

Building resilience in A CHANGING CITY

As Amsterdam grows and diversifies, Danique Wolffenbuttel and Kees Kappetijn discuss the fire department's approach to technology, recruitment and emergency response

Amsterdam, a city internationally renowned for its many canals, historical architecture and iconic landmarks, has evolved over the past 750 years from a small fishing village along the Amstel River into a metropolis boasting 1,500 bridges and more canals than Venice. The unique network of canals was established for water management and trade, not only serving functional purposes but also giving the city its iconic charm.

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The canal houses host many Amsterdam residents; these buildings are often old, closely packed and located on narrow streets. Historically,

Amsterdam has recognised the importance of accessible and efficient fire services, as evidenced by its dense network of fire stations.

This year marks 150 years of the Amsterdam professional fire service, yet today's world is unrecognisable compared to the world we knew 150 years ago. The city is changing rapidly, placing increasing demands on the fire department. Surrounding the historic city center, a global city has emerged—a metropolitan region with corresponding challenges, cultural diversity and expansion ambitions. The fire department's role now encompasses much more than just extinguishing fires and responding to accidents and it is likely that, like its environment, its work will become ever more complex and multifaceted.

Amsterdam and neighbouring municipalities form the Amsterdam-Amstelland safety region, responsible for fire services, emergency aid, crisis management, and disaster response. Over one million residents and 20 million tourists, including many migrants, add complexity. Historic buildings, heavy traffic, flood-prone land, and industrial hazards such as fuel storage and chemical plants increase risk. Covering only 355 km², the area requires tight coordination—especially around Schiphol airport and





dense urban zones—making it one of the Netherlands' most challenging safety regions.

Fire Department Amsterdam-Amstelland

The Netherlands is divided into 25 safety regions formed by municipalities that pool resources to ensure local safety. Each region tailors its fire services to its specific risks. The fire service prevents, mitigates and combats fires while reducing hazards to people and animals during accidents. It also advises governments and organisations on fire prevention, operations and hazardous materials management. The fire department works closely with municipalities and spatial planning bodies. In addition, the safety region includes an emergency control room that coordinates rescue services, a medical emergency response organisation and a crisis management department.

In the Amsterdam-Amstelland region, Tijs van Lieshout serves as fire department commander and director. Nationally he chairs the Council of Commanders and Directors of safety regions. The region operates 20 fire stations and employs about 1,100 staff, including roughly 500 professional firefighters and 300 volunteers. Thirteen professional fire stations, mostly in the busy city of Amsterdam, are staffed round the clock. It is unusual for a region to have more professional stations than volunteer stations since typically 80% of Dutch fire professionals are volunteers. In less densely populated areas, volunteer stations provide coverage and are not permanently staffed. Staffing decisions depend on risk factors and incident frequency.

Both professional and volunteer firefighters receive the same training to ensure equal competence and rapid response. This approach recognises that establishing expensive professional stations in every area is not cost-effective while guaranteeing prompt service to all communities.

Amsterdam also takes part in the Joint Fire Service (GBA, Gezamenlijke Brandweer Amsterdam), a public-private partnership with the port authority and industries in the harbour area. The GBA operates a station in Amsterdam's Western

Harbour Area and includes 40 member companies. Although incidents in this area are rare, their potential impact is significant. GBA personnel are trained to handle industrial scenarios that require specialised equipment, environmental awareness and specific skills. Regular location-based exercises are held with member companies. Another public-private partnership exists between the Amsterdam fire service and six large tank storage companies to prepare for tank and bundfires.

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Further specialisations include a Quick Response Team (QRT) deployed since 2021 during severe violence. The team, which has enhanced medical training and wears bulletproof vests and helmets, was first deployed during the Apple store hostage situation on 22 February 2022. The region is also equipped for ship fire response, large-scale decontamination and maintaining an extensive water supply.

The major challenges for Amsterdam

Although the Amsterdam-Amstelland fire department has adapted well over the years to a rapidly changing environment, it now faces several significant changes on the horizon. This is not only in order for the Amsterdam-region but for all regions in the Netherlands. Van Lieshout anticipates the following developments in the coming years. ▶



Hyper digitalisation

In recent decades, the fire department has heavily invested in digital information sharing, as information provision is essential for safe and effective operations. The number of data sources for predicting, preparing for, combating and evaluating incidents and crises has significantly increased, leading to an abundance of information. In the coming years, considerable investment will be made in smartly integrating various data streams, ensuring that field professionals always have access to the correct, up-to-date information.

Total electrification

The Netherlands is in the midst of an energy transition, with a strong emphasis on sustainability and electrification. Amsterdam plays a leading role in this transition. These developments lead to new types of incidents, such as accidents involving electric vehicles, hydrogen leaks, or incidents with solar panels and large battery storage facilities. The fire department's work is also changing due to electrification; they must not only understand how these systems operate but also acquire specific skills to safely and effectively handle these relatively new types of incidents.

Diversification of tasks

Recruiting and retaining sufficient volunteers is becoming increasingly difficult for the fire department. The work can be physically and mentally

demanding and educating and training is relatively lengthy. Additionally, the profession is becoming more complex, making the traditional basic technical profile growing inadequate. It is essential to revamp recruitment and retention policies.

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Working with 6-member teams has long been the standard in the Netherlands. Experiments have been underway with responding to incidents using a fire engine manned by two or four people, marking a first step in the necessary diversification of roles. Currently, everyone undergoes the same training and acquires the same skills, but in the future, there will be more focus on individual knowledge and skills. A revision of the basic education for firefighters is the first necessary step toward a new model.

Network organisation

In an increasingly busy and fast-paced world, the fire department is confronted with increasingly complex issues. During acute incidents, cooperation with other emergency and rescue services is natural, but during prolonged crises, such as IT failures or utility outages, this collaboration is often less organised. Tijs van Lieshout envisions an expanded role for the fire department in this regard. In addition to their usual tasks, the fire department could act as a central coordinator during extended emergencies, collaborating with organisations such as the Red Cross, Maritime rescue services and the military.

Instead of solely reacting to emergencies, the fire department could take a leading role during the preparatory phase by fostering and strengthening partnerships. The fire department not only provides the physical infrastructure but also has the capacity to effectively manage large groups of people and various organisations.

Embracing diversity

Over the past 150 years, much has changed in Amsterdam and its surroundings. The fire department has always been a reliable and professional safety partner through these changes. The strength of the fire department lies not only in the fast availability of professionals and its ability to improvise under pressure but also in its determination to tackle every challenge. With a combination of passion, courage and expertise, every problem is addressed, no matter how complex.

To remain as effective in the future, an adaptive organisation is needed—a fire department that evolves with a rapidly changing society and adapts to developments beyond its control. This requires flexibility, innovative training approaches and a new perspective on management. By restructuring the fire department organisation, Amsterdam’s diversity can be harnessed as a strength rather than a threat, leading to a nimble and future-proof fire department. ■