CITY OF PARIS

VILLE DE
PARIS

Projects funded by the
€ 300 million Sustainability Bond
issued on November, 2020

Reporting on the 2020 period

SUMMARY OF ANNUAL REPORT 2020

CLIMATE ELIGIBLE PROJECTS

SOCIAL ELIGIBLE PROJECTS

PRESENTATION OF THE PARIS SUSTAINABILITY BOND IN CONTEXT

The City of Paris has been committed to the fight against climate change for a long time, both through its actions led locally in Paris and its administrative activities.

In 2005, Paris was already aware of the environmental and societal stakes of climate change and resolved to develop its territorial Climate Action Plan. The Action Plan was adopted in 2007 and updated in 2012 in consultation with the Paris' residents to take social, economic, technical, environmental and legal changes into consideration.

In 2018 a new version of the *Plan Climat Énergie de Paris* (Paris Climate and Energy Action Plan) was adopted. It aims to make Paris a carbon-neutral, resilient and inclusive City, that uses energy coming entirely from renewable sources by 2050. In order to reach this goal, ambitious intermediate objectives which extend well beyond the European and national obligations, have been set and should be fulfilled by 2030:

- Reducing greenhouse gas emissions by 50% (compared with 2004);
- Reducing energy consumption by 35% (compared with 2004);
- Using 45% renewable and reusable energy as part of its energy consumption and at least 10% produced locally;
- Reducing its overall footprint on its territory by 40%;
- Becoming a zero fossil fuel-free zone;
- Abiding by the recommendations of WHO regarding air quality.

A commitment confirmed by 10 years of positive experience and external evaluations

The 2004-2014 Results, which summarise the actions undertaken by the City in the Paris Climate and Energy Action Plan to adapt to climate change, reveal the following:

- A decrease of around 10% in greenhouse gas emissions;
- A 15% decrease in its use of energy;
- 15% of renewable and reusable energy as part of its energy consumption.

Paris is consistently developing stronger public policies which combine solidarity, economic development, environmental conservation, biodiversity and a circular economy.

According to the rating of the VIGEO-EIRIS agency, Paris ranked with a score of 58/100 among the leaders in the local authority sector in 2020 (with an average of 43/100 for the sector) and has the highest level in the rating system.

2015, the year of increased Parisian mobilisation in the fight against climate change…

The City of Paris stood out in 2015 when it hosted the 21st international climate conference (COP21), which saw the signing of the historic agreement adopted on 12 December 2015, as well as many actions carried out on a territorial scale (adoption of action plans for innovation for combating air pollution from road transport, of a strategy for sustainable Paris, of an action plan for sustainable food in municipal catering, and of Paris' strategy for climate change adaptation).

The City of Paris also promoted a number of international partnerships.

5 years after the Paris Agreement and the Summit for World Mayors and Local Leaders held on 4 December 2015, Paris and other cities were eager to reassert their commitment with the Paris Declaration, established on 11 December 2020. Supported by several city networks, it has been endorsed by more than 100 French and international cities and local governments, committed to act and achieve carbon neutrality by 2050 at the most.

Moreover, 73 major firms with their offices in Paris have signed the *Paris Climate Action* Charter and are committed to reducing their carbon footprint.

… and the year of the Climate Bond : the first issuance of a green-labelled and socially sustainable bond by the City of Paris

With the organisation of COP21 and the World Mayors' and local representatives Summit at the end of 2015, Paris gained excellent international exposure. The issuance of the Climate Bond in November 2015 fell within the context of supporting exemplary policies relative to sustainable development. Paris thus asserted its continued commitment to the fight against climate change by choosing to specifically allocate the funds raised to the financing of projects with noted climate benefits.

A natural extension to projects with social benefits and contribution to the well-being of the population :

Environment is only one part of sustainable development; it also comprises a strong social component.

The City's responsibilities include social services and healthcare, urban planning, primary and secondary schools, culture, environment, economic development, as well as water management, waste collection and recycling; it has actively included sustainability into all of its development plans.

To support its broad range of actions, the City of Paris decided in 2017 to expand its initial Framework and set up a Sustainability Bond Framework in order to widen the scope of funding that supports the City's overall sustainability plan by integrating social actions and projects.

The capital city set up ambitious programmes in order to demonstrate its inclusive role as a sustainable city:

- Access to housing : in order to provide all Parisians with access to housing, the City of Paris is committed to having 25% of housing be social by 2025.
- Financial aid : in order, for instance, to help fragile families with paying energy bills.
- Fight against exclusion : "The Parisian Pact against large-scale exclusion" coordinates aid for homeless people. Its goal is to prevent the life changes that lead to homelessness, and to help those who are homeless escape their situation, with reception centres and job-finding resources.
- Actions that favour people with disabilities are also a central focus, with the goal of having 900 facilities be made accessible by 2021, as specified in the "Parisian Strategy for disability, inclusion and universal accessibility" adopted in 2017.
- Social cohesion and development of the Social Solidarity Economy, which promotes professional integration: Five incubators and seven cooperatives for activity and employment assist social entrepreneurs.

The Sustainability Bond Framework offers a flexible platform from which the City of Paris will issue Climate, Social or Sustainability Bonds going forwards :

- A Climate Bond may be issued if the bond proceeds are to be allocated to eligible projects for the following categories: renewable energy, energy efficiency, climate change adaptation, or clean transport.
- A Social Bond could be issued if the bond proceeds are aimed to be allocated to eligible projects under the Social categories as defined in the following section.
- A Sustainability Bond could be issued if the bond proceeds are aimed to be allocated to a mix of Climate eligible projects and Social eligible projects as defined in the Framework. The inaugural Sustainability Bond issued in November 2017 is the first to refer to this new Framework.

Alignment with best practices :
The bond must comply with the Framework, as well as fall in line with the recommendations of the Green Bond Principles (GBP), the Social Bond Principles (SBP) and the Sustainability Bond Guidelines (SBG) in their latest version available at the time of issue.
In November 2015, prior to the issuance of the Climate Bond, the extra-financial agency Vigeo Eiris, an independent body, had assessed the City of Paris, rating its performances with regards to sustainable development.
The City ranked first among the "Local Authorities" sector rated by Vigeo Eiris which covers 29 European local authorities.

This ESG rating further completes the profile of the City in addition with the financial ratings carried out by Fitch and Standard & Poor's agencies (AA- by Fitch as of 30/04/2021 and AA by S&P as of 14/04/2021).

Prior to the issuance of the inaugural Sustainability Bond in November 2017, Vigeo Eiris, also provided a "Second Party Opinion" stating that it had reached reasonable level of confidence on the bond's expected contribution to sustainable development.

In October 2020, the City of Paris issued another Sustainability Bond for €300m:

The issue is expected to comply with each of the four Green Bond Principles:

1-Use of Proceeds :
The City of Paris's Climate, Social or Sustainability Bonds will be used to finance and/or re-finance, in whole or in part, new or existing projects from any of the Eligible Project Categories as defined below.

Specifically, the Proceeds of any bond issued under the City of Paris's Sustainability Bond Framework will be dedicated to finance projects that fall under the following Eligible Project Categories and contribute to one or more of the following Environmental and/or Social objectives:

- Reduction of greenhouse gas (GHG) emissions;
- Reduction of energy consumption;
- Increase of the renewable energies in the supply mix;
- Climate change and resource scarcity adaptation in Paris;
- Enhancement of access to essential services including education, culture, housing, health, access to service for low-income and underserved populations including children, young and elderly people;
- Employment creation;
- Support of socio-economic advancement and empowerment.

2-Process for Project Evaluation and Selection :
The City of Paris has made environmental, social, and governance (ESG) commitments to attest to the sustainable value of the project financed, through ESG criteria, the City of Paris' Sustainability Policy and practices in place.

These commitments cover the three domains related to ESG issues: Environmental, Societal and Sustainable Development.

The great majority of projects set up in Paris are covered by markets supervised by the Procurement Department ("Sous-Direction des Achats") under the frame of a Sustainable Procurement Charter which guarantees the automatic inclusion of some ESG criteria and/or clauses in the selection of contractors and suppliers. In particular, the Support and Procurement Techniques Office ("Bureau support et techniques d'achat") is responsible for sustainable procurement. Some projects have a dedicated procurement department which ensures the integration of ESG criteria in contracts, with the support of the Support and Procurement Techniques Office in some cases.

The City of Paris' Directorate of Finance and Purchases ("Direction des Finances et des Achats" or DFA), which collects data regarding eligible projects, carries out an initial analysis of assets eligibility. At this stage, elected members of the Council of Paris as well as operational teams managing the projects are involved in discussions.

A dedicated Sustainability Bond Committee was created, comprising the Secrétariat Général (General Secretariat), Directorate of Finance and Purchases, the Agence d'Ecologie Urbaine (Urban Ecology Agency or AEU) and the relevant teams in charge of the various social programmes. The Committee selects, reviews and approves the eligible projects on an annual basis and, when circumstances so require, allocates the proceeds to eligible projects and completes the annual reporting.

3- Management of Proceeds :

The net proceeds of the Climate, Social and Sustainability Bonds issuance will be managed through the standard liquidity fund of the City of Paris' treasury, in accordance with the French regulatory framework for local authorities, until the total amount of net proceeds matches the total amount of the selected eligible projects and/or until the maturity date of the bond.

The City of Paris will take specific measures as part of the annual financial audit process to monitor the amounts invested used to finance the selected eligible projects.

The net proceeds of the bond will be used to finance and refinance current and future projects. Refinancing will apply exclusively to the financial year of the issuance of the bond.

In case of project divestment, the issuer will use the net proceeds to finance other eligible projects compliant with the current Use of Proceeds.

4-Reporting :

On an annual basis, at least until full allocation, the City of Paris will provide the following reporting on any bonds issued under this Framework:

ESG reporting: reporting on ESG management and monitoring of ESG criteria at project or bond level where required.
Allocation reporting: detailing allocated bond proceeds by eligible project category and progress on the projects financed by the bond proceeds.
Impact reporting: at project level, where possible, the City of Paris will endeavour to report using reporting indicators for each eligible project category. (These indicators are listed in Annex 1.)
This annual report aims to synthesise and confirm all the commitments that the City has made in the context of the issuance of its Sustainability Bond.

REPORTING ON PROJECTS FUNDED 2020

Overview of the commitments and objectives of the reporting

In order to ensure transparency, and as independently assessed by Moody's Investors service (formerly Vigeo Eiris), the City of Paris has undertaken to communicate on the selected projects on a yearly basis:

- Allocation and progression indicators (work progress and investments made);
- Climate and/or social benefits;
- ESG performance indicators.

The reporting is carried out at an operational (project) level and/or at an overall (bond) level for the transversal indicators which are often linked to the internal organisation of the community, particularly for sustainable governance criteria. These indicators shall thenceforth be considered as common to all projects.

It confirms and specifies the projects (the allocation of funds raised and their distribution), their progress status and, where possible, their environmental and/or social benefits.
When possible, the environmental benefits are assessed and quantified by the Directorate for Ecological Transition and Climate (Direction de la Transition Écologique et du Climat or DTEC), which is authorised to carry out carbon assessment.

All selected projects are currently being implemented, with some at an advanced stage.

In order to better respond to the commitments to transparency that the City of Paris has made with regard to suppliers, this reporting includes a methodological note, which can be found at the end of this document.

To summarise, as of 31 December 2020 :

- **€ 296.5 m** out of € 300 m of the Sustainibility Bond proceeds have been allocated.

These data can be confirmed by the computerised monitoring of the local authority accounts (Alizé system), in connection with the Regional Directorate of Public Finance (Direction Régionale des Finances Publiques or DRFiP).

- **48,118 t.CO2/year** of carbon equivalent avoided through projects in which the City allocated bond's proceeds in 2020 *(contribution from the bond for 2020 is 12,603 tCO2/year)*
- **3,083 trees** have been planted in 2020, and **7,98 hectares of green spaces** were created
- **94,709 hours of integration work** were completed throughout 2020.

Sustainable governance indicators at the overall level

Social responsibility towards workers & respect for human rights

In addition to the already protective statutes of the civil service, the human resources policies implemented in the community have integrated the following principles :

- Respect for "residual" privacy (revision of the charter for the use of IT resources taking into account this tolerance);
- Compliance with the Data Protection Act to protect the personal data of users of the tele-services provided by the City;
- Fight against all forms of discrimination (generational, gender equality, people with disabilities, etc.);
- An anonymous, personalised and confidential reception and support system for all victims of sexual and moral harassment ("À votre service" ("At your service" unit: callers may be referred to one of the professionals of the Service d'Accompagnement et de Médiation (Support and Mediation Service), who are bound by professional or medical confidentiality).

As regards public tenders: the DCE ("Dossier de Consultation des Entreprises" or Tender Dossier) forms impose for the beneficiary companies to commit to the fight against illegal work, the obligation to employ disabled workers, a healthy social situation and professional equality between men and women, in compliance with the French Public Procurement Code (Code de la Commande Publique or CCP). *The applications selected by the City of Paris must therefore comply with these obligations*.
The City uses the possibility for all its purchases to integrate sustainable development objectives into its specifications and tendering procedures, in the form of clauses relating to execution conditions and/or in the form of application assessment criteria (see *Sustainable Procurement* indicator).
In case of inaccuracy in the declarations of the holders and/or their subcontractors or failure to meet their commitments, the administration uses its general power of control and direction of the execution of the contract to remind the company of its obligations (with a view to correcting inaccuracies or failures) or to financially sanction it or even terminate the contract.

Health and Safety Awareness is part of the contractual specifications in all of the City's procurement contracts. It is reinforced according to the purpose of the operations, for example to prevent risks on construction or maintenance worksites. A general health and safety coordination plan (*plan général de coordination de sécurité et de protection de la santé* or PGCSPS), required by French regulations, defines all the measures that must be implemented. In addition, generalised and/or local Prevention Plans apply to tenders for services relating to green spaces.

In the event of non-compliance with the SPS measures, the Special Administrative Terms and Conditions (Cahiers des Clauses Administratives particulières or CCAP) provide for pecuniary penalties.

Sustainable Procurement

Pursuant to the Law of July 31, 2014 on the social and solidarity economy and the Law of August 17, 2015 on the ecological transition for green growth, the local authority adopted the Schéma Parisien de la Commande

Publique Responsable (Paris' Plan for Sustainable Public Procurement) in 2016, which is based on the circular economy and sets ambitious **environmental and social** goals: reflection on the development of an ecological footprint indicator, promotion of reuse and recycling, fight against programmed obsolescence, usage and functional economy, reduction of grey energy, solidarity and inclusive dimension of procurement in order to work towards the return to employment of people who strayed from it and the promotion of diversity.

The Environmental Purchasing Guide (*Guide des achats environnementaux*) is intended for buyers in the Directorate of Finance and Purchases as well as for procurement managers in the other Directorates. This guide is regularly updated to include various issues such as the prevention of related waste (packaging, paper, cardboard, books, IT and telephone equipment). With this in mind, an article is systematically included in the CCAP of works contracts, requiring the production and presentation to the project manager, within 4 weeks of the start of the preparation period, of a *Plan Assurance Environnement* (Environmental Liability Scheme or PAE) as well as a Schéma d'organisation et de suivi de l'élimination des déchets de chantier (Site Waste Organisation and Disposal Plan or SOSED) for public works and a Schéma de Gestion et d'Élimination des Déchets (Waste Management and Disposal Plan or SOGED) for building works.
As part of its PAE, the grantee is thus required to:

- take into account the various **legislative and regulatory requirements relating to** the **elimination of waste and the recovery of materials** as well as the installations listed for the protection of the environment;
- take all necessary measures to prevent and prohibit any kind of pollution, whether atmospheric, terrestrial or aquatic, particularly outside the worksite territory. In particular, the storage and consolidation centres and recycling units to which the waste will be evacuated are defined, as well as the sorting and evacuation methods and the means of control and monitoring implemented. Discharge into existing drainage systems of equipment washing products, draining products, lubricants or fuels is strictly prohibited.

Thus, in 2020, in terms of contracts notified by the Finance and Purchasing Department:

From January 1 2020, diesel engines will be prohibited in the execution of City of Paris contracts, for both light and heavy vehicles.

Paris has finalised the integration of clauses in favour of sustainable waste management in the public contracts necessary for a deconstruction operation, through a framework agreement for the design, management and monitoring of the work. This includes preserving materials and limiting landfill or incineration.

- 53.31% of cross-sectional contracts include an environmental dimension (performance clause and/or bid evaluation criterion and/or environmental object)
- 40.62% of the City's centralised contracts include circular economy clauses
- 27.03% of the city's centralised works contracts have an end-of-life recovery clause and/or a waste organisation and monitoring and disposal plan
- 100% organic and fair trade clothing for agents

Following on from the vow adopted by the Council of Paris in May 2018 concerning the elimination of avoidable plastics in Parisian collective catering, in 2020 the City of Paris continued its commitment to limiting or phasing out plastics with an impact on public ordering: objective of eliminating certain single-use plastics (straws, cups) in Parisian collective catering and takeaway sales for employees.

In order to work towards a return to employment for those who are furthest from it, the Schéma Parisien de la Commande Publique Responsable also sets ambitious objectives based on the following criteria

- on the identification of potential markets for social inclusion
- on a partnership with the City's Department of Attractiveness and Employment (integration component) and Ensemble Paris Emploi Compétences (EPEC), the unique Parisian facilitator
- membership of the HANDECO network, which federates the structures of the protected and adapted sector.

2020 summary :

- 445,733 hours of work experience (City and CASVP), i.e. 440 contracts in progress with an integration clause (City and CASVP).
- Nearly €4 million in purchases from inclusion structures (disability and integration through economic activity).

Facilitating the access of SMEs to the public order is another essential line of work that is in line with this socially sustainable logic:

- 57% of spending will result from contracts awarded directly to SMEs in 2020 (excluding subcontracting) and 14% to VSEs,
- 76% of our suppliers are SMEs,
- Exchanges are multiplied with companies: information meetings on various topics, B-to-B (business to business) meetings, sourcing by the purchasing departments to better understand the economic fabric, define the best allotment strategy and identify innovation opportunities, and "buyer" contact made possible by registration on a one-stop shop (231 requests in 2020 compared with 234 in 2019),
- The implementation of simplifications (model of technical memorandum) and guides,
- Limiting the use of minimum capacity levels (including turnover) also contributes to this objective.

Good Business Practices & Ethics

Thanks in particular to a reorganisation of the departments in charge of payments, the **average payment period for suppliers** to the City of Paris **in 2020 was 20 days** calendar days compared to 23 days in 2019 (regulatory period: 30 days), despite the volume of invoices to be paid (nearly 500,000/year). For more transparency, since September 2014, suppliers can track their payments via the **supplier portal**.

In addition, the Sub-Directorate of Purchasing (SDA) is implementing an ethics guide entitled **Purchasing Ethics Charter** to ensure full compliance with the French Public Procurement Code.

- Thus, in terms of purchasing in 2020, out of 698 contracts awarded (720 in 2019), only 11 appeals were lodged against the City of Paris (10 in 2019) : 8 were won by the City, 2 were lost and 1 is awaiting trial.
  There were no lost appeals directly related to the Sustainability Bond projects.

- As part of the prevention of conflicts of interest, any agent participating in a public procurement operation (public contract, public service delegation or concession, partnership contract, etc.) must ensure that he or she is not in a conflict of interest situation; If this were the case, he would have the obligation to report it without delay. Failure to do so may result in disciplinary action.
- Ethical control mechanisms are ensured by procedures that include collegiality (committees and commissions), individual accountability (sanctioned in case of failure: reattribution of the file, cancellation of the contract, criminal liability) and visas (validating the respect, at each stage, of the rules in force).

All members of elected officials' offices and new managers are also made aware of purchasing ethics and the various offences in this field (corruption, influence peddling, illegal interest taking and favouritism).
Compliance with the **ethics charter for elected officials** (praised by the Haute Autorité pour la Transparence de la Vie Publique (HATVP), which encourages this type of practice) is entrusted to an ethics commission, composed of five independent personalities.

SUMMARY OF PROJECTS FUNDED THROUGH BOND PROCEEDS

	Invested in 2020	Total invested
TOTAL :	**€ 296.5 m**	**€ 296.5 m**
Category 1 - Clean transport		**€ 77.2 m**
Alternative means of transport : Cycle lanes		€ 20.8 m
Public transport : Extension of metro line 14		€ 41.3 m
Public transport : Extension of tramway line 3		€ 5.1 m
Public transport : Creation of tramway line 9		€ 4.3 m
Public transport : High Quality Transit Line creation		€ 4 m
Public transport : Connection of Paris' railways stations		€ 1.7 m
Category 2 - Energy Efficiency		**€ 51.29 m**
Buildings : Crèche Justice		€ 1.79 m
Buildings : Crèche Lefebvre		€ 3.35 m
Buildings : Crèche Evangile		€ 2.47 m
Buildings : Piscine Blomet		€ 2 m
Buildings : Piscine Elisabeth		€ 2.38 m
Public lighting and signage : Energy Performance contract (MPE)		€ 6 m
Buildings : Renovation of social housing		€ 33.3 m
Category 3 – Adaptation to climate change		**€ 15.46 m**
New green areas : 30 new hectares of green spaces		€ 14.14 m
Tree planting programme : 20,000 tree planting programme		€ 1.32 m
Category 4 - Access to essential services for target populations		**€ 2.25 m**
Renovation of a nursing home for elderly dependent people (EHPAD)		€ 2.25 m
Category 5 - Social and Solidarity Economy		**€ 1 m**
Microfinance and small businesses : Subsidies to actors of the social and solidarity economy (SSE)		€ 1 m
Category 6 - Subsidised Public Housing		**€ 149.3 m**
Eradication of substandard housing		€ 4.8 m
Social Housing Units Production Programme		€ 144.5 m

1. Clean transport

2020

Alternative means of transport : Cycle lanes

Project description

In order to develop cycling in the region, in addition to promoting a genuine cycle-based culture (cycle-tourism, cycling festivals, etc.) by making bicycles available to all (cycling schools, cycle training in schools, repair workshops, etc.), the project consists of connecting and completing the 730 km of cycling network already created. This means creating an express cycling network which would make it possible to cross Paris from west to east and from north to south; to standardise a 30 km/h speed limit throughout Paris and create a network of two-way cycle lanes; to continue the development of parking areas, including secure parking, over the whole territory; to close the main gaps in urban fragmentation and provide a cycling continuity between Paris and its inner suburbs by improving the "cyclability" of Paris' gates.

Jean-Baptiste Gurliat/Ville de Paris

Key data

Forecast:

- **Before the outbreak of the COVID-19, it was expected that by the end of 2020, 270 km of cycle lanes would have been created since the initiation of the "Plan Velo" in 2015, including lanes created within the limited speed areas (30 km/h)**
  - ✓ Reaching **1,000 km** of cycle lanes (270 km being added to the already 730 km existing lanes at the end of 2015); this target has been revised down from 1,400 km prevailing up to beginning of 2019.
  - ✓ **27,000 t.CO_2/year** should be prevented following full completion of goals set by "Plan Velo" for 2015-2020.

Completed:

- ✓ **56 km** created in 2020, acceleration due to the inclusion of *coronapistes*
- ✓ **1,102 km of bike lanes in total (including infrastructure)**
- ✓ **27,000 t.CO_2/year** emissions prevented in 2020 thanks to work done within the period 2015- 2020
- ✓ Out of which **5,600 t.CO_2/year** through work funded by the bond in 2020

(see methodological note at the end of this report)

Funds invested in 2020

€ 20.8 m have been allocated in 2020

2020

€ 20.8 m

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project: a dedicated team has been set up in the *Service des Déplacements* of the *Direction de la Voirie et des Déplacements – DVD* (Directorate of Roads and Travel) to follow the project and report on its progress:

- Through monthly cycle plan monitoring committees, internally and with the associations
- Through presentations with the supervising deputy of the Town Hall of Paris

Social Responsibility

Sustainable Procurement

There is a list of fines (which therefore involve a monitoring system) in the event of non-compliance with the **provisions of the labour code relating to undeclared labour** or the non-transmission of the **diversity report**. It should be stressed that the sampling on which the eventual application of penalties and reductions is based are realised by the materials testing laboratory of Paris (*laboratoire d'essais des matériaux de la Ville de Paris* - **LEM VP**) by means of at least one sample per construction site, except for the bituminous cold-mixes for which at least two samples are taken.

Social Cohesion

PRM accessibility is a component in any project for the development of public space (including during the construction period). In this respect, the creation of cyclable developments meets the conditions of the *Plan de Mise en Accessibilité de la Voirie et de l'espace public parisien* (Plan for the development of accessibility to roads and public space) which is part of the improvement of accessibility on the perimeter of the projects.

The *CCAP (*book of specific administrative clauses) of the road works contract also contains an article relating to the **Protection of residents against pollution** of all kinds throughout the operation.

Communication with users is constant: from the development of the Cycle Plan to its improvement

- Citizen consultation on the internet
- Proposals received in the framework of the participative budget
- Use of diversified communication channels
- Information to citizens' associations by means of the press or through cycle committees
- Feedback of grievances via the Cycling associations (participant in the cycle committees) and the "*Dans ma rue*" Smartphone application.

Environmental Liability

Air quality

Air quality through the proposal of non-motorised traffic modes, which aims to reduce automobile traffic and **associated greenhouse gas emissions**, is central to the project. Among the **environmental clauses** contained in the *CCAP*, a clean vehicle clause, with inspection of vehicle registration documents, has been inserted.

Ecodesign

The project is linked with the objectives of the mandate (creation of 20,000 trees, rainfall zoning and the creation or sustainability of ecological corridors): at the very least, **biodiversity** (according to the compulsory impact study carried out during preliminary studies) and the place of nature are preserved (the removal of trees or flower-tubs is only considered in exceptional circumstances and as a last resort). For example, the *CCTP* (Book of specific Technical Clauses) specifies that the root collar of a tree must imperatively be protected during the work, whatever the type of tree. In addition to this, the cycling developments integrate sustainable development (planting, accessibility, etc.) whose cost, by integration, can be practically nil.

Energy Consumption

With the clauses attributing the constraints to the contract holders, the latter are encouraged to **employ the most efficient means of managing the energy and fluids** (and particularly water) necessary to the realisation of the work.

Waste management

Besides the **legal and regulatory requirements** of the CCAP of works contracts (see general indicators of sustainable governance) relating to the production of the *Plan Assurance Environnement - PAE* (Environment quality assurance plan) and the *Schéma d'organisation et de suivi de l'élimination des déchets de chantier - SOSED* (Organisation and monitoring of Waste management Plan), the *Centre de Maintenance et d'Approvisionnement* (Maintenance and Supply Centre) of the DVD is piloting a new **initiative managing the recycling of elements in natural stone** from their site at Bonneuil-sur-Marne. The CCTP contains a wealth of requirements regarding the reemployment of diverse materials.
Moreover, concerning **hazardous waste**, the CCAP for road works contracts contains a specific article on the Processing of Asbestos Waste.

Evaluation of climate benefit

Reduction of greenhouse gases

The estimation of the reduction in greenhouse gases for the cycle lanes is based on a modal shift compared to similar traffic by conventional private car. Thus **27,000 t.CO_2/year** has been gained thanks to 270 km of cycle lanes completed during years 2015- 2020.

5,600 t.CO_2/year saved only through works funded by the bond in 2020

(see methodological note at the end of this report)

1. Clean transport

2020

Public transport : Extension of line 14 to Mairie de Saint Ouen

Project description

Inaugurated in 1998 under the name "METEOR" for "Métro Est-Ouest Rapide", line 14 is the last Parisian metro line to be commissioned. The first fully automated line, it stretches 9.2 kilometers from Olympiades to Saint-Lazare, with nine stations accessible to people with reduced mobility (PRM) and 120-meter-long platforms equipped with platform doors. The line is equipped with an Automatic Train Operation System (ATOS) and a fleet of 6-car MP89 automatic shuttle trains. Thanks to the long distances between stations (on average 1.1 km), the average speed is 39 km/h (compared to 20 km/h for the other metro lines). All these characteristics make line 14 an attractive line: its traffic amounts to 500,000 users per day.

Line 14; Metro
Photographer: Guillaume Bontemps/Ville de Paris

The project of desaturation of line 13 by the extension of line 14 to "Mairie de Saint Ouen" and the adaptation of the existing stations of line 14 have for objectives:

1. **to desaturate line 13** when the extension is put into service; traffic studies have shown that the rate of unloading of line 13 thanks to the extension of line 14 is more than 23% on the trunk line and more than 19% on the branches, which will improve the travel conditions of public transport users
2. **to increase the transport capacity** of line 14 extended to "Mairie de Saint-Ouen" by increasing the number of train cars from 6 to 8 in order to offer the maximum capacity permitted by the line's adapted infrastructure (at least 40,000 passengers per hour and per direction);
3. **to allow subsequent extensions** to the north as far as Saint-Denis-Pleyel, and to the south as far as Orly Airport, while optimising public investments.

Key data

In the pipeline:

- **Reduction** of passenger traffic on line 13 by **25%** (Line 13 = 600 000 passengers)
- **35,000** passengers per hour
- Frequency of 1 train every 85 seconds
- New connections with metro line 13, RER C, Transilien line L and tramway T3b will be provided.
- According to RATP estimates, **200,000 new passengers** will use the line every day, including 12,500 during morning rush hour on the extended section alone.
- Progressive replacement of 6-car trains with 8-car trains

Completion Points:

- End of work : **14/12/2020** (with the exception of the Porte de Clichy station; the general commissioning was carried out on 28/01/2021)
- **4** new stations created
- **5.8 km** of lanes created
- Châtelet-Mairie de St-Ouen in 15min
- **15,000 m²** of transit space
- **14,000 m²** of technical areas

In Paris, two new stations, Pont Cardinet and Porte de Clichy, will serve the new Clichy-Batignolles district, its Martin Luther King Park and the major facility of the Paris District Court.

Funds invested in 2020

€ 41.3 m have been allocated in 2020

2020

€ 41.3 m

Actual allocation of the Sustainability Bond proceeds in 2020

(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

The extension of line 14 to Mairie de Saint-Ouen - *Île-de-France region* is **a major project financed by the State and several local authorities in the Paris region.** It is jointly supported by two project owners: Île-de-France Mobilités and the RATP. Île-de-France Mobilités, the Île-de-France transport organising authority, is responsible for ensuring that the programme, timetable and costs are respected throughout the project, while RATP, the operator of line 14, is designing and carrying out the extension work.

Funding provided by several partners :

The project, for its infrastructure part, is funded by:

Société du Grand Paris (58.85 %), the City of Paris (21.31%), Région Île-de-France (13.62%), the Departmental Council of Hauts-de-Seine (3.11%) and the Departmental Council of Seine-Saint-Denis (3.11%).

Social Responsability

New stations accessible to people with reduced mobility (PRM): the laneways in the station between the roadway and the platforms accessible by elevators for the main access route; the platforms are always in straight alignment to allow level access to the trains.

Respect for fundamental rights:

Respect for the fundamental rights of the workers who worked on the site, ensuring their safety and respecting the legislation for the protection of health.

Promoting appropriate consultation with internal and external stakeholders:

• Regular information for local residents on the implementation and progress of the worksite, holding public information meetings, signage and targeted newsletters.

• Local agents to act as a link between local residents, elected officials and construction companies, with permanences in a dedicated room located near the construction site, provided by the local agent. It was also reachable on a phone number "info chantier".

• A specific Internet portal has been set up.

• Communities and developers associated throughout the elaboration and realisation of the metro project within the framework of specific meetings (technical committee, monitoring commissions, etc.).

Environnental management and eco-design of projects :

RATP's sustainable development policy is based on a commitment to exemplary professional practices through the management of environmental risks at its industrial sites (e.g. at the future maintenance and storage site): treatment of polluted land (asbestos, hydrocarbons, etc.) and the infrastructures it operates, through the eco-design of the infrastructures, systems and equipment it specifies or designs, and through the purchases it makes.

Since 2001, RATP has been committed to a continuous improvement process that involves controlling and anticipating all aspects of its responsibilities in terms of resource use and impact on the natural environment and local residents. This initiative has resulted in the ISO 14001 certification of several metro lines (e.g. 1, 8, 14) and various maintenance workshops.

Evaluation of climate benefit

Reduction of greenhouse gases

The number of users per day is estimated at 176,000.

CO2 emissions avoided through the global project : **7,310 tCO2eq/year**

Therefore, emissions avoided thanks to the proceeds of this bond can be estimated at **220 tCO2/year.**

(see methodological note at the end of this report)

1. Clean transport

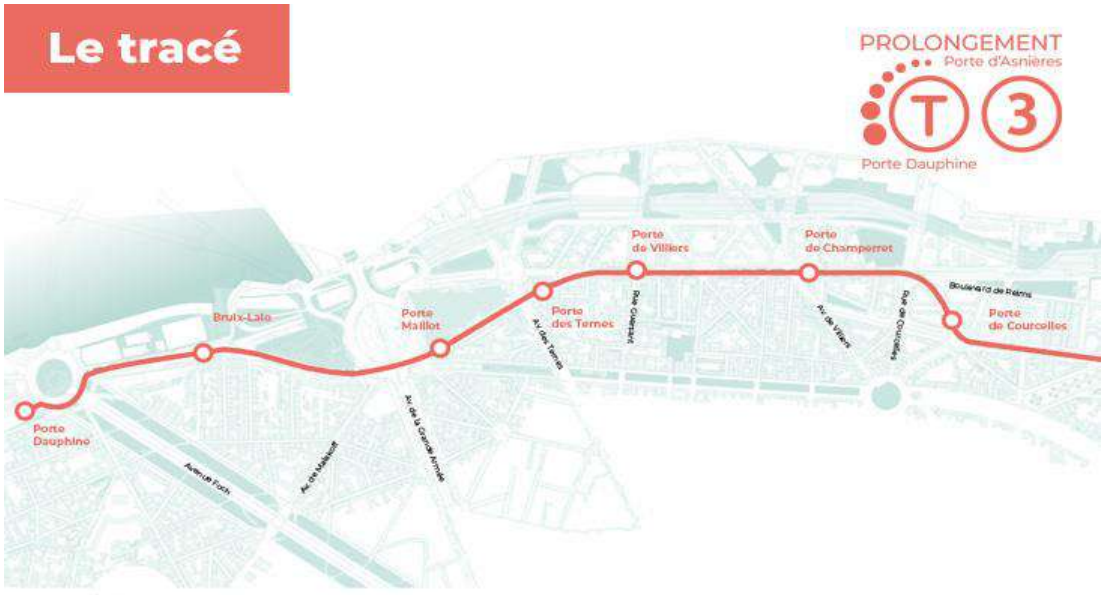
2020

Public transport : T3 - EXTENSION ASNIERES MAILLOT

Project description

The project to extend the T3b tramway between Porte d'Asnières and Porte Dauphine is included in the 2015-2020 State-Region Plan Contract. The State, the Ile-de-France Region and the City of Paris have agreed to propose that the remaining financing of the T3b extension to Porte Dauphine be included as a priority in the next State-Region Plan Contract.
The extension route is 3.2 km long and includes 7 new stations.
The project has several general objectives:
- to serve a very dense area of western Paris: the territory crossed is marked by a high density of population, economic, cultural and sports activities. The project will serve the Berthier-Champerret and Gouvion-Saint-Cyr districts, the Palais des Congrès de Paris (17th arrondissement), Porte Maillot at the border of the 16th and 17th arrondissements, as well as the University of Paris-Dauphine (16th arrondissement)
- to affirm the essential role of the T3 tramway, which will be connected to numerous transport lines: RER C, metro lines 1, 2 and 3, numerous bus lines and the RER E extended to the west (EOLE). It will also provide a new service for Neuilly-sur-Seine and Levallois-Perret.
- Supporting urban development: This extension is part of a territory that is being considered for the redevelopment of Porte Maillot and innovative urban projects such as the "Ville Multistrates" project, part of the "Réinventer Paris" programme.
- Rethinking public space: The arrival of the T3 tramway extension to the west is an opportunity to upgrade the public space with quality landscaping and urban development. Pavements will be widened to facilitate pedestrian movement and cycle lanes will be provided along the route.

Le tracé



Key data

Forecast:

It is about extending the line of **3.2 km.**

At the end of the work, in 2024, 53,807 hours of insertion are planned.

Completed:

Work is in progress.

As of 12/31/2020, **8,275 hours** of insertion have been completed.

Funds invested in 2020

€ 5.1 m were allocated in 2020

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : DVD / Mission Tramway

A dedicated team with a nominated project manager was set up in the *Direction de la Voirie et des Déplacements - DVD* (Directorate of Roads and Travel) to monitor the project and report on its progress :

- Through six-monthly follow-up committees to present the project's progress to the funding partners (Île-de-France Mobilités / RATP / Région Île-de-France / État / Ville de Paris)
- Through annual presentations to the Council of Paris in the form of a report on the operation

Social Responsibility

Social Cohesion

- **PRM accessibility** is an intrinsic component of the project, principally along its route and in the immediate vicinity of the stations:

According to the *Cahier des Clauses environnementales des chantiers – CCEc* (works site environmental clauses), the temporary pedestrian and disabled routes, and the existing ones modified for the duration of the works, must meet all the regulations in force and be in line with the *Schéma directeur d'accessibilité de la voie publique* (plan for accessibility to public roads) for persons with reduced mobility, and must meet the NF P 98-351 standard of August 2010. In order to do this, clear signposting on the ground is planned, sufficiently upstream of the proposed modifications to the existing provisions, and with the addition of tactile paving stones (in compliance with legislation) designed to mark and secure the mobility chain for blind or visually challenged persons

The *CCAP* (Special conditions) for road works contracts contains an article relative to the **Protection of residents against all forms of pollution** during the operation

Communication with users and residents

- On top of daily presence of two local communications officers all along the line, a dedicated telephone number and email address for answers to questions from residents and traders were set up in order to create a link between the residents and "Tram Mission".

In addition to the information channels between users and the tram (*Flash info, T3 Mag, website* www.tramway.paris.fr), meetings are organised regularly to inform the residents about the project and answer their questions.

From 1 January to 31 December 2020, 96,937 pages of the website were visited, which corresponds to 26,273 users. The project's Facebook page has 3,630 subscribers. On two sites at "Eglise Sainte-Odile" and "Porte de Champerret" a system of timelapse pictures footage was installed.

People connecting to the website can therefore view the different steps of the works.

Explanatory panels were also installed on singular points of the site (Porte de Champerret, Porte Dauphine)

Sustainable Procurement

Clauses relative to the **Protection of residents against pollution** of all kinds throughout the duration of the road works operations and to the **Safety and Health Protection of Workers**, as in all the City's contracts, are integrated into the CCAP. The social clauses included in the works contracts provide for a total of 53,807 hours of integration for people far from employment. In order to ensure the proper execution of these clauses, the City of Paris has entered into a partnership with the Paris Emploi Compétences group, the facilitator in charge of validating the hours worked.
As of December 31, 2020, 8,275 hours of insertion have been completed.

Awareness of Health and Safety issues has been reinforced by a contract for the Coordination of Safety and Health Protection of Workers (1st category) which was awarded for a period of 66 months, starting in March 2018 and ending in September 2023), particularly for urban insertion or accompanying works and for related and administrative operations.

Working conditions and respect for human rights:

Fight against discrimination (in hiring, gender equality, disabled, etc.)

Awareness of Health and Safety issues has been reinforced by a contract for the Coordination of Safety and Health Protection of Workers (1st category) which was awarded for a period of 66 months, starting in March 2018 and ending in September 2023), particularly for urban insertion or accompanying works and for related and administrative operations.

Local development

The tramway line extension project was open for public participation electronically from June 15 to July 16, 2020, prior to the issuance of the two development permits. The impact study of the project has been updated in accordance with article L 122-1-1 III of the environmental code. As this gave rise to an electronic public participation procedure, certain remarks were taken into account by the project owners.

Environmental Liability

Ecodesign

Implementation of a paving stone recycling process with the DVD's Maintenance and Supply Centre (CMA), which supplies Parisian construction sites from the Bonneuil-sur-Marne depot:
- Natural stone or concrete materials (curbs, paving stones, slabs, bollards, dividers,...)
- Metal street furniture (bollards, barriers, benches, tree grills, enamel steel street name signs,...)
- Cold mix asphalt.

The depot runs a recycling activity of natural stone materials, recovered during construction:
- Of the 2.5 million tons of granite in place in Paris, approximately 15 to 20,000 tons are extracted annually.
- Granite curbs transformed by splitting into sample paving stones or by bush hammering to restore the original appearance
- Sample granite pavers transformed into sawn paving stones.

Energy Consumption

Choosing to develop a Tram line is part of the answer to "Plan de déplacement de Paris" and "Plan de déplacements Ile de France" but also to new local rules regarding air quality and rational use of energy, since it should contribute to a better allocation of public space and profit non-motorised transports (bikes, pedestrians).

In this context the T3 extension route was carried out with a view to creating hubs with Métro lines and RER, and Paris and Paris outskirts bus lines. The underlying principle of a project focusing on the Tram option (choice of equipment, exploitation, speed, safety) consists of redistributing the available public space, in this case on a regional basis, by reducing the modal share of the automobile in favour of non-motorised traffic (pedestrians, bicycles etc.).

In this respect, air quality through the **reduction of pollutant emissions** is intrinsic to the project.

Special attention is given to:
- the choice of products and building materials;
- the vegetation of the platform, with objectives of landscape quality of the project, positive impact on the quality of the urban air and on the cooling of the ambient air (reduction of the urban heat island effect), reduction of the noise produced by the tramway.
- the environmentally responsible management of water for the watering of the vegetated platform: technical solution of sub-irrigation which will allow to reduce water consumption.

In addition, measures and requirements will be imposed on the contractor, his possible co-contractors and his subcontractors (setting up of a CSPS, an environmental quality manager, monitoring of nuisances, etc.):

–control by sound level meter of the acoustic level of the building site at the limit of the building site;
- control of dust and sludge levels ;
- control of the noise levels of tools and machines by the companies.

Waste management:

In the Cahier des Clauses Administratives Particulières (CCAP) of the road works contracts, articles on the production of the environmental insurance plan (Plan assurance environnement : PAE) and of the organisation and follow-up Plan for the elimination of construction site waste (SOSED) are included, whose content requirements are described in the corresponding Cahier des Clauses Techniques Particulières (CCTP), in particular:

- The contractor is obliged, in drawing up his PAE to take into account the various legislative and regulatory requirements relating to the elimination of waste and the recovery of materials as well as to installations listed for the protection of the environment and to take all useful measures to prevent and prohibit soiling and pollution of all kinds, whether atmospheric, terrestrial or aquatic, in particular outside of the construction site boundaries;

- Discharge into existing drainage systems of equipment washing products, draining products, lubricants or fuels is strictly prohibited.

In the CCAP of the road works contracts, there is an article on the treatment of asbestos waste within the framework of the contractual obligations of the holders of the asbestos abatement contracts.

Prior to the start of work on the tramway's infrastructure and structures, a major asbestos abatement operation of the roadway asphalt was carried out by the Mission Tramway between June and September 2019.

Biodiversity:

The boulevards constitute a plant continuity and are an important link in the biodiversity of Paris. The general principles for dedicated pavements are as follows: Grassed platform in the running section and mineral surfacing platform in front of the stations. The project has evolved following requests from the Architectes des Bâtiments de France so that the earthwork is implanted in addition to maintaining the trees.

Over the course of the project, 498 trees will be planted, 441 existing trees will be retained, and 243 had to be removed, for a total of 2 trees planted for every 1 tree removed.

More than 9,000 m² of planted areas will be created (shrubbery, carpeting, etc.) and more than 6,500 m² will be dedicated to rainwater management (landscaped valley, rain garden, infiltration strips, etc.).

The plant palette of the Maréchaux boulevards will be diversified, with a preference for species native to the Île-de-France region. Species will be introduced, including deciduous trees (*Acer × freemanii*, *Tilia cordata,* etc.) or flowering trees.

Evaluation of climate benefit

Reduction of greenhouse gases

We use two modal shifts allowing greenhouse gas reduction in our computation :

1/ Modal shift from car to tramway
2/ Modal shift from PC1 and PC3 buses to tramway

The computation leads to an estimation of saving of **5,643 tCO2e / year** thanks to the extension of T3.

Therefore, emissions avoided thanks to the proceeds of this bond can be estimated at **148 tCO2/year.**

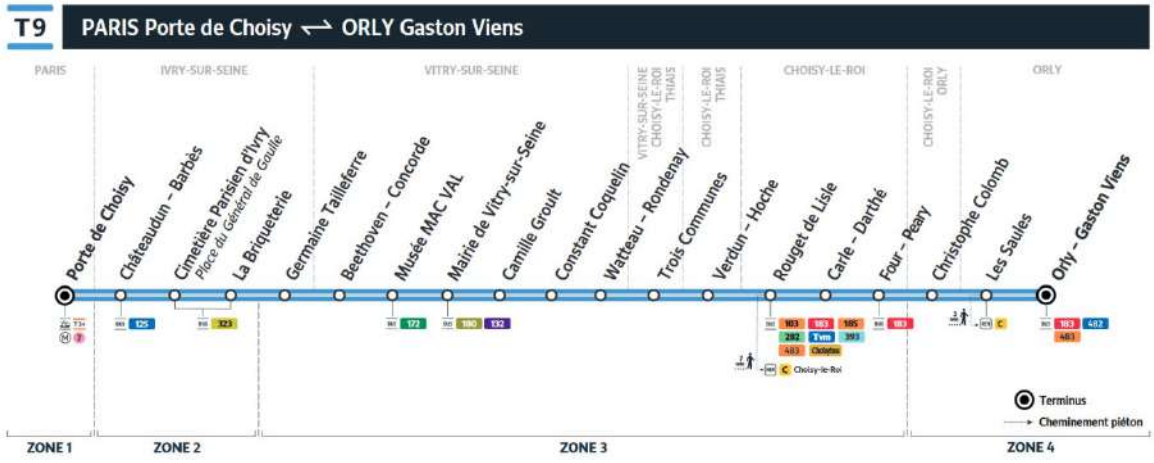
(see methodological note at the end of this report)

1. Clean transport

Public transport : Tramway T9 (Porte de Choisy - Gaston Viens)

Project description

The T9 tramway is a new line linking Porte de Choisy (Paris) to Orly via the municipalities of Ivry-sur-Seine, Vitry-sur-Seine, Choisy-le-Roi and Thiais. The T9 was put into service on April 10, 2021. It extends over 10.2 km, 500 meters of which are on the territory of the City of Paris. It includes 19 stations. Travel time for the entire line is approximately 30 minutes, with a frequency of one train every 5 minutes.
This tramway project meets three objectives:
- to convert the 183 bus line into a tramway between Porte de Choisy in Paris and Gaston Viens station in Orly to increase the line's capacity, improve the performance offered to users and affirm the line's structuring character;
- ensure the public transport network of the territory with the existing and planned heavy modes to improve the accessibility of the territory served, make public transport more competitive and reduce the modal share of the car;
- to accompany the evolution and development of this territory of the Metropolis in full mutation to fit harmoniously into the urban development projects in interface, to develop and secure the cycle routes along the RD 5 and to give a larger share to the pedestrians.



Key data

Forecast:

It is to build a line of **10 km.**

Over the total duration of the work, 128,263 hours of insertion are planned.

Completed:
Completion in April 2021.

As of 12/31/2020, 120,927 hours of insertion have been performed since the beginning of the work, including **41,864** hours performed in 2020.

Funds invested in 2020

€ 4.3 m were allocated in 2020

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : Project management entrusted to Ile-de-France Mobilités, with monitoring of the operation by the DVD *Direction de la Voirie et des Déplacements* - (Directorate of Roads and Travel) for work in the Paris sector (control of work compliance, acceptance of work and operation of the completed roadway).
The funders are the State (22.5%), the Ile-de-France Region (52.5%), the Val-de-Marne Department (21%), the City of Paris (3%) and the Etablissement Public Territorial Grand Orly Seine Bièvre (1%).

Social Responsibility

Social Cohesion

Communication tools have been implemented to inform local residents: print and digital tools, dedicated website (www.tram9.fr then www.tram9.iledefrance-mobilites.fr), Twitter account for the T9 tramway line, as well as public meetings organised by the 13th arrondissement town hall.

Sustainable Procurement

Clauses relative to the **Protection of residents against pollution** of all kinds throughout the duration of the road works operations and to the **Safety and Health Protection of Workers**, as in all the City's contracts, are integrated into the CCAP. When possible, the Procurement Department includes **social clauses** that contractors have to comply with. On this site, **41,864** hours of social integration work were provided in 2020, which were monitored by the company EPEC (*Ensemble Paris Emploi Compétence*).

Local development

On the basis of the Dossier d'Objectifs et de Caractéristiques Principales (DOCP) approved by deliberation n°2012-0105 of April 11, 2012 of the Council of the Syndicat des transports d'Île-de-France (STIF) - formerly known as Île-de-France Mobilités, the T9 tramway project was the subject of a preliminary consultation. Guidelines, issued for the public inquiry file, were approved by STIF Council deliberation n°2013-102 of May 16, 2013.

Environmental Liability

Ecodesign: laying of the tracks on troughs for an earth-ground exchange / infiltration basins / infiltration at the foot of trees + retention basin under the cycle lane (imposition of Paris rainwater zoning) / partial infiltration of platform rainwater

Biodiversity: The landscaping project integrates the installation of a vegetated platform (grassing, sodding and sedum) and the watering system chosen is of the subirrigation type to avoid too rapid evaporation of water. Tree planting was carried out along the entire route.

Waste management:
Waste Management: it was provided by the companies during the construction phase

Evaluation of climate benefit

Reduction of greenhouse gases

CO2 emissions saved by the project is therefore **1,335 tCO2eq/year**

Therefore emissions avoided thanks to the proceeds of this bond can be estimated at **14,5 tCO2/year.**

(see methodological note at the end of this report)

1. Clean transport

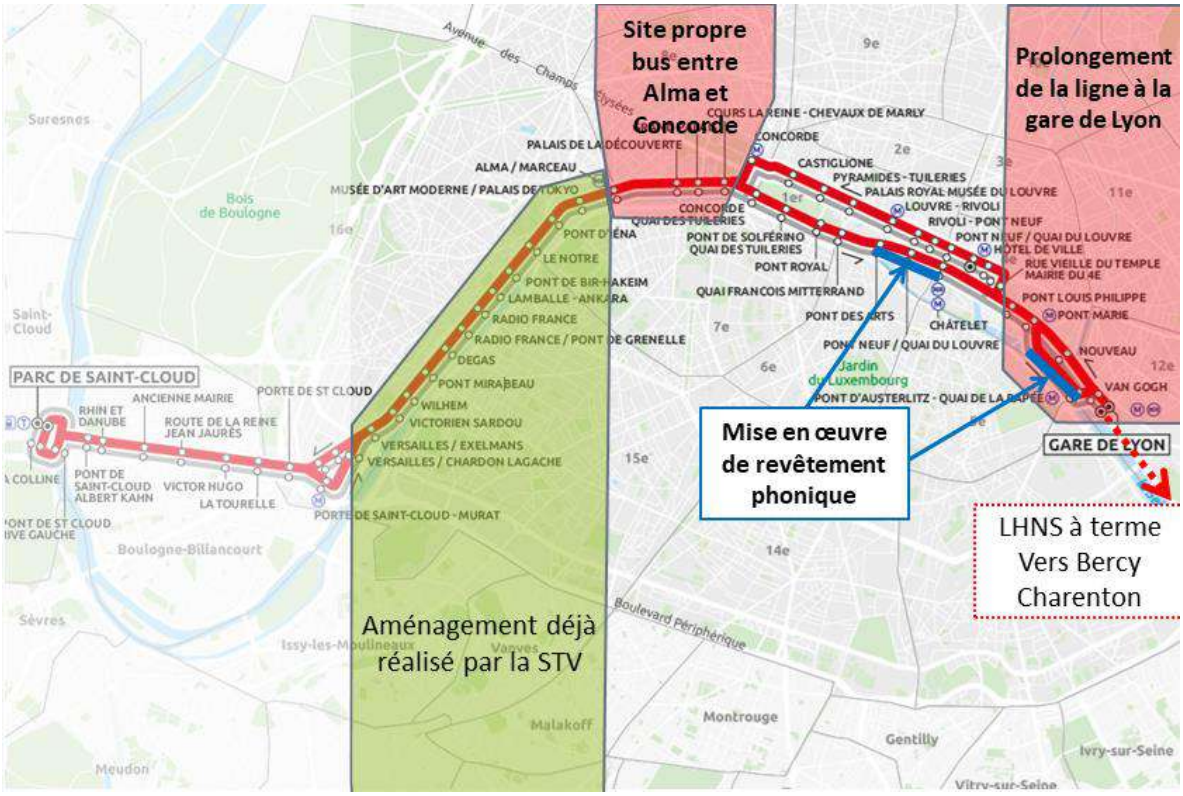
2020

Public transport : High level of service lines (LHNS) high platforms

Project description

The idea is to create a structuring public transport line, accessible and with clean motorisation (electric or biogas) along the Seine on its right bank.

The project consists of upgrading Line 72 by:
- the extension of the Porte de Saint-Cloud line - previously terminating at the Hôtel de Ville - on the east side, to the Gare de Lyon
- the construction of a two-way right-of-way for the bus line between Place de l'Alma and Place de la Concorde (not yet completed)
- the acquisition of electric buses by Ile-de-France Mobilités /RATP



Key data

Forecast :

It is planned to carry out the work over a total distance of 16 km.

12 km having already been developed, there remain **4 km** to be developed.

Completed :

End of work : **September 2020**

4 km, corresponding on the one hand to the Hôtel de Ville - Gare de Lyon portion (3 km) and on the other hand to the Alma-Concorde portion (1 km).

Funds invested in 2020

€ 4 m were allocated in 2020

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : Directorate of Roads and Transport (Direction de la Voirie et des Déplacements or DVD) - Department of Development and Major Projects (Service des Aménagements et des Grands Projets or SAGP) Project integrated into the Directorate's operations tracking table.

Project review in Agora, steering committees for the validation of the steps.

Social Responsibility

Sustainable Procurement

Clauses relative to the ***Protection of residents against pollution*** of all kinds throughout the duration of the road works operations and to the **Safety and Health Protection of Workers,** *as in all the City's contracts, are integrated into the CCAP.*

Local development

Consultation with IDFM, RATP, the Préfecture de Police, the Direction régionale et interdépartementale de l'équipement et de l'aménagement d'Île-de-France (DRIEA), the Region Ile-de-France and the SNCF.

Social Cohesion

It is a constraint of realisation (obligation under the Law n° 2005-102 of February 11, 2005 for the equality of the rights and the chances, the participation and the citizenship of people with disabilities): the line must be accessible to all people with reduced mobility.

Consultation via meetings at arrondissement town halls and neighbourhood councils.

Environmental Liability

Air quality

The choice of High Service Level Buses is based on replacing more polluting buses and providing a transport alternative with the lowest possible greenhouse gas emissions.
'- The project favours the use of public transport over individual motorised vehicles
- Willingness to integrate the modernisation of rolling stock into the project, including the acquisition of electric buses

During the feasibility studies, the question of respecting the impacts, notably through the impacts on trees or plantations, was taken into account.

Waste management:

- Selective collection via contractual clauses

Production of the Schéma d'organisation et de suivi de l'élimination des déchets de chantier (Organisation and follow-up plan for the elimination of construction site waste or SOSED) in which the contractor commits himself in a detailed and precise way on:

- The storage centres or consolidation centres or recycling units to which the various wastes to be evacuated

will be sent

- The methods that will be used to avoid mixing the different wastes

- The means of control, monitoring and traceability that will be implemented during the work.

-Treatment of hazardous waste:

An asbestos abatement was carried out on the roadway, Quai de la Râpée.

Evaluation of climate benefit

Reduction of greenhouse gases

The LHNS project comes with a full shift to electric buses .

CO2 emissions saved by the project is therefore **276 tCO2eq/year**

Therefore emissions avoided thanks to the proceeds of this bond can be estimated at **66 tCO2/year.**

(see methodological note at the end of this report)

1. Clean transport

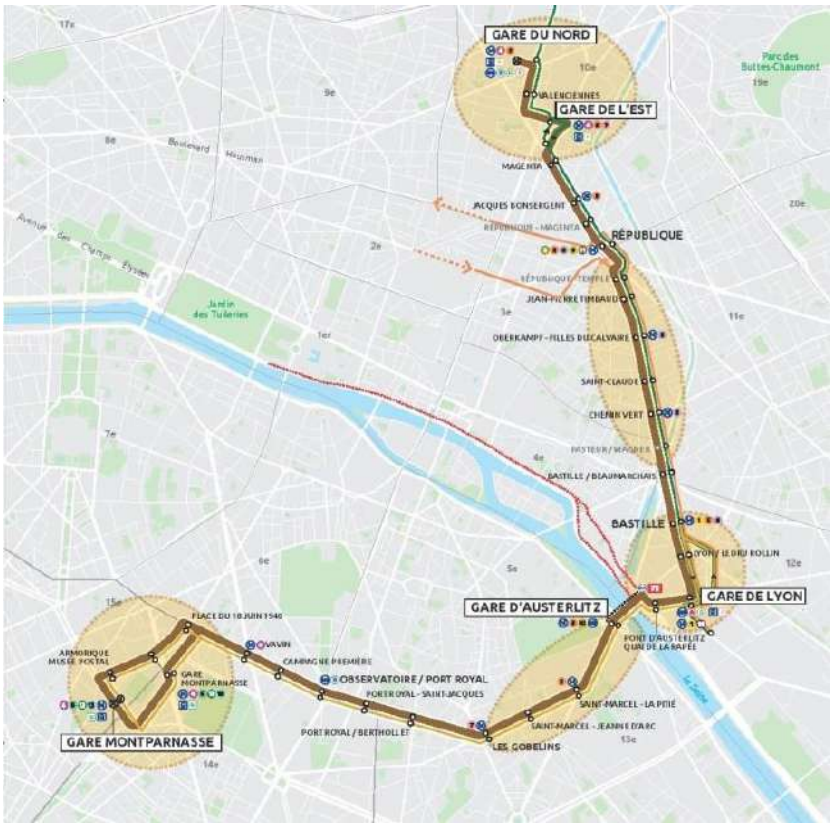
2020

Public transport : Parisian railway stations bypass (Surface connections)

Project description

The aim is to create a structuring bus line linking the main SNCF stations in Paris.
The bypass is 10.4 km long and will be operated in two arcs.
The first phase consists of the Arc Est between Gare du Nord and Gare Montparnasse (extension of line 91, 36,000 passengers/day before the project).
The main elements of the project are:
- the redevelopment of the Gare du Nord/Gare de l'Est sector in conjunction with other development projects (including REVe, the Réseau express vélo),
- widening the bus lanes to 5.50m between the Place de la République and the Place Bastille,
- making rue de Lyon a one-way street with bus lanes and cycle lanes in both directions,
- the creation of a dedicated bus lane on boulevard Diderot in front of the Gare de Lyon,
- the redevelopment of the bus station at Place Raoul Dautry,
- Improvement/creation of bus lanes on the tracks: avenue du Maine, rue du commandant René-Mouchotte, rue du Départ, rue de l'Arrivée, boulevard Vaugirard,
- the development of St-Marcel Boulevard in a second phase, not yet completed.

The roots of this project are defined in a logic of environmentally responsible travel between stations in order to facilitate the transport of users from one to the other of these poles in a safe, qualitative and fast way.



Key data

Forecast:

When construction begins in 2015, it is planned to create **6.80 km** of bus lanes.

Completed:
End of work: July 2020

5.90 km of bus lanes have been created.

770 hours of insertion were carried out.

Funded Sections: Montparnasse 2 Gare TGV – Montparnasse cinemas / Quai de la Râpée – Gare de l'Est.

Funds invested in 2020

€ 1.7 m were allocated in 2020

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project:

Directorate of Roads and Transport (Direction de la Voirie et des Déplacements or DVD) - Department of Development and Major Projects (Service des Aménagements et des Grands Projets or SAGP)
Project integrated into the Directorate's operations tracking table.

Project review in Agora, steering committees for the validation of the steps...

Social Responsibility

Sustainable Procurement

Clauses relative to the *Protection of residents against pollution* of all kinds throughout the duration of the road works operations and to the **Safety and Health Protection of Workers,** *as in all the City's contracts, are integrated into the CCAP.* When possible, the Procurement Department includes **social clauses** that contractors have to comply with. On this site, **770** hours of social integration work were provided in 2020, which were monitored by the company EPEC (*Ensemble Paris* Emploi Compétence).

Local development

Consultation with the IDFM (Ile-de-France Mobilités), the RATP, the Préfecture de Police, the Direction régionale et interdépartementale de l'équipement et de l'aménagement d'Île-de-France (DRIEA), the Region and the SNCF.

Social Cohesion

It is a constraint of realisation (obligation under the Law n° 2005-102 of February 11, 2005 for the equality of the rights and the chances, the participation and the citizenship of people with disabilities): the line must be accessible to all people with reduced mobility.

Consultation via meetings at arrondissement town halls and neighbourhood councils.

Environmental Liability

Air quality

The choice of High Service Level Buses (HSSB) is based on replacing more polluting buses and providing a transport alternative with the lowest possible greenhouse gas emissions.

Choosing electric buses to replace more polluting modes of transport and observing the technical developments offered by manufacturers, or even encouraging them, is part of an eco-design approach.

During the feasibility studies, the question of respecting the impacts, notably through the impacts on trees or plantations, was taken into account.

Waste management:

- Selective collection via contractual clauses

Production of the Schéma d'organisation et de suivi de l'élimination des déchets de chantier (Organisation and follow-up plan for the elimination of construction site waste or SOSED) in which the contractor commits himself in a detailed and precise way on:

- The storage centres or consolidation centres or recycling units to which the various wastes to be evacuated will be sent

- The methods that will be used to avoid mixing the different wastes

- The means of control, monitoring and traceability that will be implemented during the work.

-Treatment of hazardous waste:

An asbestos abatement was carried out in rue de Lyon, boulevard Diderot

Evaluation of climate benefit

Reduction of greenhouse gases

We expect the project to generate CO2 reduction, some users choosing to use this new convenient line rather than cabs or being transported when possible by friends or family using private vehicles for transiting between the main Paris' train stations. However, the limited amount of funds from the bond's proceeds allocated to this project will not lead to a significant impact compared to other transports reported in this document.

2. Energy Efficiency

2020

Buildings : Crèche: Justice Paris 20th arrondissement

Building of an HQE crèche : Crèche Justice

Project description

The operation refers to the construction of a multi-reception crèche with 99 places and a family crèche with 40 places in Rue de la Justice in the 20th arrondissement.

With a surface area of 1,200 m² spread over five levels, the architectural project gives pride of place to the circular economy and in particular with the creation of a wooden facade cladding of reuse.

The project is part of a plot of Paris Habitat classified as a Protected Green Space.

Key data

Forecast:

- creation of a green roof space of 134 m² as well as a ground floor space of 194 m².
- planting of 3 trees
- classification of a protected green space
- energy consumption performance: compliance with both 2012 thermal regulation standards and the Paris Climate Plan: 86,70 kwh/EP/m² thanks especially to solar panels (8 m²) and photovoltaic panels (25 m²)
- high environmental responsability

Advancement:

The building is expected to be delivered by the end of Q3 2020

292 hours of social integration work were provided in 2020.

Funds invested in 2020

The total cost of the project will be approx. € 5.92 m (from which **€ 1.79 m** in 2020).

2020

€ 1.79 m

Actual allocation of the Sustainability Bond proceeds in 2020

(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : a dedicated team headed by a project manager was set up.
A separate team headed by a project manager belonging to DCPA (Department for Public Buildings and Architecture) monitors progress on site and reports to DFPE (Department for Families and Childhood).

Social Responsibility

Social Cohesion

PRM accessibility was part of the project from its inception; it is a legislative performance constraint (obligation under the Law N° 2005-102 of 11 February 2005 for equal rights and equality of opportunities and the inclusion and citizenship of people with disabilities).
The position of the new building on the plot was chosen to facilitate accessibility from the street.

A dry implementation process was chosen with a substantial in-factory prefabrication phase and on-site final assembly operations, allowing for limitation of usual inconveniences linked to construction sites (such as noise and dust).

Sustainable Procurement

When possible, the Procurement Department includes **social clauses** that contractors have to comply with. On this site, **292** hours of social integration work were provided in 2020, which were monitored by the company EPEC (*Ensemble Paris Emploi Compétence*).

Environmental Liability

Environmental characteristics of the project

• Reflection on the choice of materials: wooden cladding from the reuse sector, control of the environmental impacts of materials, interior coatings with low emissions of pollutants into indoor air
• Control of operating costs: simple installations and accessibility of systems and facades for upkeep / maintenance
• Functionality of the premises: one awakening or activity room and one rest room per section; glass partitions; location of changing areas to allow permanent monitoring of children
• Low nuisance site

The crèche is treated with natural ventilation, mechanically reinforced by a simple air handling unit. Coatings VOC emissions are particularly monitored (verification of certificates and control at the end of the work by the laboratory of the City of Paris before opening).

Energy Consumption

The management of energy consumption is an important axis of the project and results in:
- prefabricated front wall with reinforced insulation and elimination of thermal bridges
- reduction of energy demand through architectural design
- generalization of LEDs - reduction of primary energy consumption - connection to the district heating network
- solar panels (8 m²) allow water heating in the kitchen while photovoltaic panels (25 m²) allow crèche heating.

Biodiversity

A green roof of 134 m² is planned in addition with a ground floor space of 118 m² and 3 trees will be planted.
The creation of a planted area in the heart of a childcare facility is very beneficial, in a highly urbanised environment.

Ecodesign
Its facade cladding is made up of 621 solid oak landing doors, from a construction site near the lessor RIVP, which were to be dumped. Before their transformation into facade panels, the doors were "unpainted", sanded and cut by a company from Seine-et-Marne. This wooden structure has a dual use: it will serve both as a privacy screen and a sunshade.

Waste management:

Waste management is considered within the **legal and regulatory recommendations relative to the elimination of waste and the recovery of materials** and those pertaining to facilities classified for environmental protection.

A selective collection process was used during the demolition phase, in accordance with the clauses set up in the Environmental Purchasing Guide (see Sustainable Procurement paragraph).

0.2 t recovered waste

2. Energy Efficiency

2020

Buildings : Crèche : Lefebvre 15th arrondissement, 147 bd Lefebvre

Project description

The social landlord Paris Habitat has undertaken a programme of requalification of the external spaces on the real estate group Lefebvre Périchaux of 1 048 residences distributed in 9 buildings of the 60s/70s to improve safety and better integrate the unit in the fabric of the district with more legibility. The City of Paris has taken advantage of this opportunity to build a multi-care centre with 99 cribs and a Maternal and Child Protection (PMI) centre on two levels, i.e. 1,369 m² of usable space and 486 m² of exterior space.

Key data

Forecast:

- The energy solution chosen (gas heating) and the resulting energy performance allow the building to comply with the RT 2012 (Thermal Regulation standards, in line with Paris Climate Plan) and to be eligible for the BBC Effinergie 2017 label.
- Creation of a green roof space of 124 m² as well as a ground floor space of 461 m².

Advancement:

The building is expected to be delivered by the end of Q2 2022.

4214 hours of social integration work were provided in 2020.

Funds invested in 2020

The total cost of the project will be approx. € 7.95 m (from which **€ 3.35 m** in 2020).

2020

€ 3.35 m

Actual allocation of the Sustainability Bond proceeds in 2020

(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : Directorate for Families and Early Childhood (Direction des Familles et de la Petite Enfance or **DFPE**) / Department of Planning, Works and Maintenance (Service de la Programmation, des Travaux et de l'Entretien or **SPTE**)
Operation carried out by Paris Habitat under the agreement for the transfer of the project management.

Social Responsibility

Social Cohesion

PRM accessibility was part of the project from its inception; it is a legislative performance constraint (obligation under the Law N° 2005-102 of 11 February 2005 for equal rights and equality of opportunities and the inclusion and citizenship of people with disabilities).
The position of the new building on the plot was chosen to facilitate accessibility from the street.

The crèche and the PMI centre are part of a programme of requalification of the outside spaces on the Lefebvre Périchaux real estate group, the project was the subject of a consultation by Paris Habitat on the scale of the district by associating the arrondissement town hall.

Sustainable Procurement

When possible, the Procurement Department includes **social clauses** that contractors have to comply with. On this site,
4,214 hours of social integration work were provided in 2020, which were monitored by the company EPEC (*Ensemble Paris Emploi Compétence*).

Environmental Liability

Environmental characteristics of the project

The project must meet the requirements of the City of Paris Climate Action Plan (2012), low environmental impact and low-nuisance construction.

Energy Consumption

The energy solution (gas heating) chosen allows compliance with the RT 2012 and eligibility for the BBC Effinergie 2017 label.

- Building energy consumption value (heating, DHW, air conditioning, EcL): 70.6 kWh OE/m²/year
- Conventional bioclimatic requirement: Bbio: 80.8 (Bbio max: 104.3)

Biodiversity

The creation of a planted area in the heart of a childcare facility is very beneficial, in a highly urbanised environment.

- Garden of 461 m²
- Inaccessible green roof 44 m²
- Green roof accessible to medium and large 80 m².

Ecodesign

The foundations and the base are in reinforced concrete, but the framework built in elevation is in wood, according to the recommendations of FiBois (Filière Forêt-Bois en France).
A double flow ventilation system was installed and summer comfort was strongly taken into account by limiting solar gain. In addition, the sheds allow for free cooling at night.

Waste management:

Waste management is considered within the **legal and regulatory recommendations relative to the elimination of waste and the recovery of materials** and those pertaining to facilities classified for environmental protection.

2. Energy Efficiency

2020

Buildings : Crèche : Rue de l'Evangile Paris 18th arrondissement

Project description

The operation consists of the reconstruction of a collective day care centre and a drop-in day care centre that no longer meet the regulatory requirements. In a single building, it provides for two crèches with 68 cribs each and 25 social housing units.
The new multi-accueil crèches correspond to each other in such a way as to constitute a single Establishment Receiving the Public (ERP) on the first two levels of the construction (over 6 levels in total).
In order to rationalise and optimise the use of available space, the day care centres have specific premises (537 m², of which 419 m² are dedicated to children, and 524 m², of which 432 m² are dedicated to children) and shared functional and service premises with a total surface area of 110 m² (food service, checkrooms, laundry/laundry room, technical premises).
In total, the surfaces made available will represent 1,171 m2.The children will also benefit from a total of 1029 m² of accessible outdoor space.

Key data

Forecast:	**Advancement:**
The design takes into account the objectives of the Paris Climate and Energy Action Plan. It offers a compactness and a strong inertia. Renewable energies are used. The works respect the Effinergie + level and the RT 2012. The building complies with RT2012 in the sense of ThBCE. A qualitative and economical management of water is foreseen through the treatment of rainwater. The planting of 5 trees is integrated into the project. There will be a green roof spaces of 412 and 254 m² as well as a ground floor space of 441 m².	The building is expected to be delivered by the end of Q2 2021.

Funds invested in 2020

The total cost of the project will be approx. **€ 7.92 m** (from which € 2.47 m in 2020).

Actual allocation of the Sustainability Bond proceeds in 2020

(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : Directorate for Families and Early Childhood (Direction des Familles et de la Petite Enfance or DFPE) / Department of Planning, Works and Maintenance (Service de la Programmation, des Travaux et de l'Entretien or SPTE)
The Steering Committee (*Comité de Pilotage* or COPIL) is composed of the Régie Immobilière de la Ville de Paris (RIVP), the project management team, the DFPE, the control office and the Safety and Health Protection Coordinator (SPS), and the Environment Consultancy Services (*Assistance à maîtrise d'ouvrage* or AMO). The AMO activity report serves as the monitoring tool.

Social Responsibility

Social Cohesion

PRM accessibility was part of the project from its inception; it is a legislative performance constraint (obligation under the Law N° 2005-102 of 11 February 2005 for equal rights and equality of opportunities and the inclusion and citizenship of people with disabilities).
The position of the new building on the plot was chosen to facilitate accessibility from the street.
Information about the project was disseminated to parents prior to the work (exhibition panels, public meeting to present the project), in association with the arrondissement town hall.

Environmental Liability

Environmental characteristics of the project

The programme provides:

- the use of bio-sourced materials for the design of works, preferably benefiting from environmental labels (European Ecolabel, Blue Angel label or other ecological labels) attesting to their low impact on health and the environment,
- taking into account the issues of soil pollution, asbestos, lead, termites and waste, as well as the limitation of construction site nuisances.

Energy Consumption

The energy performances are those set by the Paris Climate and Energy Action Plan 2012.
The renovation of the crèche complies with the Effinergie level. The building complies with RT2012 in the sense of ThBCE (calculation method with the 3 indicators Bbio, Cep and Tic).
The project targets a primary energy consumption of 52.2 kWh/m²/year.
The conventional bioclimatic need (Bbio) is 56.90.

Biodiversity

It is planned to plant 5 trees in addition to the 19 retained trees, to create a green area of 441 m², in open ground on the first floor, a green roof area of 412 m² (on the GF+1) and a surface of 254 m² (on the GF+6).

Waste management:

Waste management is considered within the **legal and regulatory recommendations relative to the elimination of waste and the recovery of materials** and those pertaining to facilities classified for environmental protection.

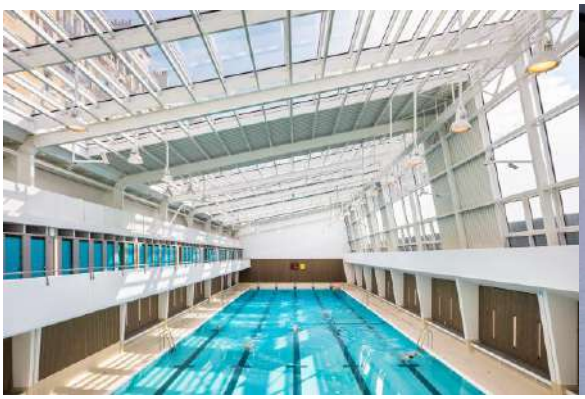
2. Energy Efficiency

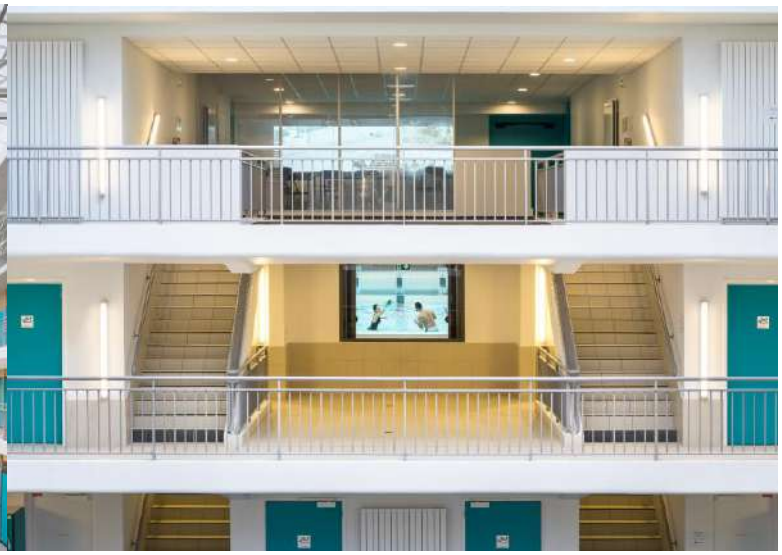
2020

Buildings : Piscine Blomet Paris 15th arrondissement

The Blomet swimming pool, built in the 1930s in the 15th arrondissement, is the subject of a renovation programme that has four objectives

- Repair and upgrade equipment: The work includes the renovation of the pool, water treatment and acoustic comfort.
- Improve the reception of the public and staff: by increasing the number of people using the pool by from 200 to 300 and by welcoming four classes simultaneously for different activities; by ensuring a better functioning of the administration pole and the personal premises through its reorganisation and a better comfort considering the degraded state of the personal premises.
- Making the pool accessible to all: making the facility accessible to people with disabilities from the pavement to the swimming pool and shower baths.
- Adapting equipment to make it more environmentally friendly: by reducing energy consumption, water consumption and by emphasising the greening of spaces.
- Increase from 300 bathers to 500 in instantaneous in the equipment.





Key data

Forecast:

A reduction in energy consumption compared to the consumption observed in 2012 and in water consumption and an increase in green spaces are expected.

The final energy consumption per bather and per square meter of pool is to be reduced by 20%.

The energy consumption before the works was 34.5 MWhFE/bather/m² of pool. After the works, it should be 27.6 MWhFE/bather/m² of pool.

Similarly, water consumption is to be reduced by 10% per bather, to 110 L/bather/year

Advancement:

The building was delivered in Q4 2020.
7,166 hours of social integration work were provided in 2020.

The green space on the forecourt has been made more qualitative and a new green space has been created on the roof terrace of the shower baths.

Since the facility reopened in September 2020, the 700,000 kWh recorded (vs. 1,597,856.80 kWh in 2018) is not significant in measuring the impact of the renovation over the year 2020.

Funds invested in 2020

The total cost of the project will be approx. € 14.825 m (from which **€ 2.00 m** in 2020).

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : DJS / DCPA
The DJS (Direction de la Jeunesse et des Sports) is the operational directorate but the management of the operation was ensured by the Service de l'Architecture et de la Maîtrise d'Ouvrage (SAMO) which is part of the DCPA (Direction Constructions Publiques et 'Architecture) with an engineer dedicated to the follow-up of the works.

Social Responsibility

Social Cohesion

PRM accessibility was part of the project from its inception; it is a legislative performance constraint (obligation under the Law N° 2005-102 of 11 February 2005 for equal rights and equality of opportunities and the inclusion and citizenship of people with disabilities).
Accessibility for people with reduced mobility of the swimming pool and the shower baths.

Sustainable Procurement

When possible, the Procurement Department includes **social clauses** that contractors have to comply with. On this site, **7 166** hours of social integration work were provided in 2020, which were monitored by the company EPEC (*Ensemble Paris Emploi Compétence*).

Environmental Liability

Energy Consumption
The final energy consumption per bather and per square meter of pool is to be reduced by 20%.

The energy consumption before the works was 34.5 MWhFE/bather/m² of pool. After the works, it should be 27.6 MWhFE/bather/m² of pool.

Similarly, water consumption is to be reduced by 10% per bather, to 110 L/bather/year

Biodiversity
The green space on the forecourt has been made more qualitative and a new green space has been created on the roof terrace of the public baths.

Ecodesign
There is no reuse.
Waste management:
Waste management is considered within the **legal and regulatory recommendations relative to the elimination of waste and the recovery of materials** and those pertaining to facilities classified for environmental protection.

2. Energy Efficiency 2020

Buildings : Piscine Elisabeth Centre sportif Thérèse et Jeanne Brulé (14th arrondissement)

The objective of this project is to create a high performance swimming pool with a high environmental quality certification **(HQE).** The design and implementation of the project respect all the environmental, technical and regulatory specificities required by the Climate Action Plan and the Paris Swimming Plan. The total surface of the pool is 2 700m² SU + 700m² of technical premises.

It includes **730m²** of ponds composed of:

- 1 Sports pool 25 meters x 20m (8 lines) in the ground floor
- 1 Fun pool of 230m² on the ground floor

In addition, the following are planned:

- Collective lockers on the ground floor
- Individual lockers on GF+1, which can be shared with other groups
- Showers and sanitary facilities for everyone on the ground floor, which can be shared
- A reception of different audiences separately and simultaneously
- A 600m² rooftop solarium: the 5th façade, accessible in bare feet or with shoes

The maximum instantaneous number of users (FMI) is 700 people (680 bathers + 20 staff).

Key data

Forecast:

Start of the work: 2015.

- Goal: 200,000 bathers
- The commitment was a total consumption (electricity and steam) of 1132 MWh. The electrical + heat consumption (Cpcu) of the whole building is 1132 MWH.
- **Cwater Commitment (REF):** 90 L/ (year/bather)
- **New water supply:** 30 L/Bather
- Renewable energy: commitment: 40% of the needs
- Water Quality: Chloramine content < 0.2 mg/L

Advancement:

The building was delivered in Q1 2020.

- Achieved: 61,174 bathers
- Achieved: The actual consumption observed (electricity + CPCU) was 907 Mwh (-20%) over the period March 2020 to February 2021, for the entire building.

  This low number of users and low consumption can be explained by the periods of closure due to COVID 19.
- Annual consumption**:** 89 L/ (year/bather)
  Respect for new water supply: 42 L/Bather
- Renewable energy: achieved: 36% of the needs
- Water Quality: target met.

That is to say an annual average: sports pools: 0.18 mg/L / apprentice pool: 0.15mg/L

Funds invested in 2020

The total cost of the project will be approx. € 18 m (from which **€ 2.38 m** in 2020).

Actual allocation of the Sustainability Bond proceeds in 2020

(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : DJS / DCPA

The operation was managed by the DCPA (Direction Constructions Publiques et 'Architecture), the DJS (Direction de la Jeunesse et des Sports) being the managing director. The Launching Committees followed the execution of the work. An AMO (Assistance à Maîtrise d'Ouvrage) assists the City in monitoring compliance with the operator's obligations.

Social Responsibility

Social Cohesion

PRM accessibility was part of the project from its inception; it is a legislative performance constraint (obligation under the Law N° 2005-102 of 11 February 2005 for equal rights and equality of opportunities and the inclusion and citizenship of people with disabilities).

Accessibility for people with reduced mobility of the swimming pool and the shower baths.

Environmental Liability

Environmental characteristics of the project

Low VOC / Formaldehyde emission materials
Ecological Wood Labels

Hydraulic performance to be achieved: 90 litres/brushes
ENR rate to be reached: 40%
Chloramine in the air: <0.2 mg/m3

Urban heating network
Solar carpeting

This new pool meets the requirements in terms of evolution of the needs of reception and water and energy savings. It has been awarded a high environmental quality certification

Energy Consumption

Energy performance to be achieved: 2450 kWh/m² pool

A solar carpet, installed on part of the roof, acts as a solar water heater. The water
The pumped water circulates inside a pipe snaking through a mat that stores the sun's heat.
This device allows the preheatingffage of domestic hot water (showers).

Biodiversity

The roof of the building is vegetated and allows for recreational and relaxation uses thanks to a solarium accessible in summer.
A filter of vegetation maintains this space at a distance from the street, in the centre of the roof, preserving the bathers. Its comb-shaped layout allows the creation of several recessed sub-spaces, thus ensuring privacy.

The solarium offers an open-air space, overlooking the surrounding landscape. The heavily vegetated treatment thus aims to create an elsewhere where the urbanity of the site reveals only the heights of its buildings, where the tree tops provide a filter of greenery reinforced by the plant treatment specific to the solarium. This is the 5th façade of the building.

This 600m² space can accommodate 400 people either barefoot or shod.

On the ground, a wooden decking offers a comfortable space that can be walked on barefoot, accessible from the pool hall.

The construction of the project required the removal of several trees. New trees will be replanted on the plot, within the sports centre, under the guidance of a landscaper and the Green Spaces Department.

Waste management:

It is considered within the legal and regulatory recommendations relative to the elimination of waste and the recovery of materials and those pertaining to facilities classified for environmental protection.

A selective collection process was used during the demolition phase, in accordance with the clauses set up in the Environmental Purchasing Guide (see Sustainable Procurement paragraph).

Waste sorting and recycling are at 70% on site.

2. Energy Efficiency

2020

Public lighting : Energy Performance contract (MPE)

Project description

The main target of the *Marché de Performance Énergétique – MPE* (Energy Performance Contract) is to cut by 30 % by end 2020 (compared to 2004) the electricity consumption of public lighting and light-signalling devices by replacing less efficient lights and the most energy-hungry sources.
This contract contains a performance requirement: yearly energy performance objectives. This therefore results for the operations in target yields in KW/€ which must imperatively be met. This part of MPE is estimated to need a total budget of **€64m** in order to change as many as 175,000 city lights,63,000 lighting poles, 30,000 lighting consoles, 21,000 traffic light supports and 313 lighting sites.

It is therefore the successful tenderer's responsibility to understand the installations in Paris and to offer the City energy renovation "Climate Plan" operations which are compatible with these yields. Successful tenderers must therefore always find the best technical and environmental solutions to meet the targets of the contract.

Key data

Forecast:

- This MPE tranche targets:
  - ✓ Annual saving targets of **4,617 MWh**
  - ✓ **At least 10%** of total hours worked on the project should be executed within a social **integration work scheme**
  - ✓ **30%** cut in GHG emissions compared to 2004

Completed:

Jobs are completed or at an advanced step:

- ✓ **1,700 MWH** in 2020
- ✓ This is equivalent to **102 tCO_2e** that will be saved in 2020 only.
- ✓ **376 t** of waste were recycled in 2020
- ✓ **29,000 hours** of social integration work were distributed in 2020

Funds invested in 2020

€ 6 m were allocated to the project in 2020

Actual allocation of the Sustainability Bond proceeds in 2020

(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : a dedicated team headed by a project manager in the Public Lighting Section of the Directorate of Roads and Travel (DVD) monitors this multi-annual project and its progress:

- Weekly reporting of the Climate Plan operations with progress report on financial commitments, works site preparation, the development and delivery of sites and financial settlement.
- Quarterly & yearly reporting on the operations of the contractual year and forecasts for the following year

Social Responsibility

Sustainable Procurement

The MPE holder, through **a social integration clause**, has a fixed obligation in the percentage of hours worked (10%) in social integration work compared to the total number of hours worked. In 2020, the rate was 11% or 29,000 hours of social integration work for a total number of 263,600 hours worked on the project.

The MPE holder has a **prevention charter** which defines the permanent stakes relative to prevention and an organisation which makes it possible to collect and record the third-party accidents on sites and to feed back the near accidents and risk situations.

Social Cohesion

Increasing **user comfort** is one of the project's objectives. A satisfaction survey was conducted in 2017 with the users in the 13th arrondissement to find out how they feel about the installation of new lighting with presence detection (contributing to energy saving).

The **interaction with users** relies on:

- the "*dansmarue*" phone application which also makes it possible to notify the contractor of all the problems users encounter with the lighting installations, so that suitable rapid corrective action can be implemented;
- a complaints collection procedure has been installed (4039 were dealt in 2020, 4109 in 2019, 1,415 in 2018, 1,532 in2017and 1,291 in 2016). A process has been set up to collect and record all incidents or risky situations that could affect third parties on construction sites.

Fight against discrimination :

Contracting companies have to comply with a charter against discrimination when hiring staff.

Environmental Liability

Ecodesign

ISO9001 / ISO14001 / OHSAS 18001 certifications are applied to MPE. In this framework, in addition to the request for *Profil Environnemental Produit – PEP* (Product Environmental Profile) from suppliers, a life-cycle analysis was conducted among 13 of the suppliers on around thirty products, which represent 22% of the total purchases.

Air quality

In terms of air quality and reduction of noise pollution, the service provider improves the environmental characteristics of its vehicle fleet every year. Thus, in 2020 compared to 2019, the rate of light hybrid or electric vehicles reached 100% for the first time (this was already the case for nacelles equipped with electric arms).

Biodiversity

Biodiversity is a permanent element of the project. The renovation of lighting will be an opportunity to optimise the orientation of the light flow on the areas to be lit (and not towards the greened spaces or towards the sky, for example), conforming to action 20 of the Biodiversity Plan "adapting lighting". In this case, an experimentation of lighting respectful of biodiversity was carried out in a square in Paris with an inventory of targeted species upstream in order to measure more efficiently the consequences of light and adapt the innovative equipment.

Energy Consumption

The reduction of **energy consumption is the basis** of this energy performance contract:
- Each project is subject to a photometric study, which is validated by the client
- The estimated gain is then validated, following the work
- The new financial flow data update the data base and the accumulated energy gain in real-time.

Waste management:

Successful tenderers are **contractually obliged** to aim at reducing the impact of their waste on the environment by a valorisation which remains at 90% in 2020 (of which 95% for lighting lamps) i.e. **338 t. recycled waste**.

Evaluation of climate benefit

1,700 MWh energy saved in 2020. This figure is equivalent to an overall saving of **102 t.CO_2e**.

(see methodological note at the end of this report)

2. Energy Efficiency

2020

Buildings : Sustainable social housing (HEQ constructions, thermal insulation)

Project description

Since 2009, the energy renovation of existing social housing aims to assist housing associations in reaching a 30% reduction in the energy consumption of the social housing stock by 2020.

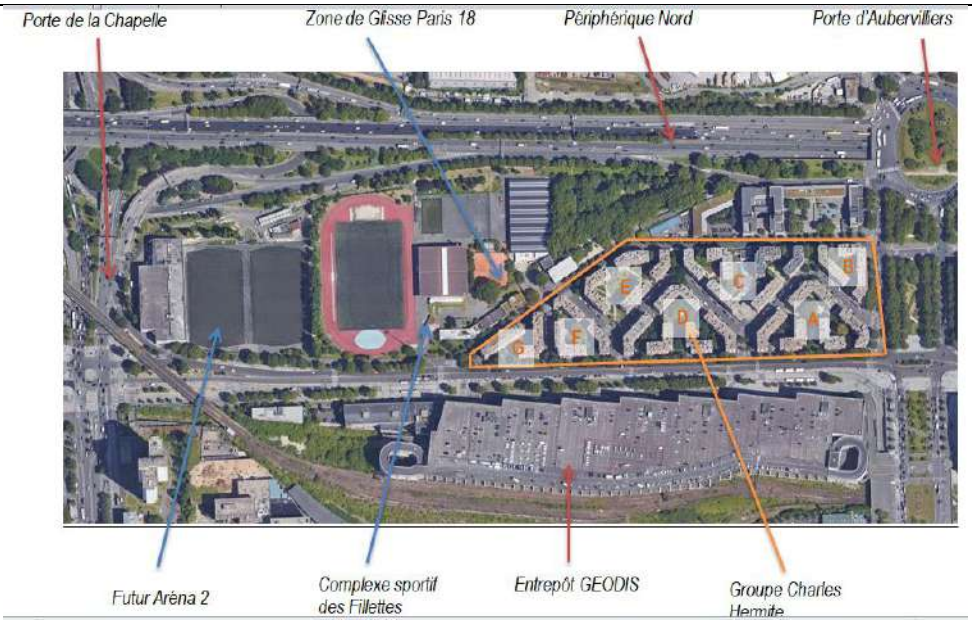
The goal set is the funding of the overall renovation of 4,500 housing units per year. The estimated budget for these projects is €225m. Over the period 2009-2020, more than 54,000 social housing units have been funded. The new Climate, Air and Energy Plan for Paris which was voted in 2018 reinforced targets regarding renovation of Social Housing units. From 2018 the cut in energy consumption targeted was 60% and from 2020 the renovation of as many as 5,000 units per year would be conducted. *The goals were not met due to the health crisis throughout 2020 (53% average in 2020).*

Overall renovation is understood to mean an energy renovation which acts on all the items on which intervention is possible. The level of performance is nevertheless adapted to the technical and architectural qualities of the buildings, in order to be able to benefit all the segments of the housing stock and in particular those with heritage value.

The renovation of the "Charles Hermite" building complex, built in 1935, is a good example of this approach:

Example of group "Charles Hermite", located at Porte d'Aubervilliers in the 18th arrondissement, built in 1935 and managed by Paris Habitat.

Thanks to energy renovation of this 1297 units building the overall power consumption was brought down to 84 kWhPE/m²/year from 188 kWhPE/m²/year which equals to an overall energy saving of 55%



Key data

Forecast:
Renovation of 4,500 social housing units /year:

- To come as close as possible to the primary energy coefficient (PEC) outlined by the BBC-Effinergie renovation label, **i.e 80 kWhPE/m²/year**.
- Improving average energy efficiency by 60%

Completed:
During the period 2009-2019, the renovation of **50,890** social housing units was funded, 3 740 more units were renovated in 2020, leading to:

- ✓ **27,653 MWh/year** saved in 2020 equivalent to **6,400 t CO_2**,
- ✓ **53%** average improvement in energy consumption (ie: 175 kWhPE/m²/year)

Funds invested in 2020

€ 33.3 m were allocated to the project in 2020

2020

€ 33.3m

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Evaluation of climate benefit

In 2020 it is estimated that **27,653 MWh** were saved thanks to 52 sites renovation (totaling 3,740 units renovated).

In average in 2020, the primary energy consumption of renovated buildings within the project has been brought down to **156 kWhPE/m²/year,** vs 331 kWhPE/m²/year before the job was carried out, equivalent to 53% of energy saved.

Moreover in 2020, **6,801m²** of vegetal surfaces have been delivered.

(see methodological note at the end of this report)

Governance

Operational management of the project : a dedicated team headed by a project manager in the Housing and Funding Department of the Directorate for Housing (Direction du Logement et de l'Habitat or DLH) monitors this multi-annual project and its progress:

- Day-to-day management: An IT tool which makes it possible to complete the financial and technical characteristics of the operations of the funding request files as they arrive, including the works packages planned and the energy performance targeted by the works. The administrative progress of the files is thus monitored right up to the vote in the Council of Paris.
- Monthly quantity reporting in the framework of the Directorate's management for monitoring towards the goal of 4,500 housing units funded per year;
- Yearly quality reporting for the Annual Performance Plan on Housing (at the end of the year).

Social Responsibility

Sustainable Procurement

The funding of the energy renovations of the social housing stock engages with an **idea of partnership** (including subsidy and regular evaluations) with the housing associations, not public procurement. The circular financing determines the renovation operations and financing rules and ensure that social and environmental responsibility is incurred by the funders.

- In this respect the certification (see section on Eco-design) guarantees the **Système de Management Responsable – SMR** (System of Sustainable Management) implemented, including the Sustainable Procurement policy for project managers, and Security and Safety.
- Since 2016 the funders themselves have been subject to the Codes for Public Works Contracts.

Social Cohesion

The actions of the City of Paris regarding social housing target social diversity, which lend this project a socially sustainable character particularly where social cohesion is concerned. As this is aimed mainly at increasing comfort for users, the users are central to this system: the consultation with the inhabitants (information meetings and consultation meetings with voting by the tenants on the successful project) is conducted by regulatory obligation by the funder, who prioritises the projects according to the actions pursued within the framework of the City's Policy and its stated aims.

As to PRM accessibility to communal areas, this is provided for in the requested certification.

Air quality

The obligation for certification specifically sets out the aims regarding the **renewal of air in living quarters and VOC releases from the wall** coverings installed.

Biodiversity

Besides minimising the impacts of renovation operations, including the disturbance created by the project, the greening of buildings is being studied within the framework of the **biodiversity** plan and the mandate's objective of 100 ha of revegetation on the built environment. These installations must meet the recommended technical specifications for greened roofs and the "greening of walls and roofs" drafted by the City of Paris.
In 2020, **6,801m²** m² of greened surfaces were funded.

Ecodesign

Since 2014, the **NF Habitat (HQE) certification** and the **Energy Performance Label** are required for all funded energy renovation operations, except for small scale operations (e.g. insulation of a gable wall which only concerns 10% of the operations, a figure which continues to decrease). The certification process is fundamental because it is then validated by a third party (CERQUAL), in terms of respect for the commitment to "Sustainable Buildings" (from Quality of Life to respect for the environment through to Energy Performance).

Energy Consumption

Likewise, these certifications complete on a continuous-flow basis the delivery investigations carried out by the funders: The DLH monitors thermal regulation performances on the delivery conditioning the payment of the subsidy. Following verification of compliance with the specifications accepted by the project's managers and housing associations:

- If the installations are collective, the funder **ensures best use of heat production once the work has been completed**. In this case, the energy-related charges can be recovered from the tenants of the housing stock.
- If the installations are private, the management of energy consumption is incurred by the tenant who often benefits from **information** by the funder on the best way to manage the facilities.

Environmental Liability

Waste management:

The actual operations (of various kinds in the case of renovation) provide for the implementation of **sorting for recycling** whenever possible. This work item is inspected within the framework of the certification. In addition to this, the question of premises dedicated to sorting for recycling (setting up of three recycle bins) is included. Finally, the *Direction de la Propreté et de l'Eau* - DPE (Cleanliness and Water Service) of the City of Paris constantly works to heighten awareness of this issue among the funders and their tenants.

Due to the nature of the project, the **management of hazardous waste** is not included. However, if relevant, the NF Habitat certification validates the respect for these specific clauses regarding waste treatment.

Circular economy and low carbon sites : Different actions have been taken by the DLH (Directorate for Housing) to promote low carbon impact sites through recovery and recycling of waste.
Since 2018, an additional subsidy is given by the City to projects that include NF Habitat HQE certification with a circular economy profile.

3. Adaptation to climate change

2020

New green areas
30 new hectares of green spaces

Project description

The development of nature in cities, which specifically includes the creation of green spaces, is a powerful lever for adapting to climate change, as it makes it possible to combat heat islands by cooling the densely built Parisian territory, and to offer permeability and therefore a capacity for soil absorption in the case of heavy rainfall (less risk of flooding). It integrates plants which are beneficial in the fight against greenhouse gases and creates areas for the development of biodiversity (pollinating insects, wildlife).

The City of Paris has already delivered more than 62 ha of new green spaces during the last 2 terms of office between 2001 and 2014 and has launched an ambitious programme for the creation of 30 ha of additional green spaces open to the general public over the period 2014-2020.

Sofian Boussaid/Ville de Paris

The table below displays the surfaces delivered by the end of 2020:

Jardin Césaria Evora - Phase 2-2	75019	3,300 m²		
Place d'Italie - Phase 1	75013	1,885 m²		
Rue d'Aubervilliers	75019	1,210 m²	***17,820 m²***	
Jardin boulevard Victor	75015	7,125 m²		
Jardin de l'Abondance	75007	4,300 m²		
Jardin Saint-Fargeau - phase 1	75020	1,630 m²	***1,630 m²***	
Jardin Paul Bourget	75013	3,800 m²		
Place de la Porte Pouchet	75017	10,355 m²		***79,832 m²***
122 rue des Poissonniers (Rooftop Garden) - Phase 2	75018	1,594 m²		
Square rue Serpollet	75020	1,805 m²	**58,395 m²**	
Parc Clichy-Batignolles Martin-Luther-King Part 2 - phase 2 - central part	75017	12,000 m²		
Chapelle Charbon - Part 1	75018	28,841 m²		
Jardin Alban Satragne	75010	1,885 m²	**1,987 m²**	
Square des Périchaux	75015	102 m²		

Initial Forecast	State of progress:
In addition to 22 ha already delivered since 2014 prior to the issuance of the Bond and therefore not reported in this document, 8 ha are expected to be delivered in 2020. This should bring the total number of ha delivered up to 30ha over the period 2014-2020, in line with the initial target.	✓ **7.98 ha in 2020** completed in 2020 will allow the equivalent of **29.84 t.CO_2** to be sequestered. *(cf. methodological note at the end of the document)*

Funds invested in 2020

€ 14.14 m were allocated in 2020

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Evaluation of climate benefit

Territorial adaptation to climate change in compliance with the City's reporting commitments is not demonstrated only by a carbon evaluation but also by the number and type of green spaces created.

Governance

A Steering committee (COPIL 30 ha) session is conducted at least once a year (twice in 2015) under the authority of the Secretary General, in the presence of the elected representatives. This COPIL is in charge of the governance of the project, during the session, the detailed state of progress of the programme and the provisional schedule of delivery are presented and validated.

The Third COPIL session was conducted in january 2017.

A geographical information system (SIG-V) was developed in order to monitor all the revegetation projects conducted by the Department for Green Spaces and Environment (DEVE) including the "30hectares project".

Reinforced budgetary monitoring overseen by a committee for scheduling public space operations (CoPOEP).

Social Responsibility

Sustainable Procurement

Without being specific to these contracts, **social clauses** and **Awareness on Safety and Health issues** are systematically included. Also, from an operational perspective, the horticultural maintenance of certain green spaces is entrusted to *associations d'insertion par travail* [societies for integration through work] (ACI or managed by the local community).

Social Cohesion

PRM accessibility, which is included in **a wider brief of accessibility to all persons with disabilities** (visually and hearing impaired, etc.), is always integrated into all the projects for the creation of new green spaces from the design stage onwards.

The creation, followed by the exploitation, of green spaces incorporates all the **users** :

From the design stage:

- Identification of the expectations of the people of Paris during consultations: public meetings organised by the town halls of the arrondissements and open to all (neighbourhood associations, collectives, individuals, etc.) which are an opportunity to define certain uses to be set up in the new space: playground definition (surface, type of games, age groups, etc.), routes etc.,

- The interactive application which enables direct on-line design of the future development of the park (as for the Chapelle Charbon project).
- Finally, participative budget and "planting permit" systems are encouraging Parisians to suggest projects which will increase the place of vegetation in the city or to vegetalise plots of public land directly.

During the works stage: as all the green spaces carry the QualiParis label (a standard constructed with AFNOR), even if the referential for an improved response to users' expectations is still being developed, the following are guaranteed:

- Information for and responsiveness to users (www.paris.fr, 3975, etc.)
- A commitment to clear, up-to-date signposting on the sites
- Reception and information by field agents

A satisfaction survey is conducted regularly in order to get users' feedback.

Local development and interactions

The DEVE Department is always committed to promote cooperation thanks to the implementation of public meetings that are set up by arrondissements mayors. These meetings are open to all (local associations, individuals, groups …). They give the opportunity to define the best use for new spaces: definition of playgrounds areas (surface, types of games, age groups), lanes.

DEVE recently enriched the cooperation process by giving access to an interactive application for the Chapelle Charbon project (18th arrondissement). The site gives users the possibility to take part in the creation of the space planning for the new park.

Through "Participative budget", "planting permits", or "platform for revegetation", the City of Paris give citizens the opportunity to bring forward projects which will result in increasing the areas dedicated to green space or to plant surfaces which are part of public space.

Environmental Liability

Ecodesign & Biodiversity

The creation of green spaces falls by definition within the Biodiversity plan (green belt) of the City because the new green spaces are **biodiversity reservoirs** and because all newly created spaces help improve the **ecological continuity** which is favourable to the development of wildlife in densely built urban environments. Moreover, from its design stage, the creation of green spaces integrates an ecological and sustainable dimension (indigenous plants, water circuit, differentiated management, limited lighting, etc.). 78% of municipal gardens carry the **Ecojardin** label (a national label first awarded in 2013, which attests to the ecological management of the sites concerned) and the Bois de Boulogne and the Bois de Vincennes carry the **ISO 14001** label.

In the City of Paris works contracts, **specific clauses** impose obligations of conduct and result in terms of ecodesign on the project managers and contractors. For example, for the wood used, the clause inserted in the contracts is as follows: "The contractor must supply all the certificates and supporting documents proving that the woods proposed are from sustainably managed forests, with FSC, PEFC, OLB or equivalent **certification**."

Air quality

By integrating beneficial plants, green spaces combat **greenhouse gases** : the growth of the plants by photosynthesis fixes carbon and produces oxygen, thus reducing greenhouse gas emissions. For example, the 2,000 ha of the Bois de Vincennes and Bois de Boulogne represent 11,000 tonnes of "stored" carbon (source 2009 the City of Paris carbon footprint).

Waste management:

During the works phase, in addition to the various **legal and regulatory recommendations relative to the elimination of waste and the recovery of materials** along with the facilities classified for environmental protection (see general indicators of sustainable governance), the DEVE optimises **on-the-spot reuse of the waste produced** (earth extracted when digging foundations is used as backfill or complement to model the terrain).

During the works period, the gardens operation department **recycles the green waste produced at over 70%** (mulching, composting, etc.).

Moreover, as far as the **waste from polluted sites** is concerned (due to the historic presence of industrial activity), depending on the level and type of pollution, the DEVE repurposes or confines the polluted soil, or sends it to dedicated treatment centres.

Tree planting programme
Planting 20,000 trees

Project description

The goal of the project is planting 20,000 additional trees over the whole territory of Paris between 2014 and 2020, for an estimated amount of € 18 m:

- in the streets;
- roadway public spaces whose redevelopment is identified for this mandate;
- on the banks of the river Seine and the borders of the Boulevard Périphérique in connection with the Schéma régional de cohérence écologique – *SRCE* (Regional Ecological Coherence Plan) which are identified as biodiversity corridors;
- in gardens;
- in sports facilities, for the most part located in the SRCE biodiversity belt;
- in the scope of major urban redevelopment operations and even on private properties;
- in the scope of building permits or with the "*un arbre dans mon jardin*" ["a tree in my garden"] operation.

Jean-Baptiste Gurliat/Ville de Paris

Key data

Forecast:

- **Around 3,000 trees are expected to be planted in 2020.**

- **Planting more trees within Paris area**

  - ✓ **20,000** trees
  - ✓ **1,050** hours of social integration work
  - ✓ **14,600** t CO_2 during the lifespan of newly planted trees

Completed:

3,083 trees planted in 2020 will allow the equivalent of **22.50t.CO_2** to be sequestered during their lifespan.

322 hours of social integration work have been carried out in 2020.

(cf. methodological note at the end of the report)

Funds invested in 2020

€ 1.32 m were allocated in 2020

Actual allocation of the Sustainability Bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : a dedicated team headed by an appointed project manager was set up in the *Service Arbre et Bois* of the *Direction des Espaces Verts et de l'Environnement (DEVE)* to monitor the project and report on its progress, making specific use of the geographical information system (SIG-V) which was developed to:

- Identify the potential for planting trees: 1,200 projects have been identified
- Monitor the progress of the different tree-planting projects

Social Responsibility

Sustainable Procurement

When possible, the Procurement Department includes **social clauses** that contractors have to comply with. On this site, **322** hours of social integration work were provided in 2020, which were monitored by the company EPEC (*Ensemble Paris* Emploi Compétence).

Social Cohesion

PRM accessibility is taken into consideration from the design phase of the planting of trees to ensure that accessibility to PRM is maintained once the tree has been planted, and also in the transitional phase.

Even though there has been no overall consultation on the total 20,000-tree programme, the clause "low pollution site" and **information for residents** on tree planting means they are fully included:

- Regular ad hoc meetings with residents to present the plantation projects.
- Information on the website paris.fr/arbres on all the tree operations and new plantations.

Besides these information procedures, the **call for participation** is organised:

- via the "*permis de végétaliser*" (planting permits): the people of Paris are invited to take part in planting programmes.
- In the scope of the "*programme des vergers dans les écoles*" (orchards in schools), projects are co-established with the different actors and future users (teachers, ARE mediators and recreation centres)
- Tree-planting events are organised with the user-schools.

In addition to this, a **procedure for receiving complaints from users**, specific requests and satisfaction feedback is set up via the 3975 (the City of Paris call centre), with the commitment to answer all questions.

Environmental Liability

Ecodesign & Biodiversity

The programme falls within the Biodiversity plan, with a **reinforcing of ecological corridors**. However, this respect for biodiversity, which is an incentive to implant native species (of regional plants), to protect the environment and the plants, limits the choice of species which is made according to the conditions for planting, distance from facades and the future pruning constraints, the state of the sapling or the soil type and water requirements.

Nevertheless, whenever possible, i.e. when there are fewer constraints regarding landscaping criteria and the development of the public spaces, this means that on certain sites such as the university halls of residence, environmental management is set up which takes into consideration the diversity of species and their adaptation to the territory.

Air quality

Plantations **combat greenhouse gases** : the growth of the plants through the activity of photosynthesis helps to fix carbon and produce oxygen thereby reducing greenhouse gas emissions.

Energy Consumption

From the design stage to the works stage, DEVE integrates sustainable energy management (i.e., with adapted light sources and low consumption lighting, rational use of water, implementation of differentiated management). Moreover, in its contracts, respect for current environmental standards leads to imposing additional restrictions (e.g. use on the worksite of NGV vehicles or recent mechanical equipment and the clean vehicle clause.).

Waste management:

A relatively rare issue with respect to green waste as this is not the replacement of trees but the planting of new ones. As with green spaces, in a reemployment approach which is part of *SOSED* (*Plan for organising and monitoring the elimination of site waste),* DEVE optimises **on-the-spot reuse of the waste produced**. For example, the soil extracted when digging foundations can serve as backfill.

In addition to this, the contract clauses provide for differentiated processing according to the type of **waste** :

- Asphalt: reintroduced into a recycling **channel**
- Stumps: sorted and set apart to be **reused** (wood for heating, for example)
- Soil: reused in backfill areas.

4. Access to essential services for target populations

2020

Renovation of a nursing home for elderly dependent people (EHPAD)

Subsidies to nursing homes for elderly dependent people ("EHPAD")

One example: Reconstruction in Belleville of a nursing home for elderly dependent people ("EHPAD")

Project description

EHPAD are nursing homes for dependent elderly people who have lost their autonomy due to physical or neurological disability such as Alzheimer disease.

Paris has more than 7,000 places in EHPAD on its territory, 2,450 of which are managed directly by the *Centre d'action sociale de la Ville de Paris* (Social Action Centre of the city of Paris or CASVP).

The reconstruction project of the EHPAD de Belleville is part of the commitment of the City of Paris to provide accessibility to making care facilities accessible to financially disadvantaged elderly people.

The Building and a Room in the EHPAD (20th arrondissement)

Key data

Forecast:

The ambition was to increase the facility's capacity and the size of the rooms, and to improve the quality of service, as well as the working conditions of the staff.

94 individual rooms are available to the targeted population, 15 of which are dedicated to people with Alzheimer disease or other cognitive disorders.

Completed:

The reconstruction has to be completed in Q2 2021.

2806 hours of social integration work have been carried out in 2020.

Timetable of proceeds invested in 2020

The overall cost of Belleville's Ehpad project for CASVP (which is Paris' body for social action) is € 17.5 million and **€ 2.25 million** from the proceeds of the Sustainability Bond were allocated by the City of Paris as a 2020 subsidy to CASVP.

Within the same programme the renovation of EHPAD Groussier located in Bondy (93), this was a first Paris' contribution which is expected to reach €9 million over the period 2018-2024 (or 50% of the total cost) this second project will offer 204 rooms for a total of 242 residents. (166 single rooms and 38 twin rooms).

2020

€ 2.25 m

Actual allocation of the Sustainability Bond proceeds in 2020

(This Data has been extracted from the Administrative Accounts for the year 2020)

Evaluation of climate benefit

110 m² of new green spaces were created
100 m² of solar panels were installed

Energy consumption of the building is expected to decrease from 289 kWhPE/m² down to 140 kWhPE/m²

Governance

Operational management of the project : a dedicated team headed by a project manager belonging to DASES (Directorate for Social actions, Childhood, and Health) monitors this multi-annual project and its progress.

Social Responsibility

Sustainable Procurement
All purchases were made through public tenders, complying both with the French Public Procurement Code and with the Schéma Parisien de la Commande Publique Responsable (Paris' Plan for Sustainable Public Procurement).

Social Cohesion

PRM accessibility was an important focus of this project considering the very nature of people hosted within the structure (all being elderly dependant people) as well as their visitors; A ramp was created to access the building from the outside,and all rooms and communal areas were designed to allow for PRM accessibility.
The project received PRM certification

All contractors have to commit to specific requirement regarding social integration: contracts include **social clauses** for subcontracting to the unemployed. This is monitored by the society EPEC (*Ensemble Paris Emploi Compétence*).
2806 hours of social integration work have been carried out in 2020.

Meetings with residents and their families are set up regularly in order to improve the service conditions.

Environmental Liability

Air quality
The project received a certification regarding the **renewal of air in living quarters and potential VOC releases from the wall** coverings installed.

Biodiversity

A new 100 m² green space was created on the roof of the new building
The existing garden was restructured in order to create raised surfaces dedicated to vegetable which will become accessible both to residents and to young children attending the nearby crèche.

Ecodesign

The project received both a **BBC Effinergie** renovation label and **NF Habitat (HQE) certification** for health facilities.

Energy Consumption
A full external thermal insulation of the building was performed.
100 m² of solar panels were installed

Waste management:
HQE certification comes with the obligation of optimising waste management during renovation
Selective wastes sorting clauses were also included in contracts with builders

5. Social and Solidarity Economy 2020

Subsidies to social and solidarity economy (SSE) actors

Project description

The City of Paris adopted a recovery plan for the social and solidarity economy (SSE) sector at the Council of Paris meeting of July 2020, with the aim of mitigating the impact of the crisis on these key economic players in the region in the short term and preserving their ability to develop in the medium term.

©Arnaud CAILLOU / L'Oeil Témoin.

Key data

Forecast:
The allowance is intended to finance work or equipment that will boost activity.
It was awarded to 29 SSE structures, including 12 organisations for integration through economic activity (*"structures de l'insertion par l'activité économique"* or SIAE), 11 associations other than SIAE and 7 commercial SSE enterprises.
Increase social solidarity economy network

Completed:

The number of jobs preserved thanks to these investment grants is **304** full time equivalents (FTE) out of a total of 1015 FTE preserved thanks to all the plan's measures.

Timetable of proceeds invested in 2020

This recovery plan, which amounts to € 4 million proposes a set of support measures that can be implemented in various forms depending on the situation of each structure, including investment grants, up to **€ 1 million**.

2020

Allocation of bond proceeds in 2020

(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project : a dedicated team headed by a project manager belonging to DAE (Directorate for Attractivity and Employement) monitors this project and its progress.

Social Responsibility

Sustainable Procurement

All purchases were made through public tenders, complying both with the French Public Procurement Code and with the Schéma Parisien de la Commande Publique Responsable (Paris' Plan for Sustainable Public Procurement).

Social Cohesion:

The number of jobs preserved thanks to these investment grants is **304** full time equivalents (FTE) out of a total of 1015 FTE preserved thanks to all the plan's measures.

23% of the amount of this envelope was allocated to the reuse sector. For example:
Acquisition of a used van and an electric utility vehicle (SIAE Emmaüs Coup de main), Acquire a clean van (NGV motorisation) (SIAE Envie Trappes), Adaptation of its IT tool (Social utility company France Barter)
19% to the restaurant industry. For example:
Equip the premises (kitchen, changing rooms, storage, materials) and fit out the workshop area of the crèche (SIAE Pépins Production la Pépinière de Quartier), Acquire electric bikes, trailers and cooler bags, to carry out work in the kitchen of the Jaurès restaurant (Société commerciale d'utilité sociale Les Bouffesquetaires (Les Marmites volantes))
16% to the logistics sector. For example:
Develop its communication tools in order to diversify its activities (SIAE Emploi Développement), Redevelop the premises (SIAE Food de Rue)
15% to the hotel industry. For example:
Support the development of its activity (SIAE Zazie Hôtel)
7% to the urban agriculture sector. For example:
Buy equipment (sewing machines, tools, computer...) and a cargo bike (Association outside SIAE Gaïa), Build a reception pavilion to develop direct sales and organise animations and exhibitions; a productive garden (edible flowers, herbs, medicinal plants, hops) in above ground containers; a wilderness area (hedges, wetlands) to enrich the biodiversity and enhance the attractiveness of the site; an electric utility vehicle (Association outside SIAE Le Paysage urbain).

6. Social and Affordable Housing

2020

Eradication of substandard housing

Social and Affordable Housing

Promoting access to housing for all - Reduce precarious situations

Project description

To combat substandard housing, the City of Paris calls on the local public development company Soreqa (Société de requalification des quartiers anciens - Rehabilitation Company for Older Districts), an operator supervising substandard housing for the entire metropolis. It has the skills to carry out all the strategies for the reduction of degraded housing, either in support of private owners or in public ownership (acquisition, management, rehousing, development and sale).

Two development concessions are in force in Paris:

- The first (2010) targets some sixty rundown blocks for which Soreqa's intervention will eventually produce nearly 800 new or rehabilitated social housing units. Since 2019, it also includes incentive work with fragile condominiums and targeted turnaround portage.
  The current perimeter of this concession corresponds to:
  - 54 addresses undergoing a public appropriation procedure, 19 of which are still active and for which the acquisition, rehousing or preliminary work phases are ongoing;
  - 22 addresses in incentive monitoring of syndicates of co-owners.
- The second (2016) targets action on the lot, including reconfiguring "maid's rooms" and producing social housing. The current perimeter of this concession corresponds to 10 addresses subject to a public ownership strategy targeting units or land watch.

On an operational level, nearly forty addresses included in the concession before 2016 have already been acquired and have benefited from a treatment of insalubrity through rehabilitation or demolition-reconstruction.

Example of demolition/reconstruction at 32 bis rue des Trois-Frères 75018 Paris

"Treatment of substandard housing at 32 bis rue des Trois-Frères in Paris 18th arrondissement (Planner: Soreqa / Project management: Paris Habitat - Mao Architectes "

Photographs before/démol (1) and (2) >> @JCPattacini Photograph after (3) >> @Frédéric Achdou

Key data

Forecast:

In total, the concession will produce **802** housing units, including **788** social housing units.

Completed:

Key events in 2020

In 2020, the actions carried out in Paris continued with a significant strengthening of the incentive action on private housing. The health crisis has had a modest effect, although in some cases it has caused delays (1 to 6 months) in the launching of construction sites and the progress of legal proceedings.

On the main concession (treatment of degraded blocks), two new buildings were delivered (25 new housing units). The work of acquisition, rehousing or preliminary work continues for **17** addresses. Finally, 2020 saw the effective launch of the incentive monitoring of fragile condominiums and was an opportunity to integrate **10** new addresses.
Work is also continuing on the so-called "lot" concession ensuring the reconfiguration of the service rooms.

Timetable of proceeds invested in 2020

The concession represents an estimated total expenditure of approximately € 150 m
*In 2020, the funds used (**€ 4.8 m**) allowed the creation of 25 dwellings (i.e. 3,5% of the 800 planned dwellings). This corresponds to 3,3% of the total concession financing.*
These expenses are mainly covered by the contributions paid by the City of Paris, which will amount to € 87.7 million (58%), and the income generated by the sale of land charges, which should amount to € 42.7 million (28%). The balance of the income guaranteeing the financial equilibrium of the concession comes from the collection of interim rents and subsidies paid by other public bodies (notably ANAH).

2020

€ 4,8 m

Allocation of bond proceeds in 2020
(This Data has been extracted from the Administrative Accounts for the year 2020)

Governance

Operational management of the project :

The concession: Expenditure under the "subsidy for the eradication of substandard housing" PA consists of a contribution to Soreqa within the framework of the concession, where the operator's expenditure is solely aimed at acquiring the land and then making the site viable (demolition, securing, etc.) before it is sold to a social landlord who will carry out the real estate project as such. It should also be noted that rehabilitation projects are not always possible and that in these cases it is necessary to demolish the buildings (on nearly 50% of the plots).

A dedicated team headed by a project manager belonging to the Directorate for Housing (Direction Logement et Habitat - DLH) monitors this project and its progress.

Social Responsibility

Social Cohesion

On the social side, the concession allows for the production of social housing but also provides social support for vulnerable people living in substandard housing (illegal immigrants, young people, the elderly, etc.). For many, this is an opportunity to start a residential trajectory by accessing social housing, after an initial period in a shelter that is often necessary. The concession includes €3 million to cover the operator's responsibilities for rehousing.

During 2020:

- 44 households received social support;
- 5 households were accompanied by a nurse;
- 9 rental eviction indemnities were paid for rehousing, for a total amount of €21,206;
- 14 households were rehoused, including 1 outside the social housing stock, for a total of 477 households rehoused since the concession agreement was signed on 7 July 2010, including 69 outside the social housing stock.

Environmental Liability

Regarding the environmental aspect, the concession has significant effects because it makes it possible to transform degraded and unfit buildings (often "*passoires thermiques*", literaly "thermal sieves") into social housing that complies with current regulations (Thermal Regulations RT2012), or even more ambitious in terms of environmental performance (optimised energy consumption and savings ratio).

6. Social and Affordable Housing

2020

Social Housing Units Production Programme

Project description

The number of social housing units within Paris territory stood at **255,355** as of 31 December 2020. This is equivalent to 21.8% of all main residence units in Paris.

In 2000, the French Law on Solidarity and Urban Renewal (SRU, Article 55) established an obligation for all cities with more than 15,000 inhabitants (1,500 in Île-de-France region) to have at least 20% social housing . In 2013 the ratio was raised to 25%.

In response to this new legal framework, investment in the development of social housing has been established by elected members of the City as one of the main priorities in the investment programme of the 2014-2020 Mayor's mandate. In doing so, Paris follows a quadruple goal:

- complying with the ratio prescribed by French law;
- rebalancing the distribution of social housing units within its territory (more than 50% of all social housing units is concentrated in only 3 arrondissements in the east part of the City);
- delivering units which fit better with the new demand (linked to the sociological evolution and new family profiles of the overall population);
- offering different types of units within a same building to promote social diversity.

Between 2014 and 2019, the City financed around 7,000 new social housing units per year, with almost 41,000 new units registered during the period. However, due in part to the numerous effects of the Covid-19 pandemic and the postponing of the municipal elections, the level of 2020 programming dropped significantly, with only 2,908 social housing units financed. This decrease can also be explained by the diminution of the number of market-rate housing units turned into social housing units among the existing housing stock of social landlords. In 2020 this method represented only 21% of the year's programming, against an average of 48% during the 2014-2019 period. As for the application of urban pre-emption rights, which constitutes another important channel of production for social housing units, the acquisitions of the City represented 10% of 2020 programming, with 318 units financed.

Despite the historically low level of 2020 programmes, the City of Paris is still following a trajectory in agreement with the objective of the SRU Law, i.e. a number of social housing units equivalent to 25% of all main residence units by 1 January 2026. In the years to come, the production goal might fall around 4,500 or 5,000 new social housing units programmed per year.
Overall, the constraints weighing in on housing production in Paris are increasingly strong: undeveloped areas are rare and expensive; projects are subject to tensions and appeals that hinder their realisation; the need of revegetation and de-densification also limits the quantity of housing units produced.

Key data

Target Population:
Households with an income level which makes them eligible for social housing.
3 categories of social housing units are created, each available to a part of the target population for a specific monthly rent per m²:
PLAI (Aided Rental Integration Loan, for households with less than €21.5k/year); the cap on the monthly rent is set at €6.18/m²
PLUS (Housing Loan for Social Use, for households with less than €35.8k/year); the cap on the monthly rent is set at €6.94/m²
PLS (Social Housing Loan, for households with less than €46.6k/year); the cap on the monthly rent is set at €13.54/m²
(this data pertains to the year 2020)

Completed:

In 2020 as many as 2,908 units were programmed ((including 318 under the Compte Foncier Logement (Housing Land Account or CFL)).

In 2020, 85% of all social housing units funded were designed for people with a low or very low income corresponding to PLUS and PLAI categories.

Distribution of units programmed in 2020			Units of the CFL		Part of the CFL in 2020 programming
Units for families	1,725	59%	270	85%	15.7%
Units for students	626	22%			
Units for young workers	83	3%			
Temporary social housing	171	6%	48	15%	28.1%
Other	303	10%			
Total	**2,908**	**100%**	**318**	**100%**	**10.9%**

Distribution of proceeds invested in 2020

A total amount of **€ 144.5 m** from the bond's proceeds was allocated to this programme in 2020.

The funds are used to finance two headings from the City's budget voted by elected members which are dedicated to Paris Social Housing Scheme and called "Compte Foncier Logement".

These budget lines are used to acquire real estate properties in Paris (entire buildings or collective ownership units), in order to carry out social housing projects. The acquisitions are made through the application of the urban pre-emption right, which allows the City of Paris to take precedence over prospective purchasers on most of the sales that are taking place in Paris. Once the property is acquired, the City transfers its management to a social landlord, who will then carry out the construction works and allocate the accommodations to social housing applicants.

In 2020 the total amount dedicated to the acquisition of real estate properties to support the development of social housing projects amounted to € 144.5 m. The proceeds of the bonds enabled the City to acquire properties that ultimately represent 10.9% of the social housing programme for 2020.

Details regarding property assets purchased and split by localisation, types of units and subcategories are provided in the Social Housing Annex at the end of this document.

Governance

Operational management of the project :
Each acquisition decision is first subject to a joint analysis by the Urban Planning Directorate, the Housing Directorate and the Finance and Purchasing Directorate, under the aegis of the General Secretariat, and is taken in accordance
arbitration of elected officials in charge of town planning, housing and finance.
Each project is then monitored by a project manager within the Housing Directorate.

Social Responsibility

Social Cohesion
Social housing units for families are targeted in priority. However, the City also promotes the production of units dedicated to students, young working adults, disabled people or people who are part of an inclusion scheme. In 2020, these targeted categories accounted for a third of all units programmed, and for 15% of the units programmed through the pre-emptions.
These budget lines are a tool for the geographical rebalancing of social housing. Indeed, it makes it possible to produce it in the districts with a deficit in social housing, and in particular the central districts, within which there is very little to no
land available for new construction.
Among the housing planned thanks to pre-emptions in 2020, 85% are located in arrondissements with a deficit.

Sustainable Procurement:
Buildings and collective ownership units acquired by the City are transferred to social landlords via emphyteutic leases. When carrying out the projects, they make purchases through tender procedures and have to comply with the French Public Procurement Code.

Environmental Liability

By making it possible to transform existing Parisian buildings into social housing, via their pre-emption and rehabilitation, the Compte Foncier Logement is part of a more energy-efficient approach than new construction.
In addition, the work carried out by lessors on these buildings must comply with the ambitious rules set by the Climate Action Plan, in order to be able to benefit from additional grants from the City of Paris.
Since 2008, Paris' social housing scheme has been complying with the rules set up in Paris' Climate Action Plan. Additional grants were initially given to construction complying with HQE certification; through the years, reaching such performances has become the new normal.

With the enforcement of the New Paris Climate Action Plan in 2018, the construction of new energy neutral buildings is encouraged through an additional grant scheme, and each single new building must reach a maximum energy consumption of 50 kWhPE/m²/year.

Waste management:
All works conducted must undertake to respect the selective waste sorting clauses included in all contracts concluded with builders by the City of Paris.

List of pre-empted properties

Pre-emptions of buildings in their entirety

The table below lists the acquisitions of entire buildings in the 2020 LFC

Arrondissement	Address	Number of projected housing units	Liquidated (€)
2	226 rue Saint-Denis	32	18,334,203
9	9 rue de Châteaudun	16	13,820,000
10	72 rue du Faubourg Saint Denis	18	10,200,000
11	20-24 rue Emile Lepeu	26	9,342,206
11	111/113 boulevard de Ménilmontant	22	5,278,000
11	68 rue Léon Frot	20	7,968,560
12	45 rue de Lyon	17	10,500,000
14	1 rue Thibaud	10	5,040,000
17	8 rue Dautancourt	28	13,230,000
18	14 rue du Roi d'Alger	26	4,535,000
18	25 rue des Poissonniers	9	1,620,000
20	254 rue des Pyrénées	12	3,650,000
20	3 rue Dupont de l'Eure	20	10,136,000
Total		256	113,653,969

Pre-emptions of collective ownership units: The following table details the units acquired by pre-emption on the 2020 CFL (Local Finance Committee).

Arrondissement	Address	Number of projected housing units	Liquidated (€)
5	72/74 boulevard Saint Marcel	22	10,500,000
14	7/9 rue du Loing	7	2,106,313
15	96 rue d'Alleray	1	177,000
16	8 rue d'Auteuil	22	16,445,000
18	110 rue de Clignancourt	10	1,659,105
Total		62	30,887,418
Grand total		318	144,541,387

Example of project funded within the Social Housing Scheme

Project description

Acquisition-development of a building located at 72 rue du Faubourg Saint Denis in the 10th arrondissement.

It is an acquisition-development of a real estate complex of 18 dwellings with 15 cellars and 3 shops, built at the beginning of the 20th century.

Method and date of acquisition: Emphyteutic lease signed on 22 July 2020

I – THE SITUATION BEFORE ACQUISITION:

Location:

Located in the 10th arrondissement, which is deficient in social housing, with, on 1 January 2020, only 15.4% of social housing (i.e. 7,891 units) in relation to the main residences, this 18-unit building has varied typologies (two studio/2R, five 2R, three 2/3R, five 3R, four 4R), which favours generational mix.

The plot is located in a busy shopping area, near the Château d'Eau metro station, not far from the intersection of the rue du Faubourg Saint Denis with the rue du Château d'Eau and the rue des Petites Ecuries, and near the Reilhac passage that connects the boulevard de Strasbourg to the rue du Faubourg Saint Denis. It is located in a social housing deficit area.

Description of the property:

This real estate complex includes several buildings:

Street-side, a building, GF+7, characteristic from early 20th century, with a large porch, high from the first floor to the mezzanine floor, which allows access to the courtyard, formerly occupied by small industry.
The basement is home to numerous healthy cellars. The upper floors are home to medium and small-sized units.
Courtyard-side, the back is occupied by a GF+3 building, more modest, which opens on the courtyard and also overlooks a courtyard at the end of the plot. Two GF+1 wings of workshop style surround the main courtyard.

II – THE PROJECT

Principles selected:

It is proposed to maintain the current distribution of housing, homogeneous in its typology. Due to the existence of shops on the ground floor and the small size of the landing, it will not be possible to create an elevator that would improve the accessibility of the GF+7 stairwell.

The work envisaged is as follows:
- Changing exterior woodwork that has not already been changed,
- Rehabilitating of housing not yet refurbished,
- Updating some housing units to electrical standards,
- Renovating communal areas.

Programme:

- number of social housing units created: 18 units divided between 5 PLUS (Housing Loan for Social Use) units and 13 PLS (Social Housing Loan) units

- surfaces of the new social programme:

SHAB (living area): 1,034 m²	SU (floor area): 1,064 m²	SHON RT (Thermal Regulations' adjusted gross floor area): not applicable

- housing typology (in numbers):

PLAI :	PLUS : 1 T1, 2 T2, 1 T3, 1T4	PLS : 1 T1, 7 T2, 3 T3, 2T4

- other surface areas, premises: 3 shops.
- garages: not applicable

III – SUSTAINABLE DEVELOPMENT APPROACH

The building is in good condition. Its heritage character will make it difficult to insulate it from the outside. Thermal improvement interventions will be carried out (bringing the heating system into line with individual gas or renewable energy - Data Centre).

NOTE ON METHODOLOGY

Clean Transport

Alternative transport : Cycle paths

The gain for cycle paths has been estimated from similar conventional private car traffic, at around **100 t.CO_2/km/year**. Therefore, thanks to 56 km of cycle paths realized in 2020, close to **5,600 t.CO2/year has been avoided.**

Public transport : Extension of line 14 to Mairie de Saint Ouen

Emission de CO2 avoided through the project :

Completion of the line 14 extension project will shift users of cars to public transport by approximatively 33.69 million veh.km/year. This modal shift will make it possible to reduce the production of GHGs induced by transport by private vehicle.

1/RATP asseses that their trains generate in average 1.042 kgCO2/train.km .

In average there should be 877 journeys per day on line 14, the lenght of the extension being 5.8km.

Computation of these data leads to an estimated 1,953tCO2/year generated by trains on the extension.

2/ 33.69 million vehicles.km /year are expected to be prevented, using ADEME factor for urban trips (i.e : 0.275 kg Co2 vehicle.km), we can infer that these vehicles would generate 9,263 tCO2/year in the absence of extension of line 14.

Avoided emissions can therefore be estimated at 7,310tCO2/year for the global project

All data are extracted from the "Dossier d'enquête péalable à la declaration d'utilité publique " dedicated to the extension of line 14.

The total amount of investment dedicated to this project is estimated at around 1,380 million Euros, therefore **emissions avoided thanks to the proceeds of this bond can be estimated at 220 tCO2/year.**

Public transport : Tramwayline T3 Asnières-Maillot extension

Two different modal shifts are used to estimate greenhouse gas reduction :

1/ modal shift from car to tramway
Assumptions used :
• It is estimated that 2% of the 18.3 million annual users are shifting from car to T3b extension, preventing an average distance of 9km to be traveled by car each time the vehicle is used.
The average number of people in a car being estimated at 1.29 people.

Therefore a total of around 2.55 million vehicles x kilometers is estimated to be avoided annually (2.55=2%*18.3m*9km/1.29)
(data source is appendix E "socio-economic assessment" of the public survey on the tram extension)

• emission factors used (carbon base of Ademe V22)
Identifier : 27970 Car Average motorization 2018 **0.218 kgCO2e/km**
Before shift to tram, the emissions generated by cars were : **557 tCO2e / year**

2/ Modal shift from the PC1 and PC3 buses to the tramway

Assumptions used :
• The carryover of former public transport users is estimated at 17,800,000 annually until 2024 (i.e:97,3% of all users of the tram extension) (source appendix E "socio-economic assessment" of the public survey on the extension of the tramway)
• The motorized fleet of PC buses before the extension consisted of 50% hybrid buses and 50% diesel buses (source appendix D8 "chapter specific to transport infrastructure" of the public inquiry on the extension of the tramway) .
• Emission factors used (carbon base of Ademe V22)
Identifier 28004 diesel bus = 0.113 kgCO2e/passenger.km
Identifier 28002 serial hybrid bus = 0.0711

Before shift to tram of these bus users, emissions generated were therefore :
3.2km*17.8M*(0.5*0.113+0.5*0.0711)=**5,243 tCO2e / year**

Estimation of Avoided emissions using these two main modal shifts (covering 98.3% of the users)
Emission factors used for Tramway
Identifier 28148 2019 = 0.00268 kgCO2e/passenger.km

Tramway greenhouse gas emissions over one year = 157 tCO2e / year (18.3M *3.2km*0.00268)

Avoided emissions are therefore **5,643 tCO2e/year**
(557 tCO2e/ year +5,243 tCO2e/ year - 157 tCO2e /year)

The total amount of investment dedicated to this project is estimated at around 194 million Euros, therefore **emissions avoided thanks to the proceeds of this bond can be estimated at 148 tCO2/year.**

Public transport : Tramwayline T9 (Porte de Choisy - Gaston Viens)

According to the Île-de-France Mobilités traffic forecasting model: ANTONIN 2 (Analysis of Transport and the Organisation of New Infrastructure), based on travel behavior observed by the Overall Transport Survey conducted in 2001-2002 among 10,500 households in the Paris region , an estimated number of 20.5 million travellers per year will use Tram9 .

Modal shift from the private car to the new tramway line is estimated at 3% of the traffic of the tramway line, preventing an average 13km traveled by car otherwise, therefore an estimated 8 million km per year will be saved thanks to the project.(or 6.2 million vehicle.km since 1.29 passengers are supposed to travel per vehicle)

(data source is appendix H "socio-economic assessment" of the public survey on Tram9 project)

CO2 emissions generated by cars before modal shift : **1,352 tCO2eq/year** (using emission factor 27970 from carbon base of Ademe V22: Car Average motorization 2018 **0.218 kgCO2e/km)**

CO2 emissions generated by tramway for these new travellers is **17 tCO2eq/year** (20.5million passenger x10.2km*3%*0.00268 kgCO2)

CO2 emissions saved by the project is therefore **1,335 tCO2eq/year**

The total amount of investment dedicated to this project is estimated at around 403 million Euros, therefore **emissions avoided thanks to the proceeds of this bond can be estimated at 14,5 tCO2/year.**

Public transport : Ligne à haut niveau de service (LHNS) quais hauts

Reduction of greenhouse gases

33 Buses are used to perform the service in the present configuration, out of which 10 are powered by electric engine and 23 are hybrid , the aim is to turn the whole fleet to electric power.

The evaluation of the greenhouse gas reduction will be carried out under the main assumption that 23 buses using hybrid engines will be replaced by electric powered vehicle.

From the timetable for this bus line, we can infer that a total of 718,000 km are travelled by the buses throughout the year (34 500 full journeys of 10.4km each), i.e 21,746 km per year for each bus.

It is estimated that an hybrid bus generates 0.795kg CO2/km, while an electic bus generates 0.243 kgCO2/km .

Therefore turning 23 buses from Hybrid will save 23*21746*(0.795-0.243) = **276 tCO2/year**

The cost of each electric bus is estimated at 550 K€ i.e 23*550 = 12,6 million euros in total.

Therefore emissions avoided thanks to the proceeds of this bond can be estimated at **66 tCO2/year.**

Energy Efficiency

Public lighting and signal : Energy performance contract (MPE)

The emission factor retained is from ADEME's (French Ministry of Environment and energy) carbon base, version dated December 2020

Electricity for public lighting	0.0599 kgCO_2e/kWh.

This means that the accumulated energy savings of 24 500 MWh have made it possible to avoid 1,991 t.CO2/year

Out of which **102 tCO2 in 2020**

Sustainable buildings : Sustainable social housing (HEQ constructions, thermal insulation)

Calculation of the greenhouse gas emissions avoided is based on energy performance diagnostics (EPD) carried out for each operation financed by the City of Paris.
Taking into account the proper energy mix for each building and the corresponding emission factor ratio, it is estimated that after thermal improvement jobs are completed, they will help save **6,400 t CO2** in 2020 (thanks to 27,653 MWh/year saved).

Adaptation to climate change

New green areas : 30 new hectares of green spaces

As part of the preparation of Paris area Carbon Assessment, an evaluation method was built in order to include the impact of wooden areas, parks and new green spaces located within Paris' territory.

This work leads to the conclusion that 1 hectare of wooden area had a sequestration capacity of 11 $t.CO_2$/year and that each hectare of wooden area within Paris territory had 34% of its surface covered by trees. (mainly « Bois de Vincennes » and « Bois de Boulogne »).

As a consequence, each hectare of Paris' parc area has a sequestration capacity of 3.74 tCO_2/year.

Under these conditions, the 7.98 hectares completed in 2020 will allow the equivalent of **29.84 $t.CO_2$** to be sequestered.

Year	Number of hectares completed	Amount of tCO2 saved
2020	7.98	**29.84**

Sequestration factor tCO2/ha/year
3.74

Tree planting program : 20 000 trees planting program

According to the 2006 GIEC Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry & Other Land Use"[1], the **average sequestration factor for a tree in a temperate zone** is **0.01 $t.CO_2$/year**, i.e. 0.0367 tCO_2/year over its normal maximum growth period of 20 years. The average sequestration capacity of a tree is therefore around **730 kg.CO_2 during its lifespan**.

Under these conditions, the 3,083 trees which have been planted in 2020 will allow the equivalent of **22.50 $t.CO_2$** to be sequestered during their lifespan.

[1] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_08_Ch8_Settlements.pdf