CHILDREN'S STREET EVALUATION OVERALL REPORT 2024

General Department for Town Planning, Property and Works
Urban Mobility Departement
Mobility and Regulations

REALLOCATE

VILLE DE LYON

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INTRODUCTION

LYON, CHILDREN'S CITY

"Lyon des enfants" is a city designed by and for children. A city that adapts to their needs and promotes their development in education, culture, sports, access to citizenship and rights, links with nature and health. Giving children their place means building a happy place for everyone. A number of projects are part of this drive to include the youngest members of our community, enabling them to reclaim their everyday environment.

Les rues aux Enfants (Streets for Children): the Streets for Children project is a political initiative to redevelop and make safer the areas around the city's schools and nurseries. It is led by the city councillor responsible for the city of children in Lyon, in close collaboration with the Métropole de Lyon. To date, the Children's Street project already benefits 16,500 children, 60 intervention sites and 104 schools.

Nature courtyards: to create a link between nature and children, and enable them to enjoy all its benefits, the City has begun to plant vegetation in school and nursery courtyards. Since 2021, more than 1,000 children have taken part in consultation workshops that also involve teachers, activity leaders and City of Lyon staff. Parents are also consulted. In total, 15 million euros have been allocated during the term of office to the development of these more educational, more inclusive and more comfortable playgrounds.

Outdoor education: the City of Lyon supports the staff of the French Ministry of Education in the implementation and deployment of the 'Outdoor Classroom' practices and encourages outdoor education practices in extracurricular time.

The children's district councils: The children's district council (CAE) is an open democracy tool that allows the youngest children to learn about citizenship by getting involved in the life of their district. They thus discover how democratic institutions work: how to debate different subjects that concern the community, how to make decisions. This approach promotes, values and takes into consideration the participation and commitment of each child, as the City has committed to through the 'Child-Friendly City' agreement with Unicef.

Healthier and more sustainable food: Since the start of the 2022-2023 academic year, the City of Lyon has launched a catering service that gives greater prominence to organic, local and seasonal products. This translates into more vegetarian options on the menu, an increase in the proportion of organic products, and local sourcing wherever possible.

INTRODUCTION

THE RUE AUX ENFANTS APPROACH IN LYON

The city of Lyon has 200 state schools and more than 150 childcare facilities for young children, as well as 160 private establishments (including nurseries and schools). For public establishments, this represents 36,000 pupils and 6,500 cradles.

The stated objectives are:

- To secure and calm the areas around schools in a sustainable manner, with a focus on pedestrianisation.
- To reclaim public space by meeting the expectations of children, parents of pupils and local residents.
- To provide places for all users to play and stroll.
- Improve pedestrian and cycle routes.
- Respond to long-term environmental, health and climate challenges.

In concrete terms, several methods used in the Rue des Enfants project allow for the reappropriation of public space for children, pedestrians and cyclists:

- Definitive closure of the street to general traffic: The pedestrian area is bounded at the entrance and exit (removable barriers) and accessible only to authorised persons (public services, security services, identified residents, etc.). The new public space thus offers a wide range of development possibilities.

- Reduction of car traffic: This can be a consequence of the modification of the traffic plan in the sector and/or the conversion of the street into a one-way street. The development makes it possible to calm the street (meeting zone) and to rework the square in front of the establishment to offer more waiting space for those accompanying people.

- Speed reduction: This is achieved by installing devices that force motorists to reduce their speed when approaching the establishment. These include speed bumps, continuous pavements at the entrance to the street and chicanes (street furniture or green space).

- Neutralisation of parking lanes: the removal of parallel or angled parking spaces allows the recovery of road space for the benefit of pedestrians. Thus, green strips and bicycle/cargo bike/scooter parking facilities are created.

Finally, invariants must be respected for the proper realisation of the project: The development must provide comfort, accessibility and safety for pedestrians and cyclists. The contribution of plants must be systematic and generous.

EVALUATION

At the beginning of 2023, as part of the European Reallocate project, the city of Lyon wanted to launch an evaluation process of the Rue des enfants projects to report on the effective use of the developed streets and the satisfaction of the beneficiaries.

The evaluation has the following objectives:

- Establish an evaluation process that can be replicated at all Children's Streets sites.
- Consider regular and precise monitoring of the projects.
- Initiate a dynamic with the other departments involved in the project to encourage the exchange of data and methods.
- Gather the opinions of the beneficiary public.
- Adapt the evaluation process according to the progress of the different stages.

For the first stage of the evaluation, it was necessary to choose six pilot sites to test the method and the evaluation grid developed during the year 2023. This choice depended on several criteria, which made it possible to draw up a list of six sites representative of the different types of development and located in different districts:

Arrondissement	Site	Rue	Typologie
3	Jules Verne	Jules Verne	Apaisement
5	Ferdinand Buisson	Favorite, Appian	Sécurisation
6	Louis Pradel	Viricel	Piétonnisation
7	Marc Bloch	Chevreul	Apaisement
8	Charles Péguy	Joseph Chappelle	Piétonnisation
9	Les Eglantines	Doyen Georges Chapas	Sécurisation

Once this first phase was completed, the evaluation method was refined to allow for a pre-development and post-development evaluation for a before/after comparison. In 2024, 18 new sites were evaluated (12 post-development sites and 6 pre-development sites).

METHOD AND TOOLS

Several tools are used to collect the data necessary for the proper conduct of the evaluation:

- Surveys for parents, children and school staff.
- Grid of quantitative indicators organised according to the following criteria: site characteristics, safety, comfort, mobility, reappropriation and environment.
- Mapping of the different sites on the Children's Street to locate and visualise the different categories of development. The areas allocated to the different types of use are also mapped and quantified (vehicle area, pedestrian area, cycle area, green area).
- Field observations of usage at the time of pupil dismissal, with an observation grid organised into 4 areas: general atmosphere, distribution in space, mobility and usage.
- Vehicle counts in the relevant sections of the street. To differentiate between the sites and enable a more detailed analysis, they are classified into different categories according to the facilities they have benefited from:

Typology	
Pedestrianisation	Closure of the section to traffic in the immediate vicinity of the main entrances to the establishments.
Pacification	Obligation to neutralise at least 50% of the linear car parking (excluding reserved spaces) on the section of street where the establishment is located and incorporating the following cumulative actions: – action to achieve a significant reduction in through traffic at the main entrances to the establishment. **AND** – action to drastically reduce speeds at the main entrances to the establishment.
Securisation	Project integrating at least one of the following three dimensions: – action to achieve a significant reduction in through traffic at the main entrances to the establishment. **OR** – action to drastically reduce speeds at the main entrances to the establishment. **OR** – action to create or extend a continuous and safe pedestrian route along the stretch of road on which the establishment is located.
Extent of development	
Important	Total renovation of the street, including major de-sealing and revegetation, replacement of the paving, pedestrian walkways through planted areas, play equipment, cycle path, etc.
Intermediate	Implementation of new facilities with road modifications: continuous footpath, chicanes, speed bumps, widening of footpath, planting of vegetation, etc.
Light	Change in the status of a street without modification of the road surface: installation of bollards, removal of parking spaces, partial planting of vegetation

CHOICE OF SITES 2024

As the evaluation method was tested at 6 sites during phase 1, the method for selecting the sites for evaluation as children's streets is different for phase 2. In order to launch a long-term dynamic, a selection based on a time criterion has been favoured. It is proposed to leave a period of 2 years between the pre-development and post-development evaluation. This period of time already allows for a development operation to be completed in all its aspects (e.g. vegetation planted, artistic mural created, decorative lighting masts installed, reappropriation of the site over a significant period of time, etc.). Based on this model, and setting aside minor children's street operations (e.g. projects with just bike hoops, parking space neutralisations), a multi-year programme of evaluations is emerging. For 2024, the sites selected are as follows:

Pedestrianisation Pacification Securisation

District	Site	Street	Temporality
1	Robert Doisneau	Sergent Blandan	Pre-development
1	Victor Hugo	Ornano, Flesselles	Pre-development
2	Sacré Coeur	Boissac	**Post-development**
3	Harmonie Rebatel	Harmonie	**Post-development**
3	Meynis	Meynis	**Post-development**
3	Léon Jouhaux	Léon Jouhaux	**Post-development**
3	St Sacrement – Dolet	Etienne Dolet	Pre-development
4	Jean de la Fontaine	Dangon	**Post-development**
5	Jean Gerson	François Vernay	**Post-development**
5	Ste Irénée	des Anges	Pre-development
7	Gilbert Dru	St Michel	**Post-development**
7	Marcel Pagnol	Lieutenant Colonel Girard	**Post-development**
8	Edouard Herriot	Bataille	**Post-development**
8	Anne Sylvestre	Garon Duret	**Post-development**
8	Pierre Termier	des Alouettes	**Post-development**
8	Jean Giono	Stéphane Coignet	Pre-development
9	Gare d'eau	de St Cyr	**Post-development**

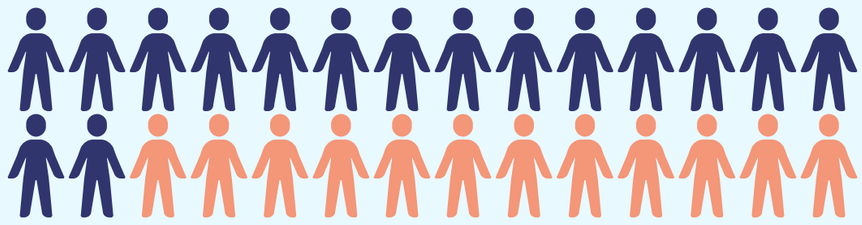
OVERALL SUMMARY POST-DEVELOPMENT

Children's Streets

CALMING AND RECLAIMING THE PUBLIC SPACE FOR A CHILD-FRIENDLY CITY

18 SITES EVALUATED, 32 ESTABLISHMENTS AND 7000 PUPILS CONCERNED

An extensive questionnaire-based survey:
3000 responses from children
1100 from parents
90 from educational staff



PARENTS

85% Find the street more **PLEASANT** since the developments

77% Find the street more **SECURE** since the developments

CHILDREN

71% Say they **APPRECIATE** or **LOVE** their street

71% Say they prefer **TREES AND PLANTS**, followed by **PLAYGROUNDS (63%)**

81% Say they come to school **ON FOOT**. The **CAR** remains the second most popular mode of transport with **27%***.

*Several modes of transport possible per child

EDUCATIONAL STAFF

84% Find the street more **PLEASANT** since the developments

77% Find the street more **SECURE** since the developments

35,000 M² OF PUBLIC SPACE INVOLVED: DISTRIBUTION OF SPACE

10 **pedestrianized** sites

5 **pacified** sites

3 **secure** sites

	Before		After
Area allocated to pedestrians*	**45,7%**	**+27,8%**	**73,5%**
Area allocated to vehicles	**52,3%**	**-31,1%**	**21,2%**
Green space	**1,8%**	**+10,4%**	**12,2%**
Area allocated to bicycles	**0,2%**	**+2,8%**	**3%**

*Meeting places are both vehicle and pedestrian areas. [Article R-110.2 of the highway code: pedestrians are allowed to walk on the road and have priority over vehicles]

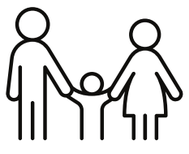
- 181 trees including **156 planted**
- 143 bicycle hoops, of which **84 have been added**
- **9 artistic frescoes produced**
- **38 lights decorated by the children**
- Traffic reduced by **62%** (13,759 fewer vehicles per day across all sites)*

*For sites with data available before and after development

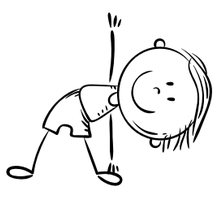
REALLOCATE VILLE DE LYON

EN BREF...

The Children's Street project is, as far as the sites evaluated are concerned, highly appreciated by parents, children and school staff. The vast majority of opinions are positive regarding overall safety and overall satisfaction with the street.



- The comparison made by parents between undeveloped streets and developed streets shows an average increase of 17% in satisfaction for all the items proposed, reaching +40% for vegetation and child autonomy.
- In general, the quality of the pedestrian route seems to be the most important characteristic for parents for high satisfaction. The autonomy of their child(ren) and their good understanding of the street are also two very important elements.



- Children are also more satisfied with the developed sites, with +20% positive opinions on average. A large majority of them prefer trees and plants in their street. These elements recur in their drawings, as do games: hopscotch and swings mainly.

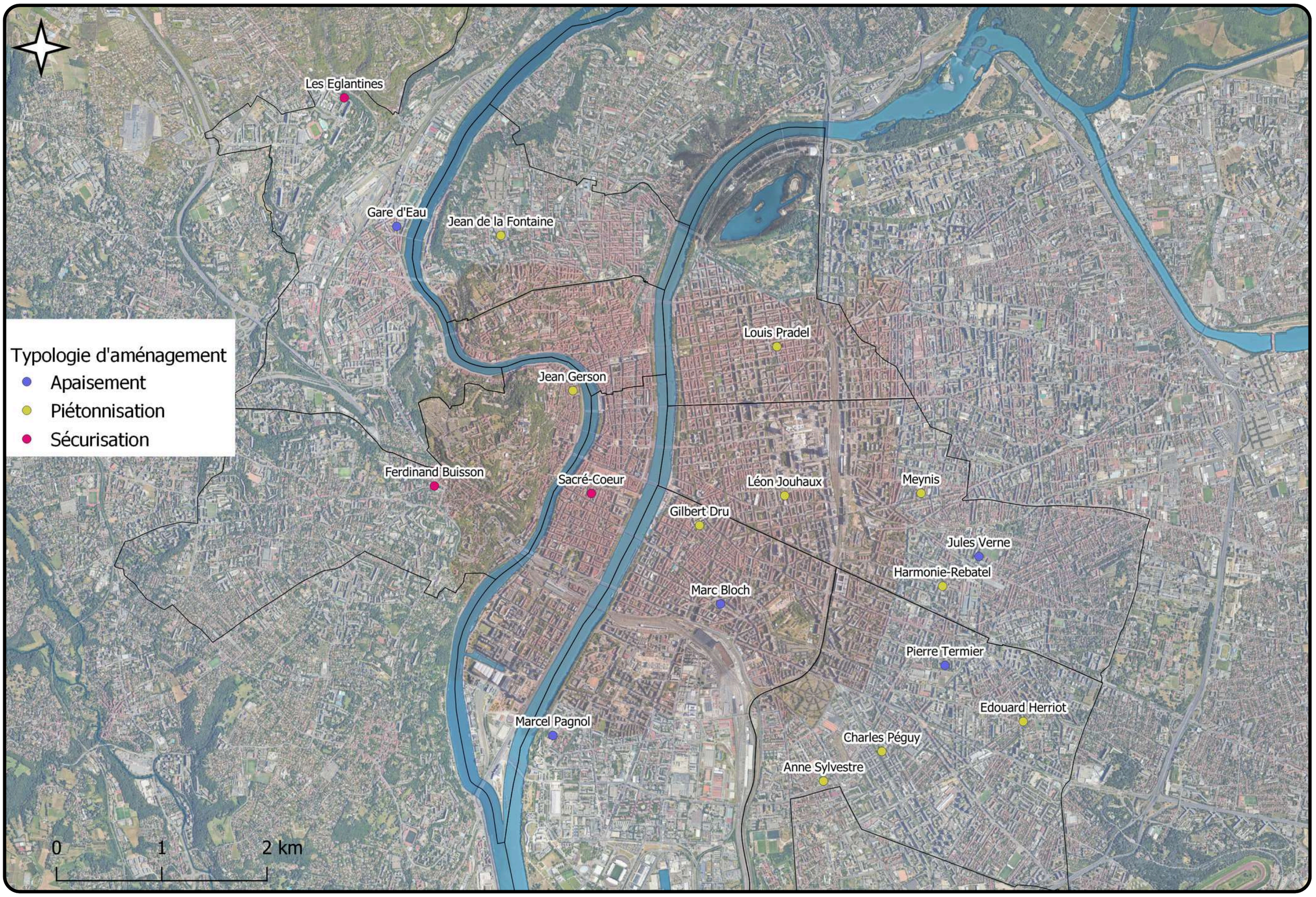
- Pedestrianized sites are the most popular (87%), whether they have undergone major development or simply been closed to traffic. Reappropriation is very good, provided that pedestrians are not guided along their route by markers specific to busy streets (sidewalk, pedestrian crossing, etc.).

- The traffic-calmed sites are also appreciated (81%), but the sharing of space is a problem for almost one in two parents. Meeting zones require qualitative development if there is heavy traffic in the zone, with particular attention paid to the sharing of space between the various users and good signage. The main aim is to anticipate the sharp increase in user density over a short period at the start and end of the school day, particularly for schools with a high student population and/or for narrow streets.
- In all cases, the adjustments and/or changes to traffic plans make it possible to significantly reduce the number of vehicles per day (down 66% on average), as well as vehicle speeds (down 18% on average).

- Finally, major developments systematically improve parents' satisfaction with concrete aspects of the developments (pedestrian routes, vegetation, etc.), but do not guarantee a good reappropriation of the space and a fluidity of the different uses.

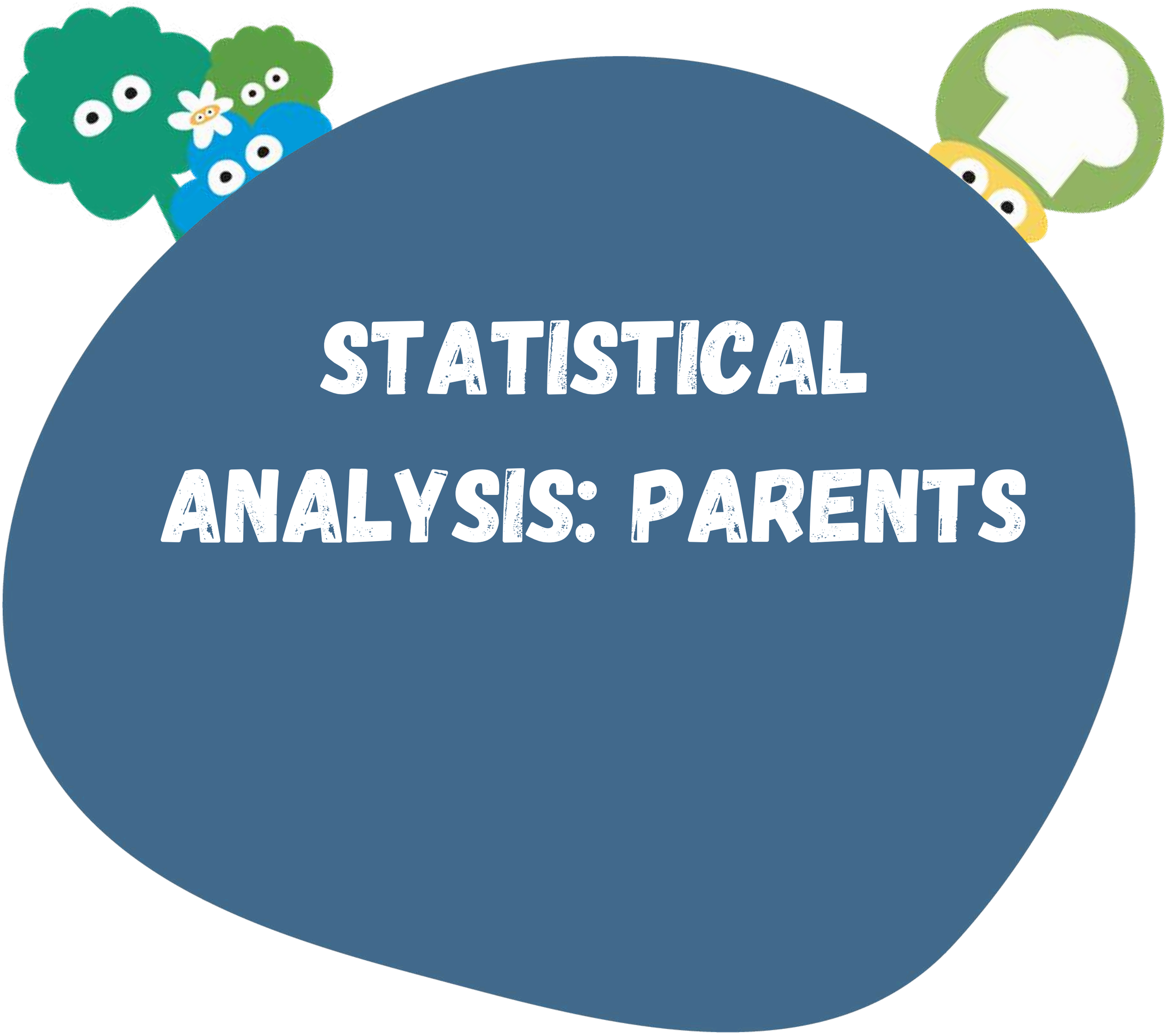
- With regard to health and air quality, the overall trend in Lyon has been improving for several years. Air quality modeling carried out by ATMO shows a decrease in the NO2 level around schools that have benefited from “Rues aux Enfants” (child-friendly streets) (-30%), without it being possible to precisely measure the impact of these developments on air quality.

LOCATION OF THE EVALUATED SITES



CHARACTERISTICS OF THE SITES EVALUATED

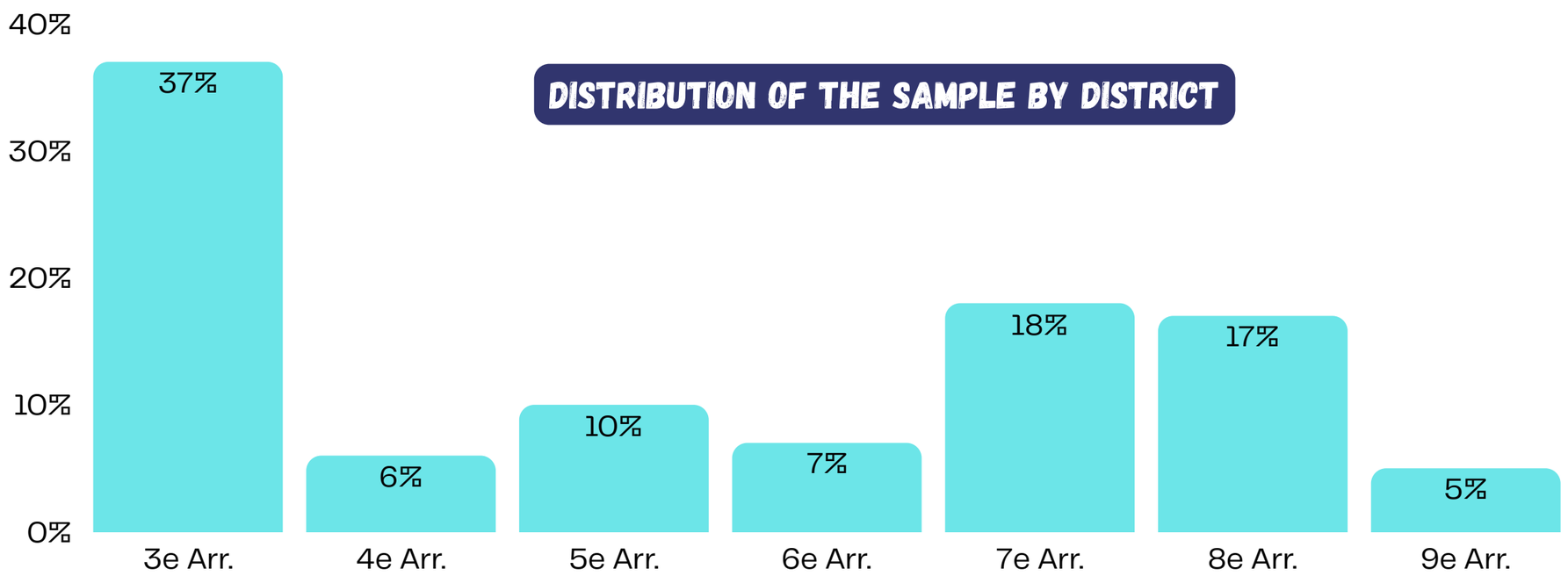
Site	Distr	Street	Typology	Area (m^2)	Total cost (€)
Sacre Cœur	2	Rue Boissac	Securisation	1080	38 000
Meynis	3	Rue Meynis	Pedestrianisation	1212	3 150
Leon Jouhaux	3	Rue Léon Jouhaux	Pedestrianisation	2502	332 000
Harmonie	3	Rue de l'Harmonie	Pedestrianisation	759	155 000
Jules Verne	3	Rue Jules Verne	Pacification	3059	292 000
Jean de la Fontaine	4	Rue Dangon	Pedestrianisation	990	7 100
Ferdinand Buisson	5	Rue de la Favorite, Rue Appian	Securisation	3515	227 000
Jean Gerson	5	Rue François Vernay	Pedestrianisation	964	98 000
Louis Pradel	6	Rue Viricel	Pedestrianisation	1428	497 000
Marc Bloch	7	Rue Chevreul	Pacification	1812	422 000
Gilbert Dru	7	Rue saint Michel	Pedestrianisation	872	306 000
Marcel Pagnol	7	Rue Lieutenant Colonel Girard	Pacification	3167	513 000
Charles Peguy	8	Rue Joseph Chapelle	Pedestrianisation	1056	327 000
Edouard Herriot	8	Rue Bataille	Pedestrianisation	1041	10 000
Anne Sylvestre	8	Rue Julien Duret	Pedestrianisation	2093	257 000
Pierre Termier	8	Rue des Alouettes	Pacification	1518	575 000
Les Eglantines	9	Rue du Doyen Georges Chapas	Securisation	5775	252 000
Gare d'Eau	9	Rue de St Cyr	Pacification	1786	233 000

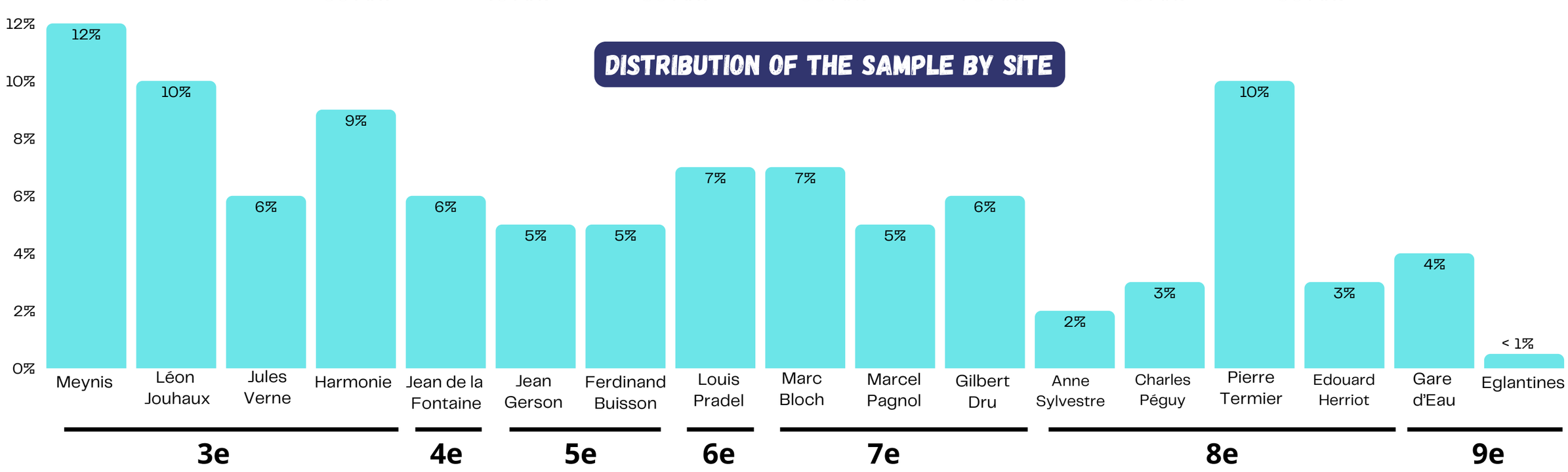


STATISTICAL ANALYSIS: PARENTS

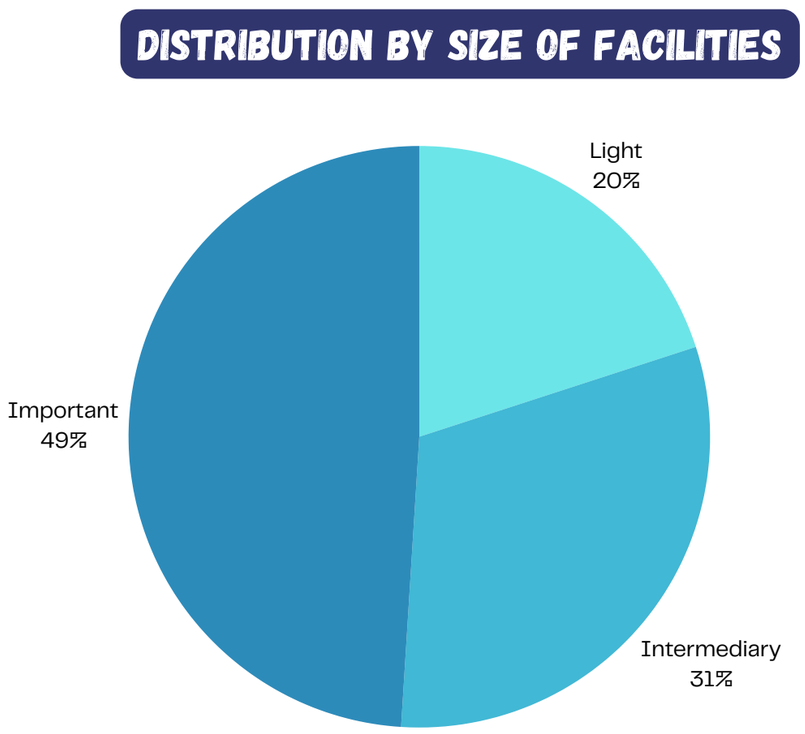
PARENTS

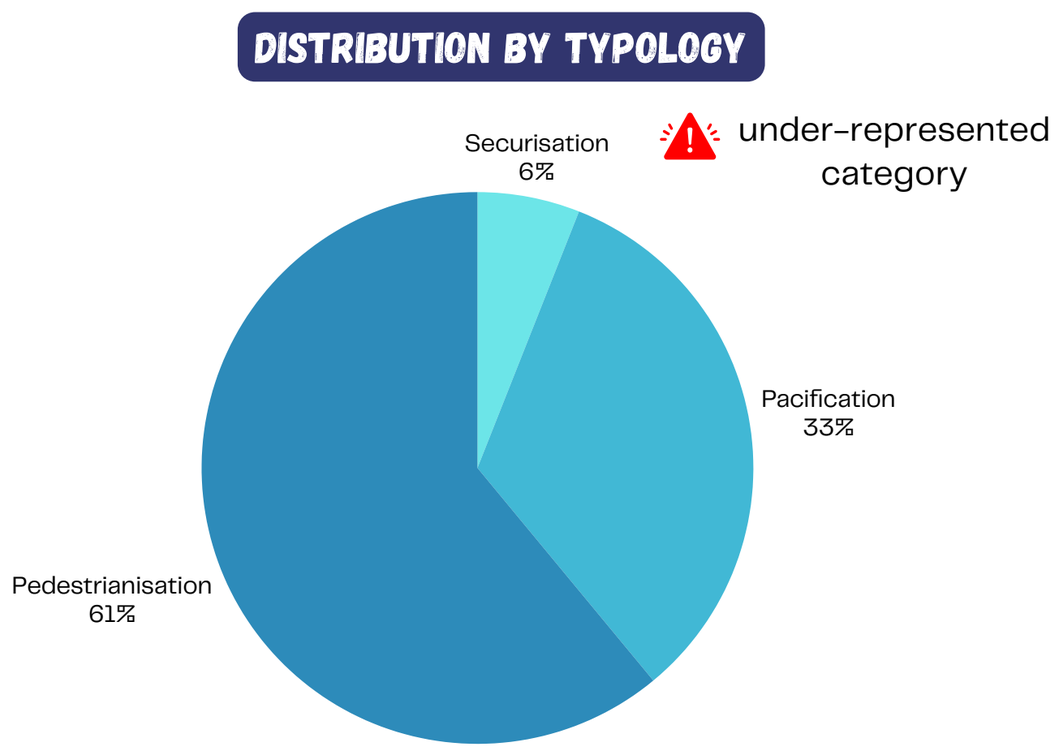
CHARACTERISTICS OF THE SAMPLE (111 RESPONSES)





- The 3rd district is over-represented, with a high response rate for the Meynis, Léon Jouhaux and Harmonie Rebatel sites. The Pierre Termier site is also well represented in the 8th arrondissement. The Eglantines site has a very low number of pupils, with only 5 parents responding to the survey.
- The average response rate is 16%, with significant disparities between sites, depending on whether they are classified as QPV* or REP**.





- The safety typology is very much under-represented, with two secure sites: Eglantines and Ferdinand Buisson, with a total of 66 responses from parents. The safety reviews mainly concern the Ferdinand Buisson site, which has benefited from major improvements with planting, a change of paving and the creation of a cycle path. For the satisfaction comparisons in the typology category, it should be borne in mind that the safety figures mainly relate to this site.
- The Sacré Cœur site was not included in the questionnaire survey, but will be used in the analysis of field observations and for quantitative data specific to the developments carried out.

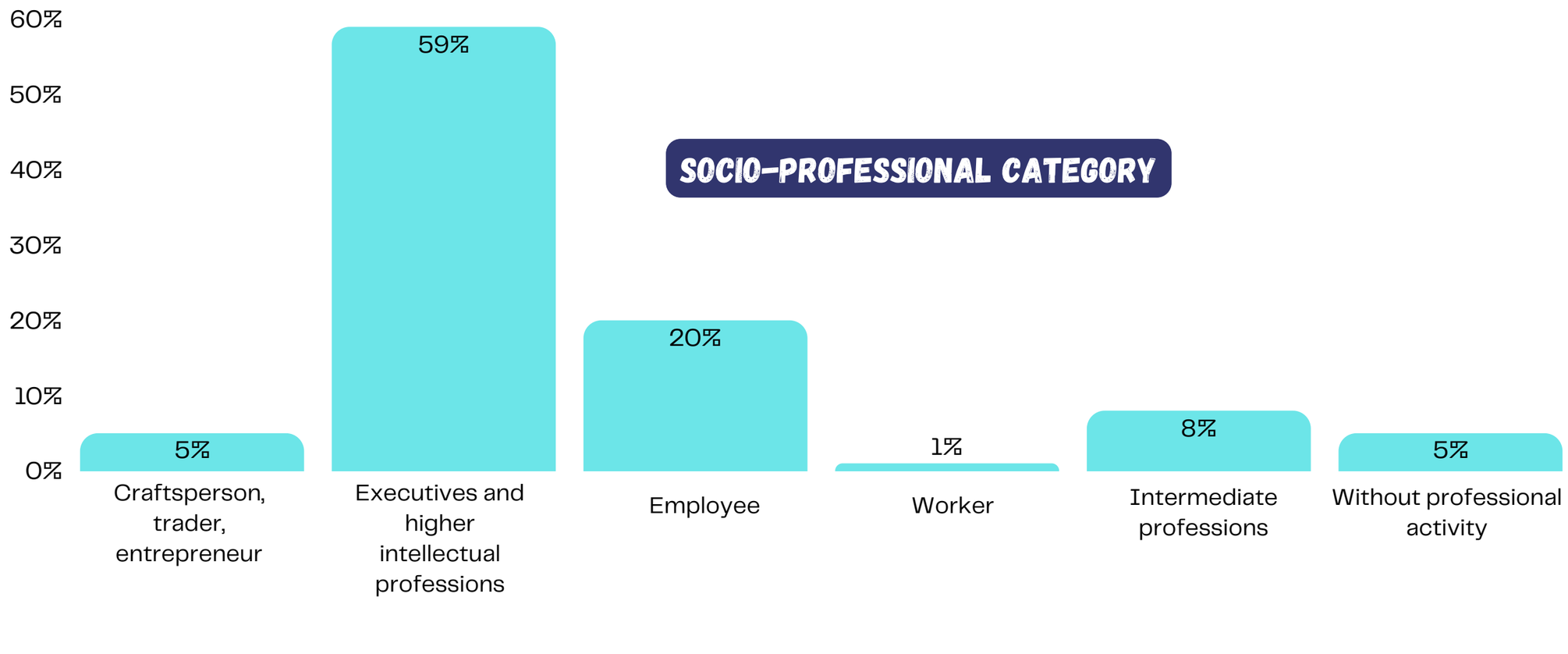
*The priority neighbourhoods of urban policy are areas of intervention by the State and local authorities identified by a single criterion: income per capita. The objective of this classification is to reduce the development gaps between disadvantaged neighbourhoods and their urban units. **Priority neighbourhoods of urban policy | Insee.**

** The priority education networks aim to reduce the achievement gap between pupils in priority education and those who are not. REP+ schools are for isolated neighbourhoods or sectors with the highest concentrations of social difficulties that have a strong impact on academic success, and REP schools are more socially mixed but face more significant social difficulties than secondary schools and schools outside of priority education. eduscol | **Ministry of National Education, Higher Education and Research | Dgesco**

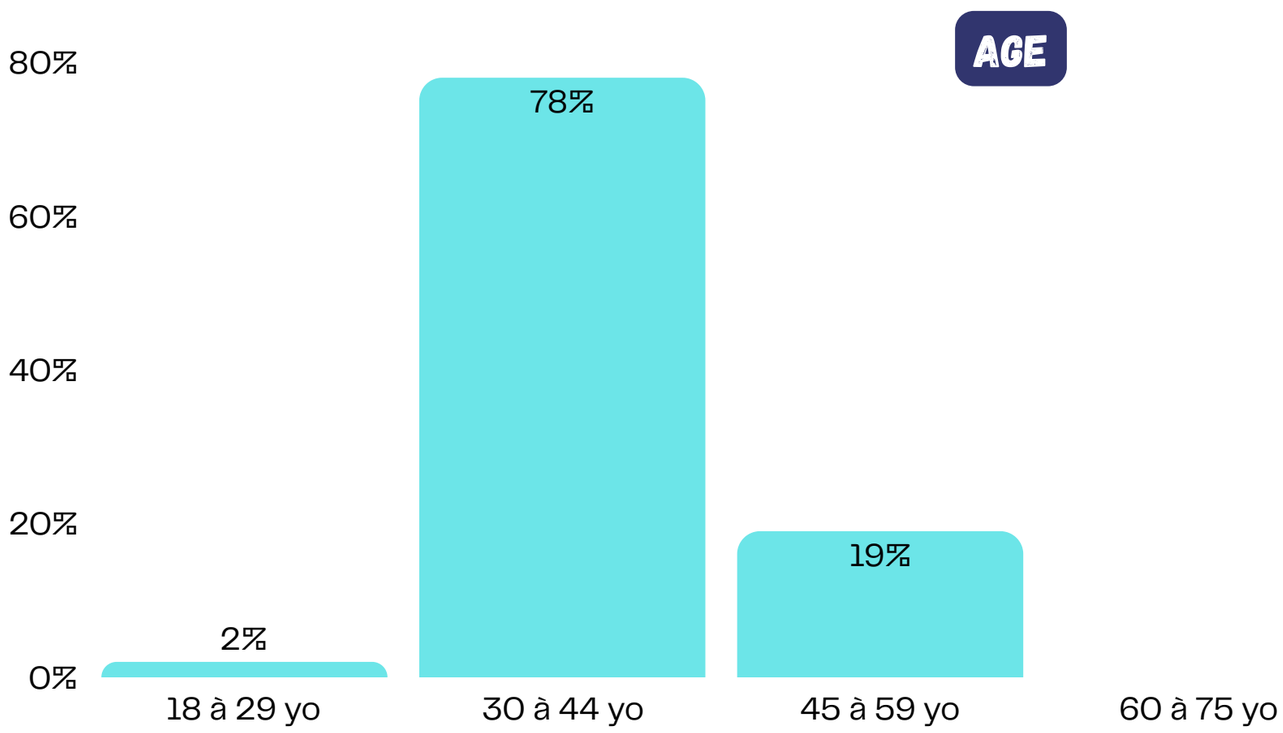
PARENTS

CHARACTERISTICS OF THE SAMPLE (1111 RESPONSES)

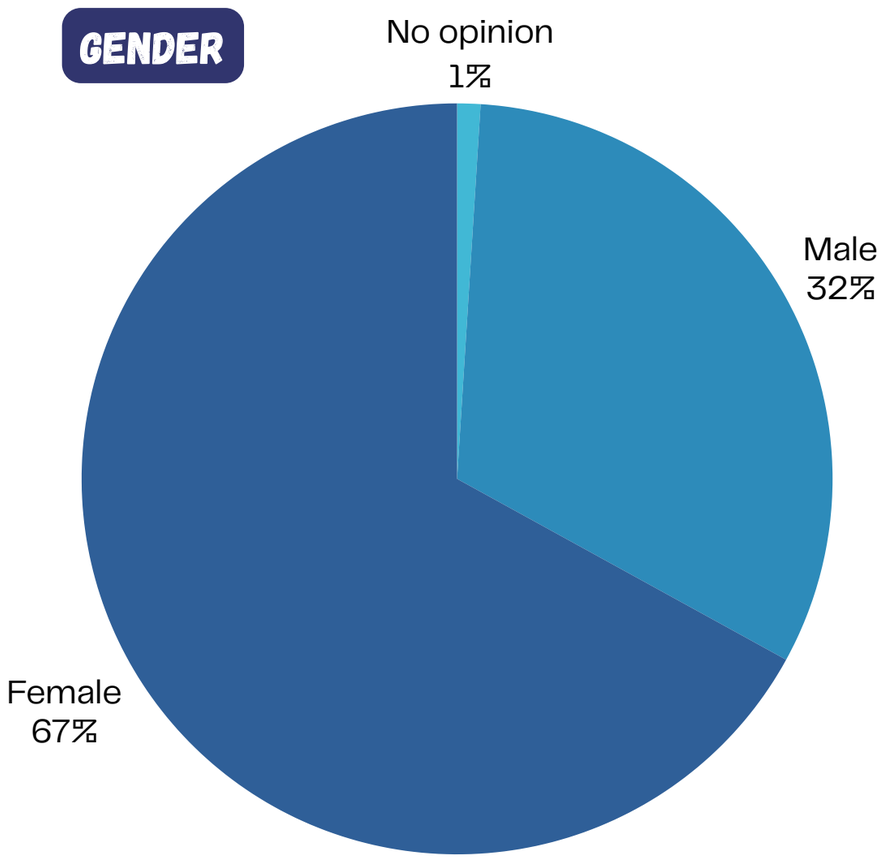
SOCIO-PROFESSIONAL CATEGORY



AGE



GENDER

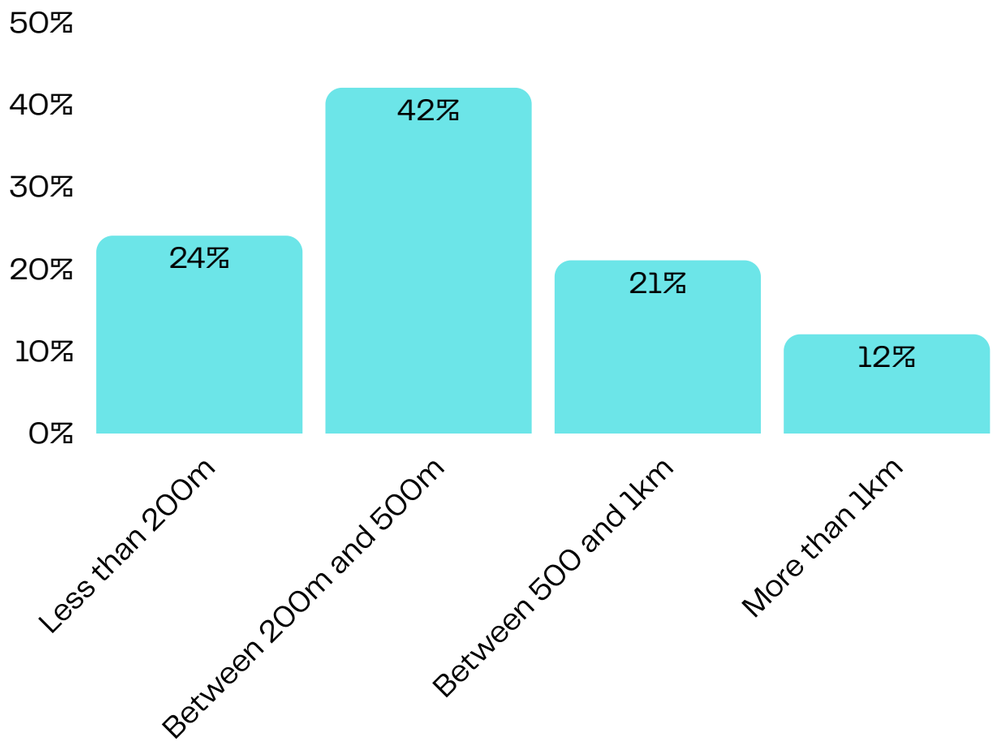


- The majority of respondents are women, managers and professionals aged between 30 and 44.

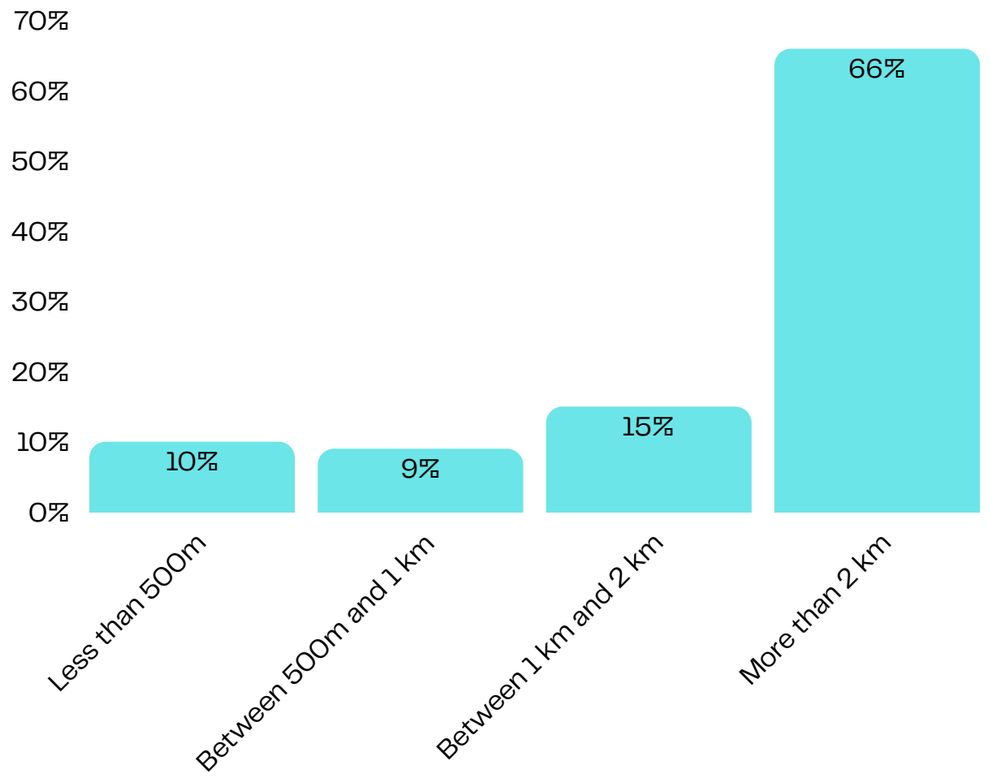
PARENTS

MOBILITY - PARENTS

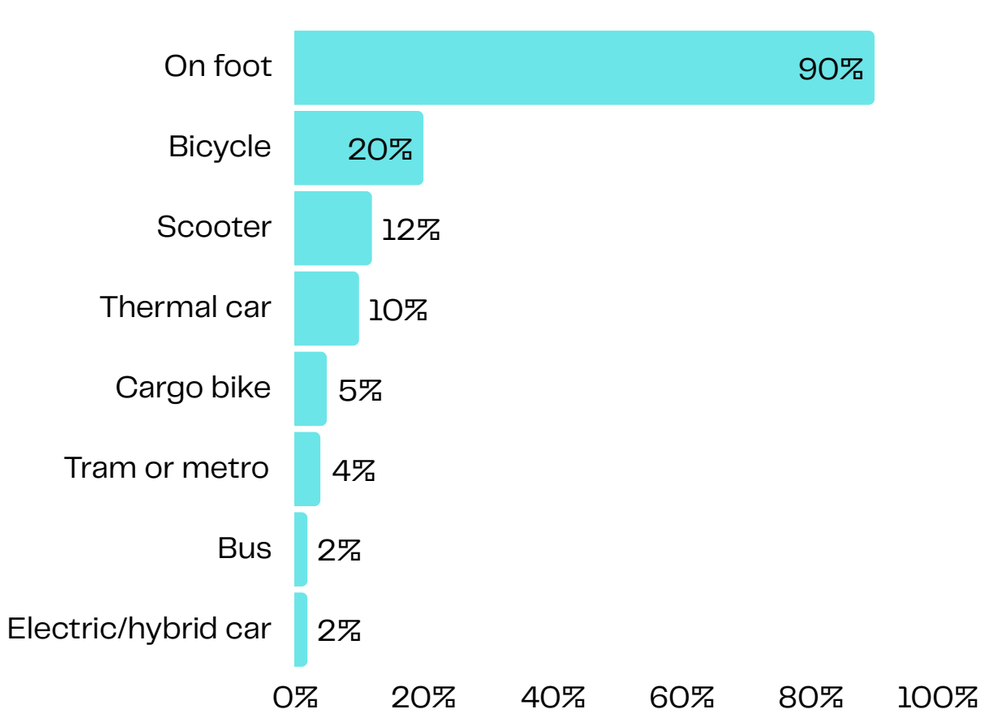
DISTANCE BETWEEN SCHOOL AND HOME



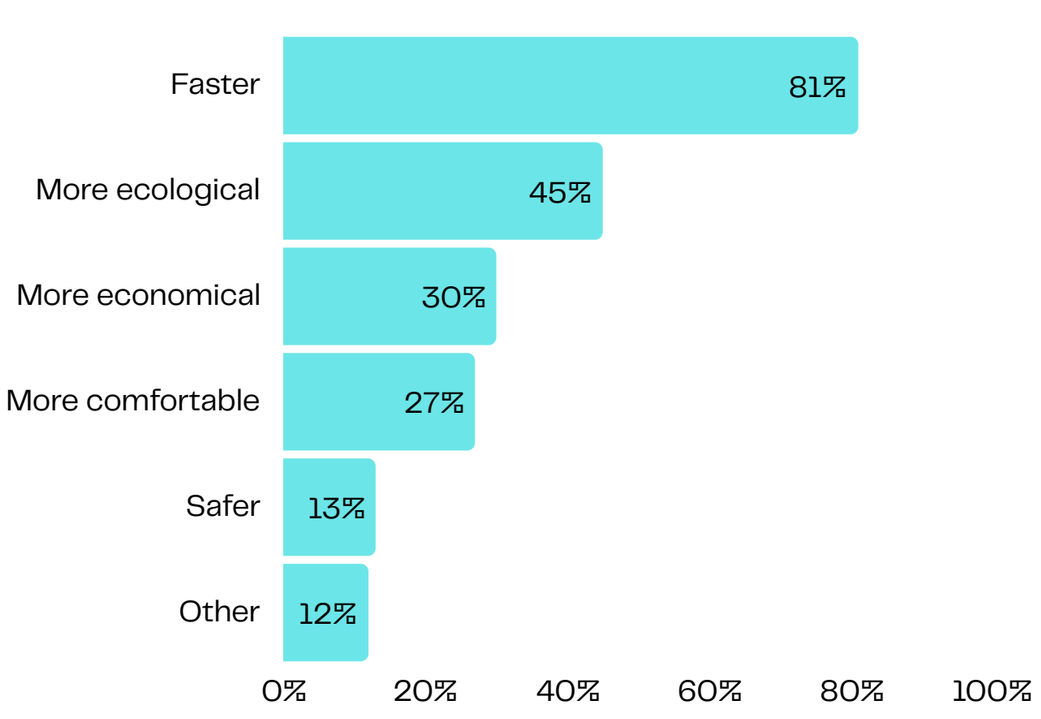
DISTANCE BETWEEN SCHOOL AND WORK



MODE OF TRANSPORT

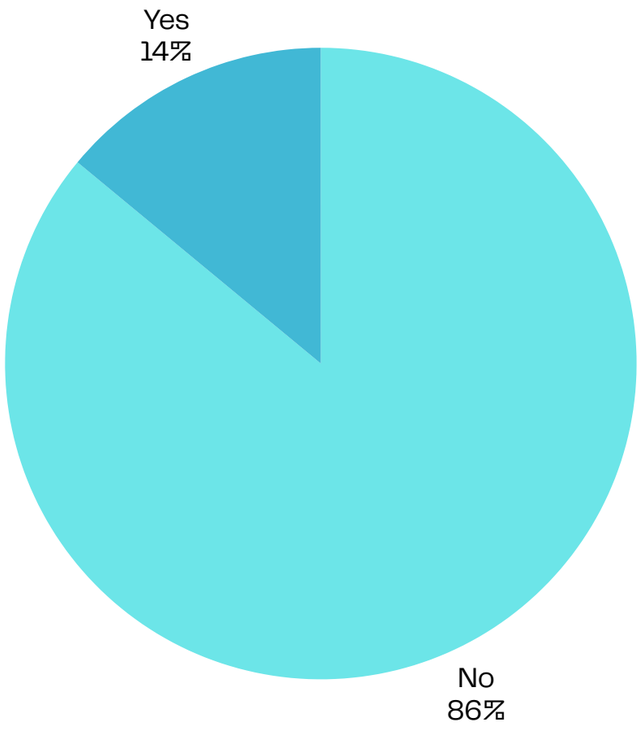


REASONS FOR CHOICE OF MODE OF TRANSPORT



- The majority of parents live between 200m and 500m from the school, and more than 60% live more than 2km from their place of work.
- The vast majority of pupils travel to school on foot. Cycling comes in second place with 20%. It should be noted that several modes of transport may be used during the week.
- The main reason given for the mode of transport is speed (81%).

CHILD TRAVELLING TO SCHOOL ALONE



- On average, very few children walk to school alone, but the older the child, the more likely they are to walk to school alone.
- One in two pupils in the final year of primary school walk to school alone, compared with one in four in the penultimate year.

PARENTS

EXTENT OF FACILITIES X MODE OF TRANSPORT

Mode of transport	Extent of facilities		
	Light	Intermediary	Important
On foot	94%	92%	89%
Bus	2%	4%	1%
Tram or metro	0%	4%	5%
Scooter	12%	13%	12%
Bicycle	21%	20%	20%
Carbo bike	5%	6%	4%
Electric/hybrid car	2%	1%	2%
Thermal car	10%	4%	7%

- The scale of the improvements does not seem to influence the mode of transport, with relatively similar percentages between the different categories. A locally improved children's street does not seem to be enough to change travel habits, although it should be noted that the vast majority of parents already walk to school.

- Only 3% of respondents use only the car for their home/school trips. This figure rises to 8% if we include those who favour the car as a primary mode of transport but may use another mode during the week.

- The reasons given for favouring the car are mostly related to the workplace being far from the school and home. These constraints do not appear to be mitigated by micro-local developments such as Rue des Enfants.

PARENTS

MODE OF TRANSPORT SCHOOL X DISTANCE FROM HOME

	Distance between school and home			
Mode of transport	**Less than 200m**	**Between 200m and 500m**	**Between 500m and 1km**	**More than 1km**
On foot	100%	97%	91%	49%
Bus	1%	1%	3%	6%
Tram or metro	1%	1%	3%	22%
Scooter	5%	12%	21%	13%
Bicycle	9%	20%	30%	28%
Carbo bike	3%	3%	4%	13%
Electric/hybrid car	1%	0%	1%	10%
Thermal car	1%	4%	6%	25%
Distribution per category	24%	42%	21%	12%

- Walking is favoured more than 90% up to a distance of 1 km between the school and home.
- Cycling and scooters can be an alternative from several hundred metres.
- The most frequent use is for distances between 500 and 1000 metres.
- Heavy modes of transport or private cars are used more for distances of one kilometre or more.
- It should be noted that the majority of individuals live between 200 and 500 metres from the school (42%).

PARENTS

MODE DE TRANSPORT ÉCOLE X DISTANCE LIEU DE TRAVAIL

	Distance between school and place of work			
Mode of transport	**Less than 500m**	**Between 500m and 1km**	**Between 1km and 2km**	**More than 2km**
On foot	92%	93%	94%	90%
Bus	3%	2%	2%	2%
Tram or metro	5%	2%	5%	3%
Scooter	14%	9%	11%	13%
Bicycle	16%	15%	25%	21%
Carbo bike	2%	3%	3%	6%
Electric/hybrid car	2%	0%	2%	2%
Thermal car	4%	6%	5%	7%
Distribution per category	10%	9%	15%	66%

- The distance between the school and the workplace seems to be less decisive with regard to the mode of transport used by parents to get to school. The variations are less significant from one distance category to another and do not show an increasing or decreasing trend according to distance.

PARENTS

MODE OF TRANSPORT X REASONS MODE OF TRANSPORT

	Why do you favour this mode of transport?				
Mode of transport	**Faster**	**More ecological**	**More economical**	**More comfortable**	**Safer**
On foot	**82%**	46%	31%	28%	13%
Bus	**83%**	**83%**	**58%**	25%	**25%**
Tram or metro	**74%**	48%	42%	26%	19%
Scooter	**79%**	**63%**	41%	37%	13%
Bicycle	**88%**	**70%**	43%	33%	15%
Carbo bike	**93%**	**73%**	39%	30%	18%
Electric/hybrid car	**81%**	33%	24%	48%	14%
Thermal car	**68%**	23%	18%	25%	17%
Moyenne	**81%**	45%	30%	27%	13%

- The two main factors determining the mode of transport seem to be speed and environmental friendliness, with 81% and 45% of parents respectively choosing these reasons.

- For the bus, bicycle, scooter and cargo bike, these two criteria are the most frequently cited. For the other modes of transport, speed is by far the most popular.

PARENTS

OVERALL SATISFACTION WITH PUBLIC SPACE AND USES

Satisfaction is analysed in two categories:

- Global and conceptual elements such as the pleasantness of the street, the sharing of space, the understanding of the street, etc.
- Concrete design elements such as vegetation, bicycle parking, etc.

The following analyses will need to be consolidated over the years as the number of sites evaluated increases.

GLOBAL ELEMENTS

Global elements	% positive review (very positive)
More pleasant street	**85%** (45%)
Safer street	**77%** (38%)
Easy to understand the status of the street (pedestrianisation, shared…)	**76%** (39%)
The facilities allow your child to be more independent	**68%** (9%)
Sharing of space enjoyable and safe	**61%** (19%)

CONCRETE DEVELOPMENT ELEMENTS

Concrete elements	**% positive review** (very positive)
Pedestrian walkway	**82%** (35%)
Cleanliness	**66%** (14%)
Bicycle parking	**64%** (16%)
Vegetation	**60%** (9%)
Scooter parking	**45%** (10%)
Shaded areas	**43%** (6%)
Number of seats	**30%** (4%)

PARENTS

SATISFACTION X TYPOLOGIE OF DEVELOPMENT

GLOBAL ELEMENTS OF DEVELOPEMENTS X TYPOLOGIE

Global elements	Securisation	Pacification	Pedestrianisation
Safer street	51%	74%	82%
More pleasant street	70%	84%	86%
Sharing of space enjoyable and safe	37%	53%	77%
Easy to understand the status of the street (pedestrianisation, shared…)	59%	64%	83%
Child more independent	34%	58%	76%
Average	50%	67%	79%

+17% +12%

- Overall satisfaction with the different global elements increases according to the type of development, reaching almost 80% for pedestrianisation.
- The most recurrent point of vigilance concerns the sharing of space between the different modes of transport.
- The autonomy of the child is also pointed out, especially for ‘calmed’ sites, which are most often in meeting areas and are supposed to allow pedestrians to move more easily in the street.

CONCRETE DEVELOPMENT ELEMENTS

- The 'pacification’ category stands out, mainly because a number of pedestrianised sites have not benefited from qualitative improvements but simply from street closures with little financial investment. The typology itself does not seem to have a fundamental impact on satisfaction with the concrete elements of the development.

Elements concrets	Securisation	Pacification	Pedestrianisation
Vegetation	56%	70%	55%
Shaded areas	31%	53%	39%
Bicycle parking	77%	68%	62%
Number of seets	20%	41%	24%
Cleanliness	53%	75%	63%
Pedestrian walkway	70%	80%	84%
Scooter parking	55%	50%	41%
Average	52%	62%	53%

+10% -9%

PARENTS

SATISFACTION X EXTENT OF DEVELOPMENT

GLBOAL ELEMENTS X EXTENT

Global element	Light	Intermediary	Important
Safer street	78%	76%	78%
More pleasant street	81%	82%	88%
Sharing of space enjoyable and safe	59%	64%	58%
Easy to understand the status of the street (pedestrianisation, shared…)	78%	76%	75%
Child more independent	72%	67%	67%
Moyenne	74%	73%	73%

-1% =

- The extent of the facilities seems less decisive than the type of facilities with regard to overall parental satisfaction: it remains at around 73%.
- Parents still point to the sharing of space, but in a similar way regardless of the extent of the improvements.
- It should be noted that 50% of parents are very satisfied with the overall pleasantness of the street when there have been major improvements, with a gradual increase depending on the extent of the improvements: 35% and 42% respectively for 'minor' and 'intermediate'.

CONCRETE DEVELOPMENT ELEMENTS X EXTENT

- The scale of the development has a slight impact on satisfaction with the concrete elements of the development. The quality of these elements depends directly on the financial resources allocated to the redevelopment, resources which largely determine the scale of the development.
- The typology does not necessarily depend on financial resources and focuses more on user behaviour and the reappropriation of space: a pedestrianised street with light or intermediate facilities will tend to have a good level of satisfaction with the overall elements (understanding of the street, sharing of space, etc.) and a lower level of satisfaction with the concrete elements (vegetation, seating, etc.).
- From the point of view of the Rues des enfants and the associated objectives, the typology seems more decisive than the scale of the developments, with pedestrianisation to be favoured, whether qualitative or not.

Elements concrets	Light	Intermediary	Important
Vegetation	40%	59%	69%
Shaded areas	33%	39%	50%
Bicycle parking	55%	67%	67%
Number of seats	12%	30%	37%
Cleanliness	63%	69%	66%
Pedestrian walkway	76%	86%	82%
Scooter parking	29%	45%	51%
Average	41%	53%	58%

+12% +5%

PARENTS

DECISIVE FACTORS FOR OVERALL STREET SATISFACTION

Below is a table providing food for thought regarding the most decisive factors for parents' overall satisfaction with a particular road.

Only parents who answered 'totally agree' about the overall satisfaction of the street are taken into account, giving a total of 495 parents with a very positive opinion.

This high overall satisfaction is then cross-referenced with the characteristics of the street, while keeping only the positive opinions about these characteristics.
An opinion deemed positive corresponds to the combination of the following terms:

- Strongly agree/agree
- Completely suitable/suitable

We then determine in which cases a positive opinion on a street feature is coupled with high satisfaction with the street as a whole. The items with the highest percentages are more likely to be decisive for parents' overall satisfaction with the street.

Other factors not included in the questionnaire may influence overall satisfaction. The aim here is not to draw up an exhaustive list of influencing factors but to compare the various factors in terms of their respective impact on satisfaction.

Item	% of respondents with a positive opinion on the item in question **AND** a very positive opinion on overall satisfaction with the street	
Pedestrian walkway	94%	
Child more independant	91%	+ decisive
Easy to understand the status of the street (pedestrianisation, shared...)	90%	
Sharing of space enjoyable and safe	80%	
Cleanliness	79%	
Bicycle parking	72%	
Vegetation	71%	
Scooter parking	52%	- decisive
Shaded areas	51%	
Number of seats	37%	

PARENTS

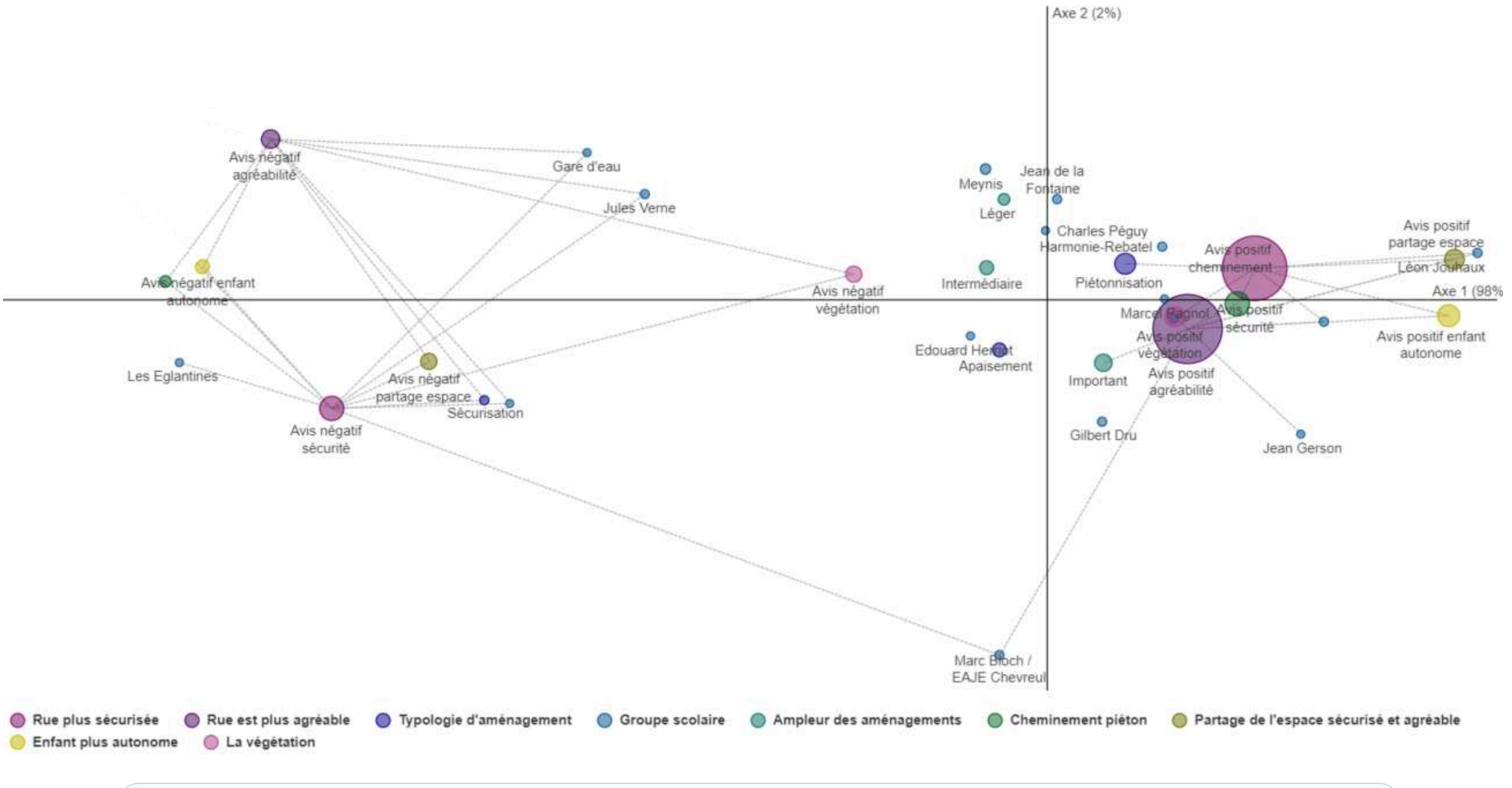
ANALYSE FACTORIELLE DES CORRESPONDANCES

- Factorial correspondence analysis is a statistical analysis method that highlights over- or under-represented associations.

- The size of the circles corresponds to the number of parents involved. Over-represented pairs are shown with a dotted link. The sites on the right of the graph are the most popular, those on the left the least popular. Axis 2 provides very little explanation for this dataset (2% of the information). The sites in the centre correspond to the average and therefore have no links of over-representation.

- **Example of interpretation:** The Marc Bloch school group is particularly associated with a positive opinion regarding the overall pleasantness of the street, but a more negative opinion regarding safety.
- An overrepresentation link does not necessarily mean that the majority of parents are dissatisfied with safety at the Marc Bloch site, but rather that more negative opinions are observed in relation to the weighted average.

- This graph, which is relatively complex to read, allows for an overall representation of all the sites evaluated and puts them into perspective with each other.



Some links of over-representation to note :

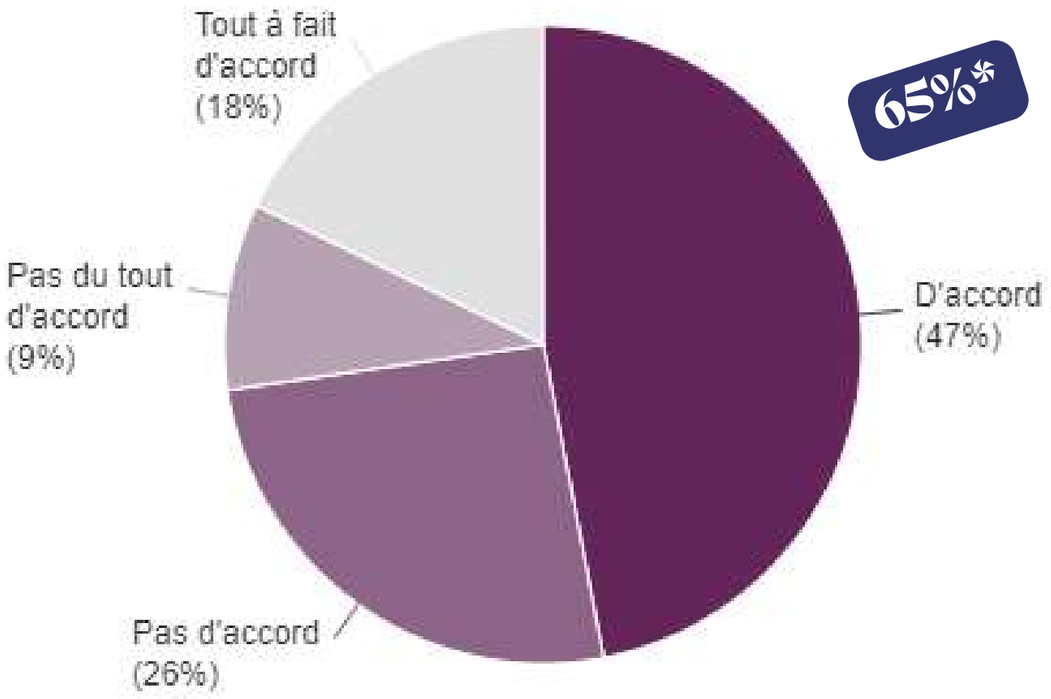
- Léon Jouhaux ⟶ Positive opinion on pedestrian route and positive opinion on pleasantness of the street
- Jean Gerson ⟶ Positive opinion on pleasantness of the street
- Positive opinion child autonomous ⟶ Positive opinion on pleasantness of the street and positive opinion on pedestrian walkway

- Negative opinion sharing of space ⟶ Negative opinion safety and pleasantness of the street
- Gare d'Eau et Jules Verne ⟶ Negative opinion safety and pleasantness of the street

Once again, for the Gare d'Eau and Jules Verne sites, a majority of parents remain satisfied, but to a lesser extent compared with the other sites.

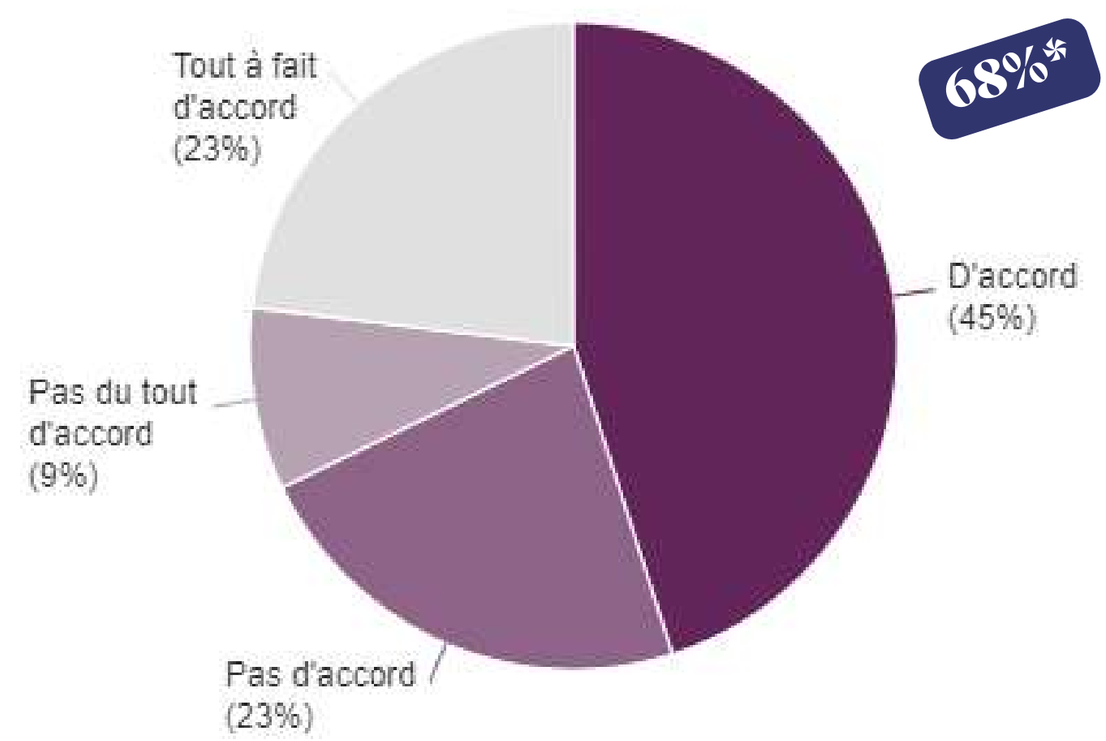
ARTISTIC (FOR 4 SITES CONCERNED AND 264 RESPONSES)

THE ARTISTIC CREATION IN THE STREET IS CLEARLY VISIBLE



65%*

ARTISTIC REALISATION IMPROVES THE OVERALL AMBIENCE OF THE STREET



68%*

*TOTAL POSITIVE REVIEWS

Ecole Marcel Pagnol (7) : artiste Ërell

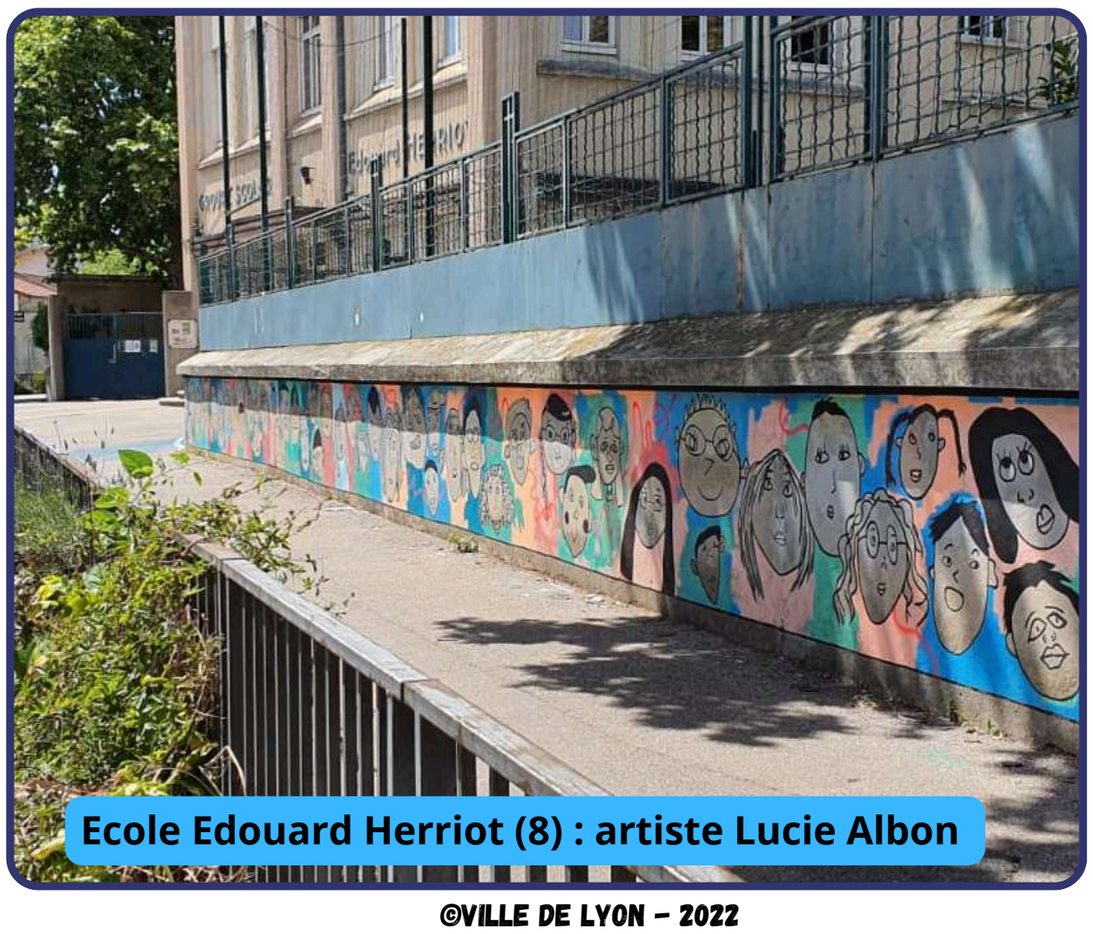
©MURIEL CHAULET, VILLE DE LYON – 2023

Ecole Gare d'Eau (9) : artiste Caroline Marcellier

©VILLE DE LYON – 2022

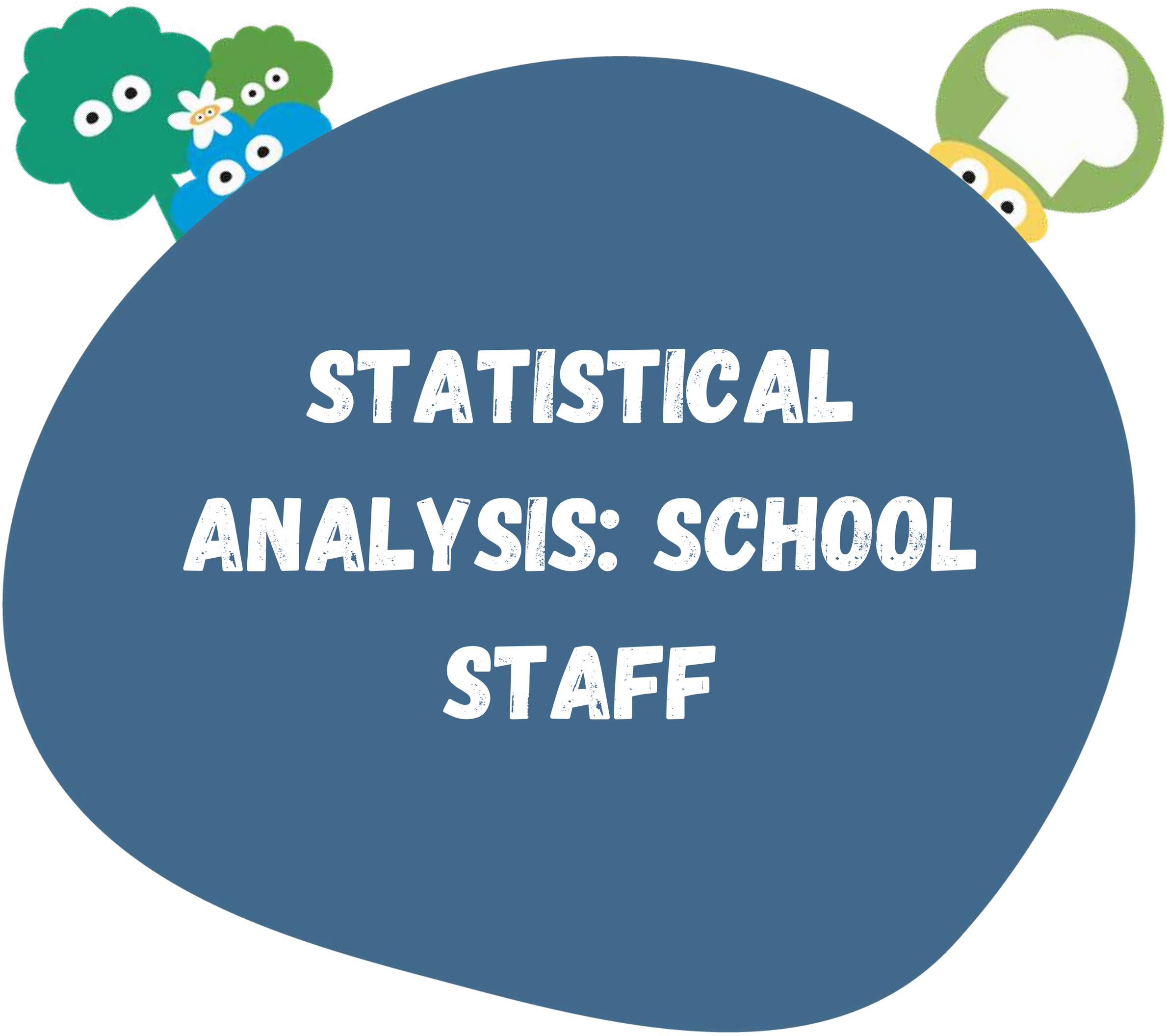
Ecole Meynis (3) : artiste Thomas Lateur

©LIONEL RAULT, VILLE DE LYON – 2021



Ecole Edouard Herriot (8) : artiste Lucie Albon

©VILLE DE LYON – 2022



STATISTICAL ANALYSIS: SCHOOL STAFF

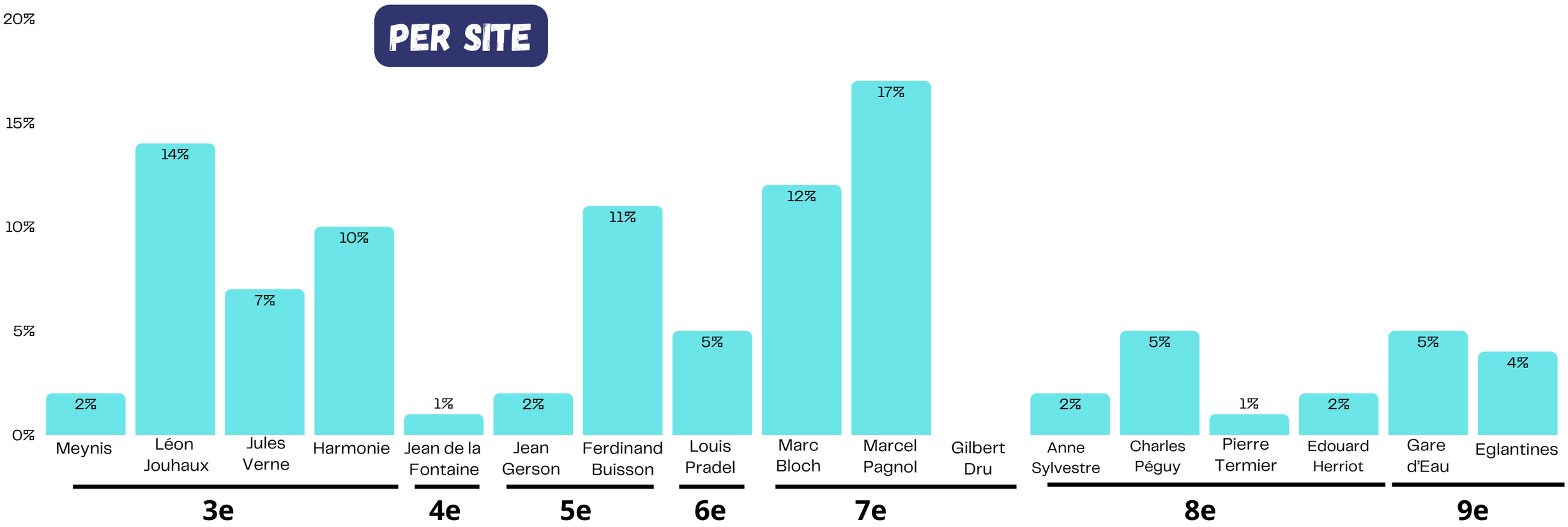
STAFF

SCHOOL STAFF

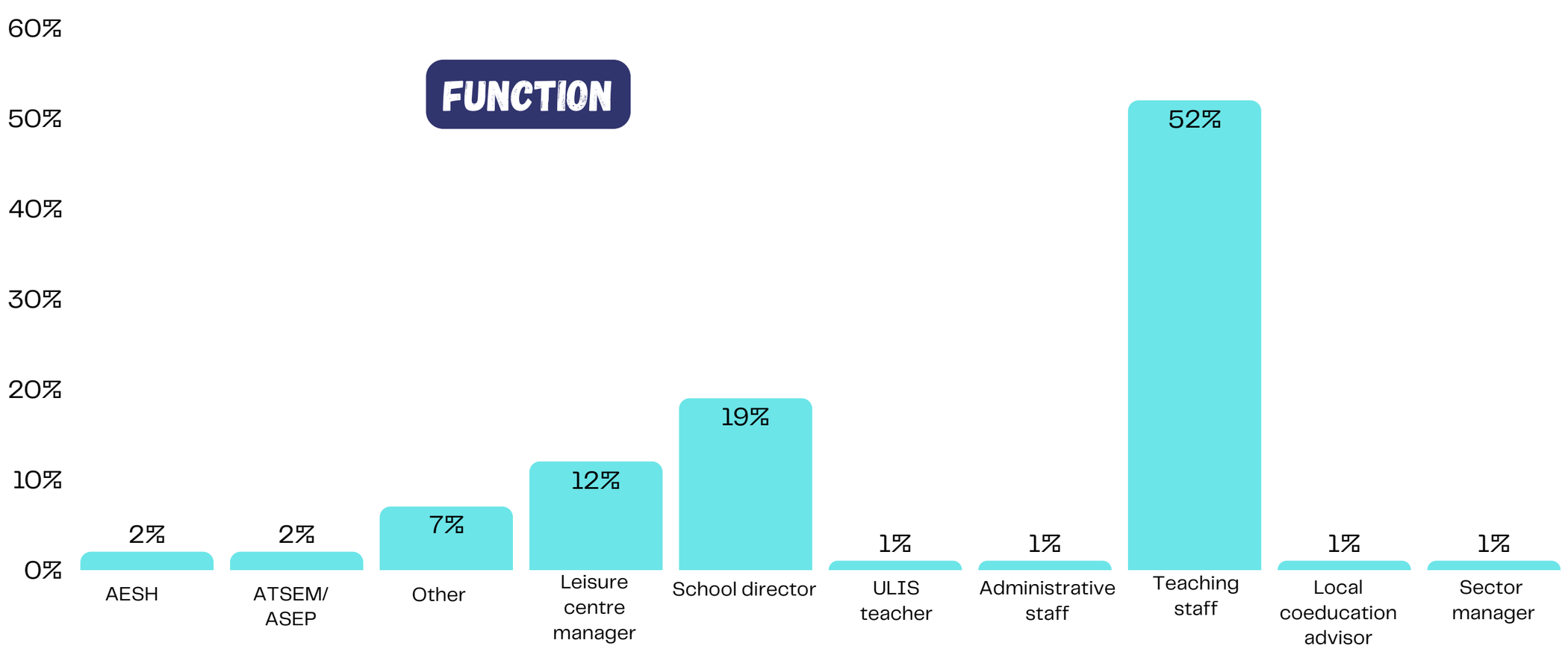
CHARACTERISTICS OF THE SAMPLE (90 RESPONSES)

For this category, the smaller number of participants does not allow for cross-analysis.

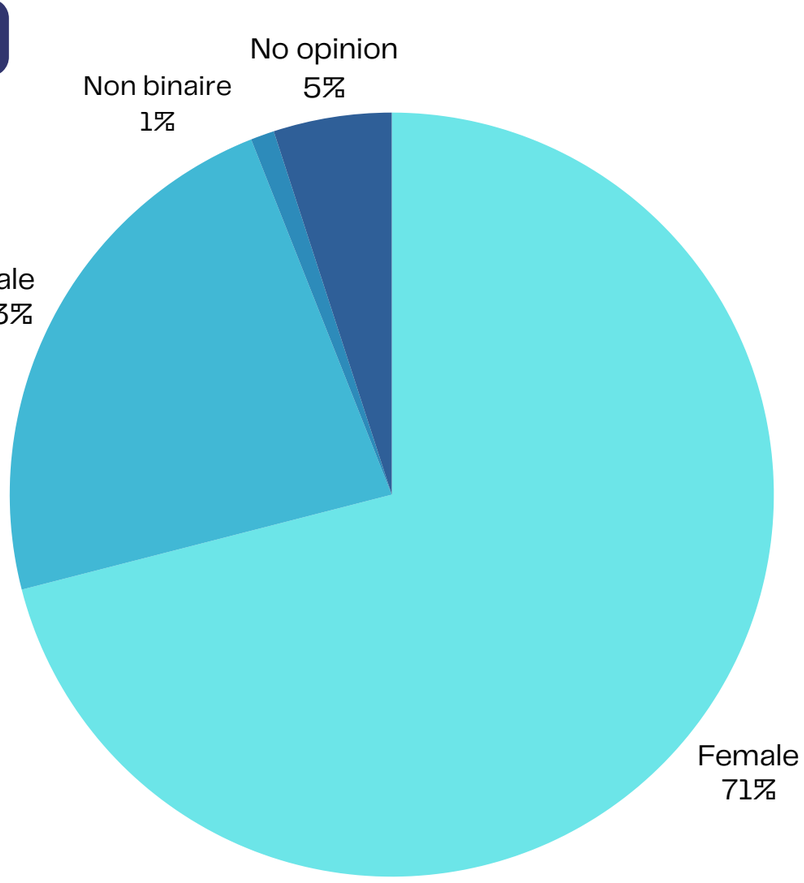
PER SITE



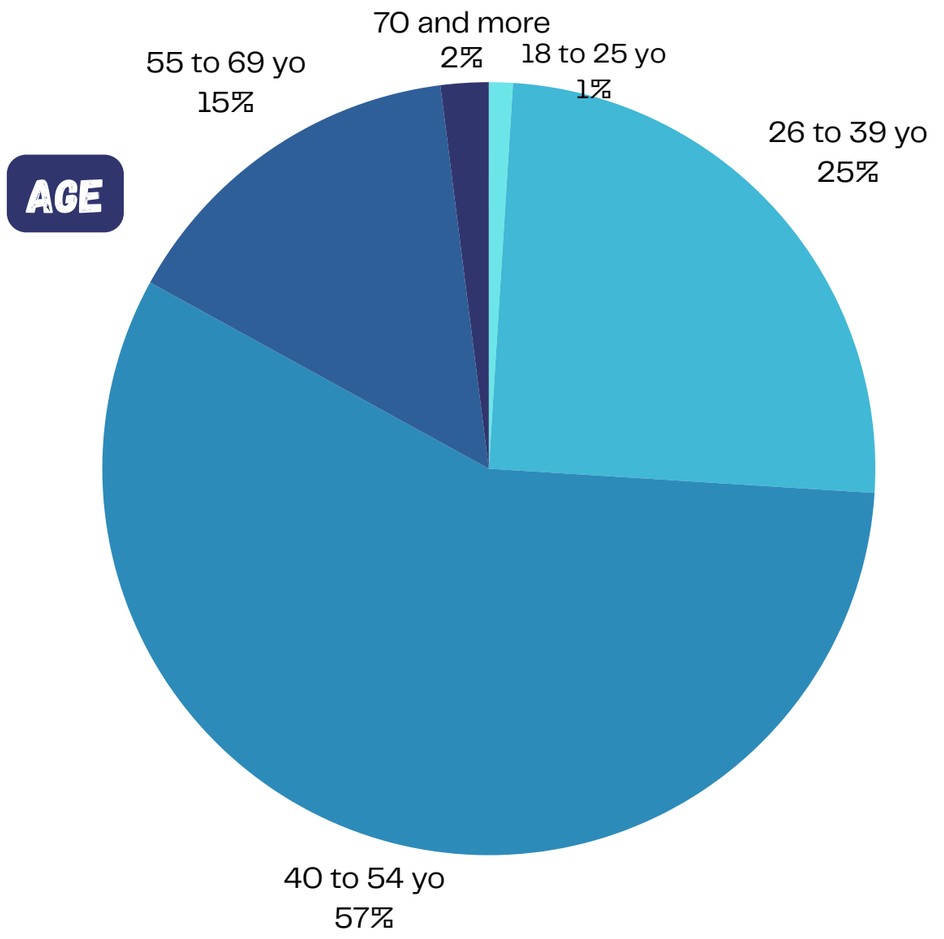
FUNCTION



GENDER



AGE

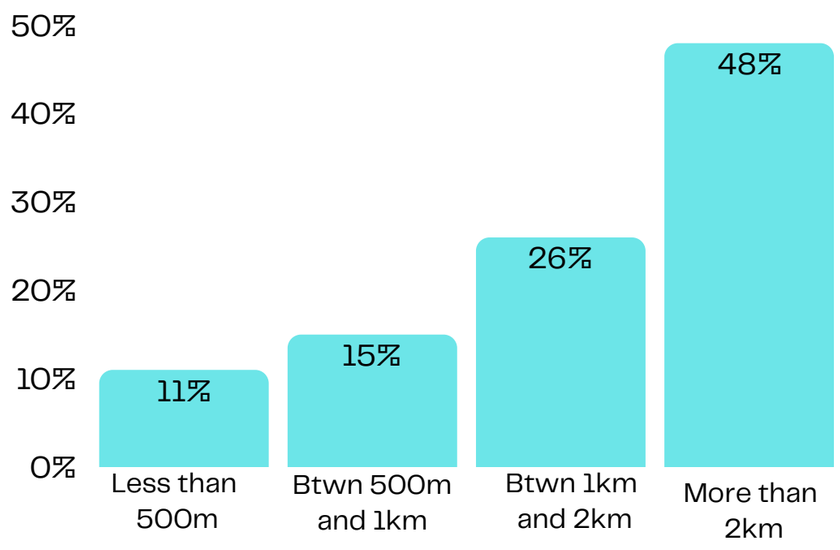


- The majority of respondents are female teachers aged between 40 and 54. The Marcel Pagnol school is the best represented.

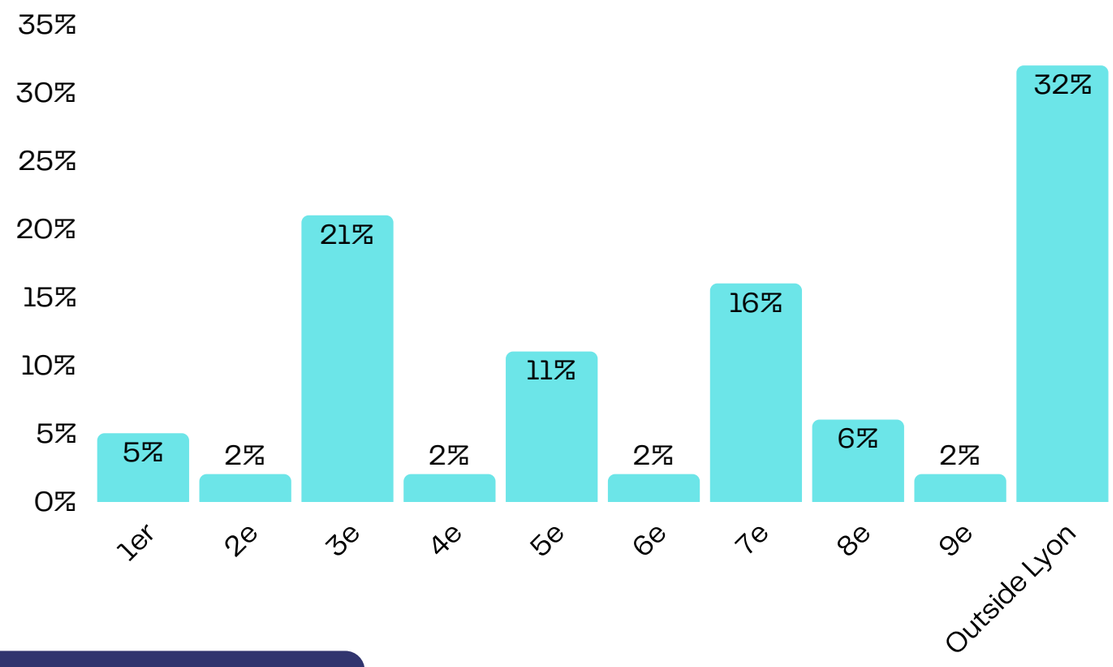
STAFF

MOBILITIES

DISTANCE BETWEEN SCHOOL AND HOME

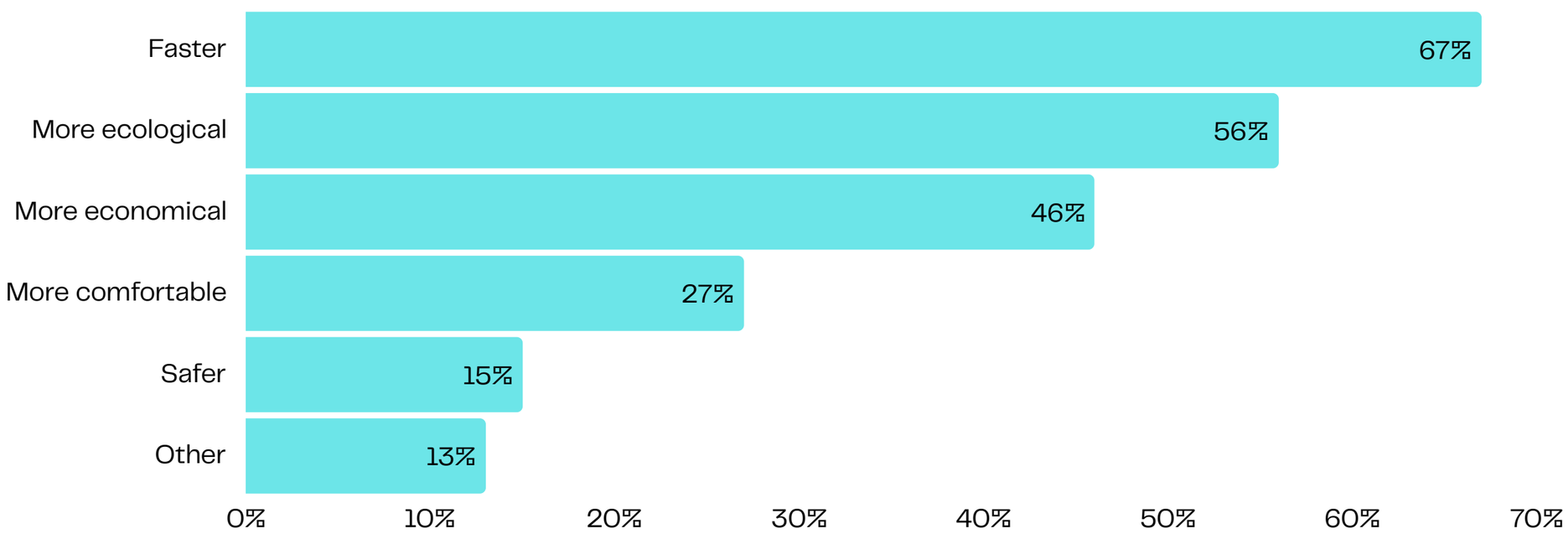


DISTRICT OF RESIDENCE



TRANSPORT MODE

REASONS FOR TRANSPORT MODE



- The majority of respondents live more than 2 km from the establishment and mainly outside Lyon.
- This distance seems to have a significant impact on mobility, since far fewer come on foot than parents.
- The use of bicycles and scooters is increasing sharply. The main reason given for choosing a mode of transportation is speed.

STAFF

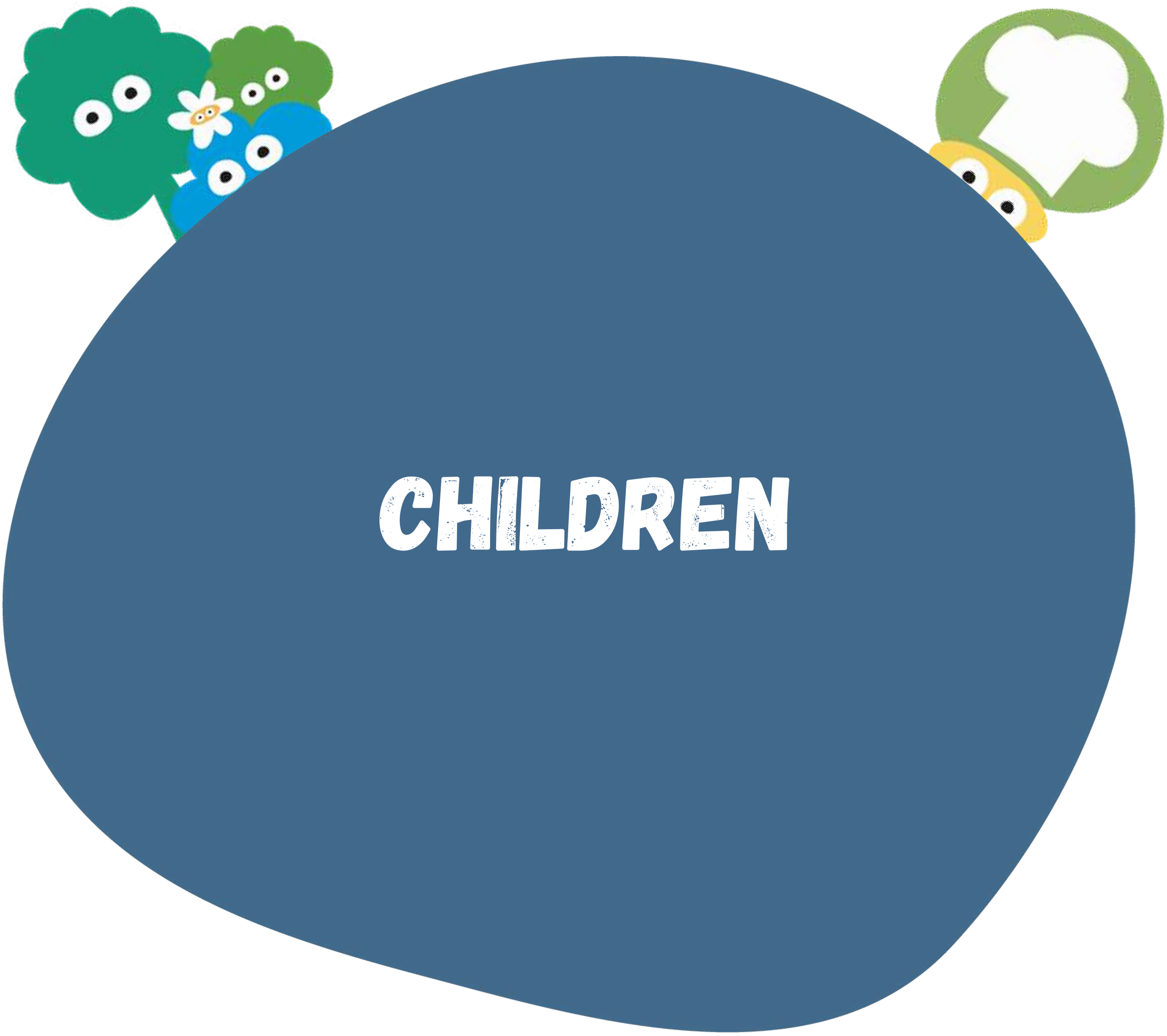
SATISFACTION WITH PUBLIC SPACE AND USES

CONCRETE DEVELOPMENT ELEMENTS

Item	% positive reviews (very positive reviews)
Pedestrian walkway	95% (40%)
Vegetation	76% (13%)
Bike parking	70% (21%)
Cleanliness	69% (6%)
Scooter parking	46% (11%)
Shaded areas	38% (5%)
Number of seats	32% (8%)

GLOBAL ELEMENTS

Item	% positive reviews (very positive reviews)
More pleasant street	84% (23%)
Safer street	77% (37%)
Easy to understand street status (pedestrianized, shared...)	76% (30%)
Safe, pleasant space sharing	72% (15%)
The facilities have a positive impact on your mood, your work	62% (13%)
Do you notice any safety problems on the street?	23%
The facilities are ideal for organizing fun or educational workshops in the street.	19%

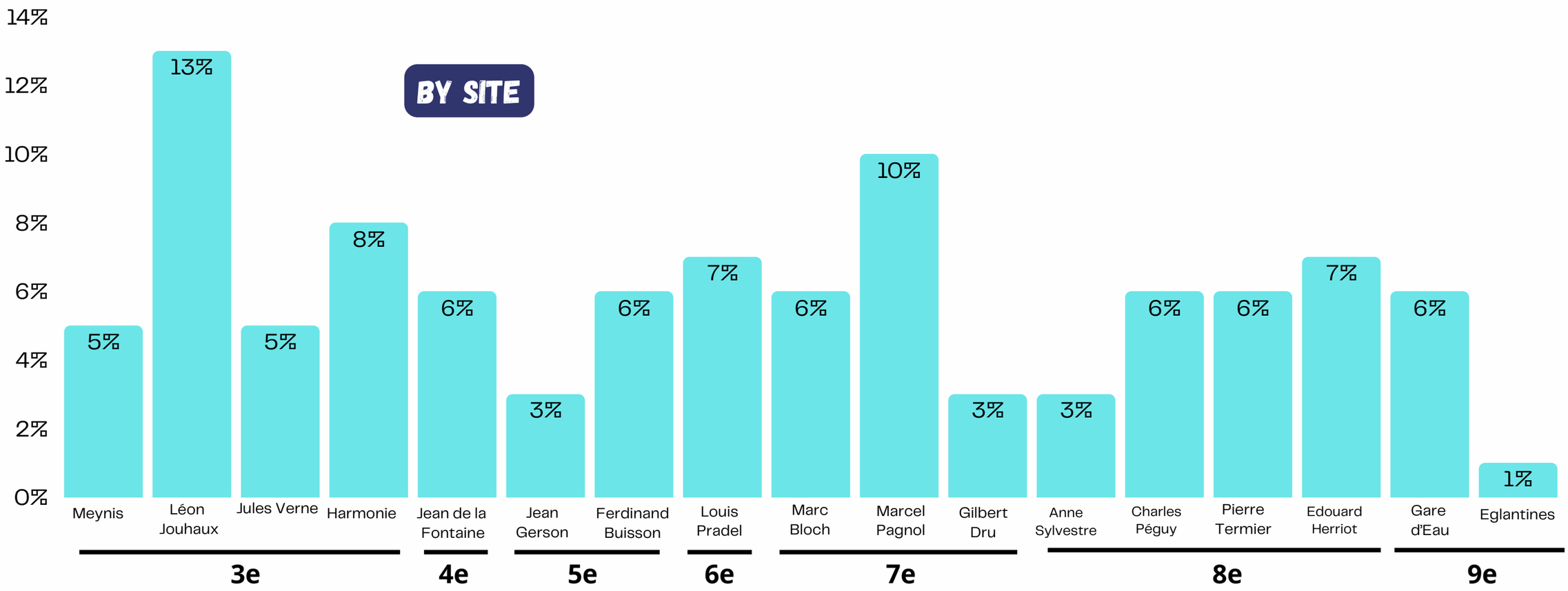

CHILDREN

ENFANT

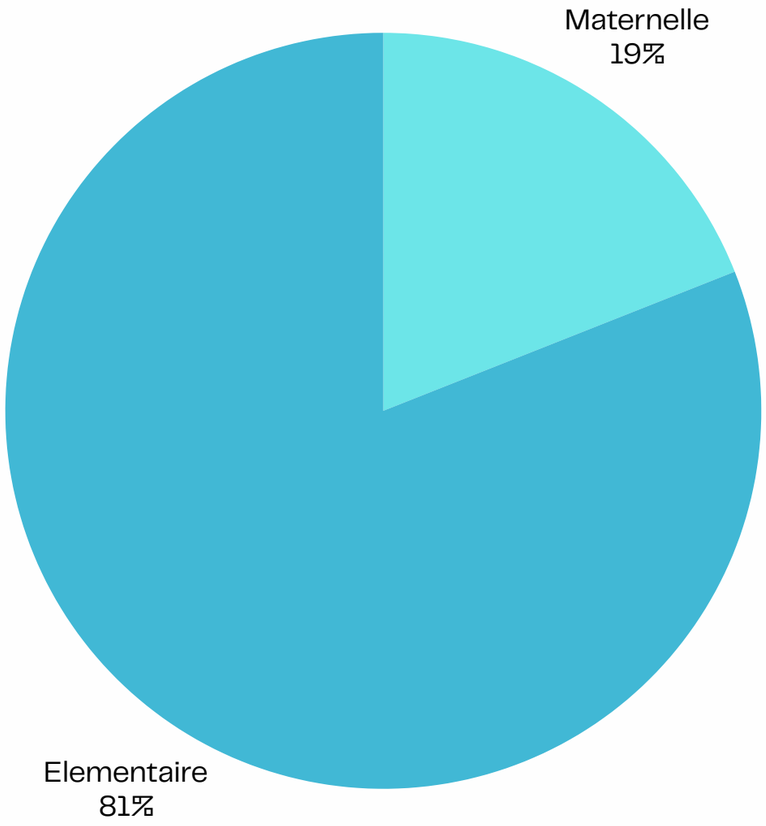
CHILDREN

SAMPLE CHARACTERISTICS (3022 RESPONSES)

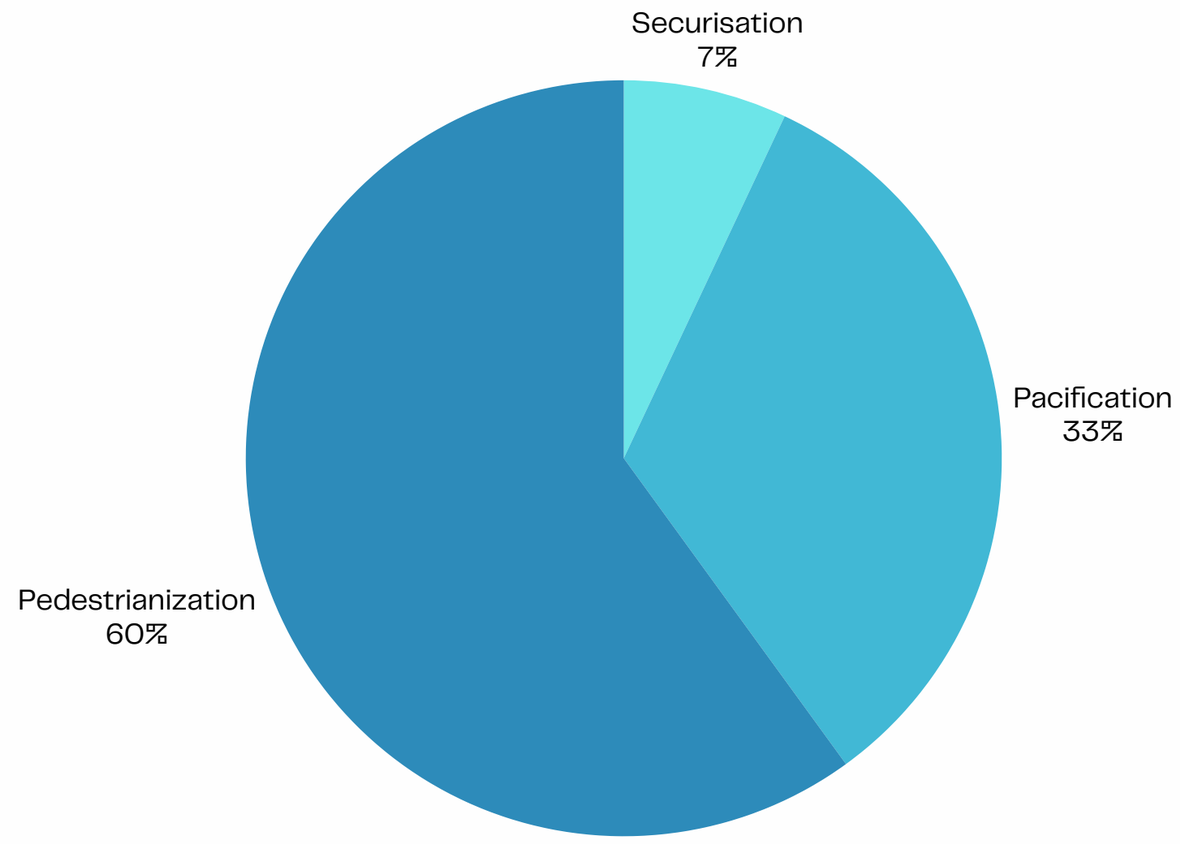
BY SITE



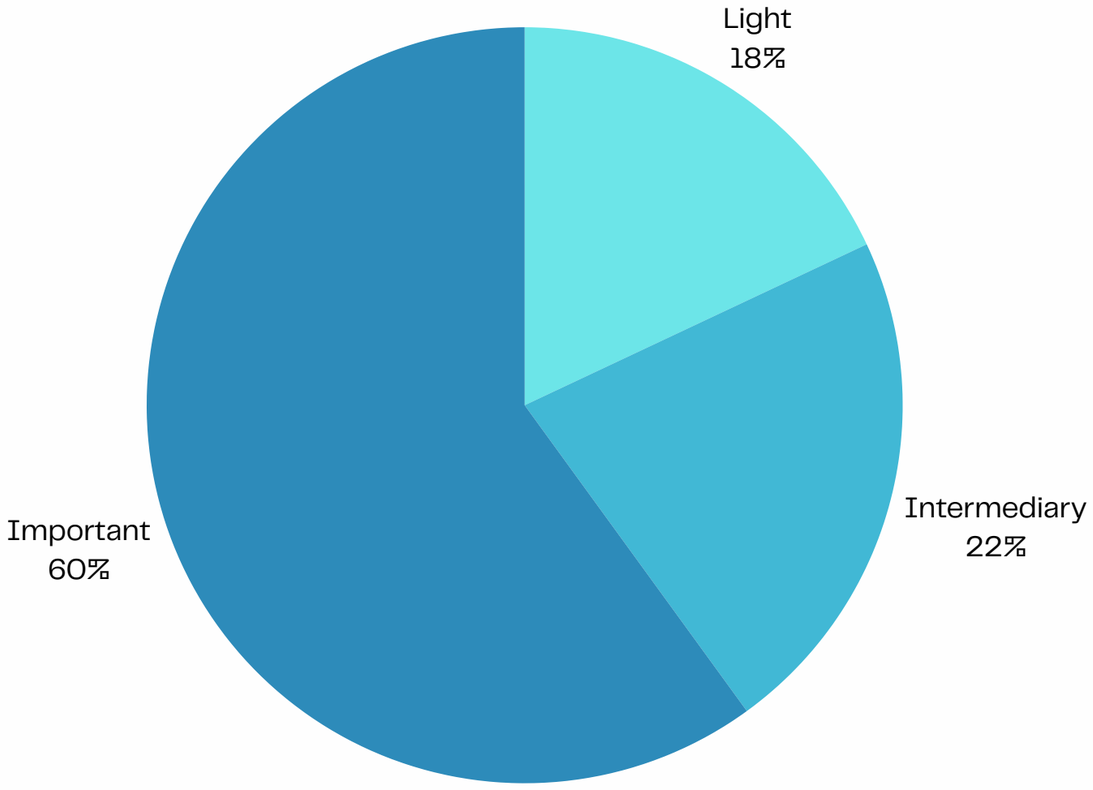
LEVEL



TYPOLOGY



EXTENT OF FACILITIES

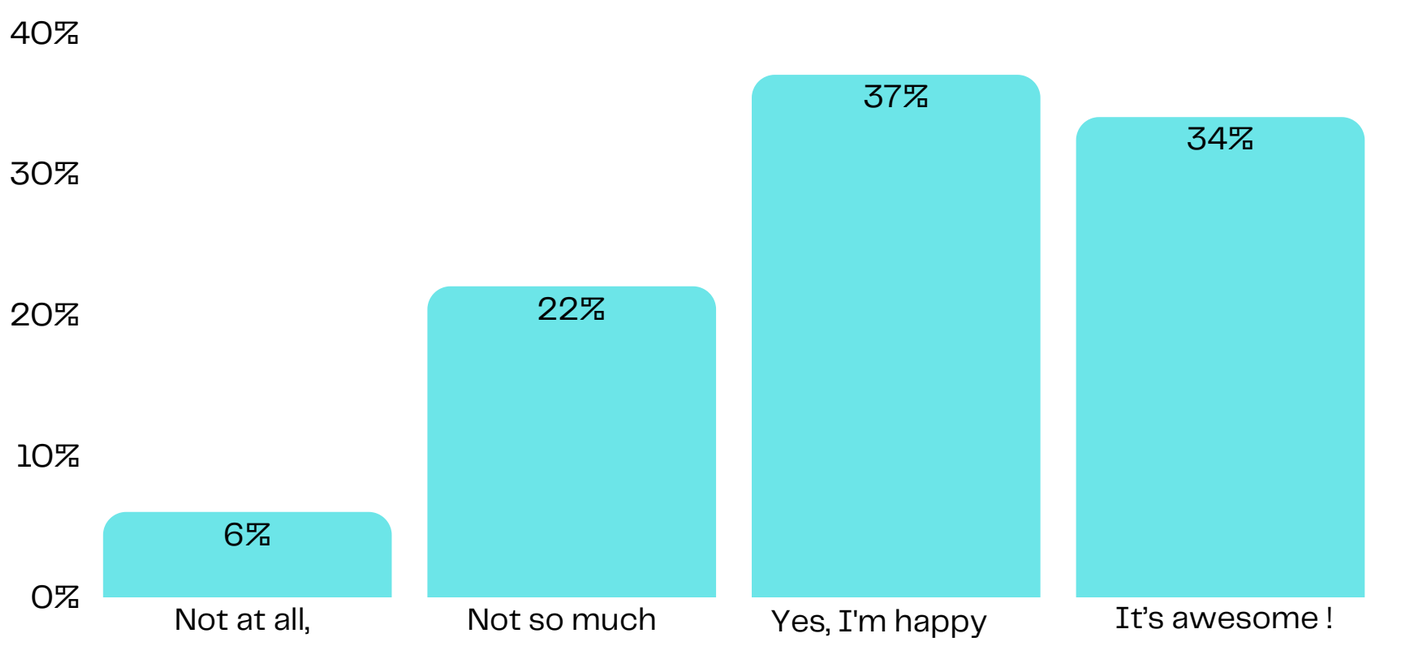


- The questionnaires were completed in the classroom or during extracurricular activities, to avoid any bias linked to the family context.
- The children's response rate was 44%. Pupils from “maternelle” had more difficulty filling in the questionnaire, and required the help of an adult.
- Most of the children who responded were elementary school pupils. The Léon Jouhaux school is the best represented (13%).

ENFANT

OVERALL SATISFACTION AND PREFERENCES

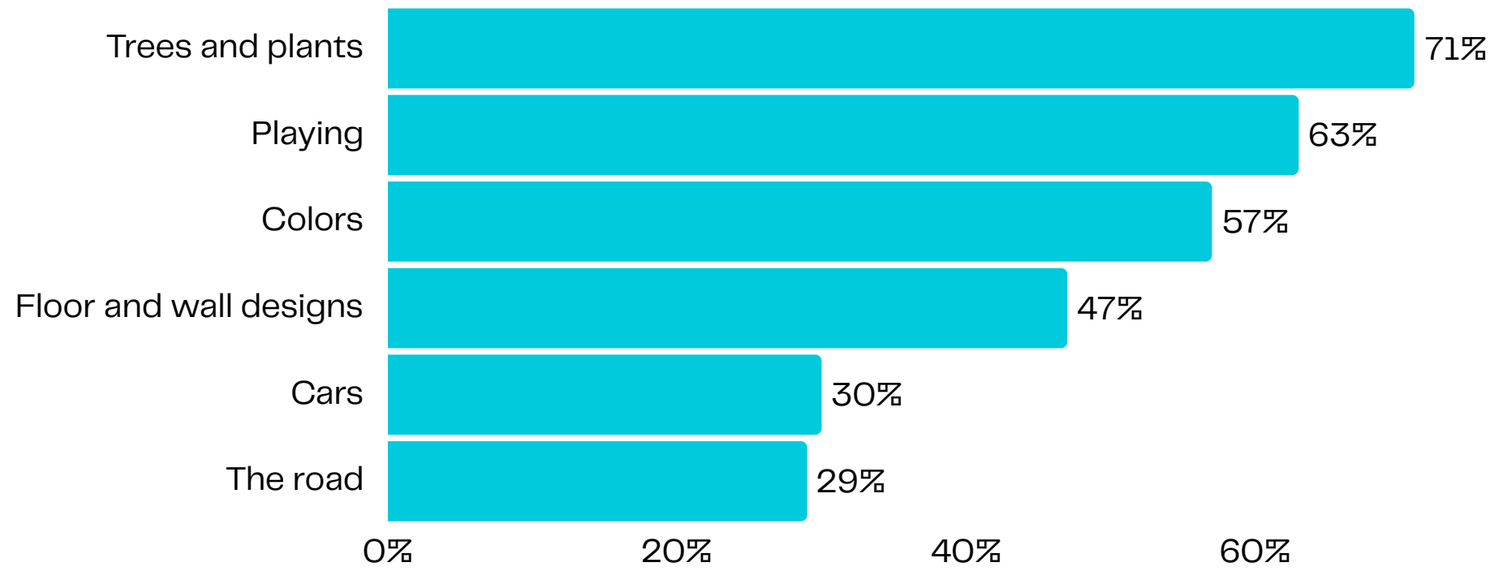
ARE YOU HAPPY WITH THE STREET IN FRONT OF YOUR SCHOOL?



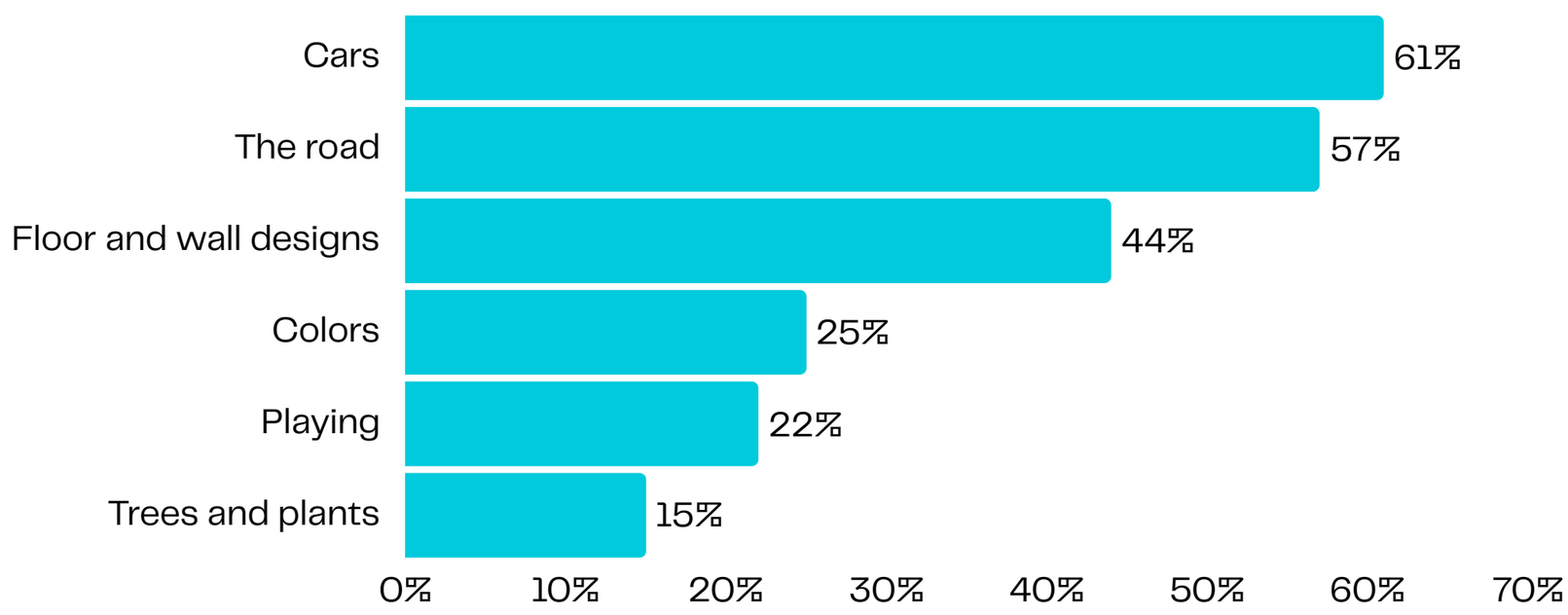
71%*

*TOTAL POSITIVE REVIEWS

WHAT DO YOU LIKE BEST ABOUT YOUR STREET?



WHAT DON'T YOU LIKE?



- 71% of children are satisfied with their street. They prefer trees and plants first, followed by games or playing in the street.
- Cars and roads are the things they dislike most.

ENFANT

SATISFACTION X TYPOLOGY

Are you happy with the street in front of your school?	Typology		
	Securisation	Pacification	Pedestrianization
It's awesome	21%	37%	34%
Yes, I'm happy	44%	38%	36%
Not so much	27%	19%	24%
Not at all, it's horrible	8%	5%	6%

Typology seems to have a limited impact on overall satisfaction, since it ranges between 65% and 75% whatever the type of development, and only 5% (total positive opinions) separate the safety typology from the pedestrianization category, which is supposed to be the most appreciated by children.

There is, however, a fairly wide gap between children's enthusiasm for the calming and pedestrianization categories and their enthusiasm for safety (37% and 34% respectively, versus 21%).

SATISFACTION X EXTENT OF DEVELOPMENT

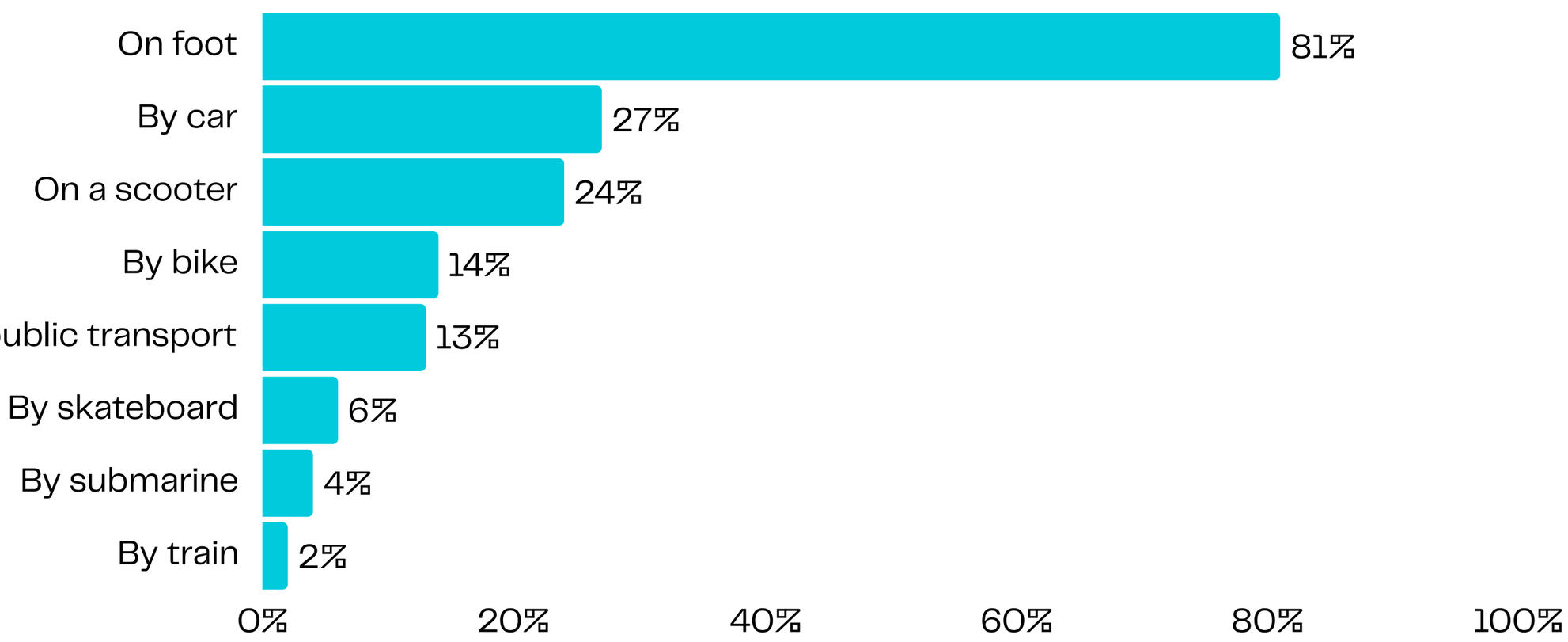
Are you happy with the street in front of your school?	Extent of development		
	Light	Intermediary	Important
It's awesome	36%	31%	35%
Yes, I'm happy	32%	40%	37%
Not so much	26%	22%	22%
Not at all, it's horrible	6%	7%	6%

Here again, the extent of the facilities does not seem to be a determining factor in children's satisfaction with their street.
The criteria used to determine the extent of a facility are perhaps not adapted to what a child expects from a street, which in the majority of cases is play and vegetation.

We should also bear in mind the particular nature of this very young public (sometimes kindergarten children), whose responses to questionnaires cannot be interpreted as faithfully as those of parents or school staff.

MOBILITY AND USES

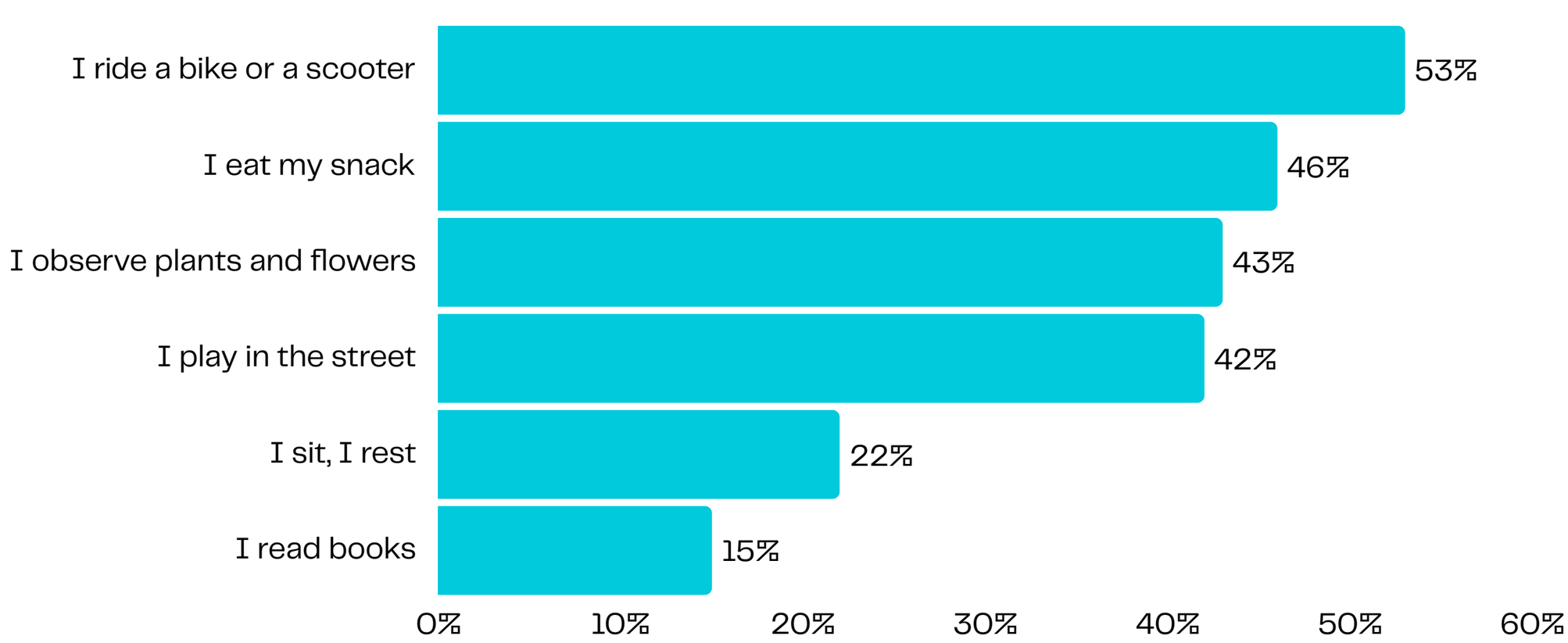
HOW DO YOU GET TO SCHOOL?



- Like parents, the vast majority of children claim to walk to school (81%). The car is in second place with 27%. More than one type of vehicule can be used by week.

- Scooters are favored over bicycles by a majority of students.

WHAT ARE YOU DOING IN THE STREET?

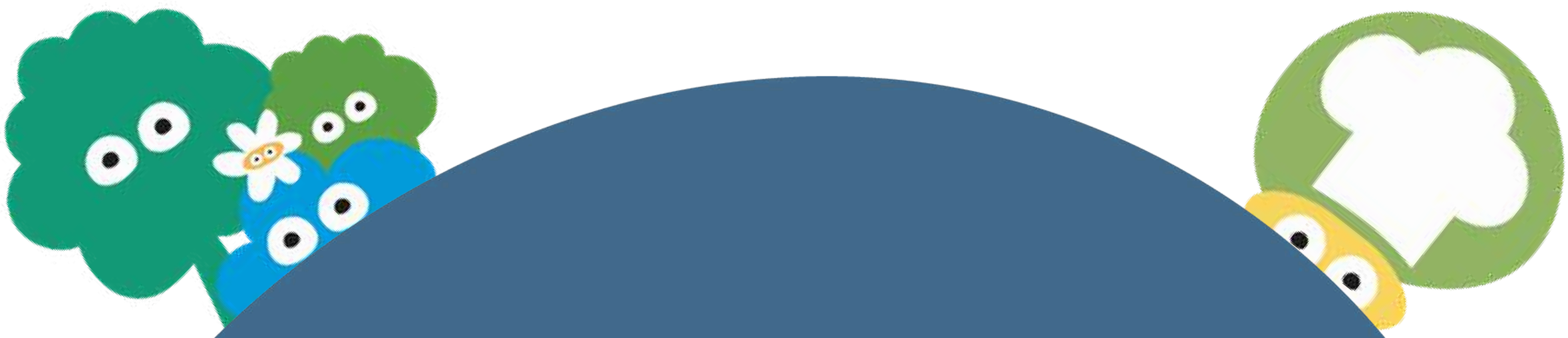


- The use of bicycles and scooters stands out slightly. Individual interviews with the children could help us better understand their expectations of the spaces in front of their school.

ENFANT

"DRAW THE STREET OF YOUR DREAMS" DRAWINGS

- Hopscotches and vegetation are recurrent elements in children's drawings. Soft mobility (bicycles or scooters) is also often represented.



OVERALL SUMMARY BEFORE DEVELOPMENT

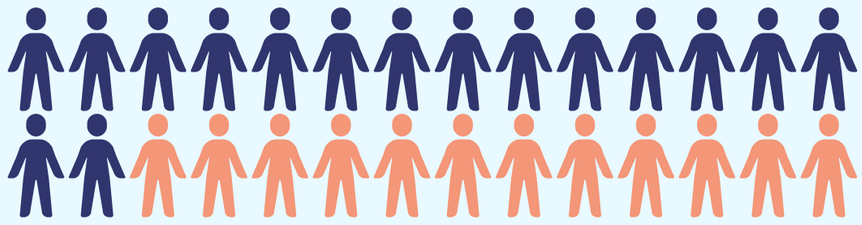
Children's streets

PRE-DEVELOPMENT ASSESSMENT

5 SITES EVALUATED, 9 SCHOOLS AND 1,600 STUDENTS INVOLVED

A questionnaire survey:

- **600 returns** from children
- **300 returns** from parents



EDUCATIONAL STAFF (SAMPLE TOO SMALL)

PARENTS

50% Find the street **PLEASANT**

52% Find the street **SAFE**

CHILDREN

53% Say they **LIKE** or **LOVE** their street

74% Say they prefer **TREES AND PLANTS**, followed by **GAMES** (**60%**)

76% **WALK** to school. The **CAR** remains the 2nd mode of transportation with **40%***.

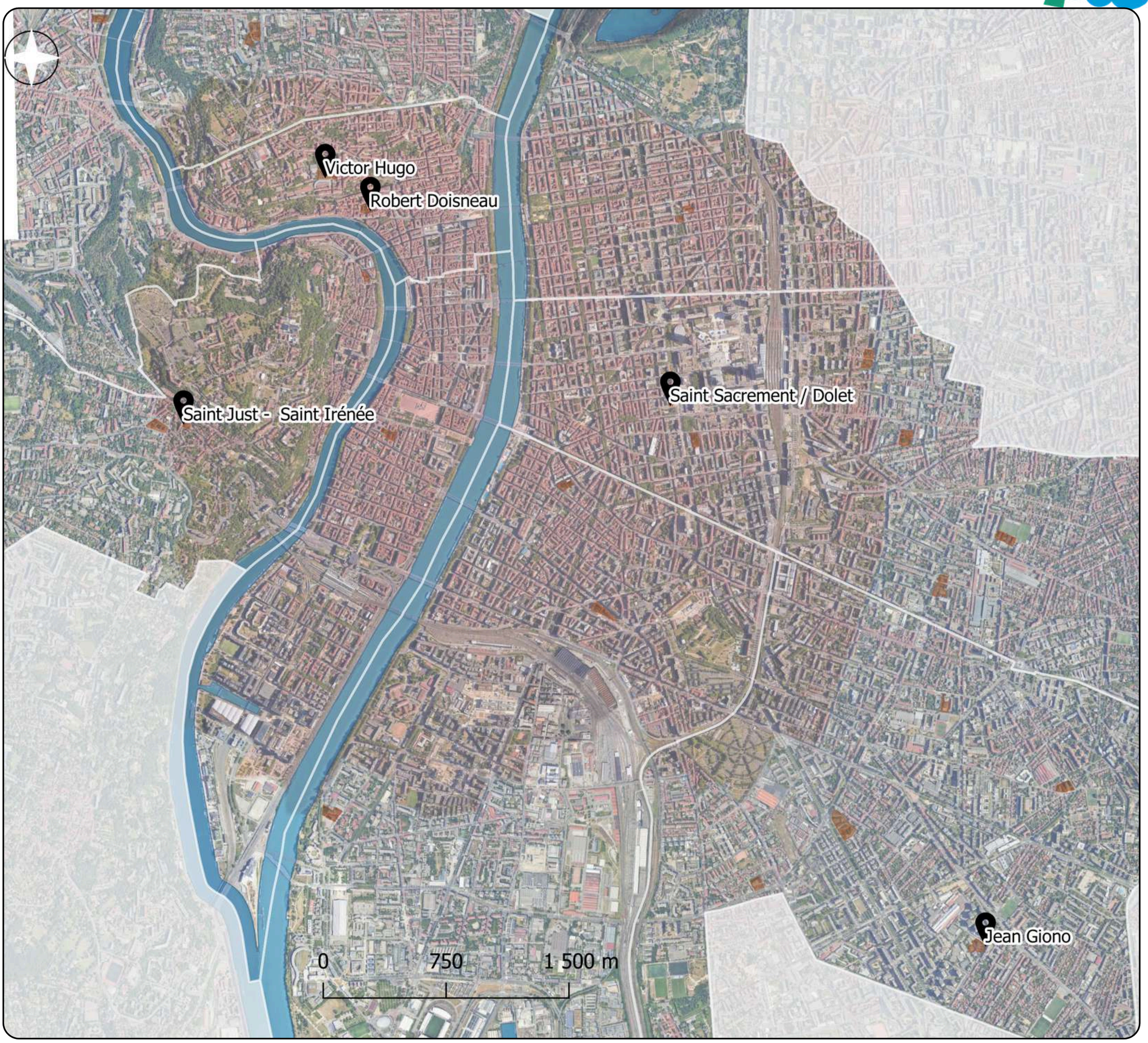
*Plusieurs modes de déplacement possibles par enfant

10,000M^2 OF PUBLIC SPACE CONCERNED

Area allocated to pedestrians	**51%**
Vehicle surface area	**46,5%**
Vegetated surface	**2%**
Surface area allocated to bicycles	**0,5%**

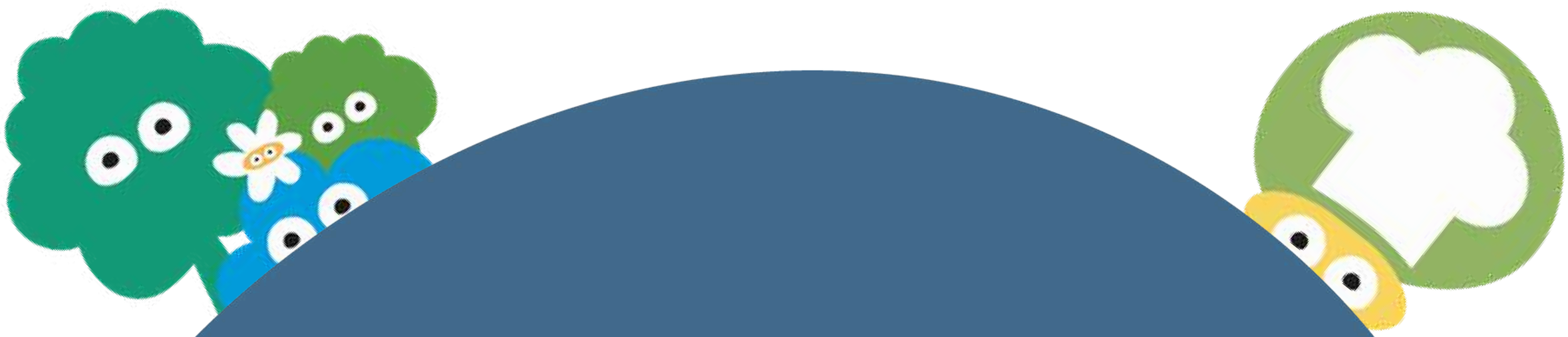
- **4 trees**
- **37 bicycle racks**
- **81 parking spaces**
- **5,539 vehicles** on average per day on all streets (the Jean Giono site accounts for 67% of traffic, with an average of 3,715 vehicles per day)

LOCATION OF SITES EVALUATED



CHARACTERISTICS OF THE SITES EVALUATED

Site	district	Streets	area (m^2)
Robert Doisneau	1	Rue Sergent Blandan	1216
Victor Hugo	1	Rue Ornano, impasse flesselles	2086
Saint Sacrement / Dolet	3	Rue Etienne Dolet	1082
Sainte Irénée	5	Rue des Anges	573
Jean Giono	8	Rue Stéphane Coignet	4652



STATISTICAL ANALYSIS COMPARATIVE BEFORE-AFTER

PARENTS

PARENTS

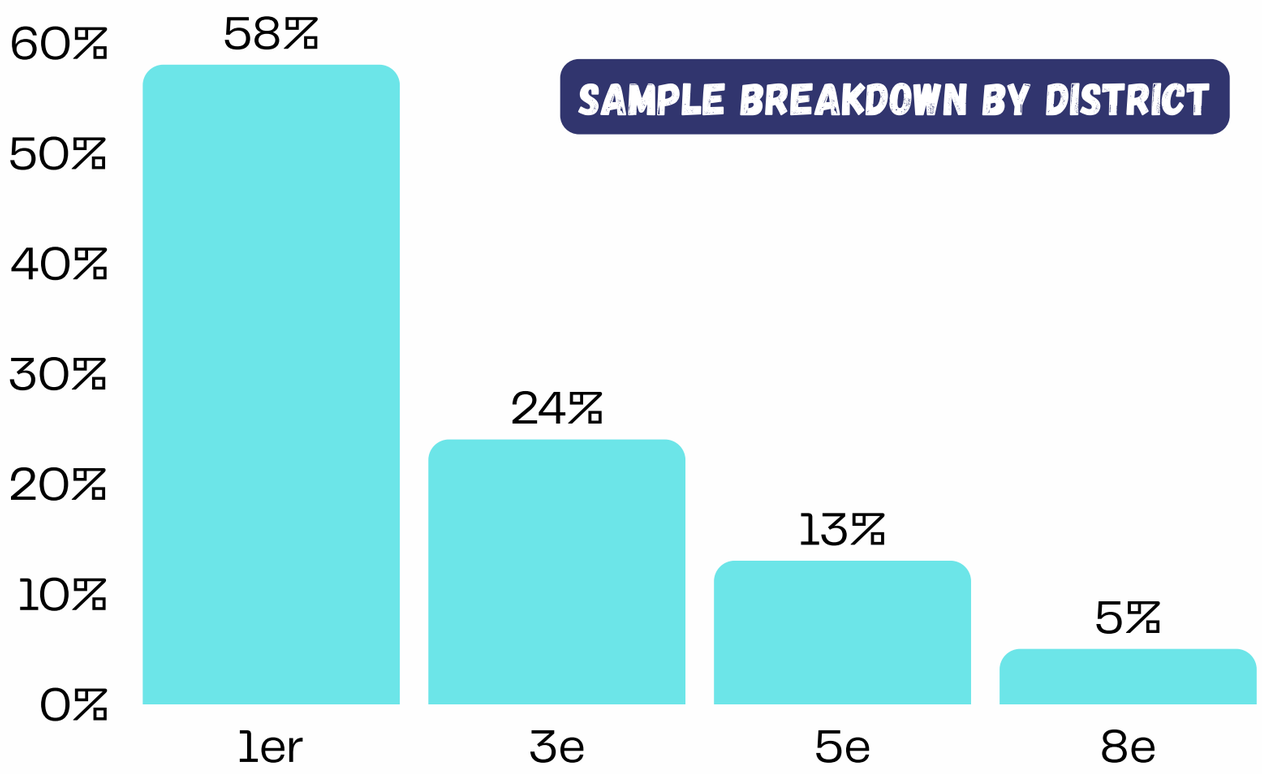
COMPARATIVE

The following comparison has been made between streets that have already been upgraded and others that are currently being considered for future upgrades of the Rue des Enfants type. The comparison is not made between the same streets before and after, hence the different numbers. As the evaluation process has only recently begun, the sites evaluated before development have not yet been evaluated after development.

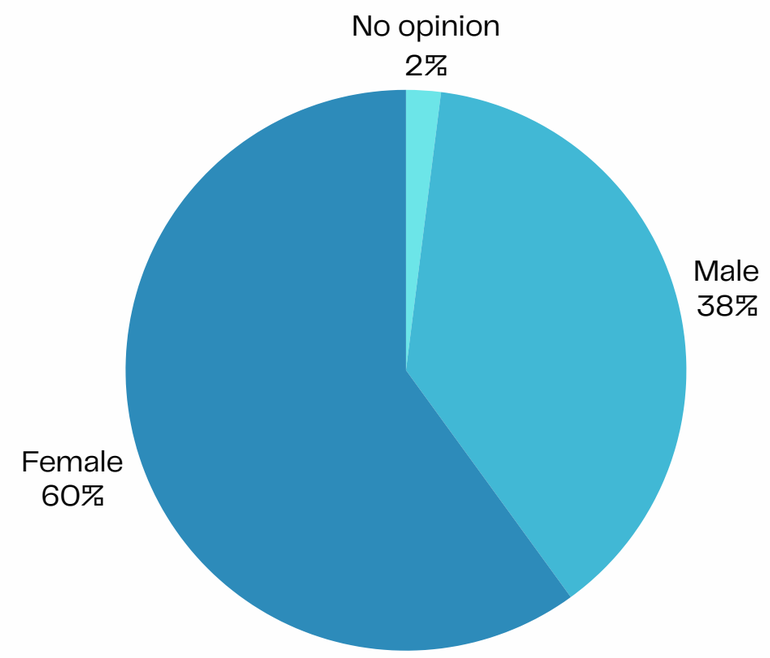
As the pre-development streets have fairly similar characteristics (little vegetation, sidewalks separated from the pavement, no meeting zones, pavement surface, etc.), the comparison remains relevant. The sample differs from the post-development sites, but several hundred responses can be used for a solid analysis.

PARENTS BEFORE ACCOMMODATION : SAMPLE CHARACTERISTICS (294 RESPONSES)

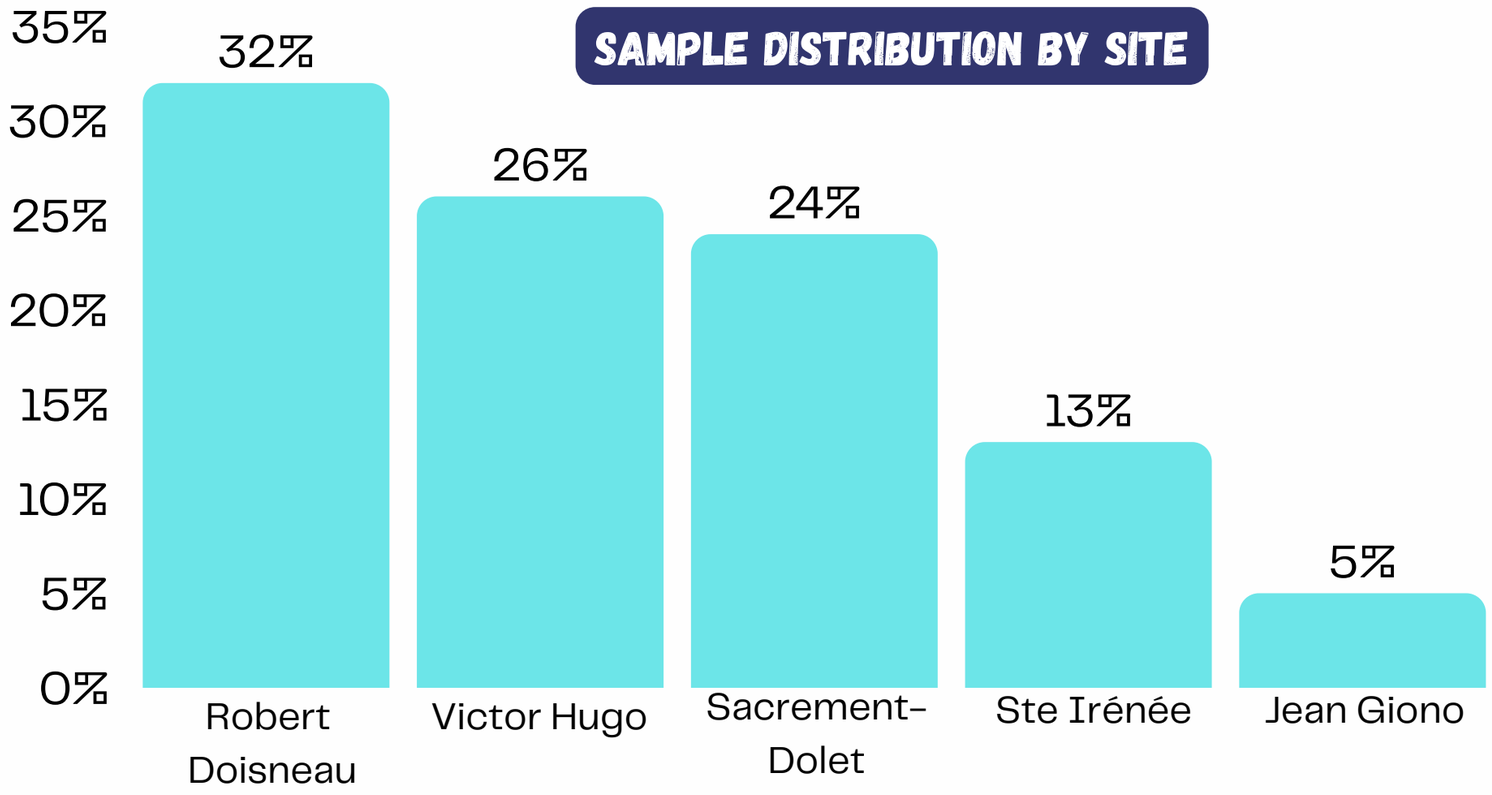
SAMPLE BREAKDOWN BY DISTRICT



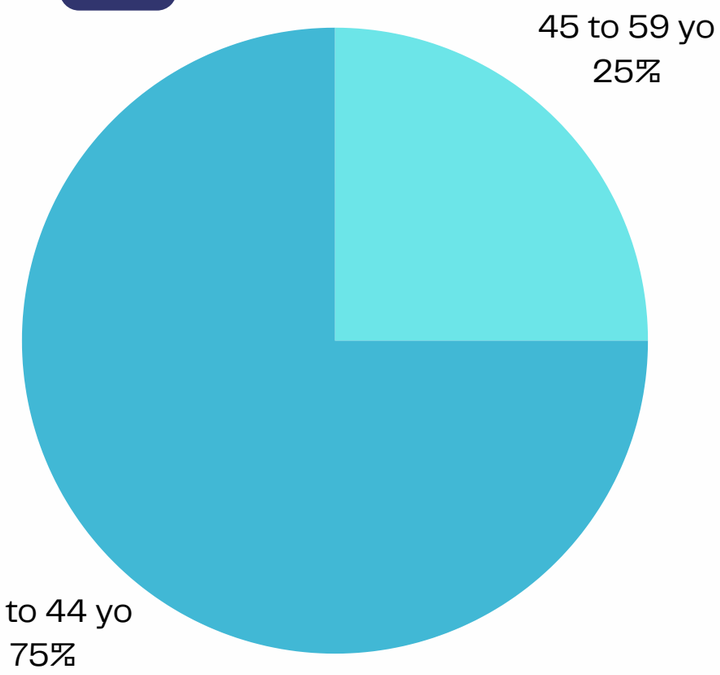
GENDER



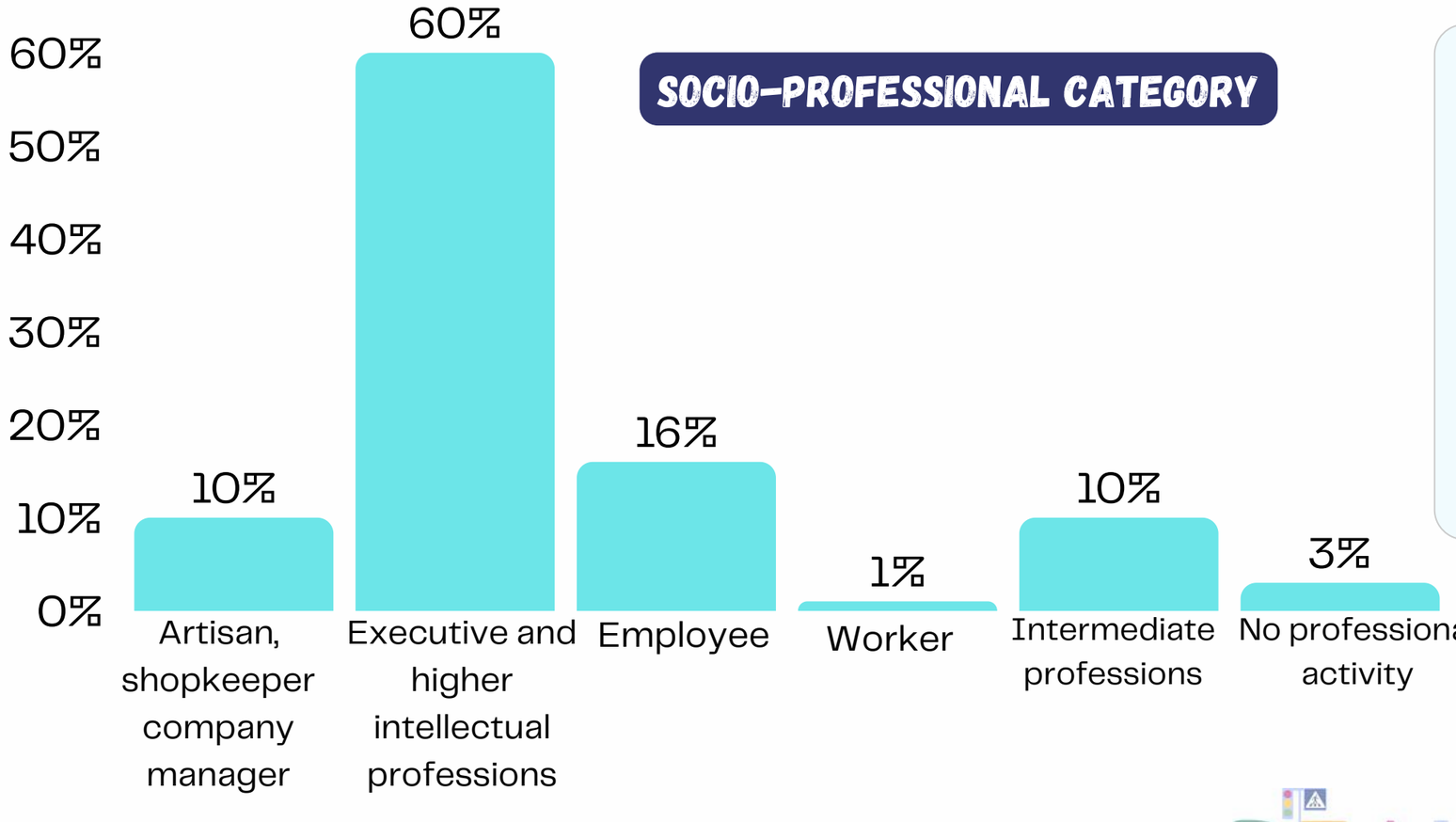
SAMPLE DISTRIBUTION BY SITE



AGE



SOCIO-PROFESSIONAL CATEGORY

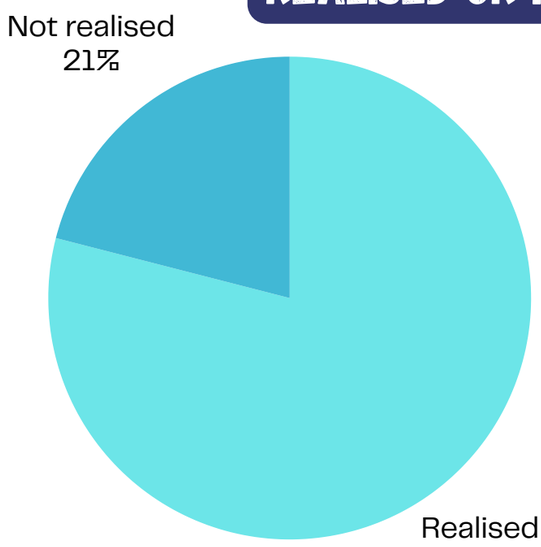


The majority of parents who responded are women aged 30 to 44 in managerial positions, with their child(ren) in the 1st arrondissement. The Robert Doisneau site is the best represented.

PARENTS

COMPARISON: SATISFACTION BEFORE AND AFTER DEVELOPMENTS

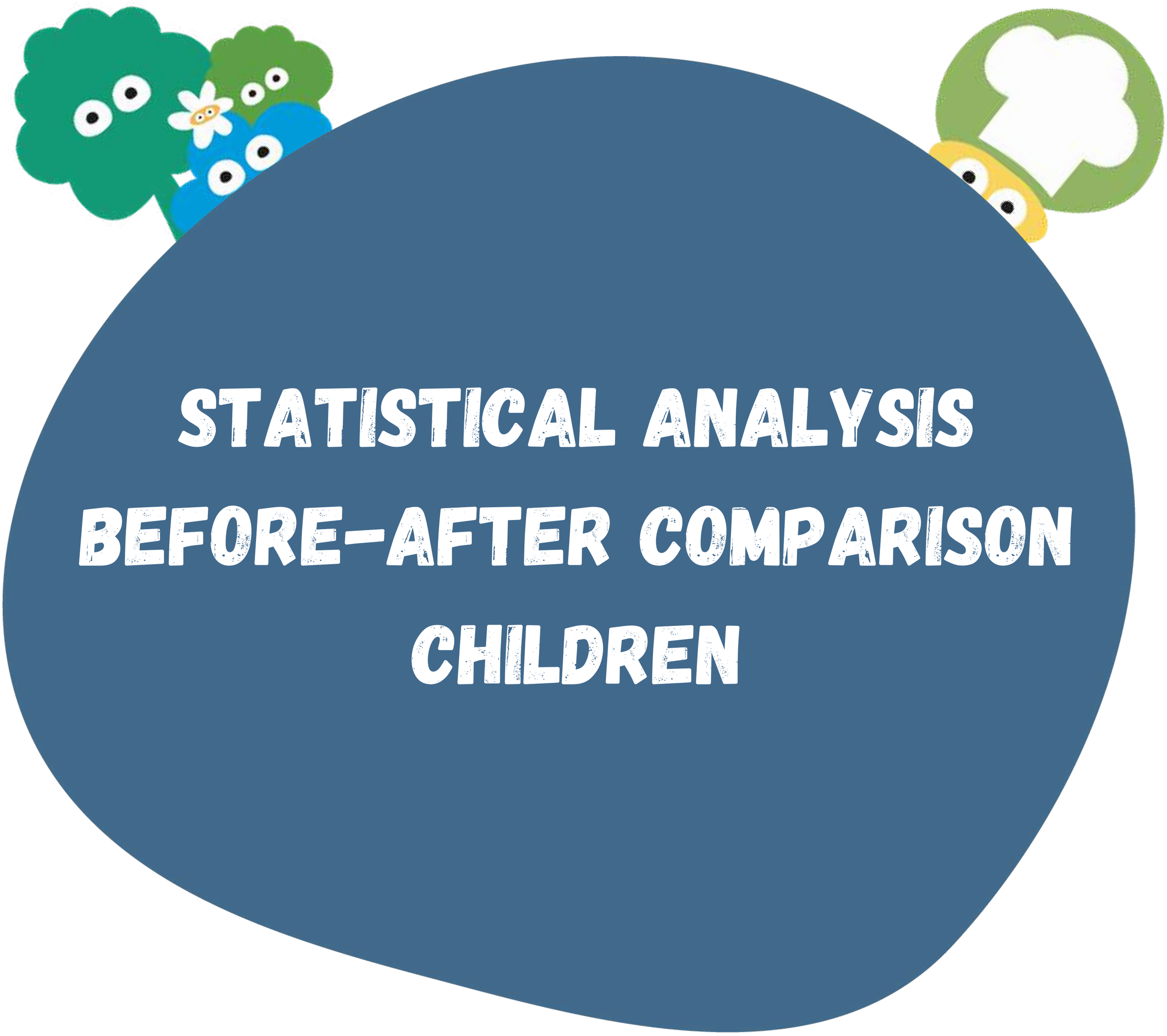
NUMBER OF PARENTS PER SITE REALISED OR NOT REALISED



Positive opinions by presence or absence of facilities (%)

Item	Not realized		Realized
Vegetation	19%	+41% !	60%
Child can be autonomous in the street	28%	+40% !	68%
Pleasant street	50%	+35%	85%
Safe, pleasant space sharing	36%	+24%	60%
Pedestrian walkway	60%	+22%	82%
Number of seats	15%	+15%	30%
Bike parking	53%	+12%	65%
Cleanliness	54%	+12%	66%
Scooter parking	38%	+7%	45%
Shaded areas	37%	+6%	43%
Car parking	34%	+4%	38%
Child goes to school alone	13%	+1%	14%

- Overall satisfaction with the street increased by 35%.
- Vegetation is also much more appreciated on improved streets (+41%), as is children's autonomy in the street (+40%).

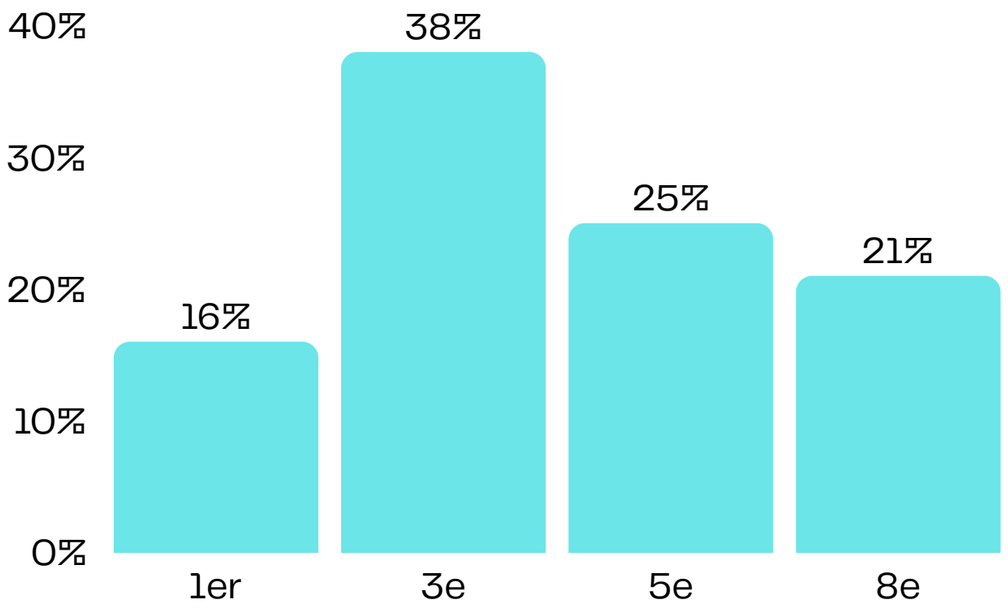


STATISTICAL ANALYSIS BEFORE-AFTER COMPARISON

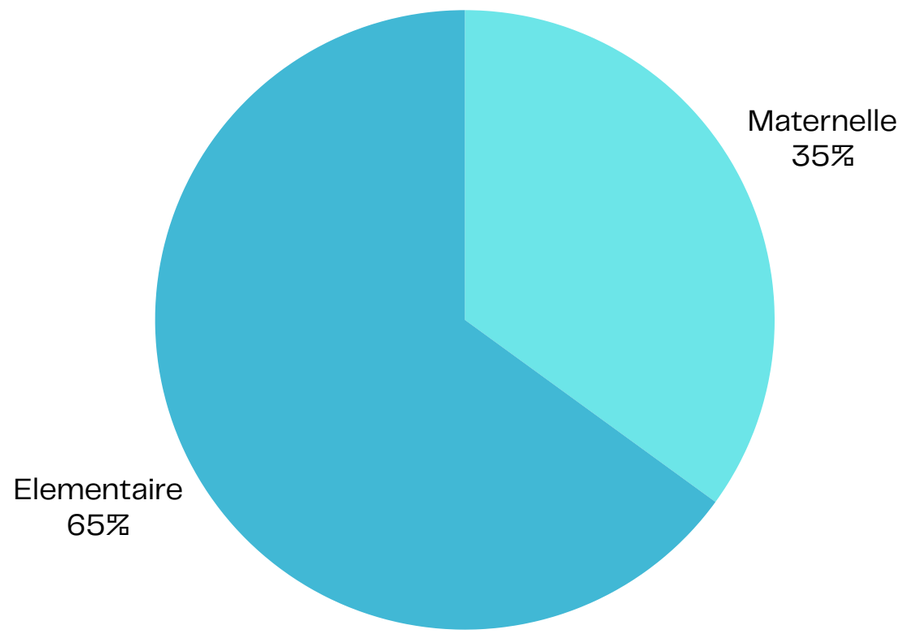
CHILDREN

SAMPLE CHARACTERISTICS BEFORE DEVELOPMENTS (611 RESPONSES)

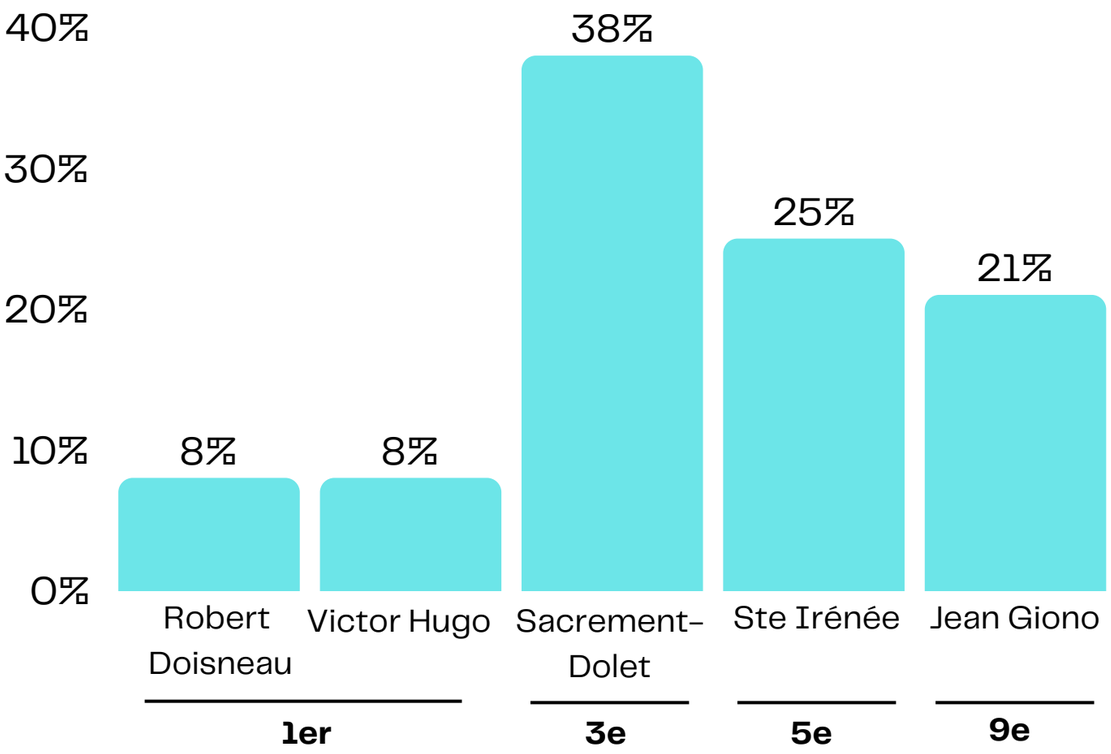
SAMPLE DISTRIBUTION BY DISTRICT



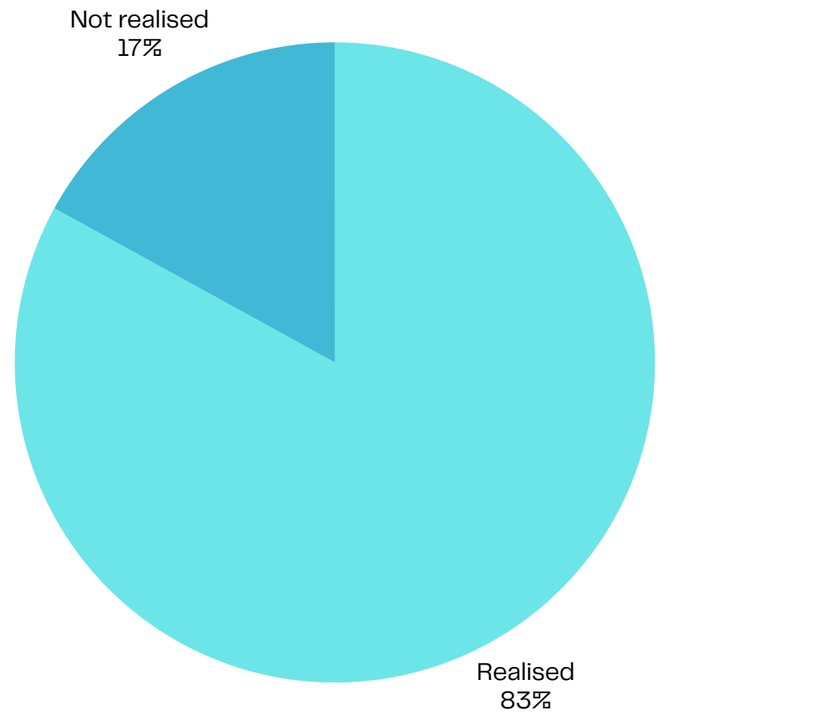
LEVEL



SAMPLE DISTRIBUTION BY SITE



SAMPLE PER SITE REALISED OR NOT



The majority of children who responded are in elementary school. The 3rd arrondissement and the St Sacrement-Dolet site are the most represented.

CHILDREN

COMPARISON: SATISFACTION BEFORE AND AFTER IMPROVEMENTS

Are you happy with the street in front of your school?	Before		After
It's awesome !	20%	+14%	34%
Yes, I'm happy	32%	+6%	38%
Not so much	36%	-14%	22%
Not at all, it's horrible	12%	-6%	6%

- Significant increase in the proportion of children very happy with their street after the improvements. Overall, there is a 20% increase in positive feedback.

What do you like best about your street?	Before		After
Trees and plants	76%	-5%	71%
Playing	62%	+1%	63%
Colors	59%	-2%	57%
The floor and wall drawings	49%	-2%	47%
Cars	31%	-1%	30%
The road	25%	+4%	29%

- The results are more nuanced regarding the elements that make up the streets. Similar results may imply that the children understand the question in general (what do you prefer in the streets) and not focused on the current state of their street. For example, several undeveloped streets have no vegetation at all. Yet this is the favourite element of the children for the panel before development.

- We can assume that children generally prefer vegetation and play equipment in public spaces.

USES AND MOBILITY

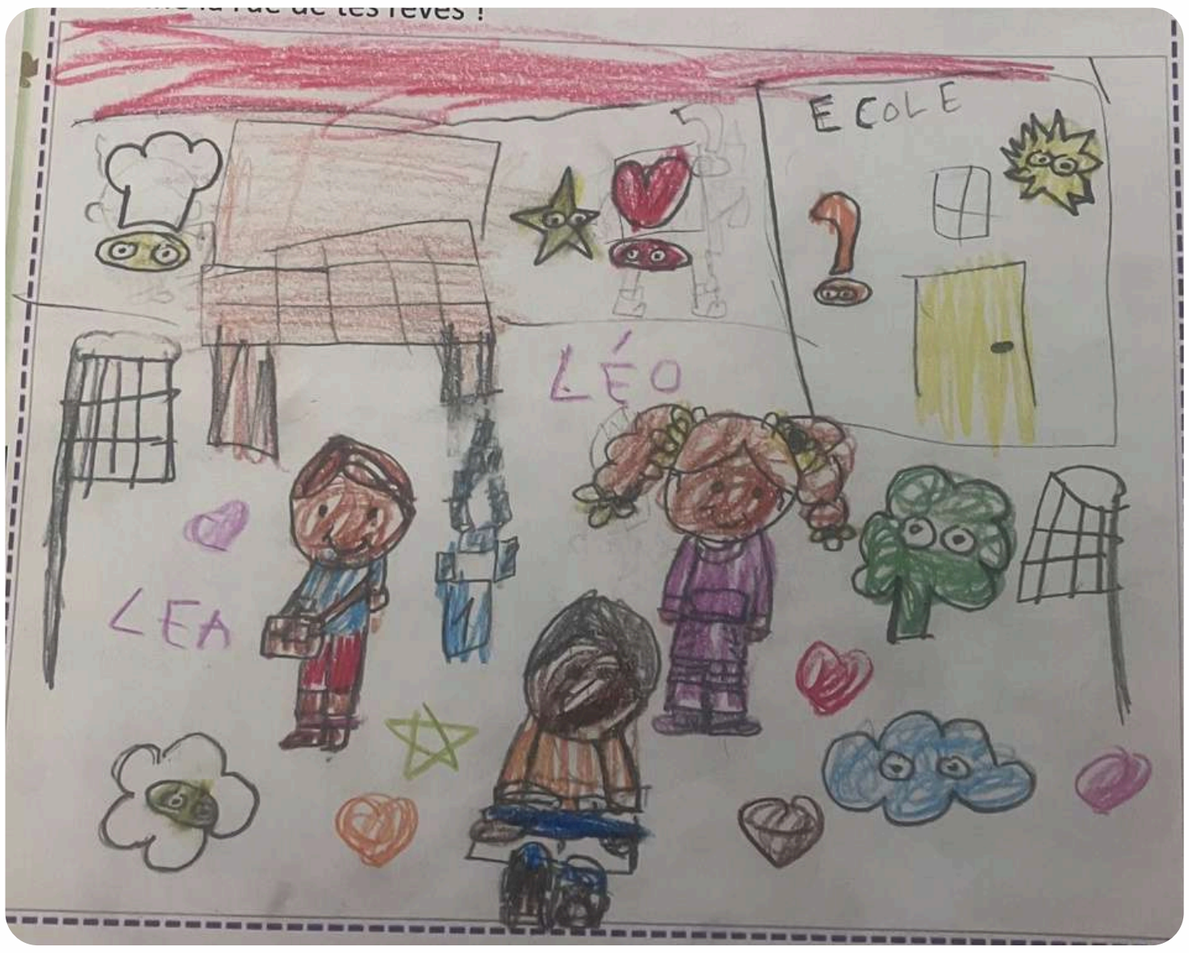
What are you doing in the street?	Before		After
I ride a bike, a scooter	56%	-3%	53%
I'm eating my snack	55%	-9%	46%
I play in the street	46%	-4%	42%
I look at the plants and flowers	40%	+3%	43%
I sit down, I rest	21%	+1%	22%
I read books	17%	-2%	15%

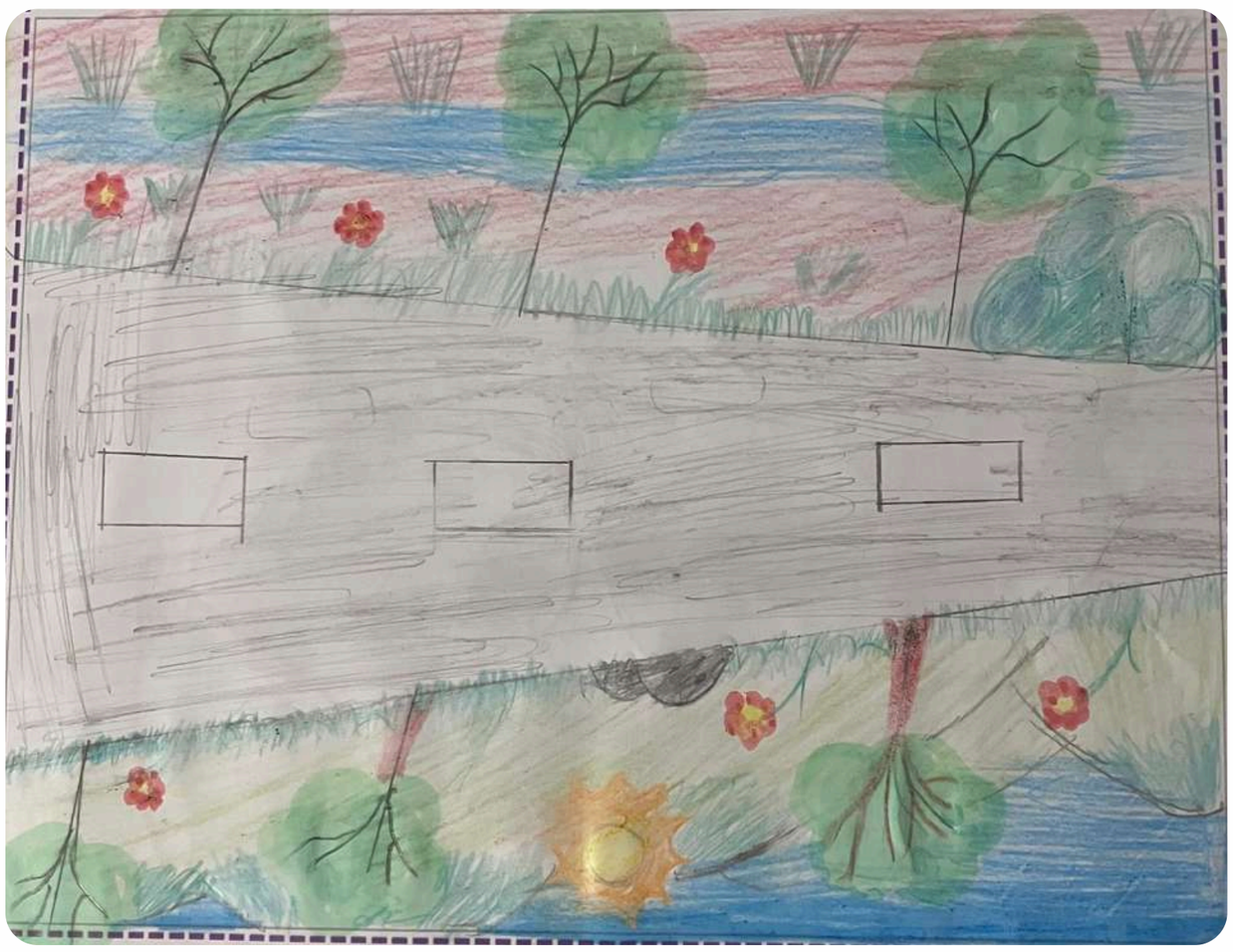
- Very slight variations in the different uses. The developments do not seem to fundamentally change the uses of children, but a case-by-case analysis could show more significant differences, particularly for the streets that have benefited from the largest developments.

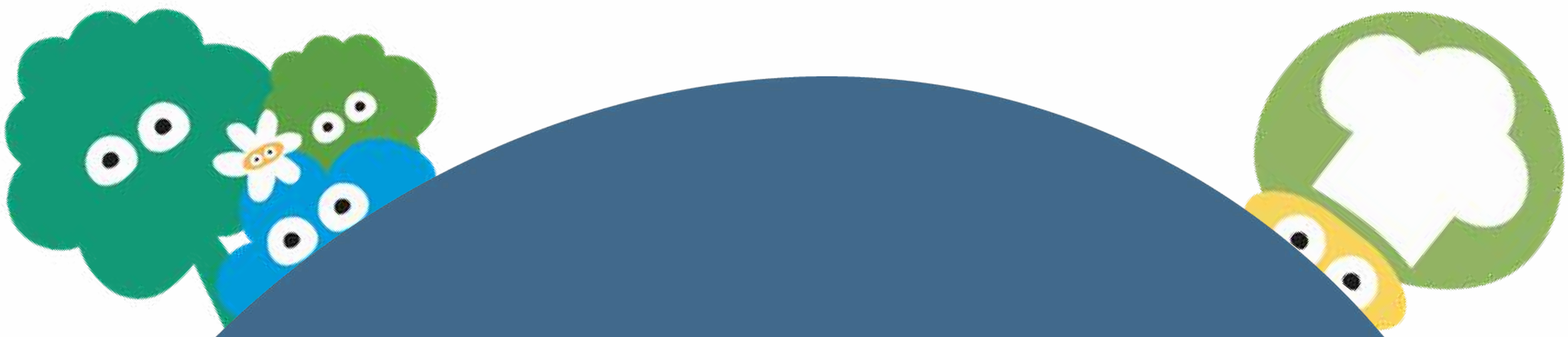
How do you get to school?	Before	After
On foot	77%	81%
By car	38%	27%
By scooter	21%	24%
By bike	21%	14%
By public transport	15%	13%
A skateboard	5%	6%
In a submarine	4%	4%
By train	2%	2%

- There has been a sharp decrease in car use, but no conclusions can be drawn as the mode of transport depends on other factors specific to each site and its environment at the neighbourhood level.

‘DRAW THE STREET OF YOUR DREAMS’ DRAWINGS







VEHICLE COUNTS: TRAFFIC-CALMED AREAS

SPECIAL FEATURE OF TRAFFIC-CALMED SITES

Traffic-calmed sites differ from the other two types in that the road remains open to traffic but with a view to reducing traffic AND vehicle speeds. There are several ways of achieving these objectives, depending on the site to be developed.

The five traffic-calmed sites evaluated have thus benefited from different developments, with positive results:

- **Jules Verne**: meeting zone, one-way system and green chicanes
- **Marc Bloch**: pedestrian zone, reduction in the width of the road, accessible to buses only
- **Marcel Pagnol**: pedestrian zone, one-way system, reduction in the width of the road, traffic island
- **Pierre Termier**: pedestrian zone, modification of the traffic plan, reduction in the width of the road, traffic island
- **Gare d'Eau**: pedestrian zone, green traffic islands

For the Marcel Pagnol site, the count before development took place in the same street but upstream of the school section. The comparison can be put into perspective, but gives an order of magnitude in a similar and very close street.

For the Gare d'eau site, no count was taken in the street before development.

Rue Jules Verne, 2023

Ville de Lyon

Counting date: 2019 - 2022

Rue Chevreul, 2023

Ville de Lyon

Counting date: 2011 - 2021

Rue Ltn Clnl Girard, 2023

Ville de Lyon

Counting date: 2021 - 2023

Rue des Alouettes, 2024

Ville de Lyon

Counting date: 2021, 2024

Rue de St Cyr, 2023

Google Maps

Counting date: 2024

COUNTS: AVERAGE NUMBER OF VEHICLES PER DAY

Site	Street	Before	After	Variation
Jules Verne (3e)	Jules Verne	1173	740	-37%
Marc Bloch (7e)	Chevreul	2274	376	-83%
Marcel Pagnol (7e)	Ltn Colonel Girard	1434	670	-53%
Pierre Termier (8e)	Alouettes	2379	199	-92%
Gare d'Eau (9e)	St Cyr	Not available	1635	-

Average -66%

COUNTS: AVERAGE NUMBER OF VEHICLES PER HOUR, MORNING RUSH HOUR

Site	Street	Before	After	Variation
Jules Verne (3e)	Jules Verne	96,5	80,5	-17%
Marc Bloch (7e)	Chevreul	147,5	17	-88%
Marcel Pagnol (7e)	Ltn Colonel Girard	91,5	50,5	-45%
Pierre Termier (8e)	Alouettes	168,5	15	-91%
Gare d'Eau (9e)	St Cyr	Not available	114,5	-

Average -60%

COUNTS: AVERAGE NUMBER OF VEHICLES PER HOUR, EVENING RUSH HOURS

Site	Street	Before	After	Variation
Jules Verne (3e)	Jules Verne	101,5	62	-39%
Marc Bloch (7e)	Chevreul	184	26	-86%
Marcel Pagnol (7e)	Ltn Colonel Girard	150	54	-64%
Pierre Termier (8e)	Alouettes	266,5	15	-94%
Gare d'Eau (9e)	St Cyr	Not available	109,5	-

Average -71%

COUNTS: V85 (KM/H)*

Site	Street	Before	After	Variation
Jules Verne (3e)	Jules Verne	37	30,5	**-18%**
Marc Bloch (7e)	Chevreul	44	36	**-18%**
Marcel Pagnol (7e)	Ltn Colonel Girard	Not available	34	**-**
Pierre Termier (8e)	Alouettes	30	Not available	**-**
Gare d'Eau (9e)	St Cyr	Not available	32	**-**

COMPTAGES : VITESSE MOYENNE

Site	Street	Before	After	Variation
Jules Verne (3e)	Jules Verne	22	19	**-14%**
Marc Bloch (7e)	Chevreul	31	22	**-29%**
Marcel Pagnol (7e)	Ltn Colonel Girard	Not available	19	**-**
Pierre Termier (8e)	Alouettes	18	16	**-11%**
Gare d'Eau (9e)	St Cyr	Not available	18	**-**

Average **-18%**

- Very positive results have been observed, with a drastic reduction in the number of vehicles at all sites, particularly Pierre Termier and Marc Bloch. The introduction of one-way systems and/or changes to traffic plans have proved very effective in reducing traffic, with a possible shift to adjacent streets that has not been measured in this study.
- Traffic remains very heavy on rue de St Cyr, and cannot be compared with the situation before the roadworks. The Vaise neighbourhood is generally very busy with vehicles.
- Speeds have also decreased for all sites with available data. The Marc Bloch site has seen the biggest decrease, mainly because only buses are allowed on the road since the roadworks.

*Speed below which 85% of vehicles travel


FIELD
OBSERVATIONS

OBSERVATION

FIELD OBSERVATIONS

The first observation phase involves a complete tour of the site to visualise the facilities, identify the signage of the site, potential areas likely to cause conflicts of use, or to identify the different school exits if these are not already known. Once this preliminary tour has been completed, the observer chooses a slightly secluded area to focus more closely on the parents' waiting areas and observe usage and potential conflicts. An observation grid divided into 4 axes is thus filled in, as well as a street map to specify usage and points of interest.

- An observation is made for each site, at the time the pupils leave, from 16:20 to 17:20 (or when all the pupils and parents have left the premises).

- The aim being to observe the uses and reappropriation of the place in an ideal way, the observation moments were carried out with pleasant weather (no rain, spring temperatures, early summer or early autumn).

The observations focus on the following 4 points:

1. The overall atmosphere, with a visual and sensory comparison of the adjacent streets
2. The distribution in space of the different users
3. Uses of the space
4. Mobility

- The overall analysis of the observations focuses on pedestrianised and traffic-calmed sites. The range of safe sites studied is too small to identify general lines of inquiry through observations.

PANEL OF SITES OBSERVED

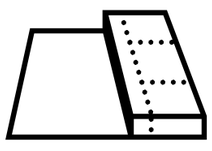
	Extent of development	Typology	
		Pacification	**Pedestrianisation**
Exposed sidewalks and no change of flooring	**Light**	Sacré Cœur*	Meynis Jean de la Fontaine Edouard Herriot
	Intermediate	Jules Verne Gare d'Eau	Harmonie Rebatel Jean Gerson
Change of flooring and no apparent sidewalk	**Important**	Marc Bloch Marcel Pagnol Pierre Termier	Léon Jouhaux Louis Pradel Gilbert Dru Charles Péguy Anne Sylvestre

*The Sacré Cœur site has benefited from safety improvements, but has a meeting zone with low observed speeds. In the case of observations, it can be classified in the pacification category.

OBSERVATION

PEDESTRIANISED SITES

The successful reappropriation of space in a pedestrianised area requires the harmonious reappropriation of the space by all users, particularly the central area, which is strongly associated with vehicles and less naturally used by parents and children. Children's independence and usage patterns are a result of this overall spatial reappropriation. Several factors can encourage or hinder the reappropriation of space.



TROTTOIRS APPARENTS

It seems, from the various observations made, that sites without apparent pavements quite blatantly allow a more successful reappropriation of the street by children and parents:
On the one hand, users are not influenced by the presence of pavements inviting them to reproduce the most common uses in the rest of the city, namely avoiding the centre of the street, which is synonymous with vehicle traffic and therefore danger.
On the other hand, sites with exposed pavements usually have street closure equipment such as swing barriers: in addition to influencing pedestrian movement with pavements, the barriers encourage users to start their journey in the street at the ‘edges’ and thus further encourage them to avoid the centre.

LOCALISATION DES BANDES PLANTÉES

Some pedestrianised areas have planted strips to separate the pavements from the road. While this separation was welcome when vehicles were circulating in the street, it now seems counterproductive in terms of reappropriation of the space, cutting it in two and only allowing crossings in certain places (in particular for the Meynis and Edouard Herriot sites and to a lesser extent Harmonie Rebatel).
The sites with major developments also have swing barriers and planted strips, but the absence of pavements mitigates the effects on pedestrian routes. Some sites also have functional pedestrian routes through the planted strips (Gilbert Dru, Louis Pradel, Charles Péguy).

DENSITÉ D’INDIVIDUS ET LARGEUR DE RUE

The sites with heavy development generally allow for a good reappropriation of the space, including the central space. The issue of density of individuals is therefore less important.
For sites with light or intermediate development (exposed pavements), a high density of individuals can allow for a more successful reappropriation of the space. For the sites observed, two distinct periods can be analysed: the time parents wait before the pupils leave, and the time of the exit itself, which can last several tens of minutes.
The first period is often calm, with a lower density of individuals and a precise distribution in the space located in the areas traditionally reserved for pedestrians: school forecourt, seating, barriers, etc.

The second period is more agitated, on the one hand with children being able to play and run around, and on the other hand with a higher overall density of individuals. It is at this point that the centre of the street can be reclaimed in a more qualitative way, with children's games or simply parents strolling with their children to leave the street.
If the site in question has a large number of pupils or is very busy in general, regardless of the width of the street, the reappropriation will be more qualitative with a progressive investment of the central space (Jean Gerson, Meynis and Edouard Herriot in particular).
If the site has a small number of users, or the exit onto the developed street is not very busy, the majority of the pavements will be used (Fontaine, Rebatel), unless the street is narrow enough for a homogeneous reappropriation of the space.

OBSERVATION

QUIET AREAS

The successful reappropriation of space in a traffic-calmed site involves the safe and pleasant sharing of space between the various modes of transport, with priority given to pedestrians in the central space when the site is in a shared space. All the sites observed undergoing traffic calming are in a shared space. However, here again, there are significant differences in the reappropriation of space between the sites according to various criteria.

VEHICLE TRAFFIC AND SPEED

Ampleur aménagement	Sites	Date comptage	Average working days: Nombre véhicule / jour	Average working days: Nombre véhicule HPM	Average working days: Nombre véhicule HPS	Average working days: V85	Average working days: Vitesse moyenne
Léger	Sacré Coeur	01/24	257	18	22	-	17,3
Intérmédiaire	Jules Verne	11/22	740	80,5	62	30,4	18,1
Intermédiaire	Gare d'Eau	01/24	**1635**	114,5	109,5	32,4	18,4
Important	Marc Bloch	03/23	376	17	26	**36,4**	21,6
Important	Marcel Pagnol	04/23	670	50,5	54	33,6	19,1
Important	Pierre Termier	01/24	199	15	15	-	15,9

Observations show that the Sacré Cœur and Pierre Termier sites have been reclaimed to a large extent, with the lowest number of vehicles per day during peak hours. This low traffic allows parents and children, as well as passers-by, to circulate in the centre of the street with greater ease. Vehicles, which sometimes arrive several minutes apart, very often have to make way for other road users who have had time to reclaim the central space since the last vehicle passed.

Conversely, for the busiest sites such as Gare d'Eau and Jules Verne, reappropriation of the road is almost non-existent, except at pedestrian crossings and for quick crossings. Traffic on the surrounding streets is also heavy, making the overall environment uninviting for parents and children to stroll through, despite speed reduction measures and the creation of a meeting zone.

The Marc Bloch and Marcel Pagnol sites report a contrasting reappropriation with other points of conflict, such as the complicated sharing of space with a fairly large number of bicycles. Traffic remains heavy for Marcel Pagnol, with a fairly narrow road often mixing bicycles in both directions of traffic and vehicles. For both sites, users are mostly absent from the central zone, except when crossing from time to time.

STREET WIDTH, DENSITY AND ACCESS TO THE CENTRE

Just like pedestrianised sites, the width of the street and the pathways providing access to the centre of the street greatly encourage a positive reappropriation. The Sacré Cœur and Pierre Termier sites have the lowest traffic, but also have the narrowest streets, which means that vehicles travel at a lower speed, with almost permanent access to the centre (few obstacles) and pedestrian areas that are sometimes too narrow for the number of users at peak times.

The central road therefore needs to be invested in and, thanks to low traffic, does not cause conflicts of use or safety issues. The aim would be to determine the traffic volume and vehicle speed at which reclaiming the centre becomes problematic in terms of safety, specifically for the Rues des Enfants.

CYCLE FACILITIES AND SHARING OF SPACE

Only the Jules Verne site has a cycle path separate from vehicles and pedestrians. For the other sites, these are shared spaces with vehicles and pedestrians, a distribution specific to meeting areas.

For the Sacré Cœur and Pierre Termier sites, the sharing of space between cyclists and other users is fairly fluid. The low traffic on Pierre Termier and Sacré Cœur allows cyclists to circulate serenely, and the high density of individuals at the time of the pupils' departure forces them to reduce their speed. A few excessive speeds were observed without causing major conflicts.

For the Jules Verne, Marc Bloch and Marcel Pagnol sites, sharing the space is more complicated.

Jules Verne is unusual, due to the narrowness of the street and the three types of layout present (separate cycle path, busy road, two pavements) with heavy traffic for all three types of users at the time when the pupils leave school. At this time, the flows mix, sometimes in a risky way: pedestrians spill over onto the cycle path, forcing cyclists to move onto the road in the opposite direction. Several conflicts have been observed in this way.

Marc Bloch and Marcel Pagnol are quite similar in terms of the issues at stake: the cycle paths are unclear, and the density of pedestrians at hours when people are out forces them once again to move onto the road used by oncoming traffic. The latter is too narrow to allow buses and cycles (Marc Bloch) or vehicles and cycles (Marcel Pagnol) to pass at the same time. Conflicts are observed, which can impact the safety of cycles. Pedestrians are also impacted when cyclists decide to favour areas not used by vehicles and heavily used by pedestrians (kerbsides).

ACCESSIBILITY: VISIT FOR PEOPLE WITH DISABILITIES

Two role-playing exercises with disabled people were held at the Charles Péguy and Pierre Termier sites in the 8th arrondissement.

As a reminder, the Charles Péguy site is pedestrianised and has undergone major improvements, with a change of paving and a school forecourt partially planted with vegetation.

The Pierre Termier site is a meeting zone and has undergone major improvements, with a change of paving as well, and a few planted strips and trees added.

The test and analysis were carried out by the territorial development department of the City of Lyon and the infrastructure and mobility operations department of the Métropole de Lyon. An occupational therapist was also present to observe the testers' usage.

At the end of the walks, a short questionnaire was sent to the testers and informal discussions were held on the quality of the location and the facilities. The results are compiled in this report.

SITE CHARLE PÉGUY

8 septembre 2024 – ©Ville de Lyon

12 mai 2024 – ©Ville de Lyon

SITE PIERRE TERMIER

16 juin 2024 – ©Ville de Lyon

16 juin 2024 – ©Ville de Lyon

TESTERS PIERRE TERMIER – 8E DISTRICT

- Person with motor disability, user of a cane – AVH, departmental disabled sports committee, CARPA (visual disability user of a cane)
- Person with a visual impairment, guided by a dog – PVV association
- Person with a visual impairment, guided by a dog – guide dog school, PVV
- Person with a motor impairment, user of a manual wheelchair – CARPA
- Person with a motor impairment, user of a manual wheelchair – CARPA

RECONNAISSANCE

During the tests, Rue Pierre Termier was frequented by secondary school pupils. A few vehicles travelled along the street at low speed. During the tests, a bicycle passed along Rue des Alouettes. It should be noted that vehicles sometimes travel along the street in the wrong direction, and that there is more traffic at the end of the day. The testers are all men with a motor (in a manual wheelchair) or visual (using a cane or a guide dog) disability.
The visually impaired generally understood the layout but found it difficult to find their bearings, except for one person who knew the area well. The noise from the school and the traffic lights at one of the crossroads helped them to find their bearings. It is more difficult to find your bearings in the evenings and at weekends, as these are outside school hours.
The routes for visually impaired pedestrians are difficult to identify (they tend to be on the side).
It was observed that the tester seemed more at ease if accompanied by a dog.
Although the location was familiar to some people, the layout resulted in a loss of bearings for people with visual impairments.

PATHWAY

The width of the pathway is suitable for pedestrian traffic, particularly for wheelchair users (no major obstacles). However, the pavement (side section) has a slope that should be avoided.
There is a lack of seating in this arrangement for people with walking difficulties.
The surface is not comfortable for two of the visually impaired testers: 'too much vibration for the cane', 'too rough', 'too greasy'. The third visually impaired tester finds the surface comfortable, except when it rains (too slippery).
The wheelchair testers consider the surface uncomfortable: it 'shakes', is 'too granular', 'you have to push the wheelchair'.

SECURITY

The feeling of safety is quite good at the time of the tests for visually impaired people due to the low level of motor traffic. The layout allows vehicles to slow down. It should be noted that you may be surprised by a vehicle arriving at low speed.
Wheelchair users feel rather safe because it is possible to move to the side to safety if a vehicle approaches. The bollards/markers make the refuge zone safer.

OPINIONS AND PROPOSALS

The design of the meeting area allows vehicles to slow down. However, it causes a loss of reference points for visually impaired people. A tester emphasised that the design is of a high quality. Some suggestions for improvement:

- Contrasting bollards
- Favouring round/conical piles; the corners of square granite blocks can be harmful
- Need for tactile and visual cues at crossroads at the ends of the meeting zone
- The pavement could have been smoother, a different colour and less steep (slope for wheelchairs)
- Belt of paving stones not very useful

TESTERS CHARLES PEGUY - 8E ARRONDISSEMENT

- Person with a visual impairment, user of a cane – AVH association
- Person with a visual and hearing impairment, user of a cane – AVH
- Person with a motor disability – user of a manual wheelchair – CARPA association group
- Person with a motor disability – user of a manual wheelchair – CARPA

RECONNAISSANCE

Visually impaired people have generally understood the layout but express difficulty finding their bearings. They have difficulty moving in a straight line.
The presence of wooden rails around the bases of the trees (11 in total) can provide a point of reference, but as they are positioned at an angle, the orientation is misleading for the visually impaired.
One visually impaired person was able to locate the bench because of the contrast created by the colours used. For others, the entrance to the pedestrian area is indicated on signs. However, their positioning needs to be reviewed.

PATHWAY

The width of the route is suitable as it is an old street (rue Joseph Chapelle) converted into a pedestrian area. There is a lack of width between the school and one of the planted strips.
The route has some detectable obstacles on the ground: for example, the electrical boxes located in the pedestrian area should have been positioned against the neighbouring buildings.
The chosen surface, deactivated concrete, is rather rough to the touch. It seems suitable for people with walking difficulties who use a walking stick, due to its good grip. It is rather appreciated by all the testers, even if they would have preferred a slightly less rough surface for wheelchair users.

SECURITY

The feeling of safety is quite good due to the pedestrianisation between Boulevard des Etats-Unis and the tramway on one side and Rue Wakatsuki on the other. A visually impaired person said that they still felt moderately safe, due to the difficulty of finding their bearings.

OPINIONS AND PROPOSALS

The pedestrian area is more suitable than the meeting zone in rue des Alouettes (Pierre Termier). However, there is a lack of landmarks for the visually impaired. Some suggestions:

- Review the positioning of the signs in the pedestrian area so that they are visible from wherever you arrive on site
- Add landmarks such as guide strips (particularly in the open area, which is wide enough without any buildings to allow the street to be followed in a straight line).
- For this type of layout with aligned tree bases, prefer an alignment parallel to the pedestrian walkway. Wooden rails can be misleading for visually impaired people.
- Prefer a slightly less rough surface.

HEALTH:

AIR QUALITY

AIR QUALITY

The data presented in this section comes from ATMO Auvergne-Rhône-Alpes* and the Lyon Health Department.
More specifically, ATMO AURA has published its 2023** air quality report for the Auvergne-Rhône-Alpes region, which is mainly based on the analysis of four pollutants: ozone, nitrogen dioxide, PM10 and PM2.5 particles.
The Department of Health has carried out work to measure nitrogen dioxide over several years and in several zones including schools and nurseries, some of which are part of the Children's Street project.

- Children are more affected by poor air quality, as their respiratory system is not fully developed until the age of 7-8***. Their respiratory rate is therefore higher than that of adults, resulting in increased inhalation of pollutants. It is therefore vital to prioritise improving air quality around schools and nurseries, even if the precise impact of the Children's Streets on air quality remains very difficult to measure.

THE MAIN POLLUTANTS MEASURED

- **Ozone (O3):** this is formed when nitrogen oxides and hydrocarbons react under the influence of the sun's ultraviolet rays. For this reason, ozone is more prevalent in spring and summer.

- **Nitrogen dioxide (NO2):** nitrogen oxides are oxidised forms of nitrogen, which contribute to acid rain and the greenhouse effect, and are precursors to the formation of ozone. NO2 penetrates deep into the lungs and irritates the bronchial tubes. It increases the frequency and severity of asthma attacks and promotes lung infections in children. Nitrogen dioxide mainly comes from the combustion of fossil fuels, industrial processes, road transport and forest fires.

- **PM10 particles:** these have a diameter of less than 10 micrometres and can be of natural or human origin. They can irritate and impair respiratory function with carcinogenic risks. PM10 particles mainly come from wood heating, agriculture, transport, road wear and construction sites.

- **PM2.5 particles:** these have a diameter of less than 2.5 micrometres and can be of natural or human origin. The finer the particles, the deeper they penetrate into the respiratory tract, irritating and impairing respiratory function with carcinogenic risks. These particles have a greater impact than PM10, and come mainly from wood-fired heating, industrial and agricultural activities and transport.

*ATMO AURA is the observatory approved by the Ministry of Ecological Transition for monitoring and providing information on air quality in Auvergne-Rhône-Alpes. It brings together all the regional players involved in monitoring and communicating about air quality and implementing actions to improve it. https://www.atmo-auvergnerhonealpes.fr/
**ATMO AURA: 'Bilan de la qualité de l'air 2023 en Auvergne-Rhône-Alpes' 2024. https://www.atmo-auvergnerhonealpes.fr/sites/aura/files/medias/documents/2024-04/ATMO_CP_Avril-2024_A4_VDEF.pdf
*** Trachsel, Daniel, et al. 'Developmental respiratory physiology.' Paediatric Anaesthesia, vol. 32, no. 2, February 2022, pp. 108–17. PubMed Central, https://doi.org/10.1111/pan.14362.

ENCOURAGING IMPROVEMENTS THROUGHOUT THE AURA REGION AND THE LYON URBAN AREA

In terms of chronic pollution, the year 2023 confirms a continuous improvement in air quality in our region. Since 2007, the main regulated pollutants have shown a clear decrease:

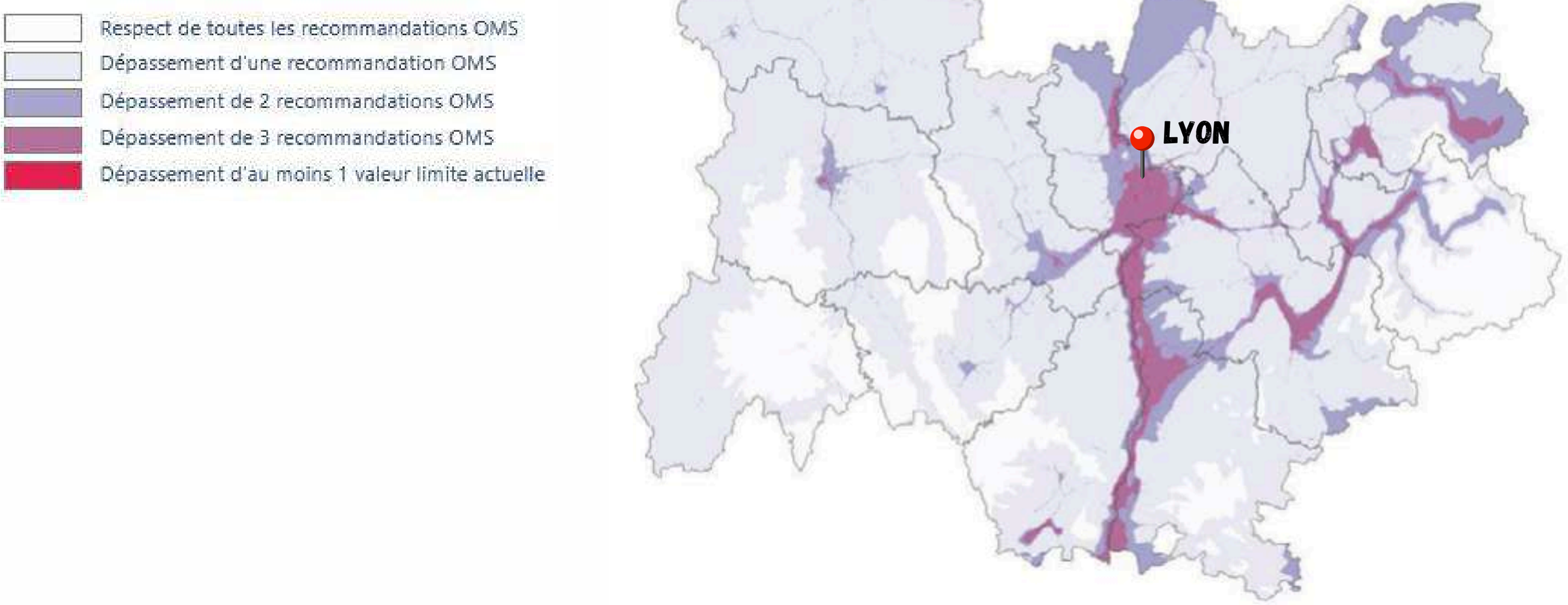
- A 50% drop for nitrogen dioxide (NO_2), a marker of road traffic.
- A 49% reduction for PM10 particles.
- A 64% decrease for PM2.5 fine particles.
- Ozone (O_3) is an exception, with a 20% increase in average levels between 2007 and 2023.

Although the overall picture is encouraging for particulate matter and nitrogen dioxide, some areas in our region require special attention:

- The long-term trend for particulate matter (PM10 and PM2.5) indicates a significant decrease, but the improvement seems to have stalled since 2019.
- A persistent exceedance of the regulatory thresholds for NO_2 is still observed in the Lyon conurbation, particularly along the ring road.

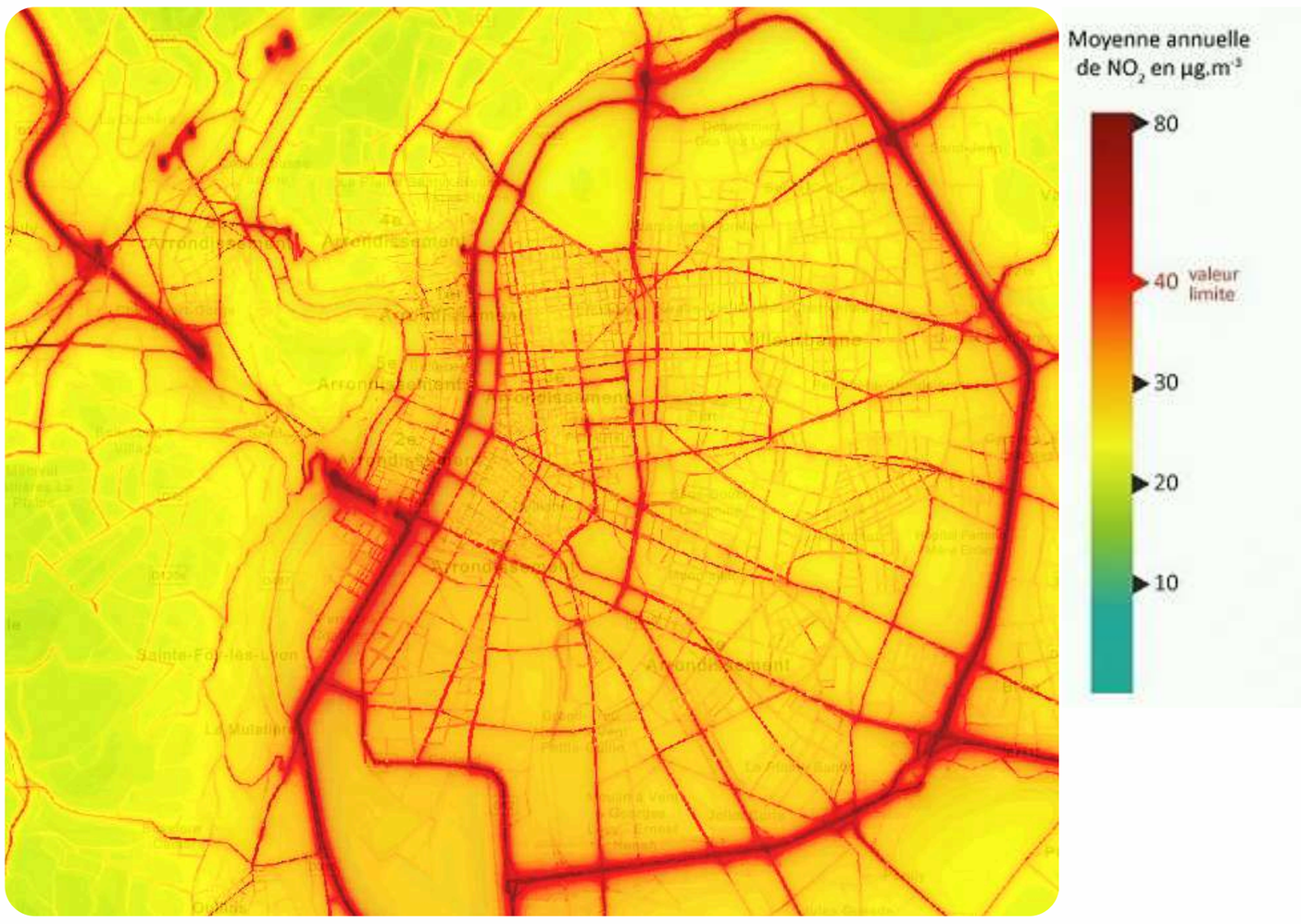
REGULATORY LIMIT STILL EXCEEDED IN LYON

Atmo Auvergne-Rhône-Alpes provides a cartographic indicator that assesses the health issues related to air quality in the Auvergne-Rhône-Alpes region. This indicator combines the thresholds recommended by the World Health Organisation and the regulatory values in force. The pollutants considered are nitrogen dioxide (NO_2) and PM10 and PM2.5 particles. The mapping of pollution levels in 2022 has made it possible to create this indicator, which shows that a large part of the population of Auvergne-Rhône-Alpes is still exposed to air that is harmful to health, particularly near the large urban areas in the east of the region (Rhône and Saône valleys and Alpine valleys).

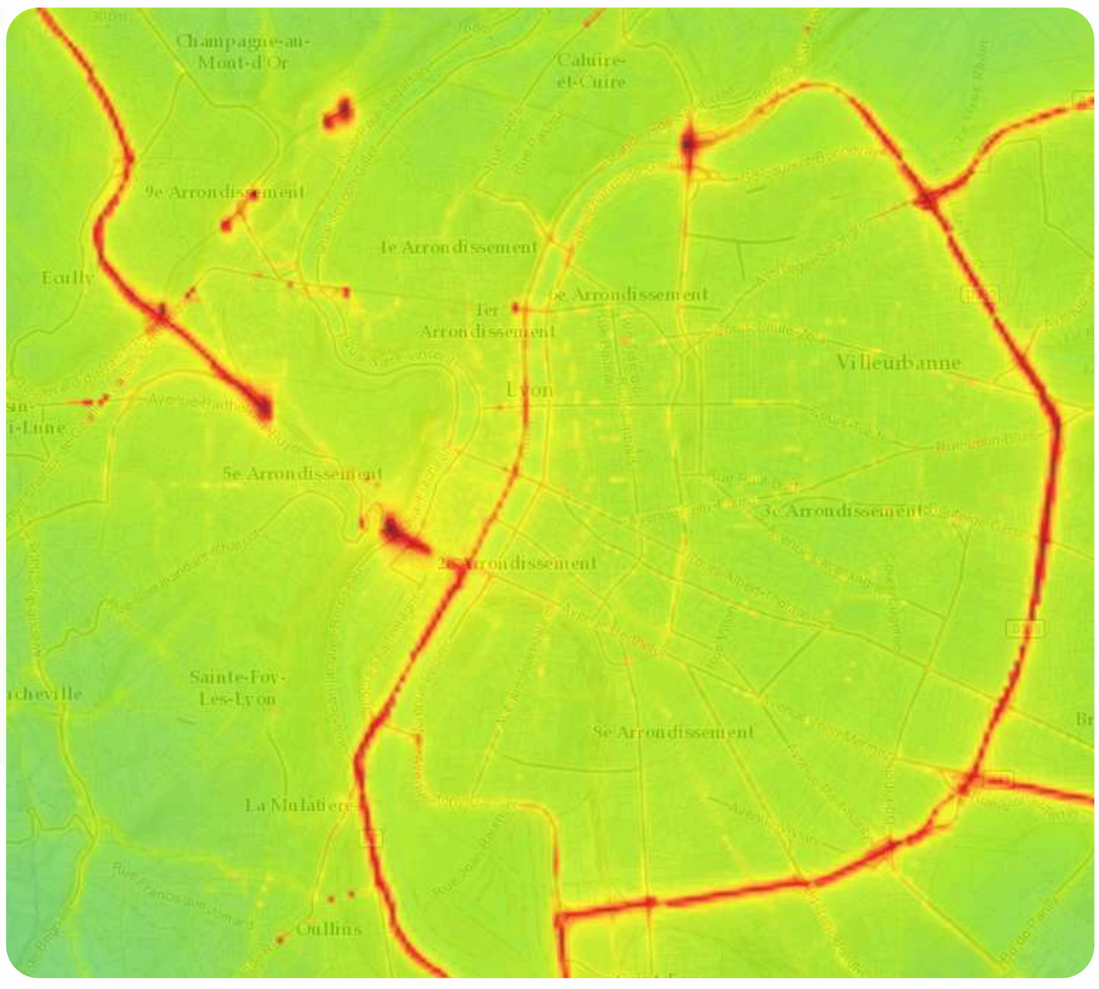


Compiled regulatory limits for NO2, PM10 and PM2.5 pollutants. 2022 (ATMO AURA)

Annual average of nitrogen dioxide NO2 in ambient air, estimated by modelling in the Auvergne-Rhône-Alpes region, in 2017. (ATMO AURA)



Annual average of nitrogen dioxide NO2 in ambient air, estimated by modelling for the Auvergne-Rhône-Alpes region, in 2023. (ATMO AURA)



Air quality in terms of NO2 has improved on many of the city's main roads, resulting in an overall improvement in the Lyon metropolitan area. The ring road and the A6 motorway are still, unsurprisingly, the most polluted roads.

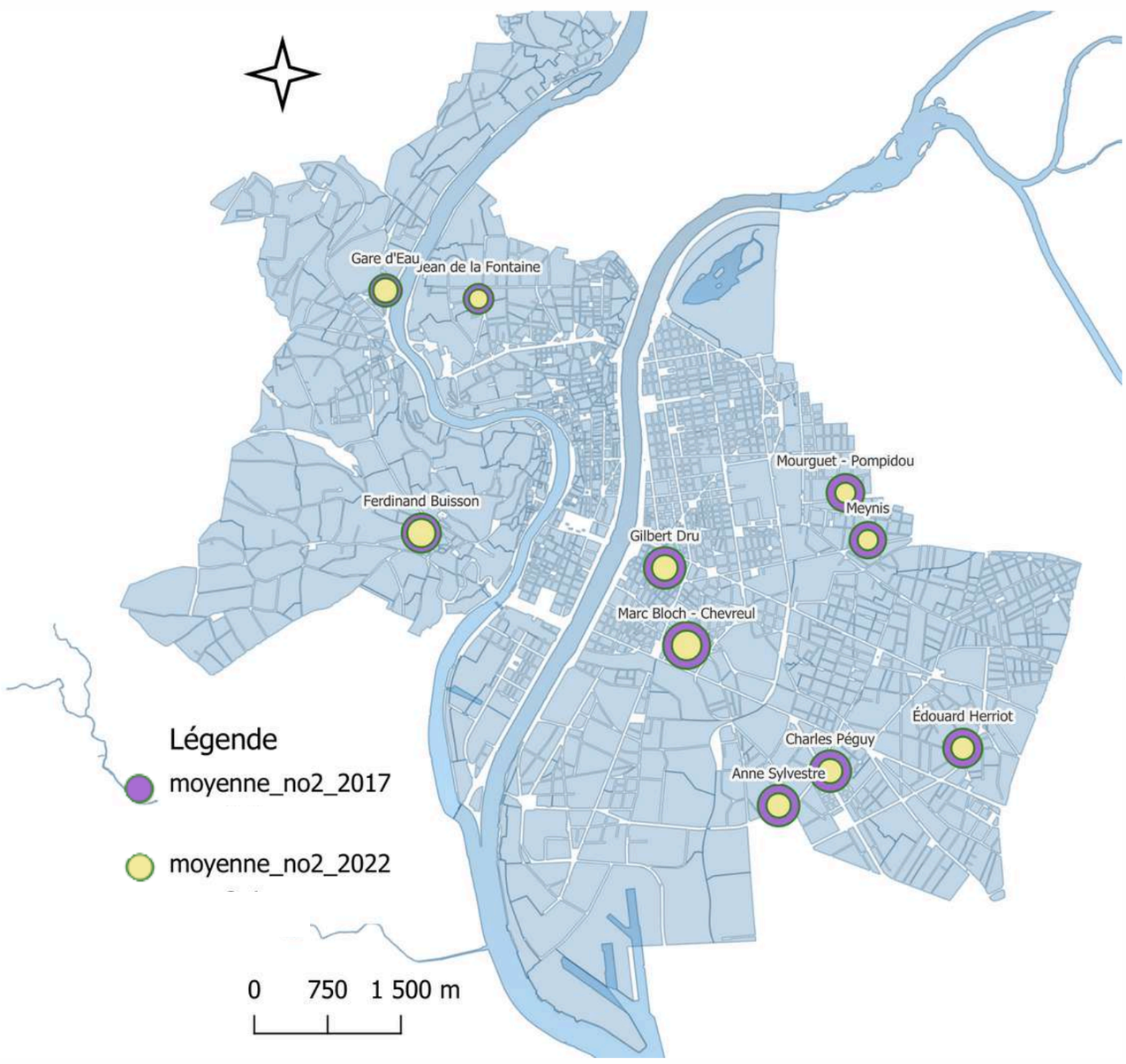
CHILDREN STREETS SITES

On the left, the Rue des Enfants improvements were carried out in 2021 or 2020 with measurements available before and after the improvements. The data used for NO2 levels are from Atmo AURA, with annual averages for 2017 and 2022 (the most recent data available).

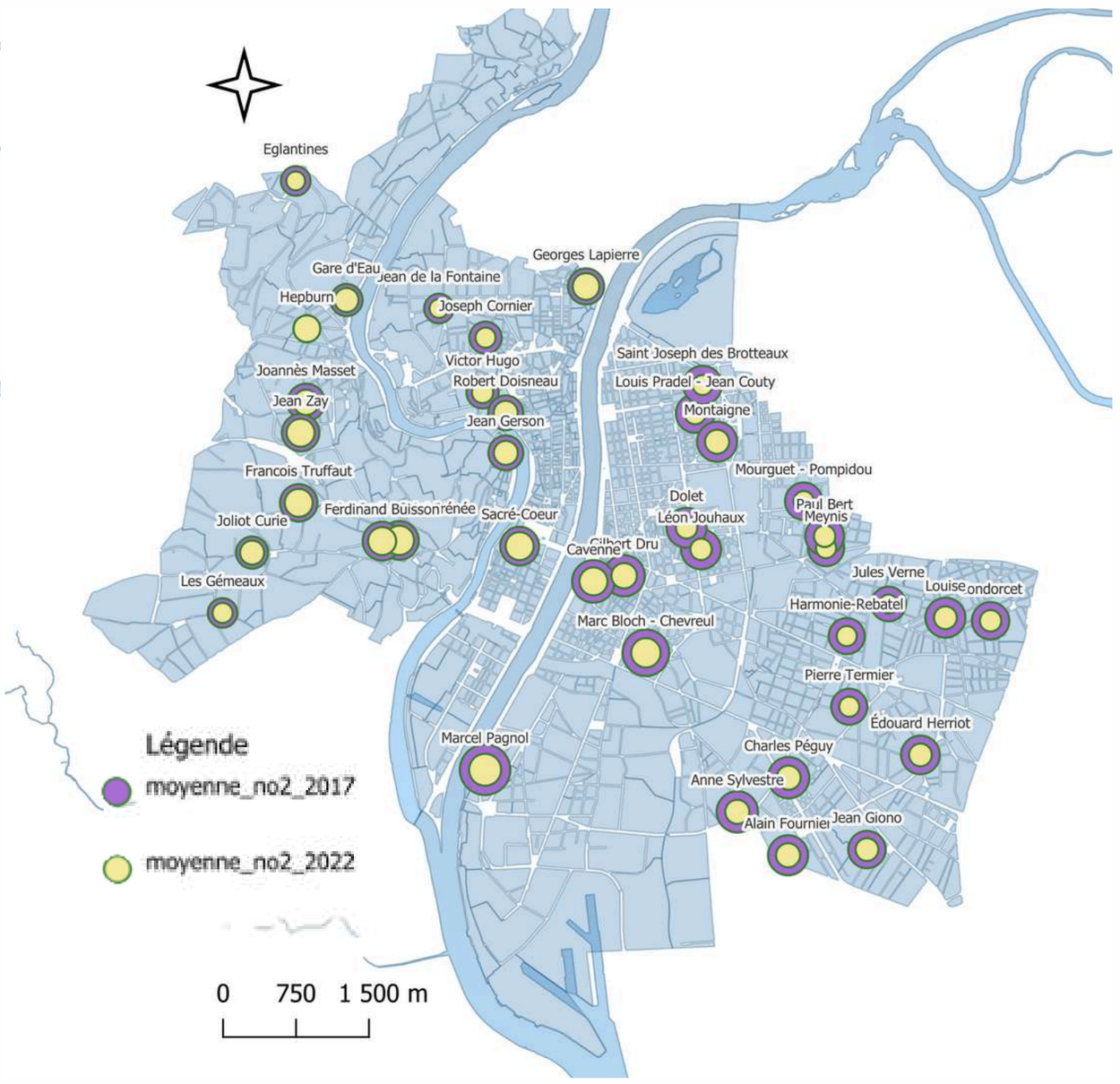
An average decrease of 31% in NO2 levels is observed between the two periods for these 10 sites.
However, all the Rue des Enfants sites assessed have seen a drop in concentration, regardless of whether the recent measurements were taken before or after the developments (right). It is therefore impossible to attribute these positive results to the Rue des Enfants developments.
Across all the sites, there has been an average decrease of 28% in the NO2 level.

The approach is part of and contributes to a positive overall dynamic, at the level of the city and the metropolis.

Evolution of NO2 levels in the Rues des Enfants zoning areas
Averages 2017 (before development) and 2022 (after development).



Evolution of NO2 levels in the Rues des Enfants zoning areas
Averages for 2017 and 2022 all sites combined



As the majority of the developments were carried out after 2021, future ATMO data will be decisive in refining the analysis on several dozen sites and in noticing (or not) more clear trends on the impact of the Rue des Enfants projects on air quality.

Median values over several years will also make it possible to limit the cyclical effects (weather, etc.) that can affect the results in a single year.

PROSPECTS

2025

PROSPECTS 2025

The next step in the project evaluation is to consolidate the various databases to enable a more in-depth analysis and allow for different classifications of the sites. These classifications make it possible to find areas for improvement, based on the satisfaction of the various audiences and on-site observations.

The sites evaluated prior to development will soon be evaluated after they have been developed, allowing for a more qualitative and relevant before/after comparison.
In addition to a new panel of sites evaluated in the conventional manner, additional evaluation approaches are planned for 2025:

- Observation of the use of space by users in the Rues aux enfants by camera. This study, carried out in collaboration with CEREMA, will make it possible to objectify the observations made up to now and to understand more precisely the trajectories and uses of all the publics present in the street.

- NO2 readings taken with sensors and not by modeling, at two Rue aux Enfants sites, before and after development. This study will be conducted in partnership with the Department of Health.

- Study on the obstacles to the empowerment of children on their journey to and from school, and benchmark on innovative mobility for children, in collaboration with the Lyon urban planning agency.

PLANNING EVALUATION 2025

Arr.	Site	Rue	Typologie	Temporalité
2	**Eugénie Brazier**	Delandine	Pedestrianization	**Post-developments**
2	**Alix**	Smith	Pacification	Pre-developments
3	**Condorcet**	Alfred de Musset	Pedestrianization	**Post-developments**
3	**Louise**	Louise	Pedestrianization	Pre-developments
3	**Paul Bert**	Paul Bert	Pacification	Pre-developments
4	**Joseph Cornier**	Jacquard	Pedestrianization	**Post-developments**
4	**Georges Lapierre**	Eugène Pons	Securisation	Pre-developments
5	**Les Gémeaux**	Pierre Valdo	Pacification	Pre-developments
6	**Montaigne**	Louis Blanc	Securisation	**Post-developments**
6	**Saint Joseph des Brotteaux**	Massena	Securisation	Pre-developments
7	**Wangari Maathai**	Croix Barret	Pacification	**Post-developments**
7	**Cavenne**	Cavenne	Securisation	Pre-developments
8	**Alain Fournier**	Berty Albrecht	Pedestrianization	**Post-developments**
8	**Kennedy**	Concorde	Pedestrianization	Pre-developments
8	**Lumière**	1er Film	Pedestrianization	Pre-developments
9	**Joannes Masset**	Horand	Pedestrianization	**Post-developments**
9	**Audrey Hepburn - Tissot**	Tissot	Pacification	Pre-developments
9	**Jean Zay**	Jean Zay	Pedestrianization	Pre-developments

SOURCES AND TOOLS USED

Mapping

- Development plans
- Satellite images 2018 and 2022
- City of Lyon and Métropole data
- GéoLyon (Detailed map)
- QGIS
- Google Maps

Vehicles counting

- Metropole of Lyon

Surveys by questionnaire

- User Relations Quality Department
- Questionnaires for parents and school staff sent online via SIM
- Sphinx
- Paper questionnaires sent to children and completed in class or during extracurricular time

Quantitative indicators

- Urban Mobility Department
- Education Department
- Biodiversity and Urban Nature Department
- Urban Lighting Department
- Lyon Metropolitan Authority

Observations

- Observation grid and completed printed plans for each site
- CEREMA reports on the walkability of public spaces

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