STAR2CS INTERREG PROJECT

# THE OISE VALLEY :

## WHAT FORMS OF RESILIENCE TO ADDRESS FLOODING?

Oise-les-Vallées Urban Planning Agency

November 2019

PART 1

## SITE-SPECIFIC RESILIENCE ANALYSIS

RESILIENCE GUIDELINES

8

## QUAI D'AVAL AT CREIL

Interreg 2 Seas Mers Zeeën STAR2Cs
European Regional Development Fund

MAX Adaptation to climate change

Bureau d'architecture Eric Daniel-Lacombe

AGENCE D'URBANISME Oise-les-Vallées

# [PREAMBLE]

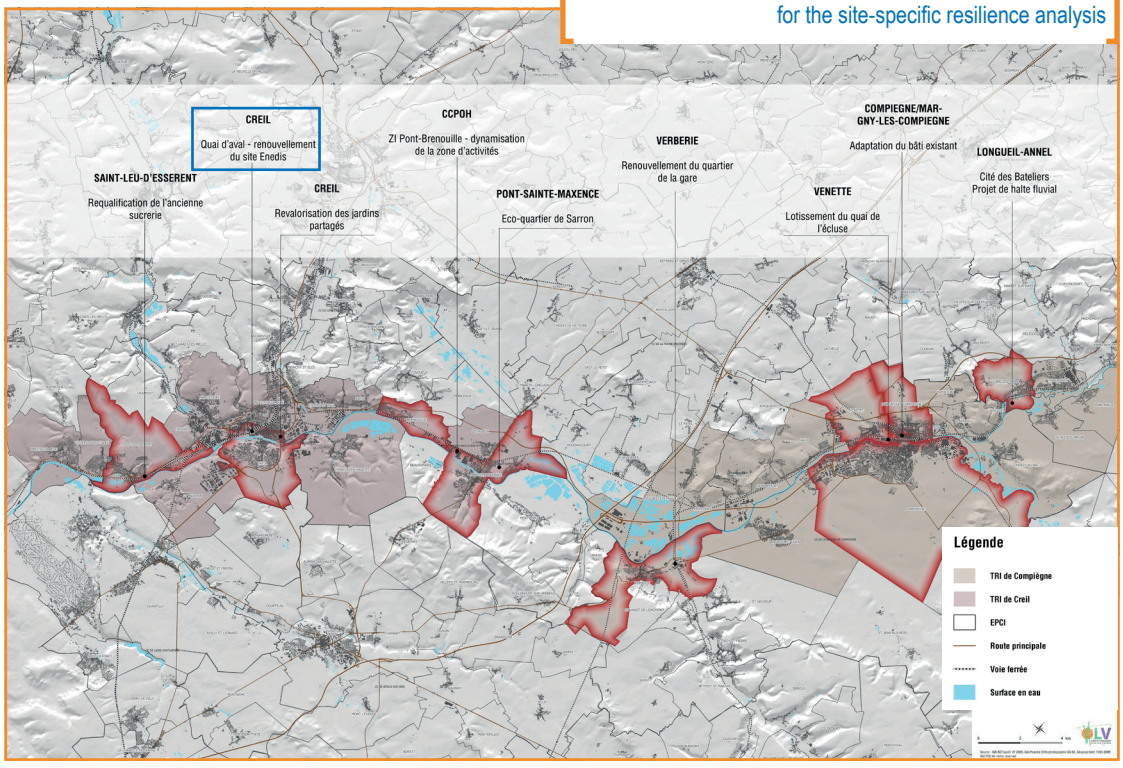
The Oise-les-Vallées Urban Planning Agency began assessing the valley's resilience to flood risk for the European Interreg STAR2Cs Project. The aim of the agency's involvement in this European project is to give further consideration to explore local development and spatial planning opportunities to address flood risk. To achieve this, three steps are currently being researched:

1. Town planning resilience: How can sites in flood-prone areas, subject to additional restrictions from differing stakeholder opinions, be planned and developed.
2. As individual flood resilience plans do not cover that of an entire region, step two focuses on a larger scale, especially the resilience of roads and utilities that keep the region up and running.
3. Finally, the agency wants to introduce a methodological decision-making tool designed for various planning stakeholders (councillors, technicians, developers, private individuals, etc.) to support the regional planning and development process.

With support from Architect, Éric Daniel-Lacombe, the urban planning agency produced nine case studies located along the Oise Valley during the first part of the project.

Using these nine case studies, the aim is to produce an overall development plan for the Oise Valleys area, based on geography, landscapes as well as land-use and economic activity, not forgetting mobility, which is the key topic in this particular area. The development plan is, and will be, adaptable and incremental. It will help foster a collective awareness of the regional resilience process with respect to flooding.

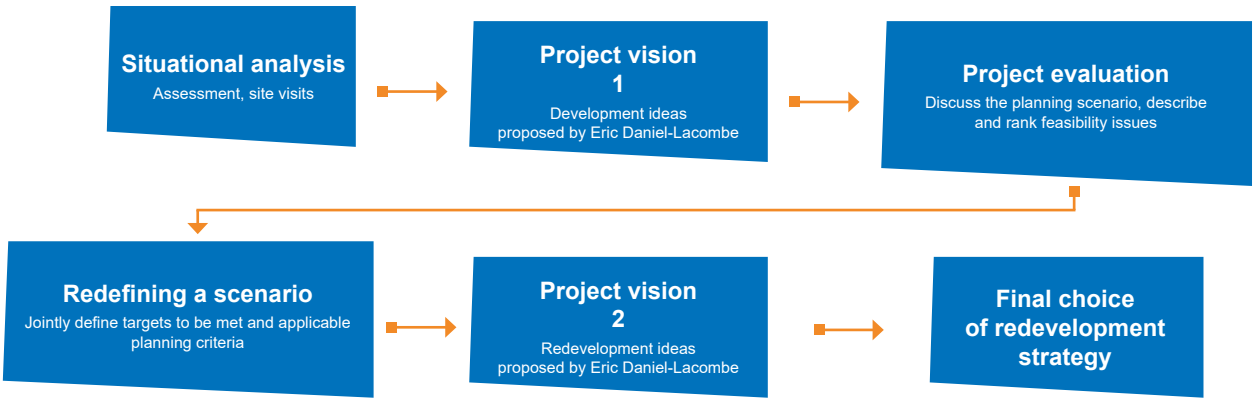
Study site locations
for the site-specific resilience analysis



Given the major waterway project to connect the Seine and Escaut rivers with the Seine-Nord Europe Canal and dredging/re-profiling the River Oise to meet European standards (MAGEO), the mid-Oise area has a chance to forge a unique identity for itself to the north of the Ile de France region, while adapting to climate change.

We have devised development scenarios for each of the nine case study situations that provide a fresh, new insight. A series of initial development scenarios for each site was presented to the relevant stakeholder then revised to provide a new version incorporating feedback and analysis (often contradictory). Each scenario is intended to become a potential vision to transform the site in question by seeking to make it less vulnerable to flood risks.

[Adopted approach]

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# 1 SITE PRESENTATION & CHALLENGES

## Presentation of local area

The town of Creil has a population of roughly 35,000 people and is in the south of the Department of Oise, close to the Ile-de-France Region and Paris Charles de Gaulle Airport.
It has dense transport infrastructure and communication networks making it highly accessible and dynamic for trade with the cities and conurbations of Northern France. Strategically located on the banks of the River Oise, Creil's position as an interconnected town will be further boosted by the forthcoming MAGEO Project and the planned Picardie-Roissy rail link.
Creil has a diverse urban fabric, comprising mixed land-use town centre districts on the right bank and multi-family housing on the left. The town also boasts prolific heritage stemming from the area's declining industrial activity.
There are plans to develop several projects on these brownfield sites, such as the Gare Cœur d'Agglo and the Ec'eau inland port.

## Site issues

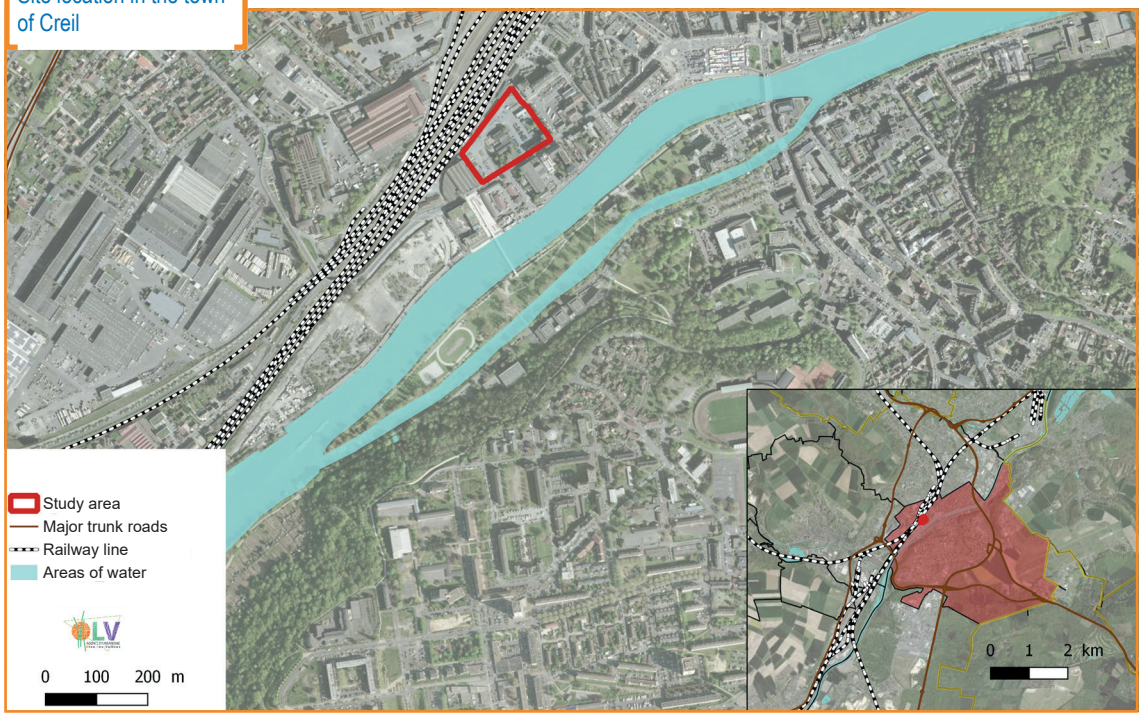
The challenge in this local area is to convert the Enedis block into a housing development.
The project site lies at the centre of a plot current occupied by Enedis. The plot is situated between the railway line which forms its northern border and municipal workshops currently being demolished to the south. The project area broadly forms a link between the railway station and the Nelson Mandela footbridge which connects with the upper town (Hauts de Creil).
A development plan already exists for the site, as part of the Gare Coeur d'Agglo regeneration programme, to build 4 multi-family housing blocks.
In terms of flood risk, part of the area is subject to a low to moderate 100-year flood risk.

## Challenges and goals

Improve the quayside and consider landscaping potential along the banks of the River Oise

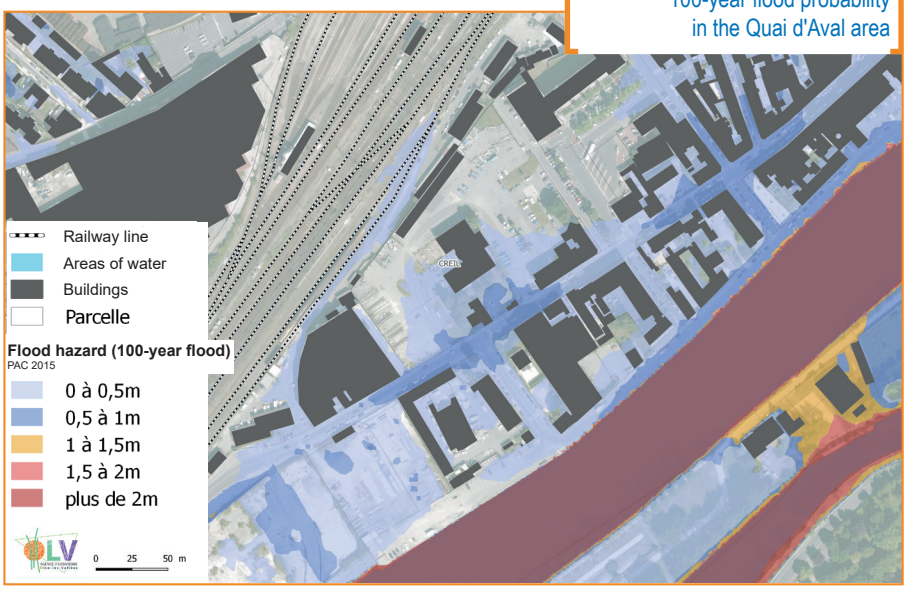
Consider an "active modes" route facilitating access to the railway station

Site location in the town of Creil

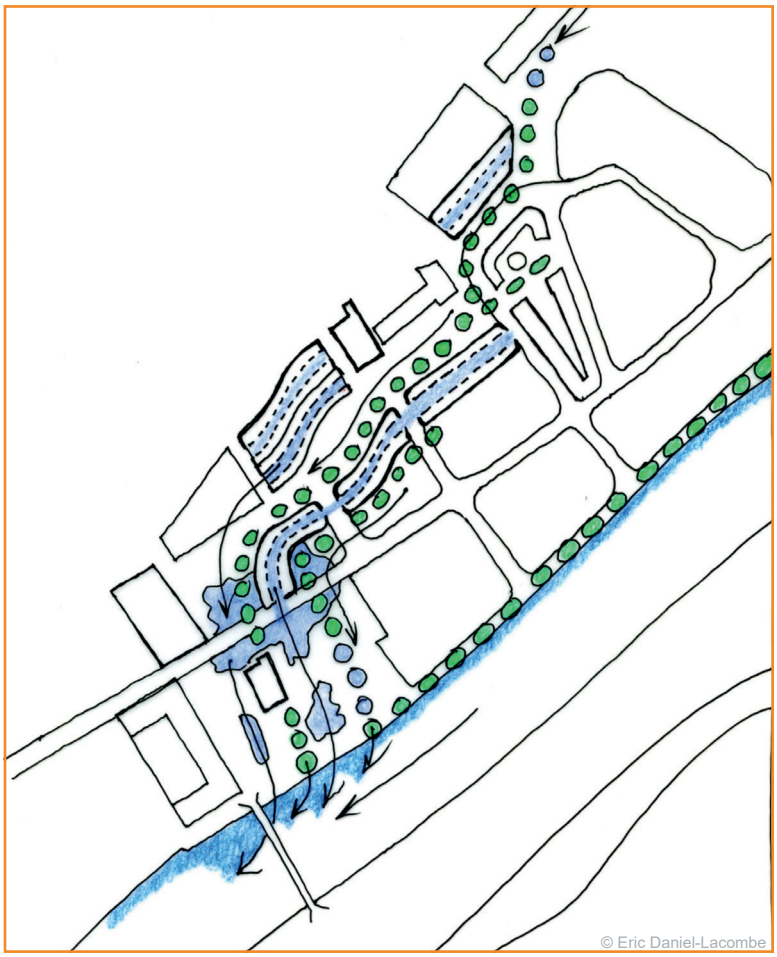


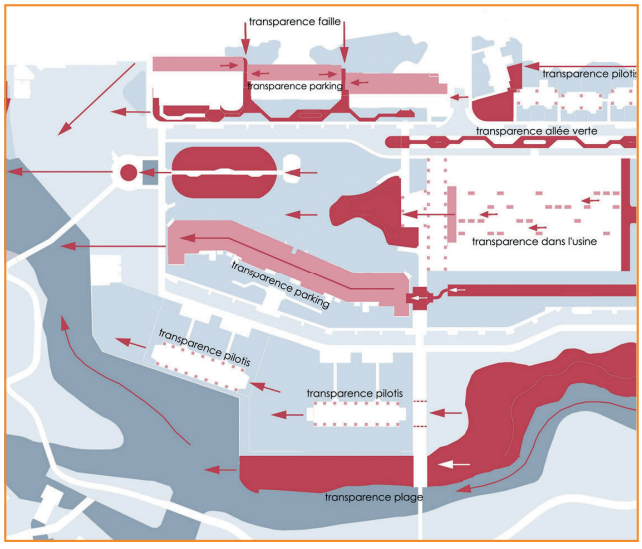

*The flood hazard map modelled in 2015 on 100-year flood events shows part of the site to be at low to moderate flood risk (water depths of 0.5 - 1 m), particularly bordering the railway line. This flood hazard especially affects the site's build footprints.*
*The car park to the north lies outside the area prone to flooding*

100-year flood probability in the Quai d'Aval area



# 2 DEVELOPMENT PROPOSALS




NB: All images featured on this page are taken from the presentation by Eric Daniel-Lacombe at a workshop on 2 April 2019, entitled *Inventive analysis for Oise-les-Vallées*

# THE ARCHITECT'S OPINION

## Eric Daniel-Lacombe

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*The density of an already well-developed town centre does not pose the same problems for flooding than that with fewer building footprints. In fact, fewer buildings is better to let flood water flow freely and avoid too much damage to buildings due to the pressure of water. The density of building footprints in the town centre often continues below ground, with other infrastructure (car parking). If flood water gets into underground car parks when residents are trying to save their cars, people can die. As such, it would be better to make watertight car parks but these prevent water levels from naturally rising and falling around building foundations. The central location of this neighbourhood is related to the appeal of the railway station. There are good links to Paris and the project provides a development plot near the river. Creil is a popular town with developers, as can be seen by a forthcoming marina residential development in the area, between the River Oise and the railway station. There are already new schools and walkways that resemble open arms to future residents and developers. Two of them are interested in building housing on the Quai d'Aval, our study site. If the initial wave of housing is built above the highest recorded flood water levels, the basement car parking would be submerged during a flood. Must the car parking also be as watertight as a submarine? Or should it be a place to collect and hold water or even to reduce sudden and spontaneous currents?*

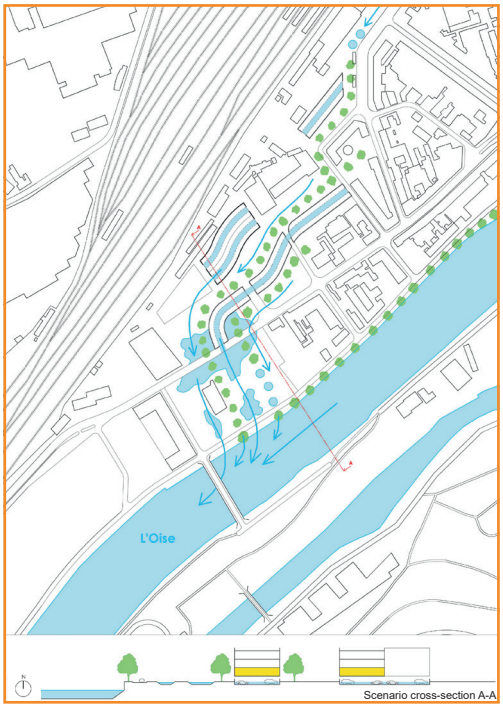
*The experience of an inventive problem solving exercise makes perfect sense here if we assume that the car parking is a platform where water will traverse. Residents in the building will see variations in water levels to help them understand when to seek shelter. After a storm, they can watch the waters recede and return to their lives with less upset. This assumption provides residents of the Quai d'Aval with building footings that are less impenetrable than waterproof basement walls. The flood bank will no longer skirt blocks of flats but rather provide 'entry and exit' points to let water come and go. These porous car parks will become the starting point of water sources to irrigate the future planting in the public spaces. The car parks are part of the amenities on pathways leading to the station, like a promenade designed to look like an artificial tributary. As such, Creil would have two additional tributaries, the first flowing through the allotments, as described above, and a second, more artificial one embodied by the floodable car parks.*

*The architecture attempts to include the local residents in an urban culture that precedes the architectural contribution. It seeks to make them part of a new collective process, which associations, environmental activists, public service agencies and local councillors are already part of. The idea is to enable them to become stakeholders and not passive consumers, to jointly produce a new community asset that I have baptised, "living health". In this sense, the design process explicitely strives to integrate the architecture and its experience in the local cultural process that targets living health. As such, human beings and non-human phenomena form a common denominator for the whole valley, where goodwill becomes a key virtue. The car parks become something else than just infrastructure to resemble a plan for a greater connection to changes around us.*

*Water and water-related hazards would be less of a risk and more a thoughtful design of its presence in the town, such as making urban areas more natural to maintain contact between people and nature.*

# VERSION 1

In his initial proposal, Eric Daniel-Lacombe suggested a project inspired by a 'run of the river' project. This would be a straight line plotting out a 'water pathway' from the River Oise to the railway station with amenities specially designed for flood risks (floodable car parks, special fencing, etc.).
This proposal was presented at a second workshop and a bilateral meeting to fine-tune the outcomes.

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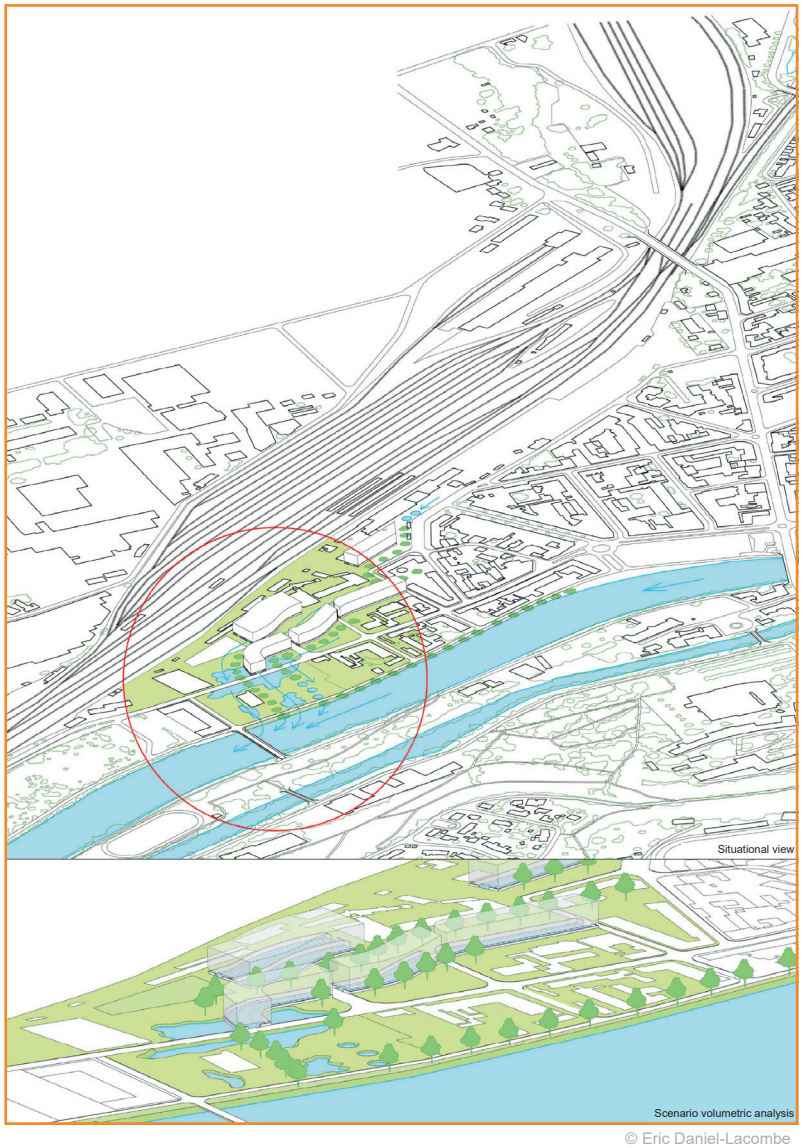


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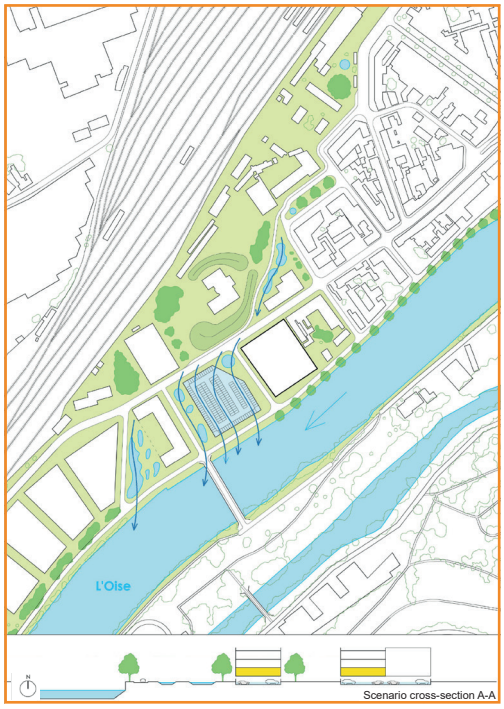
## PRINCIPLES

**VERSION 1**

- Plans for a water course running diagonally across the site between the railway station and River Oise
- Car park designed to flood

# VERSION 2



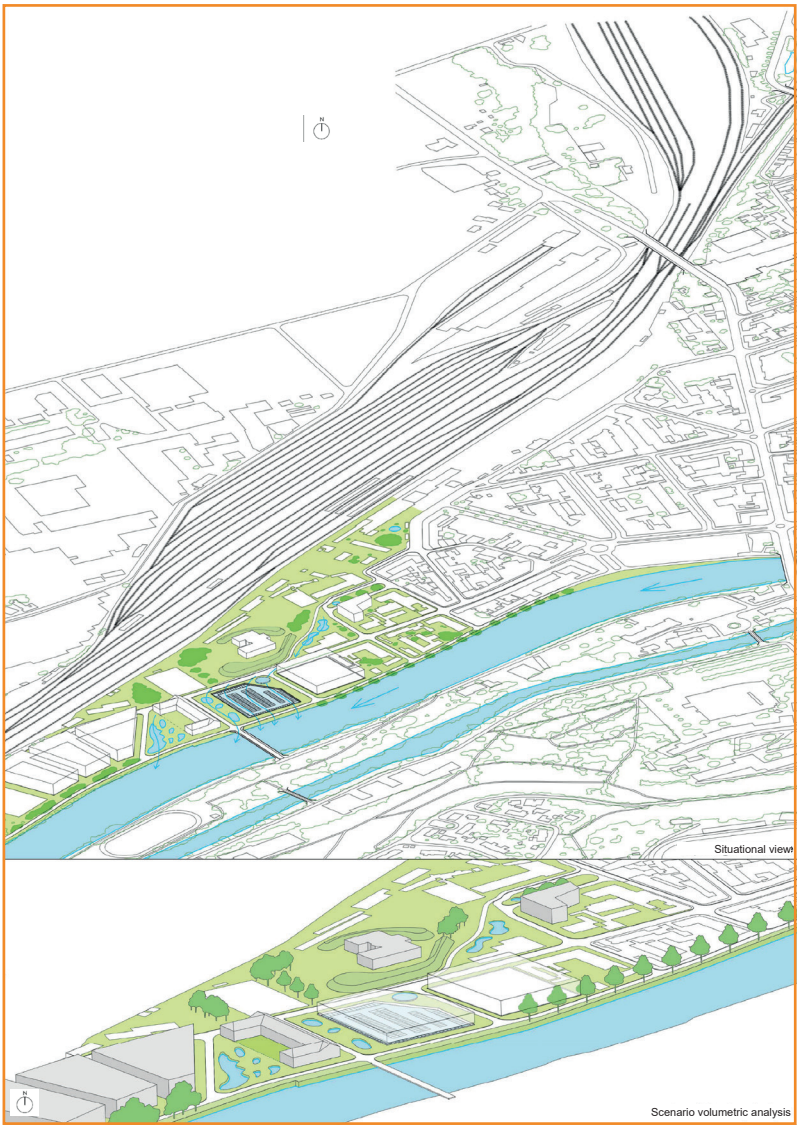



Following these discussions, the Creil-Sud-Oise Conurbation (ACSO) pointed out that an existing tank on the Enedis site could not be demolished and should be included in the plans. Similarly, two housing projects managed by Nexity and Linkcity, located between the Enedis site and the River Oise, where buildings currently being demolished, should also be included in overall considerations.
In relation to these two housing developments, Eric Daniel-Lacombe proposed that the ASCO opt for floodable car parking on a trial basis, to be built with a 75 cm outflow for the Linkcity development.

## LIMITATIONS

- Housing developments by Nexity and Linkcity not included in project
- Impossible to destroy the existing tank at the Enedis site

→ VERSION 2



# 3 PROJECT EVALUATION & FEASIBILITY

Both versions proposed by Éric Daniel-Lacombe seek to avoid a certain number of detrimental effects in the event of a flood.
Each of them lessens or eliminates potential damage and is likely to generate benefits for the local area, or even the entire town.
In most cases, however, these risk reduction measures are not cheap, in financial, technical or human resource terms.

## SWOT analysis

| WITHIN THE PROJECT | OUTSIDE THE PROJECT |
|---|---|
| **STRENGTHS**<br>Positive aspects justifying project benefits | **OPPORTUNITIES**<br>Aspects to capitalise on the project environment |
| • Housing designed on a floodable parking platform | • Housing designed on a straight line between the railway station and footbridge to look like the river has been remodeled, echoing the La Brèche river |
| **WEAKNESSES**<br>Negative aspects to be improved | **THREATS**<br>Obstacles that may impede project development |
| • Problem involving the developer: How might they develop the site based on the planning concept by Eric Daniel-Lacombe? | • Site lacks of appeal for Creil town council and financial support not forthcoming |

The SWOT analysis combines the project's strengths and weaknesses with surrounding opportunities and threats to help define a development strategy.

## Advantages / Disadvantages by stakeholder

| | Advantages | Disadvantages |
|---|---|---|
| Local authority | Undertake a development procedure | - |
| State | Urban renewal programme taking into account flood risk to make the local area less vulnerable | Additional human and material assets in flood-prone area |
| Users/Residents | High-quality housing provision close to town amenities | - |
| Owner | Reinvest in land and property | - |

## Methodological details

### Resilience indicators

Several aspects must be specified in terms of resilience indicators.
Firstly, it should be noted that the 5 criteria defined to study project resilience were proposed by Oise les Vallées and are the result of its methodological choice alone. We have identified:

1. An environmental benefit: The project offers an environmental advantage by respecting nature and preserving biodiversity, etc.
2. A social benefit: The project offers a social and human advantage insomuch as it provides a service to its users and improves the quality of life for the local community
3. An operational benefit: The project offers an operational advantage, making buildings technically capable of resisting floods and able to cope with flood hazards, etc.
4. An economic benefit: The project offers an economic advantage in its ability to generate income, to attract business and retail while fostering tourism, etc.
5. Scenic benefits: The project can slip seamlessly into the local area by considering the specific features of each area and delivering aesthetic benefits, etc.

### Explanation of the choice of scoring system

The scenarios were scored on a scale of 1 to 10, with 0 being the lowest score and 10 the highest.
The choice of scoring method is clearly subjective and is in no way definitive. The aim is partly to trigger discussion and reactions.

| Score | Category |
|---|---|
| 1-2 | Very poor |
| 3-4 | Poor |
| 5-6 | Fair |
| 7-8 | Good |
| 9-10 | Very good |

The purpose of the scoring system is to compare the three chosen development scenarios:

- The first corresponds to the current position. This refers to the state of the land as it is now, prior to any development taking place.
- The second corresponds to a hypothetical planning scenario where flood risk has not been considered. As such, this refers to development plans that comply with current urban development guidelines but which do not prioritise resilience.
- The third scenario is proposed by Eric Daniel-Lacombe and featured above.

## Aspects to consider for resilience

## Level of satisfaction

| Benefits | environmental | social | operational | economic | scenic | Private individual | State | Local authority | Developer |
|---|---|---|---|---|---|---|---|---|---|
| Scenario 1 "Current situation" | 2 | 1 | 7 | 3 | 4 | 2 | 6 | 3 | 2 |
| Scenario 2 "Ignoring the risk" | 3 | 3 | 5 | 7 | 6 | 6 | 5 | 8 | 9 |
| Scenario 3 "Eric Daniel-Lacombe" | 4 | 4 | 7 | 6 | 8 | 6 | 8 | 8 | 8 |