

Tool for assessing determinants of health on public space

*Herramienta para evaluar los determinantes de salud
en el espacio público*

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Servei d'Equipaments i Espai Públic



Diputació
Barcelona

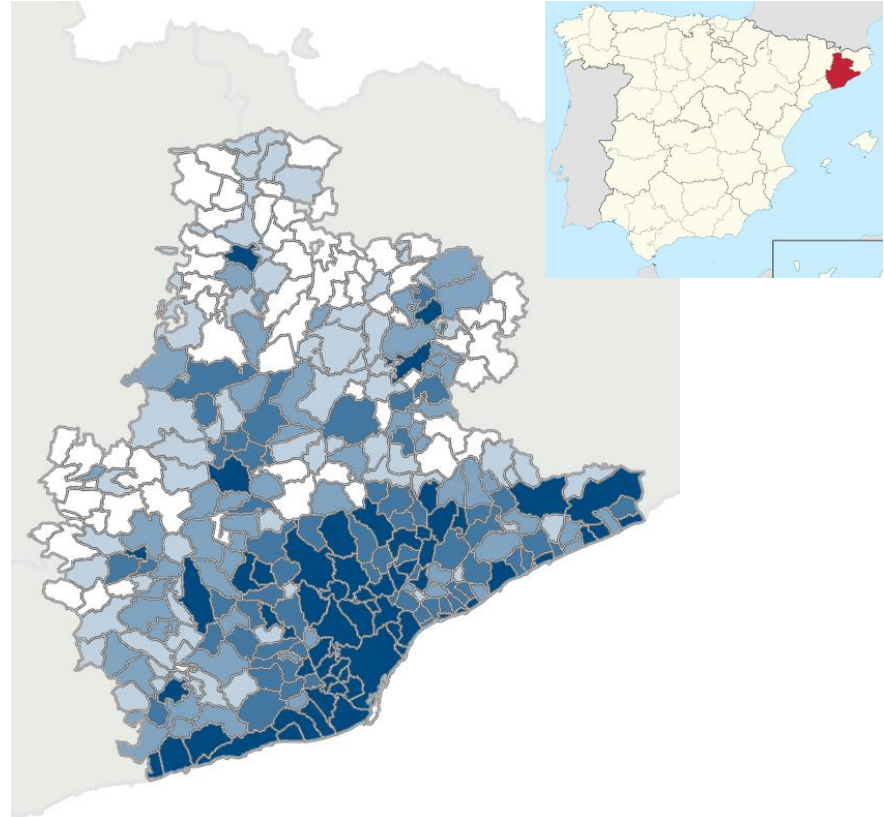
Àrea d'Infraestructures
i Territori



Context

Diputació de Barcelona is a local government institution that promotes the progress and well-being of the citizens of its territorial area: the province of Barcelona, 311 connected municipalities. This represents 24% of the total surface area of Catalonia and 74% of the total Catalan population (5.7 million people). It acts directly by providing services and, above all and in cooperation with local councils, it provides technical, economic and technological support to municipalities so that they can offer quality local services.

The *Servei d'Equipaments i Espai Públic* provides technical support in the form of plans, studies and projects so that municipalities can make investments in public space and municipal facilities for the citizens.



Public space as a key part of a healthy urban environment

Urban environments, where every day a higher percentage of population lives, are significant for people's health.

Scientific evidence confirms that people's health doesn't depend only on individual factors. It is mostly conditioned by different aspects related to our environment (social, economic, cultural, political and environmental factors) and our habits.

That's why Administrations must work to make the urban environment a healthy space where people can undertake their daily lives.

In this healthy environment, **public spaces** are a **key element**.



Tool for assessing the potential health impact of public space improvement actions

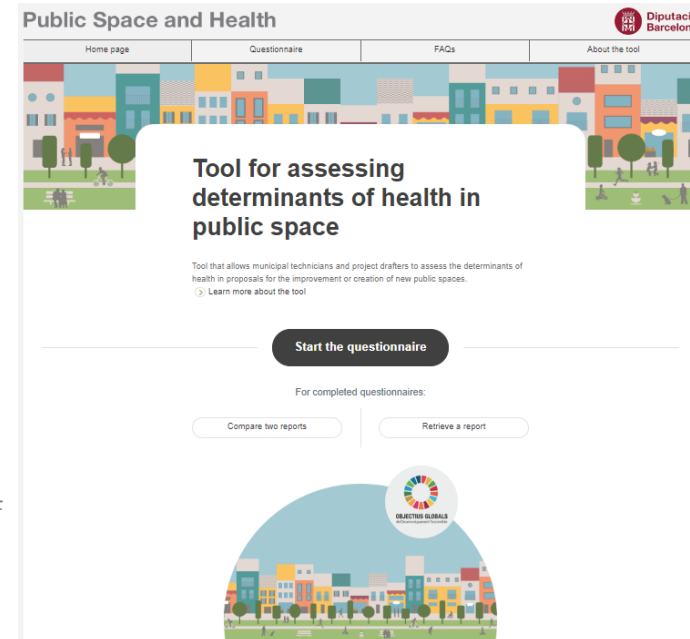
Our goals:

- Minimize the health impact of current urban dynamics (noise, air quality, temperature, etc.)
- Promote healthy dynamics through public spaces (encourage healthy habits and social relationships, etc.)

The fundamental part of this tool is to allow public space designers to quickly assess how healthy a current public space is, identifying the strongest and weakest points, helping the decision-making process in the improvement project phase.

It helps to incorporate the health perspective in the transformation of public space, comparing the results obtained from the current state vs. the new project or even different proposals.

It also helps public administrations to communicate to the citizens the results of an urban transformation, in order to obtain a new healthier space in the city..



Partners:



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Cati Chamorro Moreno and Josep Torrentó Marselles

Sustainable Development Goals

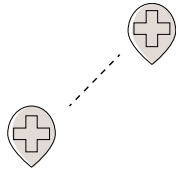


Ensure healthy lives and promote well-being for all at all ages.

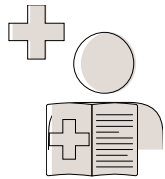


Make cities and human settlements inclusive, safe, resilient and sustainable.

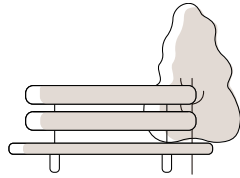
Work methodology



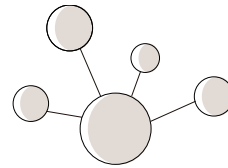
Review of scientific
literature



Impact on health



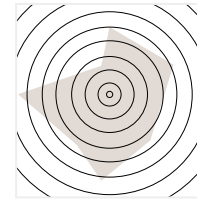
Elements of
public space



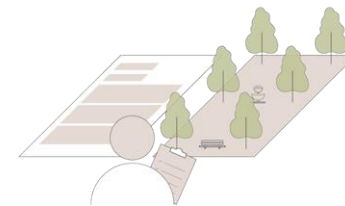
General
determinants of
health



Questionnaire
format

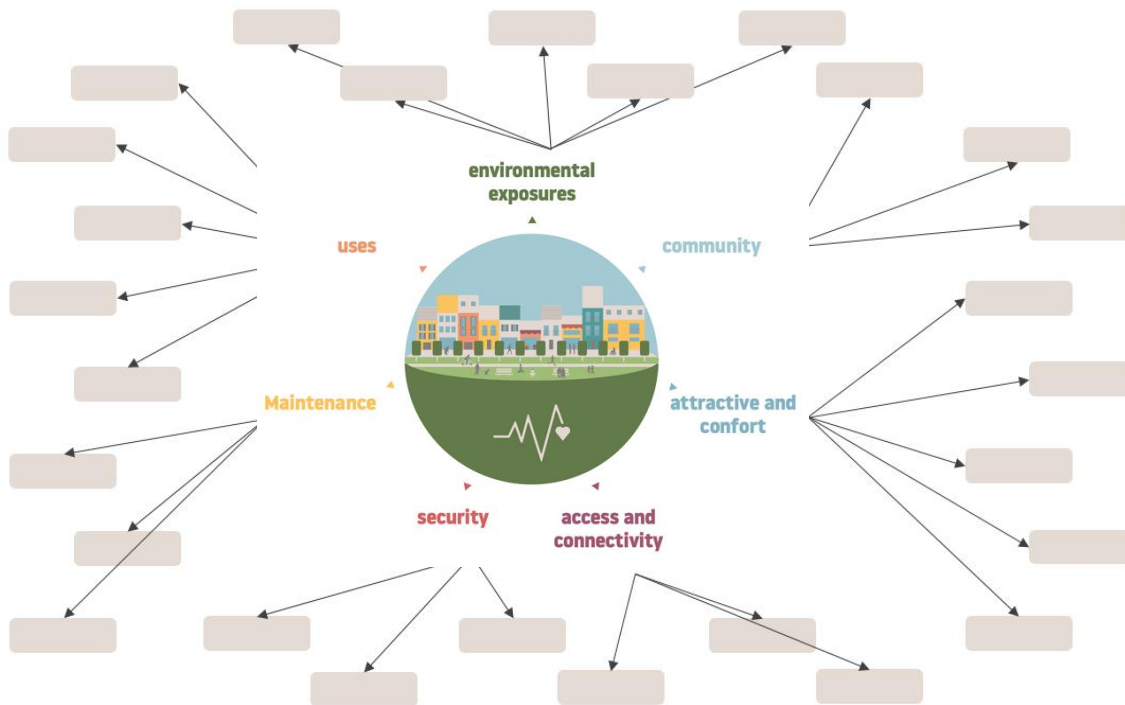


Easy to understand
and communicate
results



Evaluation and comparison:
projects vs. existing places

Determinants



Workshop

Environmental exposure

Thermal comfort

Percentage of shade
Albedo and SRI
Green elements
Blue elements

Noise mitigation

Noise-generating elements
Introduction of natural sounds

Odour mitigation

Odour-generating elements
Introduction of natural scents

Air quality

Traffic calming
Pollutant uptake
Dispersion of pollutants
Allergenicity

Lighting

*Respectful of the environment and
citizens*

Radiation

Distance to nearby sources of radiation



Safety

Lighting

Homogeneity
Interferences

Safety perception

Alternative routes
Spaces hidden from the public eye
Visual permeability
Ground floors transition

Materials and vegetation

Toxicity
Quality and durability
Allergenicity

Distance to traffic

Pedestrian prioritization
Vehicle speed reduction
Child safety areas

Risk management

Obstructive elements
Natural risk assessment



Maintenance and sanitation

Design of the spaces

- Emptying of litter bins*
- Maintenance-friendly solutions*
- Designs that cannot be broken or damaged*
- Ease of proper maintenance*

Green design

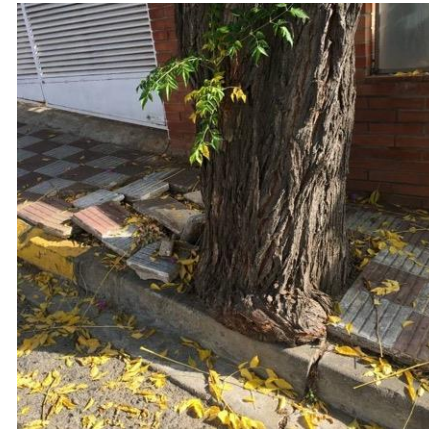
- Minimisation of invasive species*
- Species sustainability*
- Climate adaptation*
- Adaptation to uses*
- Species suitable for intended use*
- Building solutions for managing water*

Use of toxic products

- Minimisation of pesticides*

Design adapted to climate change

- Forecasting extreme weather scenarios*



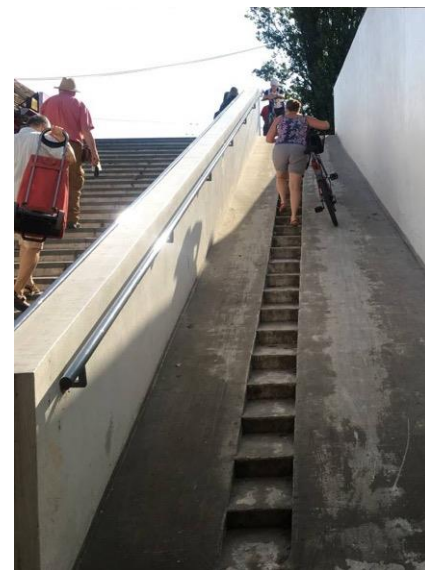
Access and connectivity

Access

- Universal accessibility
- Elimination of architectural barriers
- Signposting within the space
- Classifying areas within the space
- Visibility of the space

Connectivity

- With other open spaces
- With other facilities
- With pedestrian and commercial areas
- With public transport
- Bicycle parking
- Pacified roads/cycle lanes



Uses

Usability

- Distribution uses*
- Distance and connection between users*
- Space and design functionality*
- Unused areas*
- Nearby spaces uses*
- Diversity of equipment and services*
- Flexibility in times of crisis*

Children spaces

- Participation encouragement*
- Participation in spaces design*
- Space inclusivity*
- Age adequacy*

Spaces for rest, stay and socialization

- Resting furniture*
- Social relationships favoring*

Areas for physical activity

- Presence*
- Versatility groups or age adequacy*
- Walk routes*
- Furniture for sports practise*

Support elements

- Areas for unplanned actions*
- Health services*
- Sun and shade winter-summer suitability*
- Supporting elements*
- Route signage*

Natural elements

- Use of vegetation as an active element*
- Nature approach*

Pet spaces



Community

Participation

Urban decision-making
Design phase
Project proposal
Construction phase
Maintenance phase

Communication

Communication with citizens
Information systems
Recognition of community memory
Sense of ownership

Uses

Versatility



Fotografia de [Bewakoof.com Official](#) a [Unsplash](#)



Fotografia d'[Andrew Seaman](#) a [Unsplash](#)



Fotografia de [Iliya Vjestica](#) a [Unsplash](#)



Fotografia de [Thiago Barletta](#) a [Unsplash](#)



Fotografia d'[Alex Perri](#) a [Unsplash](#)



Fotografia d'[Arnel Hasanovic](#) a [Unsplash](#)

Comfort and attractiveness

Integration with the environment

*Urban landscape care
Visual analysis*

Global attractive

*Functional design
Air installations
Corners absence*

Space educational role

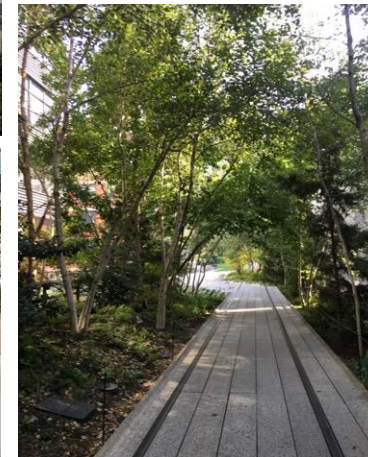
*Integration of artistic elements
Knowledge-promotion elements*

Patrimony assessment

Pre-existing elements assessment

Natural elements

*Staying places protection
Chromatism
Biophilia
Biodiversity improvement*



Comfort and attractiveness



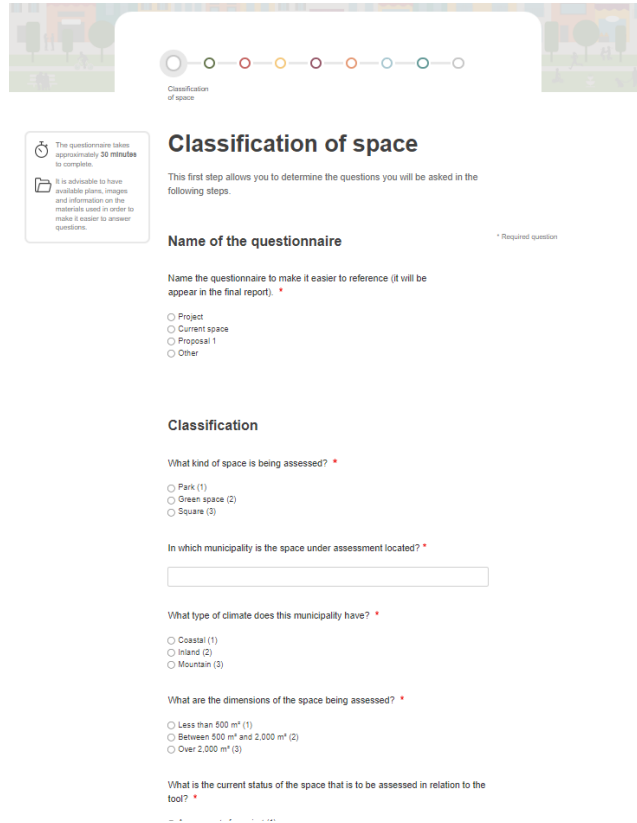
How does it work?

<https://espai-public-i-salut.diba.cat/en>



The screenshot shows the homepage of the 'Public Space and Health' tool. At the top, there are language options (CA, ES, EN) and the Diputació Barcelona logo. Below the header is a navigation menu with 'Home page', 'Questionnaire', 'FAQs', and 'About the tool'. The main content area features a colorful illustration of a city street with buildings, trees, and people. The central text reads 'Tool for assessing determinants of health in public space'. Below this, a brief description states: 'Tool that allows municipal technicians and project drafters to assess the determinants of health in proposals for the improvement or creation of new public spaces.' A link 'Learn more about the tool' is provided. A prominent black button with white text says 'Start the questionnaire'. Below this, for completed questionnaires, there are two buttons: 'Compare two reports' and 'Retrieve a report'. At the bottom of the main content area, there is a circular graphic with the text 'OBJECTIUS GLOBALS' and a colorful wheel. The footer contains the title 'Public Space and Health', a description of the portal, and a list of links: 'Entorn Urbà i Salut web', 'Equipaments i Espai Públic web', 'Sustainable Development Goals', 'Contact us', and 'Legal notice'. The Diputació Barcelona logo is in the bottom left, and the ISGlobal project information is in the bottom right.

How does it work? Classification of space



The questionnaire takes approximately 20 minutes to complete.
It is advisable to have available plans, images and information on the materials used in order to make it easier to answer questions.

Classification of space

This first step allows you to determine the questions you will be asked in the following steps.

Name of the questionnaire * Required question

Name the questionnaire to make it easier to reference (it will be appear in the final report). *

Project
 Current space
 Proposal 1
 Other

Classification

What kind of space is being assessed? *

Park (1)
 Green space (2)
 Square (3)

In which municipality is the space under assessment located? *

What type of climate does this municipality have? *

Coastal (1)
 Inland (2)
 Mountain (3)

What are the dimensions of the space being assessed? *

Less than 500 m² (1)
 Between 500 m² and 2,000 m² (2)
 Over 2,000 m² (3)

What is the current status of the space that is to be assessed in relation to the tool? *

Assessment of a project (1)
 Assessment of an existing space (2)

Classification

What kind of space is being assessed? *

- Park (1)
 Green space (2)
 Square (3)

In which municipality is the space under assessment located? *

What type of climate does this municipality have? *

- Coastal (1)
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- Less than 500 m² (1)
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 Over 2,000 m² (3)

What is the current status of the space that is to be assessed in relation to the tool? *

- Assessment of a project (1)
 Assessment of an existing space (2)

Continue to Environmental Exposure →

How does it work? Questionnaire

Public Space and Health 

Home page Questionnaire FAQs About the tool

Questionnaire


Environmental Exposure

Environmental Exposure

Regarding thermal comfort: * Required question

1 What percentage of shade does the space have in the summer months? Remember that we are not only talking about green spaces. *

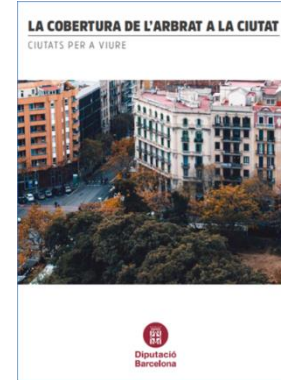
Help ⓘ
Depending on the use and functionality of the space, the optimal level of coverage may vary. The reference document below suggests the most appropriate percentages of coverage according to the type of space. The advice of an expert in green space management is recommended in order to achieve maximum benefits for this determining factor and for the determinants as a whole.

 [La cobertura de l'arbrat a la ciutat \(Tree cover in the city\) document](#)

Over 60% (5)
 Between 30% and 60% (3)
 Less than 30% (1)

2 What percentage of elements have high albedo calculated planimetrically with respect to the overall albedo? *

Help ⓘ
Definition of albedo:
The albedo is the amount, expressed as a percentage, of light hitting a surface that it reflects back. Light-coloured surfaces have higher albedo than dark surfaces.

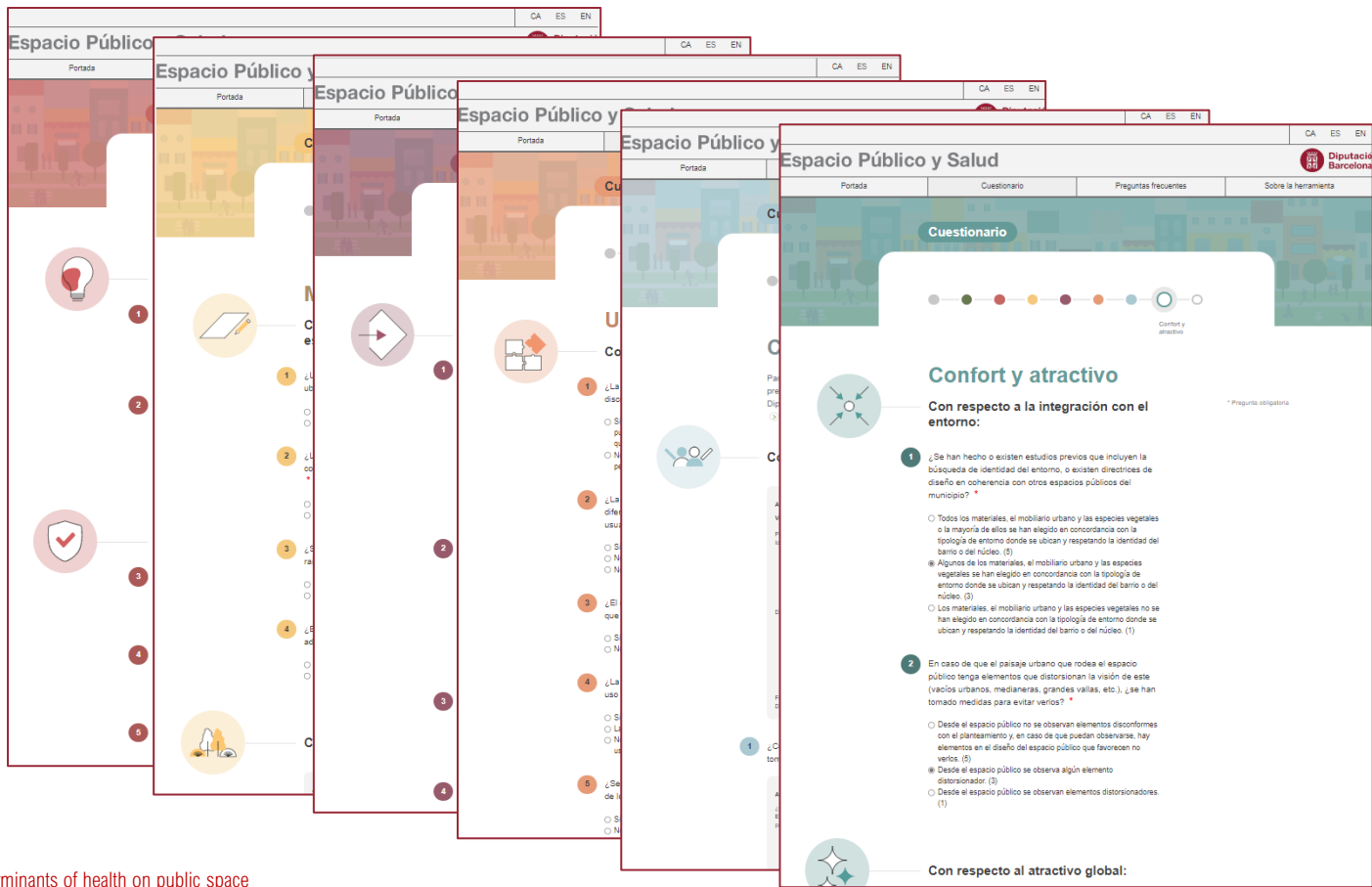


Propostes per a l'ambientalització de concursos públics d'edificació

Factor de llum natural o daily factor (DF):
La il·luminació interior d'una sala es pot quantificar per la il·luminació en un pla de treball de referència, que és un pla fíctic, horitzontal, vertical o amb una determinada inclinació (dependent de l'ús que es doni al local), formant una matriu de punts equidistants i posicionada a una altura corresponent a l'activitat desenvolupada (per exemple, 0,80 m per a oficines).
El factor de llum natural, o *daily factor* en anglès, és un mètode per calcular la il·luminació interior a partir de dos punts establerts: *Guia para los evaluadores acreditados VERDE NE Ro, GBCE*.

Índex de reflectància solar (IRS):
L'índex de reflectància solar (o SRI per la seva sigla en anglès) és un paràmetre que indica la capacitat d'un material per reflectir la calor solar experimentant un feble augment de temperatura quan s'exposa als rajos solars.
El valor de l'índex de reflectància solar està comprès entre 0 i 100.
El valor 0 correspon al d'un material de referència negre (molt poc reflector i capaç d'emetre la calor absorbida) que mostra un augment de temperatura de 50 °C a ple sol.
El valor 100 correspon al d'un material de referència blanc (molt reflector encara que també és capaç d'emetre la poca calor emmagatzemada) que mostra un augment de temperatura de 5 °C en les mateixes condicions d'insolació.

How does it work? Determinants



CA ES EN

Portada

Inicio

Cuestionario

Preguntas frecuentes

Sobre la herramienta

Confort y atractivo

Confort y atractivo

* Pregunta obligatoria

Con respecto a la integración con el entorno:

1 ¿Se han hecho o existen estudios previos que incluyen la búsqueda de identidad del entorno, o existen directrices de diseño en coherencia con otros espacios públicos del municipio? *

- Todos los materiales, el mobiliario urbano y las especies vegetales o la mayoría de ellos se han elegido en concordancia con la tipología de entorno donde se ubican y respetando la identidad del barrio o del núcleo. (5)
- Algunos de los materiales, el mobiliario urbano y las especies vegetales se han elegido en concordancia con la tipología de entorno donde se ubican y respetando la identidad del barrio o del núcleo. (3)
- Los materiales, el mobiliario urbano y las especies vegetales no se han elegido en concordancia con la tipología de entorno donde se ubican y respetando la identidad del barrio o del núcleo. (1)

2 En caso de que el paisaje urbano que rodea el espacio público tenga elementos que distorsionan la visión de este (vacíos urbanos, medianeras, grandes vallas, etc.), ¿se han tomado medidas para evitar varios? *

- Desde el espacio público no se observan elementos discordantes con el planeamiento y en caso de que puedan observarse, hay elementos en el diseño del espacio público que favorecen no varios. (5)
- Desde el espacio público se observa algún elemento distorsionador. (3)
- Desde el espacio público se observan elementos distorsionadores. (1)

Con respecto al atractivo global:

How does it work? Results

Public Space and Health

Home page | Questionnaire | FAQs | About the tool

Report

Report number VE-IN2200037 (Project)

Important: You need to save the report number to access the results later.

Download the report in PDF

SUMMARY Environmental Exposure | Safety | Maintenance and Sanitation | Access and Connectivity | Uses | Community | Comfort and Attractiveness

Characteristics of the space

Project: Assessment of a project (1) | Type: Urban del Centre
 Type of space: Green space (2) | Diversity: Inland (2)
 Size: Between 500 m² and 2,000 m² (2)

Scores

Determinant	Score
Environmental Exposure	6,4
Thermal comfort	6,8
Noise	2,8
Odours	2,0
Air quality	6,0
Lighting	10,0
Radiation	0,0
Safety	9,0
Lighting	10,0
Perception	7,8
Maintenance and sanitation	10,0
Distance to traffic	7,3
Risk management	10,0
Maintenance and Sanitation	10,0
Design of the spaces	10,0
Design of green spaces	10,0
The use of toxic products	10,0
Design for climate change	10,0
Access and Connectivity	5,1
Access	6,8
Connectivity	3,3

Graphical results



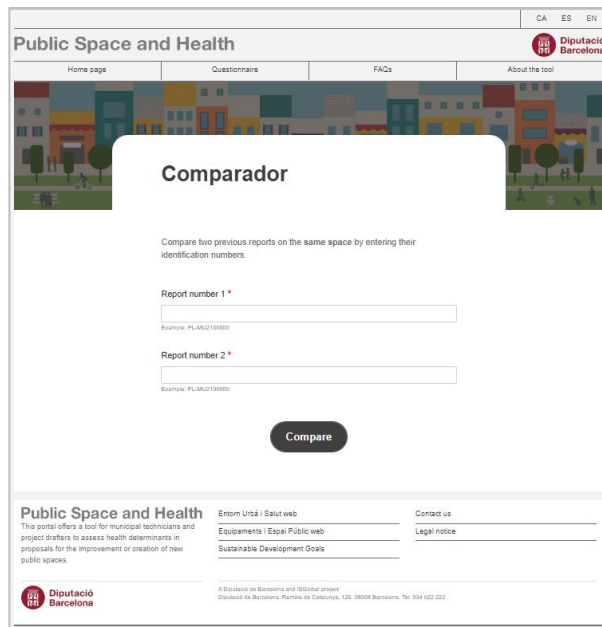
Determinants

Environmental Exposure	5,4
Safety	9,0
Maintenance and Sanitation	10,0
Access and Connectivity	5,1
Uses	4,8
Community	6,0
Comfort and Attractiveness	8,4

Numerical results - Partial scores

Environmental Exposure	5,4	Uses	4,8
Thermal comfort	6,8	Use	10,0
Noise	2,0	Children's play areas	3,8
Odours	2,0	Relaxation areas	8,0
Air quality	6,0	Areas for physical activity	2,0
Lighting	10,0	Supporting features	6,0
Radiation	0,0	Natural elements	2,0
		Areas for pets	2,0
Safety	9,0	Community	6,0
Lighting	10,0	Participation	2,0
Perception	7,8	Communication	6,0
Materials and vegetation	10,0	Use	10,0
Distance to traffic	7,3		
Risk management	10,0		
Maintenance and Sanitation	10,0	Comfort and Attractiveness	8,4
Design of the spaces	10,0	Integration with the environment	10,0
Design of green spaces	10,0	Overall attractiveness	10,0
The use of toxic products	10,0	Educational role of the space	2,0
Design for climate change	10,0	Importance of heritage	10,0
		Natural elements	10,0
Access and Connectivity	5,1		
Access	6,8		
Connectivity	3,3		

How to use the tool: comparative



Public Space and Health

CA ES EN

Home page Questionnaire FAQs About the tool

Comparador

Compare two previous reports on the same space by entering their identification numbers.

Report number 1 *

Report number 2 *

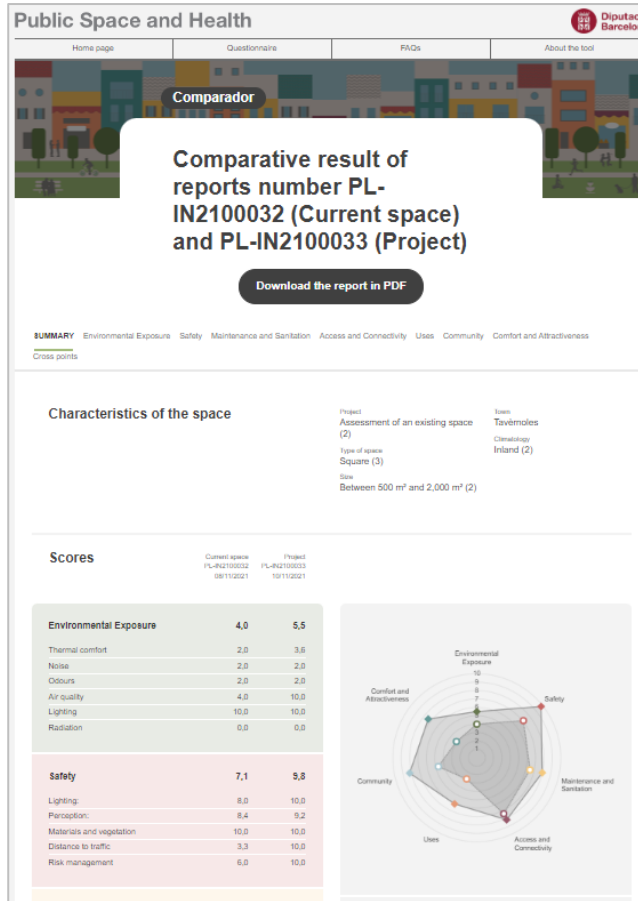
Compare

Public Space and Health
This portal offers a tool for municipal technicians and project drafters to assess health determinants in proposals for the improvement or creation of new public spaces.

Entorn Urbà | Salut web
Equipaments | Espai Públic web
Sustainable Development Goals

Contact us
Legal notice

A Diputació de Barcelona and ISGlobal project
Diputació de Barcelona, Rambla de Catalunya, 126, 08008 Barcelona, Tel. 934 122 222



How does it work: Les Franqueses del Vallès. Example



Projecte Plaça barri Bellavista. Joan Sandoval Amat Arquitecte



Determinants

Estat actual
PL-IN2100040
18/11/2021

Projecte
PL-IN2100041
18/11/2021

Environmental Exposure	2.5	7.9
Safety	3.5	9.0
Maintenance and Sanitation	3.0	7.7
Access and Connectivity	2.4	8.0
Uses	2.8	7.3
Community	2.0	6.9
Comfort and Attractiveness	2.6	5.4

NBS Nature-Based Solutions projects we have worked on

- Urban Green Master Plan
- Streams projects
- Pacified streets and connectors
- Parks and squares
- Integrating sustainable urban drainage systems
- Green roofs

Urban Green Master Plan

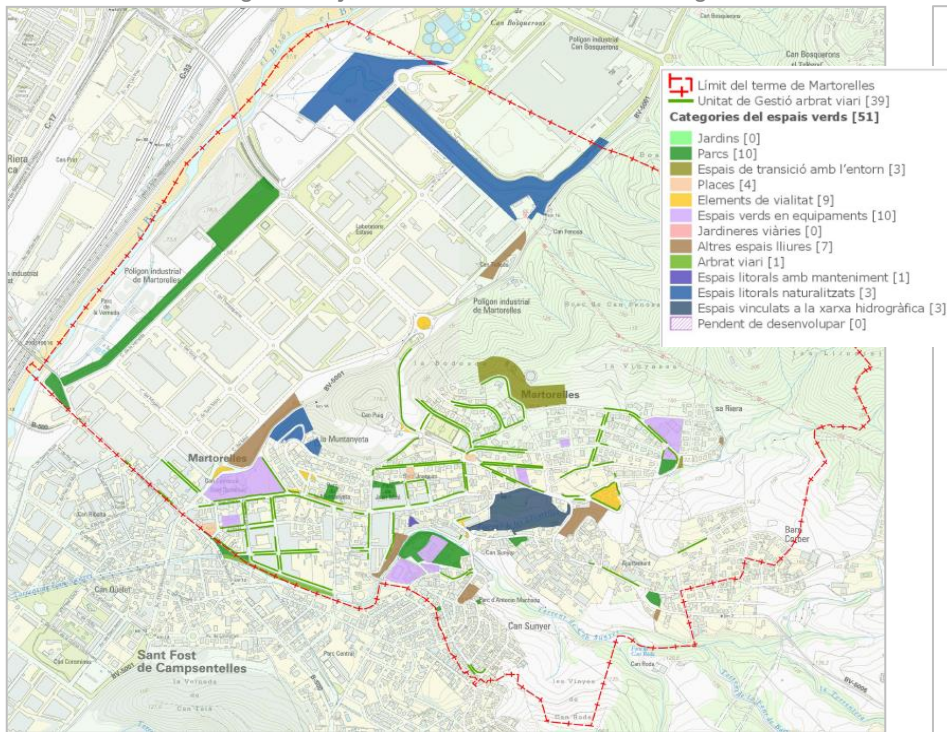
Goal: To plan and improve the management of urban greenery

- Improve and optimize the municipality's urban greenery
- Identify a global green strategy
- Involve all municipal actors
- Set goals to be achieved in the short and medium term
- Propose planning and management criteria

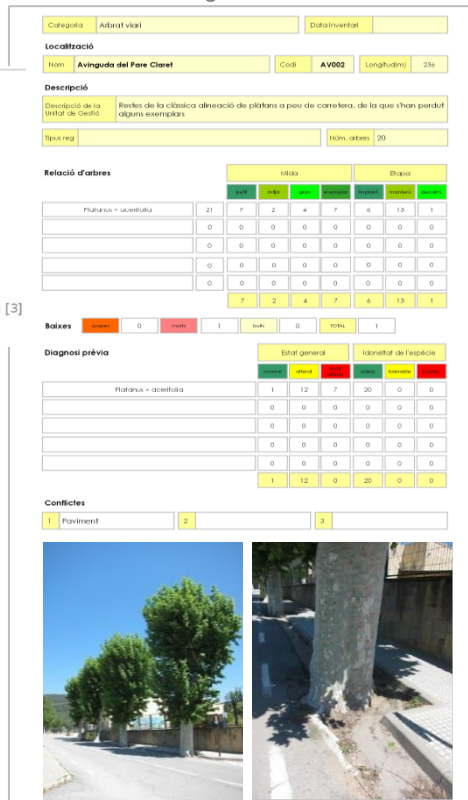


Urban Green Master Plan

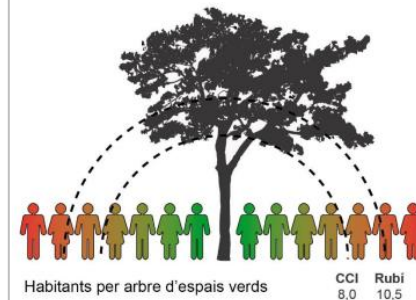
Identification of spaces / UG.
Urban greenery and classification into categories.



Fieldwork. Drafting of plans and files.
Digitalization



Data analytics



Rubí: Urban Green Master Plan

Territorial proposals: improvement of itineraries and internal/external connections



Castellgalí: transformation of the surroundings of the Barcelona Blue Routes (BBRs)

The Barcelona Blue Routes (BBRs) are a set of paths that trace the banks of the Llobregat, Cardener and Anoia rivers as they pass through the province of Barcelona, so that they can be used by the general public on a continual, unmonitored bases, and respecting biodiversity.

<https://www.diba.cat/en/web/vies-blaves-bcn/>

The Anoia Blue Route. Phase 1

The project:

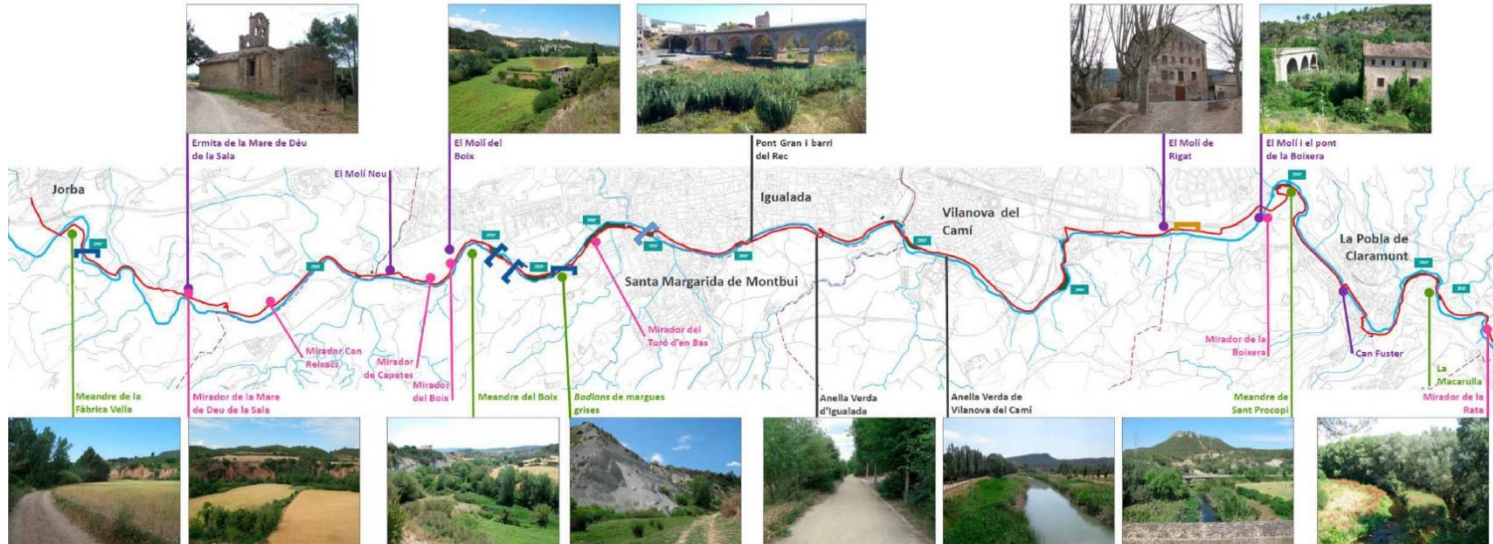
The Anoia Blue Route is part of the Barcelona Blue Routes, a network of itineraries over 200 km in length, which runs along the Llobregat, Anoia and Cardener rivers, accessible on foot and with non-motor vehicle transport, and which will link up with international trails and cycle ways.
Phase 1 of the Anoia Blue Route runs between the town centres of Jorba and La Pobla de Claramunt, in the Odena Basin (Anoia county). With a route of 19 km, it will connect the region's town centres and items of cultural interest, and provide insight into the values of the landscape and the natural environment.

Aims and criteria:

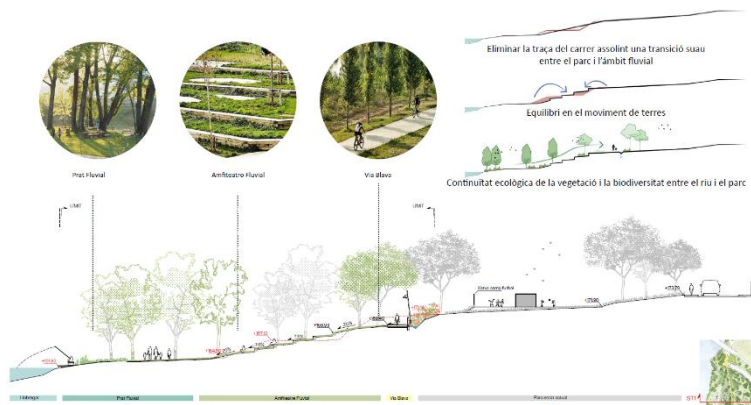
- > To guarantee the continuity of a single, safe route close to the river, completing and improving sections with gaps or deficiencies and a range of treatment applications according to the landscape in which it travels.
- To place emphasis on the environmental, scenic and cultural value of the area, improving the quality of the river spaces which have been impacted, and creating a route that allows for the enjoyment of the landscapes it crosses.
- > To improve accessibility to the river area from the main urban centres and the interconnection with the existing rural paths.

The region:

Phase 1 of the Anoia Blue Route runs through a more or less flat terrain, crossed by the river network of the Anoia river and its tributaries. The river has a meandering course nestled between slopes and badlands, and accompanied by riparian forests of high ecological and scenic value. The town centres are still compact, surrounded by an agroforestry matrix in which rainfed crops and small woods predominate. Downstream the city gains presence. The paper mills, ditches and other water-power infrastructure associated with the river remain, testimony of times gone by.



Castellgalí: Urbanization of the surroundings of the Barcelona Blue Routes (BBRs)



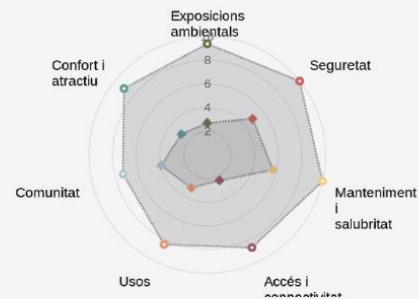
Architects: Batlle i Roig Arquitectura



L'avantprojecte d'urbanització de l'entorn de la Via Blava del Llobregat a la Torre del Breny consisteix en la creació d'una via pacificada en substitució de l'actual vial asfaltat, la implantació d'un espai d'estada equipat amb mobiliari i elements jugables i per últim la recuperació de la relació amb l'espai natural fluvial de l'aiguabarreig del Llobregat i el Cardener a Castellgalí. L'avantprojecte defineix tres fases d'execució de l'actuació.



Castellgalí: Urbanization of the surroundings of the Barcelona Blue Routes (BBRs)



Determinants

	projecte estat actual	
	VE- IN2300036 08/05/2023	VE- IN2300035 08/05/2023
Exposicions ambientals	9,4	2,7
Seguretat	10,0	4,9
Manteniment i salubritat	10,0	5,7
Accés i connectivitat	8,7	2,4
Usos	8,4	3,1
Comunitat	7,3	4,0
Confort i atractiu	9,0	2,8

Avià: Transformation of the square of the church of Sant Martí

The main goals of the project are:

1. Dignify the area with space for market and public events
2. Enhancing the value of the building
3. Relocate parking spaces
4. Generate a shaded living space



Architects: Barrio Peraire Arquitectes scp

[1] - Explanada davant de l'església

Avià: Transformation of the square of the church of Sant Martí



ARBRAT



Til·ler



Arbre de l'amor



BASSA



Acorus calamus



Carex acutiformis



ENTAPISSANTS



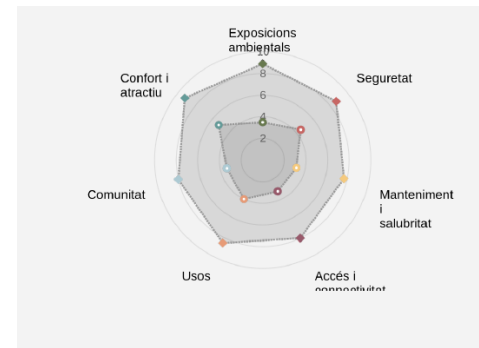
Santolina



Romani



Architects:
Barrio Peraire
Arquitectes scp

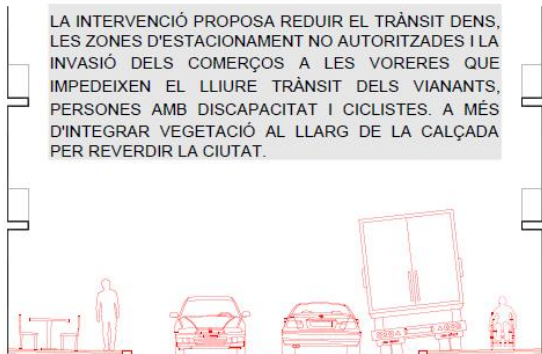


Determinants	estat inicial	estat final
	PL- IN2200056 08/06/2022	PL- IN2200054 08/06/2022
Exposicions ambientals	3,5	8,9
Seguretat	4,5	8,7
Manteniment i salubritat	3,2	7,7
Accés i connectivitat	3,2	8,0
Usos	4,0	8,5
Comunitat	3,4	8,0
Confort i atractiu	5,2	9,2

Súria: Road transformation on a green avenue with sustainable drainage systems

SECCIÓ ESTAT ACTUAL

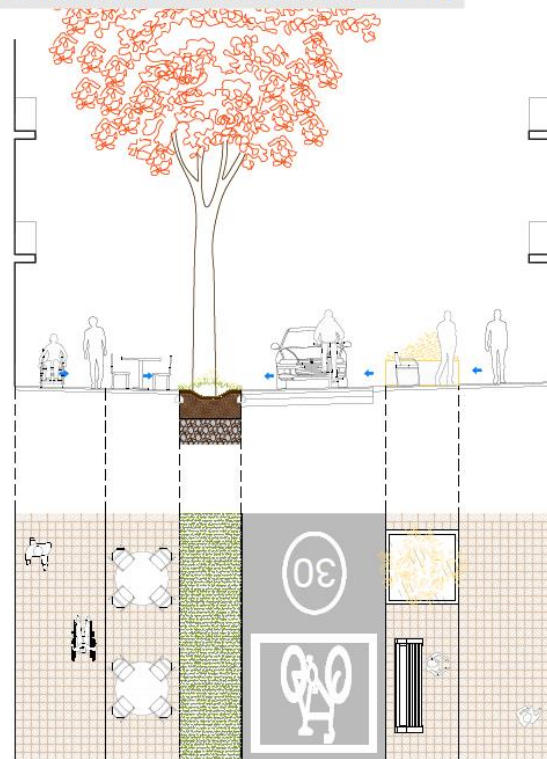
LA INTERVENCIÓ PROPOSA REDUIR EL TRÀNSIT DENS, LES ZONES D'ESTACIONAMENT NO AUTORIZADES I LA INVASIÓ DELS COMERÇOS A LES VORERES QUE IMPEDEIXEN EL LLIURE TRÀNSIT DELS VIANANTS, PERSONES AMB DISCAPACITAT I CICLISTES. A MÉS D'INTEGRAR VEGETACIÓ AL LLARG DE LA CALÇADA PER REVERDIR LA CIUTAT.



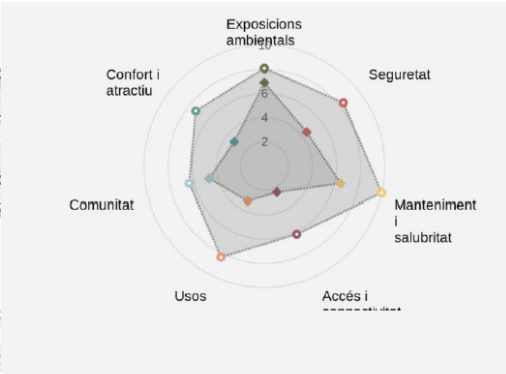
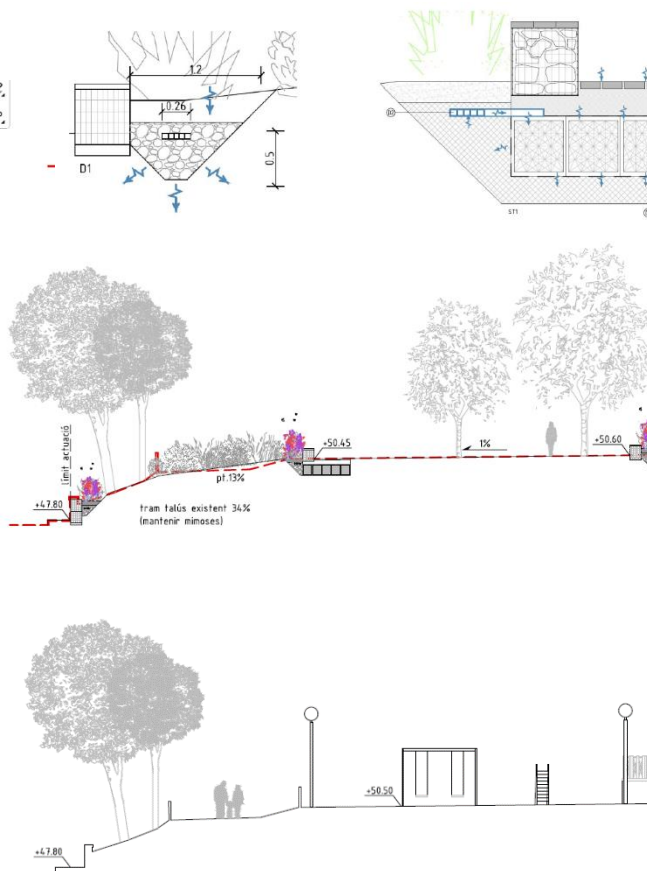
CONCEBENT EL PROJECTE



SECCIÓ PROPOSTA DE REURBANITZACIÓ



Arenys de Mar: Països Catalans park. Integrating sustainable urban drainage systems



Determinants

	Projecte	Estat actual
	PA-CO2200058	PA-CO2200057
	08/06/2022	08/06/2022
Exposicions ambientals	8,1	6,9
Seguretat	8,4	4,5
Manteniment i salubritat	10,0	6,5
Accés i connectivitat	6,2	2,4
Usos	8,3	3,2
Comunitat	6,4	4,7
Confort i atractiu	7,3	3,2

Architects: Estudi Nao scp





Green roofs in public facilities



Sant Martí Sarroca Library.
Architects: Valor Llimós Arquitectes



Olesa de Montserrat Library. Project.
Architects: Coll Leclerc Arquitectos slp

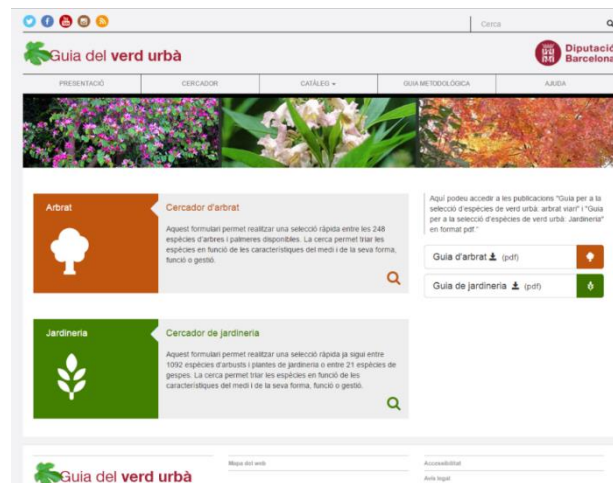
Knowledge

- Transfer the general health standards to the technical assistance we provide to local governments
- Share knowledge with technicians and municipal politicians
- Influence the designers by sharing objectives, guidelines and criteria in the technical specifications...
- To involve and raise awareness and communicate well with citizens in order to overcome resistance to change and motivate transformation

We provide publications, training, tools and technical material as support for local technicians and designers

Publications: <http://www.diba.cat/web/seep>

Online guide: <http://verd-urba.diba.cat/>



Conclusions

The **Tool for assessing determinants of health on public space** is a decision-making tool, which makes it possible to identify which aspects of the evaluated spaces may require further work in order to maximise their potential health benefits.

It's important to keep in mind that the public space is in constant transformation, and that any small intervention could mean an improvement in the field of health, even the smallest actions.

<https://espai-public-i-salut.diba.cat/en>

<https://www.diba.cat/en/web/seep>



Thank you for your attention!!

Gracias por su atención!

Montserrat Montalbo Todolí
Servei d'Equipaments i Espai Públic



**Diputació
Barcelona**

Àrea d'Infraestructures
i Territori

