



Tool for the evaluation of road infrastructure development projects

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Road mobility projects in urban regions and their impact on the environment

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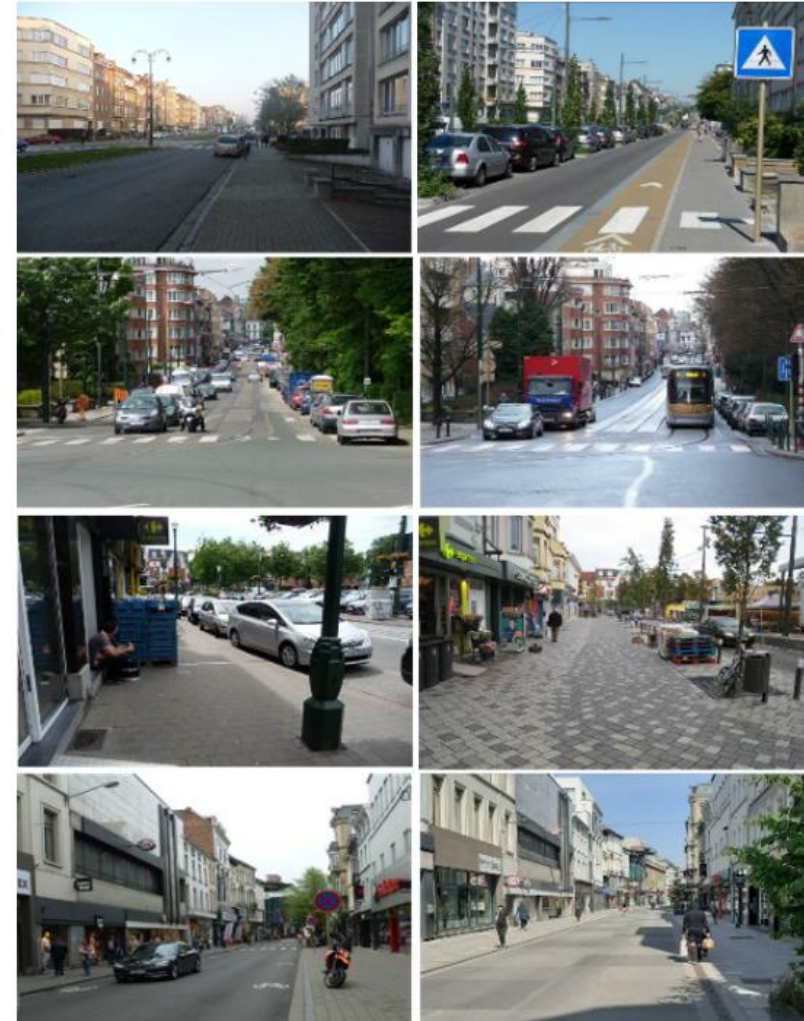
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Context

- Few road infrastructure development projects in Belgium are evaluated upon completion
- A lot of different road users lobbies challenging the results of the redevelopments
- Brussel's Mobility administration asks for a tool to feed the debates with objective indicators.



Context

- Objective of the evaluation tool:
 - Check whether the development meets the objectives set
 - Identify positive or negative lessons from the development to guide future developments
 - Respond in an objective way to the comments/objections of the many stakeholders concerned by the development (local residents, shopkeepers, associations, etc.)
- Studies commissioned by Brussels Mobility from BRRC:
 - Avenue du Port (2011-?)
 - Avenue Woeste (2012-2016)
 - Chaussée de Waterloo (section Bascule – Churchill) (2013-2015)
 - Place Dumon (2017-2018)
 - Chaussée d'Ixelles (2017-2021)

Context

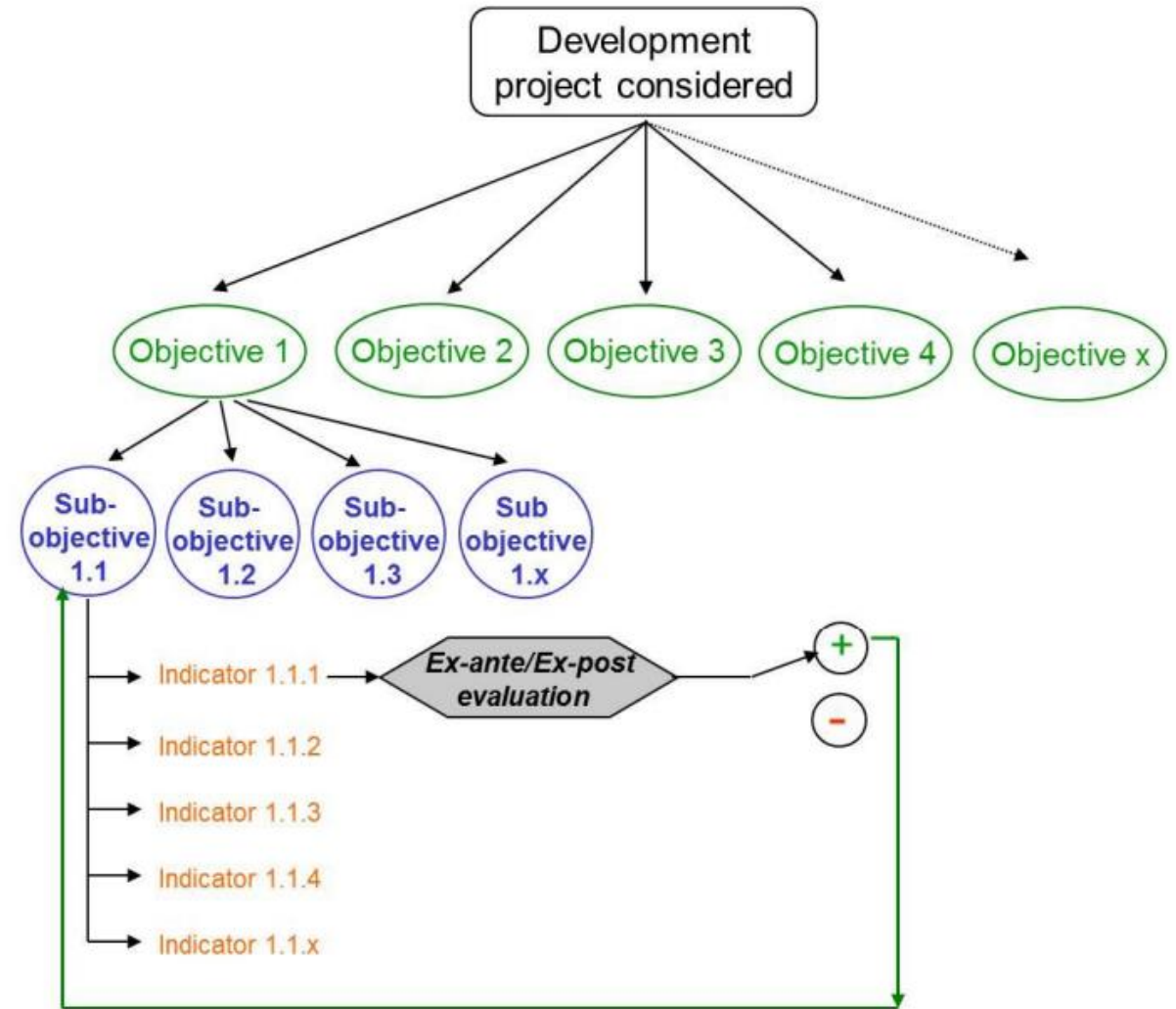
- Principles to be respected:
 - “Standard” methodology applicable to other road infrastructure projects
 - Use of objective indicators (as quantifiable as possible)
 - Easy and fast data acquisition
 - Cost and therefore limited evaluation budget

Context

- Prerequisites:
 - Study of infrastructure projects, not mobility projects
(e.g. no indicator to evaluate the creation of a “blue parking zone” on a road, but to evaluate the conformity of parking spaces)
 - Not a multi-criteria evaluation (no rating of the final project)

Evaluation methodology

- Based on the objectives of the Brussels Capital Region Mobility Plan Good Move
- Basic principle



Evaluation methodology

- Definition of the objectives (6) cf. GOOD MOVE Plan:
 - Encourage walking
 - Encourage the use of bicycles
 - Increase the attractiveness and ease the flow of public transport
 - Reduce the adverse effects of car traffic
 - Allow for parking in infrastructure projects
 - Allow for heavy goods vehicle traffic and goods delivery

Remarks:

- *Objectives structured by modes of transport (following the STOP principle (walking - cycling - public transport - individual car transport))*
- *Consistency between these 6 “standard” objectives and the specific objectives related to the redevelopment project is evaluated*

Evaluation methodology

		Objectives defined in the Chaussée d'Ixelles redevelopment project			
		Enhance the value of public spaces in a sustainable way by giving priority to active uses	Develop viable and safe traffic for all	Improve the performance of public transport substantially	Optimise deliveries
"Standard" objectives	1. Encourage walking	X	X		
	2. Encourage the use of bicycles	X	X		
	3. Increase the attractiveness and ease the flow of public transport		X	X	
	4. Reduce the adverse effects of car traffic		X		
	5. Allow for parking in infrastructure projects		X		
	6. Allow for heavy goods vehicle traffic and goods delivery		X		X

Evaluation methodology

1. Definition of sub-objectives (14):

1. Encourage walking

1.1 Improve pedestrian traffic on links

1.2 Improve pedestrian crossings

2. Encourage the use of bicycles

2.1 Improve cycle traffic on links

2.2 Improve cycle crossings

3. Increase the attractiveness and ease the flow of public transport

3.1 Improve the comfort and accessibility of public transport stops

3.2 Improve public transport traffic infrastructure

4. Reduce the adverse effects of car traffic

4.1 Reduce the speed of car traffic

4.2 Reduce the noise of car traffic

4.3 Improve road safety

...

Evaluation methodology

- Definition of indicators (2 types):

- “Infrastructure” indicators (65):

- ⇒ Translation of the sub-objective to the infrastructure level

- 1. Encourage walking

- 1.1 Improve pedestrian traffic on links

- 1.1.1 Pedestrian space

- 1.1.2 Pedestrian surfacing

- 1.1.3 Physical barriers on the ground

- 1.1.4 Free passage

- 1.1.5 Overhead clearance

- 1.1.6 Urban furniture

- 1.1.7 Signalling

- 1.1.8 Lighting

- 1.1.9 Longitudinal continuity

Evaluation methodology

- Definition of indicators (2 types):

- “Mobility” indicators (14):

- ⇒ Translation of the sub-objective to the “mobility” level

- 1. Encourage walking

- 1.1 Improve pedestrian traffic on links

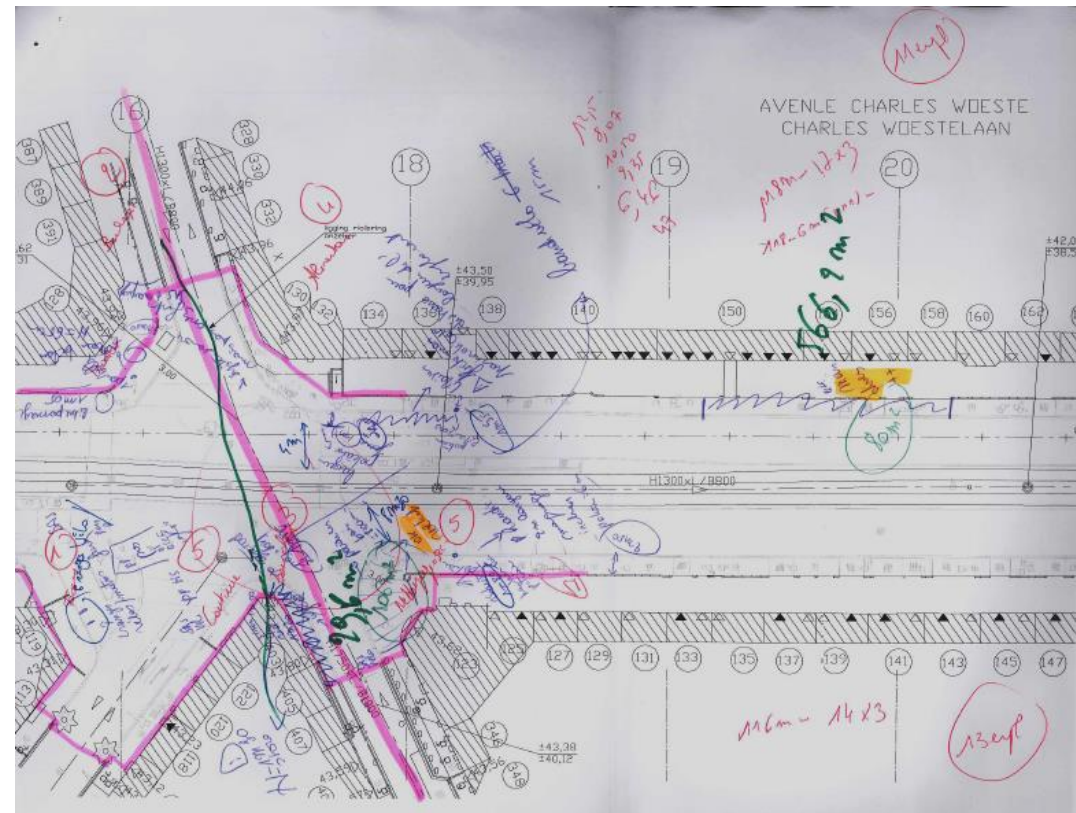
- Amount of pedestrian traffic

- 1.2. Improve pedestrian crossings

- Pedestrian accident research

Data collection on site

Field observations with notes on paper plan and photos (2012)



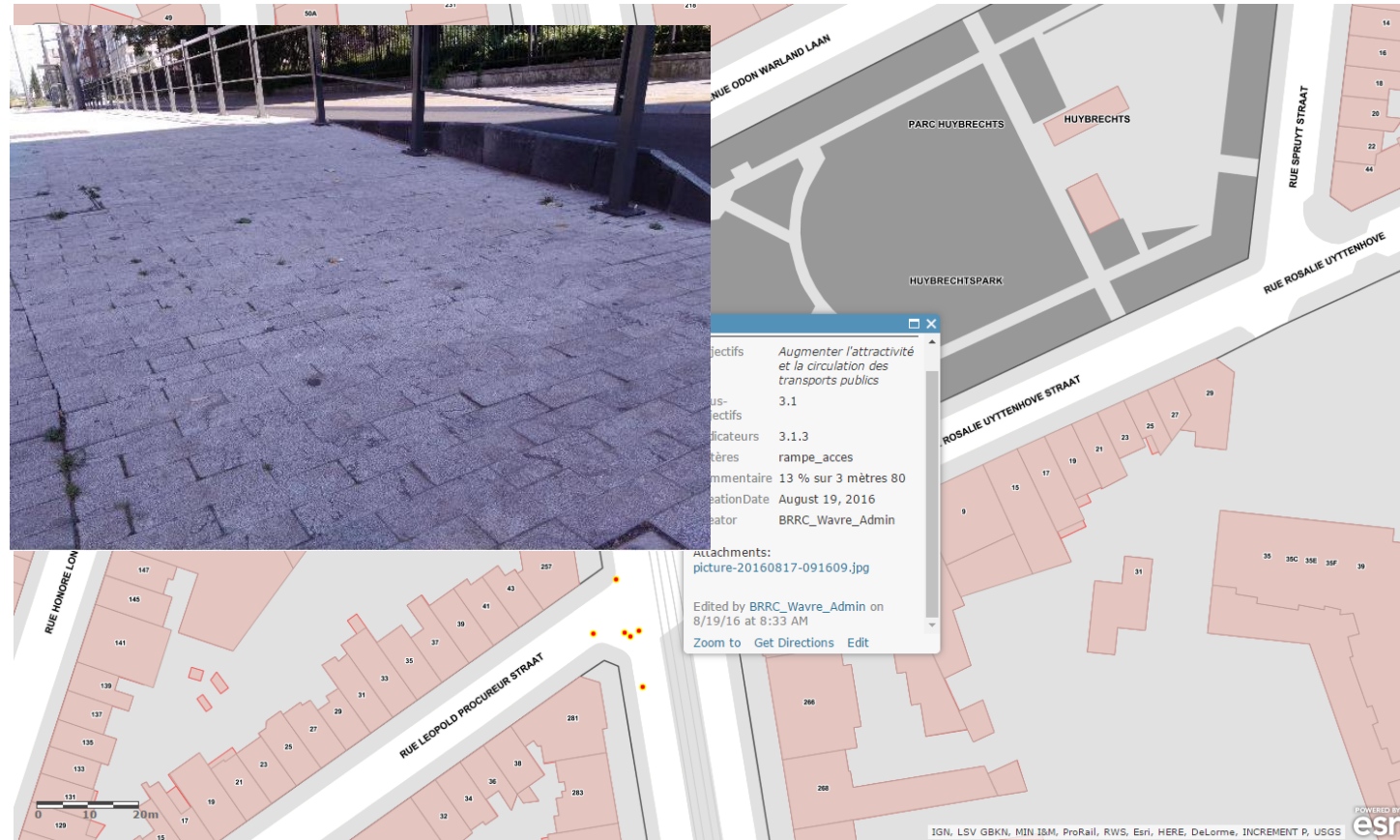
Data collection on site

Development of a “hierarchical survey” form (2016)



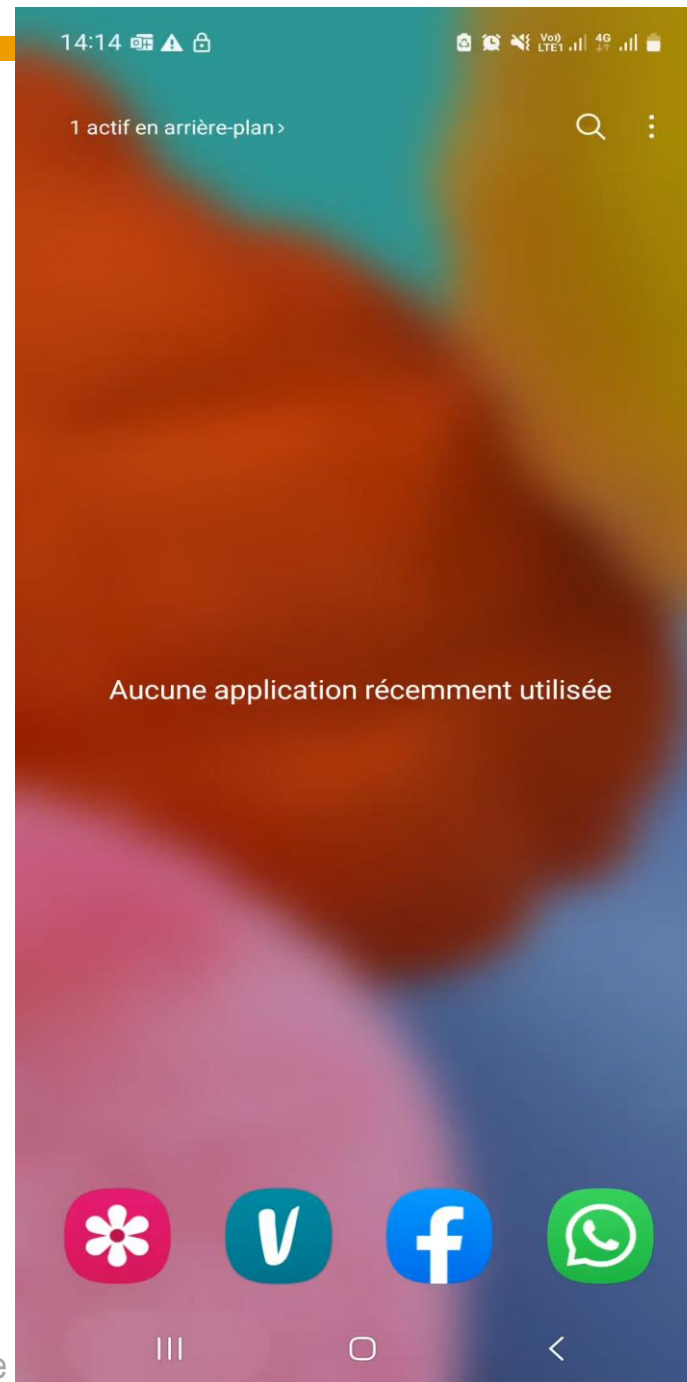
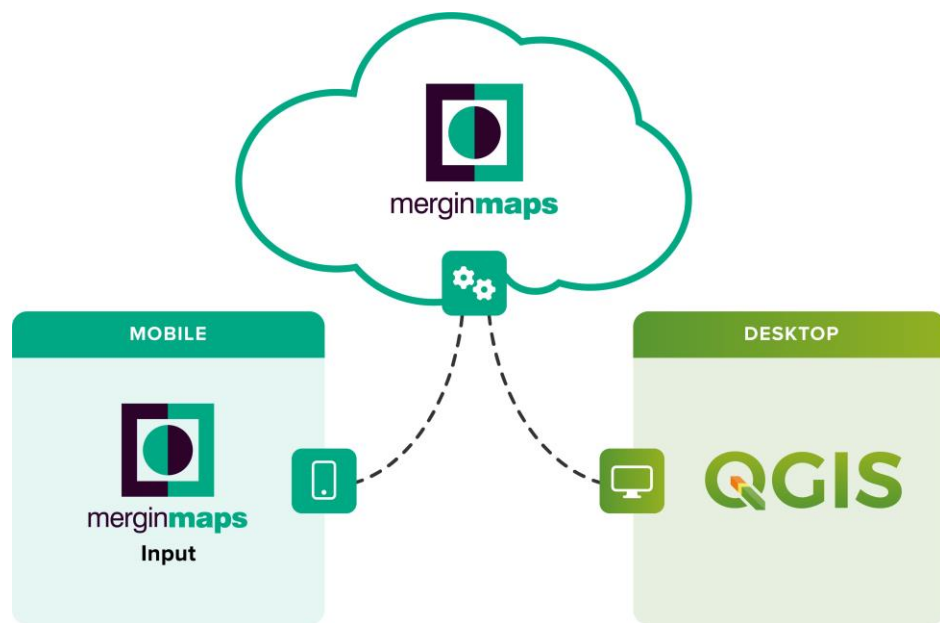
Data collection on site

Data available in real time via a map interface



Application demonstration

- Used tools : Merjin Maps & Géoportail CRR



Example: evaluation of the redevelopment of the chaussée d'Ixelles in Brussels



Example: results for the objective to encourage walking

- +123 % (+ 5033 m²) of pedestrian space on the chaussée d'Ixelles (remark: + 49 % facade - gutter) and +59 % (+ 1298 m²) on the Place Cocq
- Reduced widths removed (e.g: Arbre Bénit < 2 m)
- Excellent quality of use of the surfacing (10/10, PFT: 0,69 and 0,87)
- BUT presence of already degraded areas (+/- 130 m²)
- ↑ bins (35 to 42), ↑ benches (10 to 37)
- The lighting (lux)



x, previously 12 to 13

Example: results for the objective to encourage walking

- Pedestrian crossing Porte de Namur : ↑ clearance time and ↓ waiting time + audible signal BUT no tactile paving
- Raised pedestrian crossings: conform, but lack of tactile paving (possible damage of tactile paving...)
 - Solution: textured gutter as a guide line
 - Guidance to be placed on Stassart, Wavre, Rue Conseil, Tulipe, Mercelis
- 76 % of "crossings" have compliant lighting (56 % before)



Example: results for the objective to encourage walking

- Report with the different objectives
- Objective almost reached

Modification \ Compliance	Positive	Same	Negative	
YES	14	15	1	81%
NO	3	0	4	19%

- List of recommendations made in the report
- Mobility:

- + 47 % pedestrian traffic (656 in 2017 to 966 in 2019)
- 0 pedestrian accidents (excluding Cocq) between August 2018 and March 2020 (32 accidents between 2014 and 2017)

General conclusions of the evaluations

- Methodology applicable for any infrastructure development project in Brussels Capital Region (translation of the objectives of the Mobility Plan into infrastructure's objectives.)
- Recommendations for use by the road manager
- Application and geo referencing make the use of the tool user friendly;
- Reasonable timing and cost for the evaluation regarding the benefits : 35 days or +/- 0.005% of the budget of the evaluated infrastructure redevelopment project
- Future developments : to make the tool useful during the process of redevelopment.

Thank you for your attention!



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