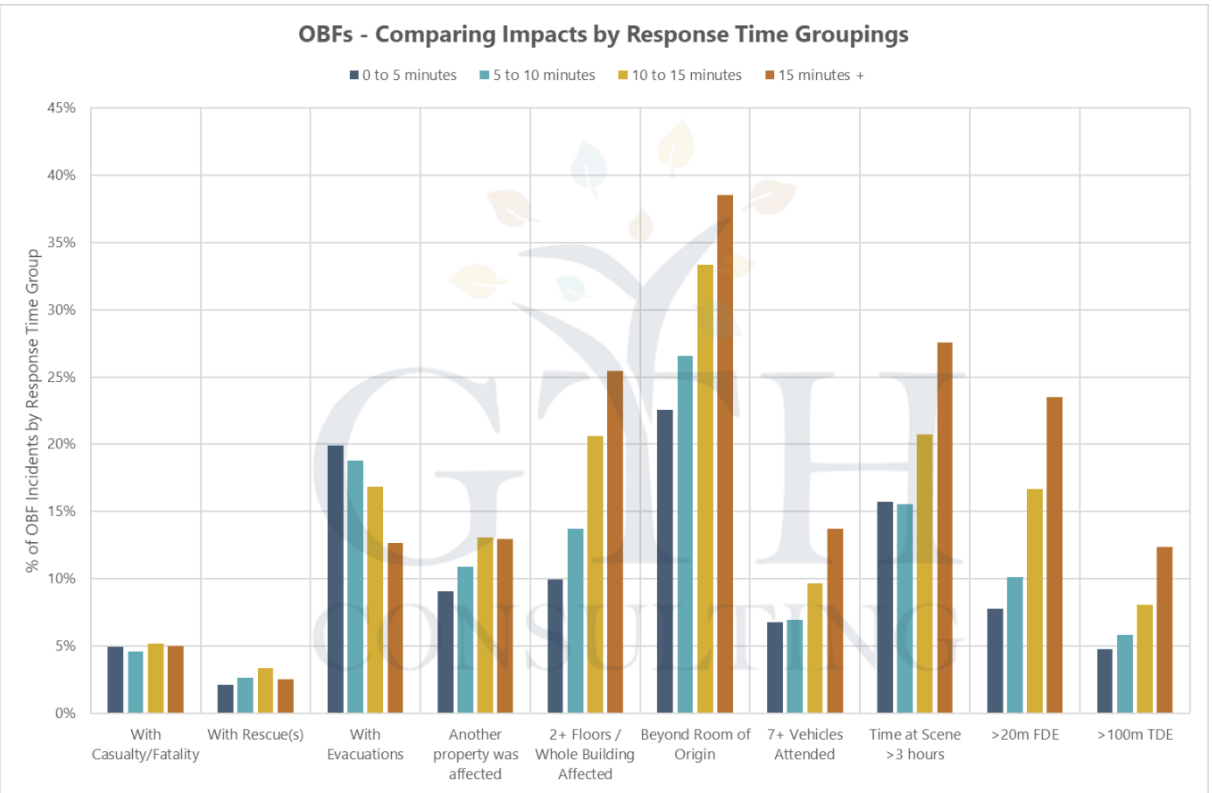


For the other markers related to property and escalation, there are similar themes in terms of longer response times being linked to greater impact of the OBF incident:

- Fire spread increases with slower response times: the proportion of fires spreading beyond the room of origin rises from 22.6% to 38.5%, and those affecting multiple floors or the whole building increase from 9.9% to 25.4%.
- Damage to other properties becomes more common, with multi-property incidents rising from 9.1% (under 5 minutes) to 13.1% (over 15 minutes).
- The chances of an incident requiring seven or more vehicles or lasting more than three hours almost doubles between the fastest and slowest response bands.
- Total damage extent (TDE), which includes damage caused by flames, heat, smoke and water, follows a similar profile to FDE, with increases across all response times.

In OBFs, fire spread **beyond the room of origin** shows a strong and consistent relationship with response time. For incidents attended within 0–5 minutes, 22.6% spread beyond the room of origin. This increases steadily across all bands, reaching 38.5% where response time exceeds 15 minutes.

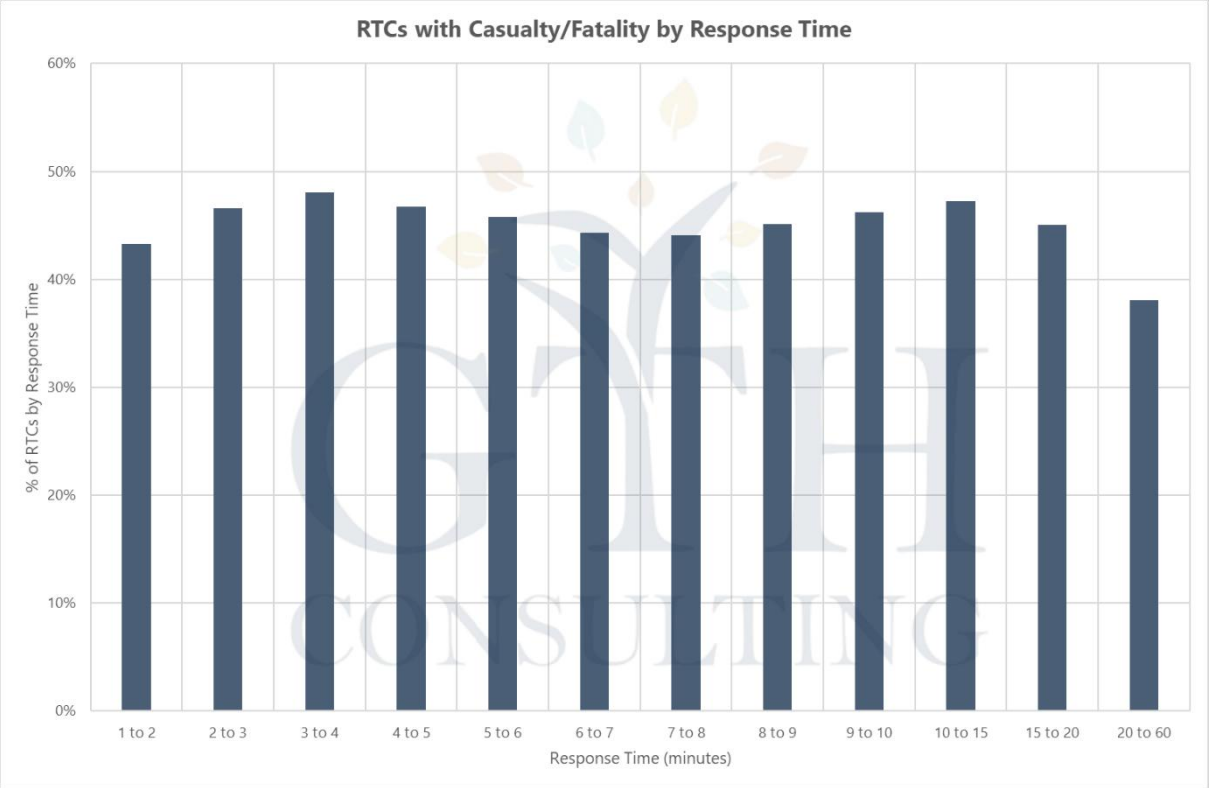




Road Traffic Collisions

RTCs account for the most incidents (289,000) of the three categories, but there are fewer metrics to evaluate outcomes when compared with fire incidents. The data for RTCs does not offer the same level of quantifiable detail on the impacts of the incident, but still provides useful insight into how incident characteristics vary with response time.

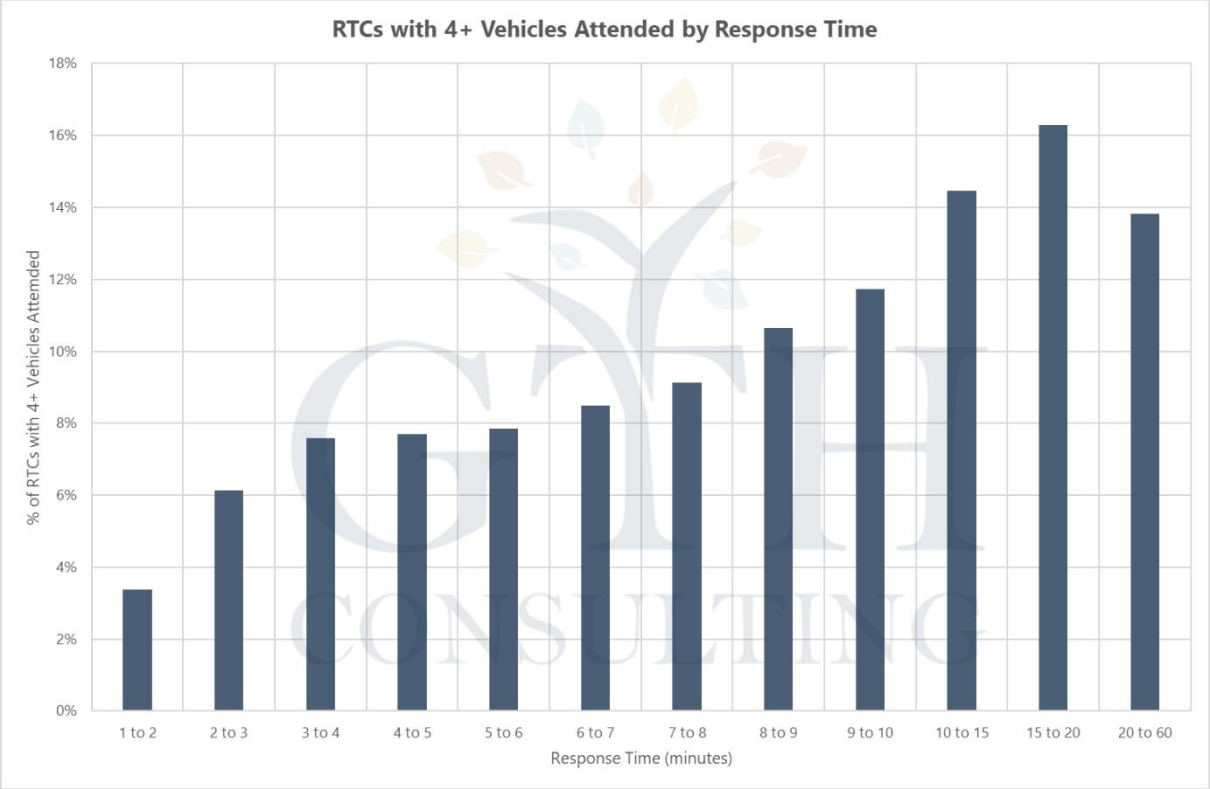
Across all response time bands, the proportion of RTCs with **casualties or fatalities** remains relatively consistent, typically between 44% and 48%, which is notably higher than fires. For those incidents where the response time exceeded 20 minutes, this figure falls to 38%. This may suggest that response time is not a direct driver of casualty rates in RTCs, though care should be taken not to overstate this result given the likely influence of other factors.



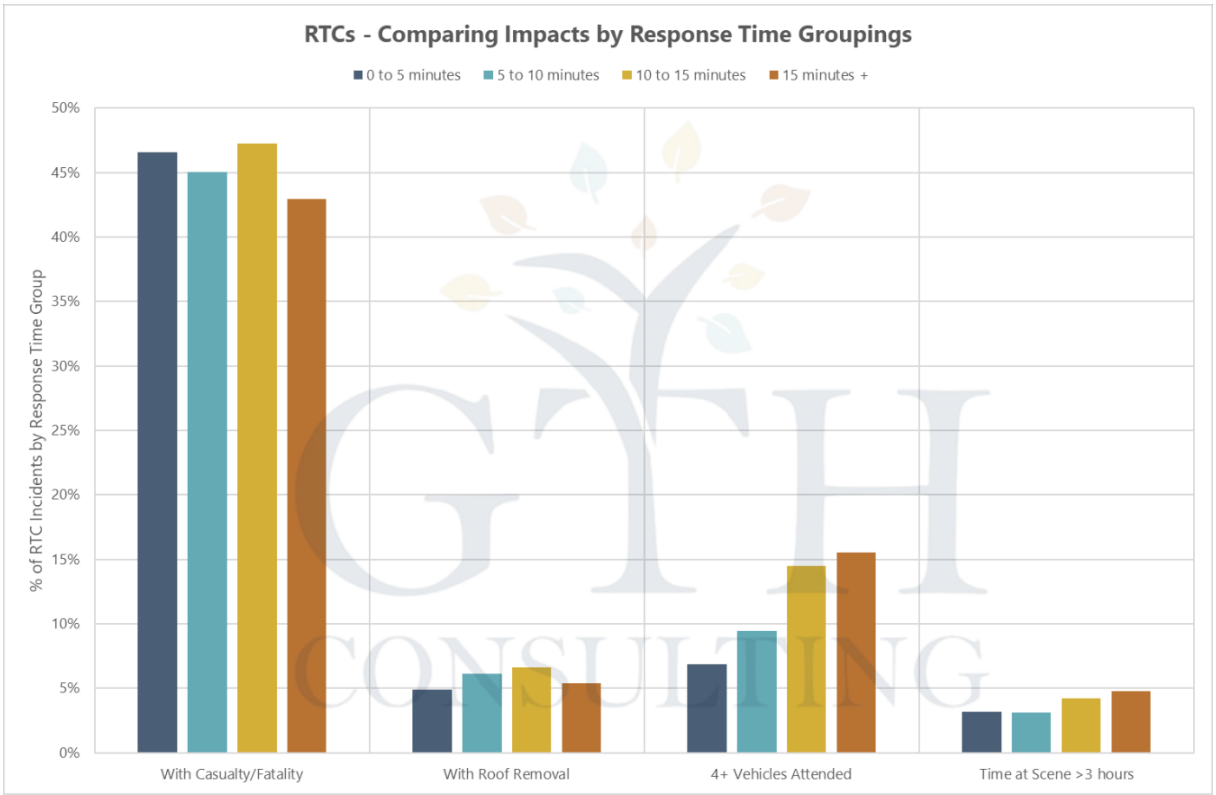
Without the detailed data on property or fire spread that exists for ADFs and OBFs, there are limited options for assessing the impact of response time changes on RTC outcomes. One potential proxy is the proportion of incidents that involve **roof removal**: there are slight increases in this with slower response, but not enough to draw any firm conclusions.

The most notable relationship for RTCs, is that longer response times to incidents typically leads to an increased chance of **four or more vehicles** attending the incident. The proportion rises steadily from 6.9% (0 to 5 minutes) to 16.3% (15 to 20 minutes). The proportion of incidents where crews spent more than **three hours at scene** follows a similar pattern, increasing from 3.2% to 4.7% across the same response time bands.

Taken at face value, these findings might suggest that longer response times are associated with more severe or complex incidents. However, it is important to consider the geographical context. Longer response times are more likely for incidents occurring on rural roads or motorways, where access is more difficult and where the most severe RTCs often take place.



These factors are explored further in the NFCC's DoR project into RTCs, which notes the heightened risk profile associated with higher-speed roads and more rural locations. As such, the correlation between longer response times and more complex RTCs may reflect the **location and nature of the incidents**, rather than the impact of delayed attendance.



Summary and Conclusions

This analysis set out to revisit a question I first raised in 2019: *Do response times matter?* The evidence drawn from a decade of national incident-level data shows that the answer is not a simple yes or no, but rather, *it depends*. The impact of response times varies across incident types and outcome measures, and is shaped by numerous external factors such as location, building type, and the nature of the emergency.

Conclusions by Incident Category

For **Accidental Dwelling Fires (ADFs)**, the data shows that faster attendance is not always associated with fewer casualties. In fact, the highest rates of casualty and rescue occur at incidents with the shortest response times – this reflects the underlying severity of these fires, which often take place in higher-risk urban areas with better coverage. However, when it comes to fire spread, damage, and operational effect, the picture is clearer: slower response times are consistently linked to larger fires, greater structural impact, and more resource-intensive incidents.

For **Other Building Fires (OBFs)**, a broadly similar pattern to ADFs emerges. Casualty and rescue rates show limited variation, but there is a strong relationship between response time and fire development. The likelihood of significant fire spread, multi-storey involvement, and extended time at scene increases sharply when response times exceed 10 minutes. The pattern for incidents involving an evacuation suggests that faster attendance may enable earlier and more proactive protective actions, which is an important consideration in non-domestic settings.

Road Traffic Collisions (RTCs) present a more complex picture, with fewer outcome metrics available for analysis. The proportion of incidents involving casualties remains relatively stable across response time bands. However, there are clearer trends in operational scale: longer response times are associated with more complex rescue activities, greater appliance turnout, and longer scene durations. These patterns are likely influenced by geography with the most severe RTCs often occurring on high-speed roads in rural areas where attendance inherently takes longer.

Key Findings

Taken together, the findings reinforce several important themes for fire and rescue service leaders and planners:

- **Response times continue to influence operational outcomes**, particularly for property preservation and demand on resources, even if the link to life risk is more nuanced.
- **Not all seconds are equal** – while small variations in response time may have little impact, the effects become more pronounced when arrival times extend beyond 10 or 15 minutes.
- **Context matters** especially for RTCs and high-risk urban incidents, where severity and response times are shaped by geography, infrastructure, and vulnerability.
- **Understanding the distribution of response times** and how they relate to different types of incidents is vital for accurate reporting, risk profiling and public assurance.

Next Steps

This analysis offers a national view of how response times relate to incident outcomes, but the value lies in how this understanding is applied locally. For fire and rescue services, there are several areas where these findings may prompt further reflection, review, or action.

First, it is important to consider the **local context**. Response times vary significantly between urban, suburban and rural settings and the impact of delay may not be felt uniformly. Services may wish to revisit their own response time distributions, particularly in relation to key thresholds (e.g. 10 or 15 minutes), to assess whether certain categories of incidents are more sensitive to delay than others. A more nuanced response analysis can potentially benefit internal performance dashboards, Community Risk Management Plans (CRMPs), and response strategies.

Second, the findings may offer a basis for **reviewing or refining response standards**. While many services continue to report average response times, others are beginning to adopt more granular approaches, including multiple target times, percentile measures, or outcome-based indicators. While mean or median response standards serve a useful purpose, the analysis in this report suggests that the greatest operational impacts become apparent once response exceeds 10–15 minutes, so the inclusion of an appropriate 'backstop' measure might be a consideration when establishing future standards or performance frameworks.

Third, this kind of analysis can support **wider strategic decisions**. Whether reviewing station locations, assessing crewing models, preparing for HMICFRS inspection, or communicating performance to local stakeholders, clear evidence of how response times affect outcomes strengthens the narrative. In an environment where resources are stretched and expectations remain high, being able to demonstrate the value, and limits, of timely response is essential.

Finally, this report also highlights some of the **gaps in current datasets**. There may be benefit in further work to explore urban/rural differences, response patterns by time of day, or integration with an individual's outcomes in RTCs (potentially using the national Stats19 data). For some services, more advanced analytics or external benchmarking may provide the insight needed to inform future change.

At **GTH Consulting**, I provide independent support to fire and rescue services for strategy, assurance, and operational improvement. If your service is considering how to interpret or act on the findings shared here, or how to explore your own data in more detail, I'd be pleased to help.

Notes and Glossary

A Note on the Data

This updated analysis draws on the publicly available incident-level datasets published by the Ministry of Housing, Communities and Local Government (MHCLG): https://www.gov.uk/government/statistics/fire-statistics-incident-level-datasets

- **Data coverage**: 1 April 2014 to 31 March 2024 (most recent 10-year dataset).
- **Scope**: England only. No rural/urban split is applied; all FRSs are treated collectively for this analysis.
- **Response time**: Measured from the time the call is received to the time the first fire appliance arrives on scene, including call handling, mobilisation, and travel time.
- **Data exclusions**: Incidents with unknown response times are excluded.
- **Incident categorisation**: IRS categories are based on initial incident records, and may not fully capture changing complexity (which could affect counts for rescues and evacuations).
- **Grouping**: Response times are grouped into bands (e.g., 0–1 min, 1–2 min, ..., 10–15, 15–20, >20). For analysis, the midpoint of each band is used to calculate averages (e.g., 5–6 minutes = 5.5 min), which could lead to some rounding errors.

Incident Types

ADF = Accidental Dwelling Fire. Extracted from the MHCLG incident level dataset for dwelling fires, using the filter of 'recorded as accidental'.

OBF = Other Building Fire. All incidents from the MHCLG incident level dataset for other building fires are included in the analysis (both accidental and deliberate).

RTC = Road Traffic Collision. All RTC incidents from the MHCLG incident level dataset for non-fire incidents are included in the analysis.

Useful Links

The original 2019 *FIRE Magazine* article, *Do Response Times Matter?* can be accessed here: https://fire-magazine.co.uk/do-response-times-matter

The NFCC's reports for the *Definition of Risk* projects for Dwelling Fires and RTCs are available here: https://nfcc.org.uk/our-services/community-risk-programme/