

| 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

4

RAILWAY STATION AREA,
VERBERIE

[P R E A M B L E]

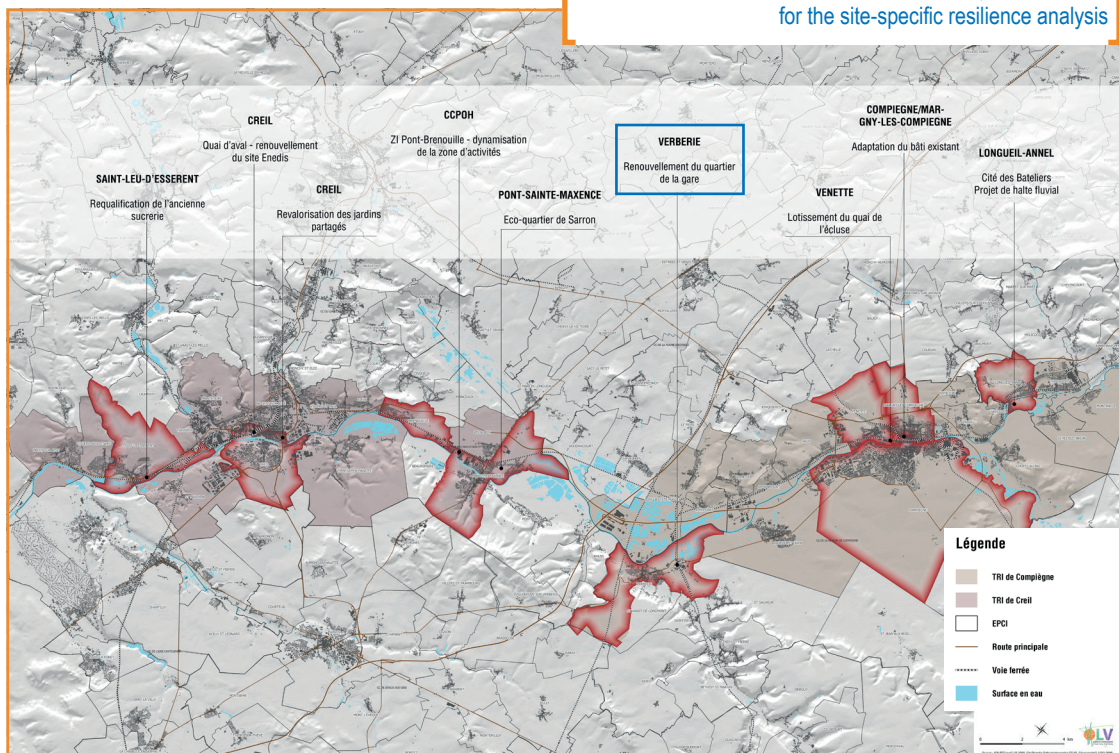
The Oise-les-Vallées Urban Planning Agency began assessing the valley's resilience to flood risk for the European Interreg STAR2Cs Project. The aim of the agency's involvement in this European project is to give further consideration to explore local development and spatial planning opportunities to 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.

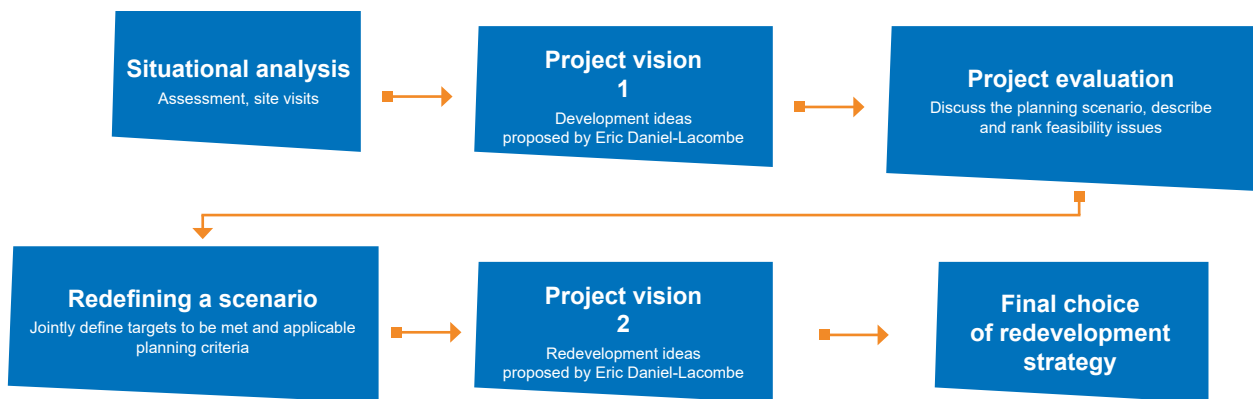
Study site locations for the site-specific resilience analysis



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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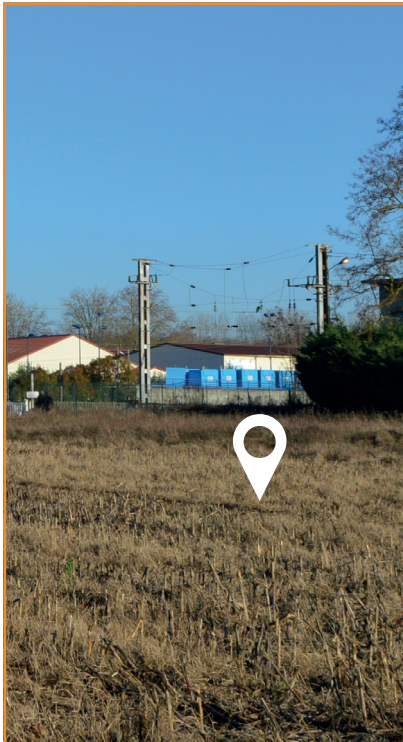


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1

SITE PRESENTATION & CHALLENGES



Presentation of local area



The town of Verberie is located in the south east of the Oise Department, between Compiègne and Senlis. It has a population of roughly 4,000 people and is part of the Greater Compiègne Regional Authority. It grew up in the Oise Valley, where it meets the Automne River valley. The local area is built around several key infrastructure features that link it to various neighbouring urban centres.

Site issues

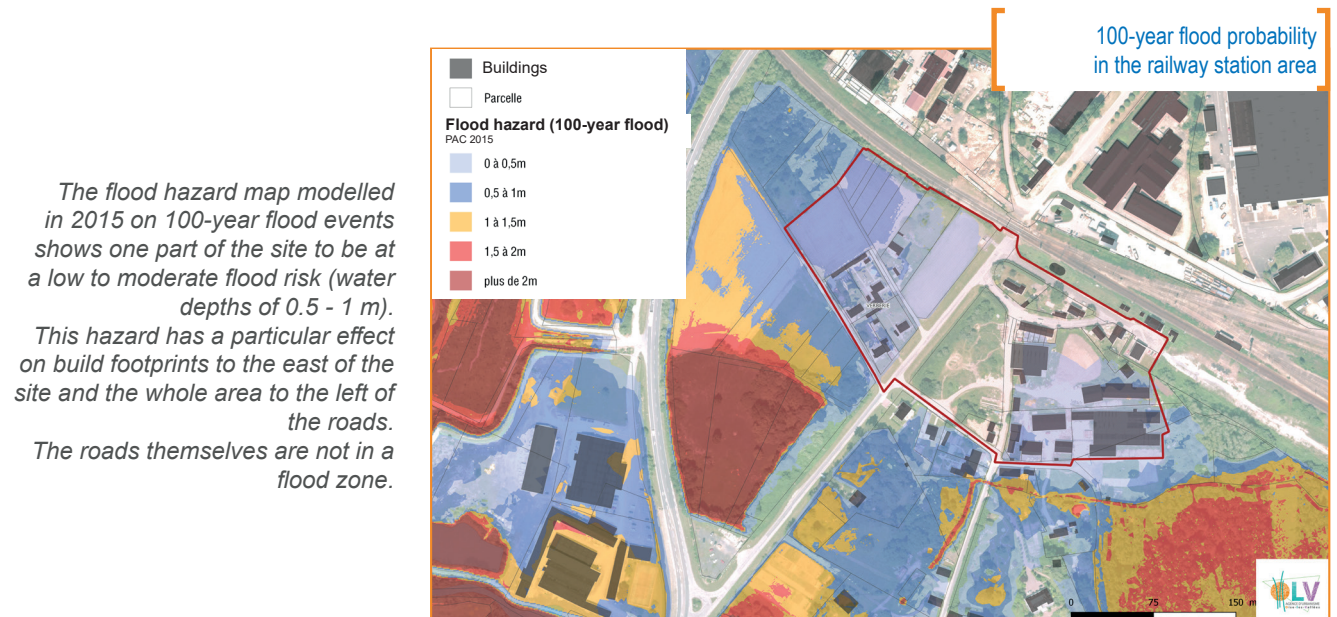
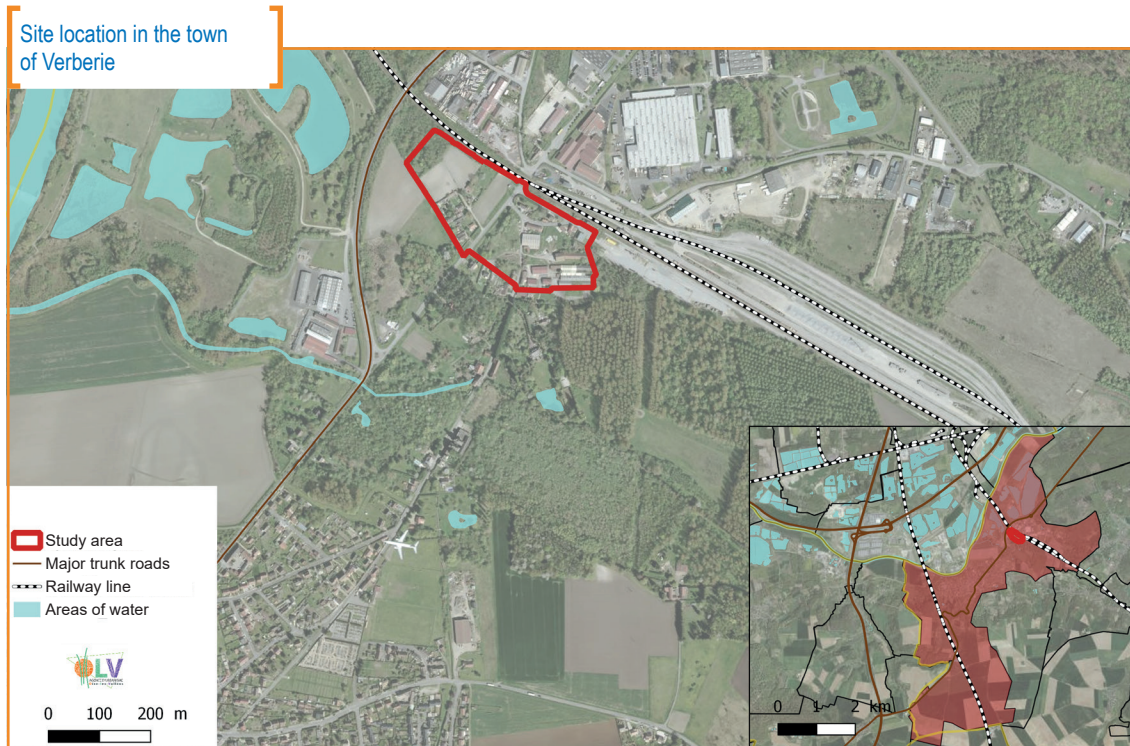


The railway station area (Quartier Gare) is on the edge of Verberie town centre, close to the enterprise park. The station is not longer open to passengers and the area has been abandoned, leaving old station buildings and other activities. There are still some houses on the site. The existing railway lines are still used as a support facility for French railways rail track maintenance operations. There are plans to regenerate the area (housing) and reconnect it with the town centre. The current PPRi classifies part of the site in red, preventing construction so that it can be used as a flood expansion zone, with a low flood risk, as indicated in the 2015 hazards map.

Challenges and goals

The site must be connected to the town centre
railway crossings must be made safe
Consideration must be given to the RN2/RN31 road link





Summary of stakeholder positions



Stakeholder	Local authority	State
Main priority	Regenerate the town by enhancing its property assets	Protect people and property from flooding
Priority impact	Redevelop the site to regenerate the railway station area	The eastern and western part of the site cannot be built on as they are classified red (flood expansion zones).
Priority-related risk	Flood hazard neglected in redevelopment processes	The area will remain potentially 'stuck', without development potential
Risk effect	Increased site vulnerability	Loss of the town's property assets and appeal

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



© Eric Daniel-Lacombe

The study site identified at Verberie touches on an vital aspect of policy to adapt to climate change in that they (the policies) can only be delivered with the support and understanding of a clear majority of the local community. The willingness of the townspeople will be even greater if they see a practical benefit or the appeal of newly-transformed sites when there is no flooding and even during times of renewed solidarity when there is. As such, each situation will be different from the other, in the responses to flooding. For instance, here at Verberie, there have been two changes. The closure of the railway station has changed the area's appeal. News of a rise in the number of flood events by the Oise acts as a disincentive to develop this area. Necessary assumptions to transform the area around the old railway station cannot mirror those required for the Quai de la Venette. This creative diversity at each of the nine sites brings the valley greater diversity, the common denominator being the atmosphere associated with the river.

The area around Verberie's "old railway station" lies at the end of an arrow-straight road that starts in the village centre and ends at the forest. When it reaches the forest, the road meets the railway line in a cul de sac where there was once a station. The attraction of this stop on the line saw the hamlet grow and sawmills move in. The line was never very profitable so the

station eventually closed. The site began to fade and the timber businesses left. As a result, there are two potential development options:

- return the station to its previous state where the forest and farmland could be used to soak up flood waters
- develop a new type of settlement and landscape for Verberie, able to sustain village life while letting the waters pass close by

The advent of flood-resilient homes and natural defence mechanisms is not incompatible, as the redevelopment of the Matra district demonstrates. Houses could be protected from the flood waters by building them on a boat-shaped pedestal, similar to the "bateau-lavoir" (floating homes) at Romorantin. New uses can be invented as can new ways to live. Cars can be parked on the side of the road and not in front of the houses. Walkways connect to the basements and garden access for a small group of residents. This creative interplay between individual and multi-family housing reduces build footprints and therefore leaves more room for land subject to natural defence mechanisms. At the foot of the existing road, which is already on an embankment, the future 'floating homes' will be surrounded not by water but by community gardens. The land will remain in a natural state for people to enjoy the gardens in good weather and for water to flow during rainy periods. The interaction between the river breaching its banks and the

need for new building marks an opportunity to invent new landscapes, such as wetlands, that relate to farming or forest environments.

There is room for roughly 40 homes either side of the road. Parking will remain on the waterfront, along the dyke road with the gardens forming a large pasture while the shape of the house boats is still to be decided. The idea is not to extend the town centre but to offer an alternative way of living in Verberie, in homes that display discrete qualities and an intimacy with nature. The village will still be near by and easy to reach by bike or bus.

The flood hazard map clearly shows how the raised road remains dry during floods and subsequently protects the first plot to the east as well. The rest of the area around the railway station would be under one metre of water while the old industrial buildings will be surrounded by water, like isolated houses. The road can therefore be used as an artery for development, as a flood bank where a variety of uses in the local area could take root. As such, other plots further from the road could be relinquished for natural defence mechanisms which would also help safeguard the transformation of this neighbourhood.

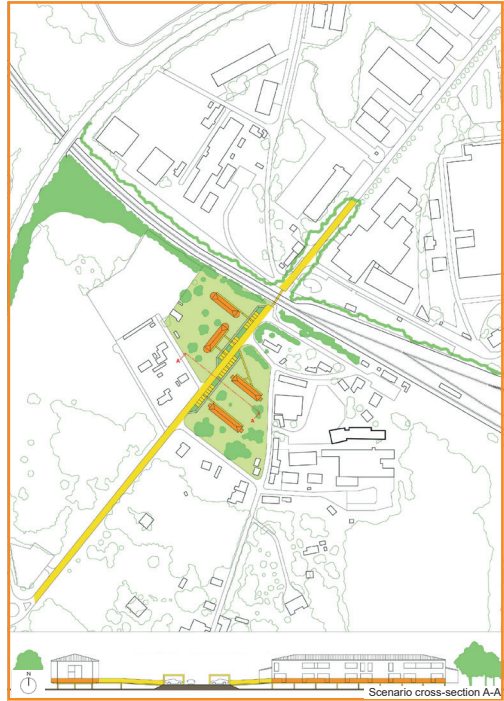
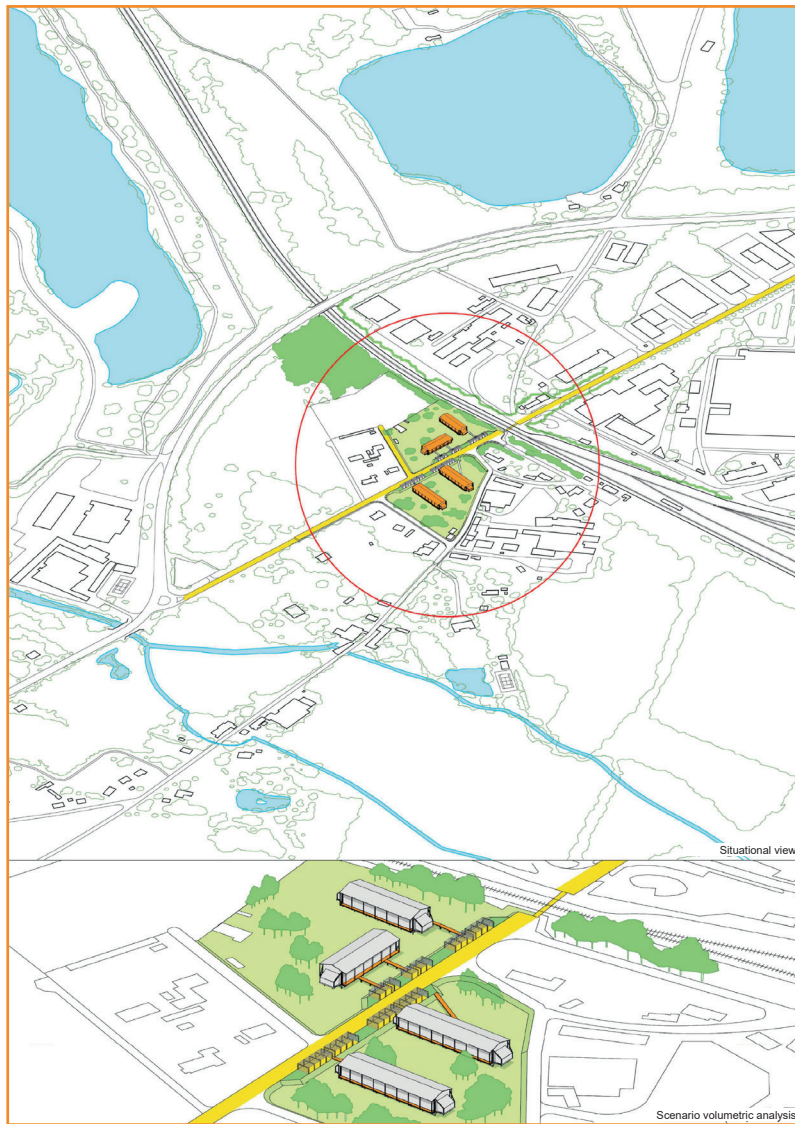


VERSION 1

In his initial proposal, Eric Daniel-Lacombe emphasised the benefits of connecting the project to the existing road (Rue des Peupliers) which, due to its height, is out of reach of the flood waters.

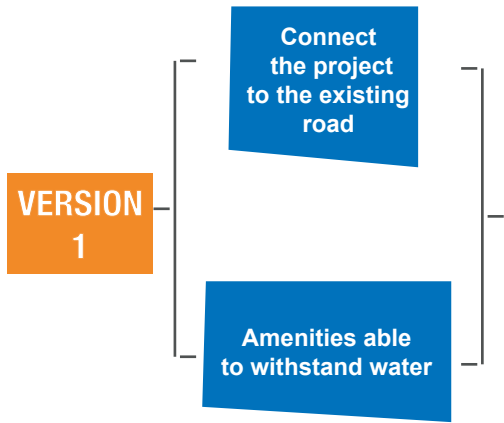
This idea is coupled with ancillary amenities to enable the local area to withstand floods:

- buildings raised on half-piles (2 metres high),
- flood-free parking places along the Rue des Peupliers, with carports with green roofs,
- installation of electricity and gas networks above peak flood levels.



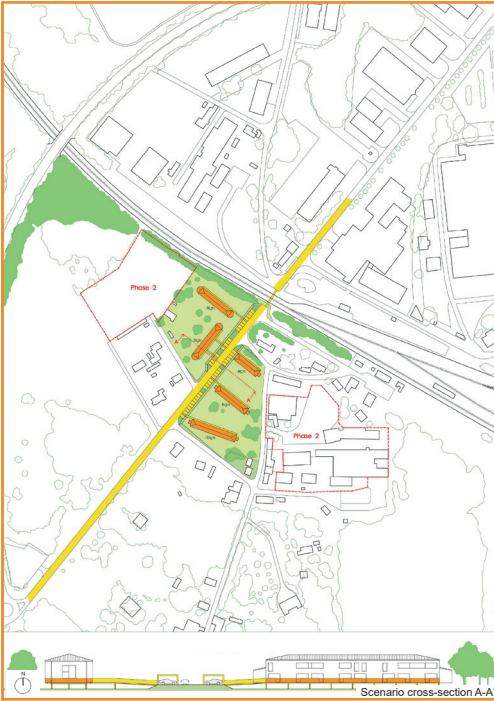
Scenario cross-section A-A
© Eric Daniel-Lacombe

PRINCIPLES





VERSION 2

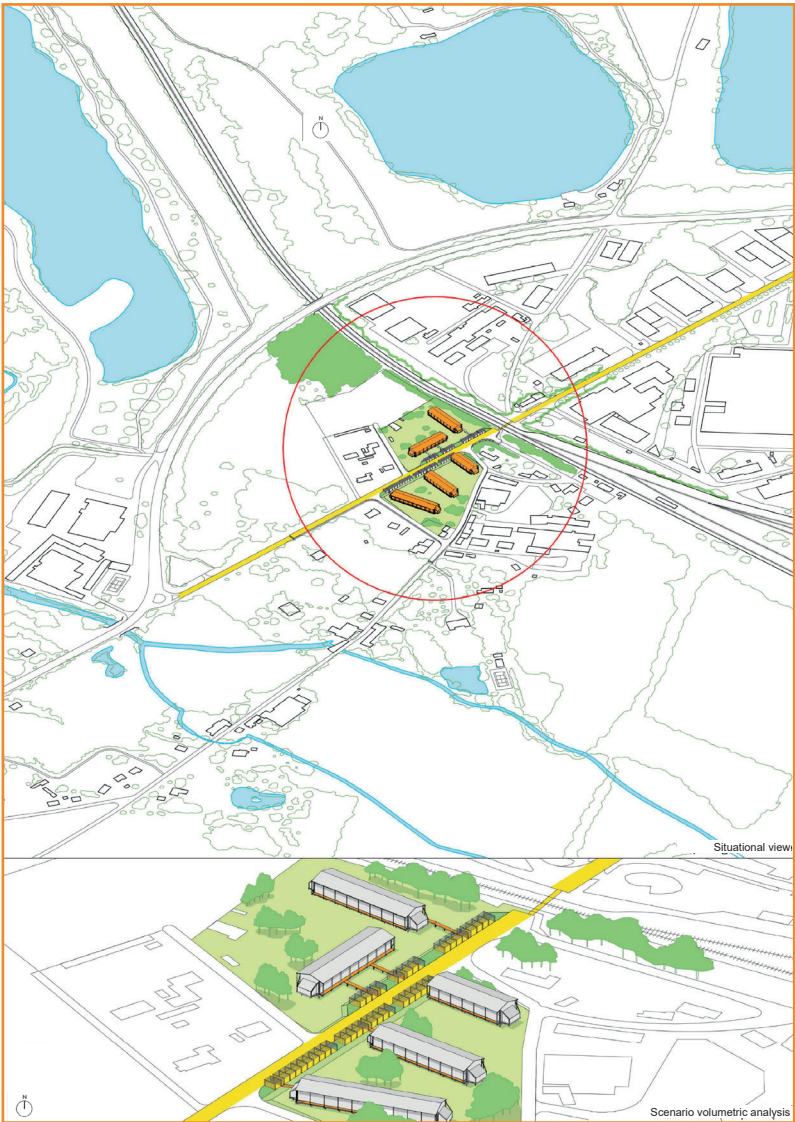


Scenario cross-section A-A
© Eric Daniel-Lacombe

This proposal was presented at a second workshop and a bilateral meeting to fine-tune the outcomes. Following these discussions, the municipality approved the development plans for the project but requested that the number of homes be adapted to ensure it is financially viable. The desired number of homes is 40.

Furthermore, the architect was asked to expand on the following points:

- study the siting of buildings and the gradients of the walkway slopes.
- study the types of networks and where they could be patched together.



Situational view

Scenario volumetric analysis
© Eric Daniel-Lacombe

LIMITATIONS

Number of homes ill-adapted to the site

Links and networks to be improved

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 Positive aspects justifying project benefits	OPPORTUNITIES Aspects to capitalise on the project environment
<ul style="list-style-type: none"> • Installation of carports for speedy evacuation and better car parking 	<ul style="list-style-type: none"> • Continuation of a corridor of trees and bushes along the railway line to create a new landscaped boundary • Opportunity to regenerate the railway station area
WEAKNESSES Negative aspects to be improved	THREATS Obstacles that may impede project development
<ul style="list-style-type: none"> • Project may be too detached from flood risks and risk awareness culture 	<ul style="list-style-type: none"> • What about the areas underneath raised buildings? Who will maintain them?

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	Regeneration of the local area and facelift scheme	-
State	Reducing vulnerability	Increasing amenities in the local area
Users/Residents	Resilient neighbourhood that won't deteriorate in the event of flooding	-

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 inasmuch 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

Benefits	environmental	social	operational	economic	scenic
Scenario 1 "Current situation"	2	2	2	1	3
Scenario 2 "Ignoring the risk"	3	4	5	7	6
Scenario 3 "Eric Daniel-Lacombe"	6	8	7	6	8

Level of satisfaction

Private individual	State	Local authority
1	8	2
7	3	8
8	7	8

