# Management Plan for the **City Park**

[2019-2023]

Cover photo by: Catarina Teixeira Fernandes

# Management Plan for the **City Park**

[2019-2023]

Photo by: Cláudia Oliveira Fernandes

# Foreword

PORTO, GREEN CITY, UNDEFEATED, RESILIENT, AWARE AND COMMITTED TO A SUSTAINABLE FUTURE

Porto has been betting on the immaterial programmes in order to achieve a change of behaviour which may have generational effects; on deepening and disclosing knowledge on its biodiversity to reconcile and preserve it within a consolidated urban context; on recovering environmental assets; on maintaining the ensure of health protection and quality of life of its citizens.

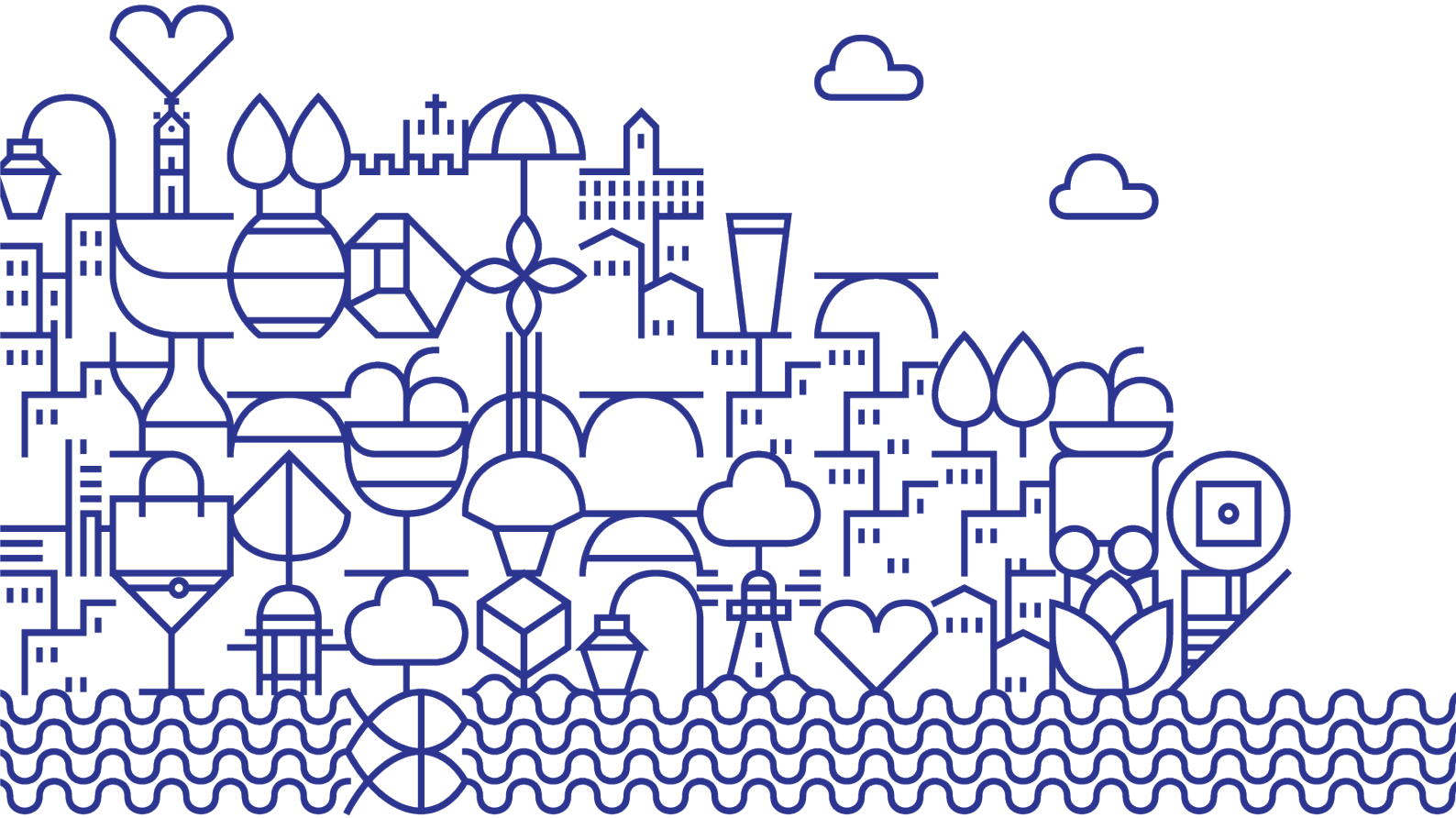
Porto intends to reduce the distance between citizens and green recreational and leisure spaces; it intends to keep drawing itself in shades of green, not in a strictly landscape or ornamental perspective, but ever more guided by transversal criteria and concerns. In this context, a short term management where only framework problems are intended to be addressed is not the most serious of paths, or the one which enables best medium and long term results.

The methodology adopted to produce the Management Plan for the City Park enables us to know where we are, to decide where we want to go and creating the necessary management instruments for an efficient and lasting management of these space.

The Green Flag Award is a certificate of quality only granted to the green spaces which follow the highest standards in their maintenance and management processes.

The presentation of this application is, hence, the natural culmination of our path.

**Filipe Araújo**
**Vice President of Porto City Council**



# Index

# Index of Figures

# Index of Tables

# Glossary

AdP – Águas do Porto, E.M. (Waters of Porto, Municipal Company)

AMP – Área Metropolitana do Porto (Metropolitan Area of Porto)

AN - As needed

CEA – Centro de Educação Ambiental (Environmental Education Centre)

CMP – Câmara Municipal do Porto (Porto Municipal Council)

DMCIGF – Divisão Municipal de Conservação, Infraestruturas e Gestão de Frota (Municipal Division for Conservation, Infrastructures and Fleet Management)

DMEV – Divisão Municipal de Espaços Verdes (Municipal Division for Green Areas)

DMEVGI – epartamento Municipal de Espaços Verdes e Gestão de Infraestruturas (MunicipalDepartment for Green Areas and Infrastructure Management)

DMFP – Divisão Municipal de Finanças e Património (Municipal Division of Finance and Heritage)

DOMUS Social - Empresa de Habitação e Manutenção do Município do Porto, E.M. (Housing and Maintenance Company of the Municipality of Porto)

EMAP – Empresa Municipal de Ambiente do Porto (Municipal Company for the Environment in Porto)

GFA – Green Flag Award

GOPorto – Gestão e Obras do Porto, E.M. (Management and Works in Porto, Municipal Company)

Lipor - Serviço Intermunicipalizado de Gestão de Resíduos do Grande Porto (Intermunicipalised Service for Waste Management in Greater Porto

PM – Municipal Police

PEI – Internal Emergency Plan

Porto Lazer – Municipal Company for Entertainment, Sports and Leisure

# I. Introduction

# 1.1 Purpose, Content and Structure

This Plan intends to be a tool to support the management and the maintenance of the City Park, for the period comprised between 2019 and 2023. It is also the application document for the Green Flag Award (GFA) which is a certificate of quality only granted to the green spaces which follow the highest of standards of demand in their processes of maintenance and management.

This document is organised according to the methodology proposed in the *Guide to producing parks and green space management plans* (Cabe Space, 2004), which recommends an organisation in four chapters, which answer the following structural questions: 1) "Where are we now?", a chapter where there is a description of the current condition of the garden; 2) "Where do we want to get to?", chapter where vision, goals and objectives are presented; 3) "How are we going to get there?", a chapter where the action plans are developed; and a) "How do we know we have arrived?", a chapter where a model for the revision and monitoring of the plan is presented. In these chapters the eight themes sections and the 27 criteria assessed by the GFA (Ellicot, 2016) are analysed in detail.

This plan must be continuously improved and updated, in such a way as to promote constant improvements in the park and to enable the adjustment to new realities. This document must be seen as a work document which evolves with knowledge and which keeps up with the change of times.

In this document there are all the essential and the complementary elements for an efficient management and maintenance of the City Park.

# 1.2 The City Park

## 1.2.1 Location

The city of Porto, located at the North of Portugal, is the second most important city of the country and is found on the right bank of the river Douro. The city has an area of 45 km$^2$ and population of about 214 thousand (Pordata, 2017). Porto's geographic location is privileged and served by a dense communications network, which enables the connection between several economic centres, national and internacional. The climate is marked by the proximity to the Atlantic, *which is bathed by masses of water and air with characteristics fully oceanic* (Daveau, 1995: 56).

The City Park is placed in one of the bordering areas of the city of Porto, 5,5 km from the historic centre, connecting with the Union of Parishes of Aldoar, Foz do Douro and Nevogilde (Figure 1). It is limited by the road of Circunvalação in the north, the Avenida da Boavista in the south, the residential area of Aldoar in the east and the international beach on the west.

The City Park is considered the largest urban park in the country, spreading until the Atlantic Ocean. Its uncommon dimension had, since its origin, a strong impact on the life of the population of the metropolitan Area of Porto (AMP), who intensely searches and lives everything this green space has to offer.

The City Park thus became one of the main assets of the city of Porto and its large influx, of both residents and tourists, justifies the importance of the specific and systematised measures of management and maintenance.

**Figure 1 - Location of the City Park in the city of Porto, Portugal. Source: adapted from Google Earth (2019).**

## 1.2.2 History and meaning

Spreading along around 70 ha, the City Park is an example of success of a public green space of a larger scale within the Portuguese context, which results from the combination of favourable factors, such as its unusual dimension, the naturalist drawing, the climate amenity, the previous rural occupation still benefitting from the remaining structures and the location close to the Atlantic Ocean (Farinha-Marques et al, 2015).

The idea of creating a City Park in the city of Porto goes back to the beginning of the XX century, with its importance having already been evidenced by Ezequiel Campos in his *Plan for the City of Porto*. This will grew when, after a long process, the location of the future park was defined – it would be implemented in the valley where the streams of Aldoar, Boavista and Nevogilde met, an area where there used to be field of sowing, marshes, a poplar plantation, a pine forest and an open air dumping. These terrains also comprised a small unclaimed rural centre.

The works for the creation of the Porto City Park would only begin in the 80s, under the technical coordination of the landscape architect Sidónio Pardal. Follower of landscapers such as Rapton, Puckler, Olmsted and Paxton, his ideas would focus on the landscape and in the way the latter should be thought of at a global scale, where the sense of utility meets the natural beauty, with the goal to have the park as an element of composition of the urban tissue (Cláudio, 2016). Of this varied influence came a project which would determine a deep transformation of the landscape (necessary, to make it closer to the natural one), *where the artisanal and artialisé character of the work imposed a small cadence, contrary to the need to present immediate results* (Pardal, 2006: 17).

The City Park was projected and implemented in two phases. The first stage of construction began in 1991, with the official opening to the public taking place in 1993 (Figure 2). In 2002, 70% of the park was already concluded and in that same year, the general construction which closed the contention of the third lake and concluded the circuit of the resting spots along the path of the western end of the park (Pardal, 2006:17).

The western edge of the park, which establishes the narrower connection to the beach, was developed within the scope of the intervention for the requalification of the Seafront of the City of Porto, associated to Porto 2001 – European Capital for Culture, projected by the architect Manuel de Solà-Morales (Pinto, 2013). The transformation of the Avenida Marginal in a viaduct enabled the continuity until the sea, with no barriers.

> The creation of the Porto City Park begun in the 80s, under the technical coordination of the Landscape Architect Sidónio Pardal.

Currently, the park is a place of reference in the city of Porto. Visiting it allows meeting with a modelled landscape around three main lakes, which configure specific landscape units, unfolded in several carefully designed settings. Along the around 8 km of paths, one can see constructions resembling ruins, exposed openings in the vegetation and which take the role of participating elements in the aesthetic expression of this green space. The remaining cluster of houses of the cultivation centre of Aldoar, located in the northeast end, was integrated in the park thus enabling the constant memory of rurality, long lost in the city. Beyond the popular architecture buildings, there are also, in this centre, several oaths with Portuguese pavement, contained by stone walls.

Vegetation has a determining role in the organisation of the park, exposing vast areas of the clearing or thickening into arboreal masses and small woods. According to Sidónio Pardal (2006: 31), *the pallet of species is open, with the choice criteria being those of adaptability of the species to climate and soil conditions of the place and its aesthetic and formal expression, not only when it is individually seen, but also in composition of arboreal and bush spots. Of course there is the attention not to use invasive exotic*

*species; however there is no prejudice in recurring to non-native species, without which the landscape of the park would be significantly depleted*. Even with the strong climate influence of the ocean coast, the diversity of the species found is extraordinary allowing the observation of several specimens of *Cupressocyparis leylandii*, *Metrosideros excelsa* and *Pinus pinea* as far as the tree layer is concerned and *Eleagnus ebbingei*, *Crataegus monogyna* and *Melaleuca armillaris* as examples of the shrubs layer (Farinha-Marques et al, 2014: 43).

The perception of the construction of the park in two stages is, for now, evidenced by the expression of the vegetation. In the one which is considered the first phase, the vegetation is perfectly established whereas in the area corresponding to the second phase, the vegetation is still in a stage of consolidation. Between the two phases there is still an obvious difference of species used, with a higher number of species resistant to the effect of salt, with the maritime proximity. This gradation enables the control of the winds, as well as the development of other species which, without the vegetal barrier, would not have been able to survive

The City Park is, currently, one of the maximum expressions at the level of urban public parks in the Metropolitan Area of Porto and in Portugal. It is the stage for surprising biological events and, for many citizens, the place to be close to nature.

**Figure 2 - Implementation of the first stage of the City Park: a) and b) Construction Work; c) Inauguration.**



# 1.3 Scope and Management

The City Park is a public park, with its management and maintenance being of the responsibility of the Porto Municipal Council (CMP), specifically of the Municipal Division for Green Areas (DMEV) which belongs to the Municipal Department for Green Areas and Infrastructure Management (DMEVGI) (Annex 1).

Beyond the parks, gardens and squares of public use, the DMEV also manages the green spaces associated to municipal housing projects and the street trees. As far as the management of green spaces is concerned, the city is organised in seven distinct areas (A to G), with the City Park as an autonomous unit, which means it is managed independently, having its own staff headcount for the maintenance activities (Figure 3). The administrative building of the DMEVGI is located within the park.

The City Park counts on a team which comprises 1 responsible technician, 1 commissioner, 14 gardeners and 1 plumber (Figure 4, Annex 2).

Beyond the organic units of the CMP, there is a set of municipal companies with responsibilities on specific aspects of the management of the Park, namely: Domus Social, EMAP – Empresa Municipal de Ambiente do Porto, Porto Lazer and GOPorto.

The Domus Social is responsible for the conservation of buildings used by the staff; EMAP is responsible for the collection of residues from the ecocentre and its transportation to Lipor, as well as the removal of the graffiti; Porto Lazer is the municipal entity which is responsible for the organisation and disclosure of events and GOPorto has the task of ensuring the promotion of the public works. The concessionary have the responsibility to see to the conservation of the buildings where its exploration is located. The management of the concession contracts is of the responsibility of the DMFP (Municipal Division of Finance and Heritage).

**Figure 3 - Map of the city of Porto, signalling the City Park, whose maintenance is independent in the seven performance areas at the level of maintenance of green spaces.**

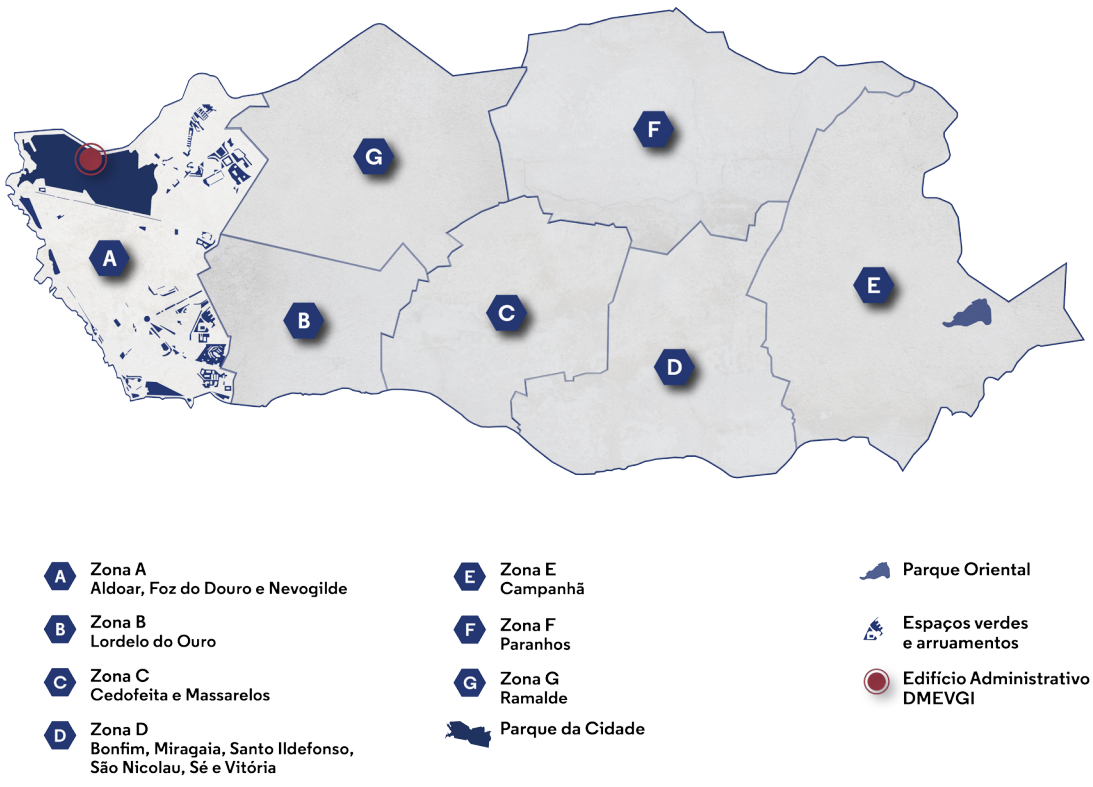
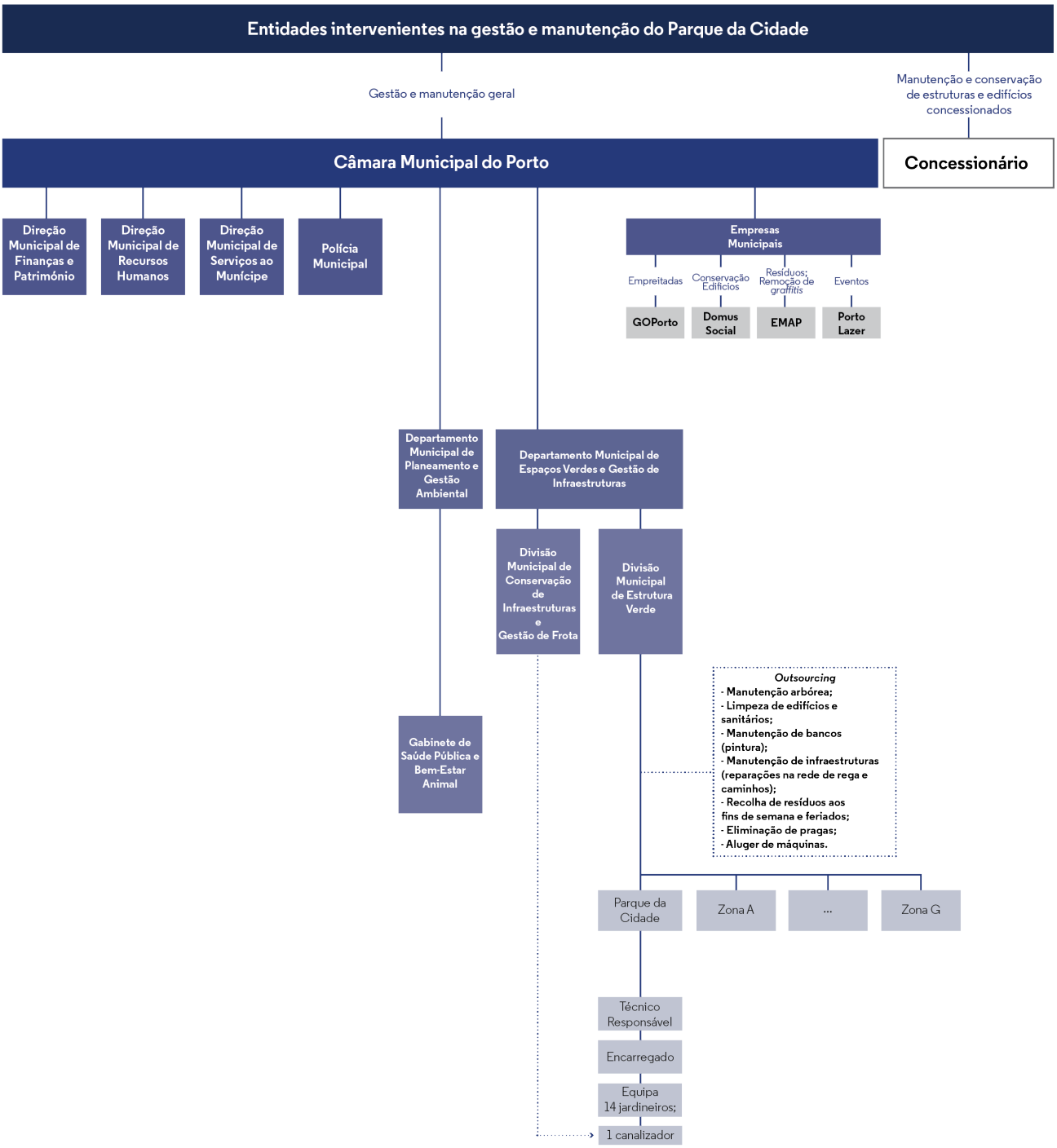


**Figure 4 - Organisation chart of the organic units which belong to the Porto Municipal Council, municipal companies and external entities with responsibility on the management of the City Park**



# II. Where are we now?

The City Park (Figure 5, Annex 3) is currently one of the reference Parks of the AMP, being frequently used by the residents of the region and much visited by the growing number of tourists the city attracts. The Park is searched for all kinds of recreational activities, from the most simple of fruition and contemplation, walks and bicycle rides, sports activities, to the performance of events. It is available 24 hours per day, as along most of its limits there are no gates or railings which prevent access to it. However, it does have an established timetable, which corresponds to period comprised between 8:00 and 22:00, between the months of October and March, and from 8:00 to 24:00, from April to September.

In the Park, there are two spaces for restoration, one cafeteria, two shops (fair trade and regional products) and a canine school, explored by private concessions, as well as one of the Environmental Education Centre (CEA) which is held by the CMP, the Water Pavilion which is explored by the municipal company AdP and which has, among others, an important educational function and a warehouse for the parking of bicycles. With the exception of the cafeteria, which is located in a central position of the Park, and the Water Pavilion,

**Figure 5 - General Plan of the City Park.**

which is placed close to the Entrance of Circunvalação, all the other services are located in the rural centre.

Close to the Entrance of Circunvalação are the two artificial playing fields (explored by a private concession, the Sport Club do Porto, and shared by them and the CMP) and the two sand fields for volleyball, of unrestricted use. Also available for free usage are the multipurpose clearings, where there is a high demand for sporting activities.
The Park is served by two parking areas in two of the main entrances (that of the Columns and that of Circunvalação).

In one of the following chapters there is a description of the current condition of the City Park for each of the sections in question:

- A Welcoming Place
- Healthy, Safe and Secure
- Well Maintained and Clean
- Environmental Management
- Biodiversity, Landscape and Heritage
- Community Involvement
- Marketing and Communication
- Management

# 2.1 A Welcoming Place

## 2.1.1 Welcome

The City Park has nine formal entrances, four of which are considered main entrances, given their monumentality, location or affluence, namely: **i)** the Entrance of the Columns; **ii)** the Entrance of Circunvalação (Figure 6, b); **iii)** the Entrance of Boavista (Figure 6, a); and **iv)** the Beach Entrance (Figure 6, c).

The Entrance of the Columns is the most iconic entrance to the park and as its name indicates, it is framed by two magnificent columns. This entrance is facing the residential area of Aldoar, in its east limit. On this side of the Park there are several secondary entrances.Two of them are located in the rural centre and materialise in remaining doors of the cluster of houses of the cultivation centre of Aldoar.

The Entrance of Circunvalação was initially used for administrative purposes. However, given the existence of the largest parking area and the proximity to one of the busiest roads in the city, it began to attract the interest of the visitors and, today, it is one of the most used ones.

In its south limit, one can find the Entrance of Boavista, announced by a small avenue of platanus interleaved with benches. Close to this entrance, in the southwest side, there is a secondary access, not formalised, which is used by the people who live in the neighbouring residential centre.

In the west side, there are several entrances allowing the access to the Park by the Beach (Entrances of the Castelo do Queijo, the Beach and the Anémona).

**Figure 6 - Main Entrances: a) Entrance of Circunvalação; b) Entrance of Boavista; c) Beach Entrance; and d), Guard house – building which will be adapted into a Visitor's Welcoming Centre.**




Considering that the Park is not only searched for by regular users, but also by tourists, it is rather important that the entrances to it are quickly identified from the exterior. Also due to this, and given the dimension, history and monumentality of the City Park, it is important to have a Visitors' Welcoming Centre, where they can clarify doubts and collect detailed information on the Park.

## 2.1.2 Good and Safe Access

The trip to the City Park, from whichever point of the city and with any of the many means of transportation is very simple. The Park is surrounded by some of the most important road axes in Porto: the Avenida da Boavista, the road of Cicunvalação and the seafront marginal. Although it is placed in a peripheral area of the city, the Park has, by means of a public network of transportations, a very easy connection to the rest of the city (Annex 5). Lines 200, 205, 500 and 502 ensure the direct connection, with a regular frequency, from the most iconic places of the city, such as the Avenida dos Aliados, the Bolhão Market, Foz or Casa da Música (Figure 7, a). It is also possible to get to the Park by Metro, using Line A – Senhor de Matosinhos (stop: Matosinhos Sul), combined with the bus or a walk. In the southwest point of the Park, in the Praça de Gonçalves Zarco, there is a Taxi Station.

The Park is surrounded by some of the most important road axes in Porto: the Avenida da Boavista, the road of Cicunvalação and the seafront marginal.

There are several possibilities with free parking. Inside the Park, form the Entrance in Circunvalação there is the largest parking area (Figure 7, b) which not only has parking places for motorcycles, but it also

Closing these loopholes is one of the priorities of this plan, forecasted through actions A.2.4 and A.1.1 of the Action Plan, respectively (Annex 4). Creating the Visitors' Welcoming Centre will imply adjusting the pre-existing building of the Guard House, at the Entrance of Circunvalação, benefiting from closer proximity to the largest parking area (Figure 6, d).

The City Park provides extraordinary conditions for close proximity to nature, sports, walks and resting. Along its extensive network of paths there are several places where one cans stay, benefiting from the warmth of the sun or the freshness of the shade. The configuration of the landscape, skilfully designed both from the panoramic point of view and the details, enabling the exposure and also privacy. The rock constructions unfold among the architectonic sets of surprise, land contention or path delimitation, which often also allow people to sit and rest. The Park also offers a set of equipment and facilities which allow for a longer stay, namely restrooms, cafeteria and restoration spaces.

The City Park is, therefore, a space of all and for all. Here, everyone is invited to entre and stay, in the various activities and easy of being they choose, no codes and no restrictions.

has places to park buses, Adjacent to the Entrance of the Columns, there is a second parking area, of a smaller size. Complementarily, there are parking places along the Avenida da Boavista, with places for reduced mobility and which serve both the Entrance of Columns and that of Boavista. In different points of the city, there are traffic signs indicating how to reach the City Park.

Contiguous to the City Park there are two bicycle paths: one which follows the Avenida da Boavista and follows the south side (Figure 7, c), and another one, along the seafront, which follows the west limit (TPNP, 2015). The relatively flat topography which characterises Aldoar and Nevogilde, the closeness of bicycle paths and the cyclable aspect of the inside of the Park, enable the best conditions for the use of the bicycle. Given the very common use of that means of transportation, the entrances and the interior of the Park, close to the sports areas and the rural centre, have parking equipments. There are thirteen parking stations, translated into a total 75 parking places. In the rural centre one can rent permanent places to park bicycles, in a closed environment, a service subject to the payment of a monthly fee of €10,00.

Beyond the autonomous accessibility, there are also tourism circuits operating in the city; some of them include the City Park in their routes.

Inside the Park, the network of paths is extensive, has comfortable slopes and allows for two-ways circulation, with no conflict among pedestrians, bicycle riders, strollers or wheelchairs.

The three more common types of pavement are macadam; slabs, cubes or granite parallels, mostly located at the entrances, some resting spots and passage areas; and bituminous, in the peripheral area of the fields and the west top of the park. These pavements are in a good state of conservation and enable a comfortable circulation.

Entrance is only allowed to motorised work vehicles, with the goal to assist with the maintenance works or to help in the preparation of events. The staff uses small electric golf cars for daily circulation, thus reducing the impact bigger vehicles could have. The circulation of these vehicles is free and made through a network of paths, with no specific routes, hence not conflicting with the safety of the visitors, given the width of the paths.

**Figure 7 - Access to the City Park: a) bus stop, b) parking area; and c) bicycle path of Avenida da Boavista.**


## 2.1.3 Signage

The signs in the ark are a result of an intervention, made in 2017, as a consequence of the registration in the EMAS.

The line of the signs is considered appropriate to the location, discreet and, in general, it is well kept. However, within the scope of the drawing up of this plan, it was identified that some of the contents could be improved, with several actions being under way in that sense (Actions A.2.1 and A.2.3 of the Action Plan, Annex 4). The location of the signs to be implemented is presented in Annex 6.

The Park has four different types of information signs, namely:

**i)** eight panels with the name of the park and a map, where the network of paths is evidences, as well as the most iconic places and the updated indication of the current location (you are here) (Figure 8, a);

**ii)** eight panels with information on fauna and flora (Figure 8, b);

**iii)** five panels with the norms for the circulation of dogs, features of dangerous dogs and potentially dangerous ones, as well as the rules of conviviality with pets; and

**iv)** twelve orienteering signs placed in strategic points (Figure 8, c).

At the Entrance of Circunvalação and that of the Columns, one can find municipal signs, with a design common to all the green spaces of the city, specifying the “rules to use public green spaces”; as well as the opening hours of the park and “Useful Contacts”.

The panels with the name and map of the park are located at the entrances; some of them are also placed on the inside of the park, namely in the intersections of paths or by the playing fields.

The signs regarding the norms for the circulation of dogs are also at the entrances. There are two kinds of signs with information on fauna and flora, some of which present the riparian plant species and the other forest and edge species. Each type of sign is located close to the corresponding habitat.

In the City Park there are 12 distinctive points, orienteering signs for strategic points, such as the restrooms, the rural centre or the Water Pavilion and the indication of the authority of the Porto Municipal Council. All the signs have the information in Portuguese and in English.

**Figure 8 - Information signs: a) name and map of the park; b) information on fauna and flora; and c) guidance signs.**

## 2.1.4 Equal Access for All

The City Park is free and for all. Its design, where the big clearings alternate with wooded areas, the extensive network of paths and the diversified set of installations and equipment, allow the performance of a wide range of activities for all ages, social groups and cultural backgrounds.

The public peripheral space surrounding the park presents conditions for the users of reduced mobility. At the Entrance of the Columns, at that of Boavista and the three seafront entrances, all located in flat terrain, there are ramps associated to the crossings (Figure 9, a). The Entrance of Circunvalação, also inserted in a flat terrain, is the main entrance used by motor vehicles, as there are no obstacles to hinder the entrance to the park.

To the date of delivery of this application, the parking areas still did not present places reserved for reduced mobility, being such inclusion forecasted to the present year.

The circulation on the inside of the park is also accessible to all, considering that the network of paths enables the arrival to several points of major interest and has, for most of its extension, soft slopes and comfortable pavement (Figure 9, b).

Of the five restrooms available in the park, three have access and conditions for people with reduce mobility, namely those which are placed at the Entrances of the Beach and the Columns and, also, in the round wc (Figure 9, c).

**Figure 9 - Accessibility to and in the City Park: a) crossing and ramp to access the garden, b) path of comfortable slope and pavements; and c) ramp to access the round wc.**



# 2.2 Healthy, Safe and Secure

## 2.2.1 Appropriate Provision of Quality Facilities and Activities

The set of equipment and facilities available in the park is quite diversified and comprises a wide range of audiences.

Regarding furniture, the park is served by: 145 wooden benches supported by a metallic structure, with the advantage of being movable, for the benefit of their users; 8 tables for picknick in an eucalyptus woods adjacent to the Entrance of Circunvalação (Figure 10, a); 144 rubbish bins (Figure 10, b); garbage bins with the three colours used for the selective collection of residues; 17 drinking fountains, which can be used both by people and pets, because they can hold the excess of water in its base (Figure 10, c); 5 dispenser for bags to collect the residues of dogs and 13 structures to park bicycles.

The park has several restrooms distributed by all its extension. Three wc's are open daily, in the schedule comprised between 8:15 and 19:45: the wc at the Entrance of Circunvalação, the wc located in the rural centre and the round wc (Figure 10, d). The two other wc's - located at the Entrance of the Columns and at that of the Beach - work 24 hours/day.

There are several playing fields which can be used every day: two football pitches with artificial grass, whose usage requires previous scheduling (Figure 10, e); two sand fields to play volleyball, of unrestricted use; and two multipurpose clearings where there is, among others, a sporting usage. The pitches with synthetic grass, the sand fields and one of the clearings are close to the Entrance of Circunvalação.

**Figure 10 - Equipments and facilities at the City Park: a) picknick tables; b) rubbish bins; c) drinking fountain; d) restroom (round wc); and e) football pitch with artificial grass.**

The other multipurpose clearing is located in the west extreme, close to the beach. As a support to the practice of sports, there are two points with showers, one with cold water, located by the volleyball fields, and another with hot water, located by the round wc.

The Environmental Education Centre (CEA), located in the rural centre is one of the most used and dynamic equipment of the park. Among other initiatives, the CEA is responsible for the revitalisation of the pedagogical vegetal garden, located in the rural centre (Figure 11, a).

The Water Pavilion (Figure 11, b), located close to the Entrance of Circunvalação, offers services for environmental education, where water is the main theme. After having been subjected to a deep remodelling both at a structural and a physical level and also a renewal of the exhibiting assets (CMP, 2019a), this place opened to the public again in March 2019.

There are also two other spaces for restauration and a cafeteria, which are leased. The spaces for restoration are located in the rural centre (Figure 11, c), and the cafeteria is close to the playing fields. Also in the rural centre, there are two leased shops which sell goods. One shop sells regional products and the other is dedicated to Fair Trade (it is only open on Saturday morning). Also in the rural centre, one can find the school leased for canine training.

The City Park is one of the most searched spaces in the city for the practice of sports. As an answer and strategy for the valorisation of the use of a public space, promoting health and well-being, there is a plan to create two sports complexes: in the northeast, adjacent to the Water Pavilion and in the northwest, close to the beach (Action D.1.1 of the Action Plan, Annex 4).

**Figure 11 - Equipments and facilities: a) educational vegetable garden; b) Water Pavilion; and c) restoration space.**



## 2.2.2 Safe Equipment and Facilities

Verifying the safety conditions of the equipment and facilities in the City Park is of the responsibility of different entities.

The safety of the restrooms is of the responsibility of the DMCIGF, which is also the Division responsible for ensuring a safe usage of all the furniture (benches, rubbish bins, picknick tables, etc.) and follows a "Conservation Plan for Infrastructures and Equipment" (Annex 7), which leads frequent verifications. The result of those safety verifications is registered in the form "Record Chart for the Conservation of Infrastructures and Equipment" (Annex 8). The safety of the fields with artificial grass is of the responsibility of the concessionary Sport Club do Porto, whereas the safety of the sand volleyball fields is of the DMCIGF responsibility.

The safety of the buildings used by the CMP –DMEVGI facilities, CEA and Guard House – is of the Domus Social responsibility (Figure 12, a-b). The safety of the leased spaces – spaces used for restoration, cafeteria and shops – is a responsibility of the corresponding concessionary. The AdP, municipal company which manages the Water Pavilion, is the entity responsible for the safety of that building.

During the year of 2018 the CMP went through a deep restructuring in its organisation, which lead to a revision of several concessionary agreements. This revision is still in course, but it will enable the integration of the recommendations of the Green Flag Award in the regulations of the tender, thus contributing to an improvement of the management processes in these new concessions.

Even not having the responsibility in the safety of all the facilities and equipment, the DMCIGF has the duty of ensuring the general safety of the park and its users. Thus, informal regular verifications to both equipment and facilities, with a frequency which depends on the type of structure, are lead and those responsible alerted, should there be any problem.

**Figure 12 - Buildings whose safety is of the Domus Social responsibility: a) facilities of the DMEVGI; and b) Environmental Education Centre.**


## 2.2.3 Personal Security

The City Park is considered a safe place which passes on a feeling of well-being and trust upon its users. Close to the entrance of the administrative building of the DMEVGI, there is a support point of the Municipal Police, which is open from 7:00 to 20:00, every day. Although it is not open to the public, the presence of the police body in the park facilitates a quicker response to emergency situations.

Patrolling in the park is continuous and assured mainly by the Special Service for Environmental Supervision. This team comprises elements with a bigger sensitivity and training in an environmental context; they move on motorcycles, therefore accessing quickly to the varied areas of the park. Surveillance is also assured daily by two agents of a private security company, *Securitas*, 24 hours per day, which is in permanent contact the Municipal Police.

The places which are considered a priority during rounds are the more isolated or those which due to their nature (bigger density of bushes, for example) may ease the practice of illicit behaviour, as well as buildings which gather a larger number of assets. Surveillance considers the times with the higher rate of presences in the park; there is also a reinforcement of patrolling in events, with the involvement, with previous planning, of a suitable number of effectives.

Whenever dangers are detected in the periods of patrolling (including situations, as for example, the eminence of the fall of a tree), there is the delimitation of a safety perimeter on site and the Organic Units of the Municipality with competence to intervene are contacted (e.g.: DMEV).

Any anomalous situation which may be directly reported to the MP by the users is communicated to the Integrated Management Centre, which activates to the site, through the radio, the operational or the team closest to place of the occurrence. The contact of the MP is disclosed at the Entrance of Circunvalação and at the Entrance of the Columns, on the same sign which specifies the “Rules of How to Use of Public Green Spaces” and where the “Useful Contacts” (fire department, PSP (Public Security Police), PM (Municipal Police) and ECOline) are presented. The occurrences related to safety and other issues, can also be directly presented to the Porto Municipal Council , by means of the BAV – Virtual Help Desk or in person, at the Citizen Department.

> The City Park is considered a safe place which passes on a feeling of well-being and trust upon its users.

The existence of member of the MP and safety companies in circulation, properly wearing a uniform, which is also the case of the members of the technical maintenance team, portrays trust and ensures the users of the park that there is an effort to keep it a safe Place.

As previously mentioned, the park does not close during the night. Beyond the policing, safety is assured with the night lighting in the lamps (Figure 13, a), which are mainly distributed along the paths and the big clearings which involve the three lakes. The safety and maintenance of the lamps in the park is of the DMCIGF responsibility. The light turns itself on every day, activated by the reduction of the solar light.

Water available in the drinking fountains comes from the public network and it is monthly analysed by AdP, in the sense of ensuring that all health conditions demanded for human consumption are met. In addition, the DMCIGF proceeds to disinfections and cleanings of the Water also every month. The existing water of the *Water Resting Spot* and the *Crossroads Resting Spot* is not proper for consumption, but the

users are properly informed of that with a specific sign.

Given the great attendance of whole families with children, the safety near the lake is of great concern. The deeper areas of the lakes are, therefore, indicated and the users are informed of the prohibition to swim (Figure 13, b). The lakes are also equipped with safety margins (platform of 1,20 m) along which the depth of the water is low (about 50 cm).

During the preparation of this application and given the recommendations which resulted from the pre-inspection visit, a first aid kit will be made available in the future Visitors' Welcoming Centre. The existence and location of the kit will be properly indicated in the information panels placed at the entrances with stronger visibility.

The safety of the users is a permanent concern of the team which manages the City Park. Within the scope of this action plan, several actions which evidence such concern are to be implemented:

**1)** in the sense of ensuring that the varied rock structures scattered through the park, "ruins" and pergolas, do not undermine the safety of the users, it would be very important to ensure an annual inspection by technicians specialised in stability. For that, there is a proposal for the implementation of an Annual Inspection Programme for the safety of the rock structures in the City Park (Action D.4.2 of the Action Plan, Annex 4).

**2)** two places were identified as needing safety signs, namely:
i) the access to the old Ecocentre, located close to the *Castle Resting Spot*; and
ii) the construction site, located in the northeast, with such placement being forecasted to 2019. In the case of the access to the old Ecocentre it also proposed that, as complementary measure, a metallic barrier be installed in order to regulate the circulation of vehicle, but allowing pedestrians to pass (Action D.4.1 of the Action Plan, Annex 4).

**Figure 13 - Users safety: a) example of lamp post; b) sign to warn of the depth and the prohibition of swimming in the lakes.**

The safety of the woods in the City Park was considered during the development of the "Phytosanitary Study and Inventory of the Trees of the Parks in Porto". This study resulted in the georeferenced map of the trees in the park, the assessment of the phytosanitary condition of each specimen, the referencing of which trees should be cut down or urgently intervened and, also, a set of recommendations. The application of the result of this study, through preventive actions in the arboreal structure of the park, ensures the safety of the visitors; their execution is defined in Action D.2.1 of the Action Plan (Annex 4).

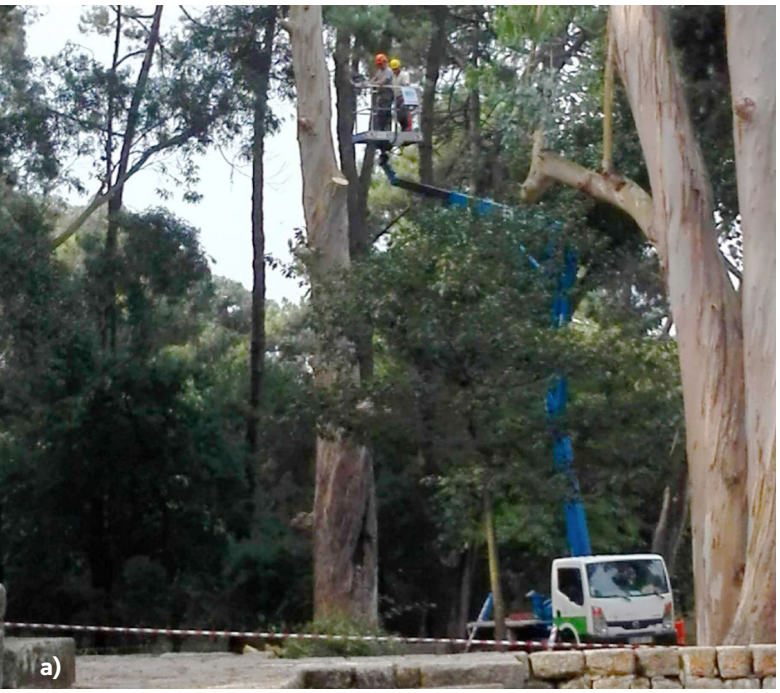
During the arboriculture operations, some safety measures are taken in order to protect both technicians and users.
The surrounding space is conveniently delimited in such a way as to create a safety area and the operational elements gear up with the individual protection equipment necessary for the task (Figure 14, a - b). When the operations are performed by hired companies, the safety throughout the works is of their responsibility. When performed by the DMEV staff, they follow several procedures and work instructions which are detailed in sub-chapter 2.3.3 (Arboricultural Maintenance).

The safety of the staff is controlled by the Health&Safety Management System - OHSAS 18001:2007, in force.

The whole staff is internally and externally trained on several main themes related to the maintenance of green spaces, namely: management of green spaces, application of phytopharmaceutical products, tam management and leadership and safety, health and hygiene in the workplace. The training which has already taken place is registered in an individual form, by collaborator (Annex 9). Whenever new equipment is acquired whose use requires more specificity and/ or danger (chainsaws, bushcutters, etc.) the staff is trained on how to safely use such tool.

The staff is trained to deal with situations of danger and emergency, which is why there is a Work Procedure – Answer to Emergency Situations (Annex 10), supported by various documents from which one may highlight the Forms for the Answers to Emergency Settings – floods, earthquake, storm, tornado and lightning.

**Figure 14 - Security at the arboriculture operations: a) basket car for works in height; and b) delimitation of intervened areas.**




The storage of materials and equipment on the warehouse follows the health and safety in the workplace good practices (Figure 15, a-b).

With the goal to avoid or minimise the effects of potential catastrophes, an Internal Emergency Plan (PEI) (Annex 11) was developed in order to systematise the correct procedures to follow in cases of emergency, safeguarding the users, assets and environment. This plan is in force since 2007 and it comprises the whole external space, as well as the inside of the buildings. Regarding the external space, there are general safety instructions, for the case of fire, flood, natural catastrophe, bomb threat, people falling and electrical shock. All workers of the park are informed of these instructions and have the duty to follow them. On this plan there is an Emergency Floor Plan presented in Annex 12. The PEI also recommends that there are exercises – drills – according to the various probable scenarios, annually, with the collaboration of all the Entities who might intervene in those same scenarios, namely, the Fire Department, Civil Protection and INEM (National Institute for Medical Emergency); the las tone took place in December 2018.

Safety procedures are also adopted in days of storm, for example, sealing off the public access to some of the most sensitive areas of the Par, especially where there is a higher concentration of trees; the park may even be entirely closed to the public. The potential catastrophes within the environmental scope are equally taken into account and there are drills in the sense of raising awareness with the staff for the most suitable procedure to be adopted should any less desirable situation occur at this level (Annex 13).

With the goal to safeguard that the services provided by the suppliers and service providers are developed according to the best practices adopted in the Municipality of Porto, at the level of environment and safety and health in the workplace, they are informed on the “Guide for Good Practices in Environment and Safety” (Annex 14). The best practices for safety and health in the workplace, which are reflected in this guide, aim at enabling a healthy workplace environment and include the placement of safety signs, the use of individual protection equipment, prevention when using chemical products, landslide and answer to emergencies.

**Figure 15 - a) storage of materials and equipment; and b) machines repair shop.**


## 2.2.4 Control of Dogs

The City Park, as previously mentioned on sub-chapter 2.1.3, specifies the norms for the circulation of dogs, through the signs located in five distinctive points of the park. These signs are pretty complete, mentioning not only the obligation of the use of the leash, but also the need for the animal to be identified, the norms for circulation with breeds considered dangerous and the obligation to collect waste (Figure 16, a-c). In these panels, visitors are also alerted to the fact that it is not allowed to feed the animals in the park.

All users can circulate freely with their pets and until today no problems were ever registered with dogs.

The Municipal Police (PM) has a team allocated to the monitoring of dogs, ensuring within the scope of their competences, that all pet owners meet the necessary requirements. When dogs present signs of aggressiveness, the procedure adopted by the PM consists of limiting the space where the animal is, followed by the collection of it by the competent entities – Municipal Kennel. When abandoned animals are referred to be seen circulating in the park, they are also collected by the Municipal Kennel.

**Figure 16 - Control of dogs: a) sign specifying the dogs circulation rules; b) and c) good examples of use of the leash.**



# 2.3 Well Maintained and Clean

## 2.3.1 Litter and Waste Management

In the City Park there are 144 rubbish bins distributed along the paths and several garbage bins for recycling concentrated mostly in the picknick area (Figure 17, a). The number of equipment for the collection of residues has been revealing itself enough for the quantity of waste generated.

During the week, the rubbish bins and the garbage bins are emptied every day by the team of gardeners, also responsible for the collection of residues which are scattered through the park and the margins of the lakes. In the weekends and holidays, the collection of residues from the rubbish bins and the garbage bins is made by a company hired in the regime of outsourcing. The garbage bins are also used to reinforce the number of points of collection of waste during the events held. Although the entities that organised them are always responsible for the collection of residues, should it be necessary, the team of gardeners helps cleaning the space.

All residues are stored in the Ecocentre and then sent by EMAP to Lipor - Intermunicipalised Service for Waste Management in Greater Porto (entity responsible for the management, valorisation and treatment of urban residues of some of the municipalities which belong to the metropolitan area of Porto).

In the parking area at the Entrance of Circunvalação there is an ecocentre, of public use, with the collection of residues being of the responsibility of EMAP. The ecocentre also has a bin to collect batteries and one to collect cooking oil. Another bin to recycle cooking oil is located in the rural centre.

In the City Park there are no campaigns, nor were there any ones promoted, for the collection of bubble gum or cigarette butts which is currently not a relevant problem for the management and maintenance.

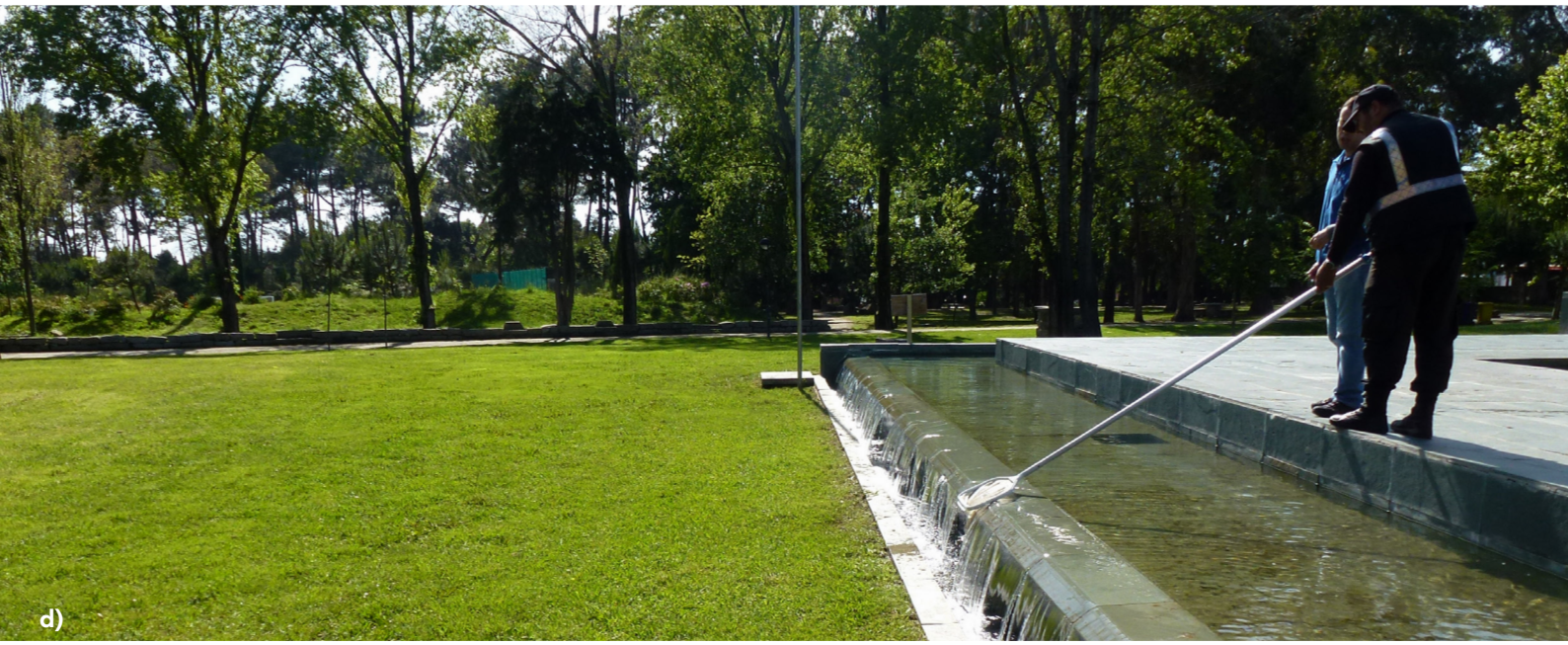
Table 1 synthesises the actions regarding the management of residues performed in the park.

**Figure 17 - Waste management: a) rubish bins and garbage bins; b) collection of residues scattered on the park; c) recovery of green wastes through production of wood chips; and d) cleaning of water bodies.**



**Table 1 - Synthesis of the actions regarding cleaning of the City Park.**

| Action | Units | Frequency | Season | Responsible |
|---|---|---|---|---|
| **Cleaning** | | | | |
| Collection of residues from the rubbish bins | 144 un | Daily | Jan. - Dec. | DMEV, during the week *Outsourcing*, weekend and holidays |
| Collection of residues from the garbage bins | --- | Daily | Jan. - Dec. | DMEV, during the week *Outsourcing*, weekends and holidays |
| Collection of garbage scattered in the park (meadows and clearings) | --- | Daily | Jan. - Dec. | DMEV |
| Collection of garbage from the margins of the lakes | --- | Daily | Jan. - Dec. | DMEV |
| Collection of vegetal residues | --- | Daily | Jan. - Dec. | DMEV |
| Paths | --- | 2x / week | Jan. - Dec. | DMEV |
| Collection of garbage from the Ecocentre | --- | 2x / week | Jan. - Dec. | EMAP |



d)

## 2.3.2 Horticultural Maintenance

The City Park is distinguished by its naturalist character, with the main maintenance challenge being the preservation of those features, privileging and opening the sights, according to the scenarios designed and predicted by the designer, in harmony with the natural dynamics of the vegetal composition. The responsibility of the maintenance of the meadows, lawns, small bushes, hedges and aquatic vegetation is of the DMEV responsibility, which follows the "Maintenance Plan of Green Spaces" for the typology of Urban Parks (Annex 15). This plan results from the standardisation of the maintenance operations common to the urban parks of Porto, with generic actions to be applied to all parks in the municipality, as well as the actions to be executed only in the City Park.

Most elements which are comprised in the green structure of the park develop themselves growing freely. In some places, mainly in the woods, there are natural regeneration areas where the vegetation planted associates itself with that of spontaneous nature - resulting in spaces of nearly wild expression, where the maintenance actions are minimal. On the contrary, the areas associated to the entrance of the park, some parts of the paths, the lawns of the multipurpose clearings, some meadows (natural amphitheatre and slope of lake III), the *Camellias Spot* and also the rural centre, require and receive additional attention in the maintenance tasks.

The City Park, in most of its extension, comprises big meadow clearings interspersed with wooded areas and arboreal masses more or less impenetrable or around the lakes. In order to maintain an homogeneous coverage and a uniform and attractive aspect, the maintenance of the meadows integrates its cutting, during the whole year, and its watering, during the periods of the year when it rains less.

It is one of the intentions of the maintenance team to ensure that part of the annual or perennial herbaceous, which comprise the meadows, reach maturity, a reason why the period between cuttings should be longer, thus enabling the dissemination of the seeds (Figure 18, a). In this case, the cutting is made as soon as the meadow reaches 15 to 20 cm, counting, in average, 10 to 15 annual cuttings, according to the climate conditions presented in the year in force. The existing lawns, located in the multipurpose clearings, are trimmed more frequently – as soon as they reach 8 to 10 cm – counting, in average, 20 to 25 annual cuttings (Figure 18, b). This is also the maintenance regime for the meadow of the big clearing framed by the Entrance of the Columns, given that the visual exposition and the more frequent use of this space justifies a more intensive cutting frequency. The residues resulting from the cuttings of those meadows are left on the site (mulching).

Only the lawns of the multipurpose clearings are fertilised, as well as part of the meadow of the natural amphitheatre and the slope of lake III. In these places, fertilisation is made twice a year, between February and March and October and November. The use of fertiliser is justified for the purpose of rebalancing, due to some lack evidenced by the plant, due to the fact that these are areas with huge human pressure and that, due to their grater visual exposition must always present a careful aspect. The fertilisers used are of organic origin and their application is registered in the Form – Record of application of fertilisers (Annex 16).


a)

Should it be necessary, in the places where events of bigger dimensions are held, sowing is made, in the month of March or between May and July, after the event is held. In the multipurpose clearings there may also be some ventilation interventions, namely the scarification and the feeling of holes with sand (top dressing), in sense of avoiding the compaction of the soil. This operation is made only should it present itself necessary, once a year, and it takes place in the beginning of spring or in autumn. The resulting residues are collected in the site through aspiration. Should it be necessary to regularise the soil and drainage, in the beginning of spring, sand is spread.

The bushes are concentrated at the entrances, resting spots and the rural centre, but they punctually appear all over the park. In the rock constructions (ruins) it is very common to find climbing plants, especially of the species *Lonicera japonica (*Figure 18, c). The growth of some bushes, such as, *Cotoneaster* sp., *Hibiscus* sp., *Rosa* sp. is controlled, whenever necessary, by pruning, more intensive in the situations where they present themselves in the shape of hedges, flanking paths or close to more formal spaces, such as the peripheral area of the playing fields and that of the administrative building of the DMEV at the Entrance of Circunvalação.

Most elements which are comprised in the green structure of the park develop themselves growing freely and in some places could be seen natural regeneration areas.

The species which require higher maintenance are *Camellia japonica* and the *Rhododendron ponticum*. The camellias are concentrated in the *Camellias Spot* and the rural centre. The rhododendrons are concentrated in the sub-wood of the stone pines, along the slope facing the Avenida da Boavista and surrounding the Stay of the Water Mirror. These species are annually fertilises and trimmed whenever necessary. The fertilisation is of an organic origin and it is justified by the fact that there is the intention of enhancing the flowering capability of the specimens, with strong aesthetical benefits.

The application of fertilisers, as previously mentioned, is registered in the Form – Record of the application of

**Figure 18 - Maintenance of meadows, lawns, perennial and annual herbaceous and small bushes: a) cutting of meadows after flowering season; b) regular cutting of meadows and lawns; c) small shrubs and climbing plants growing freely.**


b)


c)

fertilisers (Annex 16).

The plantation of bushes is made whenever necessary, when a specimen dies and to fill in for that absence, in the period comprised between October and February.

A very marked element of the rural centre is the vine tree, with ornamental purposes and for the perpetuation of the memory of rurality. Given that this element does not have a production purpose, its maintenance implies only pruning and settling of the sticks during winter.

The application of phytopharmaceutical product is not a recurring practice in the City Park. However, should it be necessary, it is properly registered in the Form – Record of application of phytopharmaceutical products (Annex 17). In any case, the control of infesting and invasive species and the treatment of infestations and diseases, follow the procedures and the work instructions resulting from the approach to the ISO14001, the system for environmental management of the Porto Municipal Council.

In the City Park there are varied water elements, whether contained in structures built with inert, or naturalised, conforming under the shape of lakes, puddles or tanks. In the naturalised lakes, in whose margins one may find aquatic herbaceous, cuts are made when the plants find themselves in the end of their life cycles and weddings between the months of November and February. The puddles are wedded manually four times in the year, in the months of April, July, September and October; additional weddings can be made, should it be necessary. The tanks are cleaned and disinfected annually, which means total emptying, removal of the biofilm and cleaning of filters and light bulbs.

The cultural operations are detailed in the "Maintenance Plan of Green Spaces" (Annex 15) (drawn up according to the instructions of the Form – Work Procedure for the "Maintenance and Conservation of Green Spaces", Annex 18) and, in the cases of the lakes, puddles and tanks in the "Conservation Plan for Infrastructures and Equipment" (Annex 7).

Table 2 presents a simplified summary of the operations described.

**Table 2 - Table synthesis of the operations of maintenance of meadows, lawns, herbaceous perennial and annual and small bushes.**

| Action | Units | Frequency | Season | Responsible |
|---|---|---|---|---|
| **Meadows and Lawns** | | | | |
| Irrigation | --- | Daily | May. - Oct. and AN | DMEV |
| Trimming of meadows | --- | Height: 15 a 20cm 10-15 cuts / year | Jan. – Dec. | DMEV |
| Trimming of lawns | --- | Height: 8 a 10 cm 20 – 25 cuts / year | Jan. – Dec. | DMEV |
| Fertilisation | --- | 2x / year | Feb. – Mar. / Oct. – Nov. | DMEV |
| Sowing | --- | 2x / year or AN | Mar. / May. – Jul. | DMEV |
| Multipurpose clearings - scarification | --- | 1x / year | Mar. – Apr. / Sep. – Oct. | DMEV |
| Multipurpose clearings – top dressing | --- | 1x / year | Mar. | DMEV |
| **Small shrubs** | | | | |
| Planting | --- | AN | Oct. – Feb. | DMEV |
| Pruning and cleaning | --- | AN | --- | DMEV |
| Trimming hedges | --- | 3x / year | Apr., Jun., Sep. | DMEV |
| Fertilisation - Camellias and Rhododendron | --- | 2x / year | May., Dec. | DMEV |
| Pruning and routing of poles - vineyard | --- | 1x / year | winter | DMEV |
| **Water elements** (naturalised lakes, puddles and tanks) | | | | |
| Cleaning of the lakes– algae control | 4 | 1x / year | --- | DMCIGF |
| Cleaning of the tanks – cleaning and disinfection | --- | 1x / year | --- | DMCIGF |
| Weeding and cutting aquatic plants and palustrine – naturalised lakes | 4 | 1x / year | Nov. – Feb. | DMEV |
| Weeding of aquatic and palustrine plants - puddles | --- | 4x / year | Apr., Jun., Aug., Oct. | DMEV |

## 2.3.3 Arboricultural Maintenance

The arboreal structure of the City Park is on two different stages of development. It is consolidated in the area regarding the first stage of construction where there are more developed specimens, some prior to the implementation of the park, and in consolidation in the areas associated to the second phase of construction where one may find young trees and bushes.

In the northwest top there is a more densely wooded area, comprising pine trees and eucalyptus (Figure 19). This small forest is a relic form the rural past of the City Park, therefore, keeping mature examples of a remarkable size. The areas of this forest may be intervened at any time of the year, whenever necessary, essentially with the cutting down and the collection of leaves and dried branches, in such a way as to maintain the appearance and the character of the place.

All the trees in the park are carefully observed. The age of some of the specimens reflects itself in the degradation of their phytosanitary condition, which sometimes leads to the need to cut down some trees for safety reasons. These measures are only taken after all the other resources to preserve the tree have been exhausted.

The pruning and cutting down are made when it is necessary and they may occur any time of the year. The cutting down follow the work instructions presented in Annex 19 and Annex 20. When it is necessary to plan, the work instructions followed are those presented in Annex 21.

In the “Phytosanitary Study and Inventory of the Trees of the Parks in Porto” (Saraiva et al, 2017), the City Park was divided into 8 areas and 40 places, defined according to their character, highly determined by differences in the density of the arboreal shrub extract and the space organisation. This zoning had the goal to help the management of the park, thus allowing for an easier tracking of the trees assessed in the terrain.

This study enabled a global assessment and the georeferencing of 14.602 specimens, revealing the phytosanitary state and the factors which may come to

**Figure 19 - Pinetrees and eucalyptus of remarkable size located in the most heavily wooded area of the park.**

influence their development. The maintenance of the arboreal layer has, for that reason, been following the recommendations of this study, namely at the level of cutting down; pruning, whether training, maintenance or safety; and also the cleaning of the cavities or removal of invading ones. These recommendations are organised according to a scale of priorities of intervention: urgent, top priority, moderate priority and low priority.

There are, at least, 14.602 trees georeferenced and the phytosanitary condition of these trees is properly computerised and it is regularly confirmed.

For the maintenance and the care of the trees, there is, at the DMEV, a team which is highly trained and experienced. This team is responsible for ensuring the operational management of the grove of the city which happens following the work procedure presented in Annex 22, and which includes:

**i)** keeping the arboreal inventory updated in the software for Arboreal Management and Identification – *GIA*;
**ii)** performing the phytosanitary diagnosis;
**iii)** issue reports; and
**iv)** perform actions to control plagues and diseases which may menace the arboreal extract.

However, as this team is limited and has under its responsibility the maintenance of all the trees in the city, for most pruning operations, the service is usually outsourced to specialised companies. The pruning made by the DMEV team follows the work instructions presented in Annex 23. Within the staff allocated to the City Park there is an element specialised in arboriculture.

There are, at least, 14.602 trees georeferenced in the City Park. The phytosanitary condition of these trees is properly computerised and it is regularly confirmed (Annex 24). When a tree is cut down, its stump is left in the place only until the database is updated, being then immediately removed. The person responsible has the alert charts (Annex 25) which allow for the signalling of anomalies and their monitoring, according to the degree of priority. There are also daily records of the works done on the trees.

The pinetrees of the City Park are quite frequently affected by processionary (*Thaumetopoea pityocampa Schiff*). As this is a plague of a high level of danger for public health, its treatment and the control of its dissemination are priority. The means to fight it are essentially biotechnical, resorting to trap the males in their flight and placing necklaces to capture the caterpillars in the procession stage; and also biological, through the microinjection to control the development of the nests. Should there be nests with live caterpillars, whether descending or on the ground, whenever possible, they will be cut and destroyed.

These actions are performed by specialised companies. The priority is to ensure the Health of the users of the park, which is why there is a big concern with the pinetrees affected which are placed by the paths or the most popular areas. The plan to treat processionary can be found in Annex 26.

The bigger bushes, as some specimens of *Eleagnus ebbingei*, *Crataegus monogyna* and *Melaleuca armillaris*, are kept in free growth. Pruning in these cases is rare and is mainly made due to safety issues or when the vegetation conflicts with the paths or the perspectives the designer wishes to perpetuate.

In the western end of the park, confronted with the seafront, some volumes of *Melaleuca armillaris* are combined with *Metrosideros excelsa* and *Pittosporum crassifolium* in a plastic composition which results in hedges flanking the paths.The maintenance of these structures requires pruning to be made more frequently, sometimes taking place three times per year, in the months of April, June and September, with the peculiarity that this operation respects the

beauty of the season of flowering of the varied species (pruning is made a *posteriori*).

As mentioned in the previous criteria (regarding the Horticultural Maintenance) the application of phytosanitary products is not a recurring practice in the City Park. However, should it be necessary, it is properly registered in the Form – Record for application of phytopharmaceutical products (Annex 17). Anyway, the control of infesting and invasive species and the treatment of plagues and diseases follow the procedures and work instructions resulting from the approach to the ISO14001, the system for environmental management of the Porto Municipal Council.

Table 3 presents a simplified summary of the operations performed at the level of trees and big bushes.

As evidenced in Figure 20, the cleaning and collection of vegetal residues and meadows, as well as the pruning ate the most time consuming operations, which is justified by the big dimensions of the park and the amount of trees presented.

The City Park has, comparing to the remaining green spaces of the city, the advantage of having its own team, which is permanent, for its maintenance.

The planning of the works is made weekly by the responsible higher technician of the park (Annex 27). In addition, there is a sheet for the monthly record of the works done in the green spaces (Annex 28), which is filled in by the operational responsible and delivered to the technician of the area for confirmation that the "Maintenance Plan of Green Spaces" is fulfilled.

**Figure 20 - Percentage distribution of the maintenance hours by different tasks. Source: Adapted from CMP (2018a).**

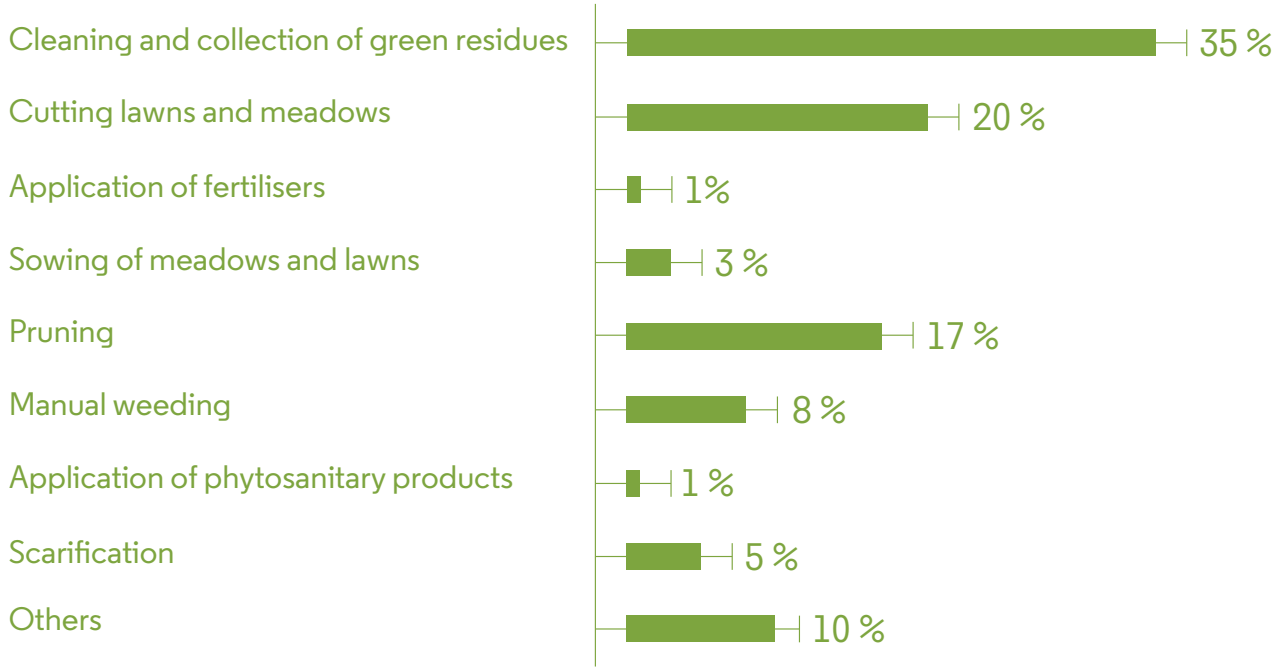


**Table 3 - Table synthesis of the operations of maintenace for trees and big bushes.**

| Action | Units | Frequency | Season | Responsible |
|---|---|---|---|---|
| **Trees and big bushes** | | | | |
| Pruning | --- | AN | --- | DMEV and *Outsourcing* |
| Cutting down | --- | AN | --- | DMEV and *Outsourcing* |
| Plantations | --- | AN | Oct. – Feb. | DMEV |
| Trimming of hedges - big bushes | --- | 3x / year | Apr., Jun., Sep. | DMEV |
| Treatment of infesting and invading species | --- | AN | --- | DMEV |
| Treatment of Processionary | --- | AN | --- | *Outsourcing* |
| Monitoring and updating the arboreal inventory | --- | AN | --- | DMEV |
| **Woods** | | | | |
| Cutting down / cleaning of leaves and dried branches | --- | AN | --- | DMEV |

## 2.3.4 Building and Infrastructure Maintenance

In this part, there is mentioning of the maintenance and cleaning operations of: **1)** the administrative building of the DMEVGI, CEA (Figure 21, b) and the Guard House; **2)** restrooms; **3)** structures built in rock: ruins, pergolas and walls to support the lands (Figure 21, a); **4)** playing fields and **5)** referring to infrastructures: networks of paths, street lighting, watering network and drainage network.

The maintenance and cleaning of the two spaces for restoration, cafeteria and shops is of the responsibility of the corresponding concessionaries, with the DMEVGI being responsible for ensuring that the quality standards which regulate the maintenance of the buildings and municipal structures are also met by the concessionaries. The Water Pavilion is under the management of the municipal company AdP, which is the entity responsible for the corresponding maintenance and cleaning operations.

The maintenance of the buildings referred to in **1)** is of the responsibility of DOMUS Social - Housing and Maintenance Company of the Municipality of Porto. The maintenance of the restrooms, the structures built in rock and the infrastructures is of the responsibility of DMCIGF and it is made according to the "Conservation Plan for Infrastructures and Equipment" (Annex 7). The result of the maintenance interventions is registered in the form for "Record Chart for the Conservation of Infrastructures and Equipment" (Annex 8).

The performance of works and interventions in the public equipment and communication routes is of the competence of GOPorto. When the works are bigger and the municipal services do not have the means to resolve them internally, external companies are hired to do so.

These elements are, mainly, in good conditions and do not present any signs of vandalism. There are, however, aspects to be improved:

**i)** the restrooms at the Entrance of Circunvalação present some signs of ageing, which does not compromise the safety of the users, but contrasts with the quality of the other restrooms integrated on the buildings. There are requalification works scheduled for 2020 to harmonise the quality of these spaces (Action G.2.1 of the Action Plan, Annex 4).

**ii)** the water used for watering, which comes from the lake, presents sometimes some particles which may lead to the clogging of the piping system, thus compromising the structural integrity of the infrastructure. Not to compromise the quality of the network, there is the forecast to create a coffer to filter the water, before it reaches the pipes, in lake II (Action G.2.2 of the Action Plan, Annex 4).

**iii)** the resolution of problems referring to vertical lighting (poles) is of the responsibility of DMCIGF. The poles, mainly those which are located in the west point of the Park, present some signs of ageing. A global action is forecasted to renew and remodel the street lighting of the Park (Action H.1.1 of the Action Plan, Annex 4), during the years of 2020 and 2021. In order to ensure the safety of the users of the Park, this action contemplates, still in 2019, immediate


a)

measures to replace the current lighting poles which present themselves damaged.

## These elements are, mainly, in good conditions and do not present any signs of vandalism

Cleaning the municipal building and the restrooms is attributed to an outsourcing company which, daily, ensures that service, with the exception of the round restroom whose cleaning belongs to the DMCIGF.

The load of sanitation of the restrooms is variable: in the three which are placed on the inside of the park, namely at the Entrance of Circunvalação, in the rural centre and, mainly, on the round restroom reinforced care is applied, with the presence of a permanent employee in the round wc, during opening hours. Those placed at the entrances, in the east and west tops, are of automatic cleaning, with this operation being reinforced by the outsourced cleaning team, every day.

The cleaning of the structures built in rock corresponds mainly to the weeding, which is made by the gardeners of the DMEV. Some elements, inserted in privileged locations and whose magnificence is intended to be evidenced benefit from a differentiated maintenance, e.g.: *Belvedere Resting Spot* and *Crossroads Resting Spot*. In these places, one intends to evidence the beauty of the rock and the feature of timelessness which is associated to it, which is why the goal is to have these places permanently clean. In contrast, in other places, the structure is intended to reveal the passage of time and seasons, allowing the observation of the development of the vegetation – and those places the vegetation is weeded with bigger intervals.

The maintenance of the synthetic playing fields is of the responsibility of the concessionary, the Sport

**Figure 21 - Maintenance of buildings and structures: a) resting spots; and b) Environmental Education Centre and pergola.**

Club do Porto. The DMCIGF certifies that the quality standards for the maintenance of municipal green spaces are also met by the concessionaries. The maintenance of the sand fields to play volleyball is of the DMGCIGF responsibility and it is made though recharge and replacement of the sand.

The maintenance of the watering network, which corresponds to small reparations and the replacement of pulverisers, is of the responsibility of DMCIGF which has, because of that, a plumber on the team. More demanding and structural reparations are hired externally. Daily counts of the water consumption regarding the (night) watering are made, which enables the detection of potential leaks and a fast intervention. Beyond the repairs, the DMCIGF generally monitors de infrastructure of watering and cleaning of the visiting boxes, once a year.

The cleaning of the paths is made by the team of gardeners of the DMEV. The replacement of the pavements is hired to an outsourcing company. The DMCIGF verifies, annually, the conditions of yielding and drainage.

The daily presence of gardeners in the park is a deterrent factor for behaviours of vandalism, e.g. graffiti or unauthorised displaying of posters. However, given the extension of the park, it is not possible to completely control this behaviour, which is why there are some occurrences at the level of graffiti painting, concentrated in the area closer to the beach. Whenever necessary, which usually takes place once a month, a team from EMAP specialised in cleaning graffiti ensures the cleaning of the occurrences verified at this level.

All the residents may present requests, suggestions and claims, regarding the urban cleaning through the support number “Ecoline” ((+351) 800 205 744, ecolinha@cm-porto.pt). This direct line is a quick, free and effective way of accessing information and triggering the service the resident may need, in these matters. Any occurrence which may cause damage in the infrastructure or equipment is reported by the person in charge or the technician of the area in the form - “Record Chart for the Conservation of Infrastructures and Equipment” (Annex 8).

On Table 4, the maintenance operations for buildings and structures, previously described, are synthesized.

**Table 4 - Table synthesis for the operations of maintenance for buildings and structures.**

| Action | Units | Frequency | Season | Responsible |
|---|---|---|---|---|
| **Buildings** (Administrative building, CEA, Guard House) | | | | |
| Cleaning | 3 | Daily | Jan. – Dec. | *Outsourcing* |
| Repairing | 3 | AN | --- | DOMUS Social |
| **Water Pavilion** | | | | |
| Cleaning and Repairing | 1 | --- | --- | AdP |
| **Restrooms** | | | | |
| Cleaning | 5 | Daily | Jan. – Dec. | *Outsourcing* and DMCIGF |
| Repairing | 5 | AN | --- | DMCIGF |
| Safety and stability verification | 5 | 1x / year | --- | DMCIGF |
| **Rock structures** (ruins, pergolas and walls to support land) | | | | |
| Weeding | --- | 4x / year | Apr., Jun., Aug. and Oct. | DMEV |
| Repairing | --- | AN | --- | DMCIGF |
| Walls to support land – verification of the safety conditions | __ | 1x / year or AN | --- | DMCIGF |
| **Sand fields** | | | | |
| Cleaning of the sand | 2 | AN | --- | DMEV |
| Recharge/Replacement of the sand | 2 | 2/2 years | --- | DMCIGF |
| Repairing | 2 | 1x / year or AN | --- | DMCIGF |
| **Network of paths** | | | | |
| Cleaning | --- | 2x / week or AN | Jan. – Dec. | DMEV |
| Recharge of the pavements in macadam | __ | 1x / year | --- | *Outsourcing* |
| Correction of the level of the pavement in macadam through the spreading of inert, watering and rolling. | --- | AN | --- | DMCIGF |
| Verification of yielding and drainages | __ | 1x / year | --- | DMCIGF |
| **Street Lighting** | | | | |
| Verification of the infrastructures | --- | 1x / year | --- | DMCIGF |
| **Watering network** | | | | |
| Repairing | --- | AN | --- | DMCIGF e *Outsourcing* |
| Verification of the structure | --- | 1x / year | --- | DMCIGF |
| Verification and cleaning of the visiting boxes | --- | 1x / year | --- | DMCIGF |
| **Drainage network** | | | | |
| Cleaning of the visiting boxes | --- | 1x / year | --- | DMCIGF |
| Verification of safety and stability | --- | 1x / year | --- | DMCIGF |

## 2.3.5 Equipment Maintenance

The equipment and machinery used by the staff in the cultural operations of maintenance of the park (lawnmower, chipping machine, electric cars, bush cutter, chainsaws, edge trimmer, blowers, pruning shears, etc.) are stored every day in the warehouse located by the administrative building of DMEVGI. The set of this equipment is properly detailed in Annex 29.

Any flaw detected in the functioning of this equipment is reported by the gardeners to the technician responsible who, in turn, then reports the need for reparation to the DMCIGF. It is not usual to need machinery and equipment with a high level of specificity in the maintenance of the park; however, should it be necessary, there must be a process to hire machinery from specialised companies.

In the last few years, the municipal services have been gradually investing in the acquisition of equipment and electrical vehicles due to the varied environmental and ergonomic advantages which are recognised to them. The usage instructions, safety and maintenance provided by the suppliers are thoroughly observed. All the equipment used by the staff is properly registered in the MAN Win Win management system and are object of a preventive annual inspection, held by DMCIGF; the result is registered in the “Monitoring Report for the Work Equipment, Machines and Load Lifting Equipment” (e.g.: Annex 30). In case of malfunction, the equipment is subjected to corrective maintenance at the municipal repair yard.

The maintenance of the public use equipment which are distributed by the park: benches, tables for picknick, rubbish bin, drinking fountain, dispensers of bags for dog and bicycle parking is of the responsibility of DMCIGF (the DMEV ensures the weekly reposition of the bags in the dispensers) and it is done according to the “Conservation Plan for Infrastructures and Equipment”, (Annex 7),with the interventions being registered in the form for “Record Chart for the Conservation of Infrastructures and Equipment” (Annex 8).

The suitable maintenance of the physical condition is ensured by the repairing, painting or annual cleaning, generally done in the winter, which is the season of lesser demand in cultural operations of the green structure. Should there be any occurrence in any equipment, which jeopardise the safety of the users,

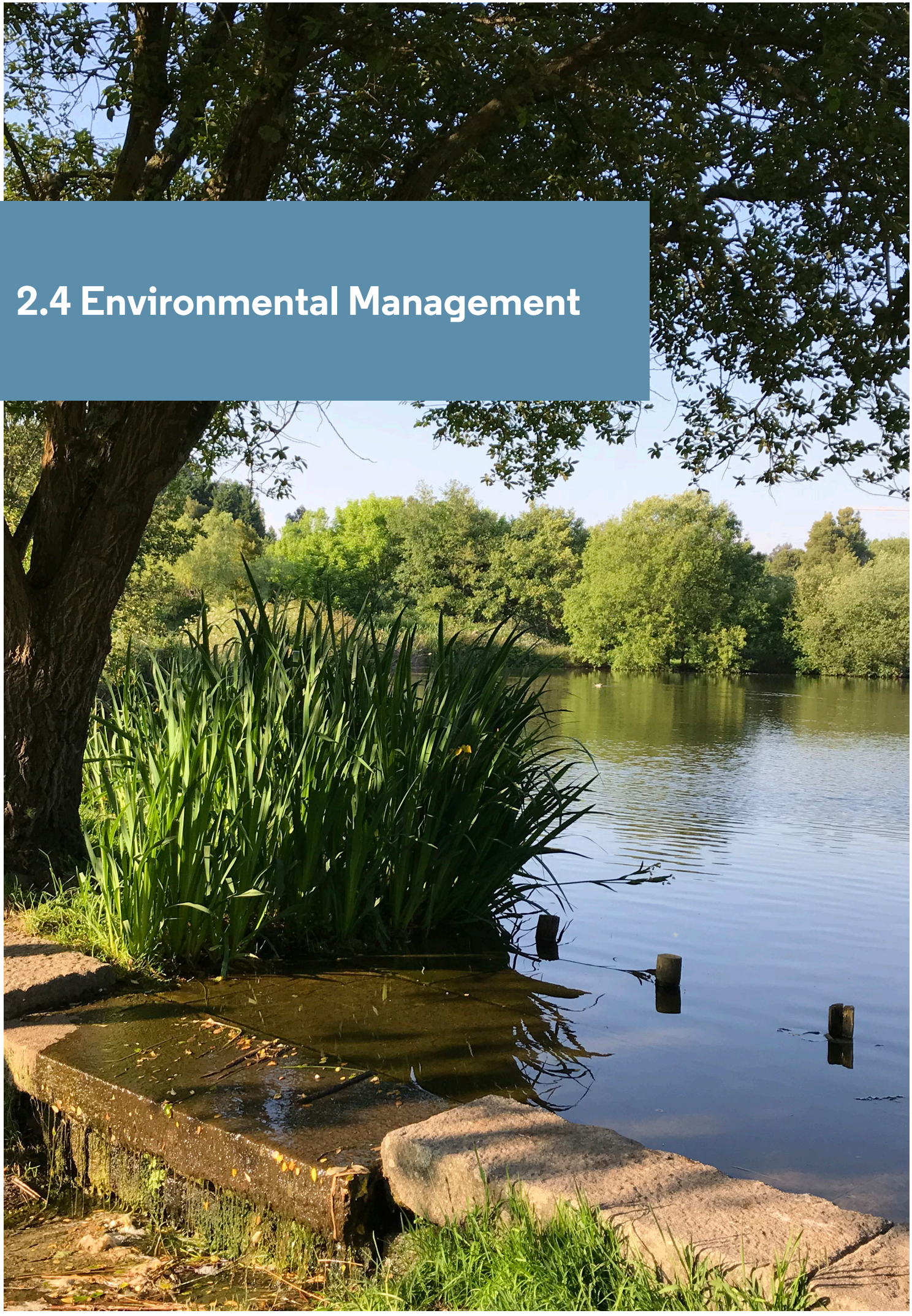
the DMCIGF corrects the situation as soon as it can. The maintenance of the benches, in terms of painting and replacement of the wooden slats, is performed by an outsourcing company. In situations of emergency repairs, the CMP has a continuous supply of wood slats and an internal patrol which operates whenever necessary.

Table 5 synthesizes the maintenance operations described which refer to this section.

**Table 5 - Table synthesis for the operations of maintenance for equipments.**

| Action | Units | Frequency | Season | Responsible |
|---|---|---|---|---|
| **Benches** | | | | |
| Cleaning | 145 | 1x / year | --- | DMCIGF |
| Replacement of wooden slats | 145 | AN | --- | DMCIGF |
| Painting | 145 | 1x / year | --- | *Ousourcing* |
| **General Urban Furniture** (picknick tables, rubbish bins, drinking fountains, dispensers of bags for the dogs and parking for the bicycles) | | | | |
| Cleaning | --- | 1x / year | --- | DMCIGF |
| Repairing | --- | 1x / year or AN | --- | DMCIGF |
| Dispensers of bags for the collection of waste – reposition | --- | 1x / week | Jan. – Dec. | DMEV |

# 2.4 Environmental Management



## 2.4.1 Managing Environmental Impact

The current environmental strategy was designed by the Porto Municipality, for a medium and long run and it was based on 5 fundamental structuring axis. Those axis are:

- **Axis 1:** Porto, City aware and committed to a sustainable future;
- **Axis 2**: Porto, Green City, undefeated but resilient;
- **Axis 3:** Porto, a City which goes forth towards an energetic revolution;
- **Axis 4:** Porto, analytical and transparent City;
- **Axis 5:** Porto, Lab-City.

This strategy reflects the commitment of the municipality with the sustainable development, where it is intended that the management of green spaces takes on a transversal role, oriented to answering the current environmental challenges (CMP, 2018c).

In addition, the CMP is certified by the Environmental Management System ISO 14001, in its full extent, since 2017, therefore being committed to:

- the correct fulfilment of the environmental legislation in force;
- the rational use of scarce resources (water, energy and raw-materials);
- the prevention of water and air pollution;
- the correct treatment / referral of the residues created;
- avoid the occurrence of environmental accidents and emergencies;
- improvement of the communication, internal and external, of its Environmental Policy.

The City Park, as the largest urban park of the city, participates, contributing and benefiting, from the actions led by for the fulfilment of these ambitions. The type of extensive maintenance adopted by the City Park has the advantage of being a more radical role model which enables the saving of resources, when compared to more intensive maintenance models.

As a result from the implementation of ISO 1400, all the Environmental Aspects and the corresponding impacts associated to all the activities of the CMP were identified in detail: administrative activity, storage of products, projects, fleet management, management of the public road, management of cemeteries, management of green spaces, maintenance of infrastructures, organisation of events and cleaning service, with a computerised record of the Assessment of the Obligations of Environmental Conformity. The significant Environmental Aspects of the Urban Parks are properly identified in a document (Annex 31) which is communicated to all the intervenient teams of the management of the corresponding parks, with their identification and assessment following a specific work procedure (Annex 32).

With the goal to promote the continuous improvement of the environmental performance, the City Park is registered in the Communitarian System for Ecomanagement and Auditing (EMAS), since 2017 (Porto Municipal Council, 2018b). The main environmental performance indicators identified for the assessment of the environmental performance of the City Park regard: **i)** consumption of resources: water from the network (drinking water), water for irrigate, electric energy. Diesel, propane gas and natural gas; **ii)** production of residues; **iii)** biodiversity ; and **iv)** $CO_2$ emissions.

In force are several municipal projects for the minimisation of the environmental impact of the managements of green spaces, with an impact on the City Park, such as: **i)** gradual replacement of the fleet by electrical vehicles; **ii)** the increase of the energetic efficiency of the municipal buildings; **iii)** the replacement of illumination with LED solutions (Action H.1.1 of the Action Plan, Annex 4); **iv)** gradual acquisition of electric equipment for the assistance of the maintenance operations (Action H.1.1 of the Action Plan, Annex 4).

The team which manages the park was always concerned with the optimisation of the usage of

water for irrigation, having implemented, in 2001, an intelligent watering system, which enables the pulverisers to be connected according to the values of the precipitation presented every day. This system was then modernised in 2015.

## The optimisation of the network of watering is a great concern to the management of the park

The irrigation process is done throughout the night and, whenever the natural conditions so allow it, the water used for irrigation would be that form the lakes (which decreases the consumption of water from the public network). The daily counting of the water consumption for irrigation enables the detection of potential leaks and the fast performance, thus minimising the losses of water. The data regarding water consumption is registered in the Monitoring Form for monthly water consumption, for monitoring effects (Annex 33).

The optimisation of the network of watering is a great concern to the management of the park, with an intervention being predicted, in the short run, for its improvement (Action H.2.1 of the Action Plan, Annex 4), through the repairing of leakages and the revision of the sectoring in order to accompany the partition predicted for the space.

As previously referred in sub-chapter 2.2.3 (Personal Security) the CMP shares with its suppliers, service providers and concessionaries, a guide with the best practices adopted by the Porto Municipality, at the level of the environment and safety and Health in the workplace (Guide for Good Practices in Environment and Safety, Annex 14). With the expectation that the suppliers and service providers participate responsibly in the fulfilment of the norms, methods and environmental procedures, this guide includes measures to ensure protection of air, water, soil and prevention or reduction of the sound pollution , production of residues and energetic consumption.

With this sharing the goal aimed is that of reaching a high level of environmental protection and the minimisation of the environmental impact. The spaces leased are also informed on the Environmental Declaration of EMAS, which enables them to voluntarily adopt their own good practices.

## 2.4.2 Waste Minimisation

According to what was mentioned on sub-chapter 2.3.1 (Litter and Waste Management), the waste collected from the inside of the park is weighed and stored in the Ecocentre. The management, valorisation and treatment of residues is of the responsibility of Lipor, being the referral of the residues performed by EMAP.

As far as the differentiated separation of residues is concerned, there is an ecocentre located adjacently to the administrative building, of public use, which presents itself as an incentivising measure for the separation of residues by the visitors, with the collection of the latter being of the responsibility of EMAP. In the sense of promoting this practice also inside the park, there is a proposal to replace the 10 old rubbish bins with models which enable the immediate separation of undifferentiated residues and plastic (Action I.1.2 of the Action Plan, Annex 4).

In certain events, where it can be predicted that the production of residues will increase, the garbage bins of the park will be used to reinforce the number of points to collect waste. In the larger events, the promoting entity is responsible for the correct management of the residues generated.

According to the features of the green residues, these can either be valorised internally or referred to Lipor. The residues which result from the cutting of the meadow will remain at the site (mulching). Part of the residues resulting from pruning and cutting, mainly when they do not comply with the dimensions demanded by Lipor, are chipped in the park – using a wood chipping machine - and the wood chips are later used in the City Park or other green spaces of the city. Thanks to the acquisition of this machine, in 2015, the internal valorisation of the green residues was achieved in around 20 to 30%.

The residues transported to Lipor are mainly used for composting, being used in the production of the compound.

## 2.4.3 Chemical Use

The application of phytopharmaceuticals is regulated by the DL n.º 35/2017 of April 11th. The use of phytopharmaceuticals is not allowed in the public space, except for the following cases:

*a) When, demonstrably, there are no alternative means or control techniques available, namely mechanical, biological, biotechnical or cultural control means;*

*b) When it is necessary to face a phytosanitary danger which may be hazardous for agriculture, forest or natural environments; preference should be given to phytopharmaceuticals whose use is allowed in a biological production mode, phytopharmaceutical products of low risk or those which present low toxicological, ectotoxicological and environmental danger and which do not demand for particular measures to reduce the risk to both Mankind and the environment.*

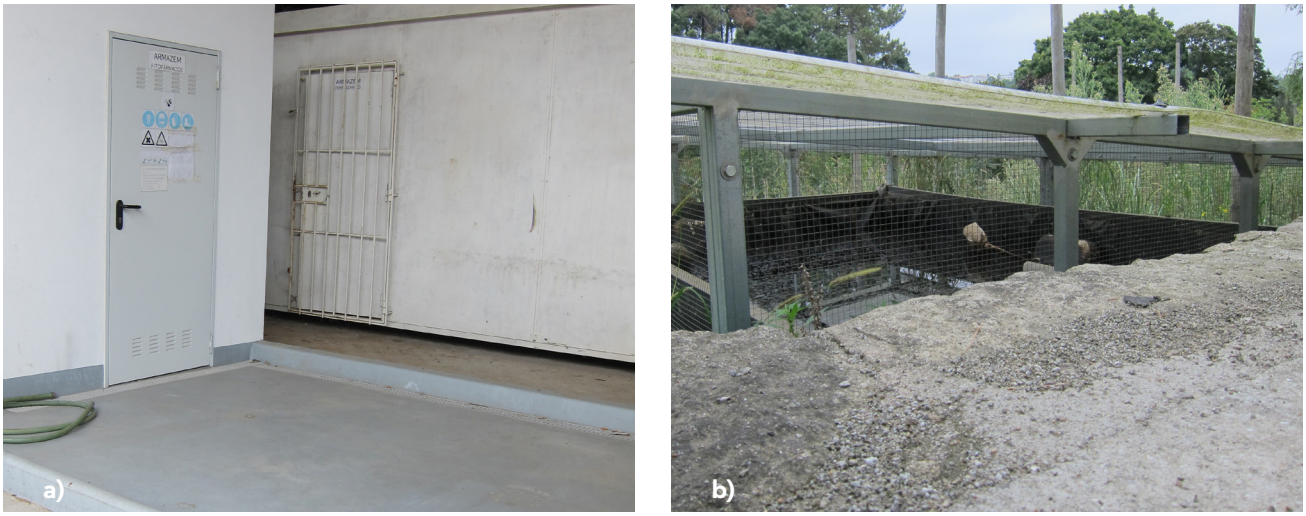
No pesticides are used in the City Park, except when there are no other alternatives available to fight a phytosanitary danger. Herbicides are also not used, with the control of infesting plants being made through manual or mechanical weeding (brush cutters).

Organic fertilisers are chosen to fertilise the soil and its use in the park is related to i) the need to rebalance the lawns and certain areas of the meadow which, due to their features, are supposed to have a more careful aspect and ii) with the goal to avoid the weakening of the specimens of the camellias and the rhododendrons, so that they remain thriving and with flowering abundance.

No pesticides are used in the City Park, except when there are no other alternatives available to fight a phytosanitary danger

When it is necessary to apply phytopharmaceutical products these always come from the Municipal Nursery, where they are stored. The grouts are produced in a retention basin according to the good practices of environmental practices (Figure 22, a-b), and its transportation on to the green space is made within the pulveriser. The application of phytopharmaceutical products is registered in the Form presented in Annex 17.

**Figure 22 - Security measures at the preparation of grouts: a) retention basin; b) phytoremediation tank.**



## 2.4.4 Peat Use

No peat is used in the City Park, with the fertilisation of the soil being made with the vegetal compound supplied by Lipor. However, the plants used in the park come from the Municipal Nursery where, in some particular cases, peat is used given that most plants which are germinated and propagated need acid subtract, as it is with the camellias (Figure 23).

The municipal nursery has a long tradition in the propagation of camellias which are one of the iconic images of the city of Porto where several cultivars, unique in the world, are important to be maintained. For this purpose, a *Camellias Spot* is being gradually constructed in the City Park, where all the specimens planted are identified.

Strategies for a reduction in the use of peat are being studied by the nursery; a recommendation of this Environmental Plan is that only peat bearing the environmental seal RPP (Responsibly Produced Peat) be acquired.

## 2.4.5 Climate Change Adaption Strategies

The Municipality of Porto has a Municipal Strategy of Adjustment to Climate Change (EMAAC) aligned with the Municipal Strategy for the Environment. The EMAAC structures itself according to 6 main goals, of which one must highlight the following: **i)** the reduction of the vulnerability to climate events and the increase of the adaptive ability of the municipality; **ii)** the integration of the acquired knowledge in the instruments of territorial management (particularly, the PDM); and **iii)** the redesign of the green structure of the city, ensuring the minimisation of the effects of climate change.

The EMAAC presents the main climate changes projected for the Porto municipality, focusing on the identification of adjustment options and actions, which aim to promote the minimisation of the effects of climate changes, as well as the adoption of mitigation answers. The climate projections for the Porto municipality point to, among other alterations, "*a potential decrease of the total annual precipitation and a potential increase of the rise of temperatures, particularly the maximum in the summer and autumn, hence intensifying the occurrence of hotter and drier summers. An increase of the frequency of heat waves and events of heavy or very heavy precipitation is also*

**Figure 23 - Camellias from the Municipal Nursery.**

*projected*" (CMP, 2016: 7).

One of the negative impacts identified in the study which is directly related to the City Park is the "*intensification of the erosive process of the coastal areas, with a risk for the disappearance of bathing areas or a constraint in the access to the recreational and leisure areas close to the coastal areas, namely the Garden of Montevideu and the City Park*" (CMP, 2016: 38).

Obviously, the design of the City Park did not have these projections as base considerations. However, there is a set of features considered as strengthens within this framework of mitigation of the effect of climate changes, with the highlight of: **i)** the modelling of the terrain and the network of water elements which ensure a sustainable drainage of rainwater; and **ii)** the plasticity of the vegetation installed to climate variations.

The management of the water in the park is made through the modelling of autonomous basins and the system of lakes. The drainage is sequentially made since lake 1 until the puddle in the western extreme, towards the sea. The various puddles spread through the Park, with temporary or permanent features (Figure 34, a) also enable the distributed infiltration of the rainwater in the soil and, in some cases, the drainage of the exceeding to the lakes. The water of the lakes feeds the watering system, avoiding the use of water from the public network.

The species of plants chosen are, mostly, native with low hydric needs; the exotic ones are perfectly adjusted to the local soil and climate conditions, especially the adversity of the Atlantic proximity. The big diversity of species ensures resilience before a new plague or an emergent disease.

The City Park benefits from the existence of a "Phytosanitary Study and Inventory of the Trees", which presents itself as an excellent guide for the mitigation of climate changes, as its application enables the preventive control of the fall of trees and branches in extreme events.

The location of the City Park, which promotes the connection with the oceanic coast, is one of the major added values the park offers its users. However, before the context of climate changes, this location may reveal itself a threat due to the expected increase of the average level of the sea water and, especially, the bigger exposition to the effect of extreme events, such as the strong maritime storms. The paths develop themselves slightly above the average level of the puddle, which enables the use of this space even if the average level of the sea water rises. In cases of caution, as previously mentioned in sub-chapter 2.2.3 (Personal Security), the park or parts of it are closed.

# 2.5 Biodiversity, Landscape and Heritage

## 2.5.1 Management of Natural Features, Wild Fauna and Flora

The vegetation which comprises the park performs a determinant role in the configuration of the landscape, constituted by densely wooded areas, more or less compact arboreal masses, either punctuating the park or edging lakes and big clearings of meadows.

The park gathers a total of more than 14 thousand specimens, referring to 150 species of trees, 42 species of bushes, 15 species of fruit trees and 10 aquatic species (Figure 24, a) (CMP, 2017: 26). The flora with more emphases and easier to acknowledge is comprised by pine trees, eucalyptus, oaks, metrosiderus, platanus, tulip tree, poplar, alders, willows, birches, hawthorn, pittosporum, melaleucas, cypresses, magnolias and different species and cultivars of camellias. The closeness to the Atlantic coast was taken into account enabling the understanding, through the wide range of species, of a variation of the floristic composition according to the atmospheric and soil gradient. This gradation allows for the control of the winds and the development of less resistant species which, without the vegetal barrier, were not able to survive. The accentuated atmospheric and soil gradation present in the park, allows it to work, under an ecossystematic perspective, in a kind of ecotone, with an expectation for high levels of biodiversity, in a stage where different ecologic communities meet.

The combination of multiple favourable factors turns this park into a very rich space for biodiversity, namely: **i)** its wide dimension, within the context of the metropolitan area of Porto; **ii)** the climate amenity; **iii)** the previous occupation of the soil; **iv)** the combination of open (clearings) and closed (woods) areas; **v)** the heterogeneity of habitat supplied by the composition, the diversity of species of plants and the advanced age of some of the trees; **vi)** the presence of native species; **vii)** the big masses of water; **viii)** the extensive and ecologically oriented maintenance, which ensures the presence of some areas where the vegetation develops itself naturally; **ix)** the proximity to the sea; and **x)** the connectivity which is established with priority green corridors of the city of Porto (Farinha-Marques et al, 2014).

> The vegetation which comprises the park performs a determinant role in the configuration of the landscape.

Several studies for inventory and diagnosis have been done on the biodiversity of the park, namely at the level of classification and mapping of the habitats (Annex 34) (Farinha-Marques et al, 2015) and the “Characterisation of the Bird fauna and de Ichthyofauna associated to the 4 lakes of the Porto City Park” (Energia Fundamental, 2015).

In the first work, the City Park was classified as an urban habitat of the clearing-wood type, which means it is dominated by the herbaceous extract and that it presents a percentage of tree and/or bush cover between 26 and 50%. This study also reveals that the Park presents a high potential for specific richness.

The study of the “Characterisation of the Bird fauna and de Ichthyofauna associated to the 4 lakes of the Porto City Park” resulted in a concern with the excessive proliferation of bird fauna communities and Ichthyofauna associated to the lakes. In this work, 5 species of fish were identified, namely the European eel, the gambusia, the sunfish, goldfish and catfish and 18 bird fauna species, of which 5 were introduced and 13 are wild. This study also revealed that within the wild species there is a predominance of wintering populations and that the predominant bird fauna (Figure 24, b) for each lake varies according to the maritime proximity (Annex 35). Still, this study revealed that the lake 2 is strongly marked by the presence of introduced birds.

Beyond the species of bird and the ichthyofauna other

faunal groups have gradually been choosing the Park as a place of fixation, namely: reptiles, amphibians, bats, bugs and mammals and their identification and inventory is fundamental for the knowledge on the ecological value of the City Park.

The maintenance of the park already integrates several measures which reflect a special care with the life cycle and habits of the species. For example, to clean the puddles (Figure 22, c), the water is collected and replaced after the cleaning, in order to preserve the species of frogs, salamanders and tritons. The operations of cutting and pruning in the woods also respect the nidification season for the species and no tree is cut down with the confirmation of the existence of active bird nests.

The following step to be taken for a more integratd and effective management and promotion of biodiversity is the drawing up of an “Action Plan for the Biodiversity of the City Park”, according to Action L.1.1 of the Action Plan (Annex 4).

**Figure 24 - Examples of the fauna and flora of the City Park: a) yellow iris (Iris pseudacorus); and b) heron (Ardea cinerea). Landscape elements: pond, clearing-edge mosaic and resting spot made of stone.**



## 2.5.2 Conservation of Landscape Features

The conservation of the identity, expressivity and unity of the landscapes which comprise the City Park is a great challenge.The landscape is comprised by a succession of landscape units with naturalistic features, very much partitioned through the vegetal modelling and composition, and configured through big masses of water fitted in a valley along which there are several visual fields.

The distribution of grove, together with the network of paths (Figure 25, a), either leads the visitors into getting closer to the water elements, or integrates them in the vegetation (Pardal, 2006). Along the network of paths, there is a set of stays, elements which bring some formality, but also the invitation to stop, to rest and to contemplate (Figura 25, b). These stays offer some of the best places for the proper appreciation of the dynamics of the landscape.

The stays and other elements that offer opportunities of recreation, whether formal or informal, are strongly marked by the use of rock - a noble material in the landscape of the North of Portugal. The northwest landscape is strongly marked by the reunion of a set of elements which remain from the rural landscape, prior to the construction of the park and new inspired structures in the vernacular culture of the North of Portugal, which are associated to means of use according to contemporary presuppositions.

The non-coding of the landscape is one of the main features of the City Park and the model defended by its designer, the Landscape Architect Sidónio Pardal, who has been developing a fundamental role guiding the evolution of the park. Its attentive monitoring has enabled the perpetuation and maximisation of the most iconic visual axis, framework and introduction of constructed elements. In fact, the dynamic character of the vegetation hinders the establishment of a finished landscape, centring here one of the biggest challenges of the maintenance team. His vision for the City Park and the maintenance strategies for its maintenance will be moulded in the “Guide for the landscape conservation of the City Park” (Action K.1.1 of the Action Plan, Annex 4), which will be launched in 2019.

The Park is a work in progress and many interventions will still be taking place in the sense of finishing and adapting the park to new realities. In the Action Plan (Annex 4), several actions with these goals are described, namely:

**Figure 25 - Landscapes of the City Park: a) paths which meander amongst the vegetation; and b) rock elements with varied functions.**


**i)** improvement of the functionality and landscape integration of the construction site (Action K.1.2);

**ii)** conclusion of the amphitheatre and the lateral stay of the path (Action K.1.3);

**iii)** conclusion of the *Camellias Spot* (Action K.1.4), which beyond the new plantations also foresees the inclusion of a puddle and new rock elements;

**iv)** adjustments to the margins of lakes I and II (Action K.1.5 e K.1.6, respectively);

**v)** modelling and partition through new plantations, of the northwest top of the park the slope to the north of lake III (Action K.2.1).

## 2.5.3 Conservation of Buildings and Structures

The City Park gathers a considerable set of buildings and structures with value for their identity (Figure 26). The buildings referred to in this part are those used by the CMP: DMEVGI facilities, CEA and Guard House. At the level of the structures, the rock structures will be considered – ruins, pergolas, walls and other elements of interest. The responsibility of preserving the buildings belongs to DOMUS Social and that of preserving the structures belongs to DMCIGF and is made according to the "Conservation Plan for Infrastructures and Equipment" (Annex 7). Generally, all elements present themselves well preserved, with no structural intervention being scheduled.

The conservation of the leased spaces – restoration, cafeteria and shops of the rural centre – is a responsibility which belongs to the concessionary. It is therefore recommended that the contracts of the leases integrate the considerations and the quality references of the GFA, as far as the conservation of buildings is concerned (Recommendation G.1 of the List of Recommendations, Annex 36). The conservation of the Water Pavilion, managed by AdP, is of the responsibility of the corresponding Municipal Company.

The DMCIGF has the responsibility of monitoring the state of conservation of all the buildings presented in the park, as well as the strictures, and warn the responsible for any risk situation, vandalism or degradation.

**Figure 26 - View for the farm buildings in the Rural Centre, reminiscence with value for the identity of the City Park.**

# 2.6 Community Involvement

## 2.6.1 Community Involvement in Management and Development

The features of the City Park turn it into a very attractive space, with the visit by a very wide range of audiences with distinctive interests: people who want to stroll or rest close to Nature, people who take their pets for a walk or do sports, whether individually or in team, families with children who get together, etc. (Figure 27, a-c).

CMP has supported the performance of studies on the users of the park. These studies, of an academic nature, tried to research what drives people into visiting the park and what kind of activities they take on. Some of the results of those studies are presented in Annex 37.

Currently one acknowledges the need and importance to access updated data on the number of visitor, as well as the assessment of their satisfaction. There is a proposal to perform a study on the use and behaviour of the users of the park (which will enable to know the features of the users and their needs and expectations and map their behaviours) and, as a complimentary measure, the development and application of surveys during this year – which will enable the assessment of the impact of the implementation of the first actions resulting from the GFA (Action M.1.1 of the Action Plan, Annex 4).

As a reinforcement of this Action, there is also the forecast to acquire three visitor counters (Action M.1.2 of the Plano f Action, Annex 4) with the goal to understand the real affluence of the park.

**Figure 27 - Diversity of activities enabled by the park: a) to rest in proximity with nature; b) to do sports; and c) children playing in the clearing.**



## 2.6.2 Appropriate Provision for Community

The City Park has several equipment and facilities which encourage the practice of healthy activities and enable a long stay. The park is very in demand for events organised by big groups, mostly related to physical activity, music festivals and celebration of thematic days. The municipal company Porto Lazer, responsible for the cultural, sport and recreational activity of the city is the main responsible for the management of the events which take place at the City Park. Table 6 gathers all the events which took place in the park, in 2017, and which were promoted by Porto Lazer.

The City Park, as the largest urban park in Porto, hosts a high number of events, mostly free, thus being able to answer a diversified set of interests and sectors of the community. The three annual events with the largest number of visitors are: **i)** the Continente Food Festival; **ii)** NOS Primavera Sounds, for which

**Table 6 - List of events which took place at the City Park, in 2018, requested by Porto Lazer.**

| Date | Day of the Week | Period | Name of the event |
|---|---|---|---|
| **April 2nd** | Saturday | 10:00 – 13:00 | Vencer o Autismo – Corrida e Caminhada (Win over Autism – Run and Walk) |
| **April 16th** | Sunday | --- | Taça da Cidade do Porto – Associação de Petanca do Norte (Porto Cup – Association of Pétanque in the North) |
| --- | --- | --- | Audi Event |
| **June 8th -10th** | Thursday, Friday and Saturday | --- | NOS Primavera Sound |
| --- | --- | ---- | Run – Municipal Centre for Marching |
| **July 13th** | Thursday | 17:00 | Mother Earth Show |
| **July 1st and 2nd** | Saturday and Sunday | 10:00-21:00 | Continente Food Festival |
| **July 22nd** | Saturday | 21:00 | Running in the Park at Night – Runporto |
| **August 4th** | Friday | --- | European MG – Gathering of classical cars |
| **August 6th, 13th and 20th** | Sunday | 16:00 – 20:00 | Porto Sunday Sessions |
| **August 11th - 13th** | Friday, Saturday and Sunday | --- | Love…Love Porto (Geocaching) |
| **September 22nd** | Friday | --- | Porto City Race |
| **September 29th and 30th** | Saturday and Sunday | 10:00-21:00 | Festival AquaPorto |

one needs to buy a ticket (Figure 28); and **iii)** the Aquaporto Festival, respectively. There are also other events at the City Park which are worthy of mention, such as the Somersby Porto Sunday Session, an event which resorts to several iconic green spaces of the city, during the summer months.

There is also a set of municipal initiatives which spread to several spaces of the city and which include the City Park, like the "Days with Energy", which takes place in the park every Sunday mornings, from May to September. This initiative promotes exercise in the open air, offering free classes of yoga, Pilates, Tai-chi and the DeRose Method (Figure 29, a). The Municipal Centre for Marching and Running, whose base is in the park, organizes group walks or runs, every Tuesdays and Thursdays, at 19:00 and Saturdays, at 10:00.

Besides the walks and the runs, the sporting group 4 Caminhos also frequently organizes orienteering trails with solidary goals. There are 5 permanent orienteering paths in the Park, with 39 points, whose maps are available online, at the website of Porto Lazer.

The City Park, as the largest urban park in Porto, hosts a high number of events, mostly free.

Inclusive paths, of adjusted orienteering for groups with special needs, can also be assembled after requisition. For 2020 there is a programme to create a new orienteering path, adjusted to the reduced mobility and allusive to the theme of sustainability and environmental good practices (Action M.3.1 of the Action Plan, Annex 4).

The educational vegetable garden of the rural centre is included in the Programme of Permanent Workshops for Schools, offered by CEA (Figure 29, b). Within the scope of this programme, the groups from the schools have the opportunity to develop horticulture activities,

**Figure 28 - NOS Primavera Sound: one of the annual events with higher number of visitors.**

from preparing the land, sowing, following the growth of the plants, harvest, contact with the composting techniques and those of wormcomposting, visiting the vegetable garden every week or every other week.

It is hence understood that the City Park, the most iconic green space of the city and that with the largest dimension at a national level, through the activities which it promotes, may exert a positive influence in the society as far as healthy behaviours are concerned. Within this context, and as an answer to the growing demand for biological food, every Saturday, there is, in the rural centre, a Fair for Biological Agricultural Products (Figure 29, c).

Given its public nature, the Park may be used for parties and small events, for free. However, when the event has more than 100 people, it is necessary to submit a request, which means there may be the possibility to pay some sort of fee associated to the occupation of the space and the performance of noisy activities. As previously mentioned, with the goal to safeguard that the services provided by the suppliers and service providers and the applicant/promoter of events, are developed according to the best practices adopted in the Porto Municipality, the latter become informed in them through the "Guide for Good Practices in Environment and Safety" (Annex 14).

In order to create better conditions for the performance of the bigger events and to avoid that those events somehow conflict with the interests of the visitors and damage the Park, there is the forecast of an intervention, in the northwest side of the Park (Action K.2.1 of the Action Plan, Annex 4). This intervention, which will begin the current year, will enable the preparation and endowment of this area of the park with infrastructures, also serving to consolidate and conclude.

In order to reinforce the connection of the community to the park, it is also proposed that the City Park should be included, already in 2020, in the annual municipal programme for theme visits (Action M.3.2 of the Action Plan, Annex 4).

**Figure 29 - Example of events held in the park: a) Tai-Chi on "Days with Energy"; Programme for Permanent Workshops for Schools - educational vegetable garden; and c) Fair for Biological Agriculture Products at the Rural Centre.**

# 2.7. Marketing and Communication

# 2.7.1 Marketing and Promotion

It is a decision of the CMP not to have a marketing and communication strategy exclusive for Urban Parks and Gardens, but rather to present the city as one brand only - "Porto." - which has been worked on and perfected since 2014. This brand presents a unique image, transversal to all entities which comprise CMP and has the goal to consolidate, both nationally and worldwide, its identity. However, CMP acknowledges its green areas and the City Park as an important asset, enabling means to enrich the experience and the study of those places, disclosing them and promoting them locally or online, through the official channels.

The majority of the users who visit the park reside in the city; there is also great demand by the people who live in the metropolitan area of Porto. There is current, however, an increase on the use of the park by foreigners, which is easily understood given the increasing number of people who turn to the city for tourism and recreation purposes. The park is already prepared for such reality, as the main pieces of information presented in the signs are available in Portuguese and English.

With the goal to facilitate the visit of the park and promote it in all its dimensions: landscape, ecologically and socially, a set of graphic elements is being prepared – leaflet (Annex 38), booklets and thematic leaflets – also in a bilingual version.

The strategy for the promotion of the green spaces of the city is integrated in the promotion of the city brand, "Porto.".

For 2019 the launch GEVIA is predicted. This is an online platform of free public access, developed by the municipality. It is thought that this tool will become an important means to disclose the great diversity of the City Park and an important source of valorisation and disclosure of green spaces and arboreal heritage of the city.

It is also believed that the expected achievement of the Green Flag Award certification will also become an important factor for promotion and disclosure of the park.

## 2.7.2 Appropriate Information Channels

As mentioned in the previous section, the strategy for the promotion of the green spaces of the city is integrated in the promotion of the city brand, “Porto.”. The information on the city is disclosed through two main information channels: the Municipal Council website and the news portal for the brand “Porto.” (Figure 30, a-c).

In the Municipal Council website, under the marker “City”, there is a section regarding Urban Gardens and Parks, where there is exclusive information on each one of the main spaces, namely: their history, curiosities, flora, services and equipment, contacts, schedules and lines of the buses with direct connection to the park or garden in their route. The banner dedicated to the park is identified as “Western City Park” (CMP, 2019b) and it also comprises the information mentioned: **i)** a map to be downloaded where the main places of interest in the park are identified, as well as equipment and infrastructures; **ii)** the EMAS Environmental Statement; and **iii)** a list and description of the species of fauna associated to the lakes in the Park. This is also a space for the highlight of some news and through the selection of the proper icon, the visitor is redirected to a website of the main scopes, namely: Tourism, Environment, municipal companies, contacts, etc.

It is however intended that the information rendered available on the Park be reinforced and updated periodically, in such a way that the website of the Municipal Council be the main source of information and disclosure of the Park, not being surpassed by the non official channels of information (Action N.1.1 of the Action Plan, Annex 4).

The portal “Porto.” whose mission is that of informing the people of Porto of that which more importantly and positively happens in the city and on the city, is the main place for the dissemination of municipal news, as well as the municipal agenda (CMP, 2019c). Besides the online presence, there is also an App, for Android and iOS. This App has a tab exclusively for the news on environment, which presents itself as an excellent opportunity for the reinforcement of the dissemination of information regarding the park.

The strategy adopted for the promotion of the green spaces is, essentially, based on the online disclosure, in the official information channels which were already mentioned. Besides those, the disclosure of the City Park, of the pieces of news regarding it and the vents which take place on it, is essentially made in the following information channels:

- Porto Municipal Council Website: *http://www.cm-porto.pt/*
- “Porto.” Website: *http://www.porto.pt/*
- Porto Lazer Website: *http://www.portolazer.pt*
- Website for the Union of the parishes of Aldoar, Foz do Douro and Nevogilde: *http://www.aldoarfoznevogilde.pt*
- Porto Lazer Facebook page: *https://www.facebook.com/portolazer/*
- Porto Municipal Council Facebook page: *https://www.facebook.com CamaraMunicipaldoPorto/*
- Instagram Porto Lazer Instagram page
- Instagram Visit Porto Instagram page
- Youtube channel for portoponto
- VisitPorto Website: *http://www.visitportotravelVisitar/Paginas/default.aspx*
- Posters displayed in the Union of parishes of Aldoar, Foz do Douro and Nevogilde

The information disclosed through these channels intends to comprise all the segments of the population which are interested in the City Park, so that they can take more advantage of their relationship with the space.

**Figure 30 - Online promotion: a), b) and c) official website of the Porto Municipal Council; and d) portal of municipal news "Porto.".**

## 2.7.3 Appropriate Educational and Interpretational Information

In the City Park there are several interpretative panels on the flora and fauna which one can observe in the park (Figure 31, a). Beyond those panels, there are also some marks regarding the orienteering paths (Figure 31, b) and temporary panels which are placed in strategic places for the promotion of some specific events (Figure 31, c). Within the scope of the GFA application, some contexts and places where identified as being locations where it would make sense to reinforce the information available for the visitors, such as, for example, the rural centre (Action N.2.3, Action Plan, Annex 4).

Besides the educational and interpretative information rendered available in the park, there is also information online, such as the map of the park and the maps for the orienteering paths.

The means of information on the park will also be reinforced through the creation of the leaflets, which will be distributed for free in 2019. In them there will be a map, identifying the varied points of interest to be visited, equipment and services available in the park, thematic paths and information on history, landscape and biodiversity. In 2020, other information elements will continue to be produced, such as leaflets and small booklets, on the advantages of the outdoor activities which can be experienced in the park, as well as the valorisation of fauna and flora (Actions N.2 of the Action Plan, Annex 4).

**Figure 31 - Educational and interpretative information disclosed in the park: a) information panel on biodiversity; b) mark for the orienteering path; and c) temporary panel related with an event taking place in the park.**

# 2.8 Management

## 2.8.1 Implementation of Management Plan

The City Park is the largest urban park in the country, an asset of the metropolitan territory of Porto, whose benefits serve a considerable part of the population of Northern Portugal, enabling the free recreation and the contact with the rural world.

Its dimension, natural and landscape features and the set of equipment and facilities which it gathers explain its importance and mediatism in the city of Porto. The urban pressure, the real estate speculation and the tourism wave which have been currently observed are factors which foster a growing use of the green spaces of the city, reinforcing the importance of this Management Plan for the park and the promotion of the well-being of the population.

The Management Plan is a fundamental instrument, for a holistic and integrated management, as it enables to synthesize and schematise the current management model, foresee the financial investments and help with the identification of the weaknesses, fundamental aspects for any development model which aims at continuous improvement.

As mentioned in chapter 1.3 (Scope and Management), the integrated management of the City Park requires a harmonised intervention of a set of participants, namely: organic units of the CMP, municipal companies and external activities. The DMECGI is the main responsible for the maintenance and conservation of the Park, hence fulfilling its *modus operandi*, with the suitable standards of quality, environment and safety for which the CMP is certified and the legislation in force applied, when setting the procedures and obligations of the work instructions. The management systems for which the Porto Municipal Council is certified and which are reflected in the management of the City Park are:

- NP EN ISO 9001:2015 - Quality Management System;
- NP EN ISO 14001:2015 – Environmental Management System;
- NP 4427:2004 - Human Resources Management System;
- OHSAS 18001:2007 / NP 4397:2008 - Health&Safety Management System;
- EMAS - Eco-Management and Audit Scheme.

The certifications on the ISO management systems mean that, within the scopes of each one of them, records are made in order to monitor and external auditing is performed. As mentioned in section 2.4 (Environmental Management), the City Park has a record on EMAS. Due to its high demand and analysis parameters, this Ecomanagement system becomes the most reliable and robust in the market, with high hopes of the DMECGI being placed upon it to enhance the performance of the Park, within the assessed indicators and environmental performance. The results achieved are updated and presented in regular periods in the Environmental Declaration of the City Park, disclosed in the official site of the CMP.

Currently, several services related to the maintenance of green spaces are computerised. The management of the fleet, the acquisition and decommissioning of machinery, vehicles and the corresponding maintenance, is made through a programme MAN Win Win. For the stock management in the warehouse, the GES software is used and to manage the arboreal inventory GEVIA is used. However, in the sense of maximising the efficiency in the exercise of its activity, the DMEVGI benefits from the use of a unique and comprehensive computer system which supports the management of green spaces.

This Management Plan will be shared with all the intervenients regarding the management of the City Park so that all become aware of what is intended to be achieved, as well as their individual and collective responsibilities. As previously explained in chapter 1.1 (Purpose, Content and Structure), this plan was organised according to the methodology proposed in the “Guide to producing parks and green space management plans” (Cabe Space, 2004) and “Raising the standard. The Green Flag Award guidance manual” (Ellicott, K., 2016). This structure helps the jury to quickly find the information it needs to assess criteria and it facilitates its use and appropriation by all the intervenients.

## 2.8.1.1 – Response to the pre-inspection report

The pre-inspection performed to the City Park was made in July 2018.
As a result of the pre-inspection report, a set of improvement actions was identified; these actions would benefit the park and better ensure the fulfilment of the GFA criteria.

Besides the actions forecasted for the next 5 years (running time of the Management Plan), some immediate answer actions were identified, mostly related to issues of hosting, safety and communication; these are either already resolved or in an advanced phase of resolution (Table 7).

**Table 7 - Plan for Immediate Actions of the City Park.**

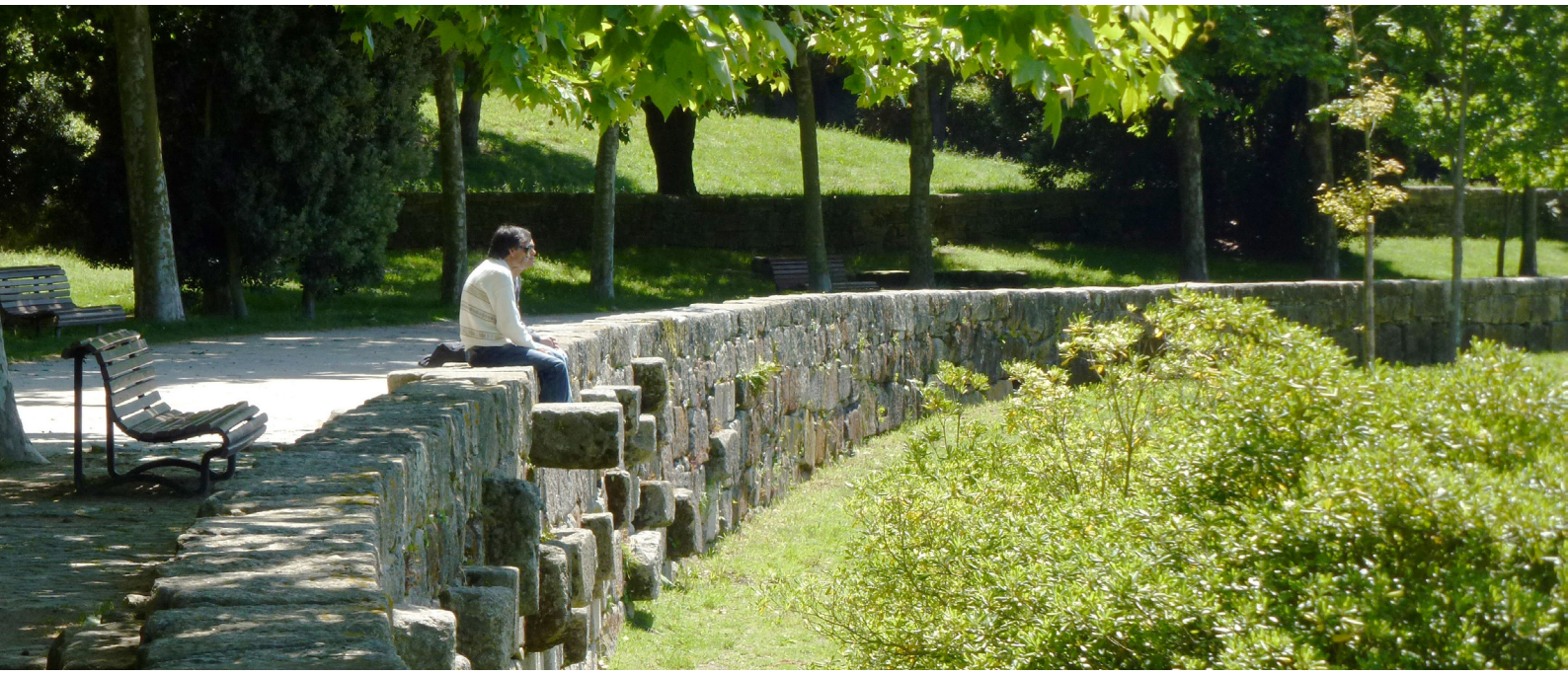
| Section | Pre-inspection notes | Action | Responsible | Progress |
|---|---|---|---|---|
| **W** | *As a visitor it is unclear whether this is also an authorised access to the park? 'Welcome to City Park' is a simple solution….'* | A.1 - Placement of an acrylic sign, following the municipal model at the Entrance of the Rural Centre. | DMEVGI | In progress |
| | | B.1 - Insertion of parking places for reduced mobility in the parking area of the Boavista Entrance, in a number which follows the legislation. | DMEVGI | In progress |
| **HSS** | | D.1- Acquisition of first aid kit (To be placed at DMEVGI. Subsequently, to be placed at the Visitor´s Welcoming Centre). | DMEVGI | Done |
| | *Some paths (access to a 'dump' area) were very run down and it was not clear if these took the visitor to somewhere useful or to a staff area only.* | D.2 - Insertion of signs in the access to the former Ecocentre. | DMEVGI | In progresso |
| | | D.3 - Placement of interdiction and danger signs at the entrance of the construction site | DMEVGI | In progress |
| **MC** | *It would be beneficial for visitors to be able to understand the importance and story of all of the historic assets within the garden such as the fountains, buildings, trees and bandstand. (…) that information could be made available at the café regarding the history of the park in the form of a free leaflet.* | N.2 - Development of an informative leaflet with a map of the Park, with paths and relevant information on biodiversity, landscape and history. | FCUP and DMEVGI | Done |

# III. Where do we want to get to?

## 3.1 Vision

The vision reveals the intention which is aimed at for the future. The definition of vision allows all intervenients to be aware of such intentions and therefore enables them to guide the efforts of their activity. The development of this Management Plan triggered a process participated by the DMECGI team, which lead to the definition of the vision for the Porto City Park:

> "Keeping the City Park as a non coded and free space, preserving the mosaic and the inter relationship of the landscapes which characterises it and promoting it as an asset of the northern metropolitan territory."



## 3.2 SWOT Analysis

The goal of the SWOT analysis (Table 8) was to clearly identify the current strengthens and weaknesses of the park, as well as the opportunities and threats which can be foreseen for the future in the varied contexts which involve it, in such a way as to formulate new goals and objectives and to permanently improve the internal management and maintenance processes.

**Table 8 - SWOT Analysis.**

| Strengths | Weaknesses |
|---|---|
| • Dimensions and notability<br>• Organic and naturalist trait which facilitates the contact of visitors with nature<br>• The head office of the Municipal Department of the Green Spaces and Management of Infrastructures (DMEVGI) which runs the City Park is in the park<br>• Exclusive team of gardeners for the City Park<br>• Good network of paths accessible to all<br>• Existence of a big diversity of equipment and facilities which promote a long stay in the Park<br>• Existence of structures for Environmental Education - CEA and Water Pavilion – which exert a strong positive impact on society, especially in the school community<br>• Existence of a *Rural Centre*, of a traditional architecture and with agricultural elements which are no longer very common in an urban environment<br>• Pre-existing infrastructure able to house the visitors' welcoming centre<br>• Municipal Police centre in the park;<br>• Continuous patrolling by private security teams and municipal ones<br>• Existence of a phytosanitary study and georeferenced inventory of the trees in the park<br>• Existence of resources for internal valorisation of green residues (chipper)<br>• Intelligent watering system<br>• The modelling promotes a rational management of the water, with the whole park working as an important drainage basin of the city<br>• Diversified agenda of events, throughout the year<br>• Management systems: NP EN ISO 9001:2015; NP 4427:2004; OHSAS 18001:2007 and NP EN ISSO 14001:2015 and EMAS | • Absence of a visitors' welcoming centre<br>• Landscape framing of the area of the Park adjacent to the beach, little integrated with the remaining areas of the park<br>• Monitoring of the structures in rock (ruins, pergolas, etc.), non formalised<br>• Lack of interpretative information for the visitors (leaflets, booklets and panels)<br>• Absence of an integrated study on the users of the park: features, needs, expectations and behaviours)<br>• Little expressive involvement of the community in the management processes and the maintenance of the park |

| Opportunities | Threats |
|---|---|
| • Privileged location in the city (close to the beach)<br>• Good connection with the network of public transportations<br>• Connection with two cycle paths – Foz and Ribeira da Granja<br>• Existence of a municipal nursery managed by the same services<br>• Existence of an intermunicipal company specialised in the treatment of residues<br>• National prohibition to use phytopharmaceuticals in public space<br>• Robust municipal environmental strategy which counts on the City Park as important assets for its implementation<br>• Park included and disclosed in the Route of Camellias in Porto (municipal path with great disclosure and affiliation)<br>• Regular consultancy by the designer of the Park, in the conservation and the consolidation of the character<br>• Existence of exclusive budget for the management and maintenance of the park | • Management dependent on several municipal organic units<br>• Management of the lease spaces of the responsibility of the concessionary<br>• Incomes generated by the Park are not used, directly, in its management<br>• Water from the lakes comes from varied sources: water tables, holes and creeks<br>• Strong winds coming from the seafront;<br>• Forecasted effects resulting from the climate changes: increase of the medium level of the sea water and bigger exposition to the effect of extreme events<br>• Introduction by the users of exotic species, potentially invasive<br>• Vandalism under the form of graffiti frequent in the area of the Park adjacent to the beach<br>• Absence of control by the DMEVGI on the dimension of the events which take place in the Park (responsibility of Porto Lazer);<br>• Excessive load of participants verified in some of the vents performed in the park (E.g. NOS Primavera and Continente Food Festival)<br>• Non-official websites with a strong online presence |

The weaknesses identified are less positive aspects of the parks, which received more attention in the Action Plan (Annex 4) and which are, for that, those which are expected to be resolved during the running time of this plan. As an example, there is mention to the “Lack of interpretative information for the visitors” which will be corrected through three distinctive actions, takin place already in 2019 and which determined an immediate action for the production of interpretative brochures. The “Absence of a visitors’ welcoming centre”, will also be resolved between 2019 and 2020.

The strengthens and opportunities are positive aspects, more or less stabilised, but to which one intends to continue to pay attention, in the sense of preserving the good overall quality of the Park.

The threats are negative aspects which the entities that manage the park do not have the direct ability to solve, but regarding which they can take preventive measures for adaptation and minimisation. As an example, there is reference to “Forecasted effects resulting from the climate changes: increase of the medium level of the sea water and bigger exposition to the effect of extreme events” and “Introduction by the users of exotic species, potentially invasive”.

# 3.3 Goals and Objectives

The goals and objectives were defined in the sense of guiding the management team of the City Park in the prosecution of the vision. They are categorised according to the GFA sections, anticipating that they may be reached through the fulfilling of the actions foreseen in the Action Plan.

## 1. A Welcoming Place

A. Ensure that the visitors of the Park are welcomed

- A.1 – Promote the installation of a Visitors' Welcoming Centre
- A.2 – Ensure that the entrances of the Park are identified from the exterior and that the information disclosed effectively communicates the qualities of the park

B. Ensure that the City Park is accessible to all

- B.1 – Ensure the existence of traffic signs which present the location of the park
- B.2 – Ensure the supply of amenities and facilities which enable urban mobility
- B.3 – Ensure that the Park and all equipment and facilities are, whenever possible, accessible to all.

C. Ensure that quality equipment and facilities are displaced

- C.1 – Supply quality equipment and facilities for all age groups and types of users

## 2. Healthy, Safe and Secure

D. Ensure that the City Park is a safe recreational place and promotes healthy life habits

- D.1 – Promote healthy practices and life habits
- D.2 – Ensure that the development of the vegetation does not compromise the safety of the users;
- D.3 – Ensure the provision of first aid kits
- D.4 – Ensure that the places and interventions which may compromise the safety of the users are properly indicated
- D.5 – Ensure police patrolling and assuring that the report of incidents is made in a perspective of continuous improvement
- D.6 – Ensure that there are effective measures for the control of dogs

E. Ensure the safety of the staff

- E.1 – Ensure that all safety and health requirements are met
- E.2 – Ensure that the buildings, warehouses and equipment used for maintenance are in good safety conditions

## 3. Well Maintained and Clean

F. Ensure that the cleaning of the park is made according to patterns of high quality standards

- F.1 – Ensure the quick collection of residues preferably separating them for recycling
- F.2 – Ensure the quick collection of waste deposited on the lakes and water elements

G. Ensure that the maintenance of the park is made according to high quality standards

- G.1 – Ensure the sustainable maintenance of the green structure
- G.2 – Ensure that all buildings, infrastructures (where water elements are included) and equipment are well kept and in good use conditions
- G.3 – Ensure an annual maintenance scheduling according to the features of space and the quality standards of the GFA.

## 4. Environmental Management

H. Ensure the contribution of the park to the application of the Environmental Strategy of the City of Porto

- H.1 – Revise the street lighting of the Park for more environmentally sustainable solutions
- H.2 – Promote the saving of water in the watering system
- H.3 – Promote the renovation of the fleet and the machinery park with electrical solutions
- H.4 – CContinue to support or develop the interest in projects within the scope if sustainability and environmental literacy (e.g. Nursery of the Future/"100.000 trees"; "Ponds with life")

I. Foster the separation of residues by the users

- I.1 - Implement urban furniture solutions for the selective collection of residues

J. Promote the improvement of the environmental performance of the park

- J.1 – Implement and support projects for the improvement of the water quality on the lakes
- J.2 – Foster the saving of resources

## 5. Biodiversity, Landscape and Heritage

K. Ensure the continuity of the presentation of the park as a landscape of reference in the city

- K.1 – Preserve and consolidate the features of each landscape unit which the park comprises
- K.2 – Minimise the effects resulting from the increase of human pressure verified in the mass events

L. Acknowledge the contribution of biodiversity as an element which grants added value to the park, identifying and promoting it

- L.1 – Develop an updated database for the fauna and flora in the Park
- L.2 - Ensuring that the Park has quality habitats for the main identified species

## 6. Community Involvement

M. Involve the community in the celebration of the park

- M.1 - Get to know the community which visits the Park and identify its needs
- M.2 – Ensure the annual scheduling of diversified and balanced events
- M.3 – Develop new projects for the community and support the continuity of the previously implemented projects

## 7. Marketing and Communication

N. Promote the park as a space of reference in the city

- N.1 – Ensure the sharing of updated information in the information channels
- N.2 – Reinforce the publicising of the park and its features
- N.3 – Promote the camellia of the park, an important factor of touristic promotion and valorisation of the city

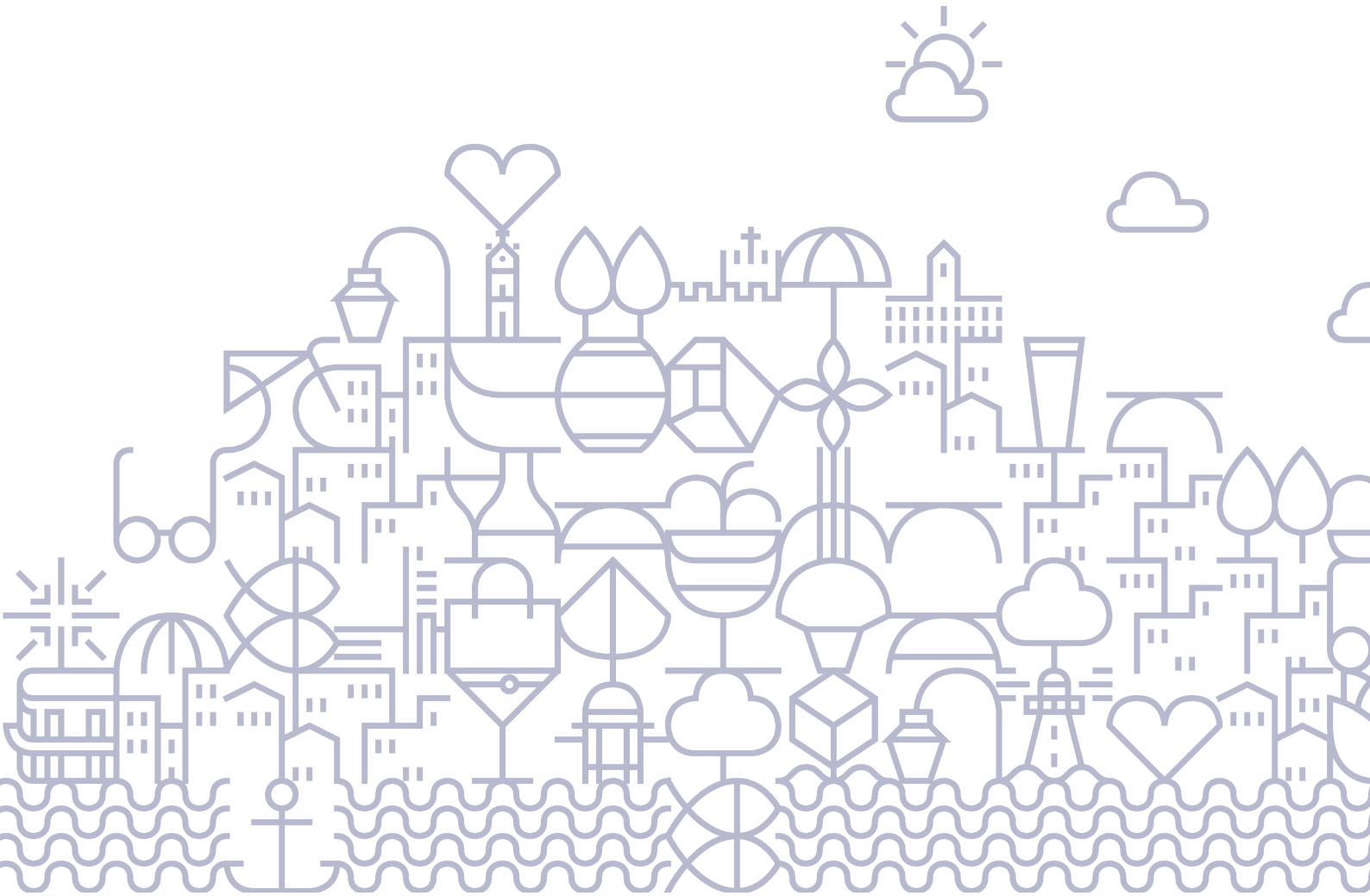
## 8. Management

O. Provide a high quality public service for the City of Porto

- O.1 – Draw up a Management Plan for the City Park, adjusted to the management model of the organic entity CMP
- O.2 – Ensure the fulfilment of the requirements of the management systems in force at the CMP and which apply to the park
- O.3 – Continue the computerisation of the services through integrated applications which support the management (watering network, record of equipment, management of claims, etc.)
- O.4 – Ensure that all elements which intervene in the management are aware of their responsibilities

## 3.3.1 Recommendations

During the process of development of this Management Plan, a set of recommendations and warnings was gathered; these were considered fundamental to ensure the quality of the City Park (Annex 36).
These recommendations are much related to the goals and objectives for the prosecution of the vision of the park. As an example, in order to fulfil the goal of acknowledgement of the added value of the biodiversity of the park, it is recommended to identify the main habitats for structuring flora and fauna and the articulation of habits and life cycles of the species with the maintenance operations. It is also recommended that all municipal communication channels for disclosure of information on the park are updated, in such a way as to enable the continuous stating/promotion of it as an active asset to the northern metropolitan territory.



# IV. How are we going to get there?

4.1 Action Plan

4.2 Financial Plan

# 4.1 Action Plan

The actions forecasted in the "Action Plan 2019-2023" (Annex 4), aim at resolving the problems identified during the process of pre-enrolment, as well as to cover the main weaknesses and threats identified in the SWOT Analysis (chapter 3.2), gathering a set of actions considered important for the benefit of each section of the Green Flag Award. Particular attention was paid to the response to the fragilities detected, namely at the level of creation of contents and facilities to maximize the experience of the visitor, the development of fundamental documents for the management of particular elements/spaces, the consolidation of the landscape of the park and regarding the knowledge on the users of the park.

The responsibility for the fulfilment of the actions of this plan falls on the DMCIGF, with the exception of Action "B.1.1 – Distribution of traffic signs in the city", of the responsibility of the DMST, with the DMEVGI in charge of monitoring and assuring its correct fulfilment.

This plan integrates all budgetable actions, organised according to the sections of the Green Flag Award, with correspondence between goals and objectives established (chapter 3.3) and the code of action. One must highlight the materialisation of an action because it is divided into phases, with a financial allocation for several years.

Within the scope of this plan, some actions deserve a prominent place, not necessarily due to the financial input involved, but due to the potential effect they might have on the park, namely:

**i)** development of contents and facilities to maximize the visitor's experience, one of the main fragilities detected, whose resolution will bring benefits regarding the possibility to enjoy that which the park has of best. Over the last few months, the following projects have been developed:

1) establishment of a Visitors' Welcoming Centre in the pre-existing support building, located at the Entrance of Circunvalação (Guard's House), in 2020 (Action A.1.1 – Action Plan, Annex 4);
2) development of contents rendered available in physical supports, namely the leaflet which will come into circulation during this year, as well as booklets and leaflets (Actions N.2.1, N.2.2 and N.3.1 of the Action Plan, Annex 4);

**ii)** intervention which will prepare an area of the park to welcome big events which exert strong human pressure on the park (Action K.2.1- Action Plan, Annex 4). It will also allow to conclude the connection of the park with the beach, harmonising the landscape in both areas. This work foresees the conclusion of the modelling and partition, through the plantation of vegetation in the Northwest side of the Park, which finishes by the "Queimódromo" and the Via do Castelo do Queijo and the north slope of lake III. The project for this intervention will be elaborated in 2019, with its implementation being programed for the same year, extending until the year 2020;

**iii)** the study on the features of the users of the park, needs, expectations and behaviours on the park. The performance of this study is forecasted for the year 2019, with the recommendation to have it repeated in 2024, when a new Action Plan comes into force;

**iv)** monitoring of the evolution and consolidation of the landscape of the park through a set of interventions thought and coordinated by its designer. Of these interventions, one must highlight: i) intervention in the natural amphitheatre and the lateral stay to its path, programmed for the years of 2020 and 2021 (Action K.1.3 – Action Plan, Annex 4); and ii) the conclusion of the *Camellias Spot*, with the creation of a puddle, the introduction of new rock elements and new plantations, planned for 2019 (Action K.1.4 – Action Plan, Annex 4).

Other punctual investments, but which may have a big impact on the park and in the dynamics of usage are:

**i)** the "Action Plan for the Biodiversity of the City Park", which will enable to increase knowledge on the species which inhabit the park, hence enabling the adequacy of the habits and life cycles with the actions foreseen in the Maintenance Plan;

**ii)** the execution of the interventions forecasted in the "Arboriculture Plan of the City Park", in the sense of ensuring the safety of the users. So being, there is a proposal for the interventions of urgent priority to be executed in 2019, those of moderate priority to be made between 20250 and 2021 and the priorities of lowest priority in 2022 and 2023;

**iii)** the publication of the "Guide for the landscape conservation of the City Park", by Sidónio Pardal, where one can reflect on the future of the park and the way to perpetuate a non codified and free landscape.

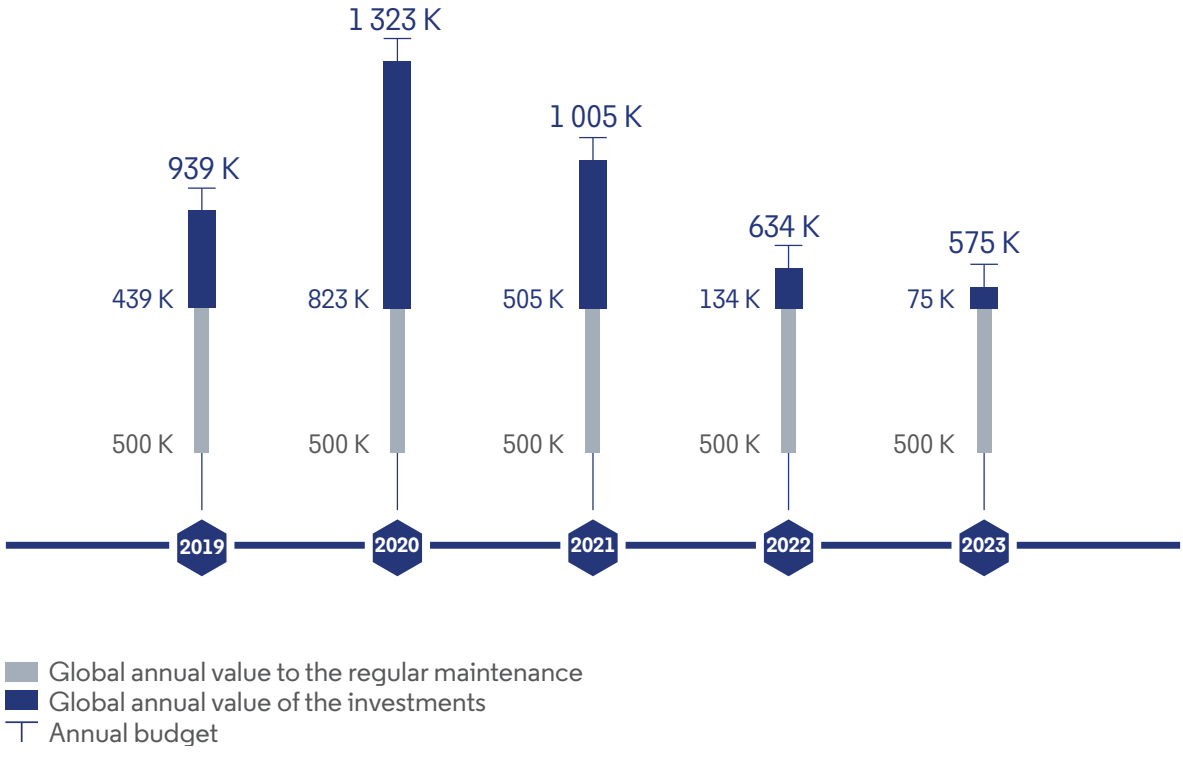
# 4.2 Financial Plan

The financial plan is distributed by two: the investments, which correspond to the actions to valorise the park, forecasted in the Action Plan, for the years of 2019-2023 (global annual value of the investments) and the value attributed to the regular maintenance where one may include the care with cleaning, small repairs (watering network, machinery, etc.), plantations, seasonal cultural operations, workforce, services, etc.; in sum, all the actions of mandatory execution for the minimum conservation of the City Park (global annual value to the regular maintenance).

According to the data presented by the technical team of the CMP, the annual amount attributed to the maintenance of regular activities of the City Park is of around €500 000,00, which corresponds to €41 667,00/month, representing an amount of €0,71/ $m^2$/year. Given the dimension and the relevance of this park for the city and the country, this amount is considerably inferior to that which is applied to other green spaces of the same dimension or importance in the area where they are inserted.

Figure 32 illustrates the budget distribution for the five years this management plan will run, where there is the constant value attributed to the current maintenance and the variable value associated to the investment. The years with bigger investment are those of 2020 and 2021. These amounts are especially owed to Action "D.1.1 – Development and valorisation of the sports area" (Action Plan, Annex 4) associated to section 2.2 (Healthy, Safe and Secure). For 2020, there is the forecast for the intervention phase of another action with a heavy budget weight - "K.2.1 – Modelling and partitioning in the Northwest of the Park, which finishes with the "Queimódromo" and the Via do Castelo do Queijo", associated to section 2.5 (Biodiversity, Landscape and Heritage).

**Figure 32 - Global Annual Budget for the preservation, maintenance and valorization of the City Park, for the period comprised between 2019 and 2023. (1K = 1000€)**

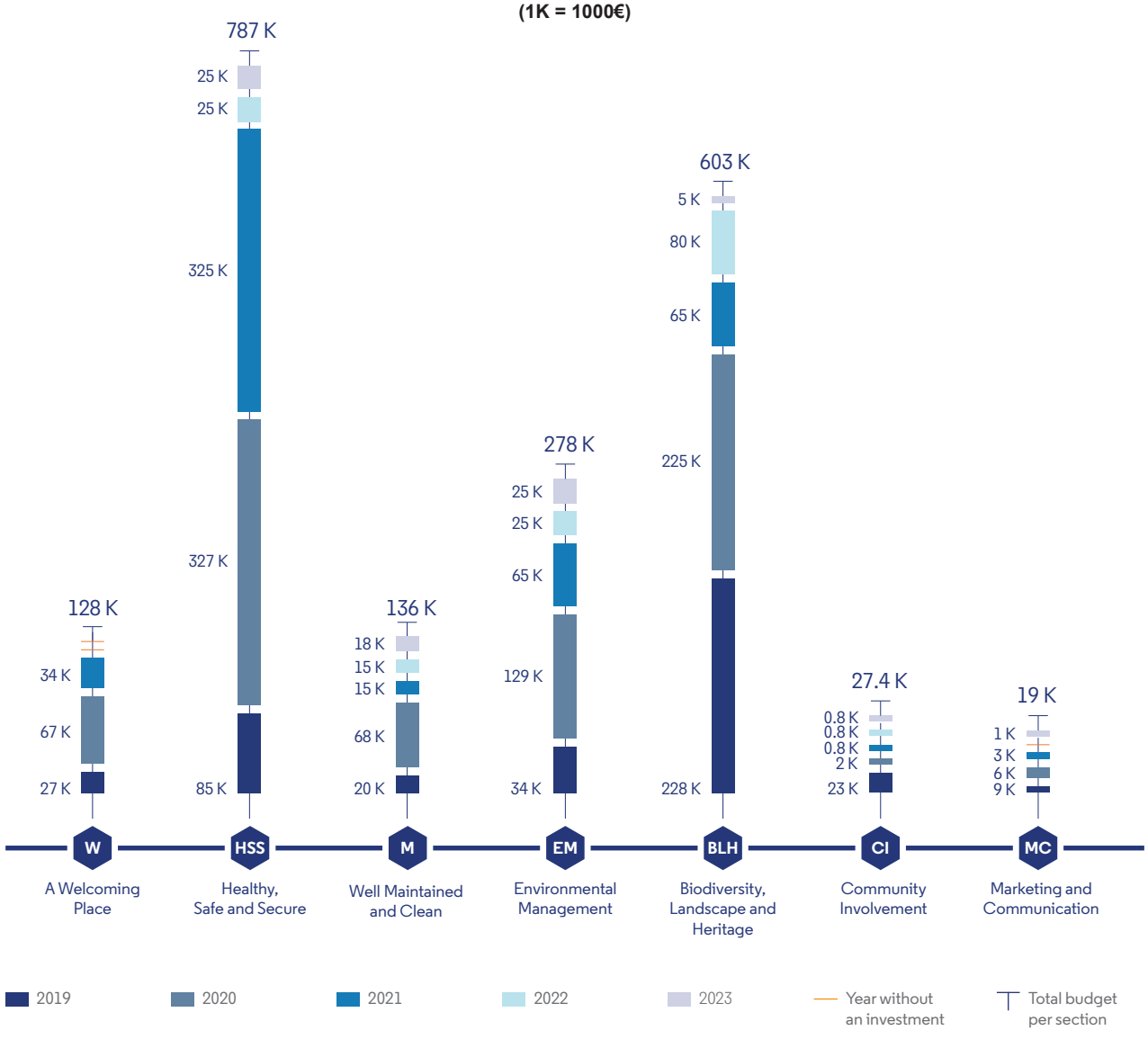


These two actions justify the bigger investment associated to sections 2.2 (Healthy, Safe and Secure) and 2.5 (Biodiversity, Landscape and Heritage), when compared to the other five sections presented (Figure 33).

The first year of the management plan, 2019, despite not having a more expressive investment value, is the year which gathers the highest number of programmed actions (Action Plan, Annex 4). It is also during this year that there is the forecast of **i)** a phase of project/ study of the varied actions; **ii)** the concentration of the main efforts at the level of information which maximizes the experience of the visitor; and **iii)** the execution of actions within the scope of improvement of the landscape quality, which justifies the bigger budget allocation to the section 2.5 (Biodiversity, Landscape and Heritage).

Although associated to a budget amount quite inferior to sections 2.6 (Community Involvement) and 2.7 (Marketing and Communication), when compared to the remaining sections, these were not left unattended, given that there are several actions forecasted which are, however, of a more immediate nature and which are not associated to high costs.

**Figure 33 - Estimation of the annual amount invested in each section of the GFA, in the City Park, for the period of 2019-2023. (1K = 1000€)**



# V. How do we know we have arrived?

## 5.1 Monitoring

# 5.1 Monitoring

The follow-up through monitoring is essential and its materialisation is forecasted at three levels:

- Revision of the Management Plan
- Monitoring of the fulfilment of the actions forecasted in the Action Plan
- Monitoring of the Maintenance Plan for Green Spaces
- Monitoring of the Conservation Plan for Infrastructures and Equipment

The revision of the Management Plan, in an annual frequency, intends to ensure that the alterations to the organics of the CMP and the management dynamics of the management of the City Park are properly updated, as well as to assure that goals and objectives are fulfilled. The monitoring of the actions forecasted in the Action Plan, on an annual basis, will enable the verifying of the fulfilment of the actions proposed, as well as the performance of the readjustments which reveal themselves necessary

The monitoring of the “Maintenance Plan for Green Spaces” and the “Conservation Plan for Infrastructures and Equipment” is already practiced by the responsible technician, by means of the frequent visits to the location and the further communication with the head of the department; it is also done by the follow-up of the monthly “Record of the works performed in green spaces”, as well as the “Record Chart for the Conservation of Infrastructures and Equipment”. The monitoring of the records allows verifying whether the “Maintenance Plan for Green Spaces” and the “Conservation Plan for Infrastructures and Equipment” are properly fulfilled.

# Bibliography

CABE Space (2004). *A guide to producing park and green space management plans*. London: CABE Space.

Cláudio, M. (2016). *Parque da Cidade*. Publicação produzida para a exposição "O Parque da Cidade". Porto: Câmara Municipal do Porto.

Câmara Municipal do Porto (CMP) (2016). *Estratégia Municipal de adaptação às Alterações Climáticas (EMAAC)*. Porto: Pelouro da Inovação e Ambiente.

Câmara Municipal do Porto (CMP) (2018a). Apresentação ao 3º ano da licenciatura em Arq. Paisagista, unidade curricular Gestão de Espaços Exteriores, FCUP. Porto: Divisão Municipal de Parques Urbanos.

Câmara Municipal do Porto (CMP) (2018b). *Parque da Cidade do Porto – Declaração Ambiental. 1ª Atualização*. Porto: Divisão Municipal de Parques Urbanos.

Daveau, S. (1995). Portugal Geográfico. Lisboa: JSC.

Ellicott, K. (2016). *Raising the standard. The Green Flag Award guidance manual*. London: Keep Britain Tidy.

Energia Fundamental (2015). *Caraterização da Avifauna e da Ictiofauna associada aos 4 lagos do Parque da Cidade do Porto*. Relatório Final. Matosinhos: Energia Fundamental.

Energia Fundamental (2014). *Caraterização da Avifauna e da Ictiofauna associada aos 4 lagos do Parque da Cidade do Porto*. Relatório de Caraterização do Sistema de Alimentação e Escoamento de Água dos Lagos. Matosinhos: Energia Fundamental.

Farinha-Marques, P., Fernandes C., Guilherme F.; Lameiras J.M., Bunce R. (2014). *Morfologia e Biodiversidade nos Espaços Verdes da Cidade do Porto – Livro I – Seleção das Áreas de Estudo* (2ª edição). Porto: CIBIO. ISBN 978-989-98732-2-3

Farinha-Marques, P., Fernandes C., Guilherme F.; Lameiras J.M., Bunce R. (2015). *Morphology and Biodiversity – Livro II – Habitat Mapping and Characterization*. Porto: CIBIO. ISBN 978-989-98732-4-7

Pardal, S. (2006). *Parque da Cidade Porto – Ideia e Paisagem* (2ª ed.) Lisboa: GAPTEC.

Saraiva, S., Macedo F., Nascimento A., Monteiro P., Rocha S., Ribeiro S., Sousa H., Martins L.P. (2017). *Estudo Fitossanitário e Inventários das Árvores dos Parques do Porto – Deliverable 4 – Parque da Cidade.* Vila Real: UTAD.

Turismo do Porto e Norte de Portugal (TPNP) (2015). *Ciclovias, Ecopistas e Ecovias do Norte de Portugal.* Viana do Castelo: Tpnp.

# Webography

Câmara Municipal do Porto (CMP) (2018c). *A estratégia para o Ambiente*. Disponível em: http://www.cm-porto.pt/ambiente/cmp-da-atencao-especial-ambiente. Consultado em: dezembro de 2018).

Câmara Municipal do Porto (CMP) (2019a). *Pavilhão da Água reabre ao público no próximo sábado totalmente requalificado*. Disponível em: http://www.porto.pt/noticias/pavilhao-da-agua-reabre-ao-publico-no-proximo-sabado-totalmente-requalificado?fbclid=IwAR0UoVBoIPiLq7UBu6RBT7SVjK55qBN75185mCjj-TTWBik-Wmqtzrex0cc (Consultado em: fevereiro, 2019).

Câmara Municipal do Porto (CMP) (2019b). Parque Ocidental da Cidade. Disponível em: http://www.cm-porto.pt/jardins-e-parques-urbanos/parque-da-cidade_25 (Consultado em: fevereiro de 2019).

Câmara Municipal do Porto (CMP) (2019c). Portal de Notícias do Porto. Disponível em: http://www.porto.pt/ (Consultado em: fevereiro, 2019).

Pinto, S. (2013). *Notas sobre o Edifício Transparente*. Disponível em: https://issuu.com/samuelpinto/docs/edificiotransparente (Consultado em: fevereiro de 2018).

Visit Porto (2015). *Porto*. Disponível em: http://visitporto.travel/Negocios/Paginas/Porque/CidadePorto.aspx?Artigo=28&SubAreaType=6&SubArea=51 (Consultado em: fevereiro de 2019).

Visit Porto (2013). *Geografia e Localização*. Disponível em: http://visitporto.travel/MaisPorto/Paginas/Geografia/artigo.aspx?artigo=154 (Consultado em: fevereiro de 2019).

# Photo Credits

**Arquivo Municipal**
Figura 2: a, b, c

**Catarina Teixeira Fernandes**
Figura 6: a, b, c; Figura 7: a, b; Figura 9: a, c; Figura 10: a, b, c; Figura 11: c; Figura 12: a, b; Figura 14: a; Figura 17: c; Página 43; Figura 23; Figura 25: a; Figura 31: a; Página 67; Página 83; Página 90

**Cláudia Oliveira Fernandes**
Página 2; Página 10; Página 19; Figura 11: a; Figura 15: a, b; Figura 17: a, b; Página 30; Figura 18: a; Figura 19; Figura 21: a; Página 45; Figura 24: a, c; Figura 25: b; Figura 27: c; Figura 31: c; Página 68; Página 72; Página 80

**Filipa Guilherme**
Página 94

**Inês Vasconcelos Luís**
Figura 8: a, b, c; Figura 10: d; Figura 13: b; Figura 14: b; Figura 16: a; Figura 22: a, b; Figura 31: b;

**Isabel Leal**
Figura 6: d; Figura 7: c; Figura 9: b; Figura 10: e; Figura 13: a; Página 28; Figura 18: b, c; Página 33; Figura 21: b; Página 47; Página 51; Figura 25: c; Página 69; Página 73; Página 76; Página 82;

**Jorge Garcia**
Página 13; Figura 11: b; Figura 16: b, c; Página 38; Página 41; Página 52; Figura 24: b; Figura 27: a, b;

**Câmara Municipal do Porto (2019). *Horta Pedagógica*. Disponível: http://www.cm-porto.pt/oficinas-permanentes-para-escolas/horta-pedagogica (Consultado em: março de 2019)**
Figura 29: b

**NiT (2018). *NOS Primavera Sound já tem bandas distribuídas por dias*. Disponível em: https://nit.pt/coolt/musica/nos-primavera-sound-ja-bandas-distribuidas-dias (Consultado em: março de 2019)**
Figura 28

**Organic Porto (2017). *Feira de Produtos Biológicos Porto*. Disponível em: https://www.facebook.com/organicporto/photos/a.166760549684654/2030826103857923/?type=3&theater (Consultado em: março de 2019).**
Figura 29: c

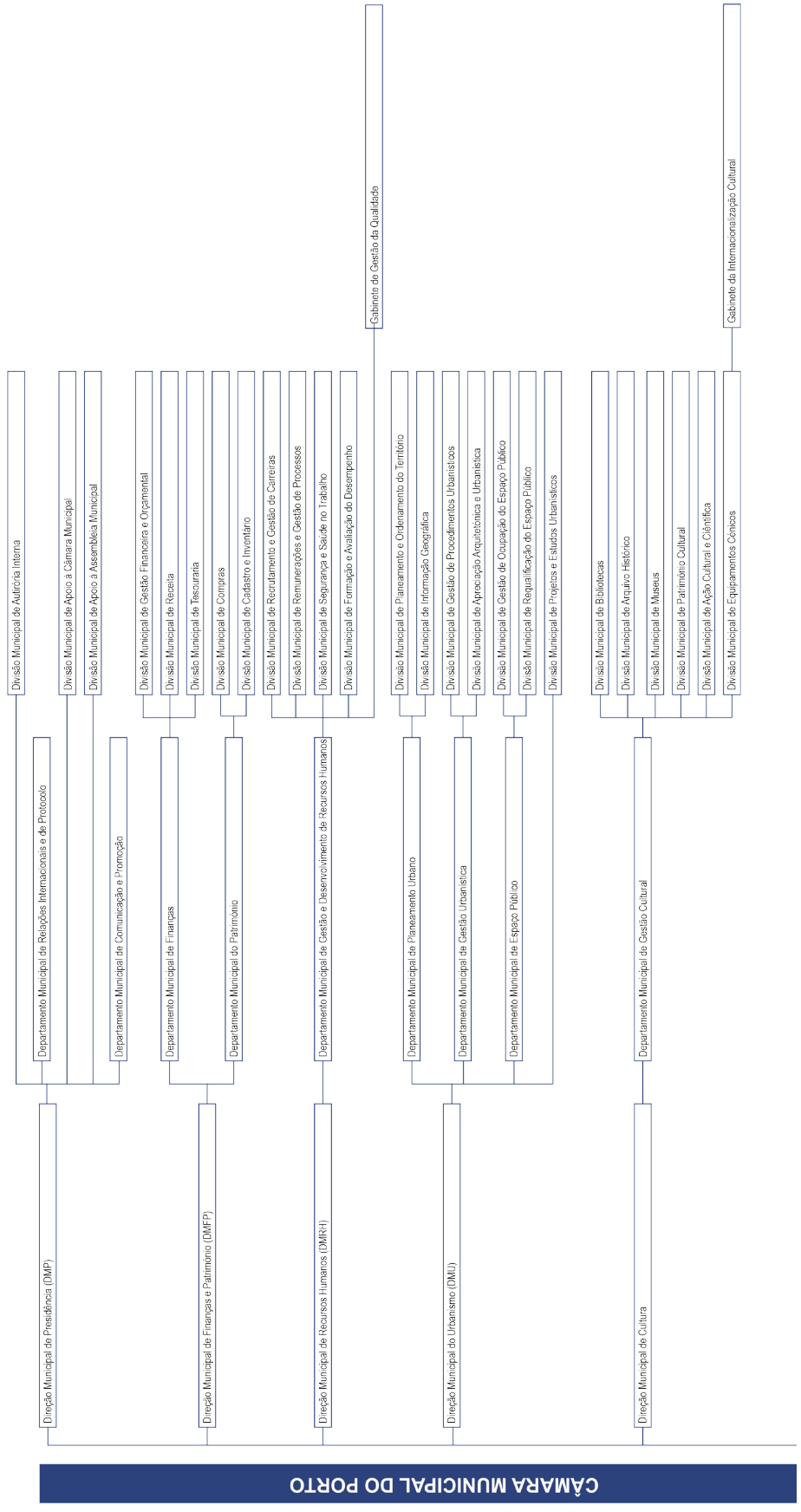
**Porto Lazer (2018) *Aqua Porto 2018*. Disponível em: https://www.facebook.com/pg/portolazer/photos/?tab=album&album_id=1207392849428532. (Consultado em: fevereiro de 2019)**
Página 57; Página 62

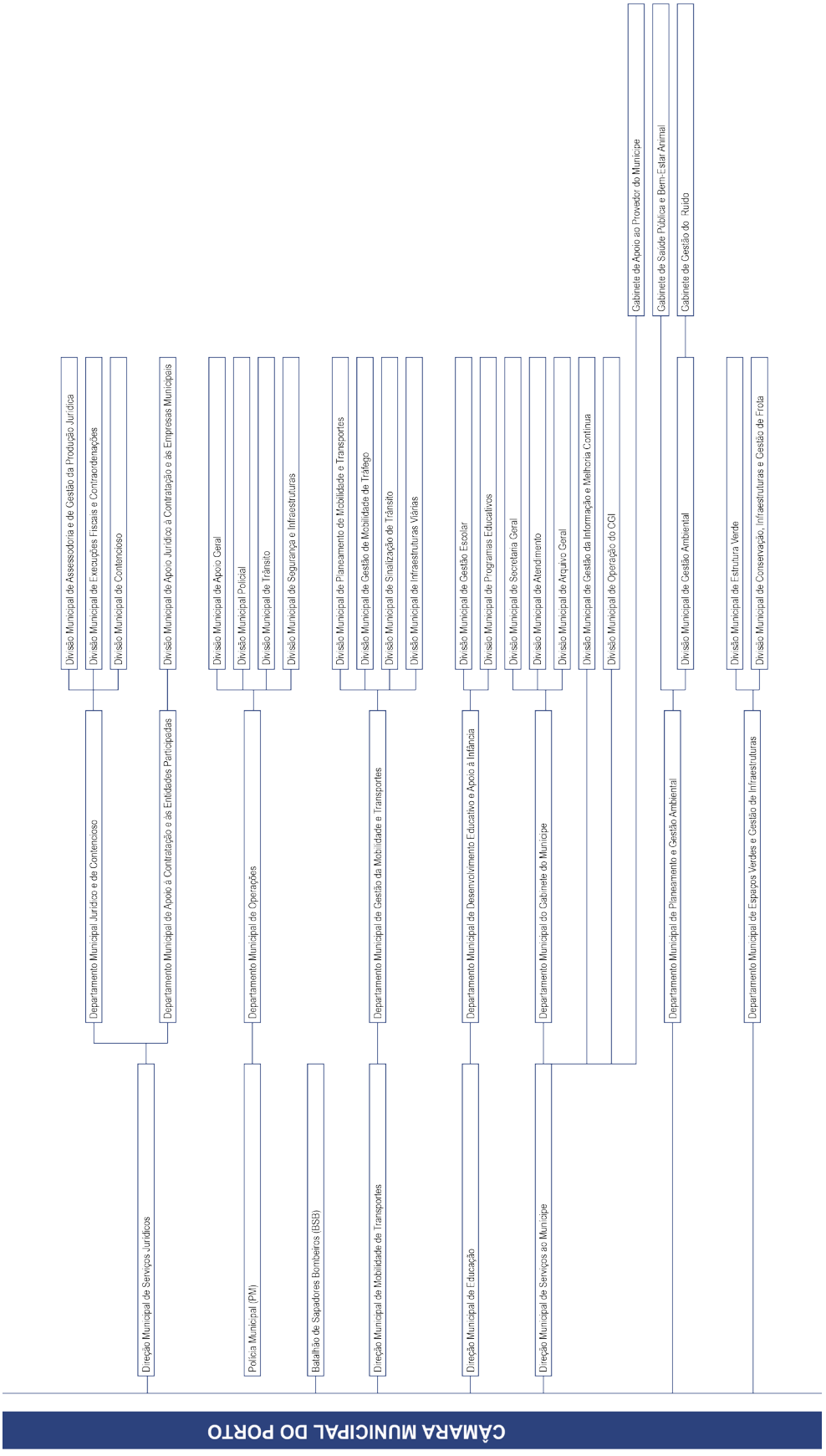
**Porto Lazer (2017). *NOS Primavera Sound*. Disponível em: https://www.facebook.com/portolazer/photos/a.903834083117745/903835346450952/?type=3&theater (Consultado em: março de 2019)**
Página 63

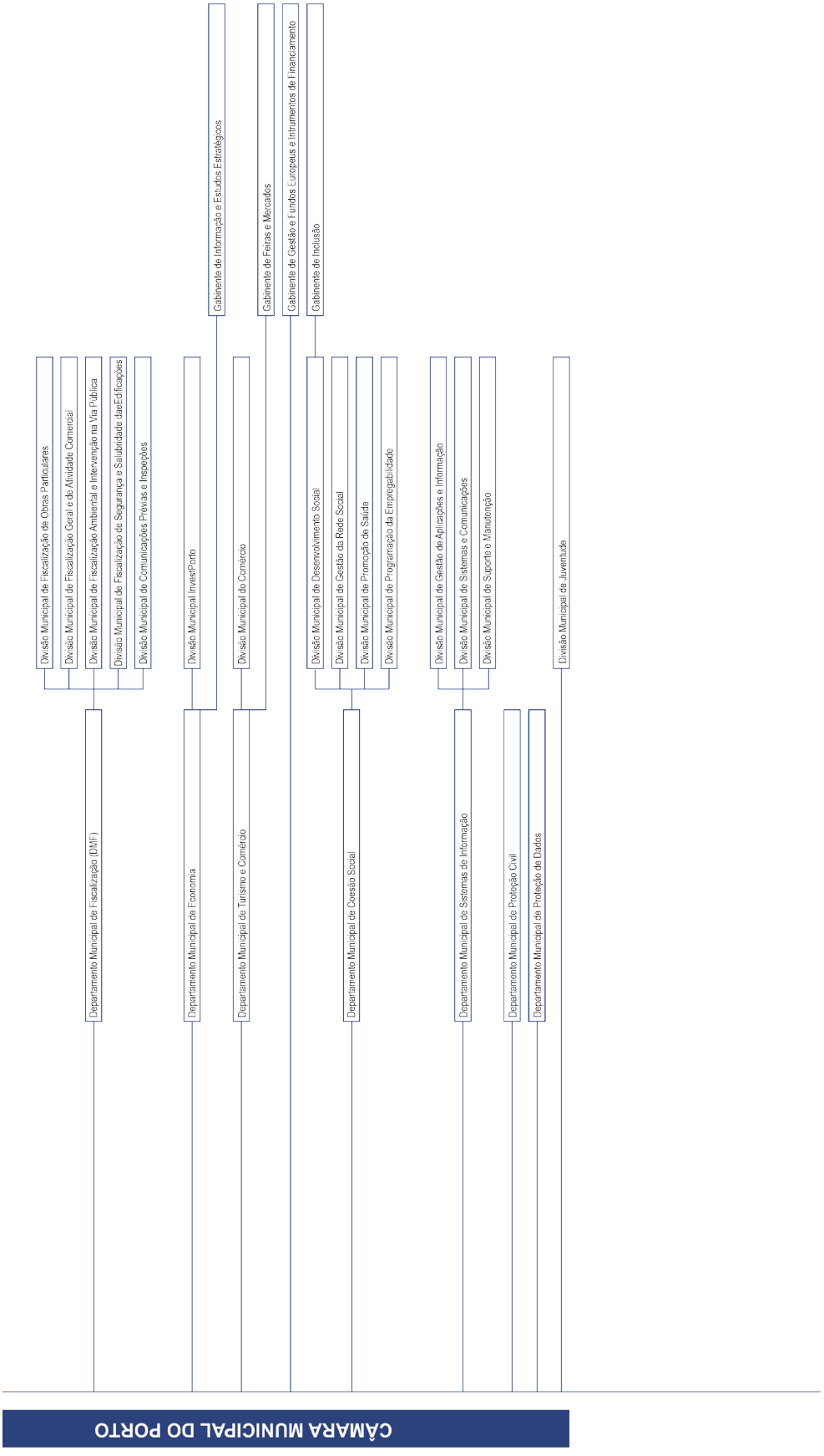
**Porto Lazer (2014). *Dias com Energia* – 12 e 13 de julho. Disponível em: https://www.facebook.com/pg/portolazer/photos/?tab=album&album_id=327609054073587 (Consultado em: março de 2019).**
Figura 29: a

# Annexes

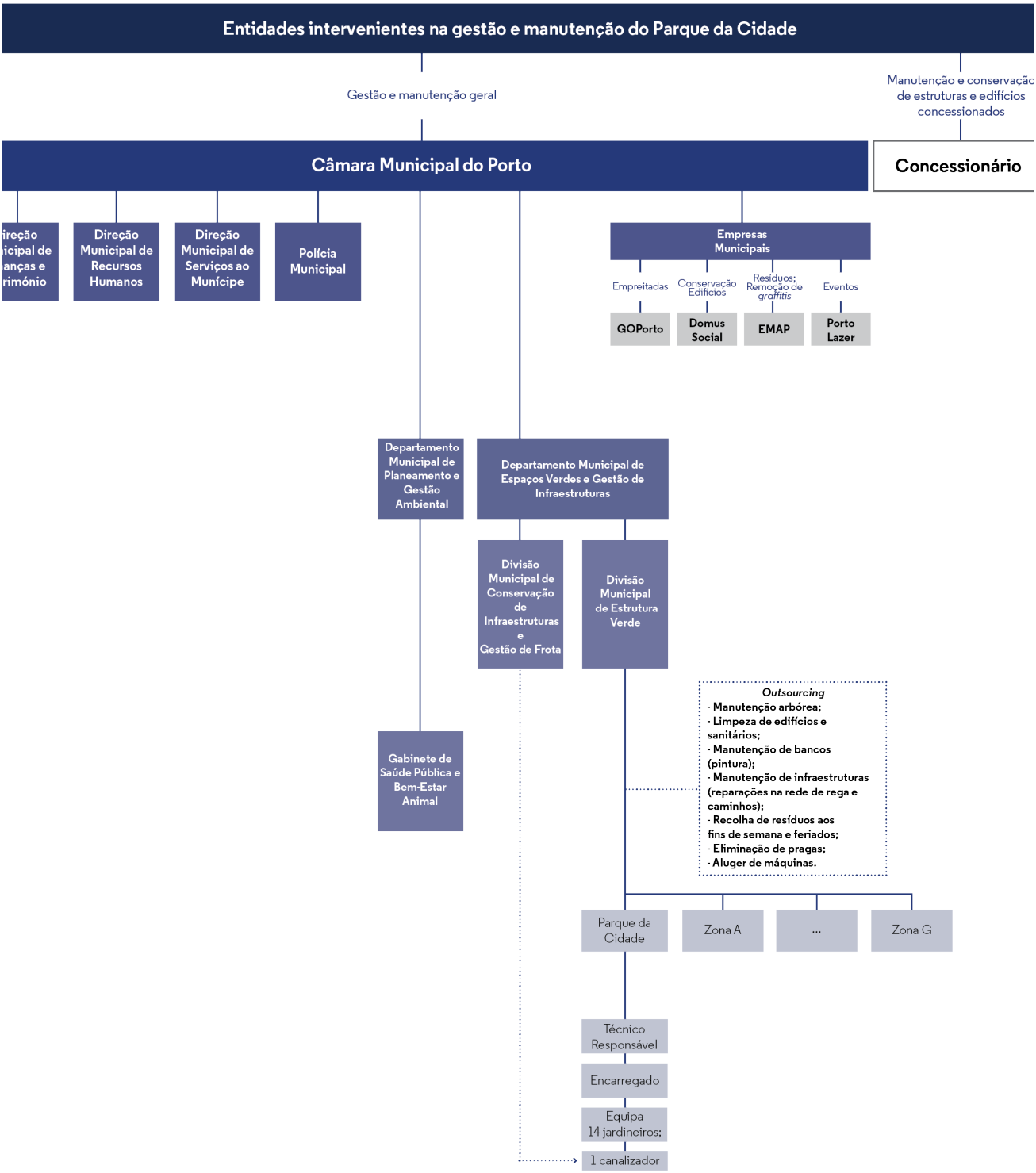
# Annex 1 - Internal Organic Structure of the Porto City Council (MACRO)




CÂMARA MUNICIPAL DO PORTO
Direção Municipal de Serviços Jurídicos
Departamento Municipal Jurídico e de Contencioso
Divisão Municipal de Assessodoria e de Gestão da Produção Jurídica
Divisão Municipal de Execuções Fiscais e Contraordenações
Divisão Municipal de Contencioso
Departamento Municipal de Apoio à Contratação e às Entidades Participadas
Divisão Municipal de Apoio Jurídico à Contratação e às Empresas Municipais
Polícia Municipal (PM)
Departamento Municipal de Operações
Divisão Municipal de Apoio Geral
Divisão Municipal Policial
Divisão Municipal de Trânsito
Divisão Municipal de Segurança e Infraestruturas
Batalhão de Sapadores Bombeiros (BSB)
Direção Municipal de Mobilidade de Transportes
Departamento Municipal de Gestão da Mobilidade e Transportes
Divisão Municipal de Planeamento de Mobilidade e Transportes
Divisão Municipal de Gestão de Mobilidade de Tráfego
Divisão Municipal de Sinalização de Trânsito
Divisão Municipal de Infraestruturas Viárias
Direção Municipal de Educação
Departamento Municipal de Desenvolvimento Educativo e Apoio à Infância
Divisão Municipal de Gestão Escolar
Divisão Municipal de Programas Educativos
Direção Municipal de Serviços ao Munícipe
Departamento Municipal do Gabinete do Munícipe
Divisão Municipal de Secretaria Geral
Divisão Municipal de Atendimento
Divisão Municipal de Arquivo Geral
Divisão Municipal de Gestão da Informação e Melhoria Contínua
Divisão Municipal de Operação do CGI
Departamento Municipal de Planeamento e Gestão Ambiental
Divisão Municipal de Gestão Ambiental
Divisão Municipal de Estrutura Verde
Departamento Municipal de Espaços Verdes e Gestão de Infraestruturas
Divisão Municipal de Conservação, Infraestruturas e Gestão de Frota
Gabinete de Apoio ao Provedor do Munícipe
Gabinete de Saúde Pública e Bem-Estar Animal
Gabinete de Gestão do Ruído


CÂMARA MUNICIPAL DO PORTO
Departamento Municipal de Fiscalização (DMF)
Divisão Municipal de Fiscalização de Obras Particulares
Divisão Municipal de Fiscalização Geral e de Atividade Comercial
Divisão Municipal de Fiscalização Ambiental e Intervenção na Via Pública
Divisão Municipal de Fiscalização da Segurança e Salubridade daeEdificações
Divisão Municipal de Comunicações Prévias e Inspeções
Departamento Municipal de Economia
Divisão Municipal InvestPorto
Gabinete de Informação e Estudos Estratégicos
Departamento Municipal de Turismo e Comércio
Divisão Municipal do Comércio
Gabinete de Feiras e Mercados
Departamento Municipal de Coesão Social
Divisão Municipal de Desenvolvimento Social
Divisão Municipal de Gestão da Rede Social
Divisão Municipal de Promoção de Saúde
Divisão Municipal do Programação da Empregabilidade
Gabinete de Gestão e Fundos Europeus e Intrumentos de Financiamento
Gabinete de Inclusão
Departamento Municipal de Sistemas de Informação
Divisão Municipal de Gestão de Aplicações e Informação
Divisão Municipal de Sistemas e Comunicações
Divisão Municipal de Suporte e Manutenção
Departamento Municipal de Proteção Civil
Departamento Municipal de Proteção de Dados
Divisão Municipal da Juventude

# Annex 2 - Organisation chart for the units which belong to the Porto Municipal Council, municipal companies and external entities with responsibility in the management and maintenance of the City Park



# Annex 3 - Master Plan for the City Park

# Annex 4 - Action Plan (2019-2023)

## Action Plan for the City Park

| | | | GFA Parameter | Responsibility | Quantity | Total cost of the action in 5 years | Year | | | | | Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2019 | 2020 | 2021 | 2022 | 2023 | |
| W | A. Ensure that the visitors of the park are welcomed | | | | | | | | | | | |
| | A.1 | A.1.1 - Establishment of a Visitor's Welcoming Centre in the pre-existing support building, located at the Entrance of Circunvalação (Guard's House). | 1 | DMEVGI | 1 | € 28 000,00 | 8 000,00€ (Preparation) | 20 000,00 € (Intervention) | | | | |
| | A.2 | A.2.1 - Installation of interpretative panels, in a wooden frame, at the main entrances of the City Park (North, Boavista, Columns and Beach), which comprise: name of the park, updated map, history and evolution of the Park, importance in the MAP, some information on biodiversity, amenities, paths, timetable, usage guidelines and contacts (DMEV and municipal emergencies). Dimensions: 170x170cm | 1, 3, 7 | DMEVGI | 4 | 5 000,00 € | 5 000,00 € | | | | | |
| | | A. 2.2 - Renewal of the existing sign of the Portuguese Order of Engineers. | 1, 3 | DMEVGI | 1 | € 500,00 | € 500,00 | | | | | |
| | | A.2.3 - Replacement of the current map of the park in the P1 signs (elements distributed at the inside of the park) with the updated map, according to the proposal of Professor Sidónio Pardal, including contacts (DMEV and municipal emergencies). Dimensions: 170x120cm | 3 | DMEVGI | 4 | € 3 100,00 | € 3 100,00 | | | | | |
| | | A.2.4 - Project to replace the gate at the Circunvalação entrance. | 1, 7 | DMEVGI | __ | 75 000,00 € | 7 500,00 € (Project) | 33 750,00 € (Stage I) | 33 750,00 € (Stage II) | | | |
| | | A.2.5 - Placement of gate and decorative railing at the entrance of the rural centre (Soundwich). | 1, 7 | DMEVGI | __ | 15 000,00 € | 1 500,00 € (Project) | 13 500,00 € (Stage I) | | | | |
| | B. Ensure that the City Park is accessible to all | | | | | | | | | | | |
| | B.1 | B.1.1 - Distribution of traffic signs in the city. | 3 | DMST | 1 | 140,00 € | 140,00 € | | | | | |
| | | | | | | TOTAL OF ACTIONS FORECASTED FOR THIS SECTION (A WELCOMING PLACE) | 7 | 3 | 1 | 0 | 0 | |
| HSS | D. Ensure that the City Park is a safe recreational place and promotes healthy life habits. | | | | | | | | | | | |
| | D.1 | D.1.1 - Development and valorisation of the sports area. | 5 | DMEVGI | __ | 660 000,00 € | 60 000,00 € (Project) | 300 000,00 € (Intervention) | 300 000,00 € (Intervention) | | | |
| | D.2 | D.2.1 - Implement the interventions defined in the "Arboriculture Plan of the City Park" | 11, 7 | DMEVGI | __ | 125 000,00 € | 25 000,00 € | 25 000,00 € | 25 000,00 € | 25 000,00 € | 25 000,00 € | |
| | D.4 | D.4.1 - Placement of a mechanical barrier such as the "Proteco Barreiras Park Plus", in the access to the former Ecocentre. | 7, 20 | DMEVGI | 1 | € 1 500,00 | | € 1 500,00 | | | | |
| | | D.4.2 - Creation of an "Annual Inspection Programme for the safety of the rock structures of the City Park" with specialised technical support. | 6, 7 | DMEVGI | __ | 200,00 € | 200,00 € | | | | | |
| | | | | | | TOTAL OF ACTIONS FORECASTED FOR THIS SECTION (HEALTHY, SAFE AND SECURE) | 3 | 3 | 2 | 1 | 1 | |
| M | G. Ensure that the maintenance of the park is made according to high quality standards | | | | | | | | | | | |
| | G.1 | G.1.1 - Execution of operations resulting from the evolution of the plant cover of the Park: plantations, cuttings (for reasons other than those regarding safety) and removal of vegetation. | 11 | DMEVGI | __ | 75 000,00 € | 15 000,00 € | 15 000,00 € | 15 000,00 € | 15 000,00 € | 15 000,00 € | |
| | G.2 | G.2.1 - Performance of improvement works in the restrooms closer to the administrative building. | 12 | DMEVGI | __ | 50 000,00 € | 5 000,00 € (Project) | 45 000,00 € (Intervention) | | | | |
| | | G.2.2 - Creation of a coffer with a water filtration system for lake II, aiming at the improvement of the quality of the water used in irrigation. | 10, 12 | DMEVGI | __ | 8 000,00 € | | 8 000,00 € | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | G.2.3 - Standardisation of the furniture placed at the Beach entrance with that which is placed in the Park, when its life span finishes. | 13 | DMEVGI | __ | 3 000,00 € | | | | | 3 000,00 € | |
| | | TOTAL OF ACTIONS FORECASTED FOR THIS SECTION (WELL MAINTAINED AND CLEAN) | | | | | 2 | 3 | 1 | 1 | 2 | |
| EM | | H. Ensure the contribution of the City Park to the the application of the Environmental Strategy of the City of Porto | | | | | | | | | | |
| | H.1 | H.1.1 - Renewal and remodelling of the street lighting of the Park. | 7,14 | DMEVGI | __ | 110 000,00 € | 30 000,00 € (Study and Intervention) | 40 000,00 € (Intervention) | 40 000,00 € (Intervention) | | | . |
| | H.2 | H.2.1 - Improvement intervention in the watering system.<br>- Repairing leaks<br>- Revising the watering sectors in order to follow the partition planned for the space | 14, 18 | DMEVGI | __ | 70 000,00 € | 10 000,00 € (Study) | 15 000,00 € (Intervention) | 15 000,00 € (Intervention) | 15 000,00 € (Intervention) | 15 000,00 € (Intervention) | |
| | H.3 | H.3.1 - Acquisition of electrical equipment to help with the maintenance operations. (E.g.: blower, hedge trimmer, chainsaw, grass trimmer). | 14 | DMEVGI | __ | 50 000,00 € | 10 000,00 € | 10 000,00 € | 10 000,00 € | 10 000,00 € | 10 000,00 € | |
| | | I. Foster the separation of residues by the users | | | | | | | | | | |
| | I.1 | I.1.2 - Replacement of the end of life rubbish bins, in previously identified strategic points, with solutions which foster the selective collection of residues. | 9, 14, 15 | DMEVGI | 20 | 5 700,00 € | 2 850,00 € | 2 850,00 € | | | | |
| | | J. Promote the improvement of the environmental performance of the park | | | | | | | | | | |
| | J.1 | J.1.1 - Ventilation of the headwaters of lake I. | 14 | DMEVGI | __ | 60 500,00 € | | 60 500,00 € | | | | |
| | | TOTAL OF ACTIONS FORECASTED FOR THIS SECTION (ENVIRONMENTAL MANAGEMENT) | | | | | 4 | 5 | 3 | 2 | 2 | |
| BLH | | K. Ensure the continuity of the presentation of the park as a landscape of reference in the city | | | | | | | | | | |
| | K.1 | K.1.1 - Preparation of a "Guide for the landscape conservation of the City Park". | 10, 19, 20 | DMEVGI | __ | 20 000,00 € | 20 000,00 € | | | | | |
| | | K.1.2 - Intervention in the "dirty area", in the far northeast (old construction site): construction of a shed for the parking of machinery and landscaping of the area of intervention. | 13, 20 | DMEVGI | __ | 35 000,00 € | 35 000,00 € | | | | | |
| | | K.1.3 - Conclusion of the amphitheatre and the Lateral Staircase to the path. | 20 | DMEVGI | __ | 20 000,00 € | | 10 000,00 € | 10 000,00 € | | | |
| | | K.1.4 - Conclusion of the *Camellias Spot* . | | | | | | | | | | |
| | | K.1.4.1 - Correction of the soil by placing sand. | 10, 18 | DMEVGI | __ | 3 000,00 € | 3 000,00 € | | | | | |
| | | K.1.4.2 - Creation of puddles | 14, 18, 20 | DMEVGI | __ | 5 000,00 € | 5 000,00 € | | | | | |
| | | K.1.4.3 - Implementation of the rock elements | 10, 20 | DMEVGI | __ | 1 000,00 € | 1 000,00 € | | | | | |
| | | K.1.4.4 - Plantations | 10 | DMEVGI | __ | 3 000,00 € | 3 000,00 € | | | | | |
| | | K.1.5 - Placement of wood shingles in the curbstone of lake I (for the modelling adjustment) | 20 | DMEVGI | __ | 6 000,00 € | 6 000,00 € | | | | | |
| | | K.1.6 - Dredging and adjustment of the margins of lake II. | 20 | DMEVGI | __ | 110 000,00 € | | 10 000,00 € (Study) | 50 000,00 € (Intervention) | 50 000,00 € (Intervention) | | |
| | | K.1.7 - Clearing of the eucalyptus wood. | | DMEVGI | __ | 10 000,00 € | 2 000,00 € | 2 000,00 € | 2 000,00 € | 2 000,00 € | 2 000,00 € | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | K.1.8 - Correction of the differential settlements and consolidation of the superficial drainage system supported by puddles and lakes. | 14, 18, 20 | DMEVGI | __ | 15 000,00 € | 3 000,00 € | 3 000,00 € | 3 000,00 € | 3 000,00 € | 3 000,00 € | |
| | K.2 | K.2.1 - Modelling and partitioning in the far northwest of the Park, which finishes with the 'Queimódromo' (place where the student festival 'Queima das Fitas' is held) and the Via do Castelo do Queijo. It also antecipates the conclusion of the modelling and compartmentalisation, through plantation of vegetation in the north slope of lake III. | 20 | DMEVGI | __ | 350 000,00 € | 150 000,00 € (Project + Intervention) | 200 000,00 € (Intervention) | | | | |
| | L. Acknowledge the contribution of biodiversity as an element which grants added value to the park, identifying it and promoting it | | | | | | | | | | | |
| | L.1 e L.2 | L.1.1 - Drawing up an "Action Plan for theBiodiversity of the City Park", adjusting the actions foreseen in the "Maintenance Plan of Green Spaces". | 19 | DMEVGI | __ | € 12 900,00 | | | | € 12 900,00 | | |
| | | TOTAL OF ACTIONS FORECASTED FOR THIS SECTION (BIODIVERSITY, LANDSCAPE AND HERITAGE) | | | | | 10 | 5 | 4 | 4 | 2 | |
| CI | M. Involve the community in the celebration of the park | | | | | | | | | | | |
| | M.1 | M.1.1 - Development and application of surveys regarding the use of the Park by its users. | 22 | DMEVGI | __ | € 16 925,00 | € 16 925,00 | | | | | |
| | | M.1.2 - Acquisition of a visitor counter, such as the RadioBeam RBX-EB- of Chamber Electronics, or similar (to be placed at the 3 main entrances: East Boavista, Circunvalação and Beach). | 23 | DMEVGI | 3 | € 5 250,00 | € 5 250,00 | | | | | |
| | M.3 | M.3.1 - Creation of an adapted orienteering path (allusive to the theme of sustainability and environmental good practices). | 22, 23 | DMEVGI | __ | € 1 000,00 | | € 1 000,00 | | | | |
| | | M.3.2 - Inclusion of the Park in the annual programme for theme visits (municipal scope). | 23 | DMEVGI | __ | 4 500,00 € | 900,00 € | 900,00 € | 900,00 € | 900,00 € | 900,00 € | |
| | | TOTAL OF ACTIONS FORECASTED FOR THIS SECTION (COMMUNITY INVOLVEMENT) | | | | | 3 | 2 | 1 | 1 | 1 | |
| MC | N. Promote the park as a space of reference in the city | | | | | | | | | | | |
| | N.1 | N.1.1 - Improvement of the section Urban Gardens and Parks in the website of the CMP: http://www.cm-porto.pt/jardins-e-parques-urbanos. | 24, 25, 26 | DMEVGI | ___ | 1 000,00 € | 1 000,00 € | | | | | |
| | | N.1.2 - Publication, on the CMP website, of the database of Management of Green Spaces and Arboreal Inventory - GEVIA. | 24, 25, 26 | DMEVGI | ___ | 1 000,00 € | 1 000 € | | | | | |
| | N.2 | N.2.1 - Development of a booklet on faunal and flower biodiversity which can be found in the Park - "The Biodiversity of the Park" | 24, 25, 26 | DMEVGI | 10.000 | € 2 376,00 | | € 2 376,00 | | | | |
| | | N.2.2 - Development of information and disclosure leaflets on the Park. | | | | | | | | | | |
| | | N.2.2.1 - Development of a leaflet under the name "The Park and outdoor activities", to support recurrent sports activities in the Park (location of the playing fields, showers, trails, duration, difficulty, orienteering paths, etc.) | 24, 25, 26 | DMEVGI | 10.000 | € 1 820,00 | | € 1 820,00 | | | | |
| | | N.2.2.2 - Development of a leaflet under the name "The Park and the Environment, on sustainable practices which may occur in the Park (separation of residues, etc.) | 24, 25, 26 | DMEVGI | 10.000 | € 1 820,00 | | € 1 820,00 | | | | |
| | | N.2.3 - Insertion of an interpretative panel in the rural centre. | 24 , 25, 26 | DMEVGI | 1 | 1 134,00 € | | | | | 1 134,00 € | |
| | N.3 | N.3.1 - Development of a leaflet on the "Interpretative Path of the Camellias in the City Park". | 24 , 25, 26 | DMEVGI | 10.000 | € 1 820,00 | € 1 820,00 | | | | | |
| | | TOTAL OF ACTIONS FORECASTED FOR THIS SECTION (MARKETING AND COMMUNICATION) | | | | | 3 | 3 | 0 | 0 | 1 | |
| | | | | | | **Total number of Actions per Year** | **32** | **24** | **12** | **9** | **9** | |

| | 2019 | 2020 | 2021 | 2022 | 2023 | ORÇAMENTO TOTAL |
|---|---|---|---|---|---|---|
| **A Welcoming Place** | 25 740,00 € | 67 250,00 € | 33 750,00 € | - € | - € | 126 740,00 € |
| **Healthy, Safe and Secure** | 85 200,00 € | 326 500,00 € | 325 000,00 € | 25 000,00 € | 25 000,00 € | 786 700,00 € |
| **Well Maintained and Clean** | 20 000,00 € | 68 000,00 € | 15 000,00 € | 15 000,00 € | 18 000,00 € | 136 000,00 € |
| **Environmental Management** | 52 850,00 € | 128 350,00 € | 65 000,00 € | 25 000,00 € | 25 000,00 € | 296 200,00 € |
| **Biodiversity, Landscape and Heritage** | 228 000,00 € | 225 000,00 € | 65 000,00 € | 67 900,00 € | 5 000,00 € | 590 900,00 € |
| **Community Involvement** | 23 075,00 € | 1 900,00 € | 900,00 € | 900,00 € | 900,00 € | 27 675,00 € |
| **Marketing and Communication** | 3 820,00 € | 6 016,00 € | - € | - € | 1 134,00 € | 10 970,00 € |
| **INVESTMENTS** | 438 685,00 € | 823 016,00 € | 504 650,00 € | 133 800,00 € | 75 034,00 € | **1 975 185,00 €** |
| | | | | | | |
| REGULAR MAINTENANCE | 500 000,00 € | 500 000,00 € | 500 000,00 € | 500 000,00 € | 500 000,00 € | **2 500 000,00 €** |
| ANNUAL TOTAL | **938 685,00 €** | **1 323 016,00 €** | **1 004 650,00 €** | **633 800,00 €** | **575 034,00 €** | **4 475 185,00 €** |

*To the values presented one must add VAT at the legal rate in force.

# Annex 5 - Map of the public bus network which serves the City Park


LEGENDA:

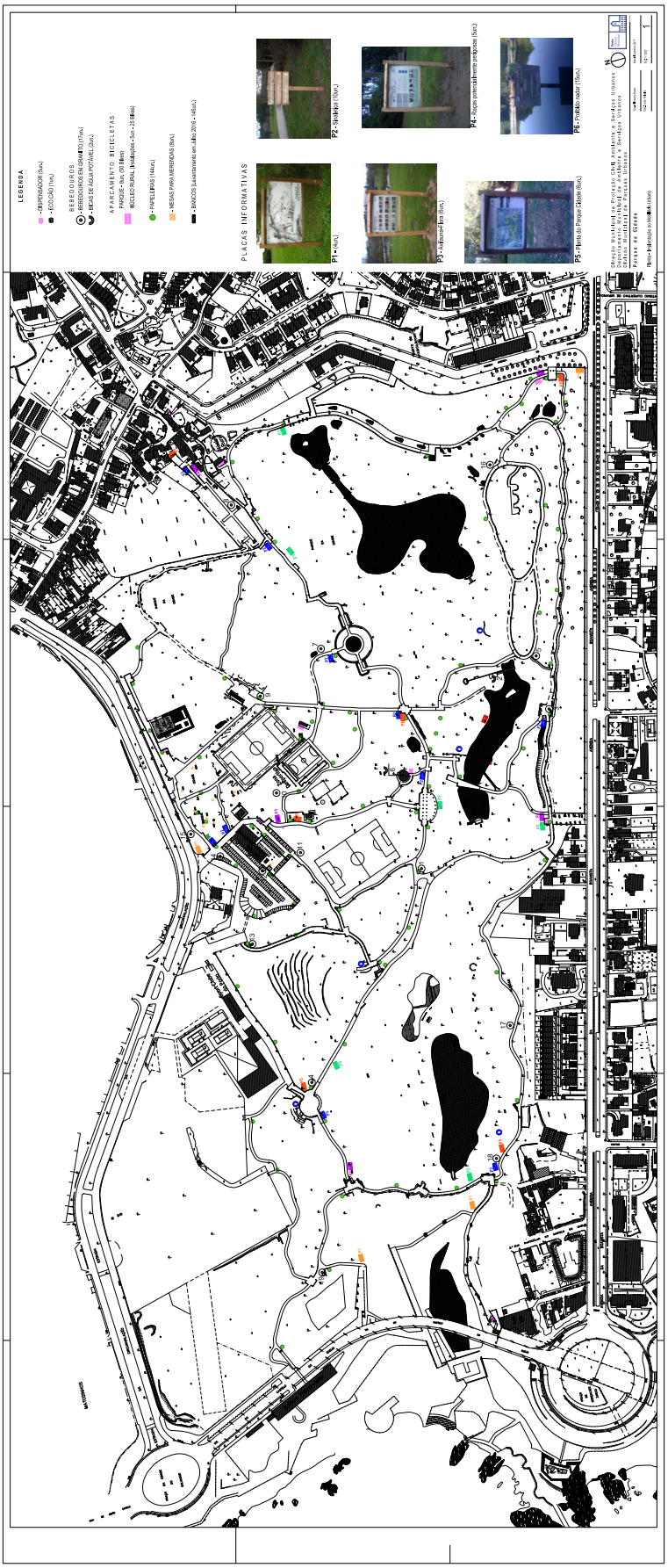
- Entradas do Parque da Cidade
- 1 Entrada das Colunas
- 2 Entrada de Aldoar
- 3 Entrada Núcleo Rural
- 4 Entrada Norte / Circunva-
- 5 Entrada da Anémona
- 6 Entrada da Praia
- 7 Entrada do Castelo do Queijo
- 8 Entrada da Boavista

Tranportes públicos - paragem

- 200 Bolhão - Castelo do Queijo
- 201 Viso - Aliados
- 202 Aliados -Passeio Alegre (Via Av. Bessa)
- 203 Marquês - Castelo do Queijo
- 205 Campanhã - Castelo do Queijo
- 208 Aliados - Aldoar
- 500 Praça da Liberdade - Matosinhos (mercado)
- 501 Aliados - Matosinhos (praia)
- 502 Bolhão - Matosinhos (praia)
- 504 Boavista - Norteshopping
- 1M Aliados - Matosinhos (F.Luminosa)

# Annex 6 - Plant for the Implantation of the Urban Furniture

Document available for consultation upon request.



**Direção Municipal de Proteção, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

Porto. Câmara Municipal

# Plano de conservação de infraestruturas e equipamentos

| Equipamento ou Infraestrutura | Intervenção | Frequência | Registo |
|---|---|---|---|
| Bancos | Verificação das condições de segurança e bom estado de conservação | Semestral | C04-05-IMP-17 |
| Bebedouros | Verificação das condições de higiene e segurança. Verificação das recolhas de água para analise nas Águas do Porto | Mensal | C04-05-IMP-17 |
| Canal (Parque da Cidade) | Verificação das condições de segurança e salubridade do canal | 5 em 5 anos | C04-05-IMP-17 |
| Estação meteorológica (Parque da Cidade) | Verificação anual dos sensores da estação meteorológica | Anual | C04-05-IMP-17 |
| Guarda corpos de escadas, miradouros, portões e outros elementos construídos | Verificação das condições de segurança e bom estado de conservação | Anual ou sempre que necessário | C04-05-IMP-17 |
| Muros e estruturas de suporte de terras | Verificação das condições de segurança e bom estado de conservação | Anual ou sempre que necessário | C04-05-IMP-17 |
| Infraestruturas de abastecimento de água potável | Verificação das infraestruturas e limpeza de caixas de visita. | Anual | C04-05-IMP-17 |
| Infraestruturas de drenagem de água | Verificação das infraestruturas e limpeza de caixas de visita. | Anual | C04-05-IMP-17 |
| Infraestruturas de abastecimento de água para rega | Verificação das infraestruturas e limpeza de caixas de visita. | Anual | C04-05-IMP-17 |
| Infraestruturas elétricas | Verificação das infraestruturas elétricas; | Anual | C04-05-IMP-17 |
| Lagos, fontes, charcos e outras massas de água | Limpeza e verificação geral | Anual ou sempre que necessário | C04-05-IMP-17 |
| Papeleiras, ecopontos, dispensadores e outros | Verificação de estabilidade e bom estado de conservação | Anual ou sempre que necessário | C04-05-IMP-17 |

**Direção Municipal de Proteção, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

| Equipamento ou Infraestrutura | Intervenção | Frequência | Registo |
|---|---|---|---|
| Pavimentos | Verificação de cedências e drenagens. | Anual | C04-05-IMP-17 |
| Sanitários | Verificação de bom estado de conservação | Anual | C04-05-IMP-17 |

Observações: O Parque do Covelo possui Plano Indicativo de Manutenção da autoria do Arquiteto Paulo J. Calapez no âmbito Masterplan de Reabilitação Manutenção e Reordenamento - Arquitectónico e Paisagístico

Proposta do Técnico Superior: _____ em ___/___/____

Validação do dirigente da Unidade Orgânica: _____ em ___/___/____

Toma conhecimento o Encarregado Operacional: _____ em ___/___/____

Toma conhecimento o chefe de ponto: _____ em ___/___/____

# Annex 8 - Form C04-05-IMP-17 - Record Chart for the Conservation of Infrastructures and Equipment

Direção Municipal de Proteção Civil, Ambiente e Serviços Urbanos
Estrada Interior da Circunvalação 15443
4100-183 Porto
+351 225 320 080
+351 225 320 086

**Registo de conservação de infraestruturas e equipamentos**

| Data | Local | Tipo de infraestrutura ou equipamento | Identificação individual | Tipo de intervenção | Material | | Resp. |
|---|---|---|---|---|---|---|---|
| | | | | | Designação | Quantidade | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Conforme plano de conservação de infraestruturas e equipamentos (C04-05-Imp-19) Sim ☐ Não ☐

Encarregado operacional: _____ Data ___/___/_____

Técnico superior: _____ Data ___/___/_____

Observações:

# Annex 9 - Training of the staff

**Training of the staff of the City Park**

| | | |
|---|---|---|
| Employee 1 | 2018 | Boas Práticas na Utilização e Manutenção de Viaturas Elétricas |
| | 2016 | Atuação em Caso de Derrame |
| | 2015 | Ergonomia no Posto de Trabalho e Equipamentos Dotados de Visor |
| | | Segurança de Máquinas, Equipamentos de Trabalho e Sinalização de Segurança |
| | | Aplicação de Produtos Fitofarmacêuticos |
| | | Estratégias de Liderança e Gestão de Equipas |
| | 2014 | Estratégias de Liderança e Gestão de Equipas |
| | | Uso de Plantas Autóctones em Portugal |
| | 2013 | Sistema de Gestão da CMP |
| | 2012 | Dispositivos 1ª Intervenção |
| | 2009 | Segurança, Higiene e Saúde no Trabalho |
| Employee 2 | 2016 | Ergonomia no Posto de Trabalho e Equipamentos Dotados de Visor |
| | | Atuação em Caso de Derrame |
| Employee 3 | 2014 | Gestão de Resíduos |
| | 2012 | Dispositivos 1ª Intervenção |
| Employee 4 | 2018 | Boas Práticas na Utilização e Manutenção de Viaturas Elétricas |
| | 2017 | Boas Práticas na Utilização de Veículos Municipais |
| | 2016 | Atuação em Caso de Derrame |
| | 2015 | Segurança de Máquinas, Equipamentos de Trabalho e Sinalização de Segurança |
| | | Movimentação Manual de Cargas |
| | | Utilização de Equipamentos de Proteção Individual |
| | 2012 | Aplicadores Produtos Fitofarmacêuticos |
| Employee 5 | 2018 | Boas Práticas na Utilização e Manutenção de Viaturas Elétricas |
| | 2017 | Boas Práticas na Utilização de Veículos Municipais |
| | 2016 | Atuação em Caso de Derrame |
| | 2015 | Segurança de Máquinas  e Equipamentos de Trabalho e Sinalização de Segurança |
| | | Movimentação Manual de Cargas |
| | | Utilização de Equipamentos de Proteção Individual |
| | 2014 | Gestão Pessoal p/ um Saldo Positivo |
| | 2008 | Carta Europeia de Condução Informática |
| Employee 6 | 2018 | Boas Práticas na Utilização e Manutenção de Viaturas Elétricas |
| | 2017 | Inspeção de Equipamentos EPI e EPC |
| | | Boas Práticas na Utilização de Veículos Municipais |
| | 2016 | Segurança Contra Incêndios - Primeira Intervenção |
| | | Primeiros Socorros |
| | | Atuação em Caso de Derrame |
| | | Plataforma Elevatória Carro Cesta |
| | 2015 | Segurança de Máquinas, Equipamentos de Trabalho e Sinalização de Segurança |
| | | Movimentação Manual de Cargas |
| | | Utilização de Equipamentos de Proteção Individual |
| | 2014 | Gestão Pessoal p/ um Saldo Positivo |
| | 2012 | Dispositivos 1ª Intervenção |
| | | Aplicação Produtos Fitofarmacêuticos |
| | 2018 | Boas Práticas na Utilização e Manutenção de Viaturas Elétricas |
| | 2017 | Boas Práticas na Utilização de Veículos Municipais |
| | 2016 | Atuação em Caso de Derrame |
| | | Segurança de Máquinas, Equipamentos de Trabalho e Sinalização de Segurança |

| | | |
|---|---|---|
| **Employee 7** | **2015** | Movimentação Manual de Cargas |
| | | Utilização de Equipamentos de Proteção Individual |
| | **2014** | Gestão de Resíduos |
| | | Gestão Pessoal p/ um Saldo Positivo |
| | **2012** | Dispositivos 1ª Intervenção |
| **Employee 8** | **2016** | Atuação em Caso de Derrame |
| | **2015** | Segurança de Máquinas, Equipamentos de Trabalho e Sinalização de Segurança |
| | | Movimentação Manual de Cargas |
| | | Utilização de Equipamentos de Proteção Individual |
| | **2014** | Gestão Pessoal p/ um Saldo Positivo |
| **Employee 9** | **2018** | Boas Práticas na Utilização e Manutenção de Viaturas Elétricas |
| | **2016** | Atuação em Caso de Derrame |
| **Employee 10** | **2015** | Segurança de Máquinas, Equipamentos de Trabalho e Sinalização de Segurança |
| | | Movimentação Manual de Cargas |
| | | Utilização de Equipamentos de Proteção Individual |
| | **2014** | Gestão Pessoal p/ um Saldo Positivo |
| | **2009** | Técnicas Documentais em Língua Portuguesa |
| | | Processador de Texto - Funcionalidades Avançadas |
| | | Processador de Texto |
| **Employee 11** | **2018** | Boas Práticas na Utilização e Manutenção de Viaturas Elétricas |
| | **2017** | Boas Práticas na Utilização de Veículos Municipais |
| | **2016** | Atuação em Caso de Derrame |
| | **2015** | Segurança de Máquinas, Equipamentos de Trabalho e Sinalização de Segurança |
| | | Movimentação Manual de Cargas |
| | | Utilização de Equipamentos de Proteção Individual |
| **Employee 12** | **2018** | Licenças de Condução para Tratotes Agrícolas |
| | **2017** | Programa de Acolhimento e Integração |
| **Employee 13** | **2017** | Programa de Acolhimento e Integração |
| **Employee 14** | **2017** | Programa de Acolhimento e Integração |
| **Employee 15** | **2017** | Programa de Acolhimento e Integração |
| **Employee 16** | **2017** | Programa de Acolhimento e Integração |

# Annex 10 - Work Procedure - C04-01-PT-03 - Responding to emergency situations

| Codificação | | PROCEDIMENTO DE TRABALHO | Porto. Câmara Municipal |
|---|---|---|---|
| C04-01-PT-03 | | | |
| Revisão | Data | RESPOSTA A SITUAÇÕES DE EMERGÊNCIAS | |
| - | 14-11-2016 | | |

## 1. OBJETIVO

O objetivo deste procedimento é definir a metodologia de prevenção, recursos disponíveis, modo de atuação e mitigação dos riscos em caso de ocorrência de acidentes de risco ambiental.

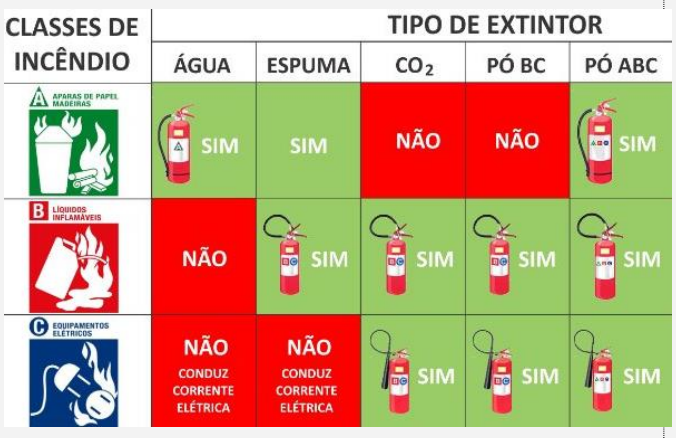
Este procedimento especifica os passos a seguir, de um ponto de vista ambiental, assim que a situação de emergência seja dominada e controlada (pós-emergência).

## 2. ÂMBITO

Aplica-se a todas situações de emergência identificadas nos Parques Urbanos da Cidade do Porto.

## 3. MODO DE PROCEDER - FLUXOGRAMA (OPCIONAL)

## 4. DESCRIÇÃO

| Nº ou Fase | Descrição | Responsável | Documentos/ Suporte |
|---|---|---|---|
| **1. Incêndio** | **Prevenção**<br>Verificar periodicamente os extintores, para garantir que estejam em condições de uso quando solicitadas e disponíveis em número suficiente.<br><br>**Recursos**<br>  <br><br><br>**Atuação**<br><br>Desligar o quadro elétrico.<br>Combater o foco de incêndio com recurso aos extintores<br>Caso necessário, alertar os bombeiros.<br><br>**Mitigação dos efeitos**<br><br>No final do incêndio e após verificar que está completamente extinto, deve proceder-se à recolha dos resíduos gerados e segregação dos mesmos. Encaminhar os resíduos para os | · Interlocutor Edifícios<br><br>· Delegado Segurança<br>· Trabalhadores | · C04-01-PT-04– Gestão de Resíduos<br><br>· C04-01-IMP-14 – Ficha de Resposta a Cenários de Emergência – Incêndio<br><br>· S02 – Gestão de Infraestruturas |

| | | | |
|---|---|---|---|
| | operadores licenciados para gestão de resíduos banais, perigosos e recicláveis e ativar o Procedimento C04-01-PT-04 – Gestão de Resíduos.<br><br>Proceder à manutenção dos extintores.<br><br>No caso de combate a incêndios com utilização de água como agente de extinção, deve-se assegurar que as águas potencialmente contaminadas de combate a incêndios não são descarregadas em sistema de drenagem de águas pluviais ou em lagos dos parques urbanos. | | |
| **2. Inundação** | **Atuação**<br>Cortar o abastecimento de água;<br>Desligar o quadro elétrico.<br>Localizar a origem do problema e atenuá-lo, sempre que possível.<br>Remover tudo o que possa ser afetado pela inundação, começando pelo remoção de equipamento eletrónico.<br><br>**Recursos**<br>Meios Externos - BSB<br>Equipas DMPCASU<br><br>**Mitigação dos efeitos**<br>O resíduo gerado, perigoso ou não, deve ser removido e gerido corretamente. Encaminhar os resíduos para os operadores licenciados para gestão de resíduos banais, perigosos e recicláveis e ativar o Procedimento C04-01-PT-04 – Gestão de Resíduos. | · Delegado Segurança | · C04-01-PT-04 – Gestão de Resíduos.<br>· C04-01-IMP-15 – Ficha de Resposta a Cenários de Emergência – Inundações, Sismo, Tempestade, Tornado e queda de Raio |
| **3. Sismo, Tempestade, Tornado e Queda de Raio** | **Atuação**<br>Proceder ao Encerramento do Parque.<br>Evacuar pessoas e se aplicável bens móveis.<br>Condicionar os acessos ao local até que seja seguro (p.e. perigo de colapso de edifício ou estrutura ou árvore).<br><br>**Recursos**<br>Meios Externos – BSB, Proteção Civil, Polícia Municipal<br>Equipas da DMPCASU<br><br>**Mitigação dos efeitos**<br>Encaminhar os resíduos, equipamentos danificados, etc. para operadores licenciados para gestão de resíduos perigosos e ativar o Procedimento C04-01-PT-04 – Gestão de Resíduos. | · Delegado Segurança | · C04-01-PT-04 – Gestão de Resíduos.<br>· C04-01-IMP-15 – Ficha de Resposta a Cenários de Emergência – Inundações, Sismo, Tempestade, Tornado e queda de Raio |

| | | | |
|---|---|---|---|
| **4. Derrame Acidental** | **Prevenção**<br>Verificar periodicamente o estado das embalagens de produtos químicos utilizados.<br>Garantir que após a utilização a embalagem é bem fechada e se encontra em bom estado de conservação<br>Garantir a existência de bacias de retenção e que as embalagens dos produtos químicos estão colocadas dentro das bacias.<br>Realizar a preparação das caldas de produtos fitofarmacêuticos dentro das áreas destinadas para o efeito.<br>Efetuar o abastecimento de combustível e lubrificantes de viaturas, máquinas e alfaias preferencialmente em locais impermeabilizados e distantes de recursos hídricos.<br><br>**Recursos**<br>Kit anti-derrame (balde, vassoura, pá e material absorvente)<br><br><u>Regras de utilização do Kit anti-derrame ECOBOX:</u><br><br>• Transportar a ECOBOX para a zona de derrame;<br>• Utilizar a pá pequena para recolher o produto absorvente (ECOSORB) que se encontra dentro da ECOBOX, de seguida, espalhar o produto absorvente em cima do derrame (para controlar mais rapidamente o derrame colocar o produto absorvente à sua volta);<br>• De seguida, com a vassoura da ECOBOX, deverá varrer de forma a ajudar à absorção imediata;<br>• Recolher o produto com ajuda da vassoura e da pá grande e colocar no tabuleiro de filtração da ECOBOX. O produto contaminado ficará no tabuleiro enquanto que o produto não contaminado voltará para o depósito inferior;<br>• O produto que se encontra no tabuleiro deverá ser colocado num contentor apropriado para ser recolhido por uma empresa especializada;<br>• Guardar as pás e a vassoura nos locais indicados da ECOBOX ficando assim, o equipamento pronto para a próxima utilização.<br><br>  <br><br><br>**Atuação**<br><br>- Inicialmente contenha a fuga na sua origem (fechando tubagens e/ou embalagens).<br>- Arejar bem o local.<br>- Impedir a expansão do derrame criando barreiras com material absorvente.<br>- Espalhar o produto absorvente sobre a superfície contaminada, de modo a absorver todo o produto derramado. | · Delegado Segurança<br>· Colaborador | · C04-01-PT-04 – Gestão de Resíduos.<br>· C04-01-IMP-16 – Ficha de Resposta a Cenários de Emergência – Derrame Acidental de Substâncias Perigosas |

| | | | |
|---|---|---|---|
| | **Mitigação dos efeitos**<br><br>- Evitar que o derrame de produtos químicos atinja o sistema de drenagem de águas pluviais.<br>- Utilizar material absorvente para controlar o derrame.<br>- Remover solos potencialmente contaminados.<br>- Encaminhar os resíduos (produto químico e material absorvente contaminado) para operadores licenciados para gestão de resíduos perigosos e ativar o Procedimento C04-01-PT-04 – Gestão de Resíduos. | | |
| **5. Fuga acidental de Gases Combustíveis e, Gases Refrigerantes de Equipamentos de Refrigeração e de Ar Condicionado e Bombas de Calor** | **Atuação**<br><br>a) No caso de Combustíveis Gasosos Armazenados ou Gases Combustíveis Canalizados:<br>- Evacuar as pessoas.<br>- Condicionar os acessos ao local.<br>- Estabelecer perímetro de segurança.<br>- Solicitar a intervenção imediata do Piquete ou do fornecedor.<br>▪ J. Pereira Lemos – 919 435 445<br>N.º CIAV – 808 250 143 (Centro de Informação Anti-Venenos)<br><br>b) Equipamentos autónomos fixos com carga de gás refrigerante < 3 kg:<br>- Solicitar imediatamente a intervenção, devendo o técnico efetuar a intervenção num prazo máximo de 48 horas após a comunicação.<br>c) Equipamentos autónomos fixos com carga de gás refrigerante ≥ 3 kg:<br>- Solicitar imediatamente a intervenção, devendo o técnico efetuar a intervenção num prazo máximo de 24 horas após a comunicação.<br><br>**Recursos**<br><br>a) No caso de Combustíveis Gasosos Armazenados ou Gases Combustíveis Canalizados:<br>- Piquete do fornecedor de gás combustível ou fornecedor de gás combustível de garrafa.<br><br>b) Equipamentos autónomos fixos com carga de gás refrigerante < 3 kg:<br>- Técnicos Qualificados de Manutenção e Reparação de Equipamentos de Frio e Ar Condicionado (devidamente Certificados).<br><br>c) Equipamentos autónomos fixos com carga de gás refrigerante ≥ 3 kg:<br>- Técnicos Qualificados de Manutenção e Reparação de Equipamentos de Frio e Ar Condicionado (devidamente Certificados).<br><br>**Mitigação dos efeitos** | · Delegado Segurança<br>· Dinamizador Ambiental (Responsável das Estruturas) | · C04-01-PT-04 – Gestão de Resíduos.<br>· C04-01-IMP-12 – Ficha de Resposta a Cenários de Emergência – Fuga acidental de Gases Frigogénicos<br>· C04-01-IMP-13 – Ficha de Resposta a Cenários de Emergência – Fuga acidental de Outros Gases Perigosos (acetileno, oxigénio GPL) |

| | | | |
|---|---|---|---|
| | Potenciar a atuação dos técnicos qualificados no menor espaço de tempo possível.<br>Os técnicos qualificados devem emitir e entregar as Fichas de intervenção CENTERM, com informação (quantidades) sobre o gás adicionado e/ou recuperado. | | |
| **6 – Informações às entidades** | No caso de situações de ameaça iminente de dano ou de dano ambiental, deve ser reportado à APA por via eletrónica (bd_ra@apambiente.pt) utilizando o modelo de reporte disponível no site da APA,<br><br>Submeter à autoridade competente, no prazo máximo de 10 dias a contar da data da ocorrência do dano, uma proposta de medidas de reparação dos danos ambientais causados, que inclua a reparação primária, complementar ou compensatória em função dos danos causados no causados à água, às espécies e *habitats* naturais protegidos. | · Gestor Ambiental<br>· Dinamizador Ambiental (Responsável das Estruturas) | · Site APA |

Entidades a contatar em caso de emergência:

| ENTIDADE | TELEFONE |
|---|---|
| Número Nacional de Emergência | 112 |
| Batalhão de Sapadores Bombeiros do Porto | 225 073 700 |
| Departamento Municipal de Proteção Civil | 222 091 310 |
| G.N.R. Porto | 223 399 600 |
| P.S.P. Porto | 222 006 821 |
| Hospital Geral de Santo António | 222 077 500 |
| Hospital de S. João | 225 512 100 |
| Polícia Municipal do Porto | 226 198 260 |
| edp Eletricidade – Assistência Técnica | 800 506 506 |
| edp gás Gás – Emergência 24 h | 800 215 215 |
| Águas do Porto - Geral e Avarias | 225 190 800 |

## 5. PLANO DE CONTROLO - MONITORIZAÇÃO DA EXECUÇÃO DO SERVIÇO (OPCIONAL)

| Nº ou Fase | Descrição | Método | Frequência | Responsável | Registo |
|---|---|---|---|---|---|
| **1.Simulacros** | As situações de emergência ambiental devem ser simuladas, quando praticável.<br><br>Os simulacros de resposta a emergência ambiental, são efetuados de acordo com o Programa definido. | Simulacro | De acordo com o Programa anual definido | · DMPCASU | C04-01-IMP-09 Programa de Simulacro<br>C04-01-IMP-10 Plano de Simulacro<br>C04-01-IMP-11 Relatório de Simulacro |

## SIGLAS E DEFINIÇÕES

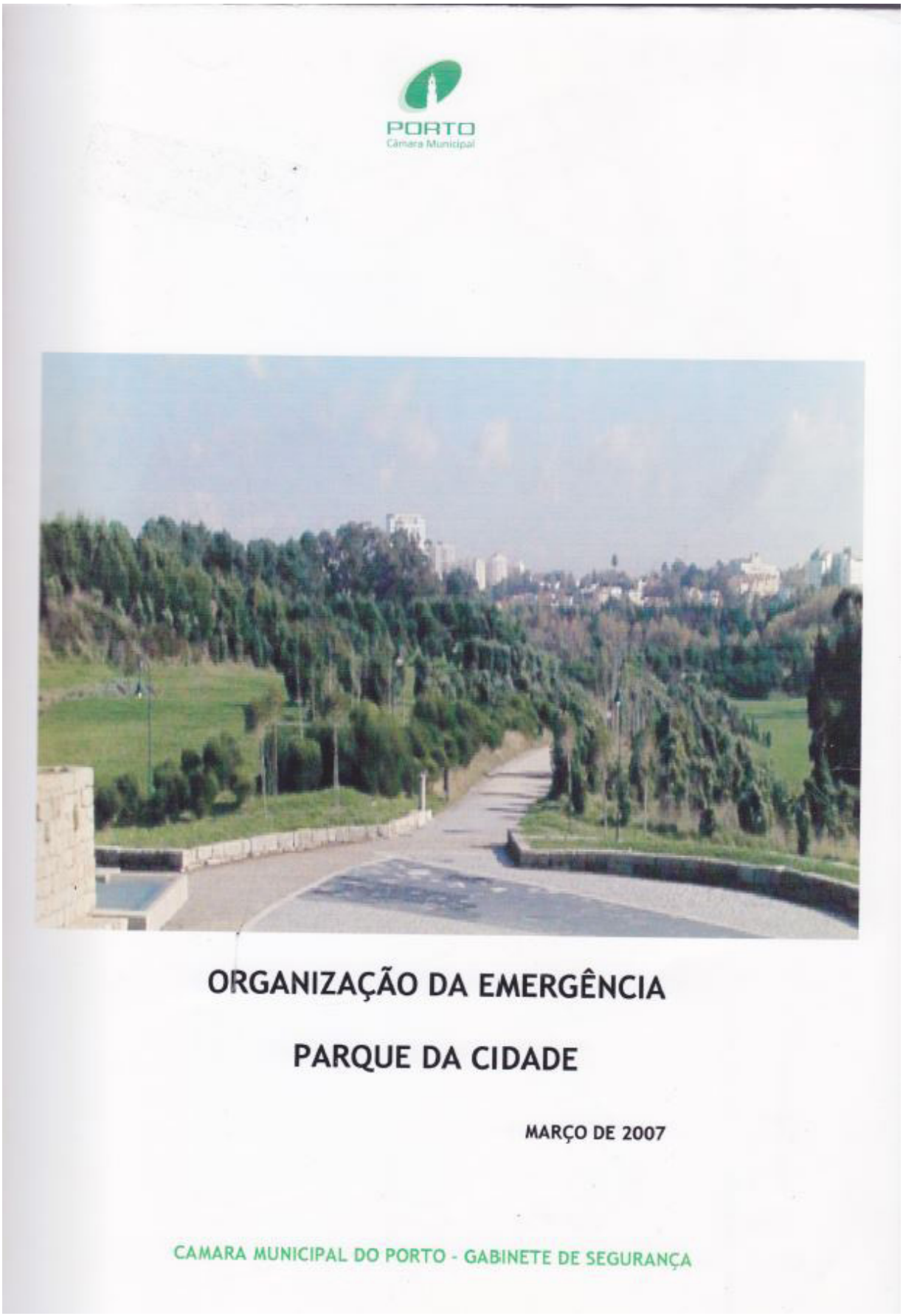
| Sigla | DESCRIÇÃO |
|---|---|

| Codificação | | PROCEDIMENTO DE TRABALHO | |
|---|---|---|---|
| C04-01-PT-03 | | RESPOSTA A SITUAÇÕES DE EMERGÊNCIAS | Porto. Câmara Municipal |
| Revisão | Data | | |
| - | 14-11-2016 | | |

| | |
|---|---|
| APA | Agência Portuguesa do Ambiente |
| BSB | Batalhão Sapadores Bombeiros |
| CENTERM | Centro Tecnológico Indústria Térmica, Energia e Ambiente |
| CIAV | Centro de Informação Anti-Venenos |
| DMPCASU | Direção Municipal de Proteção Civil, Ambiente e Serviços Urbanos |

## Annex 11 - Internal Emergency Plan

Document available for consultation upon request.



# Annex 12 - Emergency Plant

Document available for consultation upon request.

# Annex 13 - Answering Emergency Situations Drill

**Direção Municipal de Proteção Civil, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação nº 15443
4100-183 Porto
T. +351 225320080
F. +351 225320086

Porto. Câmara Municipal

## SIMULACRO DE RESPOSTA A SITUAÇÕES DE EMERGÊNCIA

**Data da realização do simulacro: 05/12/2018**

**Situação de Emergência:** Derrame de Produto Químico numa zona de pavimento do Parque da Cidade.

Foi simulado um derrame de produto químico (gasolina) ao encher o depósito da moto roçadeira no exterior do armazém, numa zona do Parque com pavimento em paralelos e relvado envolvente, de modo a avaliar a resposta e procedimentos dos colaboradores perante situações de emergência desta natureza.

**Colaboradores intervenientes no Simulacro**: Os colaboradores/operacionais presentes no simulacro assinaram a folha de presenças em anexo.

**Descrição do Simulacro:**

1. **Derramamento de produto químico (gasolina).**

O colaborador ao encher o depósito da moto roçadeira derramou gasolina no solo.

2. **Colocação do material absorvente no local do derrame.**

O colaborador após o derrame solicitou de imediato a um colega a colocação de areia na área do derrame (piso em paralelos).

**Direção Municipal de Proteção Civil, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação nº 15443
4100-183 Porto
T. +351 225320080
F. +351 225320086

Porto. Câmara Municipal

**3. Remoção e acondicionamento da substância derramada.**

Procedeu-se à remoção, recolha e acondicionamento da substância derramada não reutilizável que foi gerida como resíduo perigoso.

**4. Recolha e encaminhamento do resíduo contaminado.**

Colocou-se o resíduo corretamente embalado num saco e encaminhou-se para o contentor adequado e identificado como "residuos contaminados", que se encontra no armazém do Parque da Cidade.

Annex 14 - – Guide for Good Practices in Environment and Safety

Document available for consultation upon request.

# → GUIA DE BOAS PRÁTICAS DE AMBIENTE E SEGURANÇA

DIREÇÃO MUNICIPAL
DE RECURSOS HUMANOS

Porto.

**Direção Municipal De Proteção Civil Ambiente e Serviços Urbanos**
Rua de S. Dinis, nº 249,
4250-434 Porto
T. +351 228 349 490

Porto. Câmara Municipal

## Plano de manutenção de espaços verdes

| Actividades | Mês | | | | | | | | | | | | Observações |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Limpeza e recolha de resíduos vegetais | X | X | X | X | X | X | X | X | X | X | X | X | Diariamente |
| Corte de relvados e prados | X | X | X | X | X | X | X | X | X | X | X | X | 20 e 25 cortes anuais nos relvados 10 e 15 cortes anuais nos prados |
| Adubações de relvados e prados | | X | X | | | | | | | X | X | | Em 2 aplicaçãoes anuais |
| Sementeiras e resementeira de relvados e prados | | | X | | X | X | X | | | | | | Quando for necessário |
| Plantações de árvores e arbustos | X | X | | | | | | | | X | X | X | Tratando-se de plantas evasadas pode ser palantada sempre que necessário |
| Podas | X | X | X | X | X | X | X | X | X | X | X | X | Quando for necessário |
| Regas | | | | | X | X | X | X | X | X | | | E sempre que necessário<br>A manutenção é feita todo o ano |
| Mondas Manuais | | | | X | | X | | X | | X | | | E sempre que necessário |
| Escarificação de relvados e prados | | | X | X | | | | | X | X | | | Minimo 1 vez por ano |

Tipologia: Parque Urbano

| | Assinatura | Data |
|---|---|---|
| Proposto pelo técnico superior | | |
| Tomou conhecimento o Encarregado Operacional | | |
| Validação Superior | | |

**Direção Municipal De Proteção Civil Ambiente e Serviços Urbanos**
Rua de S. Dinis, nº 249,
4250-434 Porto
T. +351 228 349 490

Porto. Câmara Municipal

## Plano de manutenção de espaços verdes

| Actividades | Mês | | | | | | | | | | | | Observações |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Tratamentos fitossanitários | | | | | | | | | | | | | Sempre mediante indicação do técnico responsável |
| Aparação de sebes | | | | X | | X | | | X | | | | Sebes floridas devem ser aparadas após a floração |
| Substituição de plantas de época (Palácio de Cristal) | | | | X | | | | | | X | | | E sempre que necessário |
| Tratamento dos relvados desportivos (ESCARIFICAÇÃO) | | | X | X | | | | | X | X | | | Minimo 1 vez por ano.<br>Com aspiração dos resíduos resultantes |
| Tratamento dos relvados desportivos (PERFURAÇÃO) | | | X | | | | | | X | | | | Profundidade ideal de 20 cm |
| Tratamento dos relvados desportivos (ESPALHAMENTO DE AREIA) | | | X | | | | | | | | | | Meia areia - 30 a 40 m3 |
| Manutenção de plantas aquáticas e palustres | X | X | | | | | | | | | | | Retanchas e limpeza de folhas mortas |
| Manutenção de matas | X | X | X | X | X | X | X | X | X | X | X | X | Quando for necessário |

Tipologia:__Parque Urbano _____

| | Assinatura | Data |
|---|---|---|
| Proposto pelo técnico superior | | |
| Tomou conhecimento o Encarregado Operacional | | |
| Validação Superior | | |

**Direção Municipal de Proteção, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

Porto. Câmara Municipal

## REGISTO DE APLICAÇÃO DE FERTILIZANTES

| Data | Fertilizante | Quantidade | Planta | Local de aplicação | Rubrica do Operador | Rubrica do Coordenador |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |



# Annex 16 - Form C04-05-IMP-18 - Record for the application of fertilisers

**Direção Municipal de Proteção Civil, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

Porto. Câmara Municipal

## Ficha de Registo de Aplicação de Produtos Fitofarmacêuticos – Parques e Jardins

| Espaço Verde | Área a Tratar ($m^2$/Und) | Praga ou Doença/ Infestantes | Nome Comercial | AV/APV | Nome do Fornecedor | Nº de Autorização | Concentração | Dose | Volume de Calda | Data de Aplicação | Nome do Aplicador | Nº de aplicador |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

C04-05-IMP-12-Rev 09

# Annex 18 - Work Procedure C04-05-PT-01 – Maintenance and Conservation of Green Spaces

| Codificação | | PROCEDIMENTO DE TRABALHO | Porto. Câmara Municipal |
|---|---|---|---|
| C04-05-PT-01 | | MANUTENÇÃO E CONSERVAÇÃO DOS ESPAÇOS VERDES | |
| Revisão | Data | | |
| 03 | 04-08-2015 | | |

## 1. OBJETIVO

Descrever as regras relativas à manutenção e conservação dos espaços verdes, de modo a assegurar que:

- As áreas verdes se mantêm operacionais para o uso dos utentes;
- As atividades de manutenção são planeadas e desenvolvidas em conformidade;
- Durante as atividades de manutenções dos espaços verdes são implementadas medidas de minimização de impactes ambientais;

## 2. ÂMBITO

Este procedimento aplica-se à manutenção dos espaços verdes

## 3. MODO DE PROCEDER - FLUXOGRAMA (OPCIONAL)

## 4. DESCRIÇÃO

| Nº ou Fase | Descrição | Responsável | Documentos/ Suporte |
|---|---|---|---|
| 1 Levantamento de necessidades | Análise / balanço do estado dos espaços verdes;<br>Identificar necessidades e prioridades de manutenção a realizar | Responsável pelas Espaços Verdes e Encarregado Operacional | C04-05-IMP-21 Levantamento de necessidades de produção viveiro; |
| 2 Planificação | Definição do Plano de Manutenção dos Espaços Verdes e do Plano de Conservação de Infraestruturas e Equipamentos:<br>- Descrição sumária da atividade;<br>- Mês/época ou frequência da sua realização.<br><br>Submissão a aprovação superior do Plano Implementação do Plano de Manutenção de Espaços Verdes e do Plano de Conservação de Infraestruturas e Equipamentos<br><br>Afixação do Plano de Manutenção de Espaços Verdes e do Plano de Conservação de Infraestruturas e Equipamentos nas Casas de Jardineiros.<br>Levantamento de necessidades de plantas para enviar ao Viveiro Municipal.<br>Aquisição de Materiais, produtos e Fatores de Produção | Responsável pelas Espaços Verdes e Encarregado Operacional | C04-05-IMP-10 Plano Anual de Manutenção de Espaços Verdes;<br>C04-05-IMP-19 Plano de Conservação de Infraestruturas e Equipamentos |
| 3 Implementação do Plano | Planeamento das atividades:<br>- Limpeza e recolha de resíduos vegetais;<br>- Cortes de relva;<br>- Adubações;<br>- Sementeiras de prados e relvados<br>- Plantações (de árvores e arbustos);<br>- Podas;<br>- Regas (automáticas e localizadas);<br>- Tratamento fitossanitário<br>- Identificação de eventuais intervenções e / ou reparações<br>Elaborar pedido de requisição | Responsável pelas Espaços Verdes e Encarregado Operacional | C04-05-IMP16 Registo diário na aplicação OAD;<br>C04-05-IMP-18 Registo de aplicação de fertilizantes;<br>C04-05-IMP12- Registo de aplicação de produtos fitofarmacêuticos; |

| Codificação | | PROCEDIMENTO DE TRABALHO | |
|---|---|---|---|
| C04-05-PT-01 | | MANUTENÇÃO E CONSERVAÇÃO DOS ESPAÇOS VERDES | Porto. Câmara Municipal |
| Revisão | Data | | |
| 03 | 04-08-2015 | | |

| | | | |
|---|---|---|---|
| | | | C04-05-IT-04- Produção e desenvolvimento de plantas interiores e exteriores<br>C04-05-IT-06- Plantação de arvoredo. |
| 4<br>Controlo | - Avaliar o trabalho realizado com base no impresso de registo mensal de trabalhos efetuados em espaços verdes e verificar se o plano anual de manutenção de espaços verdes foi comprido; | Responsável pelas Espaços Verdes e Encarregado Operacional | C04-05-IMP-10 Plano Anual de Manutenção de Espaços Verdes;<br>C04-05-IMP-27 Registo mensal de trabalhos efetuados em espaços verdes |
| | | . | . |

**5. PLANO DE CONTROLO - MONITORIZAÇÃO DA EXECUÇÃO DO SERVIÇO (OPCIONAL)**

| Nº ou Fase | Descrição | Método | Frequência | Responsável | Registo |
|---|---|---|---|---|---|
| 1. | . | | | . | . |
| | . | | | . | . |
| | . | | | . | . |

**SIGLAS E DEFINIÇÕES**

| Sigla | DESCRIÇÃO |
|---|---|
| OAD | Obras por administração direta |
| | |
| | |
| | |
| | |

# Annex 19 - Work Instruction C04-05-IT-07 - Cutting down trees

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-07 | | ABATE DO ARVOREDO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 05-08-2015 | | |

## 1. OBJETIVO

A Câmara Municipal do Porto é responsável pela segurança do seu património arbóreo, relativamente a pessoas e bens que se encontrem na área da Cidade do Porto, sendo a sua manutenção e gestão da coordenação do GAU. No decorrer da monitorização deste património resulta por vezes a necessidade de abater exemplares arbóreos, devendo este trabalho, sempre que possível, ser efetuado de acordo com a presente instrução de trabalho.

## 2. ÂMBITO

Gestão de Arvoredo

## 3. MODO DE PROCEDER - FLUXOGRAMA (OPCIONAL)

## 4. DESCRIÇÃO

| Nº ou Fase | Descrição | Responsável | Documentos / Suporte |
|---|---|---|---|
| 1.Abate do arvoredo | **Descrição**<br>O abate de exemplares arbóreos de propriedade municipal, ou em casos excepcionais de propriedade privada, executa-se sempre que por questões de morte ou irreversibilidade do declínio fitossanitário e conflito com infra-estruturas, e dos quais decorre perigo para a segurança de pessoas e bens.<br>  <br>O trabalho consiste na remoção da árvore do local segundo técnicas adequadas às suas características, dimensões e realidade envolvente. O acesso e movimentação na árvore, podem fazer-se por escalada com recurso a equipamentos como carro-cesta ou auto-escada de longo alcance.<br><br>**Preparação dos Trabalhos**<br><br>**Segurança**<br>Na execução do abate deverão garantir-se todas as condições de segurança, quer no que se refere aos operadores, como aos utilizadores e bens do espaço envolvente. Para tal ter-se-á de: | · Coordenador Operacional e Operacional | · C04-05-IMP-09-Ficha de alerta. |

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-07 | | ABATE DO ARVOREDO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 05-08-2015 | | |

- Definir e delimitar inequívoca e previamente uma área de segurança, com um perímetro adequado à área de queda da árvore (esta área deverá ser tanto maior quanto maior a árvore e corresponder à necessidade de espaço para, em caso de queda livre, o exemplar poder cair dentro da área de segurança);
- Dentro da área de segurança, todos os elementos operacionais deverão encontrar-se equipados com todos os equipamentos de proteção individual necessários às tarefas por eles executadas, com especial destaque a capacete; colete de sinalização; botas e luvas de proteção;
- Todos os elementos que manobrem motosserras deverão usar EPI's adequados, tais como: casaco ou manguito anti corte; calça com proteção anti corte; botas com proteção anti corte; luva anti corte.

**Técnica**

Sempre que, perante a necessidade de abate de árvores de porte significativo, envolvidas por constrangimentos vários, como estruturas edificadas, mobiliário urbano, entre outros, a execução do mesmo deverão sempre garantir o seguinte:

- O abate não deverá ser efetuado com a árvore inteira ou seja, com um corte único, pela base;
- O abate deverá ser efetuado, sim, mediante o desmanche parcial da árvore, em que, progressivamente, se vai cortando material (Toros) de maior ou menor dimensão;

- O material que vai sendo retirado deverá, com técnicas de corte adequadas, fazer-se cair num local específico e definido antecipadamente pelo operador. Em alternativa dever-se-á cordear cada uma das porções fazendo com que estas caiam controladamente;

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-07 | | ABATE DO ARVOREDO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 05-08-2015 | | |

- O abate deverá ser efetuado por operadores especializados para estas tarefas, devendo para tal recorrer-se a podadores/escaladores, com conhecimentos técnicos de corte de ramos e comportamento das árvores, principalmente no que se refere à queda do material cortado;

- Sempre que possível deve-se recorrer a plataformas elevatórias com alcance suficiente para que os operadores em altura possam facilmente aceder à parte da árvore a trabalhar;
- Excluem-se por completo as situações de recurso a escadas simples, sem que estas sirvam exclusivamente para favorecer o acesso inicial dos escaladores à árvore. A partir deste momento, o operador deverá recorrer a cordas e técnicas de escalada para a movimentação dentro da árvore, garantindo-se para tal, sempre, que o operador tem pelo menos dois pontos de segurança.

**Execução dos trabalhos**

**Aspetos a ter em conta pelos operadores**

- Distribuição pelo coordenador operacional dos elementos da equipe a afetar às operações: abate; toragem; carga e limpeza;
- Garantir a presença de um elemento na via de modo a minimizar os incómodos na circulação rodoviária e pedonal;
- Sempre que questionados por munícipes, para esclarecimentos, sugestões, solicitações ou reclamações deverão indicar o nº de telefone gratuito da Ecolinha 800205744, que efetuará o registo e encaminhamento para a Divisão Municipal de Jardins;
- Abordar educadamente os munícipes no sentido de respeitarem as áreas de segurança delimitadas.

**Aspetos a ter em conta relativamente às máquinas e equipamentos a utilizar**

- Proceder ao estacionamento das viaturas afetas fora da área de segurança, em local visível e devidamente sinalizada, obstruindo o mínimo possível a passagem de outras viaturas;

| Codificação | | INSTRUÇÃO DE TRABALHO | Porto. Câmara Municipal |
|---|---|---|---|
| C04-05-IT-07 | | ABATE DO ARVOREDO | |
| Revisão | Data | | |
| 02 | 05-08-2015 | | |

- Garantir que as máquinas com que se vai operar se encontram limpas e em perfeitas condições de funcionamento;
- Em caso de anomalia detetada preencher o Impresso A;
- Garantir e confirmar a presença no local de todos os combustíveis necessários às operações.

**Remoção de material vegetal**

- Desobstruir imediatamente (corte a corte) a faixa de rodagem;
- Torar a madeira em porções compatíveis com o veículo de transporte;
- Agrupar em montes distintos a lenha com ramagem e a lenha sem ramagem;
- Verificar sempre a existência de materiais contaminantes (terras, pedras ou qualquer outro resíduo urbano), não o carregando.
- Acondicionar o material vegetal para efeitos de carga em função da viatura de apoio. Nesta tarefa deve-se garantir a presença de um colaborador no interior da caixa de carga de modo a ir dispondo o material de forma segura, maximizando paralelamente o espaço de carga;

- Proceder à limpeza final do local garantindo que este apresente as mesmas condições que antes das operações;
- Terminada limpeza ou esgotada a capacidade de carga, a viatura procede para a descarga na central de valorização de resíduos orgânicos da Lipor, devendo recolher o talão de pesagem entregando-o aos serviços administrativos da Divisão Municipal de Jardins, que o enviará para a Divisão de Limpeza Urbana e Transportes.

## 5. DESCRIÇÃO

| Nº ou Fase | Descrição | Responsável | Documentos/ Suporte |
|---|---|---|---|
| 1. | | . | . |
| | | . | . |
| | | . | . |

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-07 | | ABATE DO ARVOREDO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 05-08-2015 | | |

| SIGLAS E DEFINIÇÕES | |
|---|---|
| **Sigla** | **DESCRIÇÃO** |
| EPI | Equipamento de Proteção Individual |
| LIPOR | Serviço Intermunicipalizado de Gestão de Resíduos do Grande Porto |
| GAU | Gestão de Arvoredo Urbano |

# Annex 20 - Form C04-05-IMP-02 - Chart for the Identification of Cutting Down and Removal of Roots

**Direção Municipal de Proteção, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

Porto. Câmara Municipal

FICHA DE IDENTIFICAÇÃO DE ABATE E REMOÇÃO DE RAIZEIROS

| | |
|---|---|
| **Localização** | |
| **Nº de inventário** | |
| **Género/espécie** | |

Justificação do abate:

Remoção de Raizeiro:

| Caldeira | Canteiro | Prioridade /Justificação |
|---|---|---|
| | | |

**Responsável** Data___/___/___

# Annex 21 - Work Instruction C04-05-IT-06 - Planting Trees

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-06 | | PLANTAÇÃO DE ARVOREDO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 05-08-2015 | | |

## 1. OBJETIVO

A Câmara Municipal do Porto é responsável pela qualidade e segurança do seu património arbóreo. Nesse âmbito destaca-se não só a importância da garantia de arborização contínua da Cidade mas, principalmente, da qualidade da sua instalação.
O objetivo desta instrução de trabalho é então o de definir métodos de realização das plantações de árvores.

## 2. ÂMBITO

Gestão de Arvoredo

## 3. DEFINIÇÕES E ABREVIATURAS

## 4. DESCRIÇÃO

| Nº ou Fase | Descrição | Responsável | Documentos/ Suporte |
|---|---|---|---|
| .Plantação de arvoredo | **Considerações gerais**<br><br>A realização desta atividade é feita sempre que constar do Registo Mensal de Trabalhos Efetuados em Espaços Verdes. Realizar-se-á também sempre que uma situação imprevista assim o exija.<br>O momento da plantação de uma árvore é um momento determinante para a qualidade, segurança e sua longevidade. Este facto assume especial importância quando nos referimos a árvores urbanas, onde as condições de instalação e desenvolvimento são tantas vezes adversas, senão mesmo agressivas.<br>A aplicação de boas técnicas de plantação é um grande passo para a prevenção de problemas das árvores, principalmente no que se refere ao sucesso da instalação, capaz de proporcionar melhor vigor e qualidade de desenvolvimento futuros.<br>As plantações de arvoredo urbano poderão ocorrer perante uma necessidade de retancha de arvoredo existente, da arborização original de determinada unidade ou reforço de quantitativos arbóreos de determinado local. Para além disso as plantações poderão efetuar-se em alinhamentos (por exemplo, em caldeira) ou em áreas amplas como sejam os jardins, praças, ou parques.<br>A plantação de arvoredo pode fazer-se com a planta em raiz nua ou em contentor, sendo que as técnicas e, principalmente as épocas de execução variam um pouco de caso para caso.<br>De um modo geral e principalmente no caso de plantas em raiz nua, as plantações devem fazer-se nos períodos de repouso vegetativo evitando, tanto quanto possível, os períodos de ocorrência de geadas.<br><br>**Segurança**<br><br>Na execução dos trabalhos deverão garantir-se todas as condições de segurança, quer no que se refere aos operadores, como aos utilizadores e bens do espaço envolvente. Para tal ter-se-á de: | · Coordenador Operadoracional e Operador | · C04-05-IMP-27-Registo Mensal de Trabalhos Efetuados em Espaços Verdes |

Definir e delimitar inequívoca e previamente uma área de segurança, com um perímetro adequado à zona de trabalhos, incluindo, por exemplo a área de movimentação de terras;
Dentro da área de segurança, todos os elementos operacionais deverão encontrar-se equipados com todos os equipamentos de proteção individual necessários às tarefas por eles executadas, com especial destaque a capacete (sempre que se recorra a máquinas pesadas); colete de sinalização; botas e luvas de proteção;

**a. Aspetos a ter em conta pelos operadores**

- Distribuição pelo coordenador operacional dos elementos da equipe a afetar às operações: critério de poda; toragem; carga e limpeza;
- Garantir a presença de um elemento na via de modo a minimizar os incómodos na circulação rodoviária e pedonal;
- Sempre que questionados por munícipes, para esclarecimentos, sugestões, solicitações ou reclamações deverão indicar o nº de telefone gratuito da Ecolinha 800205744, que efetuará o registo e encaminhamento para a Divisão Municipal de Jardins;
- Abordar educadamente os munícipes no sentido de respeitarem as áreas de segurança delimitadas.

**b. Aspetos a ter em conta relativamente às máquinas e equipamentos a utilizar**

- Proceder ao estacionamento das viaturas afetas fora da área de segurança, em local visível e devidamente sinalizada, obstruindo o mínimo possível a passagem de outras viaturas;
- Garantir que as máquinas com que se vai operar se encontram limpas e em perfeitas condições de funcionamento;
- Em caso de anomalia detetada preencher o registo de ocorrências
- Garantir e confirmar a presença no local de todos os combustíveis necessários às operações.

**c. Remoção de material vegetal**

- Em caso de deposição de material na faixa de rodagem ou zonas de passagem de peões proceder, assim que terminados os trabalhos à remoção de todos os materiais;
- Verificar sempre a existência de materiais contaminantes (terras, pedras ou qualquer outro resíduo urbano), não o carregando.
- Proceder à limpeza final do local garantindo que este apresente as mesmas condições que antes das operações;

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-06 | | PLANTAÇÃO DE ARVOREDO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 05-08-2015 | | |

**Características das plantas**

**a)** A plantação de árvores deve ser efectuada de acordo com informações precisas, principalmente no que se refere à designação da espécie a utilizar e respectivo compasso de plantação.
**b)** Todas as plantas a utilizar devem ser exemplares bem conformados, com sistema radicular bem desenvolvido e muito ramificado, em bom estado sanitário e vigor e possuir desenvolvimento compatível com a sua espécie.

**Preparação do terreno para plantação**

**a)** A plantação de árvores deve ser efectuada através de abertura mecânica ou manual de covas com dimensões mínimas de 1.50 m de diâmetro ou de lado e 1,20 metros de profundidade;
**b)** O fundo e os lados das covas devem ser picados até 0,10 metros para permitir uma melhor aderência da terra de enchimento;
**c)** Sempre que a terra do fundo das covas seja de má qualidade deve ser retirada para vazadouro e substituída por terra vegetal;
**d)** A drenagem das covas deve ser efectuada através da colocação de uma camada de 0,20 metros de espessura de brita no fundo da cova;

**Plantação de árvores em raiz nua**

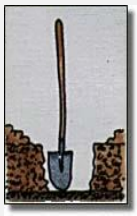
Trata-se da plantação de árvores em que o seu sistema radicular não tem qualquer envolvência de terra. É a forma como, normalmente, as plantas são extraídas da terra, em viveiro. Esta plantação implica alguns cuidados prévios, nomeadamente no que se refere à preparação da planta:

**a)** Retirar todo e qualquer material, desde que doente, danificado ou mal conformado.

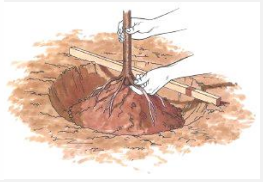
**b)** Evitar a desidratação das raízes, colocando a árvore com as raízes em água, durante algumas horas, limpando-as bem e retirando todo o lixo existente, antes da colocação na cova de plantação.

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-06 | | PLANTAÇÃO DE ARVOREDO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 05-08-2015 | | |

**c)** Abrir a cova de plantação com uma largura aproximada a 3 vezes a da raiz, fazendo com que esta possa crescer sem enrolamentos. O objetivo é produzir um espaço largo e raso com solo solto, no qual as raízes podem crescer sem obstáculos. Remover todas as ervas num diâmetro de aproximadamente1 m.



**d)** Plantar a árvore na cova, respeitando o nível do colo. Espalhar correta e uniformemente as raízes (sem que estas fiquem enroladas, torcidas, etc.) e colocar a terra, nivelando-a à volta da árvore. Sempre que necessário, dever-se-á efetuar uma fertilização de fundo, durante o enchimento das covas com terra vegetal.



**e)** Trabalhar o solo dentro e ao redor das raízes, estabilizando-o firmemente. O enchimento das covas far-se-á com terra vegetal, aconchegando-se as raízes, de forma a se eliminarem as bolsas de ar. Arejar a terra, de modo a que esta fique estabilizada, mas não compactada em demasia. Fazer uma depressão à volta da árvore para rega.

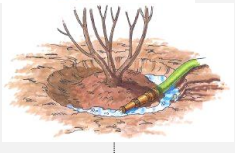
**f)** Regar lenta mas completamente, para que se estabilize o solo.

**Plantação de árvores em vaso**

**a)** Remover cuidadosamente a planta do vaso, mesmo que este seja biodegradável.

**b)** Libertar as raízes, especialmente as que circundam a raiz central, podando-as se necessário.

**c)** Adicione terra gradualmente, estabilizando-a, progressivamente. Neste ponto deverá seguir os cuidados também referidos para a plantação de árvores em raiz nua.



**d)** Regue adequadamente. Neste ponto deverá seguir os cuidados também referidos para a plantação de árvores em raiz nua.

**Tutoragem**

As jovens árvores deverão suportar o seu próprio peso. No entanto, dependendo das suas dimensões e principalmente em situações de plantas estioladas ou transplantadas (plantação de árvores já de porte significativo) é muitas vezes necessária a colocação de tutores para auxílio à sua implantação e fixação no local.

- **a)** Os tutores devem ser provenientes de plantas sãs, direitos, descascados, secos, limpos de nós, com grossura e resistência proporcionais às plantas a que se destinam;
- **b)** O tutoramento é feito preferencialmente com tutores duplos (bi-pé) ou triplos, com altura e diâmetro adequados às dimensões da árvore;
- **c)** Em ambos os casos, as barras verticais devem ser cravadas no solo a ¼ da altura total do tutor, sem danificar a planta;
- **d)** Relativamente à parte aérea destas estruturas, e no caso dos tutores duplos, estes devem ser travados com duas

| | | | |
|---|---|---|---|
| | réguas horizontais, nas quais se colocam as ligações à árvore;<br>**e)** Tratando-se de tutores triplos, estas ligações podem recorrer a barras horizontais ou não, desde que se garanta o sistema triplo de ligações, colocado em volta da árvore de modo a ampará-la eficientemente e não a danificar;<br>**f)** As ligações do tutor à árvore devem ser de um material elástico, devendo-se excluir por completo ligações com arames, plásticos ou cordas rígidas. | | |

**SIGLAS E DEFINIÇÕES**

| Sigla | DESCRIÇÃO |
|---|---|
| | |
| | |

# Annex 22 - Work Procedure C04-05-PT-05 - Management of Urban trees

| Codificação | | PROCEDIMENTO DE TRABALHO | |
|---|---|---|---|
| C04-05-PT-05 | | GESTÃO DE ARVOREDO URBANO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 07-08-2015 | | |

## 1. OBJETIVO

A Câmara Municipal do Porto é responsável pela qualidade e segurança do seu património arbóreo. Nesse âmbito destaca-se não só a importância da garantia de arborização contínua da Cidade mas, principalmente, da qualidade da sua instalação.
O objetivo desta instrução de trabalho é então o de definir métodos para a gestão de arvoredo urbano.

## 2. ÂMBITO

Este procedimento aplica-se no âmbito da atividade de Gestão Arvoredo

## 3. MODO DE PROCEDER - FLUXOGRAMA (OPCIONAL)

## 4. DESCRIÇÃO

| Nº ou Fase | Descrição | Responsável | Documentos/ Suporte |
|---|---|---|---|
| Levantamento de Necessidades | Recolha de informação<br>Triagem<br>Enquadramento temporal para diagnóstico | · Técnico | · C04-05-IMP-25 Registo de Ocorrências; C04-05-IMP-24 Ficha de Alerta/Pavimentos; |
| Diagnóstico e decisão de intervenção | Deslocação ao local<br>Análise técnica e enquadramento legal<br>Definição de graus de prioridade por tipo de atuação<br>Enquadramento temporal para intervenção<br>Encaminhamento para chefe de Divisão | Gestor de Zona Operacional<br>. | Processo em DocInporto<br>. |
| Planeamento | Enquadramento da intervenção em função da estação do ano<br>Levantamento de necessidades logísticas (os meios humanos e materiais necessários)<br>Estimativa de duração da intervenção | Gestor de Zona Operacional<br>. | Processo em DocInporto |
| Execução | • Preparação dos meios necessários ás operações a efetuar:<br>• Abate<br>• Poda<br>• Reformulação<br>• Tarefas inerentes à manutenção<br>Registar os abate/poda | Equipa / Gestor de Zona Operacional | C04-05-IT-01 – Poda do Arvoredo;<br>C04-05-IT-06 – Plantação do Arvoredo;<br>C04-05-IT-07 – Abate de Arvoredo |
| Encerramento | Encaminhamento para o Chefe de Divisão para conhecimento da execução da tarefa<br>Entregar toda a documentação à Coordenação da Gestão de Arvoredo Urbano | Gestor de Zona Operacional | C04-05-IMP-26- Registo de plantações efetuadas |

## 5. PLANO DE CONTROLO - MONITORIZAÇÃO DA EXECUÇÃO DO SERVIÇO (OPCIONAL)

| Nº ou Fase | Descrição | Método | Frequência | Responsável | Registo |
|---|---|---|---|---|---|
| 1. | . | | | . | . |

| Codificação | | PROCEDIMENTO DE TRABALHO | |
|---|---|---|---|
| C04-05-PT-05 | | GESTÃO DE ARVOREDO URBANO | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 07-08-2015 | | |

| SIGLAS E DEFINIÇÕES | |
|---|---|
| **Sigla** | **DESCRIÇÃO** |
| | |
| | |
| | |
| | |
| | |

# Annex 23 - Work Instruction C04-05-IT-01 - Pruning of Trees

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-01 | | Poda do Arvoredo | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 04-08-2015 | | |

## 1. OBJETIVO

A Câmara Municipal do Porto é responsável pela qualidade e segurança do seu património arbóreo, relativamente a pessoas e bens que se encontrem na área da Cidade do Porto sendo a sua manutenção e gestão da coordenação do GAU.
O objetivo desta instrução de trabalho é definir métodos de realização de podas de árvores.

## 2. ÂMBITO

Gestão de arvoredo.

## 3. MODO DE PROCEDER - FLUXOGRAMA (OPCIONAL)

## 4. DESCRIÇÃO

| Nº ou Fase | Descrição | Responsável | Documentos / Suporte |
|---|---|---|---|
| Aspetos técnicos a ter em consideração | · A realização desta atividade é feita sempre que constar do Programa Semanal de Trabalhos ou do Programa Mensal de Tarefas a Efetuar.<br>· Realizar-se-á também sempre que uma situação imprevista assim o exija.<br>· As podas de manutenção correntes têm um carácter essencialmente preventivo, assegurando o vigor da árvore, aumentando a sua qualidade, segurança e esperança de vida<br>· As podas são executadas de modo a realizar correções, suprimindo ramos mal orientados, ramos ladrões ou ramos mortos, que prejudiquem o desenvolvimento das árvores e arbustos, de acordo com a sua estrutura, arquitetura, implantação (isolado, em maciço ou alinhamento) e função, tendo sempre em conta o seu objetivo (crescimento livre ou toparia).<br>· Poderão ainda efetuar-se, sempre que se verifique que os exemplares arbóreos conflituem com estruturas e vivências urbanas. | · Técnicos | · C04-05-IMP-07-Programa Semanal de Trabalhos<br>· C04-05-IMP-27-Registo Mensal de trabalhos efetuados em espaços verdes |
| Aspetos a ter em conta pelos operadores | · Distribuição pelo coordenador operacional dos elementos da equipe a afetar às operações: critério de poda; toragem; carga e limpeza;<br>· Garantir a presença de um elemento na via de modo a minimizar os incómodos na circulação rodoviária e pedonal;<br>· Sempre que questionados por munícipes, para esclarecimentos, sugestões, solicitações ou reclamações deverão indicar o nº de telefone gratuito da Ecolinha 800205744, que efetuará o registo e encaminhamento para a Divisão Municipal de Jardins;<br>· Abordar educadamente os munícipes no sentido de respeitarem as áreas de segurança delimitadas. | · Coordenador Operacional | · |
| Aspetos a ter em conta relativamente às máquinas e equipamentos a utilizar | · Proceder ao estacionamento das viaturas afetas fora da área de segurança, em local visível e devidamente sinalizada, obstruindo o mínimo possível a passagem de outras viaturas;<br>· Garantir que as máquinas com que se vai operar se encontram limpas e em perfeitas condições de funcionamento;<br>· Em caso de anomalia detetada preencher o Ficha de Ocorrências;<br>· Garantir e confirmar a presença no local de todos os combustíveis necessários às operações. | · Coordenador Operacional | · C04-05-IMP-25-Ficha de Ocorrências |

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-01 | | Poda do Arvoredo | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 04-08-2015 | | |

| | | | |
|---|---|---|---|
| Remoção de material vegetal | · Desobstruir imediatamente (corte a corte) a faixa de rodagem;<br>· Torar a madeira em porções compatíveis com o veículo de transporte;<br>· Agrupar em montes distintos a lenha com ramagem e a lenha sem ramagem;<br>· Verificar sempre a existência de materiais contaminantes (terras, pedras ou qualquer outro resíduo urbano), não o carregando.<br>· Acondicionar o material vegetal para efeitos de carga em função da viatura de apoio. Nesta tarefa deve-se garantir a presença de um colaborador no interior da caixa de carga de modo a ir dispondo o material de forma segura, maximizando paralelamente o espaço de carga;<br>· Proceder à limpeza final do local garantindo que este apresente as mesmas condições que antes das operações;<br>· Terminada limpeza ou esgotada a capacidade de carga, a viatura procede para a descarga na central de valorização de resíduos orgânicos da Lipor, devendo recolher o talão de pesagem entregando-o aos serviços administrativos da Divisão Municipal de Parques e Divisão Municipal de Jardins, que o enviará para a Divisão de Limpeza Urbana e Transportes. | · Coordenador Operacional e Operador | · |
| Tipificação das podas | **a.** Poda de segurança<br>  <br>É efetuada em todo e qualquer material que por razões fitossanitárias, estruturais ou mecânicas ponham em risco a segurança de pessoas e bens. Exemplos disso serão ramos secos, debilitados por ação de cancros e/ou cavidades, com demasiado peso para a capacidade de sustentação da zona de inserção, em tração e/ou compressão preocupantes.<br>**b.** Poda de redução de conflitos<br>  <br>É efetuada sempre que se justifique face aos conflitos que decorrem do natural desenvolvimento da árvore com o espaço envolvente.<br>**c.** Poda de formação | · Coordenador Operacional<br>· Operadores | · C04-05-IMP-25-<br>· Ficha de Ocorrências |

| Codificação | | INSTRUÇÃO DE TRABALHO | Porto. Câmara Municipal |
|---|---|---|---|
| C04-05-IT-01 | | Poda do Arvoredo | |
| Revisão | Data | | |
| 02 | 04-08-2015 | | |

É efetuada durante a fase jovem da planta ou quando esta atinge uma certa dimensão necessitando de uma correção no rumo do seu desenvolvimento.
São aqui retirados ramos de reduzida dimensão, mesmo quando de impõe a formação de árvores já em fase adulta.

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-01 | | Poda do Arvoredo | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 04-08-2015 | | |

| | | | |
|---|---|---|---|
| Preparação dos Trabalhos | a. Segurança<br>Na execução dos deverão garantir-se todas as condições de segurança, quer no que se refere aos operadores, como aos utilizadores e bens do espaço envolvente. Para tal ter-se-á de:<br>Definir e delimitar inequívoca e previamente uma área de segurança, com um perímetro adequado à área de queda da árvore (esta área deverá ser tanto maior quanto maior a árvore e corresponder à necessidade de espaço para, em caso de queda livre, o exemplar poder cair dentro da área de segurança);<br>Dentro da área de segurança, todos os elementos operacionais deverão encontrar-se equipados com todos os equipamentos de proteção individual necessários às tarefas por eles executadas, com especial destaque a capacete; colete de sinalização; botas e luvas de proteção;<br>Todos os elementos que manobrem motosserras deverão usar EPI's adequados, tais como: casaco ou manguitos anti corte; calças com proteção anti corte; botas com proteção anti corte; luva anti corte.<br><br>b. Técnicas<br>Sempre que, perante a necessidade de atuar sobre árvores de porte significativo, envolvidas por constrangimentos vários, como estruturas edificadas, mobiliário urbano, entre outros, a execução dos trabalhos deverá sempre garantir o seguinte:<br>▪ O material que vai sendo retirado deverá, com técnicas de corte adequadas, fazer-se cair num local específico e definido antecipadamente pelo operador. Em alternativa dever-se-á cordear cada uma das porções fazendo com que estas caiam controladamente;<br>▪ O trabalho deverá ser efetuado por operadores especializados para estas tarefas, devendo para tal recorrer-se a podadores/escaladores, com conhecimentos técnicos de corte de ramos e comportamento das árvores, principalmente no que se refere à queda do material cortado;<br>▪ Excluem-se por completo as situações de recurso a escadas simples, sem que estas sirvam exclusivamente para favorecer o acesso inicial dos escaladores à árvore. A partir deste momento, o operador deverá recorrer a cordas e técnicas de escalada para a movimentação dentro da árvore, garantindo-se para tal, sempre, que o operador tem pelo menos dois pontos de segurança;<br>▪ Sempre que possível deve-se recorrer a plataformas elevatórias com alcance suficiente para que os operadores em altura possam facilmente aceder à parte da árvore a trabalhar. | · Coordenador Operacional<br>· Operadores | · C04-05-IMP-25-<br>· Ficha de Ocorrências |

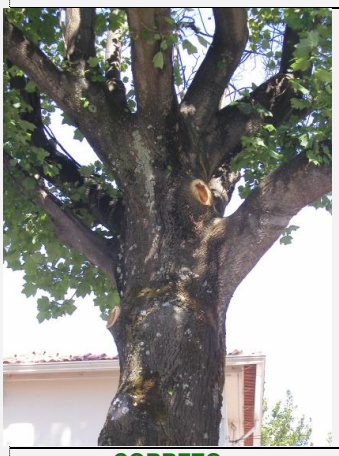
| Codificação | | INSTRUÇÃO DE TRABALHO | Porto. Câmara Municipal |
|---|---|---|---|
| C04-05-IT-01 | | Poda do Arvoredo | |
| Revisão | Data | | |
| 02 | 04-08-2015 | | |

| Codificação | | INSTRUÇÃO DE TRABALHO | Porto. Câmara Municipal |
|---|---|---|---|
| C04-05-IT-01 | | Poda do Arvoredo | |
| **Revisão** | **Data** | | |
| 02 | 04-08-2015 | | |

| | | | |
|---|---|---|---|
| |  | | |
| Execução dos trabalhos | **a.** Aspetos a ter em conta pelos operadores<br><br>▪ Distribuição pelo coordenador operacional dos elementos da equipe a afetar às operações: critério de poda; toragem; carga e limpeza;<br>▪ Garantir a presença de um elemento na via de modo a minimizar os incómodos na circulação rodoviária e pedonal;<br>▪ Sempre que questionados por munícipes, para esclarecimentos, sugestões, solicitações ou reclamações deverão indicar o nº de telefone gratuito da Ecolinha 800205744, que efetuará o registo e encaminhamento para a Divisão Municipal de Jardins;<br>▪ Abordar educadamente os munícipes no sentido de respeitarem as áreas de segurança delimitadas.<br><br>**b.** Aspetos a ter em conta relativamente às máquinas e equipamentos a utilizar<br><br>▪ Proceder ao estacionamento das viaturas afetas fora da área de segurança, em local visível e devidamente sinalizada, obstruindo o mínimo possível a passagem de outras viaturas;<br>▪ Garantir que as máquinas com que se vai operar se encontram limpas e em perfeitas condições de funcionamento;<br>▪ Em caso de anomalia detetada preencher Ficha de Ocorrências;<br>▪ Garantir e confirmar a presença no local de todos os combustíveis necessários às operações.<br><br>**c.** Remoção de material vegetal<br><br>▪ Desobstruir imediatamente (corte a corte) a faixa de rodagem;<br>▪ Torar a madeira em porções compatíveis com o veículo de transporte;<br>▪ Agrupar em montes distintos a lenha com ramagem e a lenha sem ramagem;<br>▪ Verificar sempre a existência de materiais contaminantes (terras, pedras ou qualquer outro resíduo urbano), não o carregando. | · Coordenador Operacional<br>· Operadores | · C04-05-IMP-25-<br>· Ficha de Ocorrências |

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-01 | | Poda do Arvoredo | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 04-08-2015 | | |

<table>
<tr>
<td></td>
<td>
<ul>
<li>Acondicionar o material vegetal para efeitos de carga em função da viatura de apoio. Nesta tarefa deve-se garantir a presença de um colaborador no interior da caixa de carga de modo a ir dispondo o material de forma segura, maximizando paralelamente o espaço de carga;</li>
<li>Proceder à limpeza final do local garantindo que este apresente as mesmas condições que antes das operações;</li>
<li>Terminada limpeza ou esgotada a capacidade de carga, a viatura procede para a descarga na central de valorização de resíduos orgânicos da Lipor, devendo recolher o talão de pesagem entregando-o aos serviços administrativos da Divisão Municipal de Jardins, que o enviará para a Divisão Municipal de Limpeza Urbana e Transportes.</li>
</ul>


</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Especificações técnicas</td>
<td>
As podas são feitas tendo em conta as seguintes considerações:<br>
· Os cortes devem ser limpos em bisel (ideal se feitos de uma única vez), respeitando sempre a ruga e colo do ramo;<br>


<br>
CORRETO | ERRADO<br>
· Sempre que sejam feitos em altura devem ser tomadas medidas de segurança, como a verificação do correto ponto de fixação e estabilidade da escada ao solo, deve ser sinalizado para que ninguém seja atingido por ramos em queda;
</td>
<td>
·<br>
· Coordenador Operacional<br>
· Operadores
</td>
<td>
· C04-05-IMP-25-<br>
· Ficha de Ocorrências
</td>
</tr>
</table>

| Codificação | | INSTRUÇÃO DE TRABALHO | |
|---|---|---|---|
| C04-05-IT-01 | | Poda do Arvoredo | Porto. Câmara Municipal |
| Revisão | Data | | |
| 02 | 04-08-2015 | | |

| | | | |
|---|---|---|---|
| | · Os ramos cortados, **se saudáveis** e sempre que possível devem ser triturados e depois acondicionados para posteriormente serem estilhaçados e servirem de "*mulching*".<br>· Os ramos com sinais de doenças ou pragas, não devem ser misturados com os sãos. | | |

| SIGLAS E DEFINIÇÕES | |
|---|---|
| **Sigla** | **DESCRIÇÃO** |
| EPI | Equipamento de Proteção Individual |
| GAU | Gestão do Arvoredo Urbano |
| Lipor | Serviço Intermunicipalizado de Gestão de Resíduos do Grande Porto |

# Annex 24 - Form C04-05-IMP-01 - Inventory of Trees of the Municipal Council – Field Chart

**Direção Municipal de Proteção, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

Porto. Câmara Municipal

**INVENTÁRIO DAS ÁRVORES DA C.M. PORTO – FICHA DE CAMPO**

Operador:_____ Data:____/____/20

**1.Localização**:_____
Nº árvore:_____ Nº polícia:_____ Zona:_____ Mapa:_____

**2.Dendrologia e parâmetros dendrométricos**
Nome científico:_____ Altura (h):_____m
Diâmetro:_____cm Diâmetro médio da copa:_____cm Idade aprox. árvore:_____anos

**3.Ambiente da Árvore:**
Posição:
☐ Alameda ☐ Bosquete ☐ Parque ☐ Canteiro ☐ Junto a _____ ☐ Estacionamento
☐ Passeio ☐ Caminho ☐ Jardim ☐ Com tutor ☐ Junto a _____ ☐ _____

Pavimento (área de projeção da copa) e estado de conservação:
☐ Asfalto ☐ Calçada ☐ Relvado ☐ _____ ☐ Normal ☐ Deformado ☐ Rebentado
☐ Cimento ☐ Ervado ☐ Ornamentais ☐ _____

☐ Regas Periodicidade_____ ☐ Aspersão ☐ Gota a gota ☐ Local
☐ Fertilizações Periodicidade_____ Tipo:_____

**4. Fatores limitantes ao desenvolvimento da árvore** (Classificação de 1 a 4):
☐ Rede de serviços ☐ Podas anteriores ☐ Passeio ☐ Caldeira ☐ Valas (ano)_____
☐ Estacionamento ☐ Alteração de cota ☐ Edifício ☐ Estradas ☐ Rede elétrica
☐ Compactação ☐ Outras árvores ☐ Tutor ☐ Idade ☐ _____

**5.Sanidade (sintomas e sinais):**
Copa:
Dieback ☐ (0 a 4) Desfolha ☐ (0 a 4) Descoloração ☐ (0 a 3)
Tronco (1 a 4):
☐ Cancros ☐ Fungos ☐ Cavidades ☐ Fendilhamento ☐ Crescimento codominância ☐ _____
☐ Feridas ☐ Pragas ☐ Vandalismo ☐ Ramos ladrões ☐ Raízes à superfície ☐ _____
Ramos (1 a 4):
☐ Cancros ☐ Fungos ☐ Esferoblastos ☐ Mal conformados ☐ Tumores ☐ _____
☐ Feridas ☐ Pragas ☐ Fendilhamento ☐ Secos ou partidos ☐ Ramos ladrões ☐ _____

**6. Árvore Morta**
☐ Presente Causas: ☐ Pragas ☐ Impedância mecânica ☐ _____
☐ Removida Ano_____ ☐ Doenças ☐ Intempérie ☐ Vandalismo

**7. Classe de Estrago (de 1 a 4):**

**8.Árvore de interesse especial** Classificada: S ☐ N ☐ Possibilidade classificação: S ☐ N ☐
☐ Idade ☐ História ☐ Paisagismo ☐ Utilização Pública ☐ Botânica ☐ _____

**9.Intervenções (1 a 4):**
☐ Tratamentos fitossanitários ☐ Fertilização ☐ Tutor:_____ ☐ Podas: _____ e _____
☐ Fecho definitivo da caldeira ☐ Abate ☐ Alargar caldeira ☐ Nova plantação:_____

**10.Próxima avaliação:**_____ meses

**11.Prioridade Geral (1 a 4):**_____ (1-mínima; 2-média; 3-alta; 4-urgente)

**12.Observações complementares:**

C04-05-IMP-01 Rev.10 1/1

# Annex 25 - Form C04-05-IMP-09 - Warning Chart - Trees

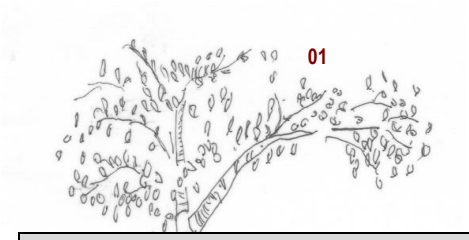
**Direção Municipal de Proteção, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

Porto. Câmara Municipal

## FICHA DE ALERTA

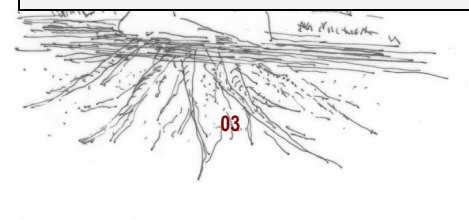
Data____/____/____

| | |
|---|---|
| Colaborador | |
| Local | |
| N.º Árvore | |
| Ref. Carta | |




| 01 COPA |
|---|
| |
| |
| |
| |
| |
| |
| |

| 02 TRONCO |
|---|
| |
| |
| |
| |
| |
| |
| |




| 03 COLO E RAÍZES |
|---|
| |
| |
| |
| |
| |
| |
| |

| | |
|---|---|
| Novo Diagnóstico | |
| Responsável | |

# Annex 26 - Plan for the Treatment of Processionary

| Plano para tratamento de processionária | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Janeiro | Fevereiro | Março | Abril | Maio | Junho | Julho | Agosto | Setembro | Outubro | Novembro | Dezembro |
| Colocação de armadilhas | | | | | | | | | | | | |
| Colocação de colares | | | | | | | | | | | | |
| Microinjeção | | | | | | | | | | | | |

**Observações**

A metodologia a adotar nos parques implica a colocação de 2 a 3 armadilha de captura de machos em voo, por ha, sendo que serão definidas áreas de maior risco, coincidindo com zonas de caminhos principais, parques de merendas, campos de jogos ou outras.

Nestas áreas proceder-se-á, ainda à colocação de colares para captura de lagartas na fase da procissão e à microinjeção para controlo do desenvolvimento dos ninhos.

Em caso de constatação de ninhos com lagartas ativas, em descida ou no solo, proceder-se-á, sempre que possível, ao corte e destruição dos mesmos. Na impossibilidade de esta intervenção ser efetuada interditar-se-á o acesso com os necessários alertas.

**Direção Municipal de Proteção, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

Porto. Câmara Municipal

# PROGRAMA SEMANAL TRABALHOS

| | |
|---|---|
| Divisão | |
| Equipa Operacional | |

**Semana:_____ a _____ de _____**

| | Segunda | Terça | Quarta | Quinta | Sexta |
|---|---|---|---|---|---|
| | | | | | |
| **Localização** | | | | | |
| **Trabalho a desenvolver** | | | | | |

Direção Municipal de Proteção Civil, Ambiente e Serviços Urbanos
Estrada Interior da Circunvalação 15443
4100-183 Porto
+351 225 320 080
+351 225 320 086





Mês_____ Ano_____ Responsável_____

| Jardim/Parque | Dias | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

A - Limpeza
A1 - Limpeza do Lago
A2 - Limpeza Parque Infantil
B - Corte do relvado/prado
C - Corte de sebe
D - Rega
D1 - Manutenção de rega
E - Sacha e Monda
F - Sementeira
G - ressementeira
I - Retancha
J - Arejamento de relvado
L - Fertilização
M - Poda
N - Abate
O - Tutoragem
P - Tratamento Fitossanitário
Q - Aplicação de herbicidas

Conforme o plano de manutenção de espaços verdes (C04-05-Imp-10) Sim ☐ Não ☐

Encarregado operacional: _____ Data ___/___/_____

Técnico superior: _____ Data ___/___/_____

Observações:

# Annex 29 - List of the Equipment of the City Park

**Listagem Simples Objectos** MUNICÍPIO DO PORTO

**Critério:**

Descrição Objecto é como %Parque da Cidade%
Objecto Activo

| Objecto | Operador | Entidade |
|---|---|---|
| CR-0004 - Corta Relva John Deere F1145 nº16 (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| CR-0014 - Corta Relva John Deere 2653-A nº15 (Parque da Cidade | | 1L22 - Div. M. Parques Urbanos-DMPU |
| CR-0072 - Corta Relva (Grande Aranha) nº43 (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| CR-0132 - Corta Relva - Amazone nº77 (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| CR-0230 - Corta Relva John Deere - F1445 nº84 (Parque da Cidad | | 1L22 - Div. M. Parques Urbanos-DMPU |
| CR-0258 - Corta Relva (Grande Aranha) nº93 (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| CR-0316 - Corta Relva John Deere 7H17 (170299) ( (Parque da Ci | | 1L23 - Cemitérios |
| VM-0159 - Carro Eléctrico - Yamaha Golf 2000 nº5 (Parque da Cida | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0222 - Cultivadora Fresa nº9 (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0301 - Mini Tractor John Deere Gator nº44 (6 rodas) (Parque da | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0493 - Máquina de estilhaçar lenha Timber Wolf R (Parque da C | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0558 - Carro Eléctrico Yamaha Golf 2000 nº6 (Parque da Cidad | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0586 - Carro Eléctrico Yamaha Golf 2000 nº7 (Parque da Cidad | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0587 - Carro Eléctrico Yamaha Golf 2000 nº8 (Parque da Cidad | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0709 - Soprador Stihl BG86 (178429) (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0714 - Motosserra Stihl MS 660 (178433) (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0720 - Corta Mato Kubota D440 (178437) (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0817 - Apara sebes Stihl HL 95 (183125) (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0835 - Escarificador de relva - Redexim (184715) (Parque da C | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0836 - Motosserra Stihl HT 101 nº86 (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0872 - Motosserra Sthil MS 201 TC (187009) (Parque da Cidad | | 1L21 - Div. Mun. Estrutura Verde -DMEV |
| VM-0909 - Corta Mato Kubota D440 (187132) (Parque da Cidade) | | 1L21 - Div. Mun. Estrutura Verde -DMEV |
| VM-0926 - Máquina Perfuradora Sthil BT 360 (187691) (Parque da | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-0963 - Carro Eléctrico Golf Yamaha YTF2E nº9 (Parque da Cid | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-1007 - Corta Mato Stihl FS 260 C (202710) (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-1012 - Broca Plantação Arvores Rian n.º7 (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-1014 - Pulverizador elétrico KPC-16D (202717) (Parque da Cid | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-1036 - Soprador Stihl BG 86 (205546) (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-1071 - Motosserra Stihl MS 261 (205584) (Parque da Cidade) | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-1083 - Motosserra pequena - podadora Stihl MS 201 TC (2055 | | 1L22 - Div. M. Parques Urbanos-DMPU |
| VM-1116 - Motorroçadora Stihl FS 490 C-EM (211462) (Parque da C | | 1L21 - Div. Mun. Estrutura Verde -DMEV |

# Annex 30 - S10-01-IMP-03 - Monitoring Report for the Work Equipment, Machines and Load Lifting Equipment

Direção Municipal de Recursos Humanos
Rua do Bolhão, nº 192
4000-111 Porto
T. +351 222 097 200
F. +351 222 097 222

Porto. Câmara Municipal

## Relatório de Verificação dos Equipamentos de Trabalho, Máquinas e Equipamentos de Elevação de Cargas

| Identificação do Equipamento | | | |
|---|---|---|---|
| Designação | | N.º Interno | |
| Marca | | Modelo | |
| N.º de Série | | Ano de Fabrico | |
| Fabricante | | Afetação | |

| Fotografia do equipamento |
|---|
| |

| Documentação | Sim | Não | NA | Observações |
|---|---|---|---|---|
| Manual de Instruções | ☐ | ☐ | ☐ | |
| Declaração CE | ☐ | ☐ | ☐ | |
| Marcação CE | ☐ | ☐ | ☐ | |
| Indicação Potência Sonora (Lwa) | ☐ | ☐ | ☐ | |
| Relatório da última Verificação | ☐ | ☐ | ☐ | |

| Tipo de Verificação | | | | | | | |
|---|---|---|---|---|---|---|---|
| Instalação | ☐ | Antes do arranque | ☐ | Periódica | ☐ | Extraordinária | ☐ |

reção Municipal de Recursos Humanos
Rua do Bolhão, nº 192
4000-111 Porto
T. +351 222 097 200
F. +351 222 097 222

Porto.
Câmara
Municipal

**Requisitos Mínimos de Seguração dos Equipamentos de Trabalho e Máquinas**
(Art. 10.º a 29.º do Decreto-Lei n.º 50/2005)

| Requisitos Gerais | | | | | |
|---|---|---|---|---|---|
| **Sistemas de Comando** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Legíveis, identificáveis e com marcação apropriada | ☐ | ☐ | ☐ | | |
| Controlo do ET fora das zonas de perigosas | ☐ | ☐ | ☐ | | |
| Visibilidade no posto de comando ou aviso sonoro/luminoso | ☐ | ☐ | ☐ | | |
| **Arranque do Equipamento** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Colocação em funcionamento o ET | ☐ | ☐ | ☐ | | |
| Arranque após uma paragem | ☐ | ☐ | ☐ | | |
| Os ET devem ser equipados de forma a impedir o bloqueio intempestivo dos elementos de transmissão de energia | ☐ | ☐ | ☐ | | |
| Alterações de funcionamento do ET (velocidade, pressão, temperatura, etc.) | ☐ | ☐ | ☐ | | |
| **Paragem do Equipamento** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Paragem geral | ☐ | ☐ | ☐ | | |
| Paragem de emergência | ☐ | ☐ | ☐ | | |
| Prioridade da paragem em relação ao arranque | ☐ | ☐ | ☐ | | |
| Corte de energia (elétrica, hidráulica, pneumática) | ☐ | ☐ | ☐ | | |
| **Estabilidade e Rutura** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Estabilização por fixação ou outros meios | ☐ | ☐ | ☐ | | |
| Proteção contra estilhamento ou rutura de elementos | ☐ | ☐ | ☐ | | |

Direção Municipal de Recursos Humanos
Rua do Bolhão, nº 192
4000-111 Porto
T. +351 222 097 200
F. +351 222 097 222

Porto. Câmara Municipal

| Projeções e Emanações | C | NC | NA | Ações Corretivas (ref.) | Prazo |
|---|---|---|---|---|---|
| Dispositivos que evitem a queda ou Projeção de objetos | ☐ | ☐ | ☐ | | |
| Sistema de retenção, extração gases, líquidos ou vapores (*mists*) | ☐ | ☐ | ☐ | | |
| **Contacto Mecânico** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Zonas de risco de contacto mecânico | ☐ | ☐ | ☐ | | |
| Protetores e dispositivos de Proteção de contacto mecânico | ☐ | ☐ | ☐ | | |
| Manutenção dos protetores e dispositivos de Proteção de contacto mecânico | ☐ | ☐ | ☐ | | |
| **Iluminação e Temperatura** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Iluminação das zonas e postos de trabalho, incluindo locais de manutenção | ☐ | ☐ | ☐ | | |
| Proteção das partes das partes do ET que atinjam temperaturas muito elevadas | ☐ | ☐ | ☐ | | |
| **Dispositivos de Alerta** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Ouvidos, vistos e compreendidos sem ambiguidade | ☐ | ☐ | ☐ | | |
| **Manutenção** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Operações de manutenção devem poder efetuar-se com o equipamento parado | ☐ | ☐ | ☐ | | |
| Registos ou plano de manutenção do ET | ☐ | ☐ | ☐ | | |
| Segurança no acesso aos locais necessários para manutenção | ☐ | ☐ | ☐ | | |
| **Riscos Elétricos, Incêndio e Explosão** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Proteção de contacto direto e indireto com eletricidade | ☐ | ☐ | ☐ | | |
| Proteção contra incêndio e gases libertados | ☐ | ☐ | ☐ | | |
| Proteção contra explosão | ☐ | ☐ | ☐ | | |

Direção Municipal de Recursos Humanos
Rua do Bolhão, nº 192
4000-111 Porto
T. +351 222 097 200
F. +351 222 097 222

Porto. Câmara Municipal

| Fontes de Energia | C | NC | NA | Ações Corretivas (ref.) | Prazo |
|---|---|---|---|---|---|
| Identificação das fontes de energia (elétrica, pneumáticas) | ☐ | ☐ | ☐ | | |
| **Sinalização de Seguração** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Sinalizados com avisos de perigo, utilização de EPI ou outra sinalização indispensável | ☐ | ☐ | ☐ | | |

| Requisitos complementares dos Equipamentos Móveis | | | | | |
|---|---|---|---|---|---|
| **Equipamentos que transportem trabalhadores e riscos de capotamento** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Redução do risco de contacto ou entalamento dos trabalhadores com rodas ou lagartas | ☐ | ☐ | ☐ | | |
| Estrutura para limitar os riscos de capotamento | ☐ | ☐ | ☐ | | |
| Sistema de retenção dos trabalhadores | ☐ | ☐ | ☐ | | |
| **Transmissão de energia** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Os ET devem ser equipados de forma a impedir o bloqueio intempestivo dos elementos de transmissão de energia | ☐ | ☐ | ☐ | | |
| Fixação dos elementos de transmissão de energia | ☐ | ☐ | ☐ | | |
| **Risco de Capotamento de empilhadores** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Estrutura da cabine de Proteção do trabalhador em caso de capotamento | ☐ | ☐ | ☐ | | |
| **Equipamentos Móveis Automotores** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Dispositivo que evite a entrada em funcionamento não autorizada | ☐ | ☐ | ☐ | | |
| Dispositivo que reduza as consequências em caso de colisão (cinto de segurança) | ☐ | ☐ | ☐ | | |
| Dispositivo que permita a sua travagem e imobilização | ☐ | ☐ | ☐ | | |
| Dispositivo que aumente a visibilidade do condutor (espelho(s) retrovisor(s)) | ☐ | ☐ | ☐ | | |
| Iluminação adequada ao trabalho | ☐ | ☐ | ☐ | | |

**Direção Municipal de Recursos Humanos**
Rua do Bolhão, nº 192
4000-111 Porto
T. +351 222 097 200
F. +351 222 097 222

Porto. Câmara Municipal

| | | | | | |
|---|---|---|---|---|---|
| Dispositivo de combate a fogo (exceto se houver na proximidade) | ☐ | ☐ | ☐ | | |
| Equipamentos telecomandados – Imobilização fora do raio de ação | ☐ | ☐ | ☐ | | |
| Acessos com mecanismos antiderrapantes | ☐ | ☐ | ☐ | | |
| Visibilidade adequada (frente e traseira) | ☐ | ☐ | ☐ | | |

| **Requisitos complementares dos Equipamentos de Elevação de Cargas** | | | | | |
|---|---|---|---|---|---|
| **Instalação** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Solidez, estabilidade durante a utilização nos pontos de suspensão ou fixação à estrutura | ☐ | ☐ | ☐ | | |
| Redução dos riscos de colisão da carga com os trabalhadores | ☐ | ☐ | ☐ | | |
| Redução do risco de basculamento e queda de cargas | ☐ | ☐ | ☐ | | |
| Ensaios de carga na instalação (dinâmicos e estáticos) | ☐ | ☐ | ☐ | | |
| **Sinalização e Marcação de Carga** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Indicação da carga nominal (por ponto de fixação) | ☐ | ☐ | ☐ | | |
| Marcação e conservação dos acessórios de elevação | ☐ | ☐ | ☐ | | |
| Sinalização de proibição de elevação de pessoas | ☐ | ☐ | ☐ | | |
| **Equipamentos de Elevação ou Transporte de Trabalhadores** | **C** | **NC** | **NA** | **Ações Corretivas (ref.)** | **Prazo** |
| Mecanismos de Proteção de queda do habitáculo | ☐ | ☐ | ☐ | | |
| Mecanismos de Proteção de esmagamento, entalamento ou colisão do utilizador | ☐ | ☐ | ☐ | | |
| Evacuação do habitáculo em caso de acidente | ☐ | ☐ | ☐ | | |
| Cabo de segurança suplementar | ☐ | ☐ | ☐ | | |

Legenda: C – Conforme; NC - Não Conforme; NA - Não Aplicável.

**Direção Municipal de Recursos Humanos**
Rua do Bolhão, nº 192
4000-111 Porto
T. +351 222 097 200
F. +351 222 097 222

Porto.
Câmara
Municipal

| Observações, Não conformidades e Informações |
|---|
| |

| Anexo Fotográfico (Não conformidades) |
|---|
| |

| | Conforme | Utilização condicionada | Fora de serviço |
|---|---|---|---|
| **Estado da conformidade do equipamento** | ☐ | ☐ Trabalhador informado ☐ | ☐ |

**Direção Municipal de Recursos Humanos**
Rua do Bolhão, nº 192
4000-111 Porto
T. +351 222 097 200
F. +351 222 097 222

Porto. Câmara Municipal

| Data da Verficação | |
|---|---|

| Assinatura dos Responsáveis pela Verificação (Pessoa Competente) | | |
|---|---|---|
| _____ | _____ | _____ |
| (Alcino Neves) | (Claudia Maria Costa) | (Rui Miguel Quelhas) |

| Data da Proxima Verificação | |
|---|---|

| Parecer do Superior Hierárquico |
|---|
| Data: |

# Annex 31 - Work Procedure C04-01-PT-01 -Significant Environmental Aspects of Urban Parks

**Direção Municipal de Proteção Civil, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

## ASPETOS AMBIENTAIS SIGNIFICATIVOS DOS PARQUES URBANOS

| Aspetos ambientais diretos | Atividade | Impactes ambientais |
|---|---|---|
| **Consumo de água para consumo humano** | Serviços Administrativos | Depleção de recursos naturais renováveis; utilização de produtos químicos para clarificação e desinfeção |
| **Consumo de Herbicidas** | Manutenção de Espaços Verdes | Depleção de recursos naturais não renováveis; consumo de materiais de embalagem (não renováveis) |
| **Consumo de Inseticidas e fungicidas** | Manutenção de Espaços Verdes | Depleção de recursos naturais não renováveis; consumo de materiais de embalagem (não renováveis) |
| **Consumo de água de rega de mina, furo ou superficial** | Manutenção de Espaços Verdes | Depleção de recursos naturais renováveis |
| **Consumo de água potável (rega)** | Manutenção de Espaços Verdes | Depleção de recursos naturais renováveis; utilização de produtos químicos para clarificação e desinfeção |
| **Consumo de água potável (bebedouros e WC pública)** | Manutenção de Espaços Verdes | Depleção de recursos naturais renováveis; utilização de produtos químicos para clarificação e desinfeção |
| **Consumo de Gasóleo** | Manutenção de Espaços Verdes | Depleção de recursos naturais não renováveis. |
| **Consumo de gasolina sem chumbo (simples e mistura)** | Manutenção de Espaços Verdes | Depleção de recursos naturais não renováveis. |
| **Consumo de óleo** | Manutenção de Espaços Verdes | Depleção de recursos naturais não renováveis. |
| **Consumo de eletricidade (captação e bombagem)** | Gestão do Sistema de Rega | Depleção de recursos naturais não renováveis (origem fóssil); Impactes visuais (renováveis). Utilização do solo (barragens); Alteração da qualidade do ar (nevoeiro fotoquímico); Potencial de Efeito de Estufa; Potencial de chuvas ácidas; Efeitos nefastos na saúde de mamíferos |
| **Armazenagem de hidrocarbonetos (óleos, gasóleo e gasolina) (derrame acidental)** | Armazém - Armazenagem de Produtos | Contaminação dos solos e águas superficiais (Derrame acidental de hidrocarbonetos) |
| **Armazenagem de fitofármacos (herbicidas, inseticidas e fungicidas) (derrame acidental)** | Armazém - Armazenagem de Produtos | Contaminação dos solos e águas superficiais (Derrame acidental de produtos químicos perigosos) |

| Aspetos ambientais indiretos | Atividade | Impactes ambientais |
|---|---|---|
| **Consumo de gasóleo** | Realização de Eventos | Depleção de recursos naturais não renováveis |
| **Derrame de substâncias perigosas** | Realização de Eventos | Contaminação de águas superficiais e/ou lagos dos parques; contaminação de solos |
| **Consumo de gasóleo** | Atividade Subcontratada - Realização de empreitadas e manutenção de infraestruturas | Depleção de recursos naturais não renováveis |
| **Consumo de iscos (raticidas)** | Atividade Subcontratada - *Pest Controlo* | Depleção de recursos naturais não renováveis |

# Annex 32 - Work Procedure C04-01-PT-01 - Identification of Aspects and Assessment of the Environmental Impact

| Codificação | | PROCEDIMENTO DE TRABALHO | |
|---|---|---|---|
| C04-01-PT-01 | | IDENTIFICAÇÃO DE ASPETOS E AVALIAÇÃO DE IMPACTES AMBIENTAIS | Porto. Câmara Municipal |
| Revisão | Data | | |
| - | 20-10-2016 | | |

## 1. OBJETIVO

Definir a forma de identificação dos aspetos ambientais das atividades que os Parques Urbanos podem controlar e/ou sobre os quais espera ter influência.
Definir a metodologia de avaliação da significância dos aspetos ambientais e respetivos impactes ambientais associados.
Garantir que:
- os aspetos e impactes ambientais são identificados e documentados;
- os aspetos e impactes ambientais são avaliados considerando a perspetiva de ciclo de vida, nomeadamente do "berço ao uso" e do "uso ao túmulo";
- os aspetos e impactes ambientais significativos são integrados no SG, de forma a implementar medidas de minimização dos impactes negativos no ambiente;
- os aspetos ambientais e impactes associados são revistos periodicamente;
- os aspetos identificados e impactes associados, são considerados como input na revisão do sistema de gestão e na definição dos objetivos ambientais com o planeamento para os atingir.

## 2. ÂMBITO

Este procedimento aplica-se à identificação dos aspetos ambientais associados às atividades e serviços dos Parques Urbanos e à avaliação dos impactes ambientais associados aos aspetos ambientais identificados (considerando condições normais, especiais e de emergência bem como aspetos atuais, previstos, diretos e indiretos).

## 3. MODO DE PROCEDER - FLUXOGRAMA (OPCIONAL)

## 4. DESCRIÇÃO

| Nº ou Fase | Descrição | Responsável | Documentos/ Suporte |
|---|---|---|---|
| **1. Identificação dos Aspetos Ambientais** | O processo de identificação dos aspetos inicia-se com a análise/levantamento de todas as atividades/processos dos diferentes Parques.<br><br>São considerados os inputs e outputs das diferentes actividades/processos, nas seguintes situações:<br><br>• **Situação Normal**: respeitante à rotina operacional do Parque da Cidade;<br>• **Situação Especial**: associada a operações pontuais (ex.: empreitadas, revisão dos extintores, manutenções de equipamentos, etc.);<br>• **Situação de Emergência ou de Acidente**: associada a acidentes e situações de emergência que possam causar impacte no ambiente (ex: ruptura do sistema de rega, derrames de produtos químicos ou combustíveis, incêndio, etc.). | · GA<br>· DA | · C04-01-IMP-02 – Matriz de identificação de aspetos e avaliação de impactes ambientais. |
| **2- Caracterização dos Aspectos Ambientais** | Os aspetos ambientais podem ser:<br><br>• Aspetos ambientais **Diretos**: aspetos diretamente associados à atividade/processo executada sob o controlo dos Parques Urbanos. | · GA<br>· DA | · C04-01-IMP-02 – Matriz de identificação de |

| | | | |
|---|---|---|---|
| | • Aspetos ambientais **Indiretos**: aspetos associados à atividade de fornecedores, prestadores de serviços, fora do âmbito da responsabilidade dos Parques Urbanos, mas sobre os quais este pode ter influência, mas com impactes ambientais no ciclo de vida do aspeto ambiental. | | aspetos e avaliação de impactes ambientais. |
| **3 - Identificação dos Impactes Ambientais associados** | Para todos os aspetos ambientais identificados (causa), é efetuada a avaliação dos impactes ambientais associados (efeito), ou seja, são analisados os efeitos que os aspetos ambientais têm sobre o meio ambiente.<br><br>Assim, destacam-se os principais impactes no ambiente, como a afetação de:<br>-Recursos Naturais;<br>-Qualidade das Águas;<br>-Qualidade do Ar;<br>-Paisagem/Ordenamento do Território;<br>-Fauna e Flora;<br>-Solos;<br>-Homem.<br><br>É importante salientar que os impactes ambientais podem ser positivos ou benéficos (+) ou negativos (-). Os impactes ambientais positivos/benéficos não necessitam ser avaliados, devem contudo ser promovidos e potenciados. | · GA<br>· DA | · C04-01-IMP-02 – Matriz de identificação de aspetos e avaliação de impactes ambientais. |
| **4 – Avaliação dos Impactes Ambientais** | Após identificados os impactes ambientais associados a cada um dos aspectos ambientais é necessário determinar a sua significância. Para tal é necessário avaliar:<br><br>**a) <u>Nível de Significância Ambiental</u>**<br><br>O nível de significância ambiental é calculado tendo em conta cinco critérios:<br><br>**1- Severidade:** tem em conta a perigosidade associada do aspeto ambiental | · GA<br>· DA | · C04-01-IMP-02 – Matriz de identificação de aspetos e avaliação de impactes ambientais. |

| **Severidade dos Impactes (S) (*)** | | | | |
|---|---|---|---|---|
| | **1** | **2** | **3** | **4** |
| **Natureza dos Poluentes** | Nenhum ou não aplicável e material reciclável ou valorizável | Poluentes biodegradáveis e/ou não tóxicos e ruído ambiente | Poluentes orgânicos (hidrocarbonetos, solventes não halogenados) e não persistentes, ácidos, resíduos hospitalares não perigosos e emissões atmosféricas ($SO_2$, $NO_x$, partículas; | Poluentes tóxicos e/ou persistentes (metais pesados, PCB/PCT, solventes halogenados, etc.); Emissões atmosféricas (COV´s – potencialmente cancerígeno) |

| | | | | |
|---|---|---|---|---|
| | | | COV´s), fugas de HCFC/HFC. | |
| **Matérias -Primas** | Matérias-primas renováveis abundantes | Matérias-primas renováveis escassas | Matérias-primas não renováveis abundantes | Matérias-primas não renováveis escassas |
| **Água**(**) | Água origem natural ≥ 90% | Água origem natural [60% - 90%[ | Água origem natural [20% - 60%[ | Água origem natural < 20% |
| | < 100 m³/ano | 100 – 1000 m³/ano | 1000 – 5000 m³/ano | > 5000 m³/ano |
| **Energia**(**) | Fontes renonáveis ≥70% | Fontes Renovávies [50% - 70%[ | Fontes renováveis [30% <50%[ | Fontes renováveis <30% |
| | < 1 tep/ano (***) | 1 tep – 5 tep/ano (***) | 5 tep – 20 tep/ano (***) | > 20 tep/ano (***) |

* Atendendo ao facto desta matriz de avaliação da severidade dos impactes produzidos pelos aspetos ambientais apresentar critérios direcionados para aspetos operacionais da atividade, considera-se que a gravidade dos impactes provenientes do consumo de alguns materiais, associados às áreas não operacionais (isto é, de apoio ou administrativas) é globalmente reduzida, sendo-lhes atribuído a classificação **1**.

** Os aspetos ambientais relacionados com o consumo de energia e água são medidos com recurso à média numérica entre a % utilização de energias renováveis/água de origem natural e os consumos anuais (tep/m³).

*** O cálculo dos consumos energéticos em tep (toneladas de petróleo equivalente), considera os Poderes Caloríficos Inferiores (tep/t) estabelecidos no Despacho n.º 17313/2008 e as densidades dos combustíveis (L/t) definidos no n.º 2 do Art. 13.º da Portaria n.º 228/90. Os PCI e as densidades a utilizar são: *Gasolina/gasolina mistura – 1,075 tep/t; Gasóleo – 1,034 tep/t; GPL – 1,130 tep/t; Gás natural – 1,077 tep/t; Gasolina/gasolina mistura – 1000 L = 0,72 t; Gasóleo – 1000 L = 0,835 t; Gás natural – 0,8404 kg/m³N*

**2 - Ocorrência:** tem em conta a frequência/probabilidade com que o aspeto ambiental ocorre

| Frequência (F) (Situações normais ou especiais) | |
|---|---|
| 1 | Ocorre anualmente ou com periodicidade superior |
| 2 | Ocorre pelo menos uma vez por semestre |
| 3 | Ocorre pelo menos uma vez por mês |
| 4 | Ocorre pelo menos uma vez por semana |
| 5 | Continua |

| Probabilidade (P) (Situações de emergência ou acidente) | |
|---|---|
| 1 | Nunca ocorreu |
| 2 | Ocorreu uma vez (> 10 anos) |
| 3 | Ocorreu uma vez entre 5-10 anos |
| 4 | Ocorreu uma vez entre 1-5 anos |
| 5 | Ocorreu uma vez (< 1 ano) |

**3 - Partes Interessadas:** tem em conta as queixas relatadas pelos utentes, identificadas em questionários ou em reclamações formais

| Partes Interessadas | |
|---|---|
| 4 | Mais de 10 queixas |
| 3 | Entre 4 e 9 queixas |
| 2 | Até 3 queixas |
| 1 | Inexistência de queixas |

**4 - Ciclo de Vida do Aspeto Ambiental - *"Berço" ao Uso (Cradle to Use)*** - tem em conta os principais impactes ambientais indiretos identificáveis existentes ou previsíveis antes da utilização na atividade da organização

| Ciclo de Vida – BU | | | | |
|---|---|---|---|---|
| (*) (**) | 1 | 2 | 3 | 4 |
| **Nível de Controlo** | Controlo sobre todos os impactes | Influência forte sobre os impactes | Controlo ou influência reduzida | Ausência de controlo ou influência sobre os impactes |
| **Impactes do Transporte** | Distâncias curtas de transporte de produtos (até 50 km) | Distâncias médias de transporte de produtos (entre 50 a 1000 km) | Distâncias elevadas de transporte de produtos (entre 1000 a 5000 km) | Distâncias intercontinentais de transporte de produtos (mais de 5000 km) |
| **Matérias-Primas** | Matérias-primas renováveis abundantes | Matérias-primas renováveis escassas | Matérias-primas não renováveis abundantes | Matérias-primas não renováveis escassas |
| **Transformação das Matérias-Primas** | Transformação simples ou numa operação unitárias (p.e. madeira para mobiliário urbano) | Transformação em várias operações unitárias (até 5) ou até duas unidades produtivas (p.e. peças metálicas) | Transformação em várias operações unitárias (mais de 5) ou em várias unidades produtivas (p.e. óleos lubrificantes, combustíveis) | Transformação complexa com várias unidades produtivas e mistura complexa de matérias primas (p.e. produtos com mistura de materiais sintéticos de diferentes proveniência) |
| **Proveniência dos materiais (reciclagem e/ou reutilização)** | Materiais reutilizados | Materiais reciclados totalmente ou parcialmente (mais de 80%) | Materiais reciclados parcialmente (entre 50%-80%) | Materiais reciclados parcialmente (entre inferior a 50%) |

* Verificando-se que é possível de atribuir a mais de um critério, valoração de classificações diferentes para um determinado aspecto ambiental, deve ser selecionada para efeitos de cálculo de significância a classificação com valor mais elevado.
** Caso não sejam identificados impactes ambientais do "Berço" ao Uso, deve ser atribuído a classificação **1**.

**5 - Ciclo de Vida do Aspeto Ambiental - *Uso ao "Túmulo" (Use to Grave)*** - tem em conta os principais impactes ambientais indirectos identificáveis existentes ou previsíveis depois da utilização na actividade da organização até ao fim de vida ou destino final.

| Ciclo de Vida – UT | | | | |
|---|---|---|---|---|
| (*) (**) | 1 | 2 | 3 | 4 |
| **Nível de Controlo** | Controlo sobre todos os impactes | Influência forte sobre os impactes | Controlo ou influência reduzida | Ausência de controlo ou influência sobre os impactes |
| **Capacidade de reciclagem e/ou reutilização** | Totalmente recicláveis ou reutilizáveis (p.e. resíduos de papel) | Recicláveis ou reutilizáveis parcialmente (mais de 50%) (p.e. cordas sintéticas) | Somente alguns componentes são recicláveis (menos de 50%) (p.e. PC´s) | Não recicláveis ou reutilizáveis ou com grandes impactes na reciclagem (p.e. papel de tonner) |
| **Capacidade de absorção pelo meio ambiente** | Facilmente assimilado pelo meio ambiente e sem impactes residuais | Assimilado pelo meio ambiente com impactes limitados e não persistentes | Assimilado parcialmente pelo meio ambiente com impactes significativos e não persistentes | Não assimilado pelo meio ambiente e/ou com impactes significativos e persistentes |
| **Temporalidade dos impactes (tempo de degradação/actividade)** | Até 2 anos | De 2 anos a 10 anos | De 10 anos a 100 anos | Mais de 100 anos |

* Verificando-se que é possível de atribuir a mais de um critério, valoração de classificações diferentes para um determinado aspecto ambiental, deve ser selecionada para efeitos de cálculo de significância a classificação com valor mais elevado.
** Caso não sejam identificados impactes ambientais do Uso ao "Túmulo", deve ser atribuído a classificação **1**.

O **Nível de Significância Ambiental** (NSA) obtém-se através da seguinte fórmula:

***NSA = 3 x Severidade + 2 x Ocorrência + Partes Interessadas + CVBU + CVUT***

<table>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>5 – Aspetos Ambientais Significativos</td><td>A determinação dos aspetos ambientais significativos tem por base o NSA.<br>A “Significância” de um aspeto ambiental refere-se à importância atribuída à alteração provocada no ambiente (impacte ambiental), considerando-se assim que os aspectos ambientais podem ser:<br><br>S – Significativos; N – Não Significativos<br><br>Os aspetos ambientais, e respetivos impactes associados, são considerados SIGNIFICATIVOS a partir do seguinte valor:<br>Nível de Fronteira (NF) > 21.<br><br>O valor numérico 21 (NF) foi determinado pela aplicação da seguinte fórmula de cálculo:<br><br>NF = (Valor Max. NSA + Valor Min. NSA) / 2<br><br>O valor de NF aparece assim como a média entre o valor máximo (34) e mínimo (8) que é possível de obter para o Nível de Significância Ambiental (NSA).<br><br>Considera-se:<br><table><tr><td colspan="2">Aspeto e impacte ambiental</td><td>Nível de Significância Ambiental</td></tr><tr><td rowspan="2"></td><td>SIGNIFICATIVO</td><td>Valor obtido superior a 21</td></tr><tr><td>NÃO SIGNIFICATIVO</td><td>Valor obtido é igual ou inferior a 21</td></tr></table></td><td>· GA<br>· DA</td><td>· C04-01-IMP-02 – Matriz de identificação de aspetos e avaliação de impactes ambientais.</td></tr>
<tr><td>6 – Tratamento de Aspetos Ambientais Significativos</td><td>Sempre que, após a avaliação, se verifique que um aspeto ambiental é significativo, é necessário que este seja gerido no SG, através de um procedimento de Controlo Operacional (boas práticas ou medidas de emergência) ou através dum objetivo ambiental (para os aspetos escolhidos como projetos de melhoria).<br>Sempre que não existam dados suficientes sobre determinado aspeto ambiental devem ser implementadas ações de monitorização com vista ao real conhecimento da situação.<br>A[illegible] a todos os aspetos ambientais significativos estão associadas acções de monitorização, controlo operacional e/ou definição de objetivos ambientais e o planeamento para os atingir.</td><td>· CD</td><td>· C04-01-IMP-02 – Matriz de identificação de aspetos e avaliação de impactes ambientais.</td></tr>
<tr><td>7- Atualização (reavaliação) dos aspetos ambientais</td><td>A Identificação de aspetos ambientais e avaliação de significância é revista, no mínimo, anualmente antes da Revisão pela Gestão.<br>A identificação deve ainda ser realizada sempre que:<br><br>- Se verifique a necessidade de incluir um novo aspecto ambiental;<br>- Sejam implementadas medidas de minimização;<br>- Sejam criados/alterados substancialmente produtos, processos ou atividades dos Parques Urbanos;<br>- Ocorram alterações significativas na legislação ambiental aplicável;<br>- Ocorram alterações significativas do meio;<br>- Sempre que surjam novas reclamações ambientais.</td><td>· GA<br>· DA</td><td>· C04-01-IMP-02 – Matriz de identificação de aspetos e avaliação de impactes ambientais.</td></tr>
</table>

| | | | |
|---|---|---|---|
| **8- Comunicação dos Aspetos Ambientais** | Os aspetos e impactes ambientais identificados e avaliados são comunicados a todas as partes interessadas relevantes, nomeadamente colaboradores e utentes dos parques, de forma a estes serem sensibilizados para o contributo que podem dar para a minimização dos aspetos e impactes ambientais associados às atividades que desempenham. | · GA | · C04-01-IMP- 07 Programa de Comunicação Ambiental |
| **9 – Aspetos e Impactes Ambientais em obra ou projeto** | Para proceder à identificação e avaliação dos aspetos ambientais de todas as obras ou projetos de relevância ambiental, deve ser fornecida a C04-01-IMP-17 Matriz de identificação de aspetos e avaliação de impactes em obra ou projeto, para que sejam identificados, pelo dono da obra, os respetivos impactes ambientais em obra ou projeto. | · Dono da Obra | · C04-01-IMP-17 Matriz de identificação de aspetos e avaliação de impactes em obra ou projeto |

## 5. PLANO DE CONTROLO - MONITORIZAÇÃO DA EXECUÇÃO DO SERVIÇO (OPCIONAL)

| Nº ou Fase | Descrição | Método | Frequência | Responsável | Registo |
|---|---|---|---|---|---|
| 1. | · | | | · | · |
| | · | | | · | · |

## SIGLAS E DEFINIÇÕES

| Sigla | DESCRIÇÃO |
|---|---|
| CD | Chefe de Divisão |
| GA | Gestor Ambiental |
| DA | Dinamizador Ambiental |

**Direção Municipal de Proteção Civil, Ambiente e Serviços Urbanos**
Estrada Interior da Circunvalação 15443
4100-183 Porto
T. +351 225 320 080
F. +351 225 320 086

# CONSUMO DE ÁGUA

| | | | | | Parque da Cidade - Ano de XXXX | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Origem** | **Fonte de Dados** | **Licenças** | **Volume Mensal Máximo ($m^3$)** | **UND** | **Janeiro** | **Fevereiro** | **Março** | **Abril** | **Maio** | **Junho** | **Julho** | **Agosto** | **Setembro** | **Outubro** | **Novembro** | **Dezembro** | **Total** |
| Rede Púb. | Monitorização | --- | --- | $m^3$ | | | | | | | | | | | | | |

| | | | | | Parque de S. Roque - Ano de XXXX | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Origem** | **Fonte de Dados** | **Licenças** | **Volume Mensal Máximo ($m^3$)** | **UND** | **Janeiro** | **Fevereiro** | **Março** | **Abril** | **Maio** | **Junho** | **Julho** | **Agosto** | **Setembro** | **Outubro** | **Novembro** | **Dezembro** | **Total** |
| Rede Púb. | Monitorização | --- | --- | $m^3$ | | | | | | | | | | | | | |

| | | | | | Parque do Covelo - Ano de XXXX | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Origem** | **Fonte de Dados** | **Licenças** | **Volume Mensal Máximo ($m^3$)** | **UND** | **Janeiro** | **Fevereiro** | **Março** | **Abril** | **Maio** | **Junho** | **Julho** | **Agosto** | **Setembro** | **Outubro** | **Novembro** | **Dezembro** | **Total** |
| Rede Púb. | Monitorização | --- | --- | $m^3$ | | | | | | | | | | | | | |

| | | | | | Palácio de Cristal - Ano de XXXX | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Origem** | **Fonte de Dados** | **Licenças** | **Volume Mensal Máximo ($m^3$)** | **UND** | **Janeiro** | **Fevereiro** | **Março** | **Abril** | **Maio** | **Junho** | **Julho** | **Agosto** | **Setembro** | **Outubro** | **Novembro** | **Dezembro** | **Total** |
| Rede Púb. | Monitorização | --- | --- | $m^3$ | | | | | | | | | | | | | |

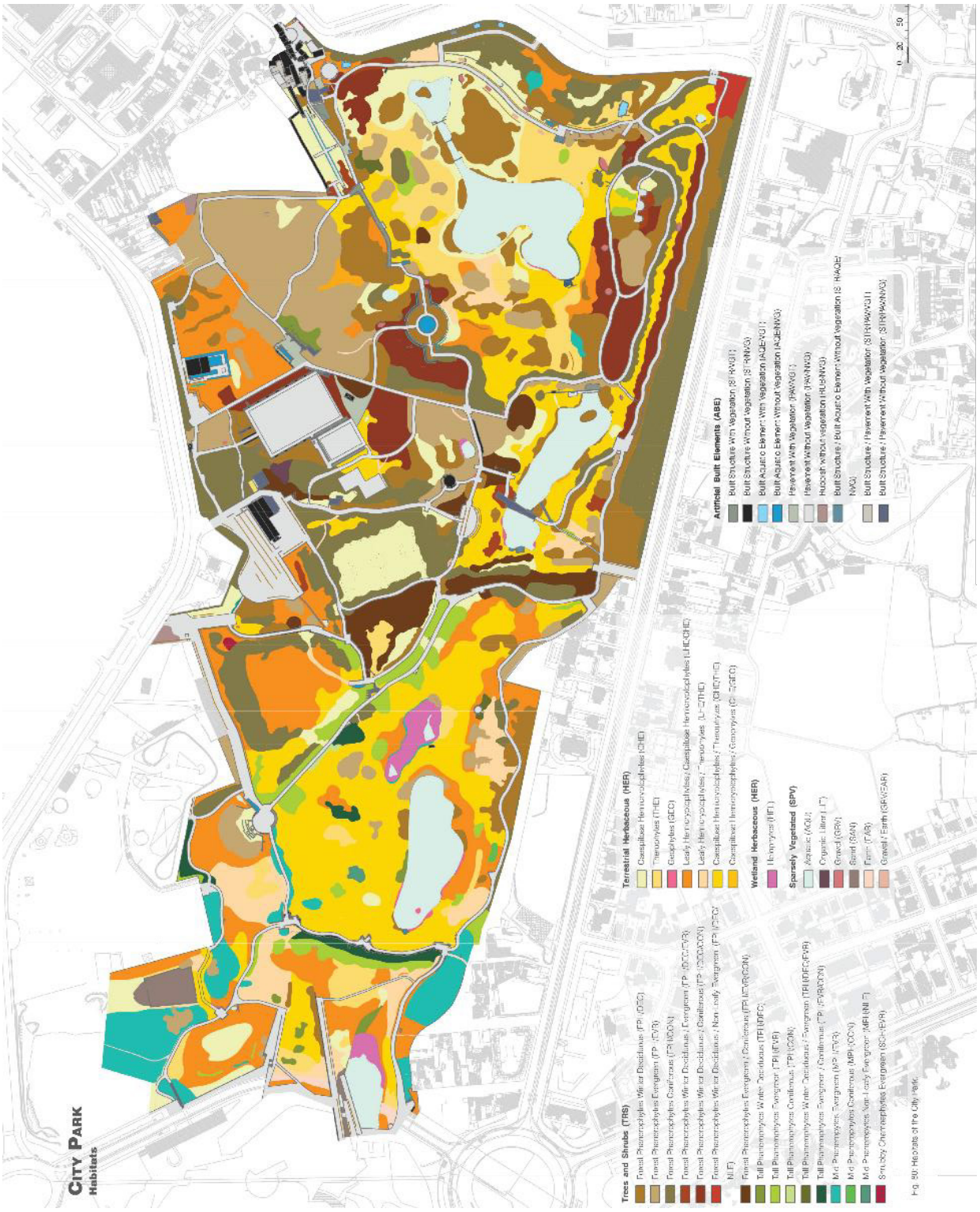
| | | | | | Parque das Virtudes - Ano de XXXX | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Origem** | **Fonte de Dados** | **Licenças** | **Volume Mensal Máximo ($m^3$)** | **UND** | **Janeiro** | **Fevereiro** | **Março** | **Abril** | **Maio** | **Junho** | **Julho** | **Agosto** | **Setembro** | **Outubro** | **Novembro** | **Dezembro** | **Total** |
| Rede Púb. | Monitorização | --- | --- | $m^3$ | | | | | | | | | | | | | |

| | | | | | Parque da Pasteleira - Ano de XXXX | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Origem** | **Fonte de Dados** | **Licenças** | **Volume Mensal Máximo ($m^3$)** | **UND** | **Janeiro** | **Fevereiro** | **Março** | **Abril** | **Maio** | **Junho** | **Julho** | **Agosto** | **Setembro** | **Outubro** | **Novembro** | **Dezembro** | **Total** |
| Rede Púb. | Monitorização | --- | --- | $m^3$ | | | | | | | | | | | | | |

# Annex 34 - Map for the Habitats at the City Park

## Mapa de *habitats* do Parque da Cidade

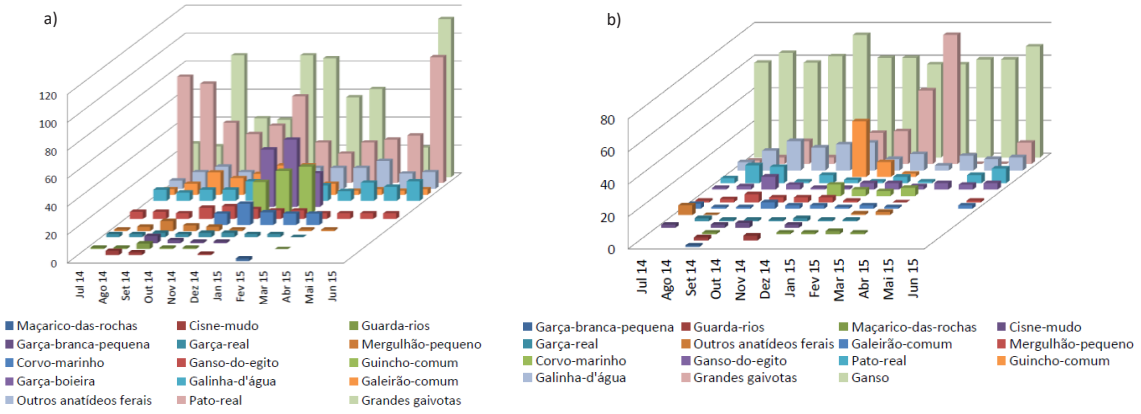
**Fonte: Farinha-Marques et al (2015)**

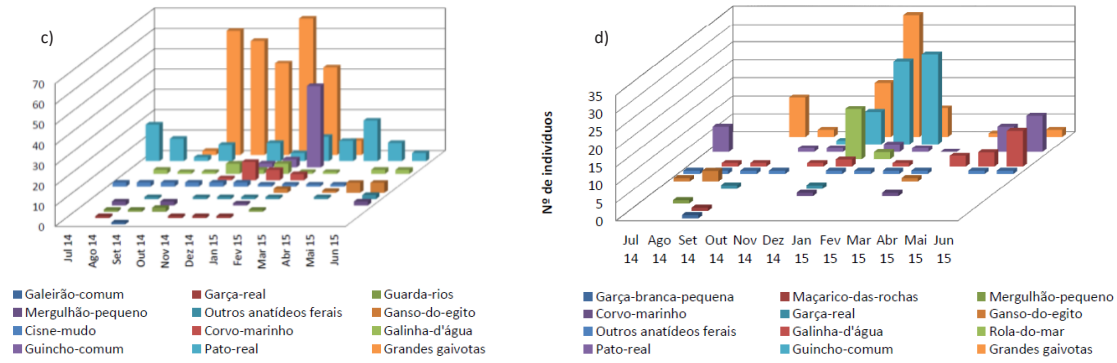


# Annex 35 - Characterisation of the bird fauna communities of the 4 lakes at the City Park

## Caraterização das comunidades de avifauna dos 4 lagos do Parque da Cidade

**Gráficos: a) e b) - número de indivíduos contabilizados, por espécie e mês de amostragem (o grupo "Grandes gaivotas" inclui as espécies, gaivota-de-asa escura e gaivota-argêntea); c) e d) - número de indivíduos contabilizados, por espécie e mês de amostragem (o grupo "Grandes gaivotas" inclui 2 espécies, gaivota-asa-escura e gaivota-de-patas-amarelas). Fonte: Energia Fundamental (2015).**



# Annex 36 - List of Recommendations (2019 - 2023)

| Recommendations for the City Park | | |
|---|---|---|
| W | W.1 | Announce the Park, in such a way that it can be perceived in its exterior. |
| | W.2 | Explore the possibilities for the reuse of the wood of the park in activities that may need this resource. |
| | W.3 | Ensure that, in the Visitor's Welcoming Centre, there is a space meant for the sharing of news. |
| | W.4 | Promote the performance of the study of the uses and the perception of behaviour in collaboration with the Portuguese Association of Parents and Friends of the Mentally Disabled Citizen (Associação Portuguesa de Pais Amigos do Cidadão Deficiente Mental) and the Movement to Support the Intellectually Diminished (Movimento de Apoio ao Diminuido Intelectual), located in the proximity of the park. |
| | W.5 | Ensure the existence of paths accessible to all and that the choice of new pavement assures, whenever possible, the circulation of individuals with reduced mobility. The facilities, whenever possible, must be accessible. |
| | W.6 | Ensure the opening of both doors of both entrances located at the Rural Centre to enable access to all, facilitating the access to wheelchairs and strollers. |
| HSS | HSS.1 | Signal all spaces, operations and alterations to the park which may compromise the safety of the visitors. |
| | HSS.2 | Articulate, with the proper Division, the placement of a crossing from the bus stop located in Circunvalação. |
| | HSS.3 | Continuously update the database for the trees in the park, according to the evolution of the arboriculture works. |
| | HSS.4 | Ensure the monitoring of the rock structure by means of its own Plan. |
| | HSS.5 | Confirm the existences in the first aid kit, every month. |
| | HSS.6 | Predict the training of the staff to answer the situations that may result from deviating behaviour and in the area of mental health. |
| | HSS.7 | Inform, through the interpretative panels, about the paths for evacuation in emergency situations. |
| M | M.1 | Review the "Maintenance Plan of Green Spaces", in order to make it more detailed in actions (e.g: ideal height to cut the meadow; include a paragraph for the sports equipment) and broad in coverage (green and built structure). |
| | M.2 | Include, in the "Plan for the Conservation of Infrastructures and Equipments" paragraphs regarding: i) rock elements - ruins and pergolas; and ii) sports fields, according to the GFA standards and framed within the management system of the CMP. |
| | M.3 | Perform a photographic record of the rock elements, every year. |
| | M.4 | Monitor the Park in a global perspective, comprising all its elements, identifying flaws and informing the responsible Department/Division, whenever it applies. |
| | M.5 | In order to fulfil the previous recommendation, develop comprehensive Monitoring Forms. |
| | M.6 | Train the staff with appropriate information whenever there are technical faults. |
| | M.7 | Ensure that the dispensers of the bags for the collection of dogs' waste are loaded. |
| | M.8 | Promote the spread of specimens of vegetation with special features for the perpetuation of the genetic information. |
| | M.9 | Monitor the operations of pruning by a specialised technician. |
| EM | EM.1 | Ascertain the possibility to increase the exploration of sources for renewable energy, in the buildings. |
| | EM.2 | Develop a municipal campaign which warns against the selective separation of residues in public space. |
| | EM.3 | Study measures to reduce the usage of peat, in the municipal nursery. |
| | EM.4 | Acquire only the brands of peat which bear the municipal stamp RPP (*Responsibly Produced Peat*). |
| | EM.5 | Create a Municipal Strategy for the Parks and Gardens of the city of Porto, where options to adjust to climate changes may be foreseen. |
| | EM.6 | Promote partnerships with the University of Porto and other academic institutions and research centres, in order to implement management and maintenance practices based on scientific evidences. |
| BLH | BLH.1 | Include, in the annual maintenance of the City Park, the recommendations that the designer made and which intend to guide the future maintenance of the Park - revised in the "Guide for the conservation of the landscape of the City Park" (according to the action K.1.1). |
| | BLH.2 | Identify the main habitats for structuring flora and fauna present in the park, articulating habits and life cycles with the maintenance operations. |
| | BLH.3 | Control introduced species (e.g.: chicken). |
| | BLH.4 | When the current signs on biodiversity are replaced, consider a more detailed supply of information to the community (e.g.: map with the description of the main *habitats*, the species which are more likely to be found in each habitat, the hotspots for biodiversity, etc.). |
| | BLH.5 | Should there be the need to cut down any specimen of tree, assess the existence of nests of birds or bats, ensuring that there are alternative habitats for these species in the neighbourhood. |
| CI | CI.1 | Perform surveys which may update the knowledge on the users of the Park. |
| | CI.2 | Develop strategies and activities which may increase the involvement of the community with the park. For example: organising volunteer actions. |
| | CI.3 | Develop projects with Cultural Organisations, Associations and Promoters. As a starting point, involve those peripheral: Teatro da Vilarinha, Associação Pé de Vento, CLIP, APPACDM, MADI. |
| MC | MC.1 | Supply bilingual information - Portuguese and English - in the selected information channels. |
| | MC.2 | Ensure that the events are communicated in time, regardless of the dates being closed or not. Solution: publishing a list of events to be held, every month, communicating the date once it is settled. |
| | MC.3 | Update the information on the information point (located in the Visitor's Welcoming Centre), every month. |
| | MC.4 | Digitally disclose the information held on the leaflets. |
| M | M.1 | Ascertain the possibility to include the recommendations of the GFA in the contracts with the concessions. |
| | M.2 | Develop / acquire a Management Software to help with the activity of the DMEVGI. |

# Annex 37 - Results of the two academic works to assess the degree of satisfaction of the users of the City Park

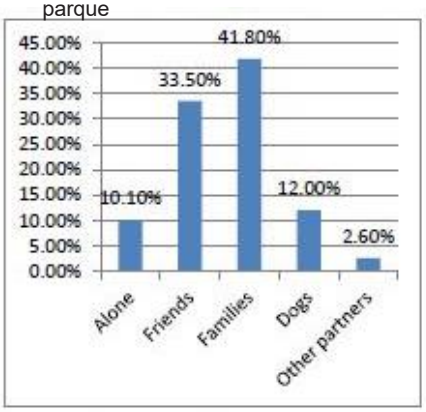
## Resultados obtidos em trabalhos académicos que permitiram aumentar o conhecimento dos utilizadores do Parque da Cidade

No estudo de Jiezhi.Xu. (2015), foi utilizado o método de entrevista, sendo elaborado um questionário de resposta fechada dividido em cinco partes, e entrevistados 646 indivíduos no mês de julho de 2014. Os resultados evidenciam o grau de satisfação dos utilizadores do Parque da Cidade e em que moldes e porque motivos é feita a sua visita. Segundo o estudo de Jiezhi.Xu, os principais visitantes do parque são: grupos de famílias e de amigos, sendo o meio de transporte mais utilizado o carro próprio ou os serviços de transportes públicos. Estes utilizadores revelam frequentar o parque essencialmente nos meses de primavera e verão, particularmente em julho, e a sua estadia prolonga-se na maioria dos casos por duas a cinco horas, entre o período das 9:00 às 12:00 ou entre as 15:00 e as 18:00. Os utilizadores do parque, procuram este espaço essencialmente para caminhar, fazer desporto ou praticar atividades em família (Figura 1). Quando questionados sobre o seu grau de satisfação, os inquiridos mostram-se, na sua maioria, satisfeitos ou muito agradados com os acessos para mobilidade reduzida, segurança, pontos de água potável, WC's e chuveiros, com os equipamentos/mobiliário urbano existente, a rede de caminhos e com o coberto vegetal.

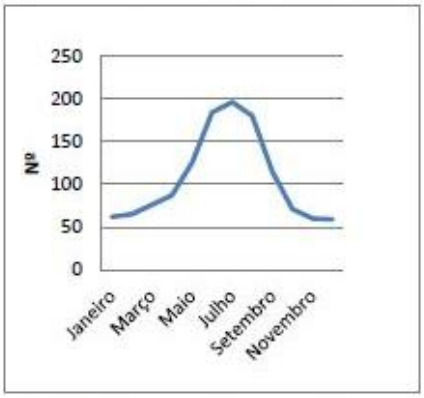
No estudo de Santos (2013), intitulado de *Parques Urbanos: uma proposta de atividade de divulgação Científica para o Parque da Cidade do Porto*, o método utilizado para traçar o perfil dos utilizadores do parque foi o mesmo, sendo desenvolvido um questionário curto de resposta fechada, aplicado no mês de junho de 2013 e inquiridos 106 indivíduos. Este trabalho revela que a maioria dos utilizadores abordados vivem nas cidades do Porto e Matosinhos. De entre os moradores do Porto a grande maioria destes reside na União de Freguesias de Lordelo do Ouro e Massarelos ou Ramalde, estando a União de Freguesias de Aldoar, Foz do Douro e Nevogilde (área em que se insere o Parque da Cidade) entre as freguesias com menos utilizadores do parque. Como objetivo este estudo pretendia dar a conhecer que atividades os utilizadores gostariam de ver executadas ou divulgadas no Parque da Cidade. Entre as propostas referidas no questionário, os utilizadores gostariam de participar em atividades relacionadas com fotografia, nomeadamente concursos ou ralis fotográficos, atividades que envolvam a reciclagem e reutilização de madeira ou *workshops* de trabalhos manuais. Este inquérito revelou ainda o grande interesse por parte do público em *Geocaching* (Figura 2).

**Figura 1 – Resultados obtidos no estudo intitulado de *Travel Cost and Contigent Methods for Economic Valuation of Urban Forests: Parque da Cidade do Porto Case Study* sobre as motivações dos utilizadores do parque. Fonte: Jiezhi.Xu. (2015).**

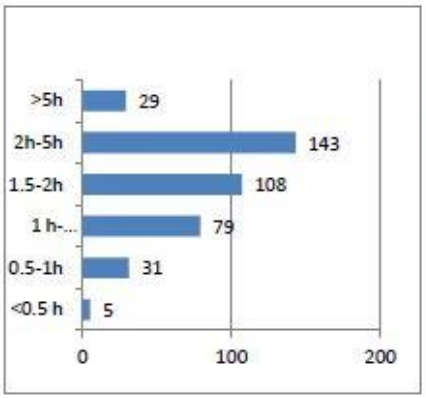
a) Com quem é feita a visita ao parque



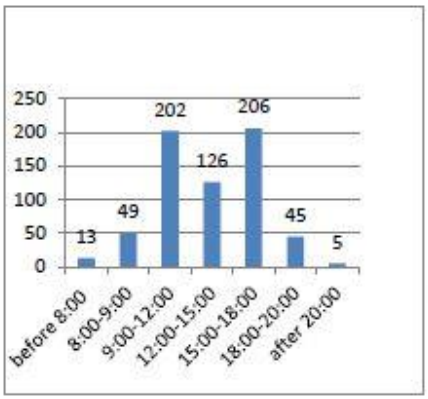

b) Mês mais frequente em que o inquirido visita o parque




c) Duração de uma visita típica ao parque




d) Período preferencial para a utilização do parque




e) Motivação para usar o parque

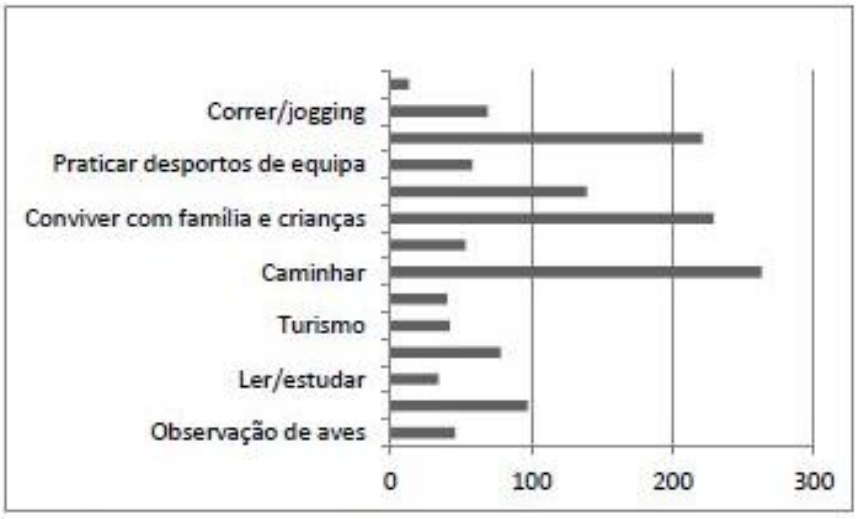
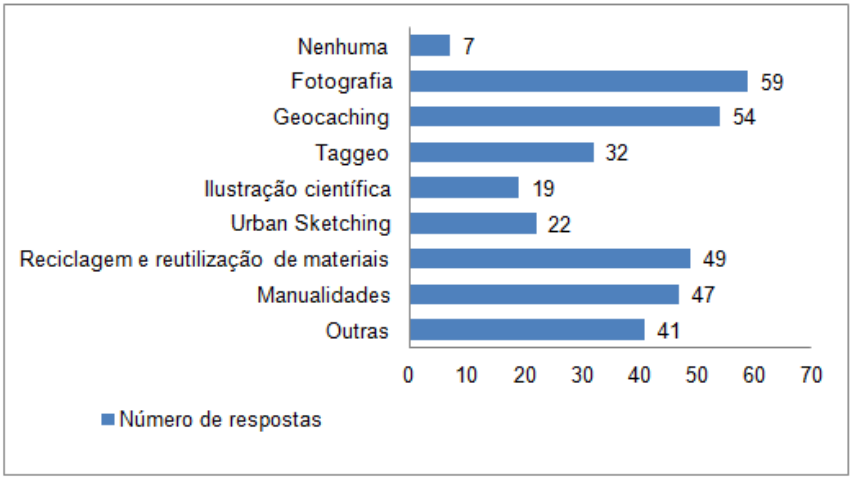


**Figura 2 – Resultados obtidos no estudo intitulado de *Parques Urbanos: uma proposta de atividade de divulgação Científica para o Parque da Cidade do Porto* sobre os tipos de atividades nas quais os utilizadores do parque gostariam de participar. Fonte: Santos (2013).**




## Bibliografia

Jiezhi.Xu. (2015). *Travel Cost and Contigent Methods for Economic Valuation of Urban Forests: Parque da Cidade do Porto Case Study* (Tese de Mestrado em *Mediterranean Forestry and Natural Resources Management* (MEDFOR)). Universidade Católica Portuguesa, Porto.

Santos, L. (2013). *Parques Urbanos: uma proposta de atividade de divulgação Científica para o Parque da Cidade do Porto* (Tese de Mestrado em Ecologia, Ambiente e Território). Faculdade de Ciências da Universidade do Porto, Porto.


## História e Paisagem | **History and Landscape**

**Nos anos de 1916/1918, Ezequiel de Campos insiste na aquisição de terrenos para a construção de um parque. Nos anos 60, o Plano de Urbanização de Robert Auzelle reserva estes terrenos, mas só em 1982 começam os primeiros estudos conceptuais. Em 1991, inicia-se a construção continuada, com projeto do arquiteto paisagista Sidónio Pardal. Com cerca de 80 ha, o Parque da Cidade do Porto é considerado o maior parque urbano do país. As áreas verdes naturalizadas desdobram-se em múltiplos campos panorâmicos que se estendem até ao Oceano Atlântico, conferindo-lhe uma particularidade rara a nível mundial.**

Around 1916/1918, Ezequiel de Campos acquired land to build a park. In the 1960s, Robert Auzelle's urbanisation plan earmarked this land, but the first conceptual studies only began in 1982. In 1991, the construction began based on plans by the landscape architect Sidónio Pardal.
Covering around 80 ha, the Porto City Park is considered the largest urban park in the country. The green areas strech out over multiple panoramic fields that extend all the way to the edge of the sea, making it unique worldwide.


## Regras para **uma boa visita** | Rules for a **good visit**

**Entrada proibida a animais sem trela**
No entry to animals without leash

**Apanhe os dejetos do seu animal de estimação**
Pick up your pet's waste

**Por favor não alimente os animais**
Please do not feed the animals

**Não faça fogueiras ou acenda braseiras**
Never light fires or barbecues

**Não entre ou circule com qualquer tipo de veículo motorizado**
Motor vehicles are strictly forbidden

## Como **chegar** | How to **get there**


## **Biodiversidade** Biodiversity

**No Parque da Cidade encontram-se vários habitats que abrigam uma grande diversidade de plantas e animais. A flora é muito rica, existindo 159 espécies de árvores e arbustos, tanto exóticas, como o plátano, metrosídero, ou camélias, quanto nativas, como o carvalho roble, pinheiro manso, pilriteiro ou lírio amarelo. A proximidade ao mar, e os lagos e pequenas charcas, favorecem a diversidade de aves, estando identificadas mais de 18 espécies, e de anfíbios, como o tritão e a rã verde. Embora mais difíceis de observar também habitam no parque muitos micromamíferos como o rato dos bosques e o ouriço-cacheiro.**

The City Park features various habitats that provide shelter to a large diversity of plants and animals. The flora is extremely rich, with 159 types of trees and bushes, including exotic species – such as sycamores, metrosideros and camellias – and indigenous species – such as European oaks, stone pines, common hawthorns and yellow irises. The proximity from the sea and the lakes and small pools encourages a diversity of birds, of which over 18 species have been identified, and amphibians such as newts and Iberian water frogs. Although they are far harder to spot, the park is also home to many micromammals, such as wood-mice and European hedgehogs.

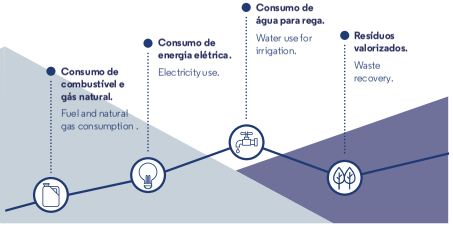

## Sabia **que?** | Did you **know?**

**O Parque da Cidade está registado no EMAS?!**
**O EMAS é um sistema comunitário de Ecogestão e Auditoria que tem por objetivo promover a melhoria contínua do desempenho ambiental e garantir o cumprimento da legislação. Pela elevada exigência e parâmetros de análise o EMAS é considerado o instrumento europeu de gestão ambiental mais credível e robusto do mercado. O Parque da Cidade é o primeiro e único parque urbano pertencente à administração local a obter este selo de qualidade.**

The City Park is registered on EMAS?!

EMAS – the EU Eco-Management and Audit Scheme – is designed to promote the continual improvement of environmental performance and ensure compliance with legislation. Due to its demanding standards and analysis parameters, EMAS is considered the most credible and robust European environmental management instrument. The City Park is the first and only urban park belonging to the local authority that has obtained this seal of quality.

**Indicadores de desempenho ambiental:**
Environmental performance indicators:




ESTRADA INTERIOR DA CIRCUNVALAÇÃO
PRAÇA DA CIDADE DO SALVADOR
QUEIMÓDROMO
MATOSINHOS
VIA DO CASTELO DO QUEIJO
FRENTE MARÍTIMA
CHARCA POND
LAGO III LAKE III
LAGO II LAKE II
LAGO I LAKE I
SEAUFE
PRAÇA GONÇALVES ZARCO
AVENIDA DA BOAVISTA
BECO DAS CARREIRAS
AVENIDA DO PARQUE
BICICLETAS · BICYCLE
Ciclovia
Bicycle path
O interior do parque é ciclável
The interior of the park is acessible by bicycle
PERCURSOS · PERCURSOS
Percurso dos Vales
Valleys trail
50 min
Percurso da Água
Water trail
40 min
Percurso da Praia (com escadas no ponto 10)
Beach trail (with stairs in the point 10)
30 min
LOCAIS DE INTERESSE · POINTS OF INTEREST
ELEMENTOS DE INTERESSE · ELEMENTS OF INTEREST
Entrada Norte/ da Circunvalação
North Entrance
Edifício Administrativo
Administrative Building
Estação Meteorológica
Weather Station
Zonas Desportivas
Sports Areas
Estadia da Água
Water Resting Spot
Sítio das Camélias
Camellias Spot
Pavilhão da Água
Water Pavilion
Anfiteatro ao Ar Livre
Outdoor Amphitheater
Estadia Circular
Circular Resting Spot
Estadia do Mirante
Belvedere Resting Spot
Estadia dos Plátanos
Plane trees Resting Spot
Ponte das Esferas
Bridge of Spheres
Entrada da Boavista
Boavista Entrance
Vale dos Pinheiros
Pines' Valley
Estadia dos Salgueiros
Salgueiros Resting Spot
Estadia Espelho de Água
Water mirror Resting Spot
Estadia das Meias Luas
Half Moons Resting Spot
Entrada das Colunas
Columns Entrance
Entrada de Aldoar
Aldoar Entrance
Varanda do Lago I
Lake I Balcony
Centro de Educação Ambiental
Center of Environmental Education
Entrada Núcleo Rural
Rural Nucleus Entrance
Horta Pedagógica
Pedagogic Vegetable Garden
Estadia da Encruzilhada
Crossroads Resting Spot
Estadia do Cadeiral
Seats Resting Spot
Estadia do Castelo
Castle Resting Spot
Miradouro da Nora
Water Wheel Belveder
Entrada do Castelo do Queijo
Castelo do Queijo Entrance
Entrada da Praia
Beach Entrance
Entrada da Anémona
Anemone Entrance
Marco com a Cruz de Malta
Boundary with the Maltese Cross
Distinção atribuída pela Ordem dos Engenheiros
Portuguese Engineering Association stinction
Padrão
Portuguese Padrão
Sarcófago
Sarcophagus
Fonte das Águas Férreas
Águas Férreas Fountain
EMAS
Porto.

# Data Sheet

Management Plan for the City Park
2019-2023

## Promoter

Câmara Municipal do Porto

## Team

Coordination| Cláudia Oliveira Fernandes, Faculdade de Ciências da Universidade do Porto

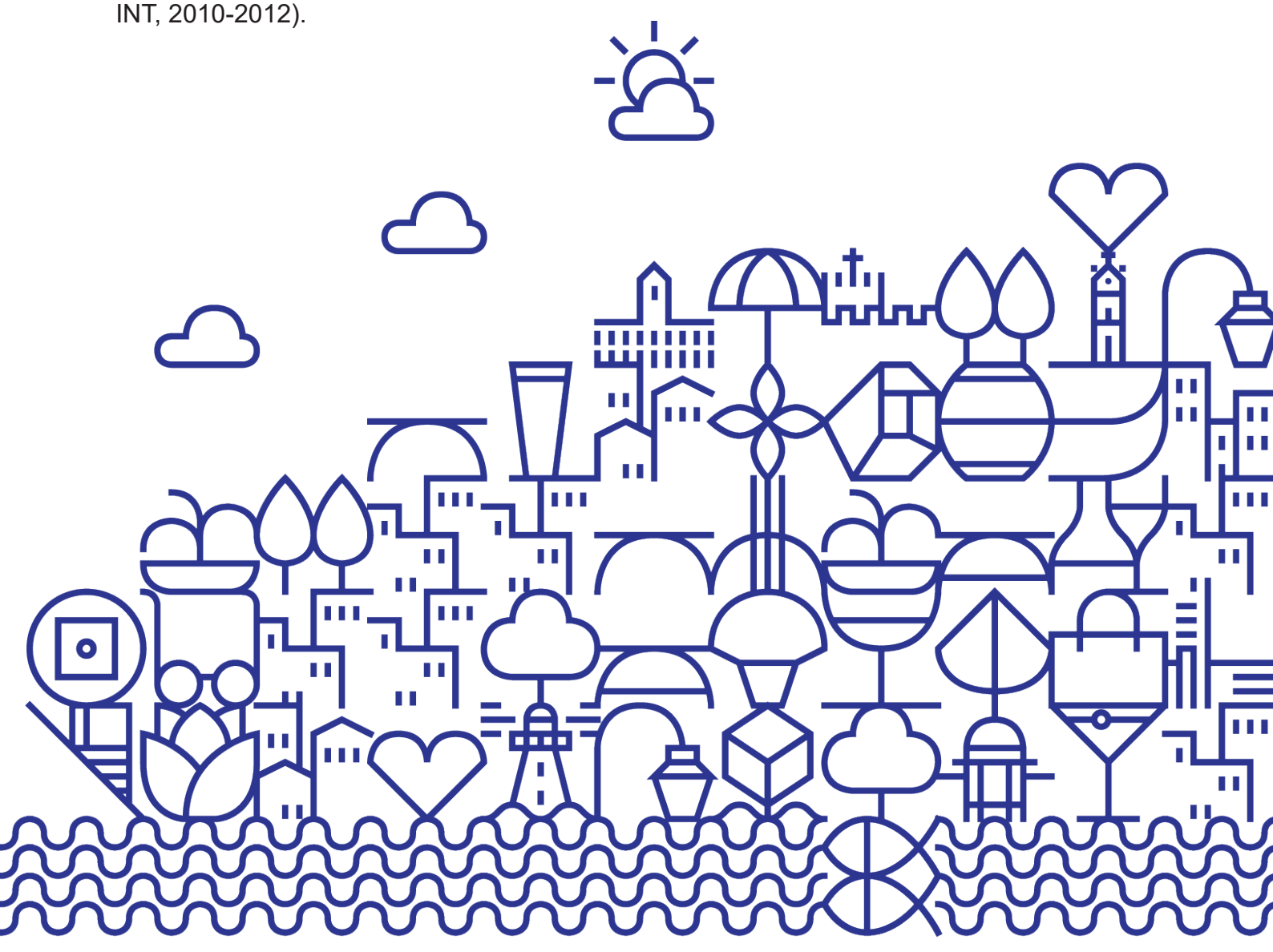
FCUP | Cláudia Oliveira Fernandes, Inês Vasconcelos Luís, Catarina Teixeira Fernandes

CMP | Gabriela Leite, Cristina Azurara, Teresa Serrano, Liliana Roriz, Rui Afonso


## Acknowledgements

To Professor Sidónio Pardal, author  of the Porto City Park Master Plan.

To the research project “Urban Green Structure: Study of the relation between public space morphology and flora and fauna diversity in the city of Porto“ (PTDC/AUR-URB/104044/2008-INT, 2010-2012).

Porto.

FACULDADE DE CIÊNCIAS
UNIVERSIDADE DO PORTO