

2016 Management Report

Security and Prevention Area
Barcelona Fire Service

BCN



Ajuntament de
Barcelona



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Prevention

1. Prevention

1.1 Civil Protection

Despite having an updated civil protection plan at its disposal, the Civil Protection Unit has been providing continuity to the simplification line of the current planning and will be reaching an agreement in 2017 with the Directorate-General for Civil Protection over the single document model adapted to Barcelona.

On the other hand, the Advanced Command Centre (CCA) has consolidated its involvement in crowd activities coordinated by the Civil Protection Unit and a CCA is currently always involved on site in activities carried out in Plaça Sant Jaume or the concerts held on Bogatell Beach and along Avinguda Maria Cristina during the La Mercè Festivities.

Before such events are held, simulated evacuations are carried out which change the access criteria of the people and accessibility of the various emergency operatives in case of need.

As for self-protection plans under municipal jurisdiction, the standardisation process has been normalised with the best operational guarantees thanks to the “Hermes” register, which ensures indicators are achieved that bear the register’s entire work burden.

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1.1.1. Initiatives in Civil Protection and Self-Protection Plans (PAUs)

The following initiatives related to regulation and prevention were carried out throughout the year:

Self-Protection Plans	232
• PAUs under City Council jurisdiction (report)	126
• PAUs under Catalan regional government jurisdiction (reports and submissions)	58
• PAUs under Catalan regional government jurisdiction (without submissions)	48
Reports on projects and events	23
CECORS	6
Fire drills attended	14
Commission for Municipal Civil Protection Meetings	0
Executive Commission for Civil Protection Meetings	2

1.2 Fire prevention

Changes of scenario in planning work and activities projects, with less new work and more reforms and changes in use raise problems over the interpretation of the CTE and the ORCPI 08, which have to be resolved and collected in files aimed at the sector's professionals. That is why the Regulations Unit took a step forward in 2016 in preparing and updating files for interpreting regulations on fire-prevention conditions.

On the other hand, a new impetus was given to the operational activity inspections this year, in coordination with the city's districts. More specifically, an inspections campaign was launched in May at shopping centres and public residential use establishments in the Ciutat Vella district. The results proved very useful and enabled an appraisal of fire-safety parameter levels by detecting incidents that formed the initial subject matter of the corresponding files. This inspections programme will continue in 2017 and is expected to extend to the city's other districts.

The procedure for processing mandatory reports has been improved by adapting a new application for processing mandatory reports from the two units of the Civil Protection and Prevention Division (Regulations Unit and Civil Protection Unit), by adapting the common template for reports which the IMI has already introduced to the City Council's Heritage Department. This would represent a significant change in managing mandatory reports on work and activities files, by enabling background searches and contributing monitoring and control tools for the work carried out in the division.

These two units are extending the safety management area thanks to new computational evaluation methods and simulations of the fire evacuation and development aspects according to the features of the spaces.

Simulating people's behaviour for the purposes of evaluating evacuations first started in 2015 and was extended over 2016 to every type of crowded event, to gain extra evaluation parameters in addition to the ones that had been provided so far under the current legal sectoral framework.

1.2.1. Aula de la Prevenció

The Vall d'Hebron Fire Station's new Fire Prevention Lecture Hall (*Aula de la Prevenció*) saw its facilities go into service this May, representing a very significant quantitative improvement in educating city residents on fire prevention. The new lecture hall consists of an exhibitions room, a training class room and a storage room. All in all, over 150 square metres dedicated to training school children. Between May and December 2016, 2,357 school children visited its facilities to receive training sessions based on fire-prevention culture.

The training initiatives, which include training in the lecture hall and a visit to its facilities, last roughly an hour and a half. The training initiatives are run by 28 monitors accredited by the Catalan Institute for Public Safety, which currently includes Fire Fighters. The Lecture Hall is an independent area within the Fire Station, which is why it does not interfere with its activities. It has its own entrance, separate from the Fire Station's, and

even has separate stairs for accessing the equipment room, thereby ensuring the Fire Fighters' and school children's work is safe at all times.

Besides the training activities that are given in the Lecture Hall, the city's various Fire Stations receive visits throughout the year. They received 113 school and group visits in 2016, totalling close to 1,500 visitors, and held 4 open days.



1.2.2. Espai Bombers

The old Fire Station in Poble-sec, located on C/ Lleida, nº 30, has become a new museum dedicated to risk prevention, self-protection and recognising the social role played by the Fire Prevention, Extinction and Rescue Service Department (SPEIS).

This new site is intended to become a dynamic public institution open to the general public, where the intertwined histories of Barcelona and its Fire Fighters are narrated and put on display. It also conveys and promotes research into and dissemination of expertise in prevention and self-protection in emer-

gencies and disasters, under the aim of becoming a leading benchmark centre.

The items on display come from the large valuable collections from Barcelona's Fire Brigade, which include over a thousand samples of every kind. The display area enables visitors to interact with a series of elements and activities with audiovisual content, with which they can share the sensory experiences people have during a fire or other emergencies.

The centre has several lecture halls for providing information sessions, sympo-

siums and courses on safety and prevention expertise and also includes a meeting centre for organisations such as El Cau del Jubilat (retired fire fighters' association) and the Barcelona Fire Fighters Sports and Cultural Group (ACE).

The building's adaptation work, which began in November 2014, received an investment of €3.2 million, of which 2.4 million were allocated to renovation work and €800,000 to the museum project.



1.2.3. Initiatives in regulations and prevention

The following initiatives related to regulation and prevention were carried out throughout the year:

Advice	2,475
• Visits arranged	809
• Telephone queries	1,666
Reports on work projects, activities and events	600
• Project planning reports	519
• Projects reported to the Environmental Committee	41
• Reports on events: concerts, fire runs, firework displays, pyrotechnics, etc	40
Prevention inspections	228
• Inspections of fireworks and bonfire projects	134
• Preliminary checks supervised by the Environmental Committee	25
• Inspections at the request of the Operations Division, the municipal authority (districts, manager's offices, Irregular Settlements Plan, etc.) and the Catalan regional government	69
Advice on emergency plans	4
Fire drills attended	1
Prevention dissemination	1,500



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Planning

2. Planning

2.1. Resources

2016 was a very dynamic year for technical service-related work. Maintenance problems were diverse and there were numerous vehicle breakdowns, although the year ended with all the files and work finished.

The following **important maintenance contracts** were entered into:

- Contract for refilling and checking air bottles.
- Contract for maintaining, checking and cleaning self-contained breathing apparatus (back, accessories and masks). These contracts were renewed for two years and their annual budget slightly extended given the increasing use of this apparatus.
- Contract for maintaining, checking, cleaning and inspecting personal fire-protection (jacket and over-trouser) equipment (PPE) and station clothing. These contracts were renewed for an extra two years and their budget slightly increased.
- Periodic checks on full-body harnesses and chemical-protective clothing.





As for investment projects (Chapter VI), note the following:

- Acquisition of two off-road, open-top collection vehicles for the forest-environment fire stations of Sant Andreu and Vall d'Hebron.
- Acquisition of an electric vehicle resulting from the end of a hire agreement from the City Council. This vehicle will carry out administrative tasks in the department's technostructure.
- Acquisition of a semi-new van for storing tools and machinery. This van replaces another that was 19 years old.
- Acquisition of a tow for vehicles weighing up to a maximum of 3500 Kg and authorised to move the vintage vehicles from the Fire Brigade's historical collection.
- Acquisition of a rail push trolley (for running along train railways), manually powered. It used to have a trolley with an international width and now it has one with a standard width for the Spanish peninsula.
- The latest rescue van, which was needed for the Llevant Fire Station, was delivered at the end of the year. This operation concluded the renovation of all the emergency and rescue vehicles.
- Two ambulances were also delivered towards the end of 2016. The first was a replacement for a ten-year-old S21 and the second for the Montjuïc Fire Station which had never had such a vehicle until then.

As regards **vintage vehicles**, the 1889 Ludvigsbergd and 1896 Merryweather Valiant steam pumps were restored (the latter was carried out by fire fighter and retired staff, which managed to get it working and pump out water). Period equipment and two resin horses were acquired.

Following the large acquisition of fire PPE and helmets which led to the current models coming into service, no significant investment had been made in **clothing**. Two invitations to tender were held this year, given that they were possible and that acquisitions could not be made through a file for continuity. The successful tenderers were Bristol and MSA and they will be providing continuity to the material that had already been in service. More specifically, 180 fire-fighting apparatuses arrived during the first six months of 2017 to replace those that were found to be in an unsuitable condition of conservation.

On the other hand, the new safety belt was finally taken up by all the service's members by the end of December. This completes a project that led to changes of procedures, materials and PPE in preventing falls from height.

Lastly, all portable transceivers and communication channels were changed under that framework. The model was upgraded from the *Sepura SRH 3500* to the *Sepura STP 9000*. A study was also made on the best options for transporting the two transceivers and a decision was taken to modify jackets and give them an extra pocket. At the same time, harnesses are expected to be incorporated for senior officers who prefer carrying transceivers in a harness.

2.2. Procedures

The Procedures Unit continued to prepare new procedures while revising and amending the existing ones.

These revisions are enshrined in the operational needs of response staff, training needs that require the creation of new training materials that are compatible with the operational work systems or for changes in materials and response vehicles and other technological innovations that require ongoing revisions of work methods.

In line with previous years, the unit has three strategic goals:

- New procedures in multimedia flash and summary tab formats.
- Multimedia procedures approved in previous years and incorporated explanatory documentary-basis videos.
- Introducing manoeuvre formats into procedures relating to the practices carried out in operational prevention at fire stations.



2.2.1. Procedures approved or revised in 2016

- PROCOP 5.03 “**Debugging**” (revised):
 - Amending the name of the procedure from “Live animal rescue” to “Animal rescue”
 - Incorporating definitions of Animal Breeding Centre and Noah Syndrome
 - Incorporating the final management of animals according to species and clearing up specific cases
 - Specifying veterinary research options: Generalitat Zoo and Fire Fighters
 - Incorporating health and safety initiatives for response personnel
 - Incorporating the agreement with the Zoo and a decision-taking guide into annexes
 - Incorporating summary tabs

- PROCOP 5.05 “**Technical Inspections**” (approved):

The aim behind this procedure is to define, systematise and establish rules for technical inspections relating to facilities, urbanisations, buildings and various types of events carried out by Barcelona’s Fire Fighters through the Civil Protection and Prevention Division.

2.2.2. Material created and incorporated into the procedures

- **3 brand-new flash multimedia for existing procedures:**

Aiming to make the documents of current procedures more graphic, (multi-media) flash format versions have been made of the PROCOP 2.02 (Animal Rescue), PROCOP 1.04 (Forest Fires) and PROCOP 5.05 (Technical Inspections) procedures. These procedures, then, can already be consulted in the three established formats (PDF, summary tab and multimedia flash) to make them easier to understand.

- **2 new summary tabs:**

Summary tabs of procedures approved during the year, to simplify their content.

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2.2.3. New work groups

A work group on the future procedure for gas leaks has been set up, aiming to provide a response to leaks from external distribution grids such as the ones that are produced inside buildings.

A work group has also been set up for drafting the document on large flows of liquid and foam.

2.2.4. Situation with other procedures

- **Communications:**

Prepared procedure, approved by the Occupational Health Committee (CLS) in 2015, which was revised so that it brought in twin walkie-talkies for senior officers, restructured the communication channels' numbering and created separate personal and vehicle codes.

- **Suicide attempts:**

Prepared procedure, approved by the Occupational Health Committee in 2015, which was presented to the SEM-GUB-CME-SPEIS joint work group. It was changed this year to distinguish suicide attempts according to whether their environments were difficult or easy to access and it was re-drafted with contributions from other forces. It awaits new approval from the CSL.

- **Ventilation:**

Procedure that integrates station practices including files and audiovisual material. All the material has been incorporated into the ongoing training material planned for staff.

- **Residential fires:**

Procedure that integrates three different visions for responses: goals, sectors and tasks. It includes an information leaflet for those affected and proposes guidelines for the arrival of vehicles at the service location. Owing to the importance and repercussions of this procedure, which describes the basic manoeuvres, tests have been carried out at several stations and shifts to evaluate the scope of the proposed change. Contributions from the senior officers of these stations were taken on board during the fourth quarter of 2016.

- **Chemical risk:**

Fully prepared procedure used as the basis for the entire staff's ongoing training. Once this training finishes, the procedure will be up for approval, seeing that it could be immediately implemented.

Such approval will not affect the Procedure for Hazardous Substances (MMPP) and the aim is for two supplementary procedures on radiological and biological risks to be prepared. That way, the three procedures would include all the risks in the MMPP.



- **Fires in underground car parks:**

Already prepared procedure in the process of being adapted to the content of the procedure for residential fires. They may be approved at similar times.

- **Location of vehicles during responses (General Operations Agency):**

Multi-force work group created by the General Operations Area (AGO) to regulate responses and organise the occupation of public roads with vehicles from the various forces, irrespective of their order of arrival to the service location. This group was also used for working on the procedure for dealing with suicide attempts. As soon as the Fire Fighters' vehicles have had their locations established during fires in flats and underground (in accordance with their respective procedures), the AGO will inform the other forces.

- **Checking vehicles:**

Prepared procedure approved by the Occupational Health Committee. Specific files for each type of vehicle await preparation. It includes the Cooper system and IT tools not yet in existence during the preparation of the previous procedure.

- **Responses in aquatic environments:**

Procedure under preparation (prepared draft).

2.2.5. Procedures Unit's other work

"DOCU" was created after the service's document base had been revised, so that all information could be concentrated into a single environment consultation. It contains all the documents that had been kept up to then in various locations and folders. This is an important information tool that will be used for the future integration of all the document base into the Sharepoint program.

3

Responses

3. Responses

Barcelona's Fire Brigade carried out a total of 16,914 responses in 2016. This figure represents an increase of 1,159 services compared to the 15,755 performed in the previous year (2015), which corresponds to a rise of 7.35%.

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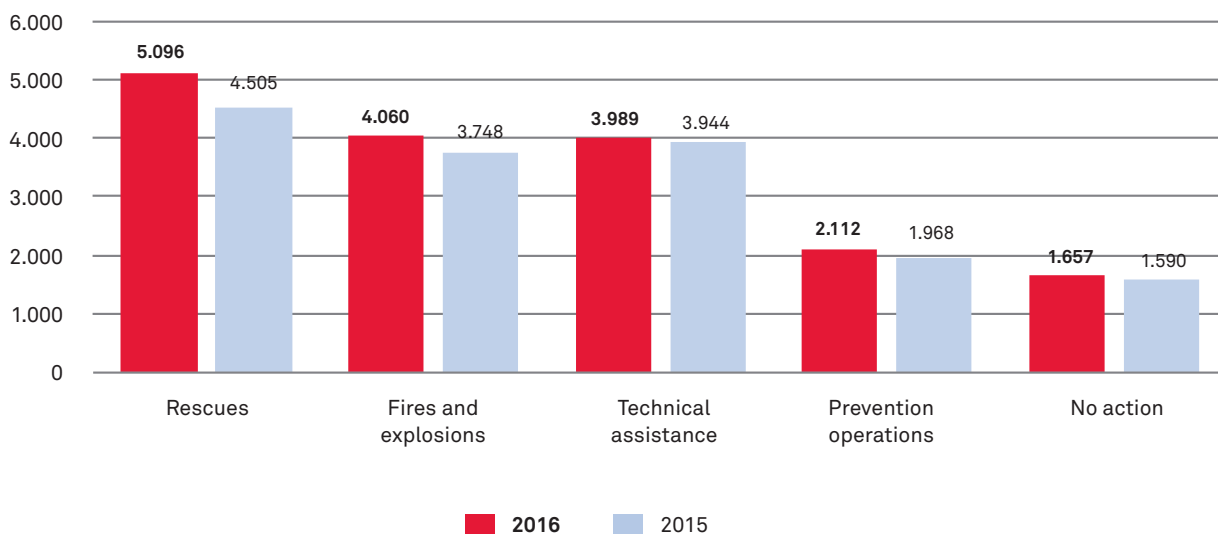
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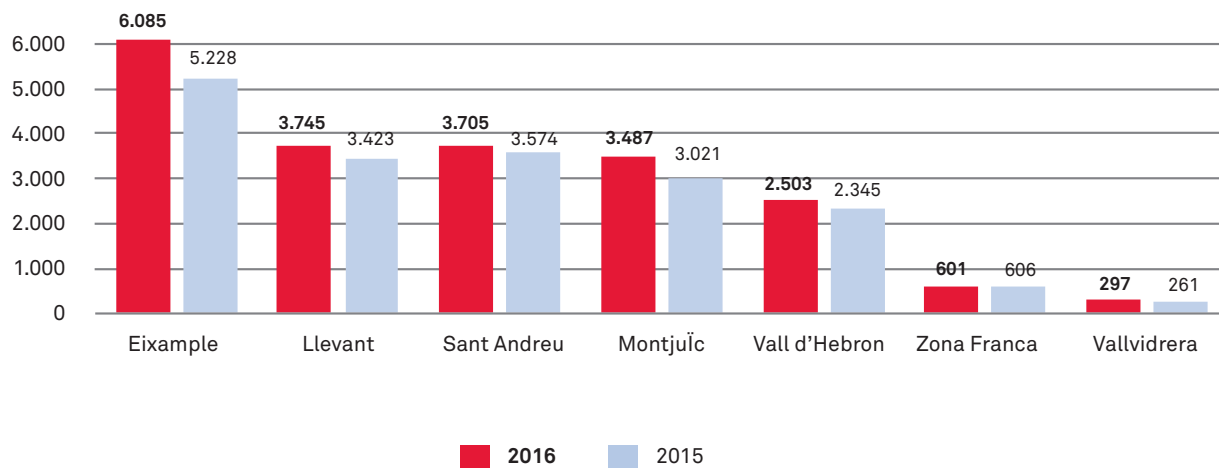
The response services' figures were as follows:

Response services



	Day	%	Night	%	Total 2016	%	Total 2015	%
Eixample	3,721	28.68%	2,364	31.74%	6,085	29.79%	5,228	28.32%
Llevant	2,331	17.97%	1,414	18.98%	3,745	18.34%	3,423	18.54%
Sant Andreu	2,305	17.77%	1,400	18.79%	3,705	18.14%	3,574	19.36%
Montjuïc	2,327	17.94%	1,160	15.57%	3,487	17.07%	3,021	16.37%
Vall d'Hebron	1,581	12.19%	922	12.38%	2,503	12.26%	2,345	12.70%
Zona Franca	428	3.30%	173	2.32%	601	2.94%	606	3.28%
Vallvidrera	281	2.17%	16	0.21%	297	1.45%	261	1.41%
	12,974		7,449		20,423		18,458	

Number of call-outs per station

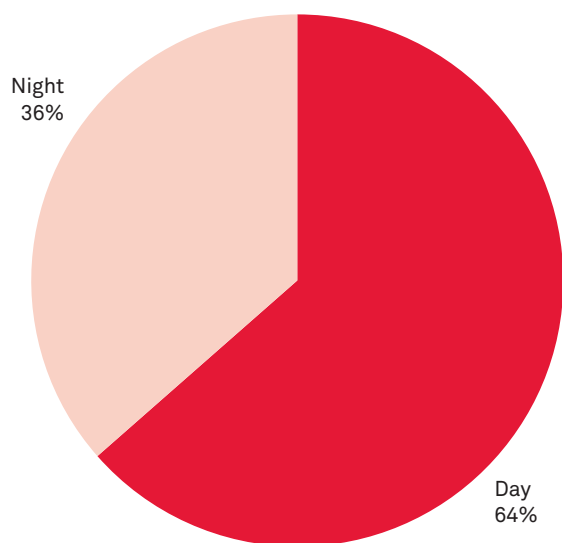


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Time distribution of call outs

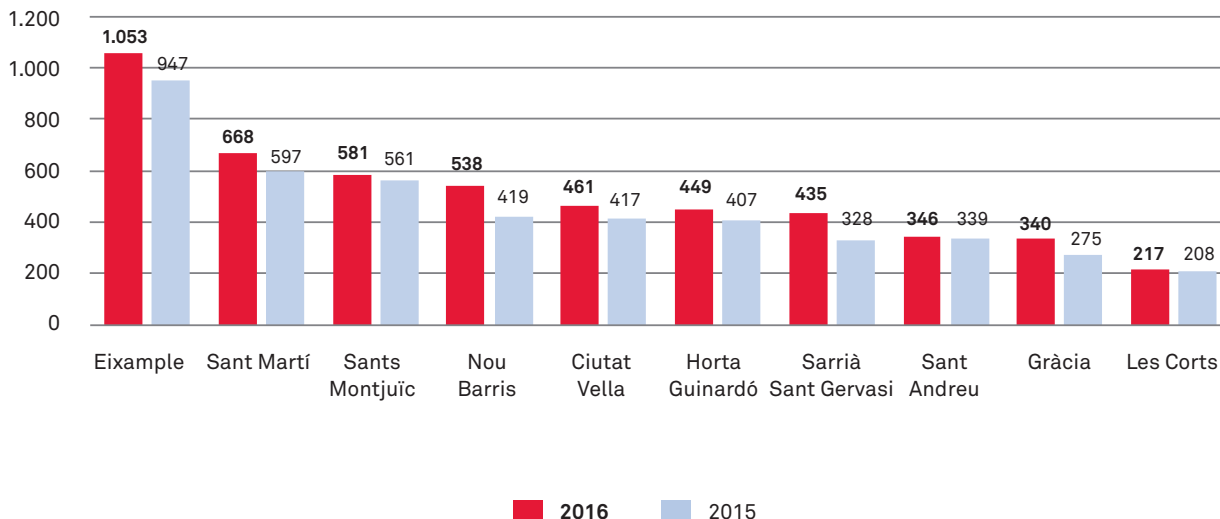


3.1. Rescues

There were 5,096 rescue responses carried out in 2016 (not including 8 responses performed outside the municipal boundaries), 591 more responses than in the previous year, which corresponds to 30.13% of the total. There were 4,505 rescue operations carried out in 2015, representing 28.59% of the total.

332 of these rescue operations were non-emergencies.

Rescue operations per district



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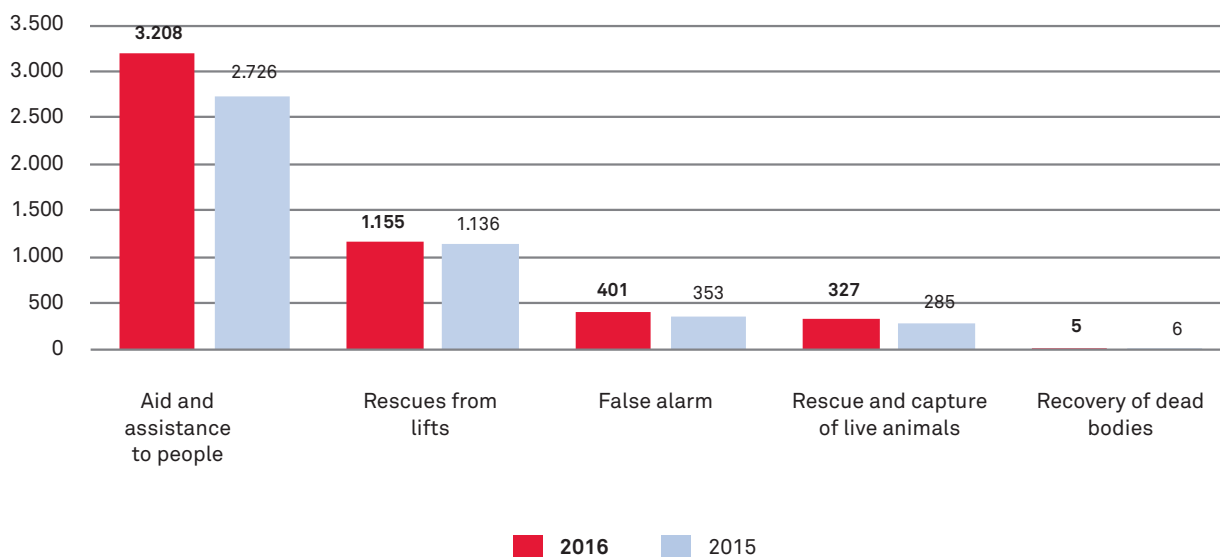
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62.95% of the total were to attend to or assist individuals (3,208 responses). 22.66% were to rescue people in lifts (1,155 responses). As for the other rescue operations, 401 were false alarms, 327 were rescued or captured live animals and 5 were recovered dead bodies:

Type of rescue



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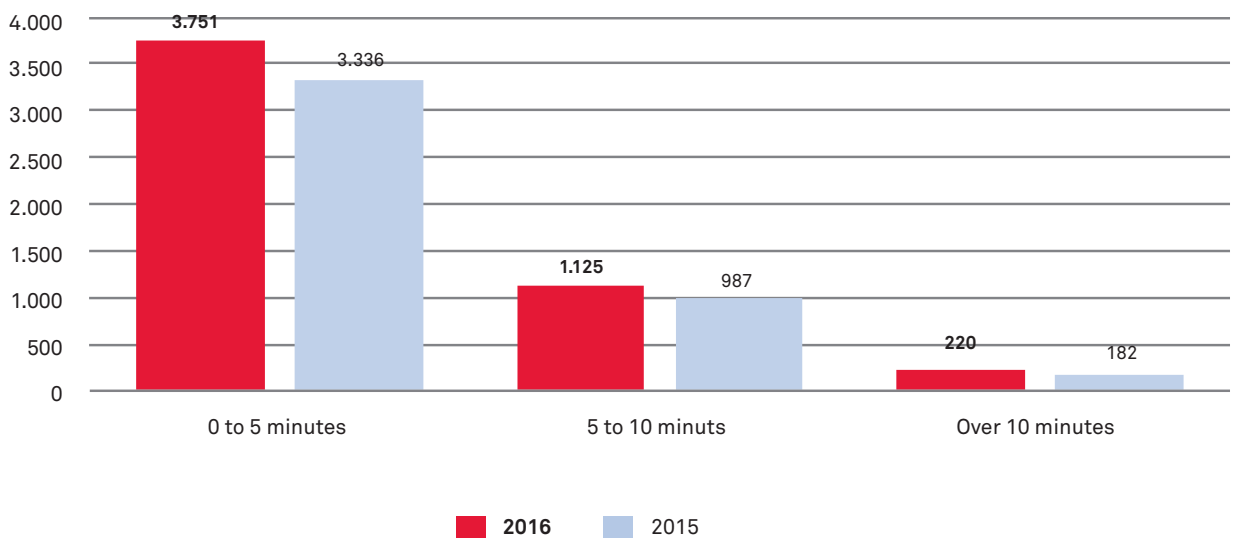
Medical assistance was given in 2,940 of all rescue responses and the Fire Brigade's medical teams took 618 people to hospital. The Medical Emergency Service (SEM) took all the other cases to hospital.

As for the weekly spread of rescue operations, Wednesdays are the least busy day (13.72%) and Saturdays the busiest (15.42%). On the other hand, an increase in week-end services (Saturdays and Sundays) compared to the rest of the week continues to be observed.



The emergency services' arrival times were as follows:

Rescue operation arrival times





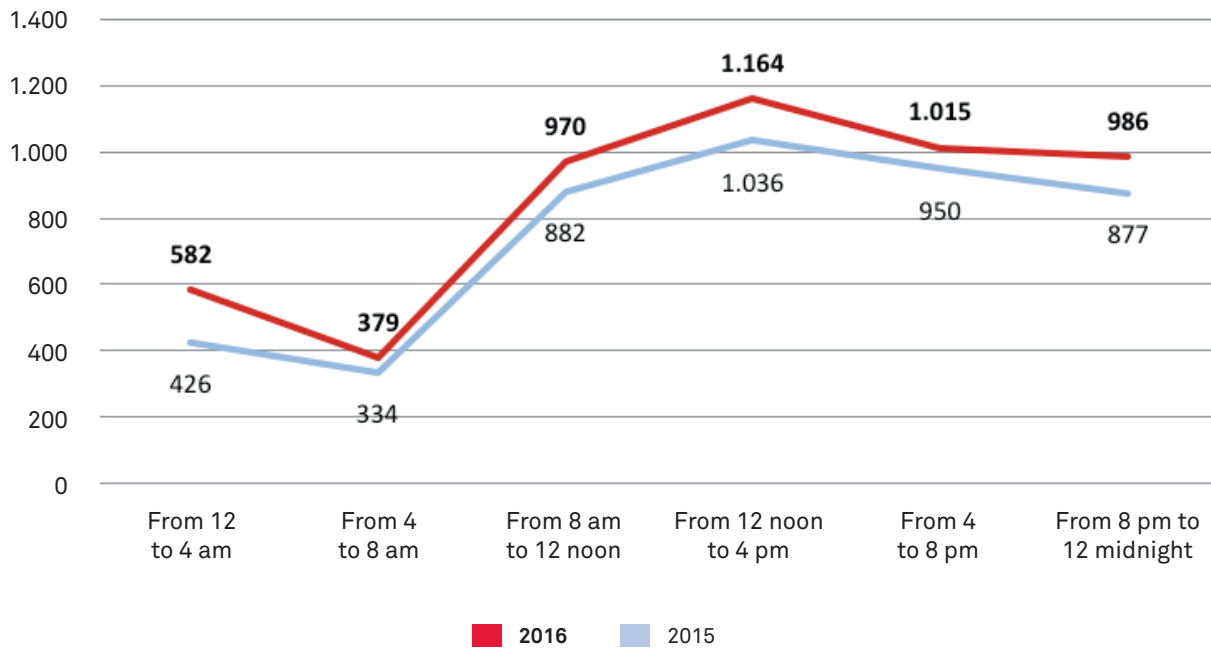
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The figures show that the charter’s pledged target of service arrivals in under 10 minutes for 90% of emergencies was exceeded by 5.6 points; seeing that the percentage reached was 95.68% (in 2015 it was 95.96%). Services arrived in under 5 minutes in 73.61% of rescue operations within Barcelona’s municipal boundaries (74.05% in 2015).

61.79% of rescue operations were carried out during the day and 38.21% at night, compared to 63.66% and 36.34%, respectively, in 2015.

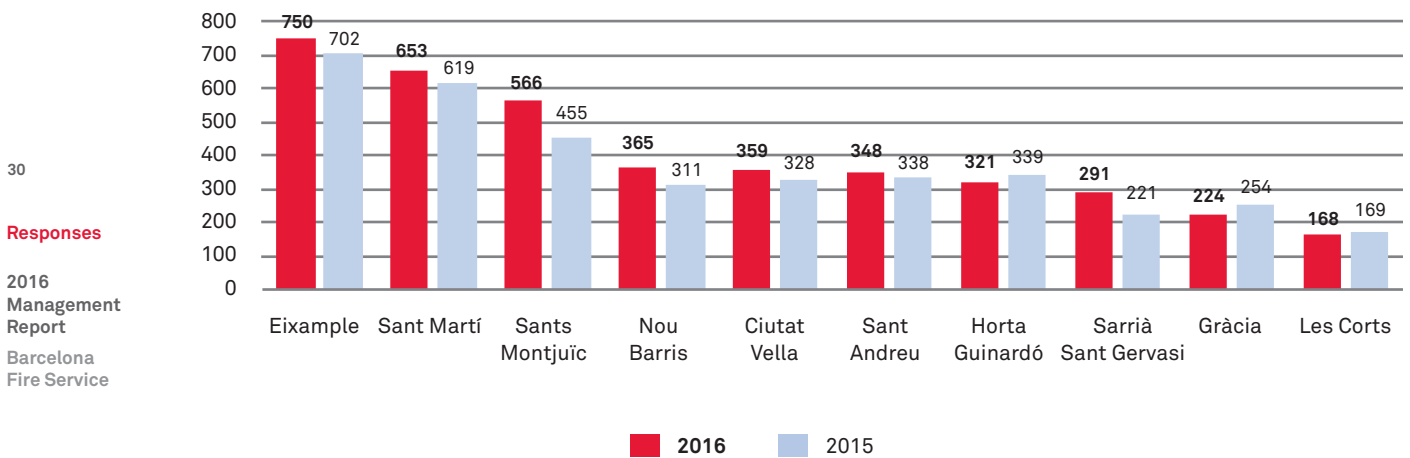
Times of rescue operations



3.2. Extinguishing fires and explosions

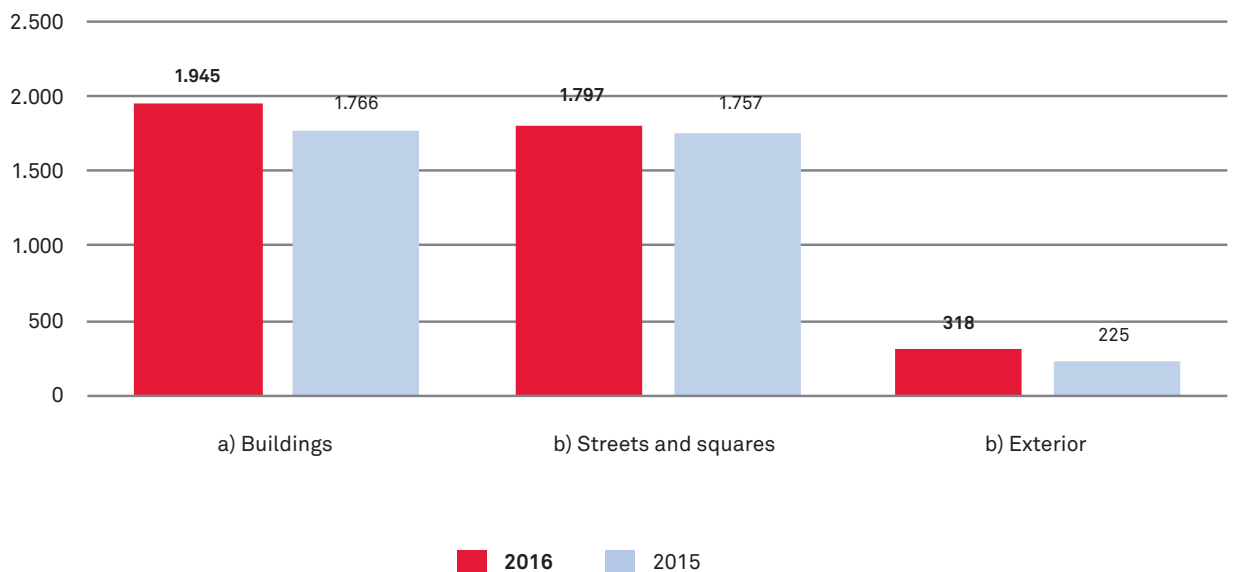
There were 4,060 responses to fires and explosions in 2016, corresponding to 24% of all services. In absolute terms, there were 312 more services of this type in 2016 than in the previous year. Excluding the 15 services performed outside the municipal boundaries, the responses were distributed as follows:

Number of fire and explosion operations



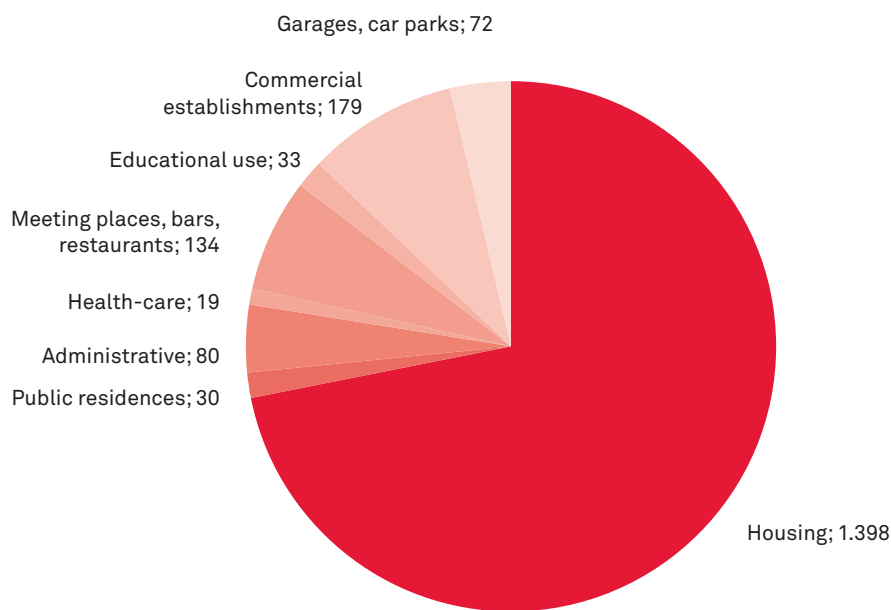
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Location of fires and explosions

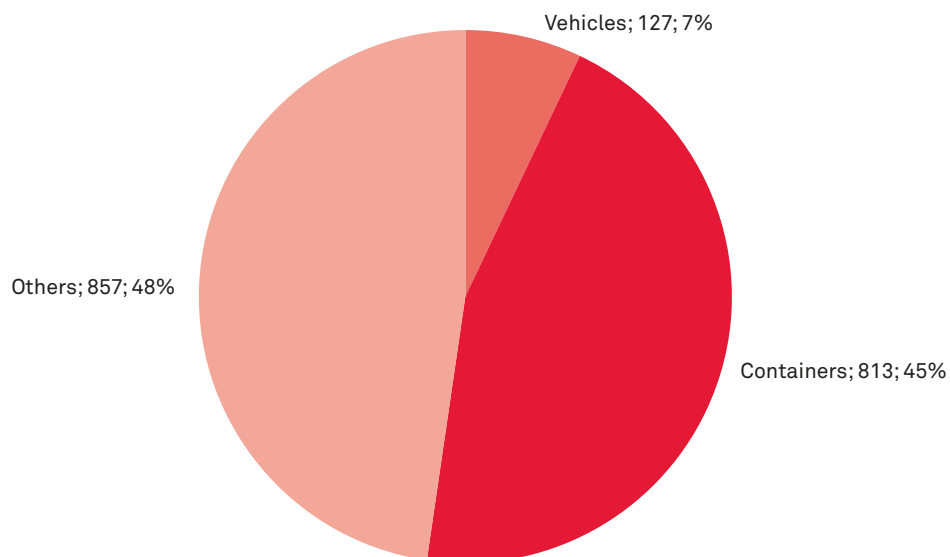


Out of a total of 4,060 responses, 1,797 were for fires on public roads, a slightly higher figure than the 1,757 recorded in 2015. In addition, responses included putting out 1,945 fires in buildings (1,398 of which started in homes), representing 34.43% of fire-related responses.

a) Fires and explosions in buildings

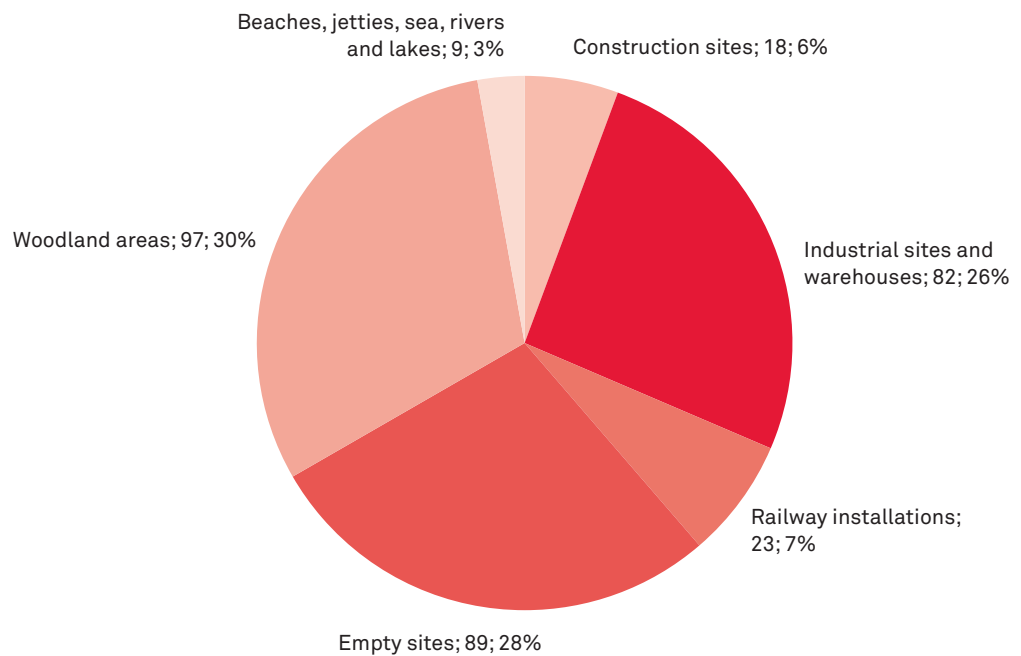


b) Fires and explosions on streets and squares



There were responses to 97 forest fires, compared to 47 in 2015. This 106% increase was caused by a worsening of weather conditions which brought about long hot waves and weather-alert initiatives. This type of response accounted for 2.38% of fire-fighting operations.

c) Exterior fires and explosions

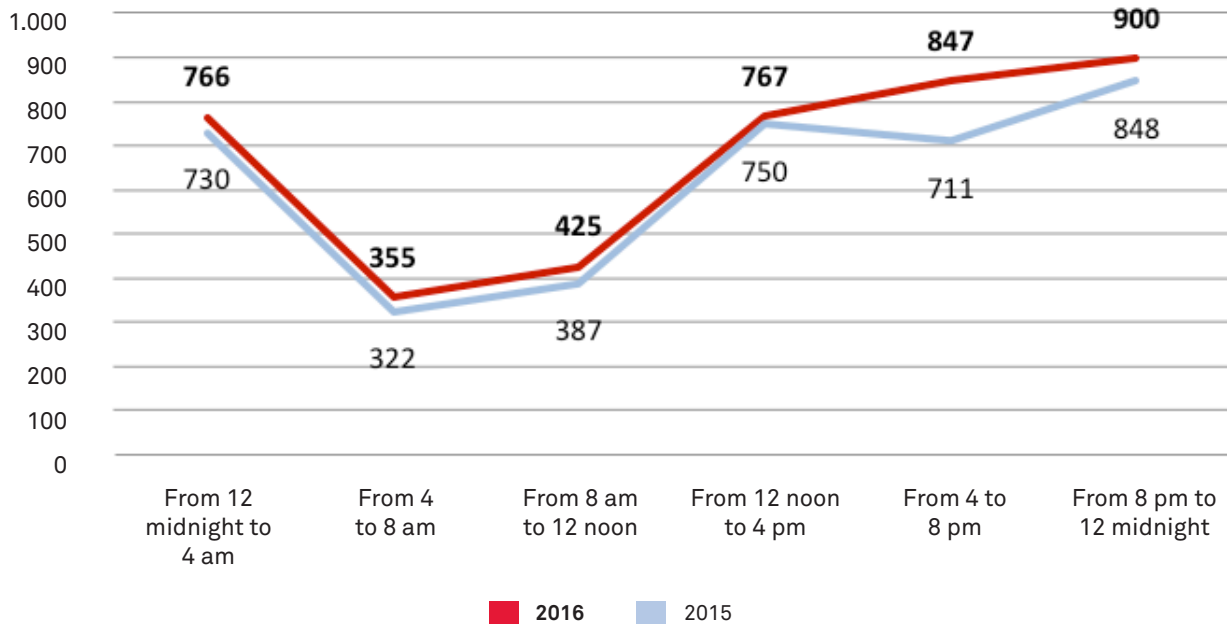


As regards weekdays, Wednesdays were the quietest (with 12.54% of responses), and Saturdays the busiest (with 16.08%).

On the other hand, 50.22% of fire-related services were performed during the day and 49.78% during the night (between 8 pm and 8 am).

Fire operations in Barcelona exceeded the Service Charter's pledged target by 7 points (arriving in under 10 minutes in 90% of emergency cases), given that these times were achieved in 97.04% of cases, compared to 97.44% in 2015. In 79.66% of emergency fire call-outs within Barcelona's municipal area, the response time was under 5 minutes (77.19% in 2015).

Times of fires and explosions

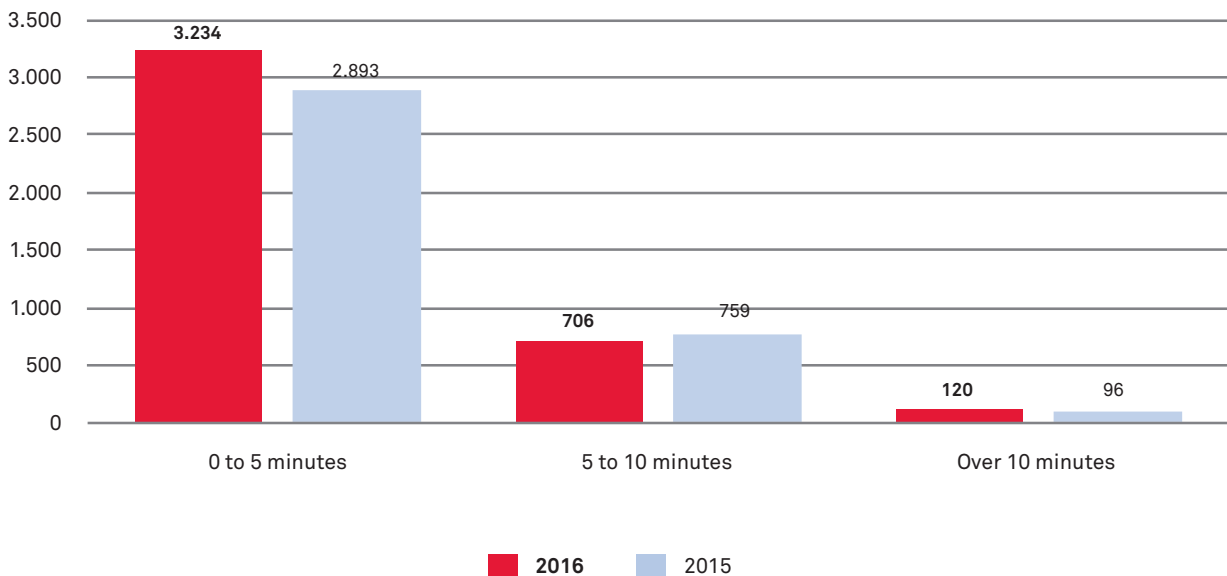


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The average arrival time for emergencies (fires/explosions and rescues) was 3 minutes and 57 seconds, the same as in 2015. The average arrival time, then, remained stable in all the emergency services.

Arrival times for fires and explosions



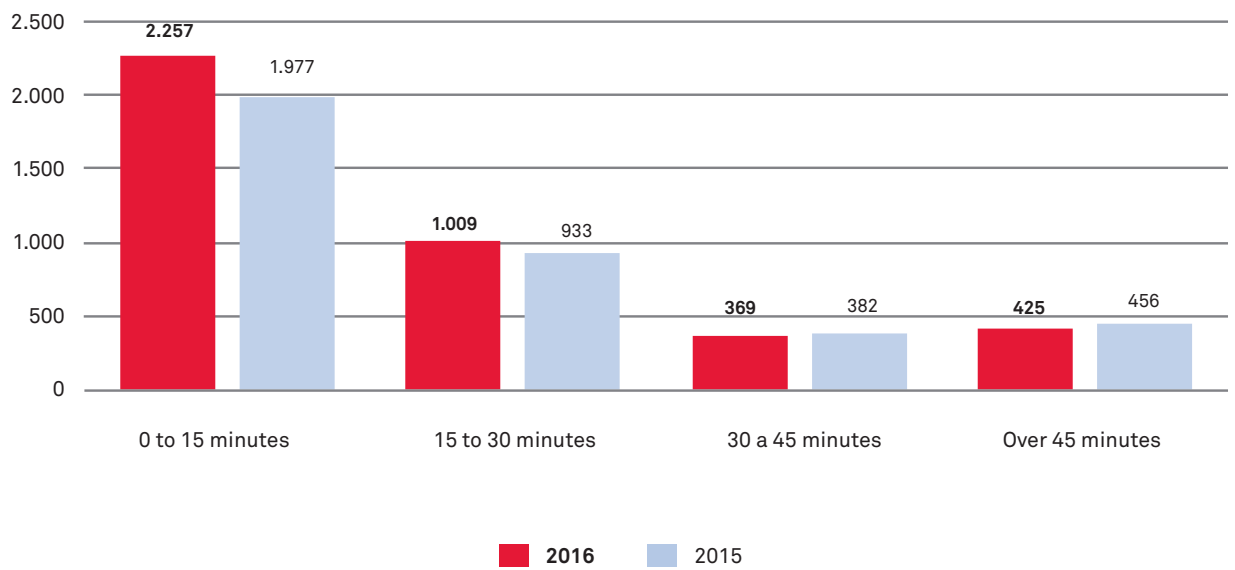
Finally, the duration times for putting out fires were distributed as follows:

Extinction times for fires and explosions

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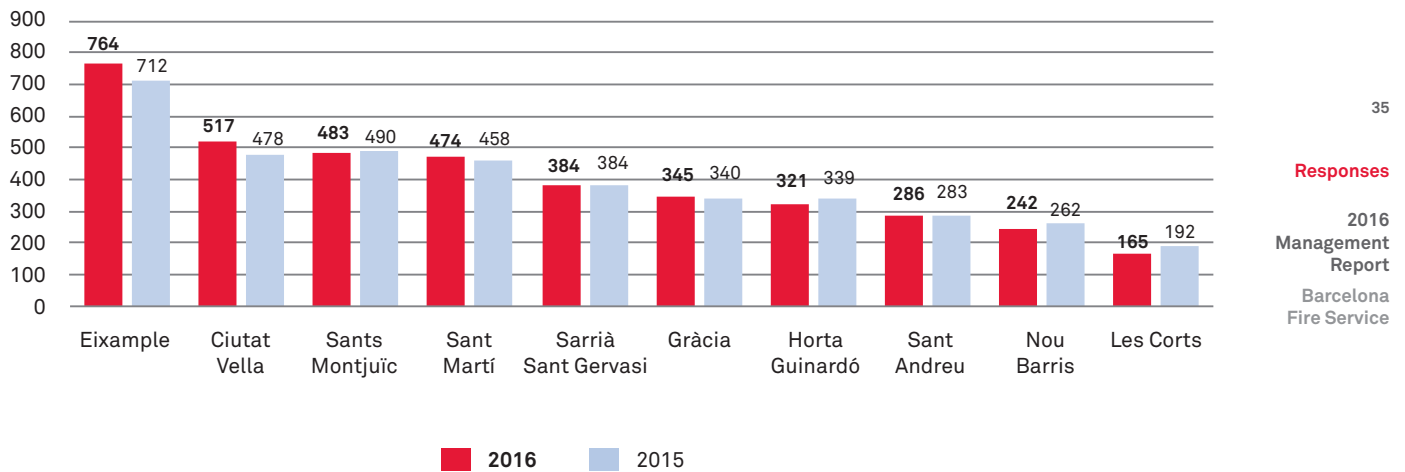


3.3. Technical assistance

Fire fighters perform a large number of highly varied services; “non-emergency” help services for the public which are classed as technical assistance.

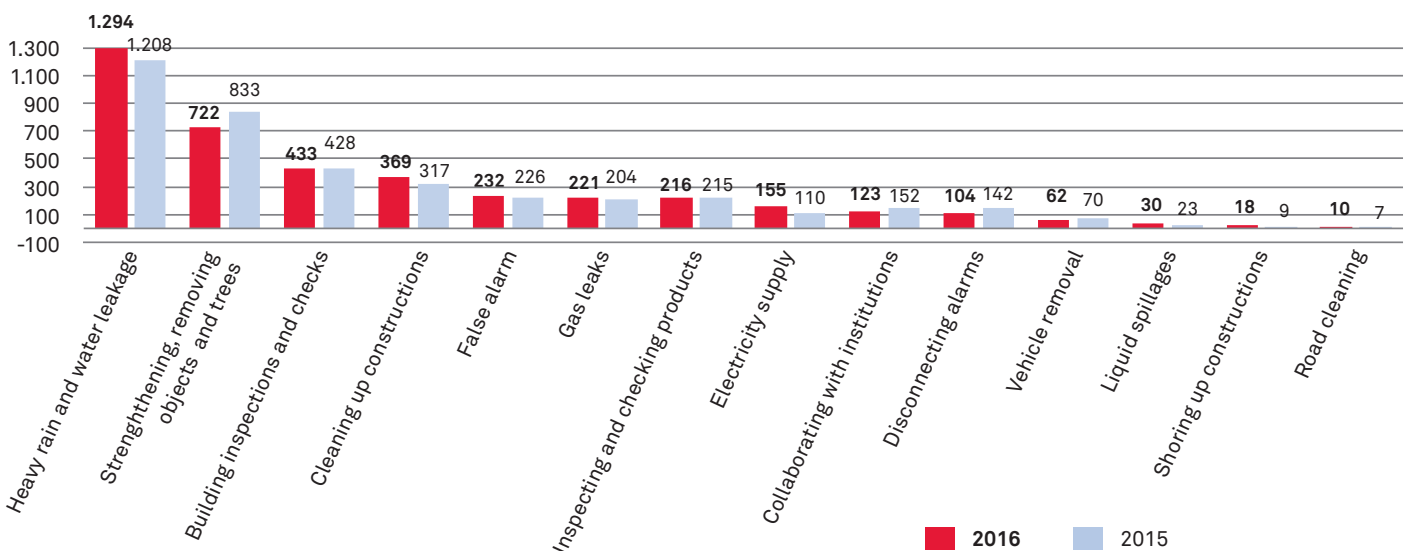
3,989 operational technical-assistance services were performed in 2016 (compared to 3,944 in 2015), representing 23.58% of all responses. Excluding the eight services performed outside the municipal boundaries, the responses were distributed as follows:

Number of technical assistance operations



The type of technical assistance carried out varied:

Types of technical assistance

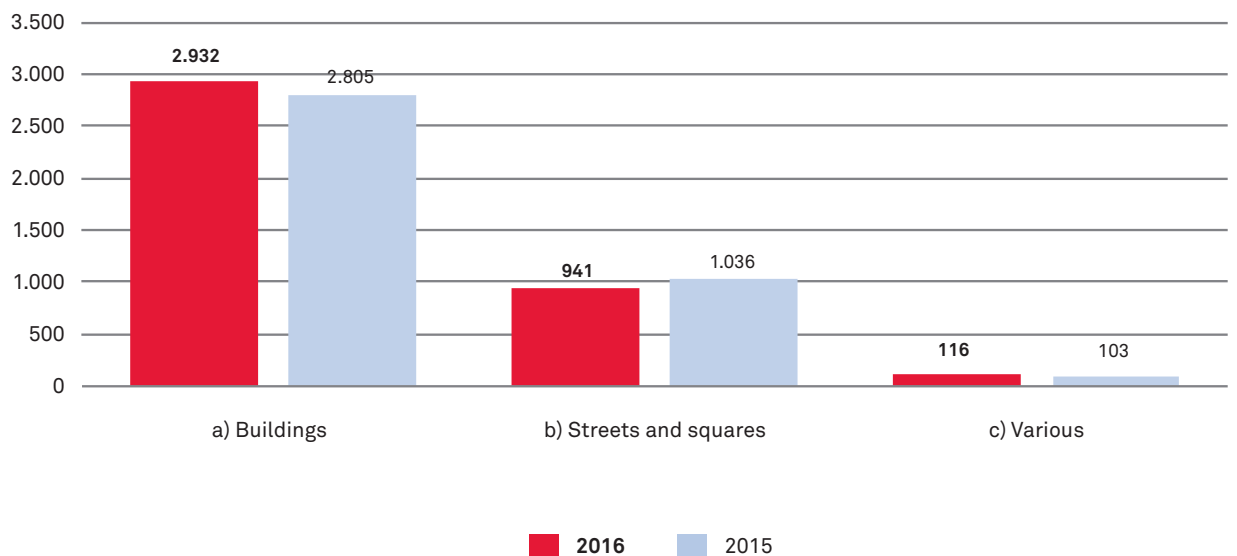


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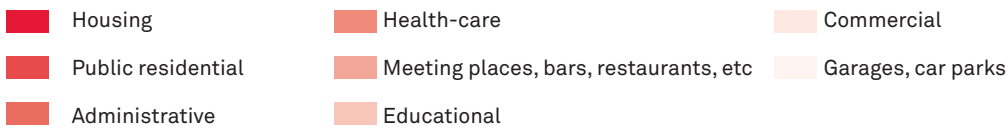
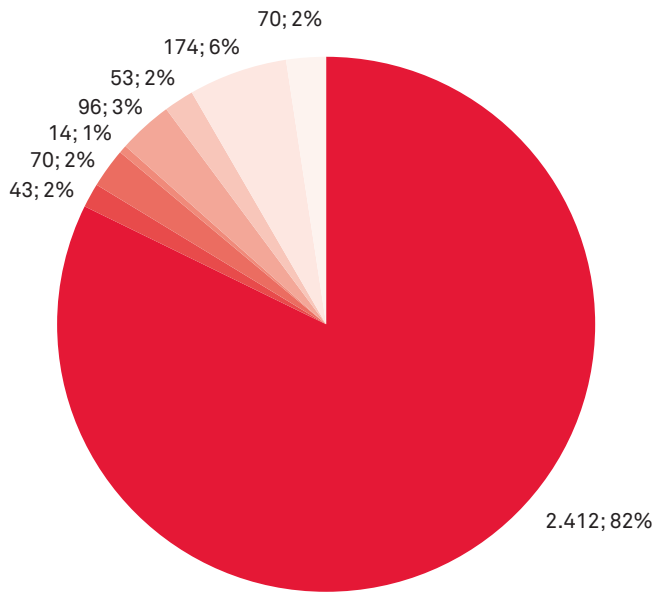
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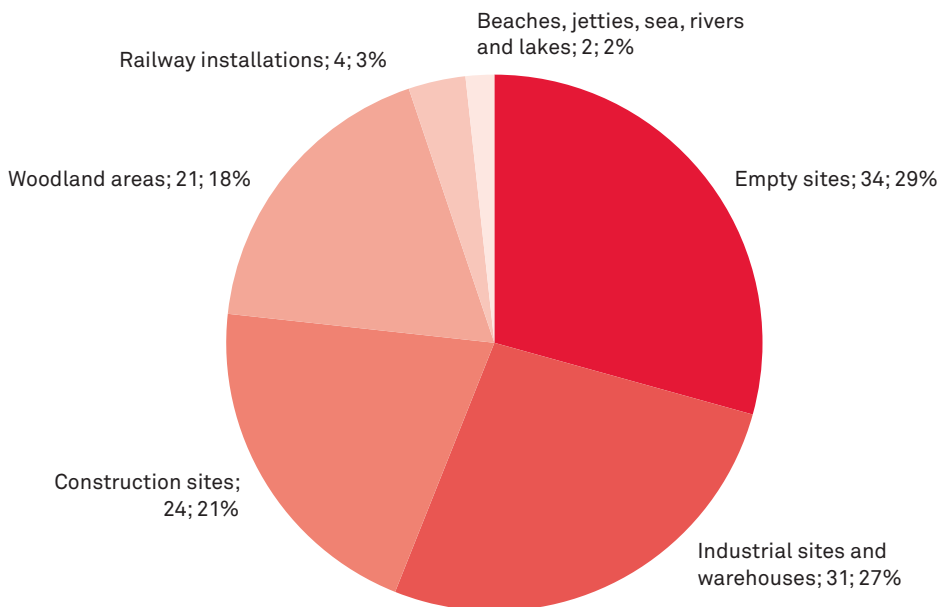
Location of technical assistance



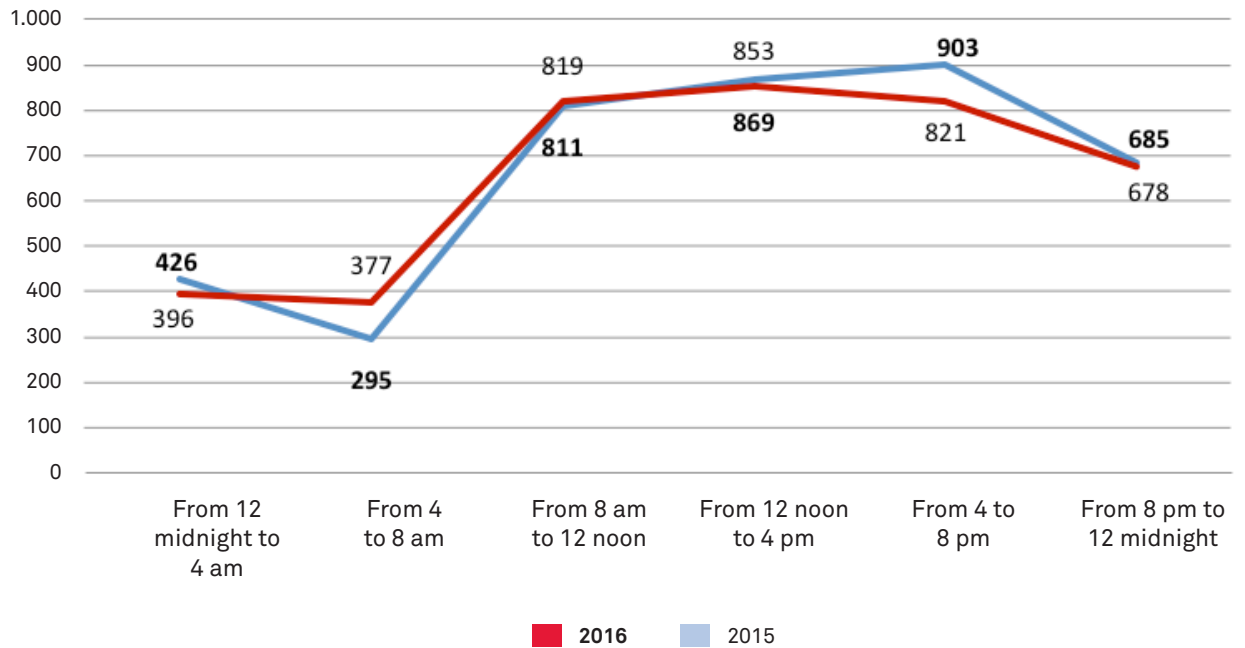
a) Edificis



c) Various



Times of technical assistance



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64.75% of the technical assistance was provided during the day and 35.25% at night.

Lastly, note the 47 school visits (44 in 2015) and two open days (same number in 2015).



3.4. Operational prevention

Under the generic name of “operational prevention”, every action is measured that enables a better understanding of response environments, including roads and access points, as well as buildings and special elements. Also included are environmental and activity monitoring services as a preventive measure. In both cases, such activities lead to greater effectiveness and safety.

2,112 environmental knowledge and monitoring services were carried out in 2016, representing 12.49% of the total. In absolute terms, that means 144 more environmental knowledge and monitoring services were carried out than in the previous year.

Of these services and monitoring activities, 88.68% were performed during the day and 11.32% at night.

3.5. Notable services

-C-58 Accident:

Service response at 1.8 km from the C-58 where there was a pile-up collision, on **23 January**, involving 7 vehicles. One person ended up trapped and several others, one of whom was pregnant, were injured in varying degrees. The response team freed the trapped person, provided medical care for the injured and later evacuated them to hospitals to complete their response by removing the elements that remained at the scene of the accident and that way enable the road to be cleaned up by the maintenance teams.



- Multiple vehicle fire next to Parc Güell:

Service response at C/Sostres where SPEIS was alerted on the morning of **27 January** of a fire involving vehicles on the road. On their arrival, the fire-extinguishing team saw the fire had already affected a large number of cars and that the fire was spreading due to a spillage of fuel from their tanks which was moving down the sloping road. An electricity distribution box located in the site was also affected. In the end, 20 cars were affected (which could not be identified at first because their licence plates had become unreadable) and a further 19 vehicles, which were parked on the other side of the road, were damaged by the temperatures. Some of the park's trees were also damaged (pine trees and dwarf shrubs) from the fire.

- Technical assistance in the facilities building:

Service requested by the Sant Martí District Councillor's on **2 February** at C/ Doctor Trueta, nº 195, to inspect the structural state of the Ateneu La Flor de Maig. After the inspection was made, serious defects caused by corrosion were detected in the metal beams as well as significant cracks in the load-bearing walls, making it advisable for the activities going on both in the building and in its musical-recording premises to be temporarily halted. A home there was also evacuated.

- Fire in Barcelona's tunnels draw the city to a standstill:

Some of the rubbish piled up in the old Bifurcació Vilanova station nearby the Arc de Triomf caught fire on **9 February**. This small fire caused a considerable amount of smoke which filled the city's tunnels, leading to the closure of the railway service and several metro lines for practically the whole morning.

SPEIS, which had been put on alert during the morning, quickly got the fire under control; however, the municipal emergency plan was activated for smoke on tracks and platforms at some stations. Fire fighters used self-contained breathing apparatuses owing to the intensity of the smoke and arranged for trains to move along without passengers, to help with the ventilation. The incident was resolved without any injuries or cases of smoke inhalation.

- First serious forest fire of the year:

The fire took place at Ctra. Alta de Roquetes on **16 April**, where a forest fire quickly spread down a very steep slope, pushed along by a south-easterly wind. It was put out thanks to work from five fire engines; the final area burnt by the fire reached 3000 square metres.

- Significant water leak:

Response service carried out on **7 July** on C/ Ganduxer, where there was a large-scale leak in the middle of the road surface which caused a 30 m² surface breach. The large quantity of water and pressure the leak was under had a strong impact on the facade of the building at C/ Ganduxer nº 51, breaking its building elements. Three shopping premises and a car park were also affected, in addition to this residential building. Also affected were the Cinemes Diagonal, a DIR-chain gym and its underground car park and an underground car park for the estate at C/Escoles Pies, nº 11. The company's procedure was activated to ensure no other facilities were affected.

- Fire in a flat in El Besòs

Ten vehicles and three ambulances from SPEIS, and from SEM and the Guàrdia Urbana [city police] as well, were sent to C/ Rodes, in El Besòs, on the morning of **11 July** owing to a fire in a flat. The fire started in the lower part of the building, apparently caused by a short-circuit of the electrical installation in a poor state of repair, which had bars on its windows, making the evacuation work all the more difficult.

The fire fighters' quick arrival at the scene of the fire helped to save the life of one of the three children found inside in the building. Unfortunately, nothing could be done for the other two children.

- 19 motorcycles burnt on public roads

A fire broke out in a motorcycle park, on the pavement alongside C/ Pedro i Pons, nº 18-20, on the afternoon of **18 July**. The fire was big when SPEIS arrived and involved numer-

ous motorcycles. The area affected was accessible and very open. The fire was put out, having damaged 19 of the motorcycles parked on the road, a parking meter and several trees nearby the area.

- Collaboration with Catalan Regional Fire Fighters in putting out a forest fire

Alerted to a forest fire in the Esplugues area, Barcelona Fire Fighters collaborated with Catalan Regional Fire Fighters on **1 August** to help to put out a fire in Camí Finestrelles, nº 2. The joint work, some of which was carried out up in the air, made it possible for the fire to be put out under a coordinated approach; the total area burnt by the fire came to 7,500 square metres.

- Accident involving a coach carrying 24 tourists

SPEIS was alerted to an accident on the morning of **13 September** involving a bus some 15 km along the Llobregat-direction part of the Ronda Litoral (coastal ring road). It was a private bus travelling along the Lloret de Mar route to Prat Airport which had capsized and was lying on its left side. The driver and several passengers with varying degrees of injury were outside the bus but five others remained trapped inside. Once the bus was secured, work was carried out to free the passengers, with triage performed on the injured, who were taken to hospitals with varying prognoses. After the road was cleared, the ring road was re-opened.

- Building inspection

SPEIS services were called out on **18 September** in response to the collapse of a large glass canopy (7m x 1m x 0.4m) that was in a hotel and which had fallen from a height of twelve storeys, causing damage to vehicles parked in the Diagonal Mar area. The most hazardous elements were cleared and part of the canopy secured to prevent any risks until it was properly repaired.

- New forest fire rounding off the summer

The last serious forest fire of the year broke out on **19 September** at 12.07 noon along Carretera Alta Roquetes; SPEIS was then alerted to a fire that had started between Camí de St. Llätzer, the booster station at Turó de les Roquetes and Ctra. Alta de Roquetes. Because of the magnitude of the fire, collaboration was immediately requested with the Catalan regional Fire Brigade's air support service, which contributed four fire-fighter helicopters and two surveillance and fire-fighter aeroplanes. As for the fire-extinguishing and control work, this was carried out in strict coordination with the electricity-distribution grid companies and the Municipal Institute of Parks and Gardens, which provided water tanks for sufficient amounts of water. Two schools and a work-placement centre were evacuated that day. The fire came under control at 7 pm, by which time an estimated 18 hectares had been burnt by the fire.

- A rescue just in the nick of time

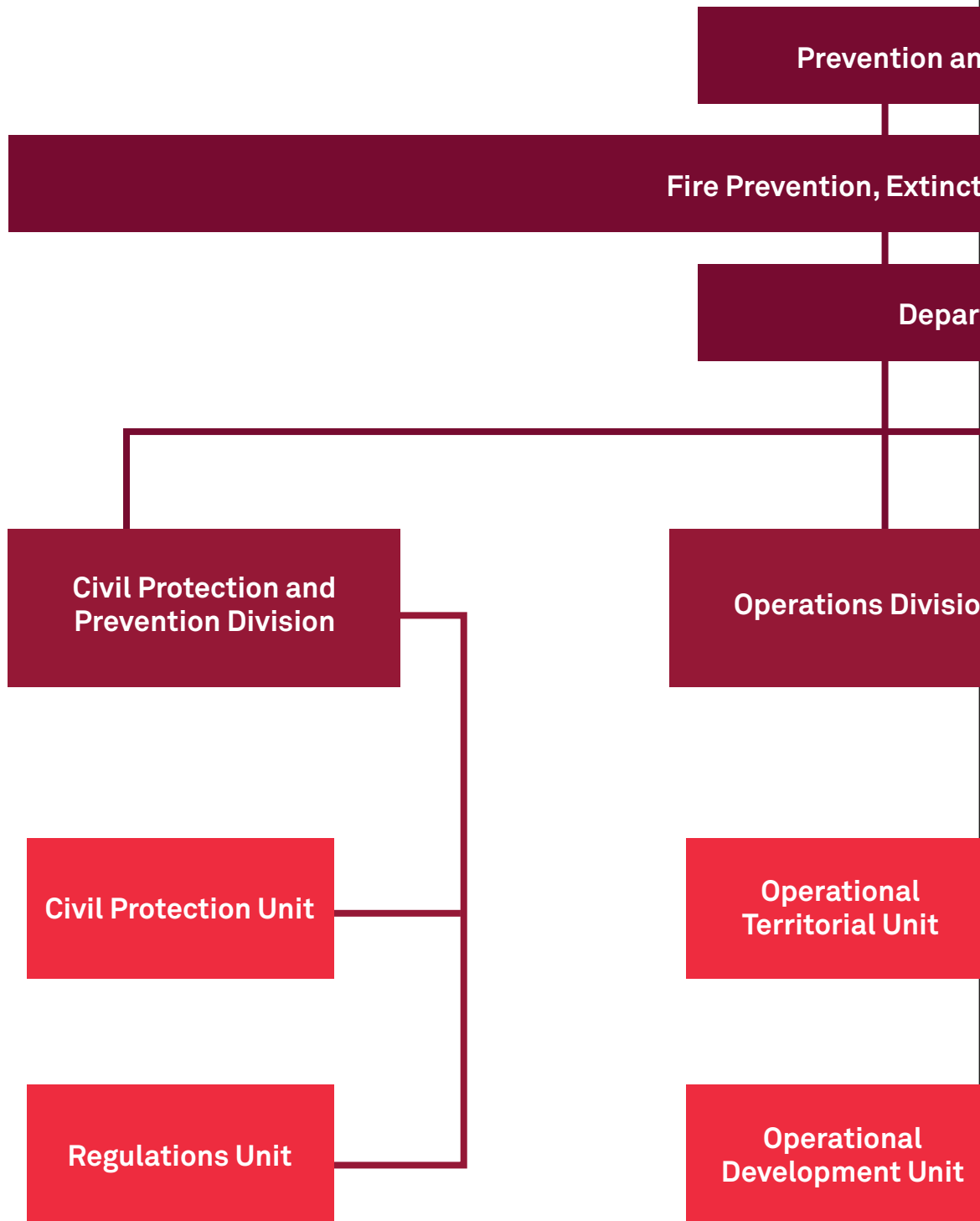
A rescue was performed on **8 October** on C/ Còrsega, nº 193. This was an assistance and rescue carried out on a girl with Asperger's syndrome. After searching for the girl in the building where she lived, fire fighters located her and managed to catch hold of her hand just in the nick of time after she had jumped off a seventh-storey ledge. Helped by a third fire fighter and two Guàrdia Urbana [city police] officers, the girl climbed back up and was subsequently given medical support and transferred to Hospital Clínic.

4

People

4. PEOPLE

4.1 ORGANISATIONAL CHART



and Safety Area

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Planning Division

Procedures and
Planning Unit

Technical
Support Unit

The distribution of staff in 2016 was as follows:

Operational staff

Professional categories	Men	%	Women	%	Total 2016	Total 2015
Senior officers	13	2.1%	5	25.0%	18	11
Middle-ranking officers	14	2.2%	0	0.0%	14	13
Middle-ranking nursing officers	13	2.1%	9	45.0%	22	24
NCOs	8	1.3%	0	0.0%	8	11
Sergeants	26	4.2%	0	0.0%	26	28
Corporals	78	12.5%	0	0.0%	78	84
Fire fighters	474	75.7%	6	30.0%	480	460
TOTAL Operational staff	626	100.0%	20	100.0%	646	631

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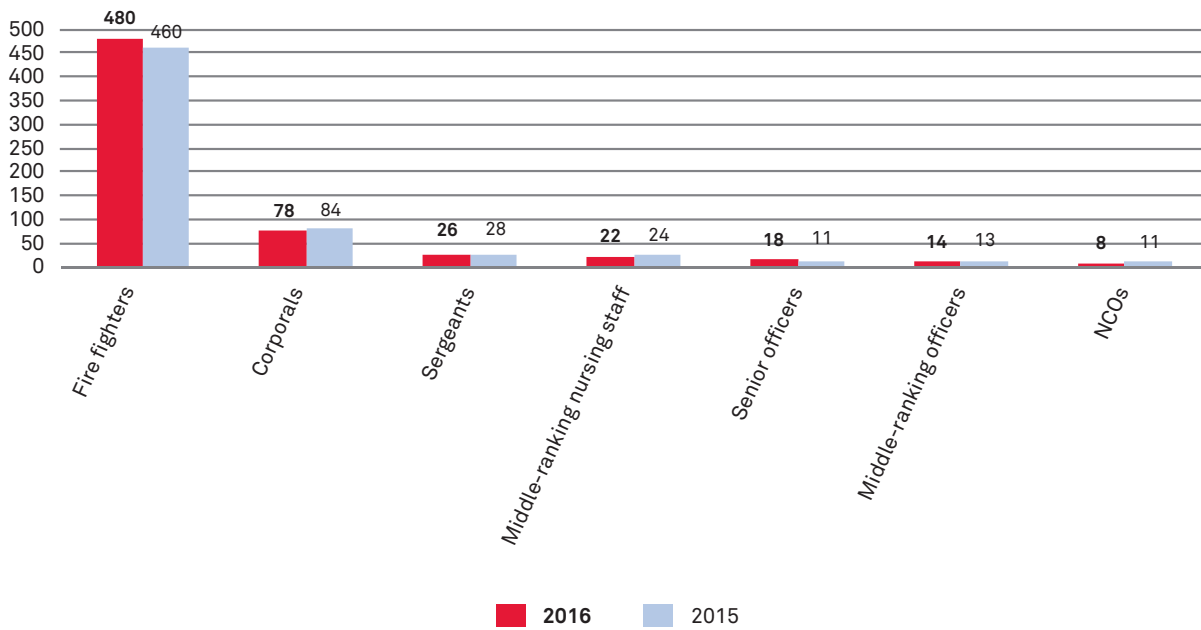
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Non-operational staff

Professional categories	Men	%	Women	%	Total 2016	Total 2015
Senior officers	4	30.8%	1	9.1%	5	5
Middle-ranking officers	0	0.0%	0	0.0%	0	7
Managers	0	0.0%	1	9.1%	1	1
Admin staff	4	30.8%	3	27.3%	7	8
Admin support staff	1	7.7%	3	27.3%	4	3
Support	0	0.0%	1	9.1%	1	1
Emergency Management Centre auxiliaries	4	30.8%	2	18.2%	6	6
TOTAL Non-operational staff	13	100.0%	11	100.0%	24	31
	639		31		670	662

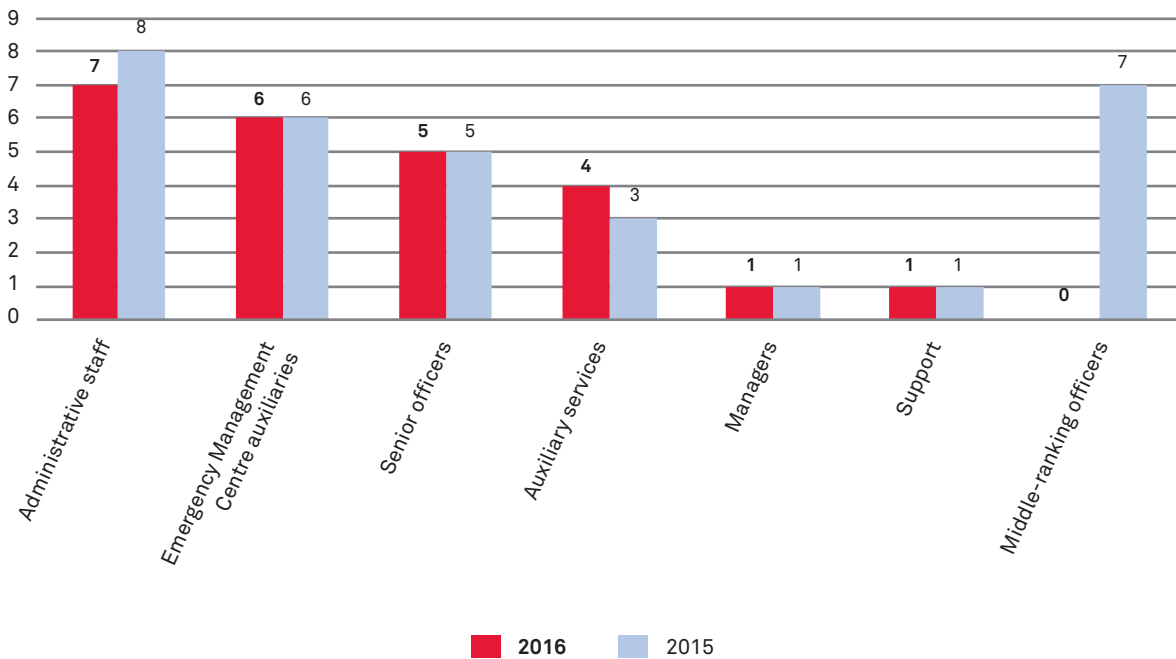
SPEIS therefore had 670 members of staff in 2016, eight more than in 2015.

Operational staff



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Non-operational staff



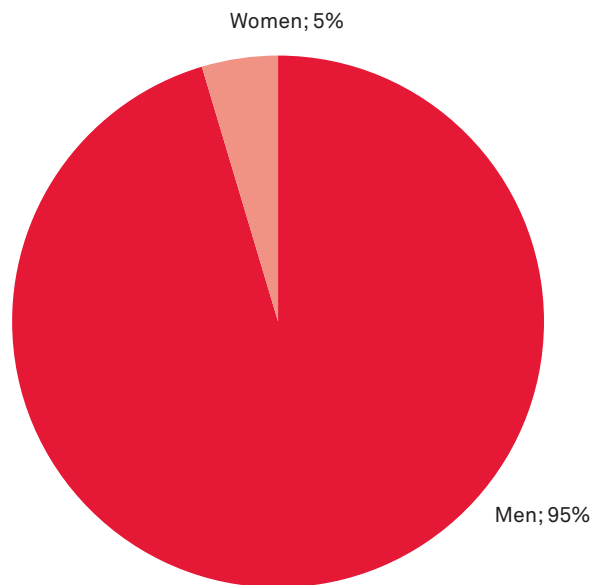
The incorporation of a woman into Barcelona's Fire Brigade represents a relatively recent addition (2007), which is why there is such a small percentage of female staff members. The City Council has been introducing positive-discrimination measures towards women in the recruitments processes (where they have equal scores with men), which women will be benefiting from in the coming recruitment processes.

While the overall percentage of women within SPEIS has risen slightly, up by 1.30% compared to 2013, most of that increase was due to the incorporation of women into the brigade's central services, involving non-operational work.

Distribution by gender

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As for the organisational structure, staff are divided up as follows:

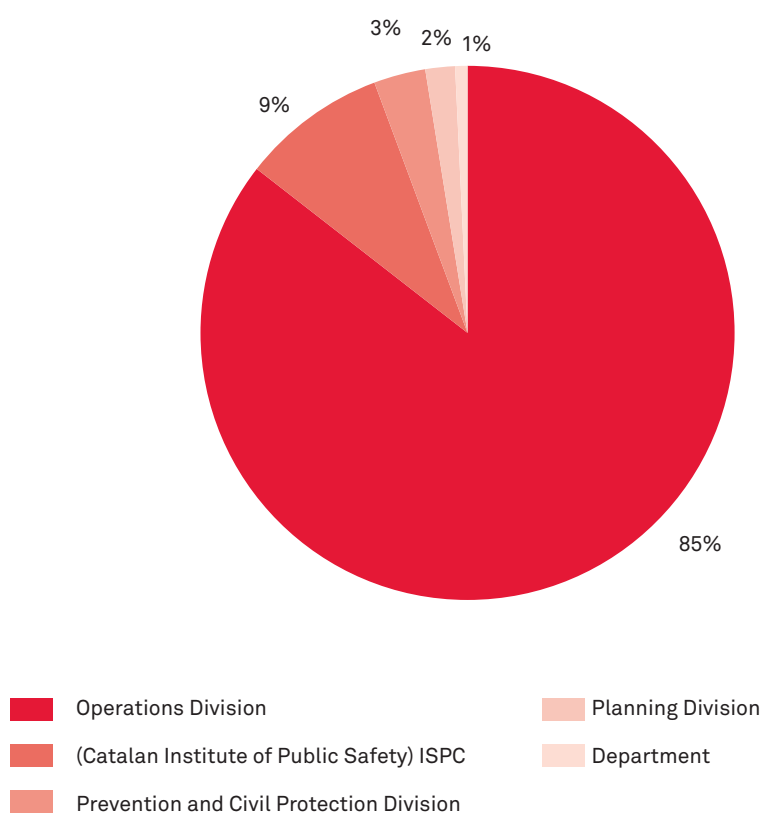
Organisational structure	Operational staff		Non-operational staff		Total 2016	Total 2015
Department	2	0.3%	3	12.5%	5	5
Operations Division	565	87.5%	8	33.3%	573	621
Prevention and Civil Protection Division	11	1.7%	10	41.7%	21	21
Planning Division	9	1.4%	3	12.5%	12	15
(Catalan Institute of Public Safety) ISPC	59	9.1%	0	0.0%	59	0
TOTAL staff	646	100.0%	24	100.0%	670	662

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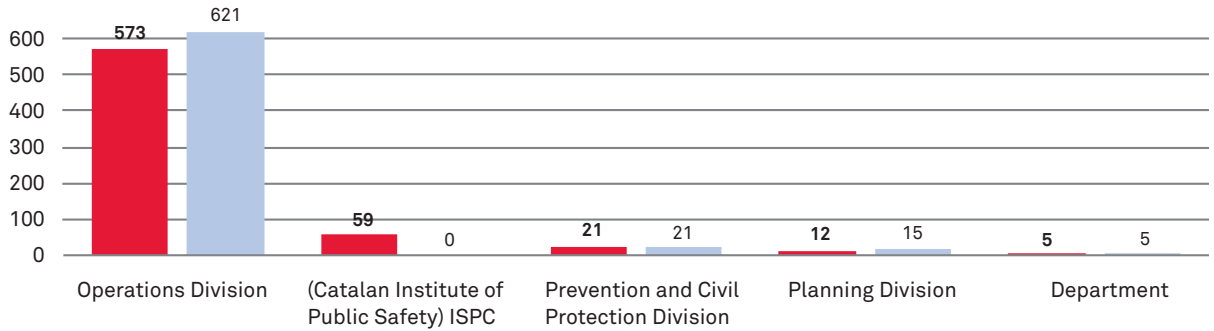
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Organisational structure I



Organisational structure II



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People

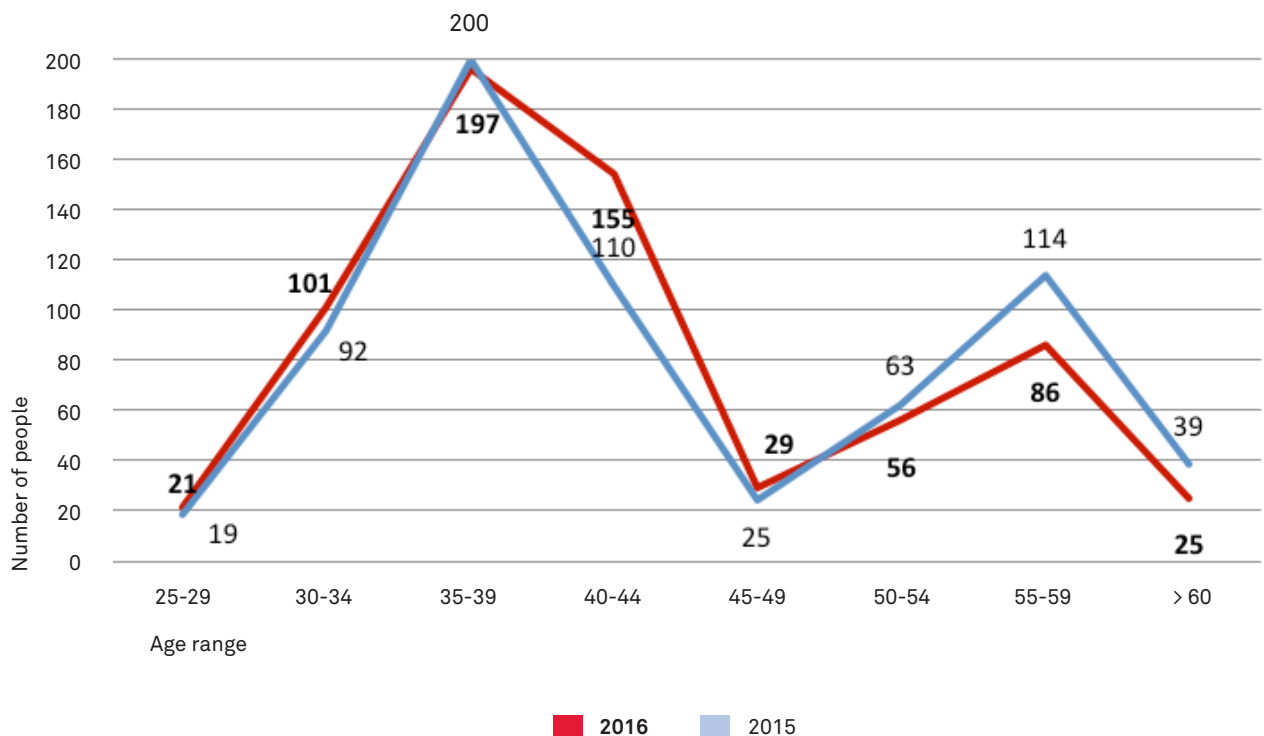
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2016 2015

The average age of the operational staff team as at 31 December 2016 was 42.04, representing a slight drop compared to the previous year (being 43.41 in 2015), as a result of a newly promoted person who was incorporated into the force in 2016.

The average age of the non-operational staff team rose from 47.68 to 48.25 in 2016.

Age



4.2. Training

Following the line set out under the Training Action Plan for 2016-2020, the planning process for training in 2016 began in September 2015. It mainly involved detecting the training needs of operational staff, through meetings with the senior officers responsible for the various fire stations. In addition, the impact of initiatives carried out in advance was analysed, detecting aspects to be worked on and improved. At the same time, the various SPEIS units also planned specific training needs (caused by the acquisition of new tools or vehicles or by applying new training procedures). A study was made too on the accident rates of operational staff.



The thematic areas set out have been followed in accordance with this Action Plan. It was made to coincide, among other things, with a course for the first time for fire fighters, corporals and sergeants to carry out a final exercise: a drill that enabled them to pool the areas of knowledge received in class.

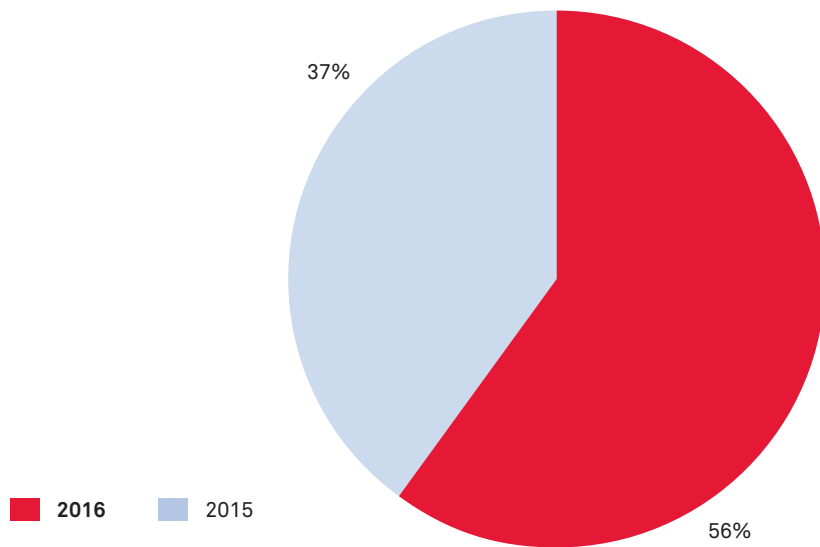


More specifically, the following training initiatives were carried out in 2016:

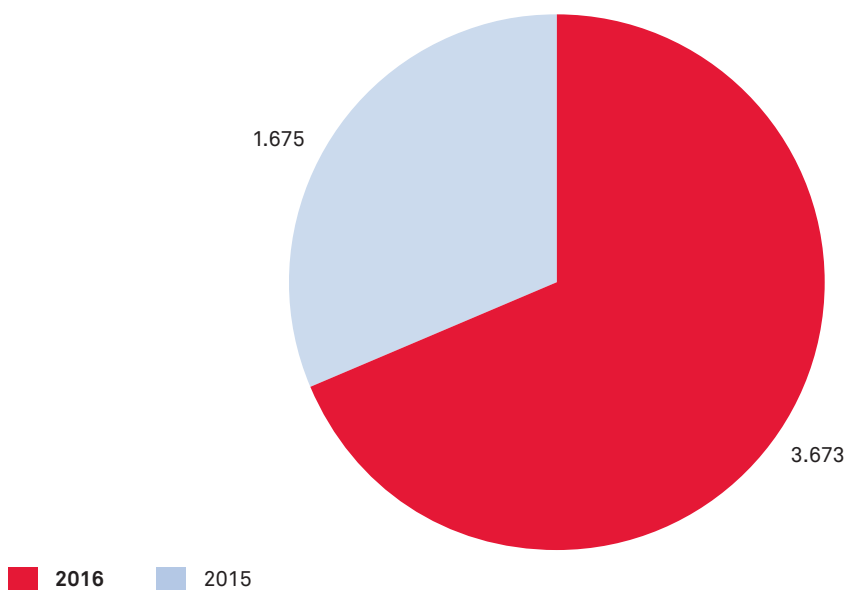
Training initiatives in 2016	Number of initiatives	Sessions	Participants	Training hours
Newly recruited Fire Fighters	1	1	59	700
Senior officers	4	13	135	128
Tools and equipment	2	50	747	75
Extinguishing	7	27	448	240
Skills	1	25	403	150
Opening doors	3	35	503	390
Prevention	7	8	56	229
Rescue	7	12	114	142
Chemical risk	7	50	533	853
Health care	2	4	26	46
Supplies	3	5	52	72
Vehicles	3	45	515	135
Technical sessions	9	9	82	221
2016	56	284	3,673	3,381
2015	37	133	1,675	1,844

As can be seen in the following graphics, there was a notable increase in training compared to 2015:

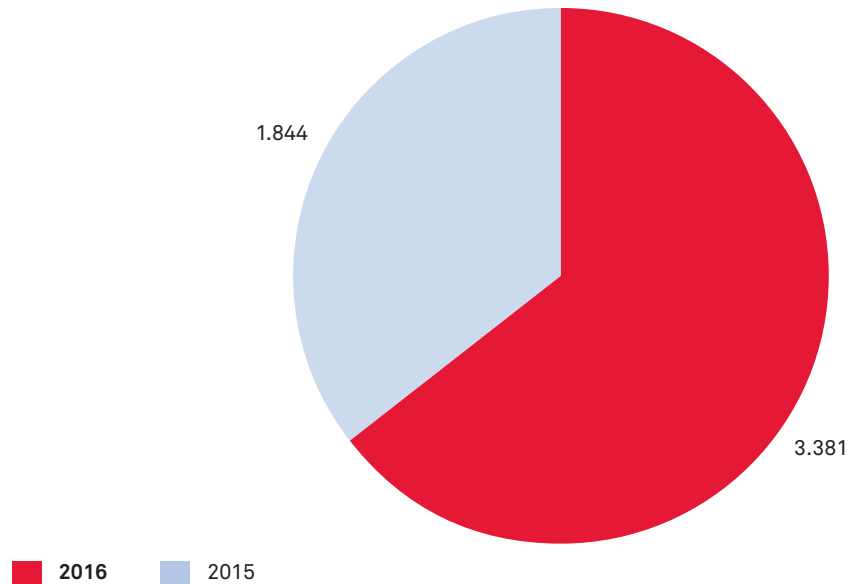
Number of training actions



Participants in training actions



Total hours of training



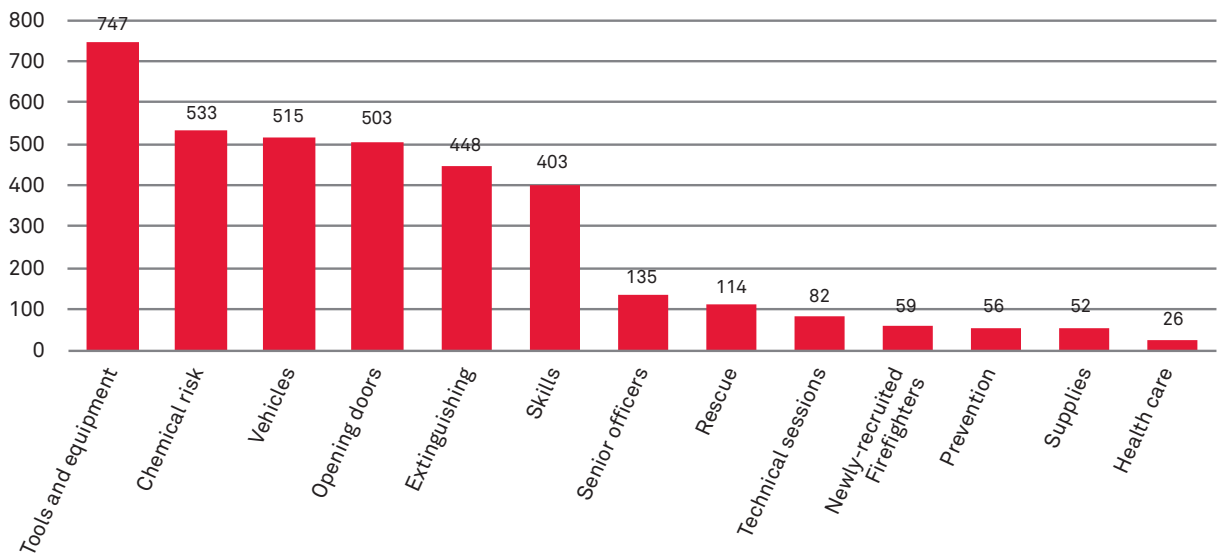
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People

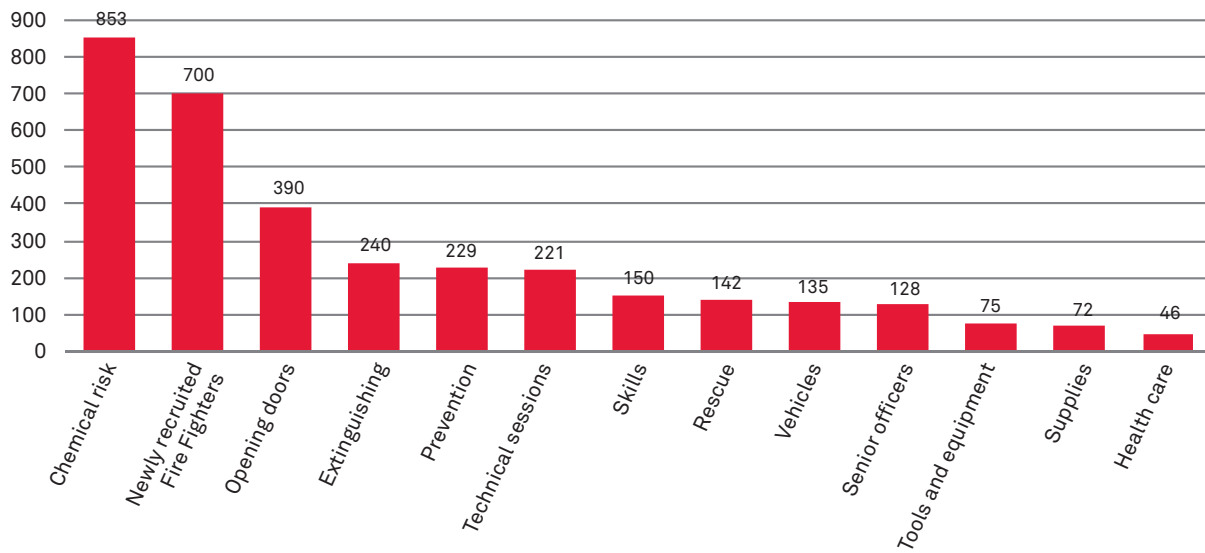
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Distribution by thematic area was as follows:

Participants training actions



Total hours of training



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4.2.1. Ongoing training (compulsory)

Fire fighters underwent an 18-hour course on actions with hazardous substances, approved by the Fire Fighters School at the Catalan Institute of Public Safety (ISPC). They also went through a 12-hour course on door-opening, where all the fire fighters were given an opportunity to practise door-opening using techniques adapted to the tools available to them as fire fighters with locks of the most usual types of doors. Finally, a 6-hour psychological-support and stress-management session was given which concluded the fire fighters' compulsory training programme. These last two courses were also approved by the ISPC.

Corporals also underwent an 18-hour course on actions with hazardous substances, a 12-hour course on door-opening and a 5-hour team-leadership session, all of which were approved by the ISPC. Corporals also trained for an hour on Barcelona's command system: SISCOS-BCN.

Sergeants underwent an 18-hour course on actions with hazardous substances, a 6-hour training session on door-opening (where they were able to observe the techniques for opening doors used by fire fighters and corporals), an 8-hour online session on the emergencies command model (*Incident Command System*), a 5-hour session on team leadership and a one-hour explanation on the Barcelona command system: SISCOS-BCN.

4.2.2. Training in fire stations (when on call)

Several brief training initiatives were carried out on one-off themes, to provide a response to needs resulting from new acquisitions of vehicles and tools as well as the training needs detected in the services performed and in driving vehicles:

- New action procedure for forest fires (3 hours for 25 groups)
- 4x4 driving (Sot del Migdia) x 30 sessions (2 groups of 5 people per session)
- Advanced knowledge on escalators (25 sessions)
- Cable-car-rescue training: 10 six-hour sessions (north area fire stations: Sant Andreu, Vall d'Hebron and Llevant)

4.2.3. Promotion-associated training

- **New recruits' course:**

Basic course for 60 fire fighters (59 new incorporations in addition to an assistant who was already part of the team) corresponding to Middle Grade Emergencies and Civil Protection; lasting 700 hours and carried out through the

Catalan Fire Fighters School.

- **Technical prevention courses:**

Basic - and advanced-level courses on fire prevention (for newly recruited staff) approved by the ISPC.

- **New nurses' course:**

A course was given on the fire-development scenarios so that nurses would learn the hot-area scenarios of fires. Exercises were carried out for that purpose in the fire tunnel.



4.2.4. Voluntary training

- **Fires in urban tunnels:**

Two courses were given in benchmark Spanish and European centres on fires in tunnels. The first was given at a SEGANOSA centre which collaborates with Ponferrada facilities in León (Mining School). The second was given at the Tunnel Safety Testing S.A. centre. - Centro Experimental San Pedro de Anes (Siero, Asturias) where practice exercises were carried out with real fire in a 600-metre tunnel with all fire-protection and ventilation systems to make the drills as realistic as possible.

- **Emergencies management:**

Training course for control chiefs and auxiliaries at the Emergencies Management Centre (C.G.E.). This course provided expertise in the emergencies command system and updated tactical situation (SITAC) language.

- **Fire analysis:**

Course aimed at senior officers on interpreting the signs of smoke from a fire, to know which stage the fire has reached and propose appropriate response techniques and tactics. This course was mainly attended by sergeants and NCOs.

- **FOCO course:**

- Rescues from collapsed structures. The course involves studying structural pre-collapse and collapse situations and practising emergency stabilising and rescue operations on people in collapsed buildings.
- Advanced indoor fires course This course involves theoretical and practical work on the development of indoor fires. Students carry out real practical exercises in common fire situations so they can understand the signs and manage the technical actions that have to be implemented.
- Animal rescue course. Three-day course involving rescue work for several types of domestic animals.

- **Divers:**

- Two training courses for diver staff given through the Fire Fighters School and the Catalan regional Fire Fighters' GRAE-SUB.
- A rescue course with speed boats given at facilities at the Centro Jovellanos (Asturias).

4.2.5. Training in companies or institutions

As for promoting fire-prevention among people or institutions, the following training initiatives were carried out:

- **Basic-level fire-extinguishing course:**

Course offering a small amount of theory, where students learn to use buildings' fire-extinguishing facilities. Extinguishers and equipped fire hydrants (EFH).

- **Intermediate-level fire-extinguishing course:**

This course requires students to carry out responses with hoses, in situations at certain temperatures, and to use PPE.

- **Advanced-level fire-extinguishing course:**

Course with attendees extinguishing fires and equipped with PPE and SCBA.

- **STWC95 fire-extinguishing course:**

Course aimed at ship crews under the framework of mandatory practical fire-extinguishing training for crews.

Public companies/ bodies	Training sessions	Total number of students	Total amount invoiced
20	63	772	€ 85,794

4.2.6. Facilities and training material

The most notable new developments in facilities and training material in 2016 were:

- **Methacrylate urns:**

Two methacrylate urns were bought to help with understanding how fire ventilation and smoke dynamics operate. They will be used in ongoing training courses on fire ventilation and for fire-prevention training in schools.

- **Fire tunnel:**

Options are being studied on improving and extending the current facility.

- **Training videos:**

Twenty training videos in the areas of chemical risks and health care started production in 2016, with the aim of becoming reference material for staff training in the station.

4.2.7. Financial resources

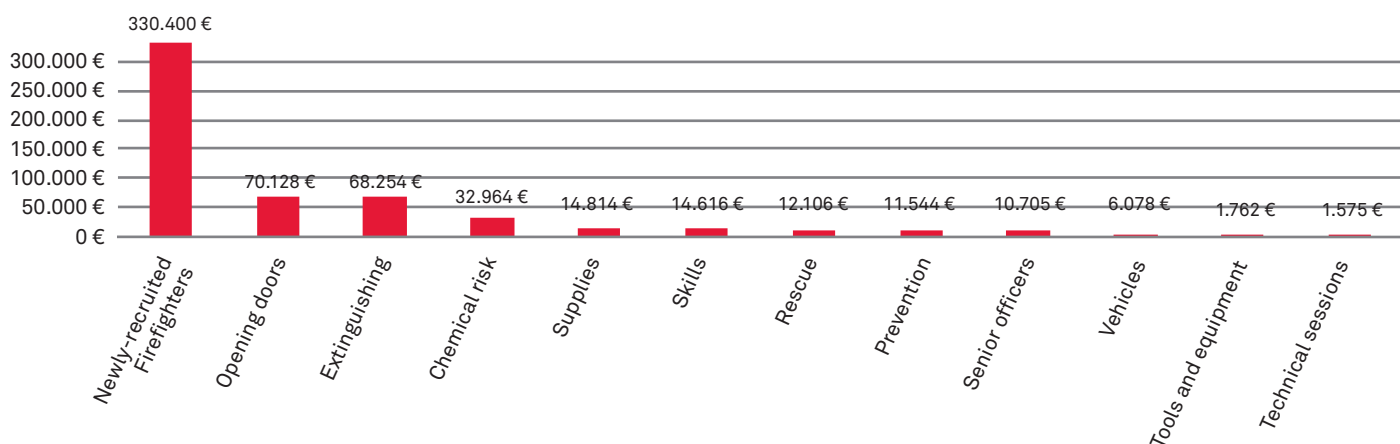
The financial resources for implementing the SPEIS training plan were as follows:

Training initiatives in 2016	Cost	Funding		
		Manager's Office	FEDAP	APB
Newly recruited Fire Fighters	€330,400.00	€330,400.00	€0.00	€0.00
Senior officers	€10,705.44	€10,705.44	€0.00	€0.00
Tools and equipment	€1,761.60	€1,761.60	€0.00	€0.00
Extinguishing	€68,254.33	€40,501.20	€4,800.00	€22,953.13
Skills	€14,616.00	€14,616.00	€0.00	€0.00
Opening doors	€70,128.00	€70,128.00	€0.00	€0.00
Prevention	€11,543.52	€11,543.52	€0.00	€0.00
Rescue	€12,105.96	€8,577.96	€3,528.00	€0.00
Chemical risk	€32,964.12	€32,964.12	€0.00	€0.00
Health care*	€0.00	€0.00	€0.00	€0.00
Supplies	€14,813.88	€0.00	€0.00	€14,813.88
Vehicles	€6,077.64	€6,077.64	€0.00	€0.00
Technical sessions	€1,575.00	€1,575.00	€0.00	€0.00
2016	€574,945.49	€528,850.48	€8,328.00	€37,767.01
2015	€546,010.55	€377,427.40	€11,400.00	€157,183.15

*Cost-free training

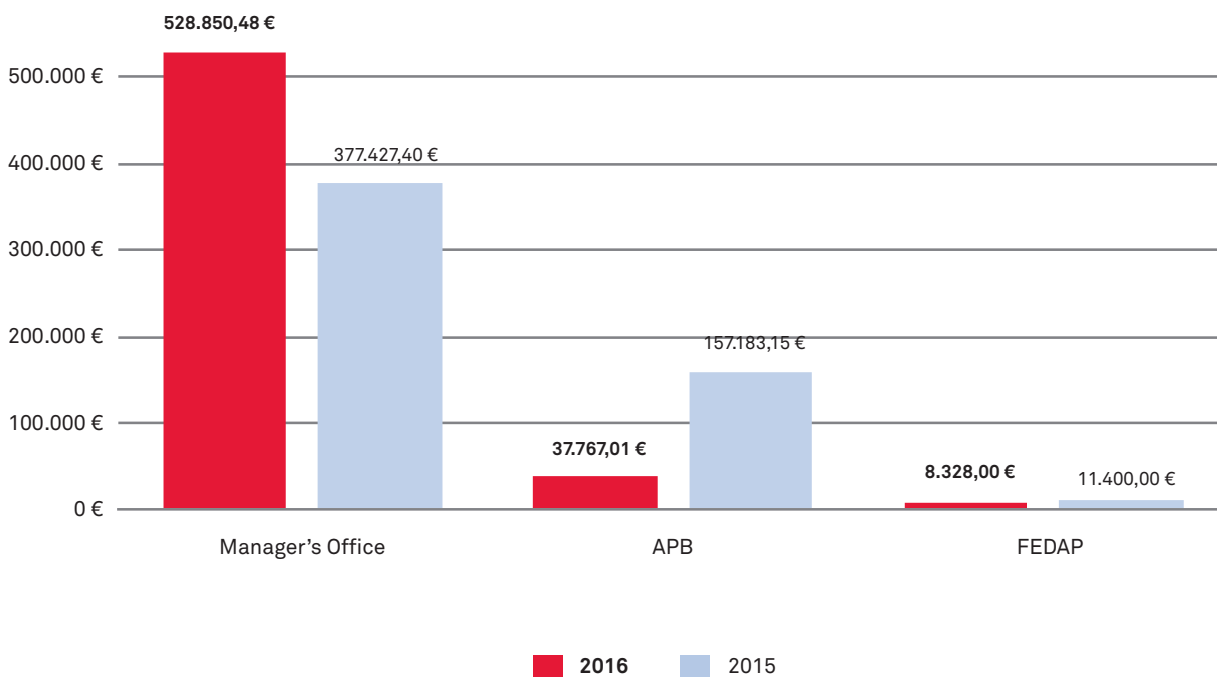
Depending on training themes, the cost was:

Cost training actions



Distribution of the cost according to funding source was:

Funding source of training actions



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4.3. Staff management

There was 2.76% absenteeism among SPEIS operational staff in 2016. More specifically, 158 officers were off on sick leave and there were 200 cases of temporary work interruption, corresponding to a total of 5,920 days off work. As for non-operational staff, there were 7 cases of sick leave among five people, totalling 206 days and representing absenteeism at 2.35%.

The most notable initiatives that were used to reduce levels of absenteeism were: monitoring cases of sick leave (several of them summoning the person concerned), work place adaptations, moves to second activity situations, the management done by the medical inspector at the manager's office by contacting health centres to



search waiting lists as proof of visits or surgery, authorisation for rehabilitation during service hours to check the duration of sick leaves and coordination with medical inspections from the City Council and PAMEM.

On the other hand, Barcelona's Fire Brigade is one of the groups with the highest levels of occupational accidents, given the nature of its work. More specifically, 55 accidents leading to sick leave were recorded in 2016, corresponding to a total of 1,549 accident-related sick-leave days. These data include accident-related days of sick caused by in itinere accidents and relapses from previous accidents.

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