

LISBON

European Green Capital 2020



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Winner 2020



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LISBON – European Green Capital 2020

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LISBON



European Green Capital 2020

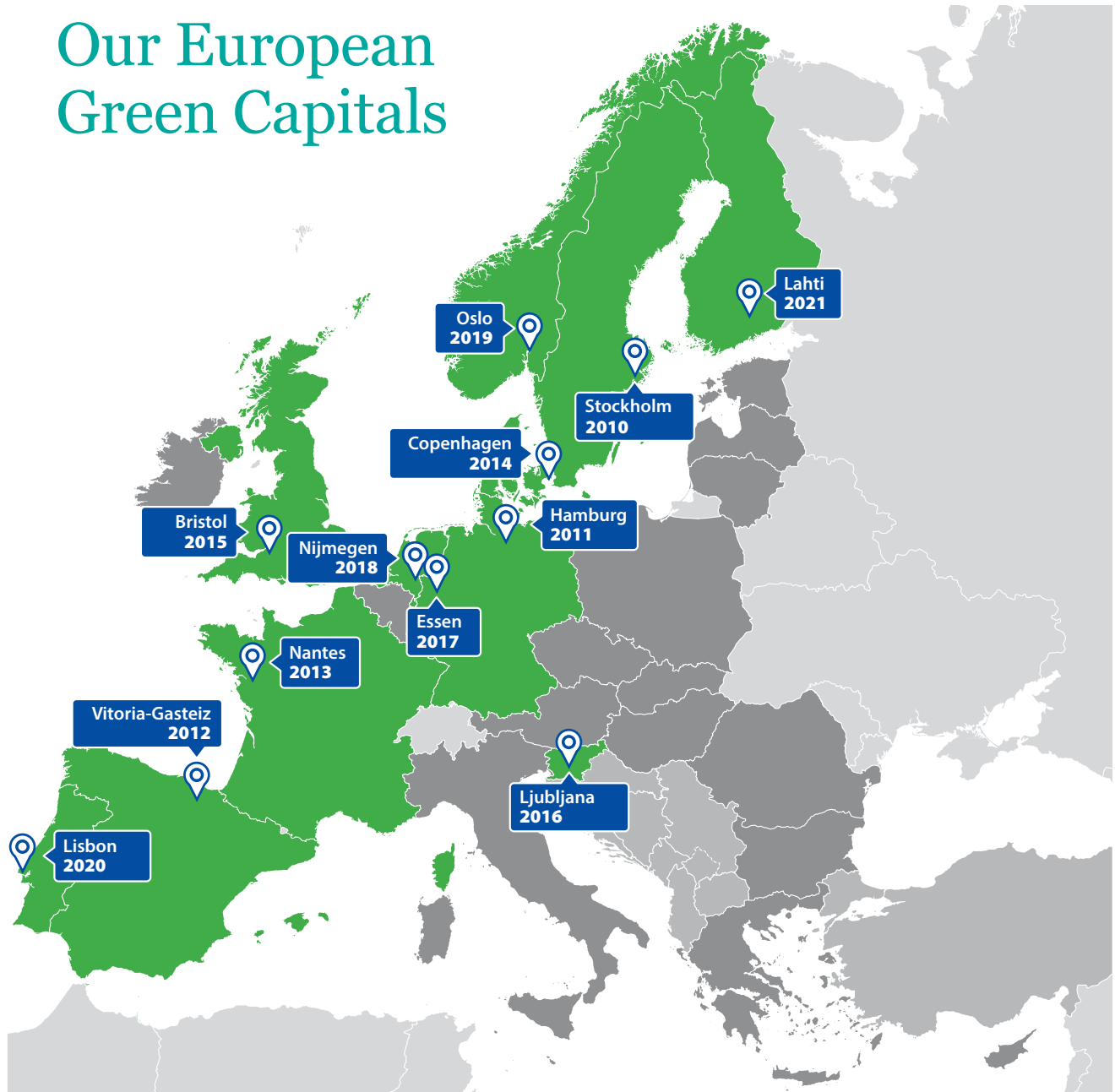
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Our European Green Capitals



A Vision for Long-term Sustainability

Lisbon set out to become a European Green Capital by “choosing to evolve”. That vision has driven the city towards transforming itself to become a sustainable southern European city.

Because of the global Covid-19 pandemic, Europe faces unparalleled challenges. This year has pushed all of us to review how we live and work. It has shown us that, even in the most difficult circumstances, rapid changes are possible. We have proven that we can quickly adapt to protect ourselves and our communities.

During its European Green Capital year, Lisbon has adapted and evolved even further to address the new challenges it now faces.

2020 is the start of a new way of living. The pandemic is not the only challenge of our times, but it has provided a platform for us to review how we live and change how we behave and act. Let's not waste this opportunity.

Over the next decade, we need to step up our efforts to tackle serious issues, such as high rates of biodiversity loss, the overconsumption of natural resources, air pollution, and the growing impacts of climate change.

With the European Green Deal, cities will remain at the forefront of our efforts to become the world's first climate neutral continent by 2050. Lisbon can inspire us, having begun its sustainability journey during the 2008 economic crisis when it chose to invest in environmental sustainability, starting many new green projects. Lisbon is a role model for combining sustainability and economic growth and is proof that they can go hand in hand.

We can learn a lot from this ancient city that is embracing a green future to secure its position, as together all of us in Europe strive to make ours the first climate neutral continent by 2050.



Virginijus Sinkevičius
EU Commissioner for the
Environment, Oceans and
Fisheries

From its rolling landscape to the brackish waters of the River Tagus estuary, Lisbon is one of Europe's oldest cities



Lisbon Evolves

Lisbon is proud of its global history and tradition, welcoming all people and cultures that make the Portuguese capital a unique city.

If Lisbon used to be sought after for its history, climate and cultural offerings, today the city has also positioned itself as a reference in the area of sustainability.

Lisbon was the first capital of a southern European country to achieve the distinction of European Green Capital, a recognition of the journey we made but also of our vision for the future. A vision in line with the goals of the Paris Agreement, encouraging citizen engagement and fostering collaboration with all businesses and institutions, in a joint effort to achieve common goals.

Climate change is not a scenario in the distant future, but a reality of the present and we all have a duty to act. With the European Green Capital 2020, and throughout the next decade and beyond, Lisbon will be the stage for initiatives that call all stakeholders to respond to the climate emergency. Our motto is “choose to evolve”, a testament to the constantly evolving reality that prompts us to adapt and to act.

Our generation is the last that can reverse the negative impact that human action is having on the planet. This is what young people on the streets remind us of today with their civic example of activism in the climate strike around the world. Environmental sustainability is the biggest challenge we face and cities, where most of the population lives, have to lead this agenda and ensure a sustainable future for all. Lisbon is committed to delivering long into the future.



Fernando Medina
Mayor of Lisbon

Evolving Lisbon (Manifesto to the Indifferent Ones)

We need the indifferent, the conformed and the sceptical.

We need those who care too much about the car.

And those who do not turn off the light.

We need those who let the water run.

And those who linger in the bath.

We need those who trash the sea.

And those who throw into the air.

We need the pessimists and the consumerists.

Those who want a straw. The plastic bag. And the disposables.

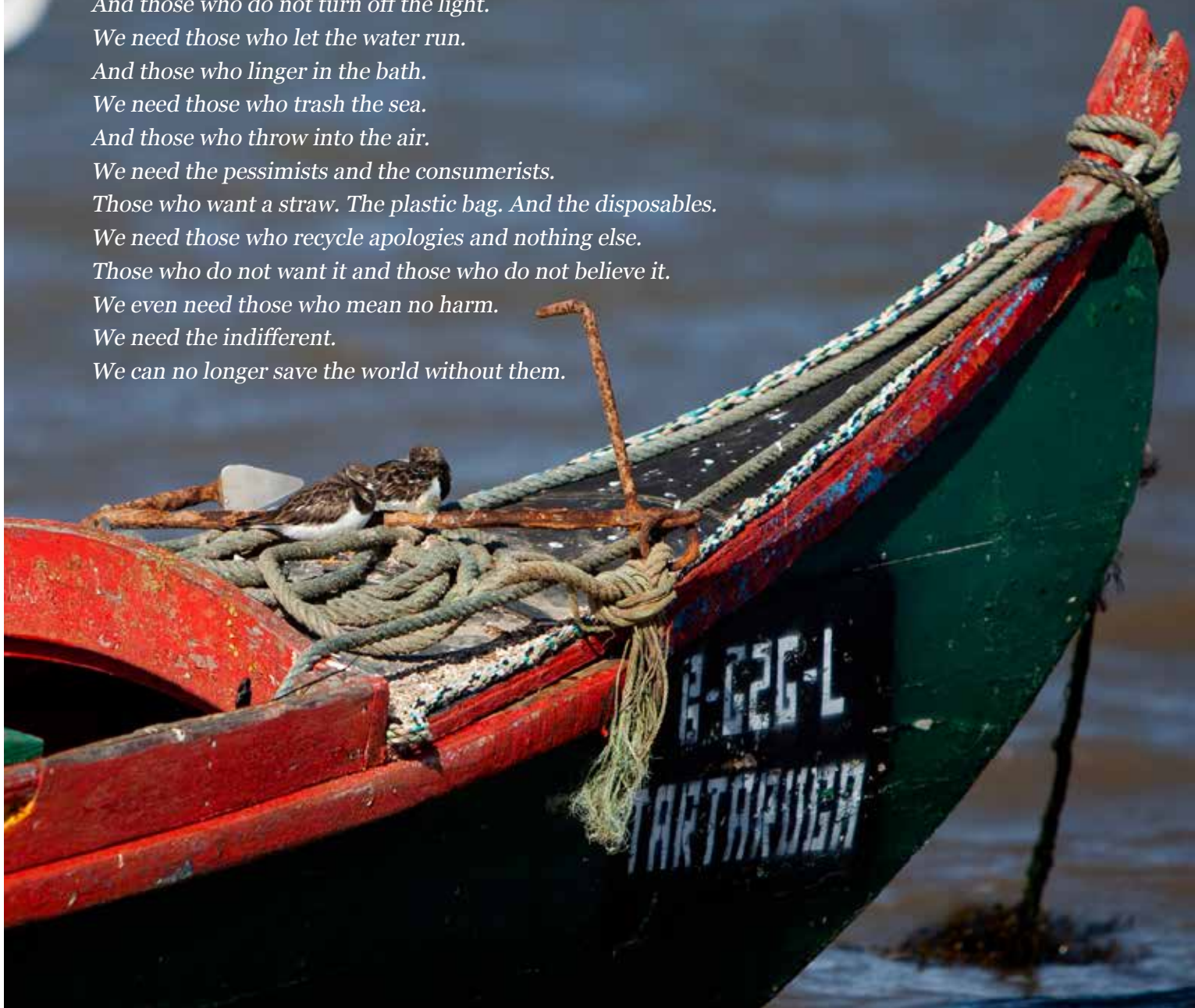
We need those who recycle apologies and nothing else.

Those who do not want it and those who do not believe it.

We even need those who mean no harm.

We need the indifferent.

We can no longer save the world without them.



Ancient City, Embracing a Green Future

On the edge of Europe and surrounded by water, Lisbon sits on the estuary where the River Tagus meets the Atlantic Ocean. The city faces many climate challenges unique to southern coastal areas.

Lisbon, the capital of Portugal, has a population of 547,800 and is Portugal's largest city. The Lisbon Metropolitan area comprises 2.8 million inhabitants and 18 municipalities. It is presided over by the Mayor of Lisbon.

Lisbon is amongst the oldest cities in Europe. Originally the area was home to the Celts, but the city of Olisipo (modern day Lisbon) was officially founded by the Phoenicians in about 800 BC.

Due to its strategic location at the mouth of the River Tagus and its hilly landscape, Olisipo underwent many occupations. The Romans settled in 195 BC and reigned for two centuries. Influenced since by its various occupations and settlements by Visigoths, Suevi and the Moors, before the Christians in the 12th century, Lisbon was a mix of cultures, known for its tolerance. Today, modern Lisbon is a capital of harmony, diversity, and culture.

A forest within a city and a city along a river estuary: Lisbon is surrounded by green and blue. Both the forest and the water are as much a part of the city's character as its built infrastructure. Lisbon's citizens are highly aware of the importance of nature and the need to protect their surrounding environment.

Known as the City of the Seven Hills, Lisbon has an undulating topography resulting in narrow, almost impenetrable streets in the historic centre. Traditionally, construction focused on occupying space, providing access for cars and building on green open spaces, as opposed to sustainable transport, energy efficiency and developing rich green spaces where biodiversity could thrive.

In recent years Lisbon has chosen to evolve, and it is evolving. Lisbon is now choosing green. Thanks to sustainable planning and visionary leadership, the developing urban environment is ensuring that Lisbon increases its symbiotic relationship with nature and outdoor space, thus continuing to provide a wealth of benefits for its citizens.

Lisbon's Sustainability Journey

Lisbon was the first European capital city to sign the New Covenant of Mayors for Climate and Energy in 2016, after achieving a 42% reduction in CO₂ emissions from 2002 to 2014, surpassing the the 40% initial goal for 2030; and reducing energy consumption by 28% from 2012 to 2017.

As a signatory, Lisbon developed its local Sustainable Energy and Climate Action Plan (SECAP) as a standard for participation in the Covenant of Mayors. This important plan helped to formalise policies and actions that were being carried out, such as changes to the city's masterplan to allow green corridors to be implemented. As a result, green areas have increased by 18% over the course of 12 years, through a network of nine new green corridors.

The process also allowed for broad political discussion around climate action in the city. Approved unanimously, Lisbon's SECAP is the main policy tool for climate action being carried out today. As part of the plan, a number of actions on climate adaptation and mitigation were laid out.

The plan was unanimously approved by Lisbon's City Council and City Parliament. Even so, when translated into individual policy lines and specific actions, the Council still faces opposition, such as for removing car lanes to make more space for pedestrians or cycle lanes. But Lisbon's focus on the long-term vision ensures it continues to evolve and implement change to future-proof the city.

Every project undergoes public consultation and changes are made to accommodate suggestions arising during the process. The city uses available climate data and future scenarios, as well as public health data or even economic indicators, to discuss proposals with citizens, businesses and other organisations.

A good example is the pedestrianisation of streets or implementation of cycle lanes, often met with fears from businesses that if citizens cannot use their cars, they will not go shopping in a particular area. Applying data from previous projects, the city addresses business concerns in meetings or public assemblies. Global support is never possible, but the city works to generate wide support before starting new projects. The city builds on the success of recent projects to prioritise public space for people rather than cars, which makes for better public engagement and acceptance along the way.

The SECAP plan is currently being reviewed to accommodate new and more ambitious goals and review targets, all in the context of Lisbon's participation in C40.

Key facts

- Portugal's capital city and its largest city
- Population of 547,800
- Surface area 100 km²
- Located at the Tagus River Estuary, a protected nature reserve under the EU Natura 2000 scheme
- FSC certified inner-city Forest Park of 1,000 hectares
- Pollution has been removed from the Tagus Estuary thanks to large investments in waste water treatment from EU Cohesion and Structural Funds, since 2008. Biodiversity has increased, bringing a return of dolphin population visits to the estuary after 50 years
- Member of C40 Cities, Eurocities, 100 Resilient Cities, ICLEI
- First European Capital signatory of the Covenant of Mayors

*“Lisbon
is going to be
a leading city in
greening Europe”*

*EU Executive Vice President,
Frans Timmermans,
January 2020*

Choose to evolve: Lisbon's
European Green Capital
motto





*“The Jury felt that
Lisbon, which started its
journey towards sustainability
during a period of economic crisis,
can be an inspiration and a strong
role-model for many cities across
the EU, demonstrating clearly that
sustainability and economic
growth go hand in hand”*

*The European Green Capital Award
Jury, June 2018*

Winning the European Green Capital Award

Lisbon appreciates that it is not the greenest city in Europe, but that it has made significant leaps in the right direction, at a fast pace and consistently throughout all areas of sustainability. Lisbon has also implemented policies to ensure positive impacts are continued into the future.

During the depths of the financial crisis, Lisbon chose to invest in green, with many projects starting from scratch. Lisbon has repeatedly overcome obstacles, and is learning from its experiences and enhancing its knowledge as a result. The city set ambitious environmental targets for the short and medium term, already surpassing its reduction in CO₂ emissions years ahead of its 2030 goal.

By going green, Lisbon has not only improved its economic status; it has increased social inclusion too. Lisbon has shown that while green is best for the environment and the earth, it is also good for the health and wellbeing of Lisbon's residents, and for its biodiversity.

The key to Lisbon's green success has been involving citizens at every stage. Though green living is truly in full swing in Lisbon, the citizens are engaged even more now, than ever before. Lisbon's citizens are its ambassadors.

Green Pushing the Economy

Lisbon's population had been declining since the 1990's and this led to an in-depth review of its urban development model, since population decline put the city's economy at risk. However, Lisbon has learned the benefits of investing in green that include:

- Increasing quality of life in the city,
- Attracting people to live in the city,
- Developing green infrastructure to cool the city,
- Promoting and renovating high-quality public spaces in all neighbourhoods, and
- Boosting better transport options such as sustainable public transport, cycling and walking, instead of cars.

A worthwhile journey

Lisbon entered three applications to the competition before it was declared European Green Capital 2020 at the Awards ceremony in Nijmegen, in June 2018.

Within Portugal and especially Lisbon, the political leadership has always been strongly committed to environmental sustainability. For Lisbon, becoming European Green Capital 2020 was not only a matter of pride; it was also the consolidation of a pathway towards a greener, sustainable city.

Lisbon submitted its winning application in October 2017 alongside 13 other hopeful cities. These environmentally conscious cities were Aberdeen (United Kingdom), Budapest (Hungary), Bursa (Turkey), Ghent (Belgium), Guimarães (Portugal), Lahti (Finland), Ostrava (Czech Republic), Prato (Italy), Reykjavik (Iceland), Seville (Spain), Tallinn (Estonia), and Wrocław (Poland).



The European Green Capital Award

What it takes to become a European Green Capital

The European Green Capital Award is an initiative of the European Commission, rewarding cities who have committed to environmental, social and economic sustainability. The European Commission has long recognised the important role that local authorities play in improving the environment and their high level of commitment to genuine progress. Many innovative solutions to these challenges have been developed in urban centres.

The European Green Capitals have a second important role. They must inspire and motivate other cities by promoting and sharing good environmental practices, experiences and spreading the ideal of the European Green Capital Project. Green cities – fit for life!


In addition to its future plans, a city's performance, initiative and innovation in the past and present all contribute to the award evaluation process. At the first stage, a panel of independent experts evaluates the applications, with respect to 12 environmental indicators. Each city's application is therefore a very detailed description of its performance and credentials to become a European Green Capital Award winner. Following the Expert Panel's assessment, a shortlist of finalist cities is proposed that shall continue to the final stage of the competition. The final stage involves a presentation by the shortlisted cities to an international Jury. At the final stage, cities will be judged according to their overall commitment, vision and enthusiasm; the city's capacity to act as a role model, inspiring other cities and promoting best practice; the effectiveness of the city's communications strategy to engage with and involve citizens towards changing their behaviour; and the projects /actions the city intends to set in place to enhance the city's environmental sustainability.

...and how it is assessed

Applicants for the European Green Capital Award are assessed on their performance in 12 key environmental areas:*

- 1. Air Quality**
- 2. Noise**
- 3. Waste**
- 4. Water**
- 5. Nature and Biodiversity**
- 6. Sustainable Land Use and Soil**
- 7. Green Growth and Eco-innovation**
- 8. Climate Change: Mitigation**
- 9. Climate Change: Adaptation**
- 10. Sustainable Urban Mobility**
- 11. Energy Performance**
- 12. Governance.**

*Indicators for European Green Capital 2023 Competition Cycle



Lisbon is home to one of Europe's largest urban forests: Monsanto Forest Park provides the city with clean air while providing shade and habitats for all types of species



Why Lisbon Won

A Southern City

Every country is facing climate chaos and every region is impacted slightly differently. Lisbon, as a southern city has specific challenges, that will increase over the coming years.

It is expected that within Europe some of the harshest effects of climate change will be felt in southern countries. Moreover, cities will feel the consequences even more, with higher frequencies of heat waves, water scarcity, flash floods and rising sea levels, or severe coastal storms, all of which negatively impact the population, the economy and the environment.

Lisbon was the first European capital city to sign the New Covenant of Mayors for Climate and Energy in 2016, after achieving a 42% reduction in CO₂ emissions from 2002 to 2014, surpassing the 40% initial 2030 goal; and reducing energy consumption by 28% from 2012 to 2017.

Due to the varied landscape of Lisbon, the city is home to many bird species including a variety of herons

*Lisbon's
2030 target of 40%
carbon emissions reduction
was eclipsed when a 42%
reduction was recorded in
2016. An ambitious new target
is now for a 60% reduction
of CO₂ emissions
by 2030*



A New Urban Approach

For many decades, Lisbon had a car-centric approach, similar to other European capitals. This was all turned upside down, however, in 2012 with a seismic change in the urban paradigm which resulted in a new masterplan that revolutionised urban planning.

The 2012 masterplan outlined a new approach to land use, including higher-density housing and planning re-zoning to curtail construction in sensitive ecological areas. This laid the groundwork for implementing the Green Corridor Strategy that sought to preserve and increase permeable areas and rehabilitate underground rivers and streams.

Another objective of the masterplan was to change Lisbon from being a car-centric city to one based on public transport, with dynamic areas for living and working. The masterplan included for small-scale planning to prioritise and normalise public transport, walking and cycling.

Lisbon also has a clear vision for sustainable urban mobility, with measures to restrict car use and prioritise cycling, public transport, and walking. At the start of the 21st century, use of individual cars in Lisbon increased by 10%, from 38% in 2001 to 48% in 2011, with only 34% of travel being undertaken on public transport.

Lisbon's urban strategy was deepened when the city reached an agreement with the national government to regain ownership of the public bus and tram company in 2017. This policy shift meant Lisbon began to reinvest in the tram network and improve the bus service.

Today, with an historic tram line reopened, two new tram lines completed, ongoing expansions and transportation sharing schemes, Lisbon is already beginning to witness 10,000 fewer cars per day within the city, and this will improve further in the coming years.

More people are benefiting from these policy shifts, with an increase in walking and cycling from 18% of all travel in 2011 to 32% in 2018.

While fewer people used public transport during the financial crisis, this is also seeing a positive increase, with 20% more public transport journeys undertaken in the past year alone (since April 2019).

In 2017, Lisbon launched a bike-sharing scheme, with electric bikes comprising two thirds of the fleet, to encourage cycling in the hillier parts of the city. While the city continues to invest heavily in the existing public transport infrastructure, 200 km of cycleways and bridges will also be constructed by 2021.

Starting from a skeleton of nine green corridors connecting the city through its large parks, the city is also on track to complete the renovation of 30 city squares and plazas, making even more space (an extra 18%) for pedestrians, bikes and green connections, from 2008 to 2021.

A drainage masterplan is being implemented, with the largest public investment in the country of over €170 million, to protect the city against 100-year extreme flooding events.

The Portuguese government has established a goal to reuse 20% of treated waste water by 2030, including for urban, agricultural and industrial uses. Currently 2% of Lisbon's treated waste water is being reused for the treatment process itself and to wash streets; and in 2020, the first park will be irrigated using recycled water. When Parque Tejo to the east of the city, is irrigated using treated waste water it will save 400,000 cubic metres of fresh water per year!

The city has implemented leakage control measures that have already yielded a 50% reduction in drinking water consumption from 2014 to 2018. Water flow is monitored every 15 minutes to rapidly detect ruptured / damaged pipes. By enabling quicker interventions and repairs, the amount of wasted and lost water was dramatically reduced.

Lisbon Facts: Sustainability

- *85% of people already live within 300 metres of green urban spaces and the city has plans to increase that to 93% with the completion of ongoing projects*
- *16% increase in new and renewed green spaces since 2008 and a total of 20% increase projected to be completed by 2022*
- *Over 80,000 trees planted since 2017 and a total of more than 100,000 by 2021*
- *50% reduction in water consumption by the municipality since 2013*
- *One of the world's largest city networks of electric vehicle charging points: 540 in total, or 5.4 EV chargers per km²*
- *91% of municipal light duty car fleet is electric*
- *Two-thirds of city bike-sharing scheme is electric*
- *93% of people live within 300 metres of public transport*
- *Public transport use increased by 20% since April 2019, due to accessible fares for all (€1 per day)*
- *15 out of 25 natural drainage solutions installed so far to reduce the effects of flash flooding*
- *750 organic allotments use collected rainwater and compost to reduce organic waste; plan to increase to 1,000 by 2021*

“Lisbon shows that driving the economy can go hand in hand with green solutions”

*EU Commissioner,
Virginijus Sinkevičius*

Children enjoying the eco play park. 85% of Lisbon citizens live within 300 metres of green recreational spaces





Over four years, the city will plant 100,000 trees to help curb and limit the impacts of urban heat island effect while also increasing biodiversity in Lisbon

Urban Environmental Sustainability

Over the past ten years, Lisbon has led a comprehensive set of policies regarding climate change mitigation and climate change adaptation, to position the city as a leading capital in this debate.

City policies across all areas include future-proofing the city and adapting to climate change. This includes treating and re-using waste water; ensuring one of the lowest levels of water leakage in the world; increasing pedestrianisation; reducing car usage; increasing public green spaces; installing green corridors and planting tens of thousands of trees to cool the city and manage flooding; promoting eco-housing renovation or new build projects for socially challenged communities; and engaging citizens in green community projects.

The city has set itself ambitious targets and is involved in establishing agreements for the next steps of climate policy. This includes actively participating in the Covenant of Mayors for Climate and Energy; signing the Compact of Mayors; and being an active member of C40 Cities, ICLEI, and Eurocities, amongst other urban collaboration initiatives.

Lisbon faces many potential climate change scenarios

- *17-38 cm sea level rise by 2050*
- *29% decrease in rainfall by 2100*
- *1-4°C increase in average annual temperature by 2100*
- *Increase in frequency and intensity of flash floods and windy storms*

Climate Change Adaptation

Lisbon has a long history of disaster risk management. It is the most recent member of the C40 Cities Climate Leadership Group where it actively shares its experiences with other cities globally on this and other topics related to climate action. Through 16 specialised networks, the city engages with 95 other mega-cities around the world to share best practices and lessons learned.

In order to counteract the effects of climate change, such as drought, extreme heat, and storm flooding, a coordinated programme is underway, supported by universities and research centres. Lisbon and the other 17 municipalities of its Metropolitan Area are developing a common Climate Adaptation Plan, building upon many of the strategies already implemented in the city. The plan and its implementation, achieved with European funding, will generate a consistent integrated regional response, leveraging local investments.

Climate modelling shows that heat waves are increasing in intensity and frequency, on top of the urban heat island effect felt in specific areas throughout warmer months. The effects on public health can become devastating. To act efficiently, in a science-driven manner, Lisbon is currently developing its heat vulnerability map and working with a range of partners to ensure a coordinated response. Partners include planning and environmental departments across the municipality, such as the Universidade de Aveiro for climate scenarios and modelling a tech-provider for 3D urban modelling, Lisbon's Environment and Energy Agency (Lisboa E-Nova) and the National Meteorological Institute, as well as stakeholders in the National Healthcare Institute and Local Urban Districts.

The response includes a programme to plant 100,000 trees over the course of four years on the city's dense streets and installing green infrastructure to increase shadowing and help reduce temperatures under a LIFE+ project funded by the European Union. Under the same project (LIFE+ Lungs, 2019-2024)¹, the city is expanding its strategy to replace traditional lawns with rain fed meadows wherever possible. These meadows provide a drought resilient plant cover, requiring absolutely no irrigation and very little maintenance. They also improve soil organic matter as they are an efficient carbon and nitrogen sink, thus contributing to increasing the sponge effect that retains water during storms. This successful technology transfer from agricultural to urban green infrastructure management, boosts urban biodiversity with impressive spring blooms and attracts insects, birds, small mammals and reptiles.

¹ <https://life-lungs.lisboa.pt/en/>

Each city has its own climate challenges. Lisbon's main issues stem from its southern position and location at the estuary of the River Tagus



Climate Change Mitigation

Reducing CO₂ emissions is a priority for Lisbon. The city is now focused on reaching a 60% reduction by 2030, under the commitments defined in the framework of the New Covenant of Mayors for Climate and Energy; with the ultimate target of being carbon neutral by 2050 (base year 2002).

Lisbon's carbon neutral targets align with the EU Energy System Integration Strategy². Its aim is to design a more efficient and integrated system that links energy sources and infrastructure, to support decarbonisation, and build a climate neutral EU by 2050.

Lisbon is delivering an integrated set of measures in the areas of Energy, Mobility, Water, Waste, Biodiversity and Sustainable Land Use, to mitigate against climate change and improve people's quality of life.

A considerable energy efficiency programme for the city's buildings is underway. There is a target to reduce energy in municipal buildings by 30% by 2030 (base year 2016); and by 20% in private buildings (base year 2016).

2 https://ec.europa.eu/commission/presscorner/detail/en/fs_20_1295



City Hall has been retrofitted for energy efficiency including the addition of solar panels. In the year after the retrofit, it used 50% less energy

Pioneering the ESCO model in Portugal, back in 2015, the municipality shifted to a 100% LED technology traffic light system in a few months. This is currently reaping savings of 90%. The LED traffic lights save the city over 1,521 tonnes of CO₂ emissions annually and €800,000 per year. At a time of financial difficulties for city management, this allowed for large future savings with no initial investment from the city, proving a model that can be extremely useful to leverage any city's investments in a climate action plan.

Within the public affordable housing programmes, the municipality is setting ambitious performance standards for the new developments, leading to A or A+ energy performance labelling.

An ambitious "Solar City" project is doubling solar energy installed in buildings between 2018 and 2021, attaining a cumulative solar capacity of 8 MW, in municipal facilities alone. By 2030, a cumulative capacity of 103 MW will be installed throughout the city, with potential to tap around 5% of the total electricity demand.

The Energy and Environment Agency of Lisboa, "Lisboa-e-Nova", is a non-profit association that acts as a shared platform for innovation and climate action between the municipality and the main private and public stakeholders. City Hall, an iconic and historical building, is collaborating with the Agency to become an example of energy efficiency and is now a leading example for historical buildings to adapt to energy efficiency. Comprising 2,200 LED lights, 99 new insulated windows, 60 solar panels and a high-tech monitoring integrated system, the building is saving 50% in energy consumption (€83,000 per year) while keeping the protected heritage characteristics of the building.

Lisbon Metropolitan Area is acting as a new sustainable mobility leverage and as a strong influencer to integrated climate responses. Lisbon Metropolitan Area is designing a unique Climate Adaptation Strategy and some integrated projects for metropolitan green corridors and cycle-paths are being designed and implemented in partnership.

The Lisbon Commitment

One of the biggest remaining challenges for Lisbon is improving the energy performance of the building and transportation sectors, which together represent more than 90% of the primary energy consumption within the city. The Lisbon Commitment, launched within the European Green Capital 2020 initiatives, engages companies that commit to self-established 2030 sustainable energy goals.

The Lisbon Commitment - Climate Action 2030 charter, allows signatories to set their individual goals to contribute to Lisbon's sustainability targets. There are six different themes under which targets can be set: (1) mobility, (2) energy, (3) water, (4) waste and circular economy, (5) air quality and noise, and (6) awareness and public engagement. To date, more than 200 organisations have not just signed the charter, but have committed to delivering hundreds of actions as well.

Lisbon is using LED technology to light up the city while reducing energy consumption and costs. All traffic lights within the city are LED-based



Energy Transition

SOLIS³, the Solar Platform of Lisbon, is a free web tool developed by Lisbon's Environment and Energy Agency, Lisboa E-Nova, to inform and educate people about solar energy. It assists citizens to determine the solar energy potential of their building; estimating its revenues; and provides a step-by-step checklist for implementation. In the future, the agency intends to leverage this platform further to establish a one-stop-shop for solar projects.

Commissioning a 2 MW municipal solar power plant in 2020 is one of the most strategic projects for Lisbon - one of Europe's cities with the most sunlight hours - to take advantage of solar energy. This municipal investment will be used to charge the public e-fleet of buses and waste management vehicles.

Local solar energy production will also greatly benefit from implementing Citizen Energy Communities and Renewable Energy Communities following transposition of the EU Electricity and Renewable Energies Directives into national legislation.

New opportunities are emerging to empower citizens in the energy transition movement. The municipality is presently drafting a strategy for its own buildings to take full advantage of available roof areas.

Along with other new projects, Lisbon's energy landscape will change in the coming years.

The new 2 MW photovoltaic (PV) power plant at the Carnide Cemetery, currently under procurement, was initially intended to feed the municipal e-Bus fleet. Now its scope is increasing - under new self-consumption legislation in place since January 2020 - to provide for municipal-level consumption clusters in buildings and other key facilities, such as the lighting system in the city's tunnels. In 2020 this will be limited by legislation; and increased in 2021 towards establishing a Lisbon-city energy community. Simultaneously, taking advantage of the new legal framework, a new model is being tested to support vulnerable consumers in social housing through a "solar social tariff". Consumers will be grouped together at building level to produce in-building and off-building PV electricity; and from 2021 the concept will be fully integrated in the municipal energy community.

3 <https://www.solis-lisboa.pt/mapa>

Over 20,000 bicycle journeys are made daily using the public bicycle sharing scheme. By 2021, 3,000 bicycles will be available in the programme



Keeping the City Moving

With 55% of the actions to reduce emissions focused on transport, mobility plays a key role in Lisbon's sustainable transition. Despite significant improvements in recent years, there are still many problems related to air pollution and noise impacts on human health and ecosystems, as in most major cities. Lisbon is tackling these challenges through a wide range of alternative transport options to encourage people to leave their car at home. This includes better public transport with more bus lanes, a more frequent service and lower tariffs; more and wider footpaths; additional cycling lanes and bicycle parking facilities; and shared bicycle, scooter and car schemes. So far, walking and cycling has increased from 18% in 2011 to 32% in 2017.

Low Emissions Zone

In 2011, Lisbon created the first Low Emissions Zone (LEZ) in Portugal. Located in the central downtown area, LEZ covers approximately 30% of the city and involves restrictions to the most polluting fossil fuel cars and a transformation of road into public space for pedestrians, cyclists and public transport. In addition, several 30 km per hour zones are being introduced to further improve air quality within neighbourhoods, while also increasing safety and promoting sustainable modes of transport like cycling and walking.



Lisbon's citizens are reducing their carbon footprint thanks to the city's approach to sustainable transport management and a wide range of alternative transport options to encourage people to leave their cars at home, such as reduced fares, more bus lanes, improved footpaths, and bike, e-scooter and car sharing services

Public Transport

Encouraging the use of public transport is key for Lisbon's CO₂ emissions reduction target. To embody this strategy, starting April 2019, Lisbon has interlinked all its public transport services - buses, trams, trains, subway, funiculars and lifts - in a single brand and ticketing scheme across the metropolitan area, servicing 2.8 million citizens.

- Two million journeys are taken on public transport each day.
- 20% more public transport journeys were taken in 2019 after the city's strategy change.
- Monthly travel passes now offer unlimited journeys within the city for just one euro per day, and €1.30 per day across the 3,015 km² of the metropolitan area. Entire families can travel for the cost of two monthly tickets, which can represent up to 86% savings.
- Public transport is free for children under age 13 and has a reduced fee for adults over 65.
- 93.3% of Lisbon's population lives within 300 metres of an hourly (or more frequent) public transport service.
- Eleven new neighbourhood bus lines run short routes within neighbourhoods, connecting public services to schools, markets and other essential spots. These are designed to improve the lives of those that have mobility constraints to be able to better move about in their area of residence. Soon, all of the 24 urban districts in Lisbon will have one of these neighbourhood routes.

Pedal Power

Despite being known as the “City of the Seven Hills”, cycling is on the rise and between 2016 and 2017, Lisbon saw an increase of circa 700% in bicycle use.

20,000 journeys are made every day in the municipal shared bike system. Almost two thirds of these bikes are electric, ideal for accessing Lisbon’s hilly streets or for the less confident cyclists. The city plans to increase the number of bicycles available in the municipal bike sharing system to 3,000 by 2021.

Several e-scooter operators have deployed in Lisbon, readily accessible via smartphone apps, resulting in 8,500 trips each day.

Rosa Félix – The Cycling Scientist

A native of Lisbon, Rosa Félix has a passion for cycling. The Cicloficina dos Anjos is a community bike workshop where anyone can go to have their bike repaired for free.

“We have the tools, the parts and the knowledge to repair bikes and teach people how to fix them so they may become independent and do it themselves”.

It started in a carparking space where a group of people gathered once a month to fix bicycles. By 2011, a fixed physical space was secured and since then hundreds of bicycles have been repaired and recovered around Lisbon.

Parts are collected from shops and people who no longer need them. In Portugal, there are now more than ten such bike workshops. As part of its Urban Mobility Package⁴, the European Commission reinforces its support for actions that support sustainable urban transport such as cycling.

“The Cicloficina dos Anjos is probably the best one as it has more parts, more space, is open at least twice a week and gets dozens of people learning how to fix their bikes”

says Rosa Félix



4 https://ec.europa.eu/transport/themes/urban/urban_mobility_en

Solar panels are used to charge the municipal e-bus fleet



Over 90% of Lisbon's municipal light fleet is comprised of electric vehicles (e-cars)

Pedestrian Priorities

- ▮ Pedestrians are also a high priority for Lisbon. The city has a clear vision for sustainable urban mobility, with measures to restrict car use and prioritise public transport, cycling and walking. Since 2013 a mandatory Pedestrian Accessibility Plan has been applied in all public space interventions. The plan, developed in consultation with a wide range of stakeholders, sets mandatory requirements for any project within the Lisbon City Council area. It includes minimum widths and specifications for footpaths; levelled pedestrian crossings; and car-free zones. All new projects must comply and a programme is in place to systematically implement the standards across existing areas.
- ▮ Footpaths have been widened and new paths created in recent years to improve quality and comfort for pedestrians.
- ▮ Of the city's 9,400 pedestrian crossings, 400 have been upgraded to improve accessibility and the remaining 9,000 will be completed in the coming years.
- ▮ As a result, several urban districts are already 100% accessible for all citizens and visitors to enjoy, including older people, families with small children and people with disabilities.

Fuelling the Change

Fostering public transport use is key for Lisbon's greenhouse gas emissions reduction target. In 2009, the city adopted a policy of clean electric mobility and is currently implementing an innovative 2 MW solar power plant within the city, to charge the growing municipal e-bus fleet.

Electric Vehicles (EVs)

Not all travel can be done using public transport or on bikes, so Lisbon encourages and promotes car sharing and car-pooling initiatives; and has installed 540 public e-charging points across the city.

In 2008, the Portuguese Government launched the National Programme for Electric Mobility (MOBI.E - Mobilidade Eléctrica) under the Portuguese National Energy Strategy 2020. Its objectives included promoting the uptake of EVs throughout Portugal by installing a network of public e-charging systems for cities subscribed to the programme. It allows users to purchase a prepaid MOBI.E card that charges for the energy consumed and the charging service, as well as finding charging points on their mobile device.

Following its launch, Lisbon became one of 25 Portuguese cities to participate. The charging locations were chosen and installed, in association with the Municipal Mobility and Parking Operator (EMEL – Empresa Municipal de Mobilidade e Estacionamento de Lisboa), Lisbon's Environment and Energy Agency (Lisboa E-Nova) and supported by the Technical University of Lisbon.

To further encourage greater uptake of EVs, Lisbon City Council and EMEL developed the 'Local Action Plan for Electric Mobility' in 2010, with more incentives, such as free parking for EVs within the city and tax incentives for first-time EV buyers. Since the introduction of these initiatives, the MOBI.E charging network has enjoyed 5,000 users and delivered 354,904 periods of vehicle charging, saving a total of 2,006,060 kgs of CO₂, from 2010 to 2018.

The municipality's own car fleet is currently 91% electric with EVs serving approximately 200 municipal employees daily.

Transport Facts

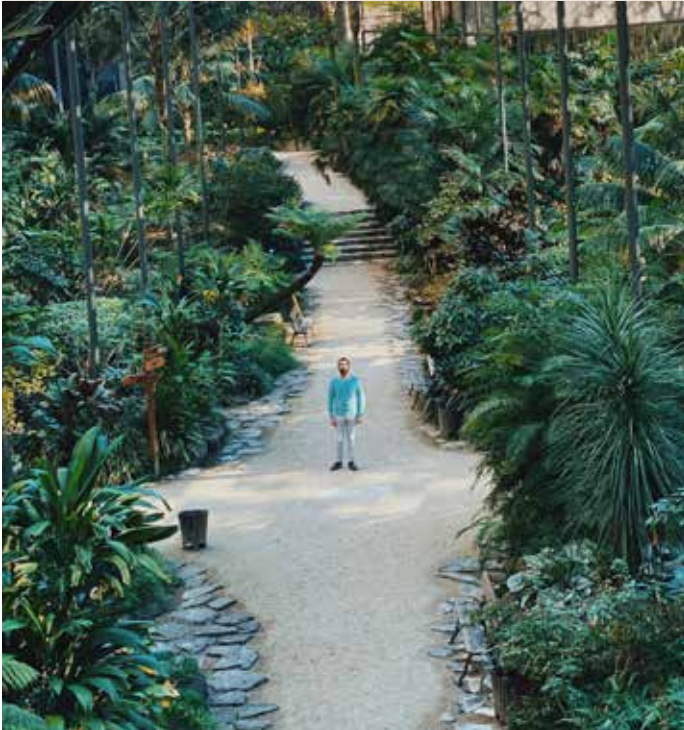
- 20% increase in public transport since April 2019
- 22 new tram stops opened in 2018
- 100 km of cycling lanes throughout the city with an expected 200 km completed by 2021
- 91% of municipal light duty fleet is electric
- 20,000 journeys per day on municipal shared-bikes
- Two thirds of shared-bike fleet is electric
- 15 electric buses in use, 30 more new e-buses in use by 2021
- City implementing a 2 MW solar power plant within the city to charge the municipal e-bus fleet
- Public transport is free for children under 13 years of age, and has reduced fares for those over 65 years
- One euro per day public transport fare within the city and €1.30 per day in the metropolitan area for monthly ticket holders

Ivo Meco - the Botany Professor

Ivo Meco is a Lisbon based biology and geology teacher, who last year published a book on Lisbon's gardens.

A true nature enthusiast, Lisbon's Botanical Greenhouse (Estufa Fria) has been very prominent in Ivo's life since childhood. In his book, "Lisbon's Gardens", a part guide / memoir / botanical manual, the Botanical Greenhouse is highlighted as one of Lisbon's green spaces.

When considering what is next for Lisbon and Portugal, Ivo's outlook is simple. *"This sustainability issue is not just about planting a tree or separating the plastics; I think it has a lot to do with how we relate to each other because another person's problem is my problem and my problem is theirs."*



Lisbon's Engaged Citizens

Lisbon's citizens are very active and are key to ensuring the city is moving forward in every way.

Lisbon is a strong believer in giving "power to the people". Citizenship and bottom-up strategies play a key role in several of the city's green choices.

European climate targets acted as a lighthouse for Lisbon's strategies and policy making, setting the city's agenda for the next decade.

The Lisbon Administrative Reform has reassigned some municipal duties to urban districts. This ambitious administrative reform aims to bring urban management closer to citizens and improve public services. Measures include sharing competencies between the municipality and urban districts for services such as street cleaning, management of small gardens / green spaces and licensing. By bringing urban districts closer to communities, citizen engagement is improving.

A municipal app "Na minha Rua" ("In My Street") was launched to make direct citizen communication easier. The app sends information directly from citizens to the relevant stakeholder to solve an issue; and regular status updates are issued to the sender.

A brand new municipal app, "Lisboa 24", maps relevant information across all municipal services, namely information about city trees, providing alerts about planned interventions that citizens can track.

The annual “Participatory Budget” allows citizens to propose and decide by voting on specific projects that the municipality then promotes. In Lisbon’s EGC year, the Participatory Budget has doubled to €5 million in 2020 and is entirely “green”, thus challenging citizens to propose, campaign and vote on projects that are 100% related to urban sustainability.

A decade of Participatory Budgets opened an ambitious process for public participation embracing all of society. A range of projects have been proposed by citizens and implemented including 66 public space renovation projects, local gardens, urban allotment gardens, cycle-paths, cycle-pedestrian bridges and even a fruit orchard over the last ten years.

BIP-ZIP Energy is the network of participants and organisations in the municipal community project programme for priority areas and neighbourhoods. It involves 625 community project partners; 354 local development projects; and 67 priority intervention territories. Over 2,213 activities, from small public space changes, to social or cultural activities, training for employability, have been spearheaded by BIP-ZIP.

To mark the start of Lisbon’s year as European Green Capital 2020, an unprecedented show of citizenship involved over 5,400 volunteers planting 20,000 trees and shrubs in just one single day, on 12 January 2020.

The first Saturday of every month during the planting season (October to late March) is dedicated to planting with citizens. During 2020 alone, Lisbon aims to have planted 60,000 trees.

Participatory Budget

- | *303,208 citizens voted*
- | *€36.3 million invested in 11 Participatory Budgets from 2008 to 2018*
- | *€25.2 million worth of projects already concluded or at implementation stage*
- | *Over ten years, 139 projects have been deemed viable, out of 2,079 citizen proposals*
- | *Of the 139 projects being progressed, 35 relate to Environment, Climate and Energy (the biggest group), closely followed by 18 mobility projects including several devoted to cycling infrastructure*
- | *€5 million invested in the European Green Capital Participatory Budget in 2020 alone*
- | *Many non-elected projects also delivered in other city plans as they constituted a good bottom-up approach to decision making*

A City of Green Corridors

Integrated nature-based solutions are key to Lisbon's sustainability toolkit, because they are more resilient and provide benefits for all. By focusing on sustainable land use, Lisbon's network of green corridors act to counteract the effects of climate change, such as drought, extreme heat, and storm flooding. This green infrastructure also supports biodiversity and provides ecosystem services to the city, including air pollution mitigation and space for recreation and urban farming.

Lisbon is home to the Monsanto Forest Park: one of Europe's largest urban forests and the first to receive sustainable forest management certification from the Forest Stewardship Council (FSC). Covering old quarries, pastures and cereal fields, all of the 1,123 hectares (circa 10 km²) of the 85-year old forest have been planted by hand in a great example of urban ecosystem restoration. Trees and shrubs provide for shade, cool the city in summer and are a habitat for all types of species. At the same time, it is also a large carbon storage system.



During 2020, the drainage systems at Lisbon's main central park - Eduardo VII - will become 100% nature-based

A total of 45 km of green corridors will line the city by 2022



Lisbon's first green corridor was completed in 2012 with two kilometres of trees and shrubs connecting the city centre with the Monsanto Forest Park. Four additional green corridors have so far been completed, and four more are due to be in place by 2022. These green corridors will spread across the entire city with 45 km of bush and tree-lined streets.

Lisbon is also increasing the number of trees and shrubs planted in its open green spaces at a current average rate of 25,000 plantings per year.

These green corridors are ideal places for biodiversity to thrive, for citizens to relax, cycle, walk and farm, while ensuring that animals can live in and spread across the city.

Benefits of Lisbon's Green Corridors

- *Increase shade and mitigate heat island effect*
- *Secure soil and improve biodiversity*
- *Provide habitats for many different species*
- *Help prevent the effects of drought*
- *Increase water retention, protecting from storm floods*
- *Absorb CO₂ and NO₂*
- *Benefit human physical and mental health and promotes physical activity*
- *Remove air pollution and create reduced noise areas*



Madalena Boto - The Biologist Film Maker

Madalena Boto is a biologist whose passion for film and biology takes her around the world producing wildlife television documentaries, which have aired on RTP (Portuguese national broadcasting), BBC and National Geographic. She has devoted her life to science education, and raising awareness of the importance of conservation.

Madalena's next project is to tell the story of Lisbon's rich biodiversity.

"Lisbon has several characteristics that make it interesting from a biodiversity point of view," says Madalena.

"Its proximity to one of the largest estuaries in Europe; Monsanto Forest Park planted many decades ago has over time, gained a life of its own; its proximity to the river; and its many green spaces"

Lisbon Facts: Green Spaces

- An increase of 250 hectares of green space between 2008 and 2019, and a total of 350 until 2022
- 42 m² of green space per citizen
- 25% of the city surface area covered by green spaces by 2022
- Five green corridors have been completed so far, with a further four to be finished by 2021
- 85.3% of the population lives within 300m of a large green area
- Monsanto Forest Park, a protected forest in the city, covers almost 10 km² and was entirely planted just 85-years ago, in an amazing example of human ecosystem restoration
- Lisbon is home to 1.57 trees per citizen and this is being increased by planting 25,000 new trees and large shrubs every year
- 20 parks with a total of 750 allotment garden plots for local organic farming (with a goal of, 25 parks and 1,000 allotments by 2021)
- Planting more trees contributes to Lisbon's Climate Change Adaptation strategy by improving air quality, reducing street temperatures, while also improving the physical and mental health of the population

Lisbon's Urban Parks: Loved by All

Monsanto Forest Park was planted just 85 years ago by hand. It covers around 10 km² of old cereal fields, pastures and quarries and is currently a haven for animals and residents alike. The city ensures the forest park is not only a place to enjoy, but also a place for residents and visitors to learn from. Many exhibitions have been held on topics including insects, birds, camouflage, mimicry and orchids. The red squirrel - a native species of Portugal that declined rapidly - was reintroduced into Monsanto Forest Park in the 1990's.

Whilst Monsanto Forest Park is Lisbon's largest park, it is not alone. Other significant parks in Lisbon include Belavista, Tejo e Trancão, Quinta das Conchas, Eduardo VII and Vale da Ameixoeira, all now part of wider green corridors. In 2021, the Eastern Green Corridor will have a total of 150 hectares. This includes a vineyard park, Vale de Chelas Park, and 220 allotment gardens and meadows that will be grazed by sheep after October 2020 under a EU funded LIFE+ project.

Where Lisbon's parks are intersected by roads, naturalised overpasses are created to prevent hazardous crossings for animals. Seven of these connections were opened since 2008 and two more will be finalised by 2021.

All new parks are designed to allow for better management of excessive rainfall during stormy weather. The rainwater sensitive design retains water where possible, allowing it to infiltrate or retain it for long enough to combat flash floods, by allowing the sanitation system to cope with lower volumes.

Portugal's native red squirrel species was reintroduced to Monsanto Forest Park in the 1990s





Tomás Tojo - The Modern Gardener

Tomás Tojo is a passionate gardener who is director of Lisbon's Open Gardens Festival. The free festival allows people to explore city gardens - public, private or institutional - during one weekend. It aims to have both a community and an educational aspect.

"Because the festival is free for all the community. Our main principle is to embrace communities but also to include activities such as shows, workshops and conversations. In our programme, we seek to create a different approach to gardens and to talk about them in an informal and relaxed way. It is also an opportunity to promote environmental awareness and to create a positive relationship between plants and nature for people."

Since starting in 2017, the festival has grown from just 80 to an impressive 16,000 visitors. Such an initiative aligns with the commitments and actions envisioned in the Green City Accord⁵, a movement of European mayors committed to safeguarding the natural environment, the EU Pollinators Initiative⁶, a set of strategic objectives and actions aimed at addressing the decline of pollinators, as well the EU Biodiversity Strategy for 2030⁷ that aims to put Europe's biodiversity on a path to recovery by 2030.

5 https://ec.europa.eu/environment/urban/green_city_accord.htm

6 https://ec.europa.eu/environment/nature/conservation/species/pollinators/policy_en.htm

7 https://ec.europa.eu/environment/nature/biodiversity/strategy/index_en.htm

Protecting Nature and Biodiversity

Allotment Gardens in the City

After 2007, the city began developing a strategy for urban agriculture, creating the Urban Allotment Garden (UAG) Programme. The initiative was pursued by the city due to the high social and environmental impact, but with little cost and maintenance. The first Urban Allotment park opened as recently as 2011. Brown field sites and specific areas of parks were converted to allotments with the result that Lisbon's allotments now cover 9.1 hectares.

Nearly a decade later there are now 750 organic allotment gardens at 20 different parks, in which farmers grow organically, use collected rainwater and compost organic waste. With a target to increase this to 1,000 by 2021, the project enjoys very high demand from citizens who want to grow their own food within the city.

The UAGs have been designed for social inclusion; increasing safety in Lisbon's parks; and promoting self-sustainable food production and a healthy lifestyle rooted in the Mediterranean diet that values local production, seasonality and biodiversity. The UAGs are used by almost 750 families, as well as by schools and community groups.

The Lisbon allotments and associated guidelines protect local biodiversity and ecosystems, increase soil fertility and drainage, and protect the health of urban farmers through access to fresh and quality products. This all contributes towards future food security.

Every allotment plot is highly sought after and the city receives far more applications than it can satisfy. All plot owners are trained in organic farming by the municipality. The inclusive feel of the UAGs is further emphasised by shared tools, sheds and rainwater recovery systems.

Lisbon's Allotment Gardens

- *The first municipal allotment park opened in 2011*
- *750 plots in place; and on target to increase to 1,000 plots in 2021*
- *82 schools with their own allotment garden project inside parks*
- *Organic farming techniques are mandatory with free training provided by the municipality*
- *260 tonnes of food produced annually*
- *First irrigation experience with treated recycled water will start in 2022*
- *750 families and community groups care for an allotment*
- *The first zero waste restaurant in Portugal will grow in a city allotment in 2020*



- *The city currently has 9.1 hectares of allotments and will be home to 1,000 allotments by 2021*

Supporting Wildlife

The city has an extensive and ambitious conservation programme that particularly works to rehabilitate and release orphaned, sick or injured wildlife, via LxCRAS Lisbon Wildlife Rehabilitation Centre (WRC). Although located in Monsanto Forest Park, the WRC takes in animals from all over the country, by coordinating with other similar centres. The Lisbon WRC is the only centre in Portugal that is financed and run by a municipality. Each year the centre admits 1,100 animals; and since 1997 it has successfully treated more than 20,000 wild animals, of which about 90% are birds.

The WRC has a permanent team of nine staff with student interns engaged during nesting season. Despite the on-site team, human interaction with the animals is kept to an absolute minimum, to ensure the wildlife resettles into the wild easily.

As well as rehabilitating animals, the WRC is also a scientific research resource, contributing data and biological samples to global research institutes. Lisbon also promotes wildlife within and around the city through a number of other initiatives. These include:

- Investing in infrastructure to reverse pollution of the River Tagus and improve the habitats of over 350 species of fish and aquatic birds;
- Creating green connections of tree canopies and crossings to reduce wildlife needing to cross busy roads and urban areas;
- Increasing the amount and size of meadows to accommodate more insects, birds, reptiles and mammals; and
- Ensuring habitats are maintained and protected in the Monsanto certified park.



■ *Lisbon's waters are not just home to birds; dolphins can often be seen jumping above the surface*



Managing Waste

Waste and sustainable consumption are important challenges for Lisbon. Most of the city's waste is converted to energy by incineration, while only 2.5% goes to landfill. The city has the best recycling and waste management rates in Portugal, presenting 26.1% of materials for reuse and recycling, but it wants to do better.

Circular Economy is now playing a key role in the municipality's ambitions with initiatives underway to reduce consumption and increase reuse and upcycling. Single use plastic is banned in the city at public events and an ambitious holistic approach was developed towards biowaste reduction. A domestic and community composting project is performing very well, generating awareness by enabling citizens to experience waste treatment first-hand. The city is distributing free composter bins to citizens to produce and use compost in their own homes (2,308 so far); installing community composting stations for homes without outdoor spaces; and supporting citizens with free training. To complement the home composting scheme, the city is also now piloting a domestic biowaste collection, to add to the existing restaurant biowaste collection routes, bringing brown waste to an anaerobic digestion facility for conversion to biogas and compost. The collection service will be rolled-out across the city.

Waste Collection in the Old Town

The historic neighbourhoods of Lisbon have always presented challenges when it comes to waste collection. There are small buildings with no space for indoor bins; and door-to-door collections were not hygienic. In 2018 a new approach was implemented when the old system was replaced with fixed bins in public spaces. A network of underground high capacity recycling stations have been provided around historic neighbourhoods within a short walking distance of residents. So far, this has resulted in a significant improvement to street cleanliness, as well as happier residents!

Part of the daily waste collection service downtown is provided by the local district using electric cargo-bikes, that make it easier to navigate the narrow streets.

Food Waste: Unacceptable

Lisbon is a key advocate in the global fight against food waste with food waste prevention projects underway since 2010. The Municipal Plan Against Food Waste was introduced in 2015. Reducing food waste means encouraging everyone to grow, buy and cook smart; and to find ways to manage unwanted food. The municipality is a key stakeholder in a network of 900 food donors that involves 4,000 citizen volunteers, beneficiaries, pioneers and logistics partners.

Hunter Halder – Reducing Food Waste

Hunter Halder chose to evolve when he gave up his career to collect leftover food from restaurants and deliver it to those in need.

During the financial crisis in 2009, at the age of 59, Halder was forced to rethink his career and reinvent himself. He founded the non-profit Re-food, a household name for thousands of families today.



In the first month, Halder collected and delivered 1,000 meals to 40 people on his bike. By the end of its first year Re-food had 70 volunteers!

“There’s an immense amount of things we can do, within our community, and each one of us has the power,” he says.

The Re-food Movement has spread throughout Portugal where it currently has 60 communities and 20 operation centres in Lisbon, supported by the Municipality and Urban Districts. It has also been adopted in Spain, Italy, America and Brazil.

Overall, Halder’s work to reduce food loss and waste, aligns with the principals of the EU Farm to Fork Strategy⁸ that aims to make European food systems fairer, healthier and more environmentally-friendly; and this includes preventing food waste.

⁸ https://ec.europa.eu/food/farm2fork_en

Lisbon Facts: Waste Management

- | Only 2.5% of household waste goes to landfill
- | 71.4% of household waste is incinerated to generate electricity equivalent to the consumption of 150,000 citizens every day
- | 26.1% of materials are prepared for reuse and recycling
- | From 2010 to 2019 household waste increased by 5% per resident but reuse and recycling also increased by 33%
- | 8% of urban waste sent to anaerobic digestion to generate energy and compost
- | Since May 2018, the city distributed 2,308 backyard composters to citizens for free

Education

Since the 1990's, the city facilitates environmental education programmes in schools. Currently, this ongoing programme involves about 200 schools and 50,000 students, teachers and auxiliary staff. Now in its sixth year (2020), Lisbon Week is a key event that, in 2017 alone reached more than 2,000 children.

In 2019, a new campaign was initiated by Oceano Azul Foundation, devoted to protecting the sea. The campaign motto 'If it doesn't go in the bin, it ends up in the sea', aimed at raising awareness amongst the general public, young and old. It highlighted our personal responsibility to reduce marine litter, in particular the role of individuals in combatting plastic pollution in our waters. Three TV ads aired across national and cable networks reaching millions of citizens; alongside digital and outdoor campaigns.



Joana Schenker - The blue hearted surfer

Professional bodyboarder Joana Schenker believes that not enough is being done to protect our seas and is particularly concerned about plastic pollution.

Marine litter, of which waste plastic makes up 80%, is a major environmental issue that causes biodiversity loss and damages marine ecosystems. In addition, emerging issues from micro-plastic pollution are a growing concern. The EU is addressing the problem through the Marine Strategy Framework Directive (MSFD)⁹, which requires Member States to monitor the state of their seas and take measures to reach or maintain 'good environmental status'.

Already in the first quarter of 2020 Joana has met with over 6,000 school students to educate them on environmental protection through the Schenker School Tour launched by the Lisbon Oceanarium, in conjunction with the Oceano Azul Foundation - a private non-profit organisation.

"The students understand the importance of what I am saying, and they interact with me through social media as they send me images of beach cleaning actions or things they do at home. This gives great motivation to know that what I'm doing is having some sort of impact. It also makes me more determined to continue."

⁹ https://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm



All new social housing developments have solar panels installed on their roofs

“The city shows its strong commitment to climate change adaptation”

*European Green Capital Awards
Expert Evaluation Panel*

A Smart City Open to Innovation

Having been awarded the prize for European Entrepreneurship Region (EER 2015); hosting the global Web Summit for the next ten years; and being a leader in the Sharing Cities Horizon 2020¹⁰ Smart Cities & Communities project, Lisbon has positioned itself as a leading European entrepreneurship and innovation hub.

The city believes it can leverage this positive reputation to push forward important smart city innovations and solutions.

Today, cities are true ecosystems of housing, working, industry and leisure, with complex social and economic systems. Lisbon’s strategy has focused on modernising the city’s ability to respond. Combining networks and traditional services with the use of digital technologies is critical, improving inclusivity, sustainability, efficiency, transparency and connectivity.

Lisbon is continually developing policies to attract and retain talent through the promotion of startup programmes, such as incubators and accelerators, as well as creating attractive conditions for the companies to establish themselves in the city.

Having an entrepreneurial ecosystem helps drive sustainability, as startups and associated innovation go hand-in-hand with demand for urban sustainability, thus providing new business opportunities and creating new green jobs.

¹⁰ Sharing Cities [<http://www.sharingcities.eu/sharingcities/about>] is a €24m EU funded project to drive urban sustainability innovation, with a goal to generate €500m in investments in over 100 European municipalities

Smart Projects

- Lisbon's Intelligent Management Platform¹¹, awarded in the Digital Transformation segment of the Smart 50 Awards, gathers and processes large data sets, originating from cameras, sensors and social media; as well as information systems from Lisbon Municipality and external partners.
- The Urban Data Lab¹², created in a context of collaboration between academia and the municipal services, allows processes and algorithms to be developed to predict and respond to all types of events.
- Real-time monitoring environmental and weather data¹³ with direct impact on quality of life (air quality, noise, traffic and climate related data), contributes to informing strategic decisions to address the city's environmental problems and tackle the effects of climate change.

11 <https://lisboainteligente.cm-lisboa.pt/>

12 <https://lisboainteligente.cm-lisboa.pt/lxdatalab/>

13 <https://lisboainteligente.cm-lisboa.pt/lx-iniciativas/sharing-cities-iluminacao-publica/>





Water – a Finite Resource

Lisbon's water network is constantly being improved and it has one of the lowest water leakage rates in the world, at just 11%. Since 2013, the city has also implemented water efficiency and leakage control measures to reduce drinking water consumption in its own network by 50%.

To further improve its performance and reduce water usage, the city is implementing an innovative distribution network for treated waste water through which it aims to reuse more than 1.5 million m³ per year for street cleaning, green space irrigation or industrial uses. A €16 million investment up to 2025, will allow recycled water to reach 30% of the city's high consumption spots, replacing precious potable water to irrigate green spaces and other non-potable uses.

Furthermore, the city is working to enable waste water to be treated to a level that enables it to be reused as drinking water. For now a proof-of-concept project, this demonstrates how it is both safe and technologically viable to further close the loop on the city's water journey.

Nine rainwater retention solutions have been constructed across the city as nature-based solutions to collect and store rainwater, and reduce the effects of flash floods. The solutions include small basins and changes to the plant life to increase a sponge effect in the soil. The Drainage Masterplan is a grey solution composed of two main underground tunnels that can divert the 100-year return of extreme weather events, as well as renovations to the existing sanitation infrastructure to help cope with the more frequent storms. This Drainage Masterplan was the first project in the EU to adopt the Juncker Plan, using a €170m EIB loan. It is also the largest public works investment throughout Portugal.

A primary strategy to reduce water dependency is being applied with the creation of climate resilient vegetation, including innovative rainfed meadows that are independent of fertilisers, irrigation-free and act as stable CO₂ and NO₂ sinks. Several green parks are now being planned, based on "raingarden design" whereby all rainwater will be managed in situ. More and more indigenous flora is being planted to reduce the irrigation needs as they require less water than foreign species.

Embracing the Riverfront

Cleaning the River Tagus was an important first step towards improving how Lisbon manages water and contributed a significant economic boost to Lisbon.

With a growing population, a poor waste water treatment system, increased pollution and industrial effluent, the mouth of the River Tagus was dirty and toxic. The river soon became uninhabitable for many species, such as dolphins that once visited the estuary.

Implementing a modern waste water treatment system was key to improving water quality in the River Tagus and there was a significant investment in this during the 2000's with EU funding support. In addition, the originally inaccessible riverfront, including its busy harbour, is now being opened up. To date 19 km of riverfront has been restored for the public's use, benefit and enjoyment.

Now, having vanished in the 1970's the dolphins are slowly returning to visit Lisbon's brackish but clean waters. As well as being home to dolphins, on the northern riverside lies a Natura 2000 Reserve where 250 species of aquatic birds have their habitats.

The Alcântara Water Factory, Lisbon's main waste water treatment plant, collects and treats waste water from 800,000 households. The facility is one of Europe's largest green roofs, a feat of engineering and architecture





Lisbon Facts: Managing Water

- *Leakage in the drinking water distribution network is only 11%*
- *Alcântara Waste Water Treatment Subsystem treats 570,240 m³ of water per day and is becoming carbon neutral, currently producing biogas, bio-solids, bioplastics and implementing a solar power plant*
- *Products from Alcântara Waste Water Treatment Subsystem are used in agriculture, industry, irrigation and street cleaning*
- *50% reduction in municipal water consumption between 2014 and 2018, through a leakage control programme and system modernisation*
- *20% reduction in drinking water consumption through efficiency and reuse by 2025*
- *“Praça de Espanha” square renovation underway since late 2019 is replacing a massive asphalt area with six hectares of green parkland that includes a raingarden design*

- *Drinking water fountains dispersed throughout the city encourage residents and visitors to re-fill their water bottles as opposed to buying single use plastic bottles*

José Sá Fernandes - Lisbon's Deputy Mayor for Environment

Deputy Mayor since 2007, for decades José Sá Fernandes has been known as “a man of Lisbon” for his pro bono work as a lawyer for causes related to Lisbon’s heritage and environment. Currently he is one of the most prominent figures – and the sole elected official - representing an ecological school of thought that defended a Green Plan for Lisbon. This plan was based on the ideas of Gonçalo Ribeiro Telles, a visionary landscape architect, currently 98 years-old. With his unorthodox approach, he led many forward-looking processes and was labelled as eccentric for promoting topics such as cycling in the city or water reuse years before these were trends in urban climate action.

First elected to the City Council as an independent in 2007, since then Deputy Mayor Fernandes oversees areas including environment, green infrastructure, biodiversity and climate action. After a successful decade of project implementation in office, he took it as a personal endeavour to take Lisbon’s achievements and vision to a higher level, in order to be able to share and inspire other cities to follow its path, coordinating the three applications for the recognition as “European Green Capital”.

“We know Lisbon is not the greenest city in Europe, but we are evolving rapidly and we have a clear vision of what a sustainable urban future can be,” says Deputy Mayor José Sá Fernandes.



“Choosing to evolve is a commitment, responsibility and a duty as a citizen”

José Sá Fernandes, Lisbon's Deputy Mayor for Environment

Green corridors line the streets of Lisbon, helping to combat the effects of climate change and increase biodiversity in the city



Managing Noise

Like any European city, Lisbon suffers from noise pollution, primarily due to road and air traffic.

The World Health Organisation (WHO) recommends that noise levels from road traffic are kept below 53 dB. Currently 55% of Lisbon's population is exposed to noise levels above 55 dB, while one fifth are exposed to even higher levels.

The city has implemented a series of measures to curb and minimise noise levels. Many initiatives to improve noise levels are also strongly linked to improving air quality, such as increasing green spaces, facilitating Electric Vehicle usage, improving public transport and encouraging cycling.

- A grant scheme has been introduced to incentivise private bike ownership and use.
- Several low-speed zones (30 km per hour) and Low Emissions Zones provided in the downtown area.
- Municipal bike-sharing systems average one million journeys per year.
- Footpaths are being widened to encourage more walking.
- Repaving streets with improved asphalt that minimises noise from car traffic.

These measures are starting to show results, with Lisbon's citizens experiencing a 44% reduction in "high level" noise exposure between 2014 and 2018.

In addition, a further 28,000 people now live within quiet zones in the city. Quiet zones are measured over a 24-hour period as day / evening / night sound level equal or inferior to 55 dB; and night noise level equal or inferior to 45 dB.

Pedestrians and cyclists enjoying the monthly car-free Sunday along Lisbon's main avenue





Managing Air Quality

Despite significant improvements in recent years, Lisbon, like many large cities, still faces many problems related to the impacts of air pollution on human health and ecosystems. As a capital city, with a population of 2.8 million in the Metropolitan Area, Lisbon has to deal with an inner-city airport, along with decades of car-centric regional policies.

Over recent years, the city has made impressive progress to reduce and manage the levels of NO_x and PM_{10} . Over the past decade, there has been a 50% decrease in the number of days where NO_x levels exceeded limits. Similarly, occurrences of PM_{10} levels exceeding limits has decreased to a quarter of what it was. These significant reductions are due to active measures to reduce air pollution including by increasing green spaces and providing alternatives to private car use.

Under its Regional Air Quality Improvement Plan, up to 2025 Lisbon is actively reducing its PM_{10} levels by 14% and NO_2 levels by 21% annually. These reductions are determined by measurements from the areas with the worst air quality. A variety of policies are in place to achieve these targets:

- 80 new sensors accurately measure pollution levels around the city.
- Older vehicles, pre-1992, are banned from major roads within the city centre defined as Reduced Emissions Zones (ZER - Zona de Emissões Reduzidas) where the only exceptions are vehicles fitted with a catalytic converter, public transport or emergency services.

- Another 100 km of cycle paths underway to complement the 100 km of cycling paths and bike parking stations in place that increased cyclists on central avenues by 700% already.
- 100,000 new trees are being planted between 2017 and 2021.
- Significant investment since 2015 to modernise the municipal bus company and increase the number of buses by 8%.
- 20% increase in public transport usage in the first year of introducing significantly reduced tariffs in 2019.
- From 2022, docked cruise ships will need to connect to a mandatory shoreside electric power source to reduce sulphur oxide pollution.

Since 2019, on the last Sunday of each month, the main avenue in central Lisbon is closed to car traffic and hosts a variety of activities for citizens of all ages. Not only were the events a huge success, the data showing improved air quality is also informing future changes in the city centre. The initiative has paved the way for many streets to be permanently pedestrianised. This strategy is also a tactical urban response to the Covid-19 pandemic as it provides more space for walking, as well as additional outdoor capacity for cafés and restaurants to operate safely.

Once a month citizens gather to plant and shrubs to increase the city's growing green corridors. In January, 20,000 trees and shrubs were planted in one day alone





Lisbon is collaborating with many other cities in Europe and around the world to share its ideas and learn from each other in response to the Covid-19 pandemic

“European Green Capital is a commitment. We will do what has to be done”

*Mayor of Lisbon,
Fernando Medina*

Looking Ahead to Lisbon's Future

Responding to Covid-19

In 2020, the Covid-19 pandemic has challenged the way we all live in so many ways. On the one hand, we have a unique vantage point into what urban life could be like with less car traffic and better air quality; while on the other hand the economic crisis unveiling in the face of the pandemic will bring devastating and prolonged consequences.

This major societal change we are experiencing is an opportunity to change the growth and development models that our societies are built on. Lisbon is collaborating with many other cities in Europe and around the world to share its ideas and learn from each other, to shape policy for the recovery from Covid-19 through the C40 Cities Recovery Task Force.

Lisbon is actively implementing new initiatives and measures to deal with the impacts of the pandemic, to try and stay ahead of the social consequences it will bring, alongside a new global economic crisis. One such initiative is the Secure Rent Programme (Renda Segura), launched in 2020 as a response to Covid-19. This programme to tackle the city's housing crisis, was already at policy development stage, thus allowing it to be implemented quickly, when Covid-19 struck. The municipality leases apartments from landlords at market prices, capped by the city. It then sublets each property to tenants at lower, affordable rental prices. The programme provides a secure,

guaranteed income for property owners, while ensuring secure and affordable tenancy agreements for Lisbon's citizens. Special tax incentives have also been implemented to encourage owners of apartments currently being used for short term / holiday rentals, to make those properties available for long term rental.

Before the Covid-19 pandemic, the Secure Rent policy was being designed to address a growing housing crisis in Lisbon city centre by bringing more families to live there and at the same time, enable more walking, cycling and public transport usage. Providing tax breaks, financial security and support, long term rental is made more attractive to property owners; and affordable housing is available for more young people and families to live in the city.

The city of Lisbon is also speeding up implementation of a number of other projects that were in the pipeline before Covid-19 struck. A cycle lane and street pedestrianisation programme, The Street is Yours (A Rua É Sua), saw large advancements in the first half of 2020, including several pop-up (temporary) cycling lanes being implemented quickly, with a view to making them permanent in due course.



A €1 per day monthly ticket was recently introduced to incentivise the use of public transport. An entire family pays a maximum of €80 per month, while public transport is free for children under 13 years of age



2020 Legacy Projects

In June 2020 the Mayor announced extensive changes to the city centre to be delivered during Lisbon's Green Capital year, that will result in long-term benefits for citizens and visitors, including improved air quality, additional open spaces and more choices for getting around Lisbon.

- Two new tram lines are being implemented.
- Around 2,000 street car parking spaces are being replaced by public space for wider footpaths, alfresco cafes and restaurants.
- Speed limits will be lowered to 30 km per hour across the city.
- The city's rapidly increasing network of bicycle lanes will be further expanded, including 25 km of pop-up cycleways by July 2020; and another 30 km by September.
- The city also plans an extra 7,750 secure bicycle parking spaces.
- A €3 million mobility fund has been introduced to subsidise bicycle purchases. Citizens can apply for a €100 voucher towards buying a standard bicycle; €350 for an e-bike; and up to €500 towards a cargo bike.
- An ambitious municipal Green Procurement scheme will be deployed during 2020.
- New affordable housing projects will comply to the Near Zero Emissions Building (NZEB) standards.
- Two solar power plants are under construction and will become operational in early 2021.
- From 2021, water reuse will be standard for municipal non-potable uses, with plans to expand to other activities such as industrial or irrigation of private gardens.

A further 60,000 trees and shrubs will be planted in Lisbon during 2020



An Even Greener Future

The city is on track to increase its network of nine green corridors further and to complete the renovation of 30 city squares and plazas, making space for pedestrians, bikes and green connections, by 2021.

All 45 km of Lisbon's nine green corridors will be home to thousands of native trees and shrubs allowing the city to keep cool, provide new areas for rain-fed biodiverse meadows and homes for all types of creatures, secure soil, absorb carbon and help prevent the effects of flash floods.

- | Lisbon has seen a 16% increase in new and renewed green spaces since 2008 (250 hectares) and will achieve up to 20% by 2021 (350 hectares targeted).
- | 85% of people already live within 300 metres of green urban areas in Lisbon, and the target is to increase this 93% by 2022. The city is prioritising the greening of traditionally dense and historical neighbourhoods that have no or scarce green spaces.
- | The city has planted more than 80,000 trees since 2017; and aims to increase this to 100,000 by 2021.



Further information

European Commission – DG Environment

ec.europa.eu/info/index_en

European Green Capital Award

ec.europa.eu/environment/europeangreencapital/

ec.europa.eu/environment/europeangreencapital/winning-cities/2020-lisbon/

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