

HYDROLOGICAL SYSTEM

The comune of Valeggio is formed by a system of rivers and canals that cross its territory from north to south, on the site, the river that crosses by and beneath the Visconteo bridge its the Mincio, with the origins of its name meaning "drain" the Mincio receives the glacial water that flows from the mountains on the north to lake Garda, to later run down south 73km and connect with the Po river

The Mincio is considered a very stable river, this could be due to the artificial canalization works, the topography on the site and the partial presence of embankments that follow the course of the river.

The shape of the river is varied, a tend of a mountain ridge on the north to then "get lost" on the flatlands of the pianura Padana on the south.

GEOMORPHOLOGICAL AND GEOLOGICAL SYSTEM

From a morphological point of view, one can recognize, to the west, the main slope developments from Valeggio to the vicinity of Mantua, along the Mincio River, and, to the east, along the River Tione.

The territory of the municipality of Valeggio, located at the southeastern end of the amphitheatromorphic Garda, is characterized by an area of hill morphology in the northern part, and a flat area in the southern part.

The geormorphological system is formed by dynnamic process that are not longer present on the site such as the glacial forms that use to affect the mountains, it can also be observed the presence of abandoned meanders that give shape to hills showing the old curse that the river took on the past.

INFRASTRUCTURE SYSTEM

Valeggio is a settlement which is defined by its relationship with the Mincio river, the hills that surround it and its function as a boundary, this made of Valeggio the west gate of Verona with other territories, a fact that still remains present on the political division of the regional territories of the site.

It is this features which gave the shape to the network and to the city itself, a radial circular shape that converges on the Visconteo bridge making it the only available connection on the distance for many settlements that exist around Valeggio.

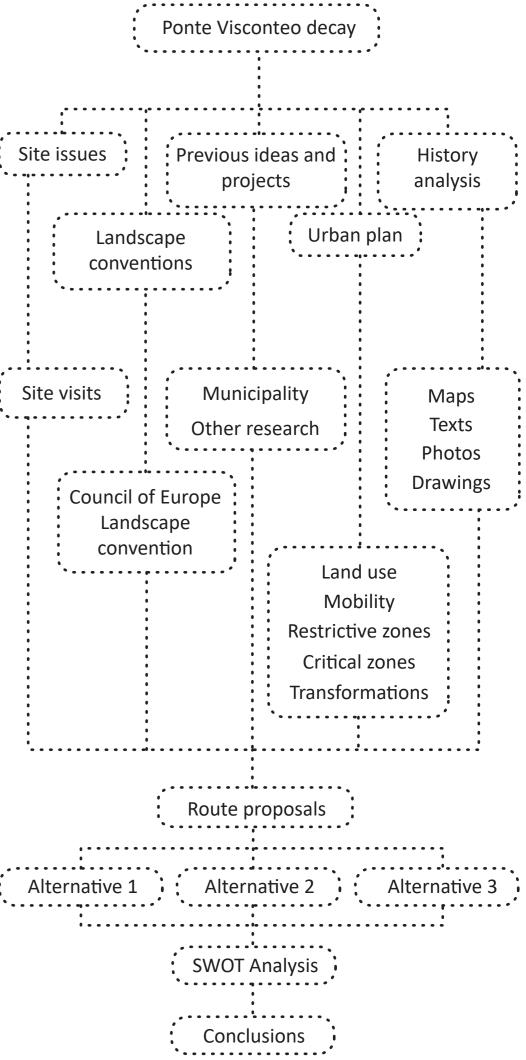


RECONNECTION AND REVALORIZATION OF THE VISCONTEO BRIDGE AND ITS LANDSCAPE

This work presented here intends to show the analysis of site on a larger scale with an intention of restoring the land-scape around the Visconteo bridge.

The desire to restore the Visconteo bridge comes from the decay the bridge has sustained over the years, many of it related to the current use of connecting two sides of the river with a vehicle road, somehow an incompatible use to the one originally it was intended but also because of the need of recognition and awareness of the monumentality and historical importance of the bridge mixed with the opportunity of tuourism, a tourism that more related to the bridge itself it is related to the whole landscape that enhances more its importance.

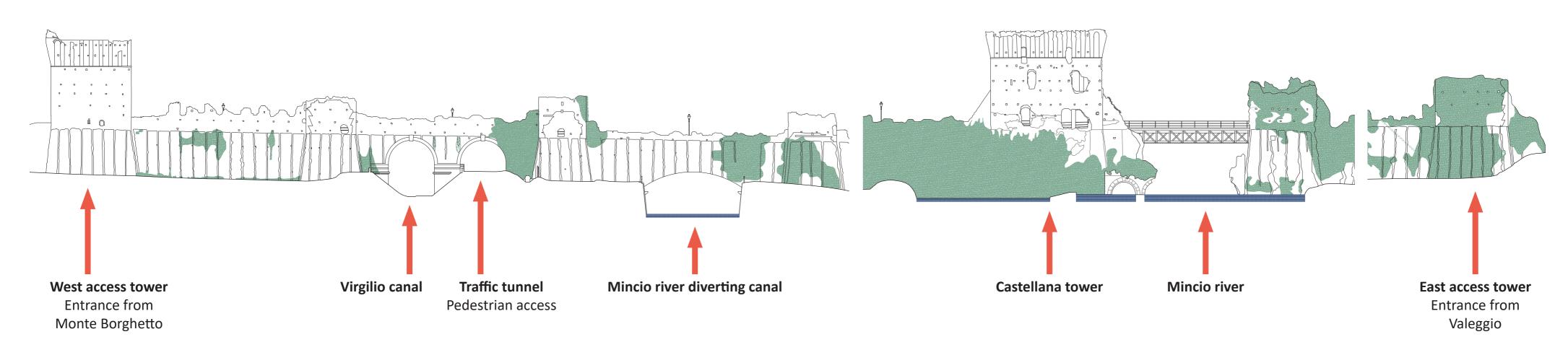
This desire is also something that has been previously thought by the municipality, the need to replace the connection of the bridge with another one to avoid the decay related to the vehicles passing over it has been mentioned on several pages of the "Piano di Asetto del territorio" a document that, subject to regional approval, determines the strategic choices for the planning and development of the municipal territory.











STORY OF THE VISCONTEO BRIDGE

- 1393 Construction of the bridge ordered by Gian Galeazzo Visconti
- 1408 An inspection by the Venetian government was done on which it was mentioned the building was falling into unrepairable conditions, leaving the building abandoned (also because of the invention of the firearms)
- 1559 The Guarienti family acquired the bridge, the castle was transformed into a highground set for artillery, reducing the bridge strategic advantage. The Seriola canal was built during this years for irrigation purposes
- **1598-1618** Documents show that between these dates the central part of the bridge was destroyed
 - **1701** Maffei family acquires the bridge
 - 1796 A battle between the french and the austrian armies happened on the bridge, damaging more the structure
 - **1800** The structure unused as a bridge, it was exploited for the cultivation of vineyards as recorded in a map of the Austrian Cadastre
 - **1871** The bridge was acquired by the Nuvoloni family

- 1927 Construction of the railway that passed beneath the Visconteo
- **1930** The bridge was reopened, when the collapsed part was reintegrated with metal trusses, to meet the needs of traffic
- 1931 Construction of the Virgilio canal and the road that passed next to it, some stairs were built the next year to connect with the road
- 1952-1957 Reparations after the damage of the WWII
 - 1968 Restoration and consolidation work on the Visconti bridge and towers
- 1983-1984 Approval of a the municipality program of revitalization of the site
- 1993-1995 Restoration of the Castellana tower
- **1992-1997** Restoration of the west tower and the south walls

USES OF THE BRIDGE





Military

The objectives of Gian Galeazzo Visconti were to defend the city of Verona, to ensure connections with the Veronese territories recently annexed to his domains and to strengthen the water line between the Mincio and the Adige.





Transit route

Already at the end of the first millennium, the Mincio valley was affected by considerable trade flows and that, almost certainly, in Valeggio, one of the main centres of that time along the river, there was an annual market of considerable importance. The construction of the infrastructure, with such a strategic position, would have encouraged the markets of Lombardy and Vaneta





Infrastructure able to block the water of the Mincio and dry the lakes of Mantua

Hypothesis denied because if the goal had been only Mantua, even with all the reservations around the success that could have achieved, it would have been much more advantageous, and less expensive, to immediately bar the Mincio at Peschiera.





Cultivation

During half of the nineteen century the bridge was unconnected and its function as a bridge left behind, the bridge was as a vineyard.





Tourism

Still working as a bridge, now for vehicles, the bridge, being the icon of the city itself has become center of events such as the Nodo d'amore on which the street is closed and restaurants participate on the preparation of dishes for the tourists.

Originally a dam or a bridge?

In the face of complex hydraulic engineering problems, changes had to be made to the initial design. In fact, from "Bridge - Dam" became "Bridge - Fortress". The work was intended to create a reservoir, extending the liquid mirror of Garda, invaded the valley groove, between Peschiera and Borghetto. Its elevation, 66 m on the level of the sea, in the relationship with the altitude of Garda does not allow doubts about this interpretation.

PROBLEMS OF THE BRIDGE

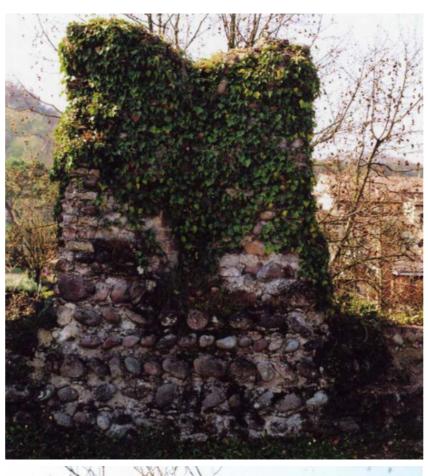
- Economic difficulties of the Municipal Administration to face a restoration project that invests the entire structure, being extremely large.
- Export over the centuries of the construction material of the Bridge.
- Widespread structural damage to the walls of the bridge.
- Chemical attack on parts of the bridge that hit the structure over the Mincio river.
- Air pollution caused by road traffic on the provincial road.
- Management problems, the funding of the bridge is diversified due to its mixed use between a monument belonging to the municipality and a infrastructure belonging to the province
- Diversified materiality due to previous restorations
- Infestation of vegetation causing damage to the structure
- 9 Vandalism, parts of the bridge show the presence of graffiti



During the last years the bridge has functioned as well as a parking lot for the visitors of Borghetto



The fall of the parapet has created the need of provisional interventions





Walls of the parapet and tower covered by vegetation



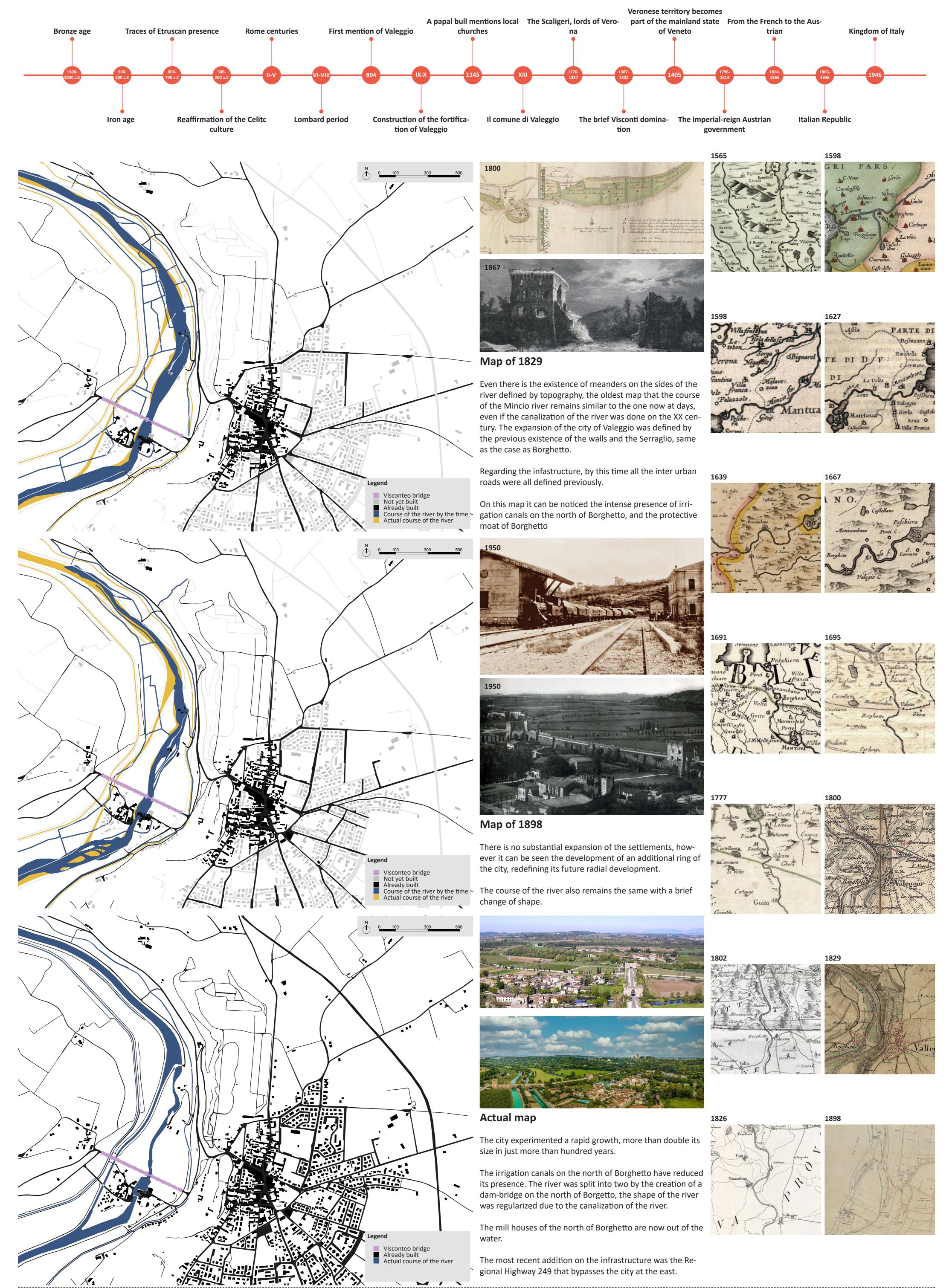


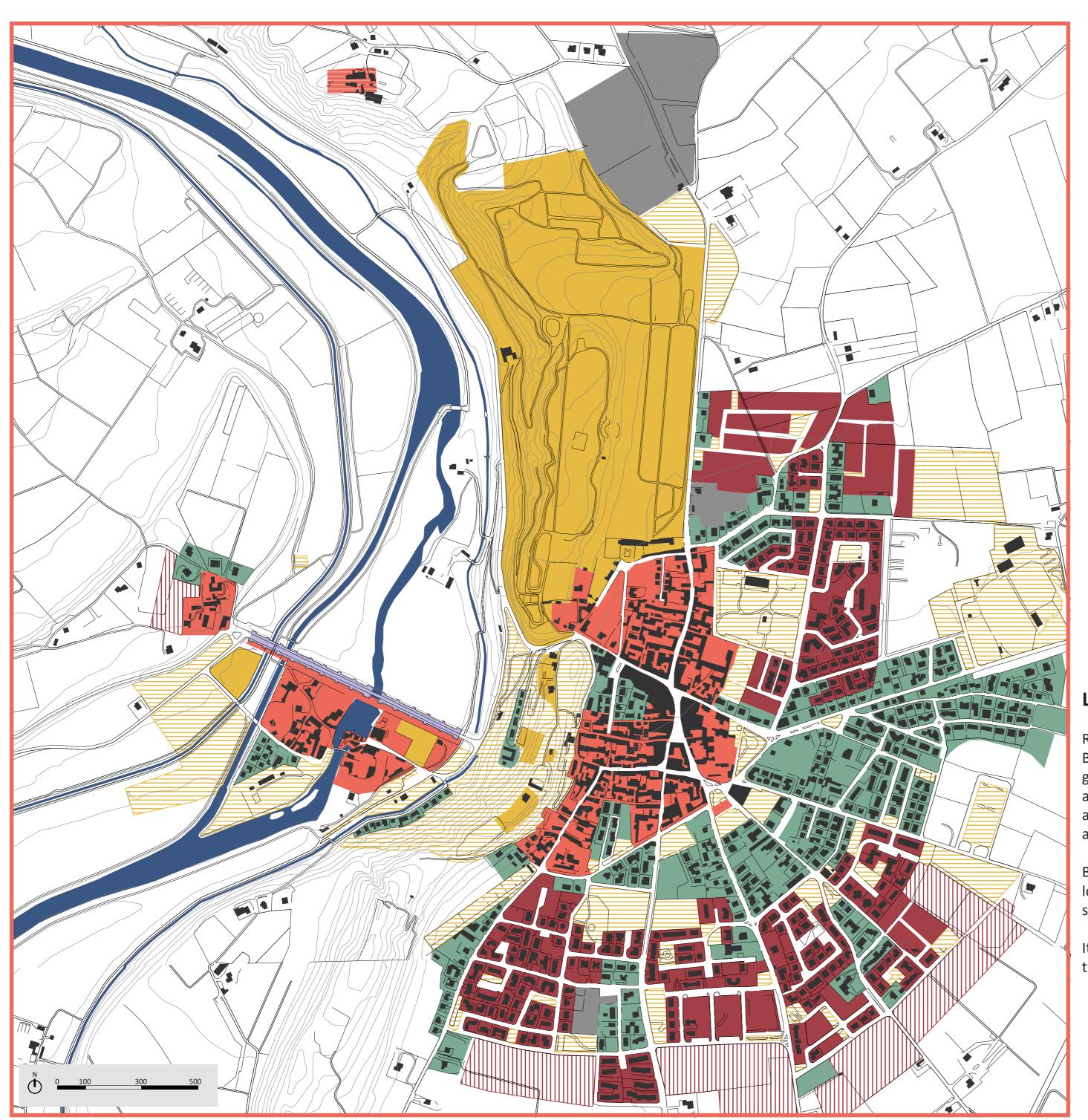
View from the underpass on the access from Valeggio and Castellana tower with the presence of scaffoldings to prevent the danger of falling parts hitting the users passing below





View from both the underpasses on the access from Valeggio and Monte Borghetto with presence of vandalism





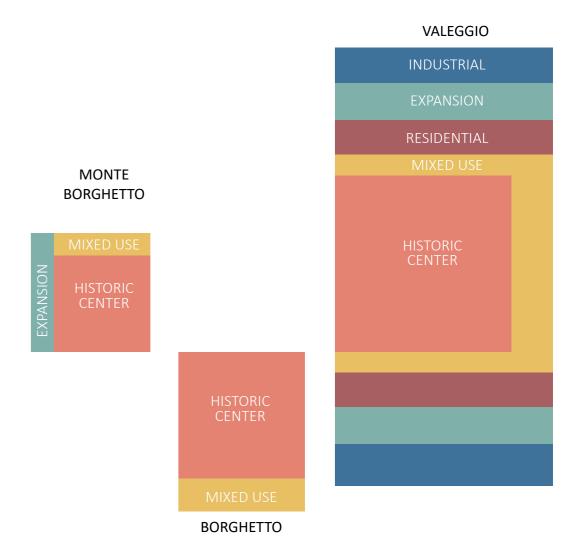


Diagram with the layers land use and shape of the settlements

Land use

Regarding the landscape, it can be said the three settlements Valeggio sul Mincio, Borghetto and Monte Borghetto are connected by their historic centers. As layers growing away from its historic center, it can be identified firstly the zone defined as mixed use, then but only on Valeggio it can be identified full residential zones, and the areas destined for residential expansion. On the north and south, there are two industrial zones that limits the growth of the city.

Borghetto is surrounded by open air public services such as parks, and parking lots with no area destined for residential expansion and Monte Borghetto has a small space for residential expansion as well.

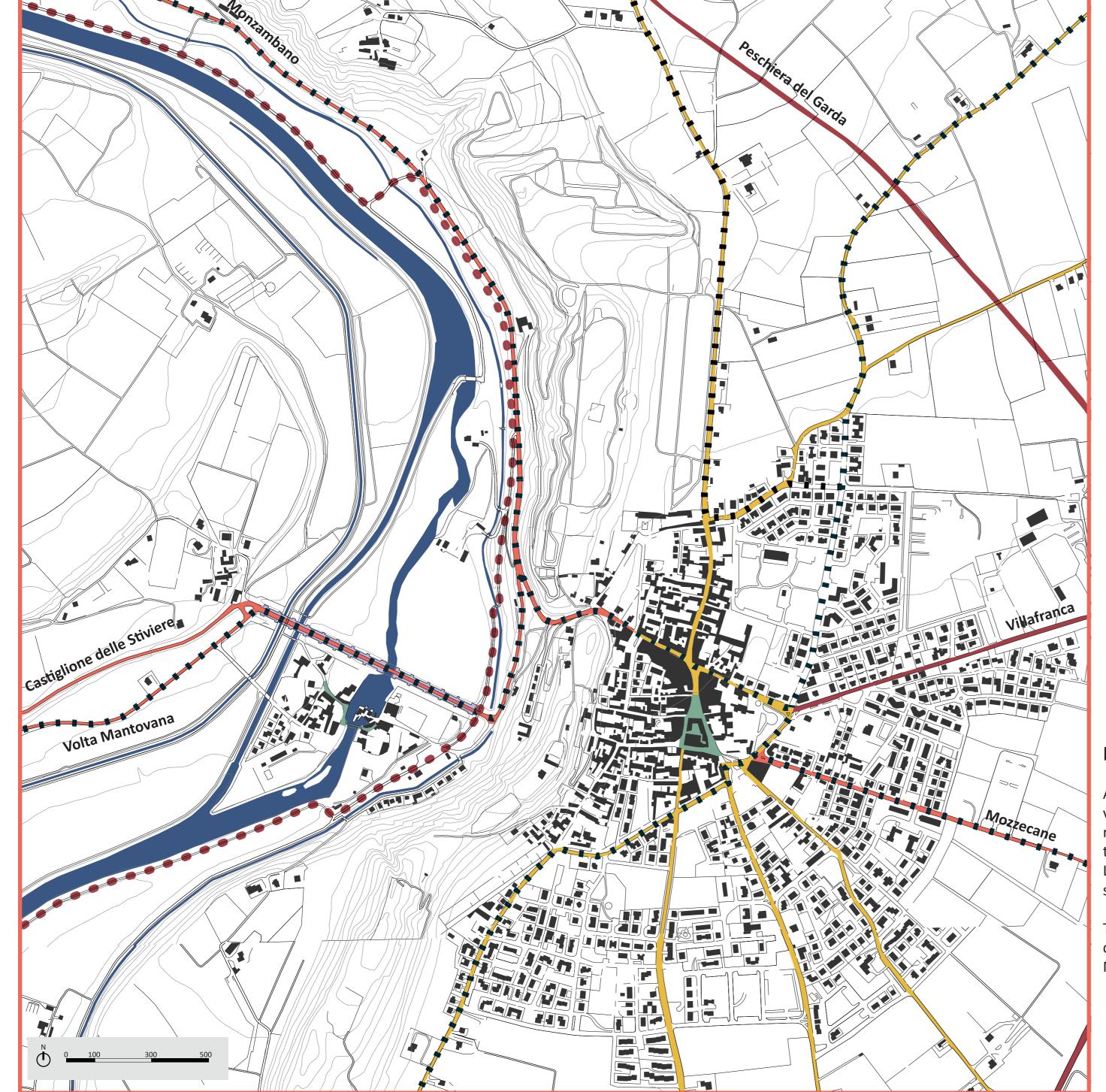
It is also noticeable the presence of great green areas such as as the Sigurta park, the Scaligero castle and the minor historic center of Barozzino.

Visconteo bridge Zone A, Historic center Zone A, minor historic center

Zone B, Defined urban area with mixed use
Zone C1, Residential use
Green private areas

Industrial

Zone F, open air service areas Zone C2, residential expansion



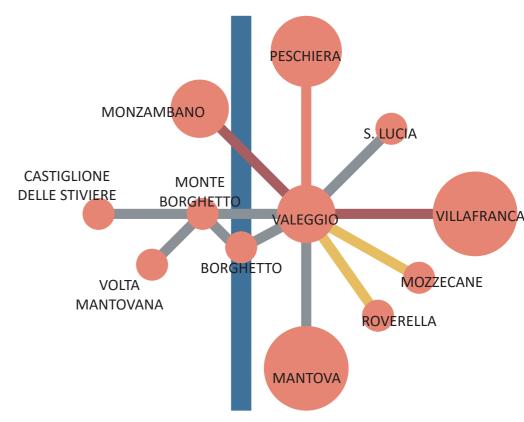


Diagram of the site and its connections

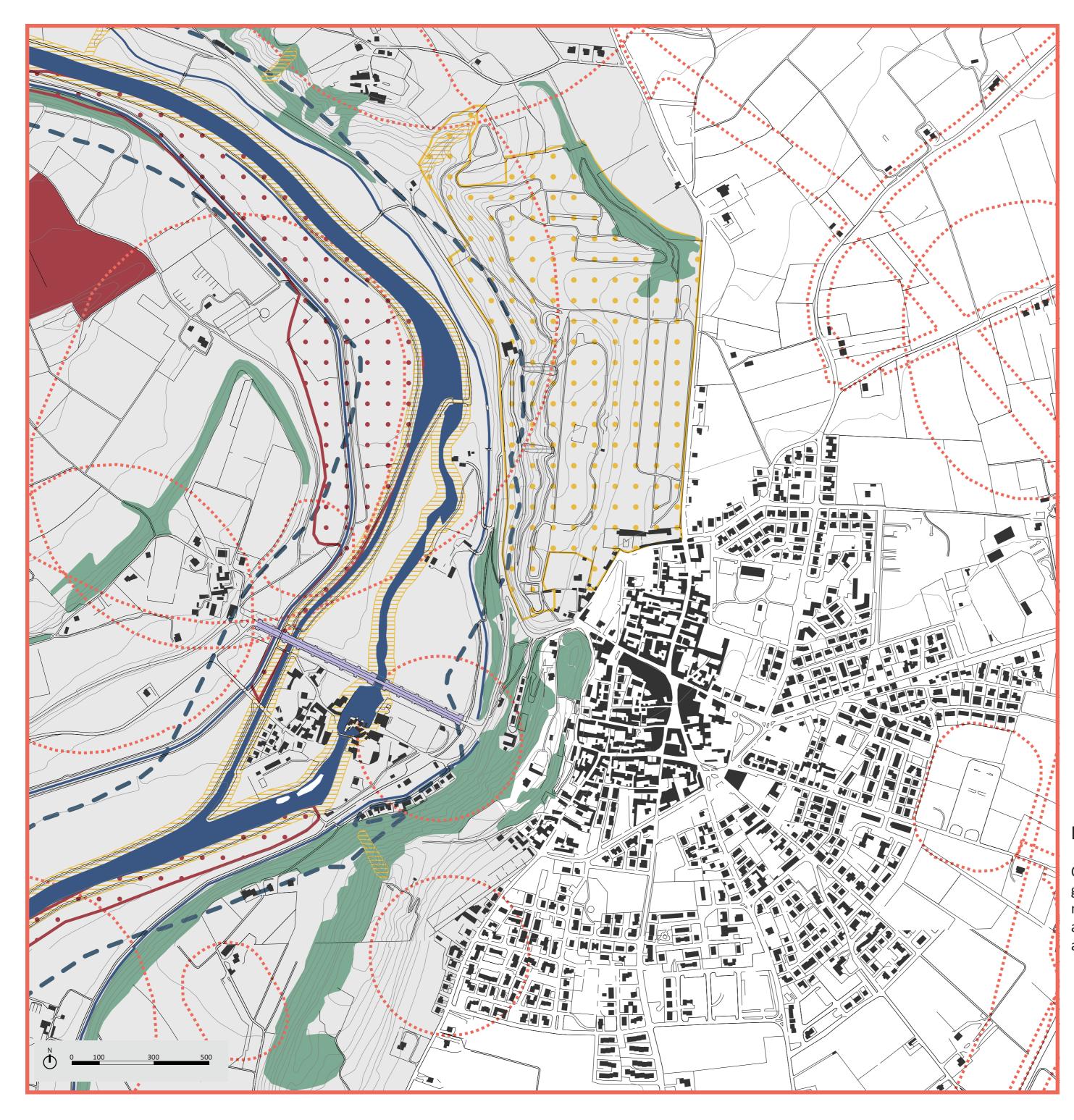
Mobility

As mentioned previously Valeggio can be defined by a system of roads that converge to a center, however other observations can be identified, the hierarchy of roads, defined by the municipality by the level of connection the road has. On the top of the hierarchy it can be noticed the SR249 that crosses from north to south, Lombardy and Veneto. On the other level, the inter-urban roads, that connect the settlement with nearby cities and lastly the minor inner urban/local roads.

This map reveals more the need for a new bridge, since all of these roads are connected by the Visconteo bridge and the only close connection is the bridge at Monzambano at 4.6km.

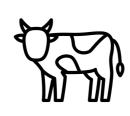
Legend

- Visconteo bridge Territorial connection road Inter-urban connection road Urban/local road
- ZTL zone
- Bus route
 Bicycle path





The small dam-bridge on the north of Borghetto controls the levels of water that pass through Borghetto however the north west part is defined as area with high risk of flooding



There is presence of livestock farming on the north of Borghetto, the municipality suggests a buffer zone to avoid buildings next to it.



A explosive warehouse is located half way to Monzambano, also a buffer zone constraining the buildings and roads is suggested



Areas with a high natural value are defined on this map, it is worth mentioning that the river belongs to an area defined as an ecological corridor

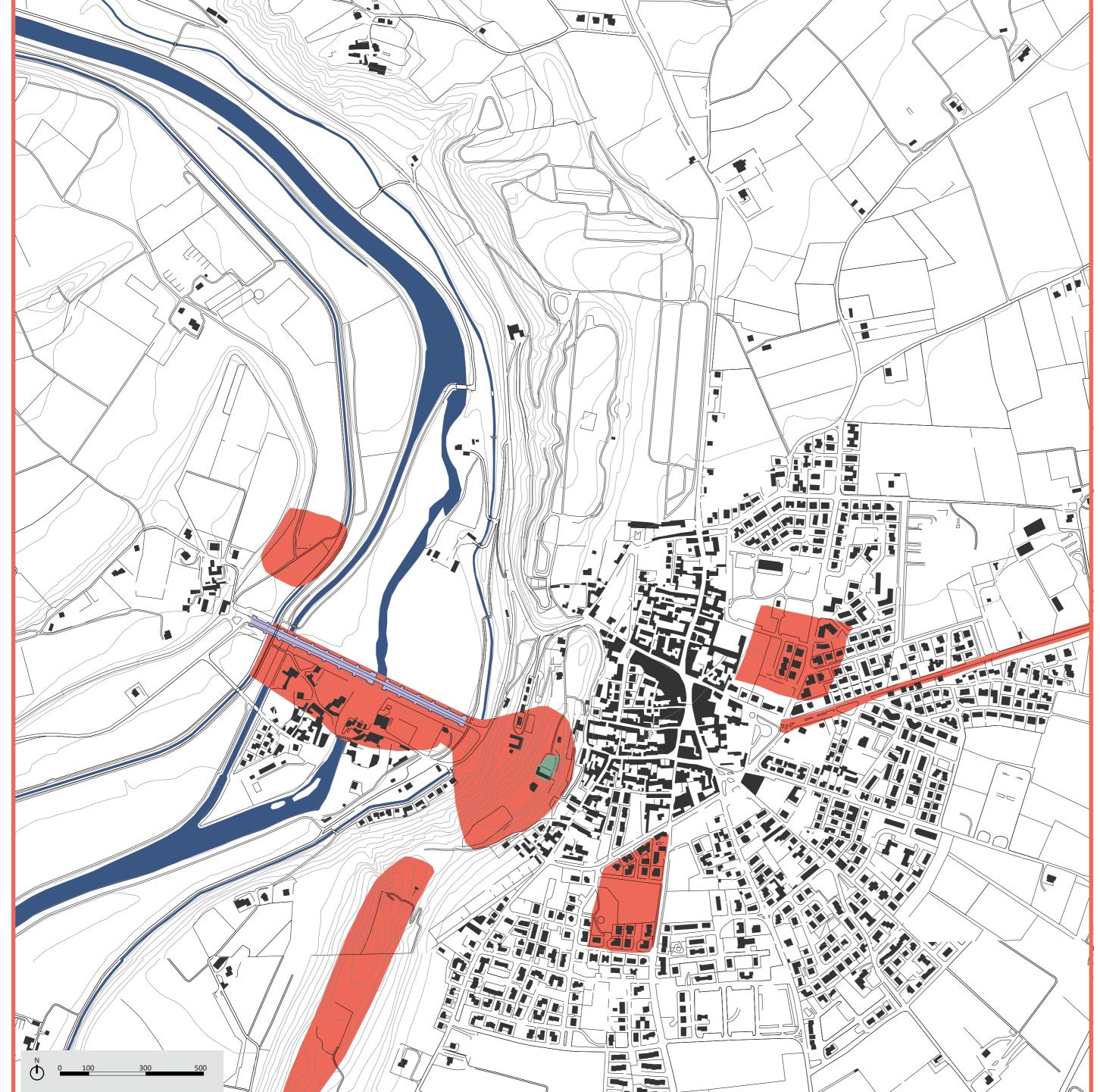
Restrictive zones

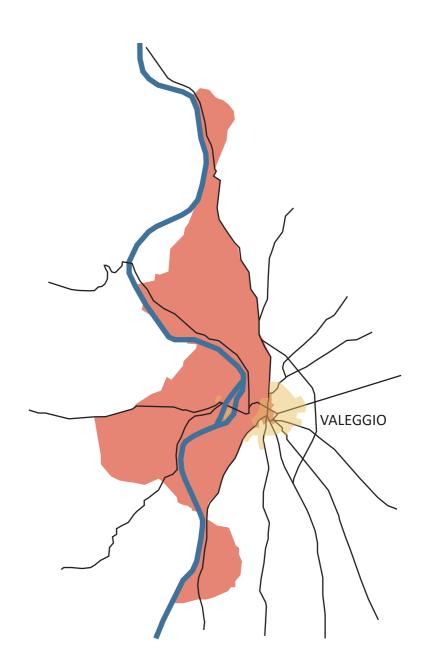
On this plan it can be shown the buffer zones that define the urban plan of Valeggio sul Mincio, it stands out the presence of the explosive warehouse on the north west area of Borghetto, the buffer zones related to the livestock farming activities and also because of the cemetery, the floodable areas near the Mincio and the forest areas.

Legend

- Visconteo bridge
 Forest areas
 Natural reserve

- High risk zone
 Non ideal geological compatibility
 Monumental complex
 Floodable zones
 Restrictive areas (highway, cemeteries, farms,ducts)
 River landscape zone



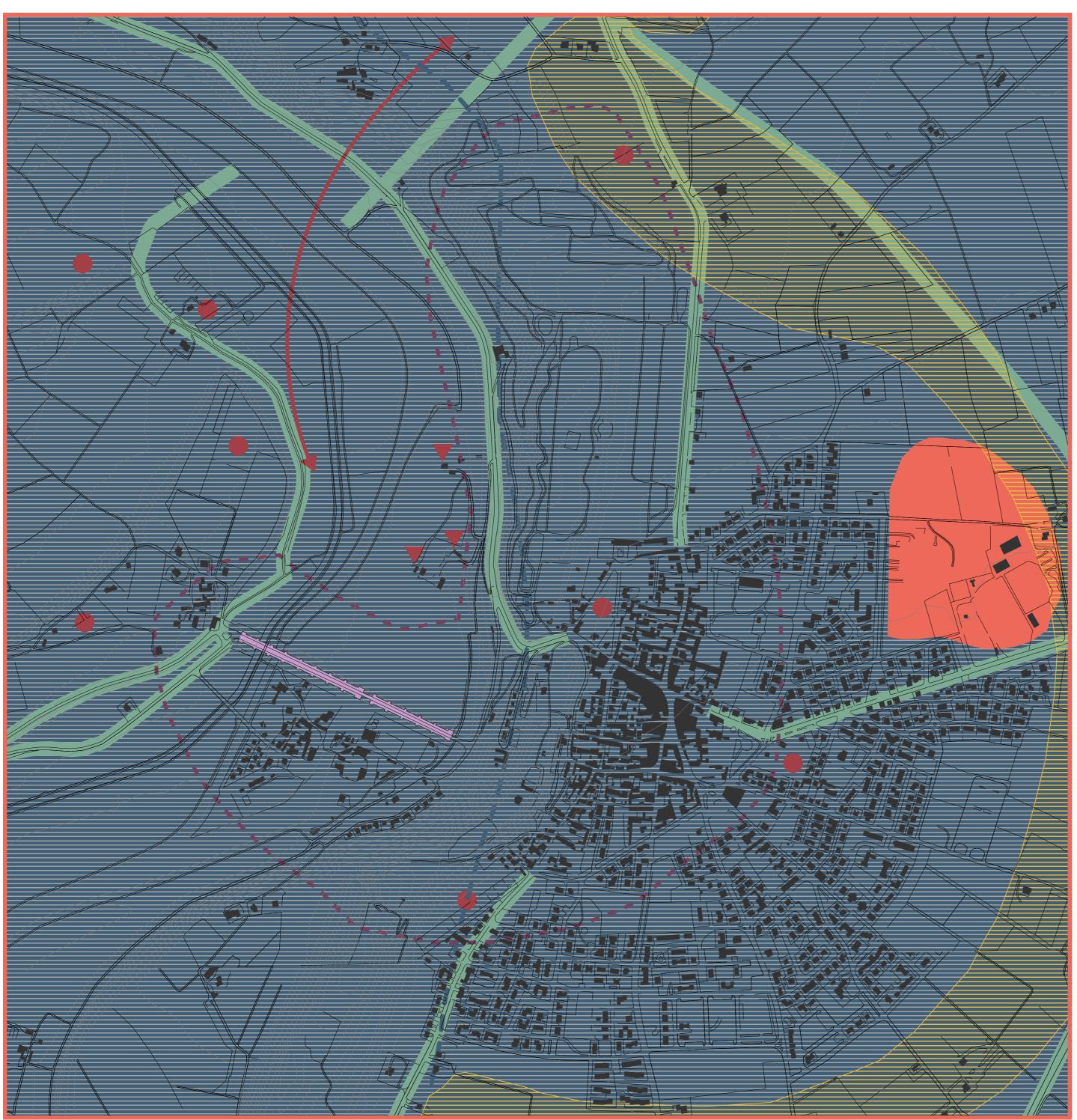


Also the ministry of culture has defined the area near the river as a protected zone by the article 136, a zone of notable public interest

Critical zones

On this map it can be identified the zones that got protection due to their historical value according to the municipality, this map also includes places with archaeological value and their respect buffer zones.

- Visconteo bridgeEnvironmental historical interestArchaeological value



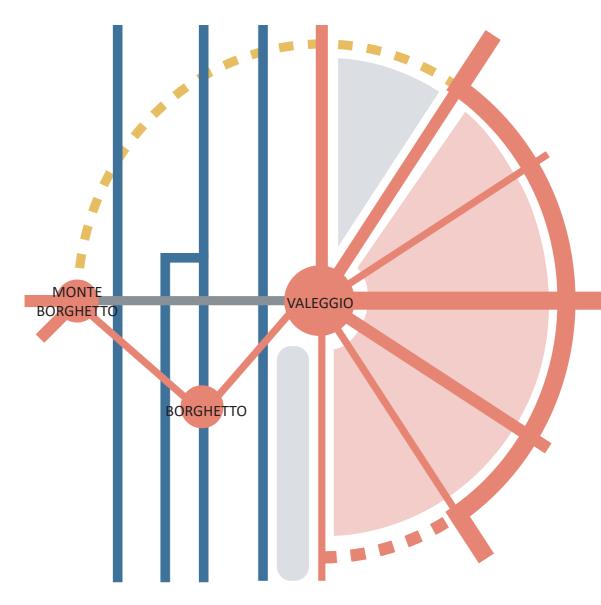


Diagram of new connections and expansions planned for Valeggio

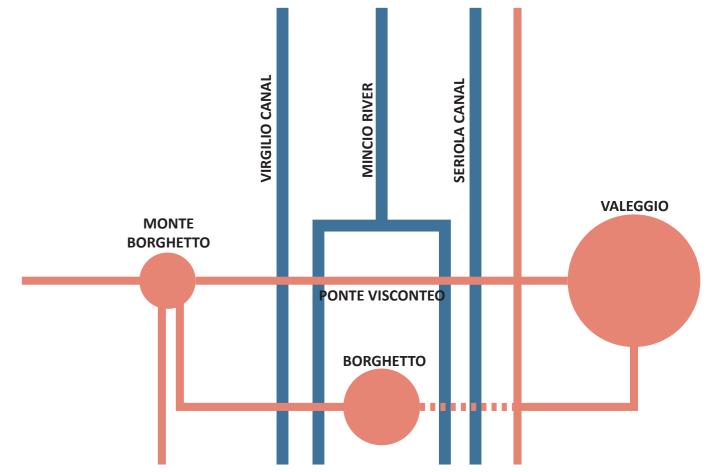
STRATEGIES

Among the strategies proposed by the municipality, it can be seen the need to connect the SR249 with the road that goes to Peschiera and Monzambano the SP29, it can also be seen the future extension of the city, and the direction of the new bridge. It is also worth mentioning the reconversion of some elements such as roads, farms, the explosive warehouse and industrial zones.

Legend

Ponte Visconteo Strategic scope for redevelopment and transformation Zone destined for strengthening services
Scope for the development of natural park of municipal initiative
Residential expansion Area or element of historical significance
Naturalistic area of strategic value
Main route for road development Main ecological corridor
Zone proposed for testimonial monumental value

Re qualification of infrastructure



Goals municipality

Redirect vehicles through an alternative road

Promote new connections to expand roads capacities and bring connection to outer urban and touristic zones

Promote the use of pedestrian and vehicle alternatives

Improve accessibility conditions of the monuments

Aim for the attractiveness, continuity and recognizability of the itinerary bicycle route, favoring the shortest, most direct and safest routes

The preservation or reconstitution of the agrarian landscape, valuable agrarian systems, and the related biodiversity heritage, of individual animal or plant species and related habitats.

Increase tourism

Make the Mincio river navigable

General principles of the European Council of Landscape

Consider the territory as a whole

Recognize the fundamental role of knowledge

Promote awareness

Define landscape strategies

Integrate the landscape dimension in territorial policies

Integrate landscape into sectoral policies

Make use of public participation

Achieve landscape quality objectives

Develop mutual assistance and exchange of information

Site issues

3

Landscape degradation

Decay of the Visconteo bridge

Management of the Visconteo bridge

Lacks of connections between the city and the nature

Possibility to create new connections

Unused lands

Floodable areas

High risk zone due to a explosive storage

Abandonment of buildings and monuments

Not enough car parking

What to connect?

As mentioned previously, Valeggio acts as a gate that connects two sides of the river, the urban sprawl continues passing the river to Borghetto and on the other side of the Visconteo bridge Monte Borghetto, the other side of the gate the gathers the traffic flow from others settlements such as Solferino and Volta Mantovana, Ponte Visconteo is the only bridge on 5km that connects both sides, if the traffic is interrupted distances between some settlements will be drastically increased, also it could make tourist bypass Valeggio possibly decreasing the number of tourist.

It is also important mentioning that any intervention will need to take into consideration that not only the Mincio river will need to be crossed by the vehicles, but also the canals that pass parallel the river meaning that it is quite likely required several bridges on the solution.

Site visit



During the site visit discussion with the municipality was held, on the meeting it was discussed the existence of a project undone on which three different locations were considered, all of them on the North of Borghetto, one far with an aim to have a better connection of the highways and one close to the Visconteo bridge considering the existent system of bridges.

Previous projects



A previous work was done by the architect Gabriello Anselmi, called the conceptual bridge on which he proposes a location for the bridge and the aesthetics that the new bridge should

Proposed elements



Replacement of the vehicle pass on the Visconteo bridge, considering historical paths



Incorporation of a transport exchange place considering the new project of Mincio Navigabile



Interrupting the pass of the Visconteo bridge means also interrupting the pass of public trans-





The Visconteo bridge serves actually as parking lot, closing the passo of vehicles will require to replace those parking spaces

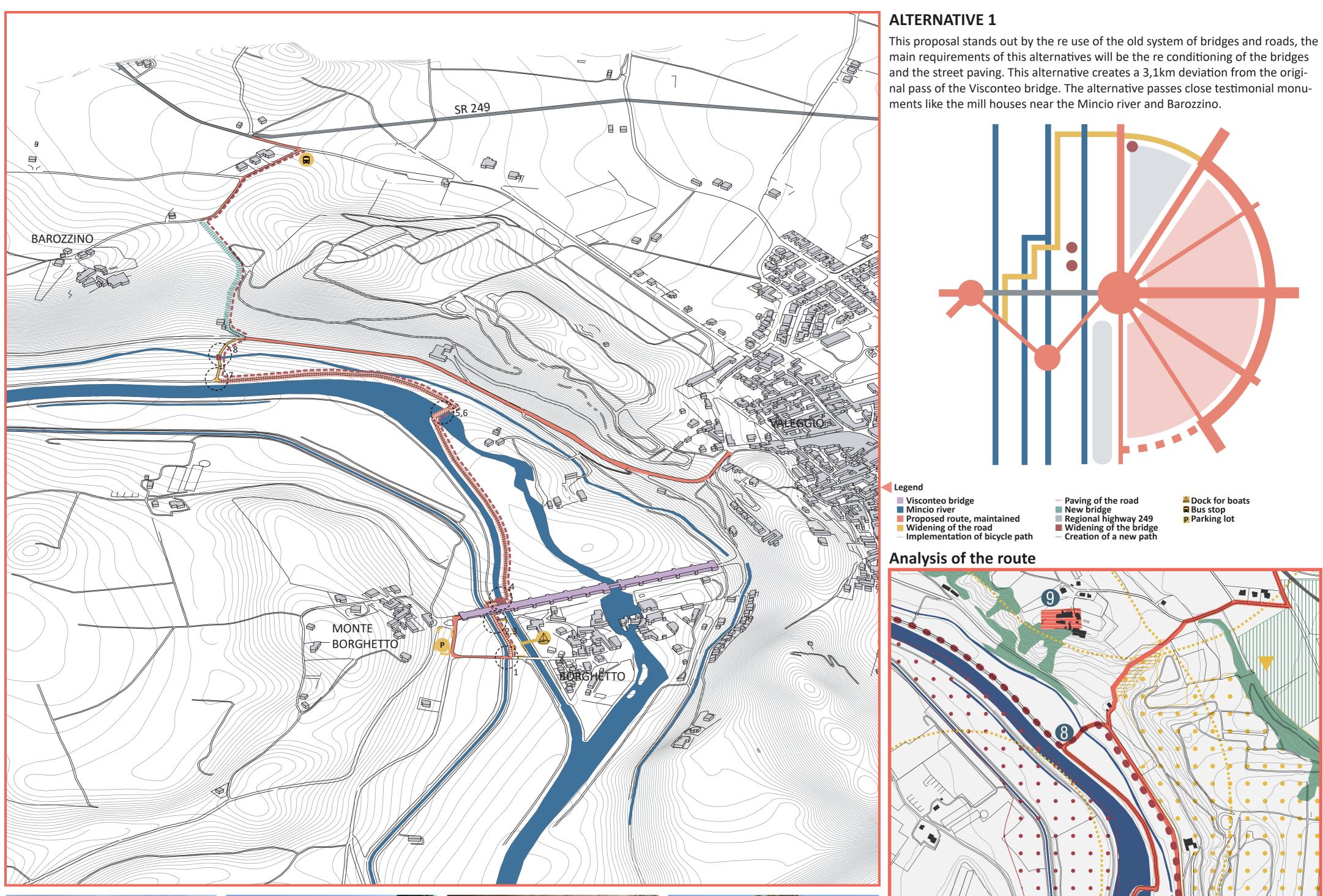


Consider pedestrian and bicylce solutionson the proposal

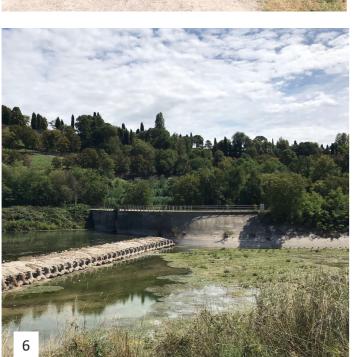


Increase the tourism of the site by exploiting its historic and landscape values

















Re use of an alternative bicycle connection

cyclist actually take to arrive to Bor-

Better connection with historic

agroturism zones

value that are dedicated to agrotour-

Connections with the Visconteo road

Possibility of over-extending the road

The closeness

torical landscape

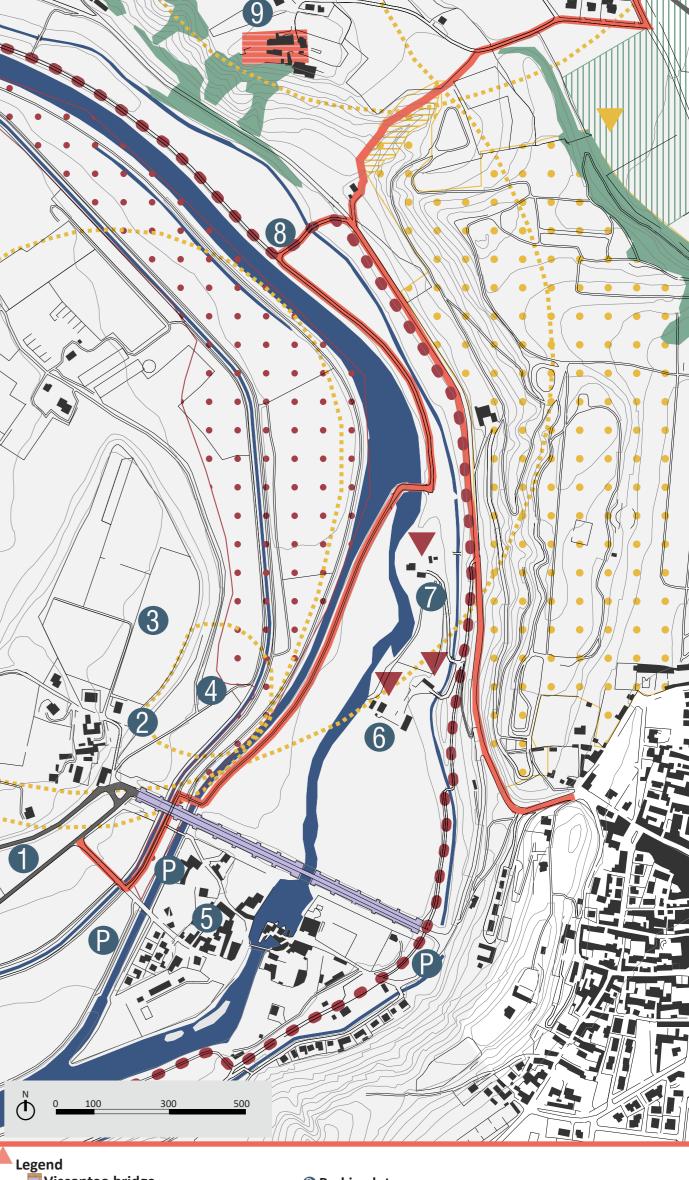
and the street paving. This alternative creates a 3,1km deviation from the original pass of the Visconteo bridge. The alternative passes close testimonial monuments like the mill houses near the Mincio river and Barozzino.

■ Visconteo bridge Mincio river
 Proposed route, maintained
 Widening of the road
 Implementation of bicycle path

Paving of the road
New bridge
Regional highway 249
Widening of the bridge
Creation of a new path

△ Dock for boats ■ Bus stop
P Parking lot

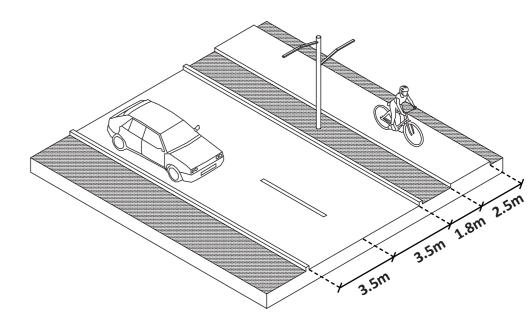
Analysis of the route



Parking lot
Camper zones
Agro toursim camping zone
Camping zone
Cementery
Borghetto settlement
Hotel
Residential area
Restaurant
Barozzino settlement Visconteo bridge
High hierarchy connections
Minor historical center zone
Proposed alternative Proposed alternative
Forest areas
Natural park zone
Industrial zone
Floodable area
Parco Sigurta
Risk/Restrictive areas
Bicycle route
Area planned to be re converted
Zone proposed for testimonial mon-



Proposal of reusing old connection to create a link with the highway



Main typology of the route proposed

Reuse of bridge system

Reuse of system of roads

Awareness of Borghetto's origins

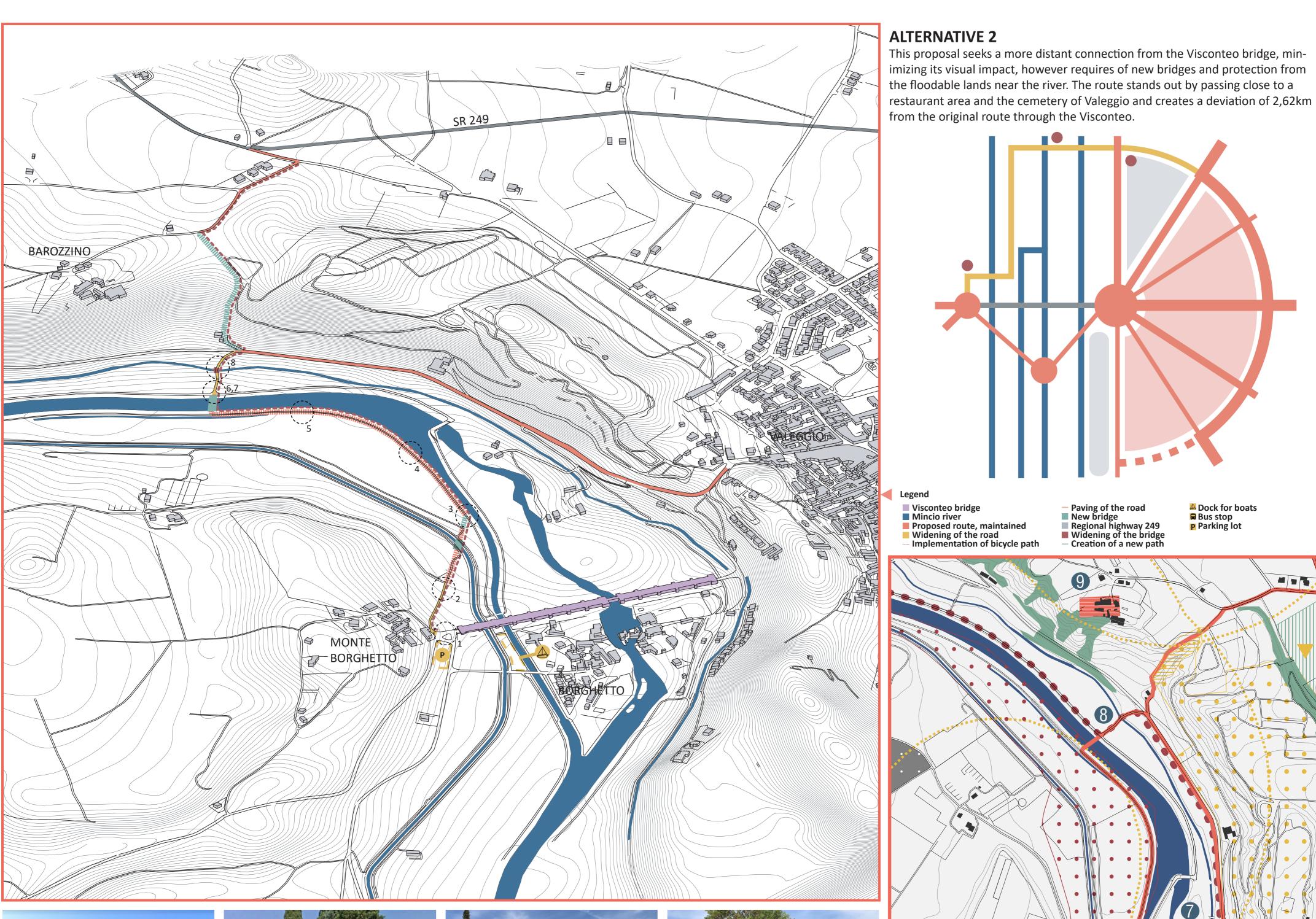
Bridge widening

The bridges at the canals don't have width such as the actual hridge on

Paving

bridge conditions

Utilization of Visconteo tunnels bridge, this may contribute for fu-









Reuse of one bridge

Partial of system of roads

Closest distance

Bridge widening

The bridges at the canals dont have width such as the actual bridge on

Paving

stock areas

bridge conditions

Area of respect from the cementery

Farming-livestock restrictions restriction due to the livestock activ-

Crossing through private farmlands



New bridge

This proposal will require of a new

Possibility of over-extending the road

High risk area

The proposal passes through an area marked as a high risk zone, due to the nearby production of explo-

Flooding

The bridge on the previous proposal is used to control the water levels and protect Borghetto, upstream it can be seen signals saying that there is risk of floods due to hydraulicalworks done upstream



Legend

Visconteo bridge
High hierarchy connections
Minor historical center zone
Proposed alternative
Forest areas
Natural park zone
Industrial zone
Floodable area
Parco Sigurta
Risk/Restrictive areas
Bicycle route
Area planned to be re converted
Explosive warehouse

Parking lot
Camper zones
Agro toursim camping zone
Camping zone
Cementery
Borghetto settlement
Hotel
Residential area
Restaurant
Barozzino settlement

Paving of the road
New bridge
Regional highway 249
Widening of the bridge
Creation of a new path

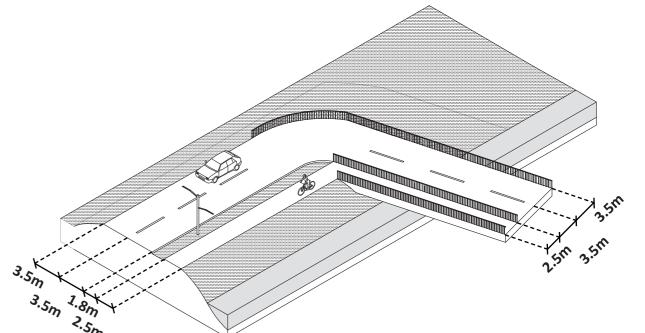
■ Visconteo bridge■ Mincio river

Proposed route, maintained
Widening of the road
Implementation of bicycle path

△ Dock for boats□ Bus stopP Parking lot

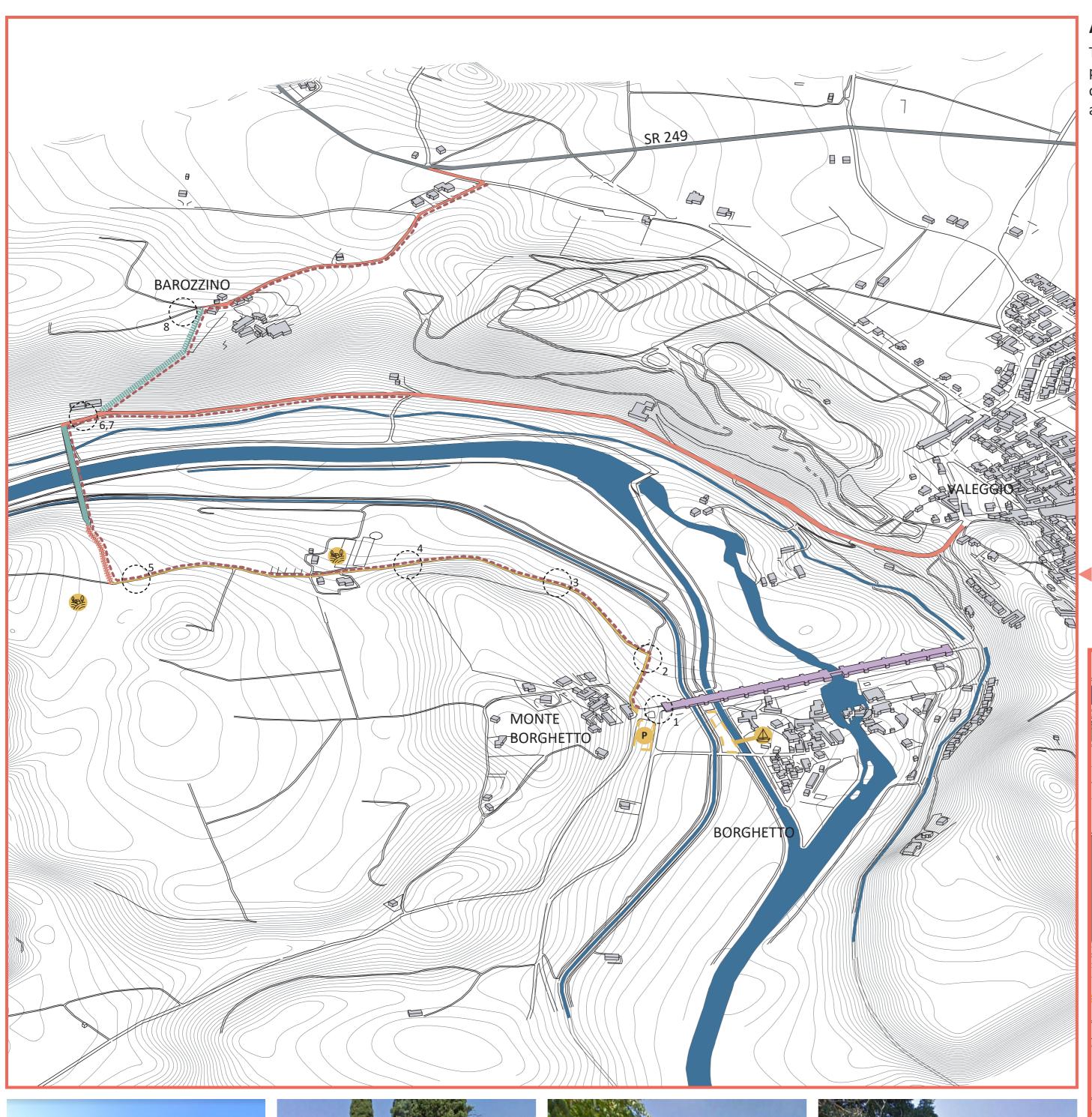


Proposal of reusing old connection over the canal



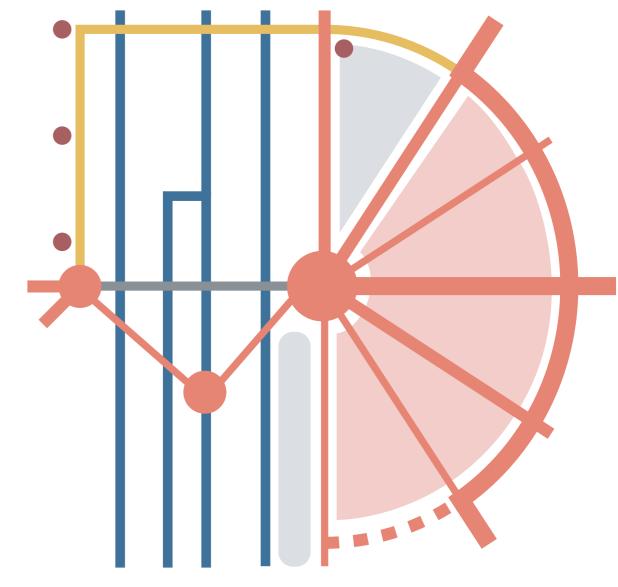
Typology of the bridge with the required embankments due to the risk of floods

Reconnection And Revalorization Of The Visconteo Bridge And Its Landscape-Carlos Eduardo Medina Galán



ALTERNATIVE 3

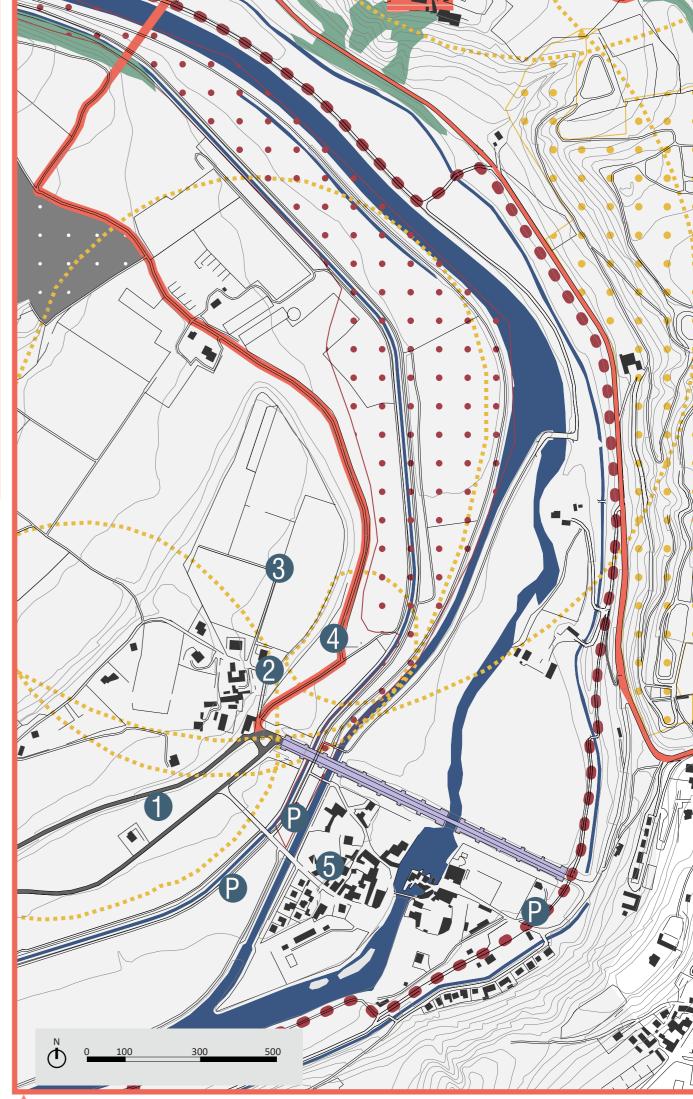
This proposal crosses the Mincio river on a straight axis on an elevated path, passing over all the water elements, this site was selected because the reuse of old paths and the narrow connection formed by this elements. This option deviates 3,7km from the original pass of the Visconteo bridge.



Legend

- Visconteo bridge
 Mincio river
 Proposed route, maintained
 Widening of the road
 Implementation of bicycle path
- Paving of the road
 New bridge
 Regional highway 249
 Widening of the bridge
 Creation of a new path

△ Dock for boats□ Bus stopP Parking lot













Legend

- Visconteo bridge
 High hierarchy connections
 Minor historical center zone
 Proposed alternative
 Forest areas
 Natural park zone
 Industrial zone
 Floodable area
 Parco Sigurta
 Risk/Restrictive areas
 Bicycle route
 Area planned to be re converted
 Explosive warehouse
- Parking lot
 Camper zones
 Agro toursim camping zone
 Camping zone
 Cementery
 Borghetto settlement
 Cascina Buroncella (agrotourism zone)
 Barozzino settlement

S

Reuse of system of roads
This alternative plans to use the existing system of roads already be

Closest distance to cross bridge and canals

This alternative sets the bridge proposal close to a system of roads that can be directed to the highway

Straight axis bridge
The solution will involve the pass

only through one bridge

W

Paving

All of the new roads will require paving in order to maintin the actual bridge conditions

Area of respect from the cementery
This proposal has a close approximation to the cementery, creating re-

Farming-livestock restrictions

This route goes through an area of restriction due to the livestock activities done, this restrictions are made to create a distance between urban and agriculture areas from the livestock areas

Crossing through private farmlands The proposal involves the utilization of private farmlands not belonging

Longest distanceThis alternative has the longest dis

Crossing through forest areas
This proposal involves the utilization of areas defined as forest areas



New bridge
This proposal will require of a new bridge

Possibility of over-extending the road

The road ends on an old rural road that continues to the top part of the Sigurta parc

Over-extending the road to the highway can create a connection to a Barozzino, a zone declared a minor historical center scattered out from Valeggio, promoting visitors to come

Re-conversed lands

The project passes through some areas that are being planned to be reconverted, their new use could be aligned with the project



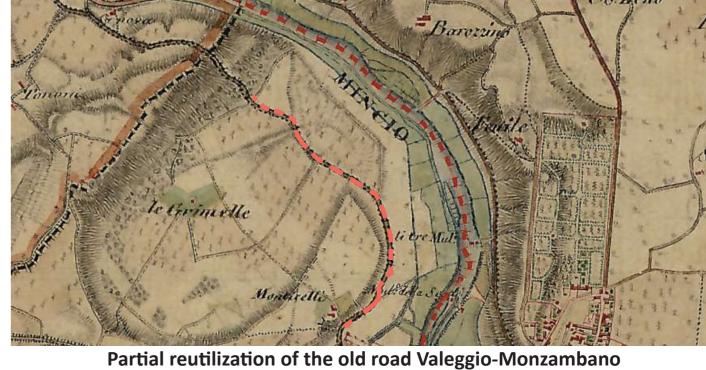
The proposal passes through an area marked as a high risk zone, due to the nearby production of explo-

Non ideal terrain

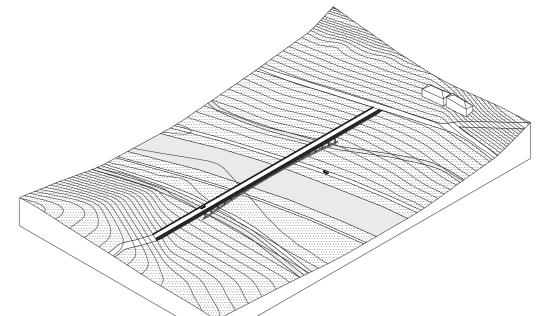
In order to connect to Barozzino, the route needs to pass through an area defined as an area with no ideal soil conditions

Forest area

The connection from the bridge to Barozzino passes through an area defined as a forest area



(Now partially disappeared)



Proposal of a new bridge, it will require of enough height to allow the pass of vehicles below and supports on the sides

Re use of existing bridge system Visual impact Bridge already exist Distance of the route 3.1 km Closeness of the bridge to the Visconteo 711m Opportunity of linking re purposed lands into project No Requires of the creation of a new bridge No Reuse of actual bicycle road Yes Requires of the creation of embankments No Inside floodable zone No Inside explosive risk zone No Inside cemetery buffer zone No Inside livestock farming bufferzone No New route crosses by forest areas No Opportunity of linking historical parts Tre molini, Barozzino **ALTERNATIVE 2** Visual impact Low Distance of the route 2.62 km Reduced distance Closeness of the bridge to the Visconteo 1073.19m Opportunity of linking re purposed lands into project No Re uses bridges Yes Requires of the creation of a new bridge Yes Reuse of actual bicycle road Yes **Requires of the creation of embankments** Yes Inside floodable zone Yes Inside explosive risk zone Yes Inside cemetery buffer zone Yes **Inside livestock farming bufferzone** Yes New route crosses by forest areas No Opportunity of linking historical parts Barozzino **ALTERNATIVE 3 Better tourism opportunities** Visual impact High Distance of the route 3.7 km Closeness of the bridge to the Visconteo 1506.42m Opportunity of linking re purposed lands into project Yes **Re uses bridges** No Requires of the creation of a new bridge Yes Reuse of actual bicycle road Yes Requires of the creation of embankments No Inside floodable zone No Inside explosive risk zone Yes Inside cemetery buffer zone Yes **Inside livestock farming bufferzone** Yes **New route crosses by forest areas** Yes Opportunity of linking historical parts Buroncella, Barozzino