

Politecnico di Torino
Department of Architecture and Design
Master's Degree in Architecture for Heritage



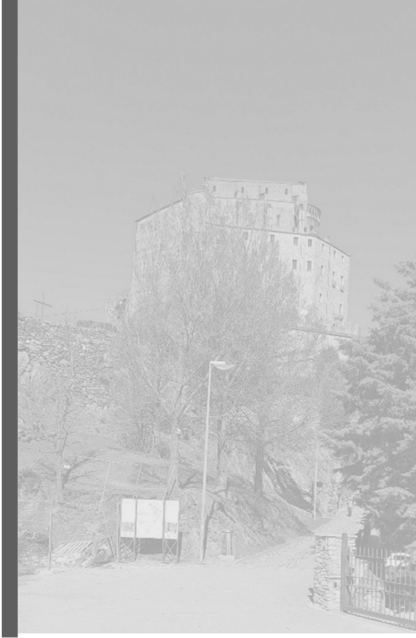
STRATEGIC ASSESSMENT OF THE SACRA DI SAN MICHELE:

Supporting the Development of a Management Plan

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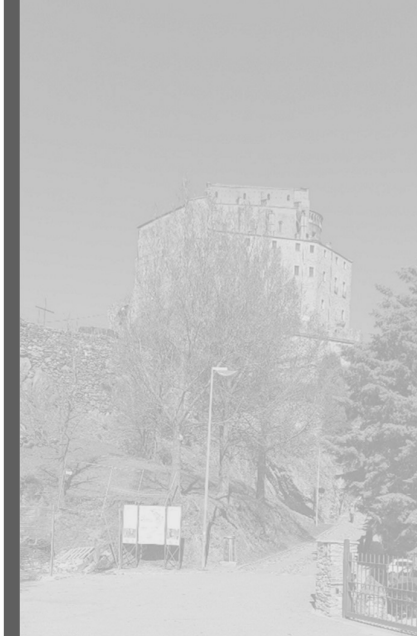
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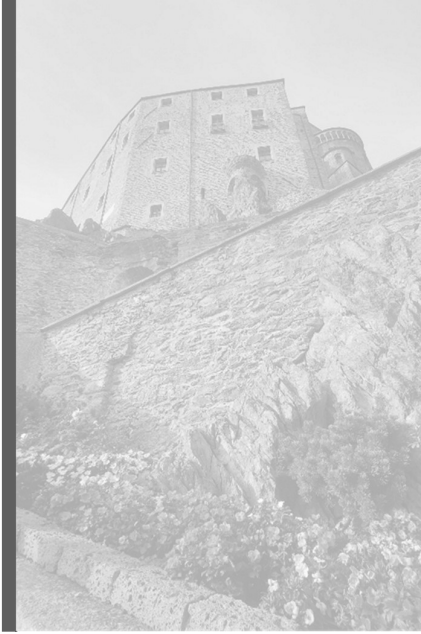
ABSTRACT

The World Heritage List (WHL) is a well-known resource to preserve natural and cultural heritage. Inscribing a monument in the WHL can help guarantee the preservation of a site and encourage local tourism. The Sacra di San Michele has been on the path to being inscribed since 2016, when it became a part of the national tentative list. The next step requires the elaboration of a management plan for the area.

The purpose of the thesis is to support the development of the management plan by investigating both the Sacra and its surroundings. Developing a strategic assessment of the area was necessary using the SWOT and Stakeholder analysis methodologies. These tools are allied to geographic information systems (GIS) and circle methodology to view the territory and its possible stakeholders comprehensively.

The evaluation considers a series of criteria (social, technological, environmental, economic, and political) to determine the current state of the site and the possibilities of its development. These categories are represented in four thematic maps following the SWOT categories of strengths (S), weaknesses (W), opportunities (O), and Threats (T), using GIS to help define guidelines for any future project. The strategic evaluation was done to identify, rank, and describe the actors and their roles in the project.

Keywords: management plan, SWOT analysis, strategic evaluation, Sacra di San Michele.



INTRODUCTION

The World Heritage List is an instrument that compiles the world's most significant monuments and sites, ranging from architectural works to natural marvels. Its existence creates a certain level of protection for the heritage while also making the state parties accountable for its continuous conservation. The inscription process is complex and requires several studies and evaluations of the territory, the state of preservation, and the economic plan of the site, all to guarantee its protection. All this information is compiled and serves as a base for the management plan, a tool that aims to evaluate, monitor, and manage.

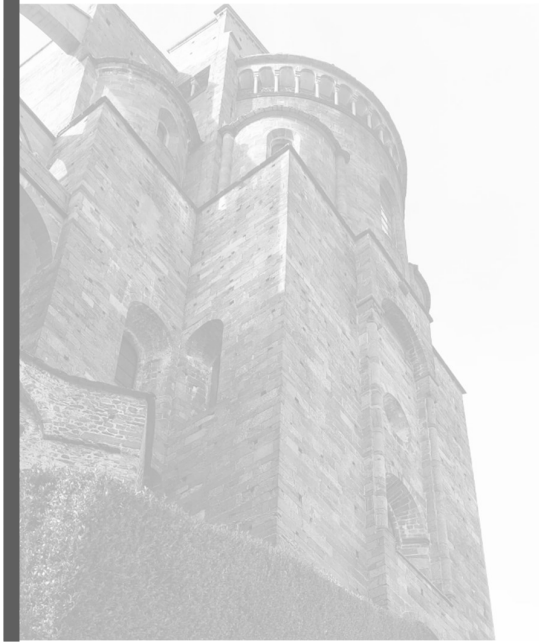
This thesis is a product of the existing effort to inscribe the *Abazzia di San Michele*, or Sacra di San Michele, in the World Heritage List. The process has been in the works since 2016, when a series of Benedictine medieval settlements was added to the Italian tentative list. The inscription process requires the development of a knowledge project, which involves analyzing the site's current state and identifying its potential.

The management plan is an indispensable tool for the preservation of cultural heritage. The program involves collecting data, planning, assessing, and generating proposals to develop a sustainable development plan. It not only helps preserve a building and its surroundings but also creates an environment that fosters and encourages the development of the local community.

The main objective of the thesis is to develop two indispensable parts of the knowledge project: a SWOT Analysis and a Stakeholder Analysis. The SWOT Analysis is a resource used to define the site's current state and hypothesize the possible paths

a project can follow. It can be enriched using the STEEP Methodology, which stands for social, technological, economic, environmental, and political. These aspects can create a well-rounded picture of the study area. More recently, the Spatial SWOT technique is also gaining traction. This technique refers to using GIS software to represent the SWOT analysis results in graphical form. Using a Spatial SWOT analysis led to elaborating a series of thematic maps following the SWOT categories of strengths, weaknesses, opportunities, and threats. The Stakeholder analysis requires identifying and compiling possible investors for a determined project. They are categorized and evaluated according to their interests, goals, and roles inside the project.

The thesis is divided into five parts. The first chapter deals with the World Heritage List, describing its importance and the process of inscribing monuments. Following this, the second chapter delimits the territory of the Sacra and its history. It briefly mentions the natural and cultural characteristics of the region at the regional and local levels. The history of Sacra di San Michele and its influence on the area as a whole was also taken into consideration. The third chapter explores the methodology of the techniques used. After this, the fourth chapter deals with the application of said methodology. It mentions information regarding the study area's social, technological, economic, environmental, and political aspects. It also explores the development of the Spatial SWOT Analysis and the Stakeholders Analysis. Finally, the last chapter ties the initial goal to the results found in the previous chapters and speculates the possible strategies the management plan could take to continue the project.



1 UNESCO World Heritage Convention

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) was founded in 1946 to establish international collaboration and foster peace and stability. In 2020, it had 193 member states and 11 associate members.

UNESCO was created after the two world wars to ensure peace between nations and bring people together through the understanding and sharing of different cultures. To do this, the organization has launched programs like the Universal Copyright Convention of 1952 and the World Heritage Convention in 1972. All the programs facilitate information sharing and preserve cultural assets and practices worldwide.

The Word Heritage Convention is an international agreement that started to take effect in 1972. It dictates that heritage is not only an asset for its country of origin but for humanity. The loss of these assets would constitute a loss for all nations.

The Convention categorized heritage into two distinct groups:

“The following shall be considered as “cultural heritage”;

I. Monuments: architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings, and combinations of features, which are of Outstanding Universal Value from the point of view of history, art, or science;

II. Groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity, or their place

in the landscape, are of Outstanding Universal Value from the point of view of history, art, or science;

III. Sites: works of man or the combined works of nature and man, and areas including archaeological sites which are of Outstanding Universal Value from the historical, aesthetic, ethnological, or anthropological points of view.

the following shall be considered as “natural heritage”:

I. natural features consisting of physical and biological formations or groups of such formations, which are of Outstanding Universal Value from the aesthetic or scientific point of view;

II. geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of Outstanding Universal Value from the point of view of science or conservation;

III. natural sites or precisely delineated natural areas of Outstanding Universal Value from the point of view of science, conservation, or natural beauty.” (UNESCO, 1972)

According to these categories, the State Parties are responsible for identifying, protecting, and conserving their heritage to ensure their transmission to future generations.

The Convention also created a World Heritage Committee (WHC). Its primary function is to identify the heritage of outstanding value and inscribe it on the World Heritage List (WHL). These properties are examined according to their state of conservation using the process of Reactive Monitoring and Period Reporting. Based on their evaluation, the Committee can remove properties from the List. They are also responsible for deciding the procedures needed to request consideration to the List, how the State Parties can use the resources of the World Heritage Fund, and seeking ways to increase the funds. The Committee has to submit an activity report every two years at the General Assembly of States Parties.

To guarantee the implementation of the Convention, the Committee develops and reviews Strategic Objectives. The Operational Guidelines for the Implementation of the World Heritage Convention (2021) explore these objectives. Currently, there are five of them:

- I. “Strengthen the Credibility of the World Heritage List;*
- II. Ensure the effective Conservation of World Heritage Properties;*
- III. Promote the development of effective capacity building in States Parties;*
- IV. Increase public awareness, involvement, and support for World Heritage through Communication;*
- V. Enhance the role of Communities in the implementation of the World Heritage Convention.” (UNESCO, 2021)*

Three Advisory Bodies joined the Committee. Their function is to provide advice on the World Heritage Convention, monitor the state of conservation of World Heritage properties, and assist in preparing the Committee’s documentation.

The primary purpose of the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) is to research, document, assist, train, and spread awareness to conserve immovable and movable cultural heritage.

The International Council on Monuments and Sites (ICOMOS) encourages the application of theory, methodology, and scientific techniques to conserve architectural and archeological heritage.

The World Conservation Union (IUCN) aims to encourage and assist societies to conserve integrity and diversity and ensure that natural resource use is equitable and ecologically sustainable.

1.1 The World Heritage List

The World Heritage List is available only to countries that signed the World Heritage Convention. The main benefit of the List is the prestige connected to the title, which leads to the subsequent rise in awareness about the site at a national and

international level. The increase in interest generates a new flow of investors and professionals concerned with protecting and conserving property. The site can also benefit from financial and technical assistance from the World Heritage Committee.

1.1.1 Outstanding Universal Value

A site that is part of the World Heritage List needs to be considered of Outstanding Universal Value (OUV) and meet one of the following criteria:

- I. "Represent a masterpiece of human creative genius;*
- II. Exhibit an important interchange of human values, over some time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning, or landscape design*
- III. Bear a unique or at least exceptional testimony to a cultural tradition or to a civilization that is living or which has disappeared;*
- IV. Be an outstanding example of a type of building, architectural or technological ensemble, or landscape that illustrates significant stage(s) in human history;*
- V. Be an outstanding example of a traditional human settlement, land use, or sea use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;*
- VI. to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria.);*
- VII. to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;*
- VIII. Be outstanding examples representing major stages of earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features;*

IX. Be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, freshwater, coastal, and marine ecosystems and communities of plants and animals;

X. contain the most significant natural habit tool for in-situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation.” (UNESCO, 1972)

1.1.2 Authenticity and Integrity

The Outstanding Universal Value is intrinsically connected to authenticity and/or integrity. The necessity to follow these principles depends on the specific criteria chosen to describe the property.

Authenticity is based on relating the chosen values to a credible source. This attribute can have differences based on cultural perspective but should be expressed:

- I. “Form and design;*
- II. Materials and substance;*
- III. Location and setting;*
- IV. Language and other forms of intangible heritage;*
- V. Spirit and feeling;*
- VI. Other internal and external factors.” (UNESCO, 2021)*

All sites nominated have to satisfy the conditions of integrity. In this context, integrity refers to the completeness of the attributes related to the OUV. For a property to be considered, it requires an evaluation to determine if the property:

- I. “Includes all elements necessary to express its Outstanding Universal Value;*
- II. Is of adequate size to ensure the complete representation of the features and processes which convey the property’s significance;*
- III. Suffers from adverse effects of development and/or neglect.”*
(UNESCO, 2021)

1.2 Nomination Process

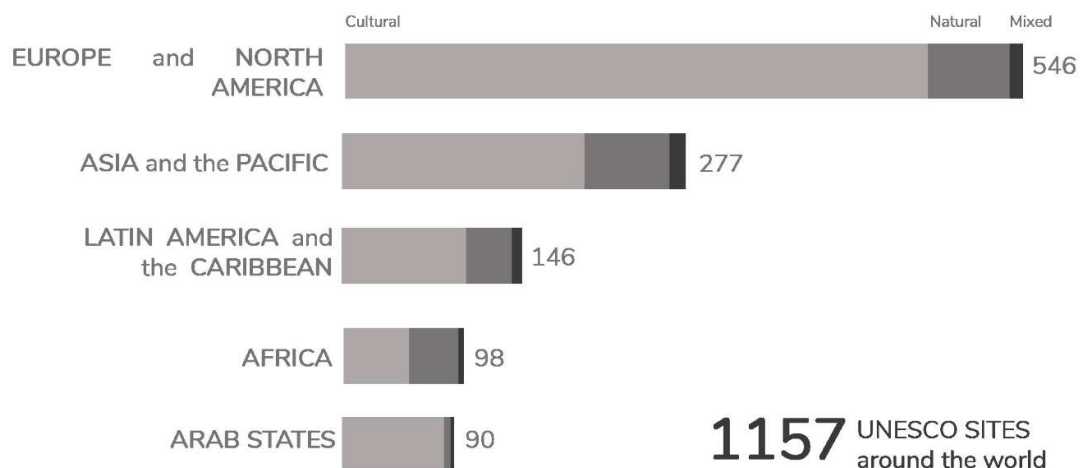
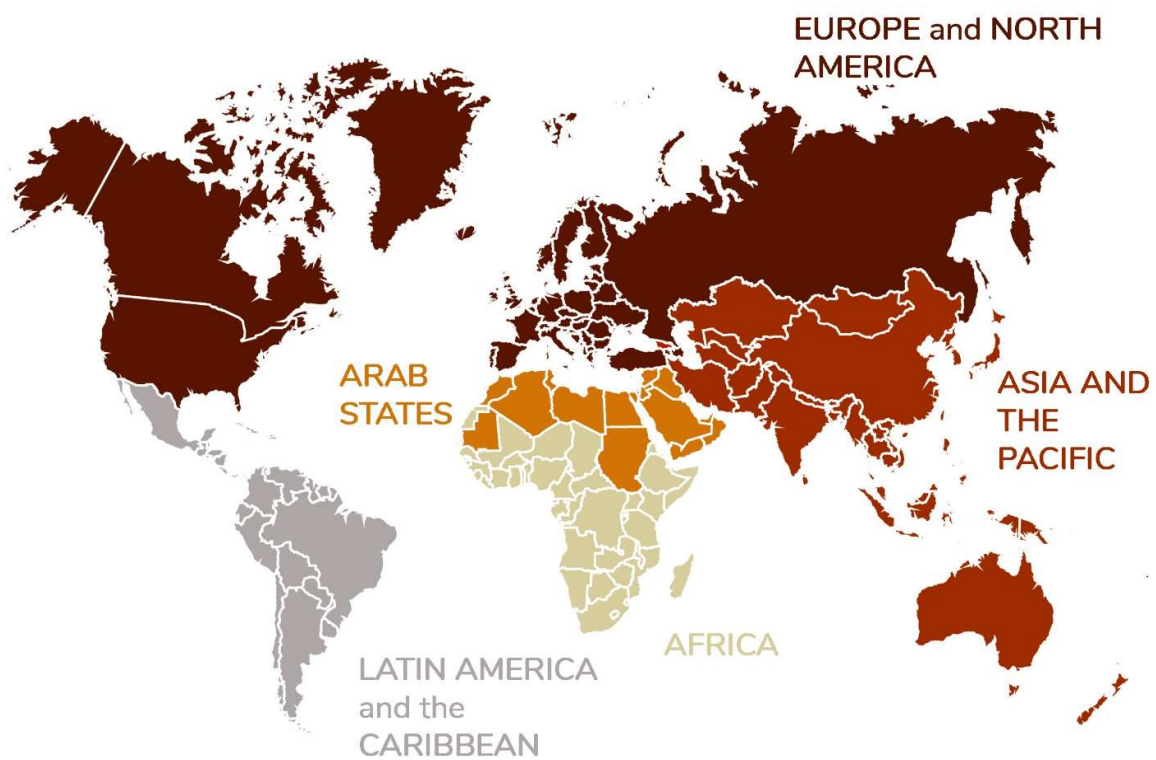
The nomination process contains several steps. Some of them are not mandatory but merely recommended by UNESCO to guarantee that the process runs smoothly. The first step is done on a national level. The country must create an inventory containing the most important cultural and natural heritage sites. This document is called the 'Tentative List' and can be updated anytime.

After this, the State Party can start preparing the nomination file, using the given by UNESCO and the Advisory Bodies. The nomination must contain the following:

- I. Identification of the nominated property;*
- II. Description of the nominated property;*
- III. Justification for Inscription;*
- IV. State of conservation and factors affecting the nominated property;*
- V. Protection and Management;*
- VI. Monitoring;*
- VII. Documentation;*
- VIII. Contact Information of responsible authorities;*
- IX. Signature on behalf of the State Party(ies)" (UNESCO, 2021)*

After the nomination process, the sites are evaluated independently by ICOMOS and IUCN. Finally, the site is presented to the World Heritage Committee. They can decide if the site will be inscribed into the List and request more information on the site before making their final decision.

Currently, 1157 properties are inscribed at UNESCO, mainly located in North America or Europe. Italy is the home of 58 of them. Other statistics can be seen in Fig. 1.



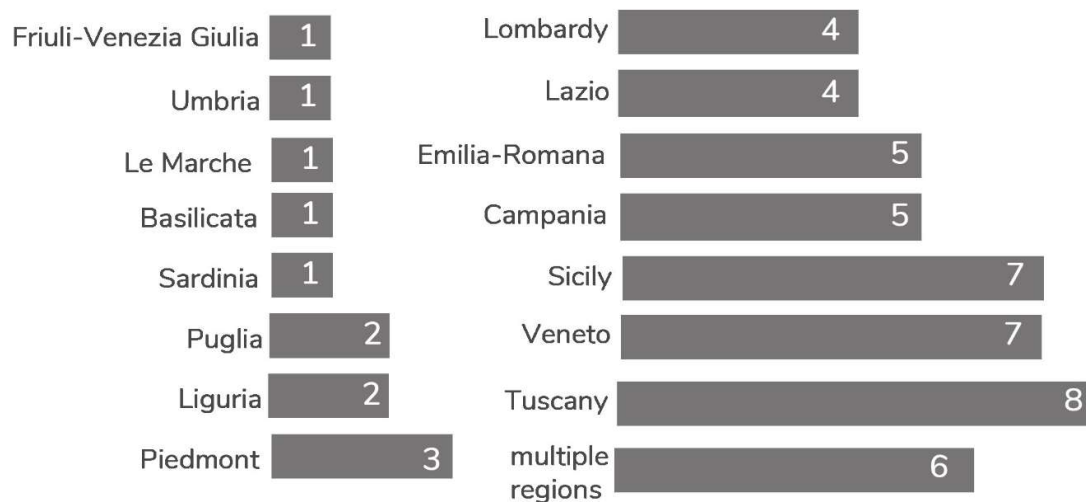


Figure 1 - UNESCO Heritage Sites around the world
Source: <https://whc.unesco.org/en/list/>

1.3 Protection and Management

All properties inscribed need to develop a plan with laws and regulations to safeguard the outstanding value of the sites. The Management Plan should be based on the amalgamation of the specific characteristics of each site. They can be categorized as:

- I. "Local resources - gardens, gastronomy, regional costumes;*
- II. Human and social resources - the existence or disponibility of a qualified workforce;*
- III. Accessibility of Services - the disponibility of different types of transport;*
- IV. Hospitality Services - the existence of restaurants, hotels, and bars, as well as leisure spaces, like cinemas, stores, and theaters;*
- V. Developed Network – the existence of different sectors to create a network for the community, including agriculture, services, restoration, and sales." (UNESCO, 2013)*

The management plan is not merely an instrument to protect the site's value but also a tool that influences the community's economy. After extensive research of the local area, it's possible to identify existing economic sectors that can be encouraged and new ones that can be developed. This practice can be related to the stakeholder's analysis.

The Italian document "Il Modello del Piano di Gestione" (2004) mentions the concept of endogenous development. This idea relates the development to the local culture and assets as opposed to the modernization of the community. Heritage can help develop the local community. The hospitality sector can add value to the local industry and strengthen the valorization of the culture and typical products. The practice can financially benefit the region, with the increase of interest in the exportation of the product, creating an attractive market for possible investors, possibly connecting the property to the area.

1.3.1 Management Plan

Conceptually, a management plan consists of three main categories: a legal framework, an institutional framework, and human resources, according to the Managing World Heritage manual from UNESCO (2013). Together, these elements facilitate the planning, implementing, and monitoring actions to protect and manage a site or group. The goal of the process is to archive specific outcomes determined by the managers and stakeholders. For this to happen, the system (Fig.2) has to improve according to the new needs of the properties.

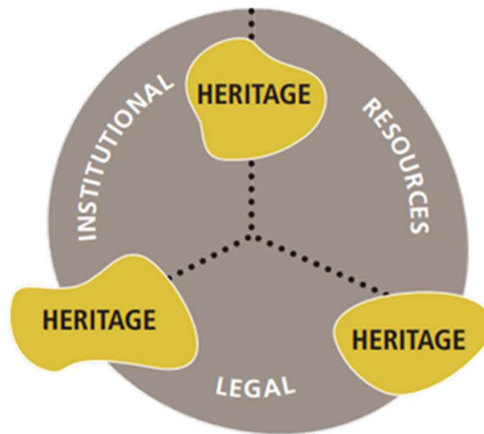


Figure 2 – The elements
Source: Managing Cultural World Heritage. UNESCO, 2013

The legal framework can be a byproduct of the already existing legislation on a national and regional level. “Legal frameworks for managing cultural heritage might be formalized in legislation specifically drawn up for heritage, or they may be a byproduct of general legislation being used for heritage purposes” (UNESCO, 2013). There is also a possibility of creating specific laws regarding a property. This process can become necessary in multinational sites since making clear guidelines for all individual properties is imperative.

Institutional oversight of heritage sites can be complex since several organizations can manage property simultaneously.

“The organizational needs and decision-making that are necessary for managing cultural heritage has often led to the creation of institutional frameworks. They host the planning and implementation of actions and

the continual review and improvement of work methods.” (UNESCO, 2013)

The institutional framework aims to create clear roles and responsibilities to handle the decision-making process inside the organizations efficiently. The framework should be subject to change when necessary. While an institution can manage a group, the State Party must identify an institution that can work as a bridge between the World Heritage Council and the other organizations responsible for the site.

The resources refer to the human, financial, and intellectual assets necessary for the management plan. Human resources mainly refer to the professionals working under the government or other organizations and the people who maintain the site, whether volunteers or the local community. Financial resources can be fixed, considering the amount, source, and timing, or variable, from loans, international institutions, or other sources. Intellectual resources refer to the practices, research, and knowledge in general that are maintained and updated worldwide (UNESCO, 2013). They must be monitored as needed and updated using external sources. The allocation of resources should be submitted to regular audits and work transparently.

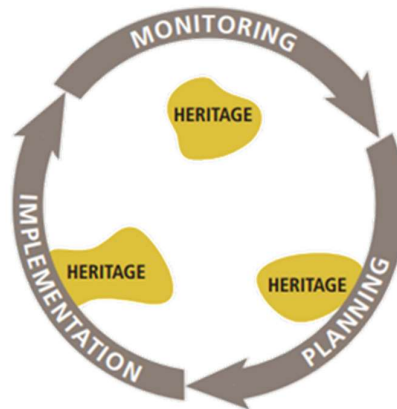


Figure 3 - The Process

Source: Source: Managing Cultural World Heritage. UNESCO, 2013

The planning process sets the objectives of the management system. This process has three phases: planning, implementing, and monitoring. (Fig. 3) The planning phase defines the goals, stakeholders, and final objectives.

“Understanding the ‘who’ of decision-making, deciding what objectives to reach, what actions to take and what the timeframe will

be, and recording these proposals so as to communicate them to others and to review progress at every stage.” (UNESCO, 2013)

To create the plan, it is necessary to identify the stakeholders, collect information about the site, and set goals and actions. After the plan is drafted, it is implemented, reviewed, and updated as necessary. If the initial cost estimation is mistaken, bad planning can negatively affect the final product. A good plan defines every action's scope, performance, quality/standards, cost, and timeframes.

UNESCO defines the implementation process as follows:

“Taking the planned actions, checking that they deliver the outputs of each stage and the broader objectives defined at the outset. In the event of disparities emerging, making changes mid-way to the actions and how they are taken, as and when necessary.” (UNESCO, 2013)

The implementation depends heavily on the other processes. It is carrying out the planned actions while constantly checking if they are following their original goal. In some cases, the actions can be modified to overcome any problems. They can be ordinary routine actions, like general maintenance of the site, or specific one-time activities, like building a restaurant. For this phase to work, it must be submitted to routine reviewing, done with the participation and supervision of an interdisciplinary team, and well managed regarding work distribution.

Monitoring is a continuous process that checks the efficiency of the plan and its implementation. The process is based on *“collecting and analyzing data to check that the management system is operating effectively and delivering the right results, and to identify remedial measures in the event of shortcomings or new opportunities.”* (UNESCO, 2013) It guarantees the general effectiveness of the management system as well as its results. To archive this, it determines if the objectives were reached, the cost, quality, and time are respected, and whether the measures protect the site's values and attributes. When needed, the monitoring process can be reviewed to update the allocation of resources, improve the reporting of the activities, and generate credibility by reviewing and updating the general directories. The results of these processes are outcomes, outputs, and improvements. (Fig. 4)

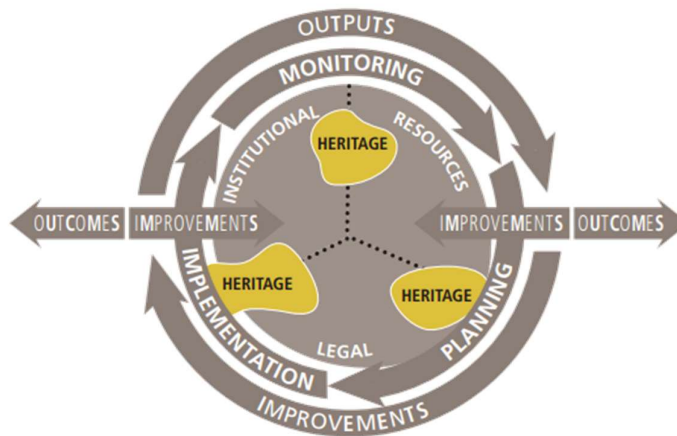


Figure 4 - Management System
Source: Source: Managing Cultural World Heritage. UNESCO, 2013

Outcomes are the objectives a management plan wants to achieve (UNESCO, 2013). They are usually intangible, like increasing public awareness regarding a particular property. They are often difficult to quantify but can be expressed using trend graphs.

Outputs are the deliverable results of the process. They are tangible results; repairing a section of the property is part of this category. If possible, they should be quantified in physical outputs (number of cameras in a room), the volume of work (number of stakeholder meetings), and users (number of visitors per year).

The improvements to the management system are a culmination of all the previous processes. It can only be achieved through good planning, implementation, monitoring, and regular reviews and updates.

“Improvements to management systems are generated by corrective measures and feedback, either from external inputs or from within the management system, namely by monitoring processes and assessing outputs and outcomes. Continuous improvement is central to good management. It leads to changes in the management system that achieve greater effectiveness and efficiency.” (UNESCO, 2013)

According to UNESCO (2013), there are four stages for the development of a management plan:

"Stage One: Preparation

Stage Two: Data/information gathering

Stage Three: Significance/condition assessment

Stage Four: Developing responses/proposal" (UNESCO, 2013)

These stages are not linear, but many times work circularly and can be updated in the decoherence of the project. The first stage consists of the initial steps of the project. This is the portion where the project's scope is defined, the timeline is decided, and the stakeholders and resources are identified. This can be made in parallel to the other stages of the management project.

In the data collection stage, information regarding the site's outstanding values should be assessed. The monument's general characteristics should also be considered since they affect the local area.

The third stage consists of the assessment of the building. It is also necessary to identify external factors that could influence the site's conservation. This can be done using a SWOT Analysis to prioritize the issues.

"Buildings and development;

Transportation infrastructure;

Utilities or service infrastructure;

Pollution;

Biological resource use/modification;

Physical resource extraction;

Local conditions affecting physical fabric;

Social/cultural uses of heritage;

Other human activities;

Climate change and severe weather events;

Sudden ecological or geological events;

Invasive/alien species or hyper-abundant species;

Management and institutional factors;

Other factor(s)." (UNESCO, 2013)

The final portion consists in developing responses to the issues found. This process can be made by using a “Vision Statement.”

“A Vision Statement describes how the property will be in 20-30 years’ time and the steps needed to safeguard the OUV and other values of the property, to transmit the benefits of heritage management to the community at large, and to ensure a positive contribution to sustainable development”. (UNESCO, 2013)

After the vision plan, the proposed actions must be described and evaluated, considering the project's objectives, timeframe, budget, and resources necessary. After this, they need to be implemented and monitored.

The management plan is a strategic and operational tool since it identifies the objectives and creates strategies to achieve them, which will later be implemented. The document *"Il Modello del Piano di Gestione dei Beni Culturali Inscritti alla Lista del Patrimonio dell'Umanità"* indicates the management plan should be structured in four parts:

- I. *“Knowledge Project;*
- II. *Conservation and Protection Project;*
- III. *Cultural and Economical Enhancement Project;*
- VI. *Monitoring Project”* (Ministero per I Beni e le Attivita Culturali, 2004)

The Knowledge Project refers to creating a geo-referenced system to collect and monitor the state of the resources and assets and the critical factors using the Strengths, Weaknesses, Opportunities, and Threats (SWOT) categories.

“The method involves database sharing, site inspections, direct interviews, original research suitable for accumulating information systems and the GIS multimedia systems to support management functions of the site, including communication and territorial marketing.” (Ministero per I Beni e le Attivita Culturali, 2004)

The knowledge phase has the specific function of:

I. "Give an account of the current state or of the financial resources (ordinary and extraordinary) destined to the processes of conservation and valorization; of the categorization of the tangible (museums, environments, archeology, history of art and architecture), material (quality of craftsmanship, design, and typical cuisine) and intangible (religious practices, folk, and cultural events); the state of conservation and the risks; the tools of regulatory, legal and urban planning available; the touristic and cultural capacity, the level of the infrastructure of the territory and it's accessibility;

II. Identify the potentialities

Compare the current state to the ideal scenario to define the plan's direction." (Ministero per I Beni e le Attivita Culturali, 2004)

While not explicitly mentioned, the knowledge project also includes developing a stakeholder analysis. This is encompassed in the research regarding the financial resources available for the project. This analysis identifies the possible investors and studies their objectives and needs. They are later categorized according to their importance to each project phase. This process is imperative to predict each stakeholder's possible actions and conflicts of interest between them.

The Conservation and Protection Project is a product of the knowledge phase. It defines the legal measures to safeguard the individual areas and guidelines to implement in the urban planning sector and creates executive plans for interventions. The project deals with six different categories when it comes to typologies of risks and changes:

I. "Structural Damage;

II. Disintegration of the material;

III. Missing Parts;

IV. Biological Attacks;

V. Humidity Damage;

VI. Superficial Changes." (Ministero per I Beni e le Attivita Culturali, 2004)

To create the Cultural Enhancement Project, it is necessary to develop specific scenarios regarding the possible future of the property and enhance its cultural and financial value. While the methods are merely hypothetical, they help estimate a particular path's potential consequences. The following steps consist of selecting short- and long-term objectives and strategies to attain them. It is essential to transmit a clear idea of the consequences of each scenario on the economy and human resources of the local community. The strategies can be focused on different aspects of the management plan:

I. "Knowledge Strategy"

Continuous monitoring of the state of the resources, the program, and the project of protection and conservation of the site. Tools like GIS, research, and additional formation courses can add to this section.

II. Conservation Strategies

The systematic and coordinated effort to protect and conserve cultural and natural heritage.

III. Participation Strategies

Tools that can effectively involve interest in the valorization of cultural resources and the growth of local identity;

IV. Development Strategy

Invest in the growth, quality, and quantity of the supply chain of activities to develop the local community and incentivize the private sector;

V. Marketing and Communications Strategy

Tools to incentivize local tourism and multimedia communication

VI. Monitoring Project

After the decisions are made, it is important to create a system that can evaluate the success or failure of the measures and be updated and changed accordingly. "(Ministero per I Beni e le Attivita Culturali, 2004)

1.3.2 Outcomes and Strategies for Sustainable Development

The management plans also provide strategies that could be used so the properties can achieve a sustainable framework for their development. The Management Plan for the Piazza del Duomo (2021) was an example of possible strategies.

The *Piazza del Duomo* refers to four monuments located in Pisa. These are the Cathedral, the Baptisty, the cemetery, and the campanile, also known as the Leaning Tower. These works are considered necessary because of their importance to Italian monumental art between the 11th and 14th centuries.

They follow a similar strategy. They consider the five strategic objectives of credibility, conservation, communication, capacity building, and community engagement, as defined on page 10. The action plan elaborates on each of these concepts concerning the study area.

Credibility is considered to increase the legitimacy and credibility of the World Heritage. This characteristic is enhanced by protecting the values found on the site, incentivizing research and technology, and developing and disseminating guidelines for possible interventions. (UNESCO,2021)

The conservation stage focuses on preserving the integrity and authenticity of the OUV of the site.

"In the Plan, these objectives are implemented by carrying out a careful assessment of the places and properties, starting from those in the core area, and extending to those located outside the boundaries of the area, with an insufficient state of conservation. (...) The conservation strategy is also expressed through actions of containment, mitigation, and elimination of interference risks." (UNESCO,2021)

The communication category aims to increase the general public's awareness of the site. The main objectives are to change how the OUV values of the site are communicated to the public and increase the engagement of different groups within the area.

Capacity building deals mostly with professionals, institutions, and advisory bodies.

“The intent is to implement actions that have a significant impact, not only on the perception that stakeholders have towards the heritage, by increasing their awareness and sense of belonging, but also on their activities, favoring on the job learning activities and experimenting with new ways of working individually and collectively. In a nutshell, capacity building is identified as an enabling factor for the operating model to function effectively.” (UNESCO, 2021)

Finally, the community engagement category aims to create a healthy dialogue between the heritage and the community. The use of participatory strategies like roundtables and public discussions can be an asset in this case. All the projects listed in the action plan for the Piazza del Duomo follow the Culture Indicators of 2030, provided by UNESCO.

*“The UNESCO Thematic Indicators for Culture in the 2030 Agenda) is a framework of thematic indicators whose **purpose is to measure and monitor** the progress of culture’s enabling contribution to the national and local implementation of the Goals and Targets of the 2030 Agenda for Sustainable Development.” (UNESCO, 2015)*

The culture indicators (Fig. 5) were developed to create an alternative data collection, measurement, and monitoring approach. That, according to UNESCO, lacks reliability. These indicators aim to provide a better understanding and compile data regarding cultural heritage and its influence on an area's economy, social, and environmental development.

In this case, they were used to guide the development of projects that could respond to the indicators provided by UNESCO. The action plan (Fig. 6) is a result of intensive research in the *Piazza del Duomo*. The measures concentrate on disseminating information about the monuments, educating the population about possible problems and engaging the public in general.

ENVIRONMENT & RESILIENCE

- 1 Expenditure on heritage
- 2 Sustainable management of heritage
- 3 Climate adaptation & resilience
- 4 Cultural facilities
- 5 Open space for culture

UNESCO Culture Conventions



PROSPERITY & LIVELIHOODS

- 6 Culture in GDP
- 7 Cultural employment
- 8 Cultural businesses
- 9 Household expenditure
- 10 Trade in cultural goods & services
- 11 Public finance for culture
- 12 Governance of culture

UNESCO Culture Conventions



KNOWLEDGE & SKILLS

- 13 Education for Sustainable Development
- 14 Cultural knowledge
- 15 Multilingual education
- 16 Cultural & artistic education
- 17 Cultural training

UNESCO Culture Conventions



INCLUSION & PARTICIPATION

- 18 Culture for social cohesion
- 19 Artistic freedom
- 20 Access to culture
- 21 Cultural participation
- 22 Participatory processes

UNESCO Culture Conventions



Figure 5 – UNESCO Cultural Indicator

Source: UNESCO (2019), *Culture / 2030 indicators*

		Credibility	Conservation	Communication	Capacity Building	Community
01	Interinstitutional collaboration for access to culture and research	●			●	
02	Conservation plan		●			
03	Analysis to verify the perimeter and regulation of the buffer zone	●	●			
04	Regulation of commercial activities	●	●			
05	New paths for enhancement of the historic City	●	●			
06	Renewal of urban public spaces of the historic City	●	●			
07	Signage plan			●		
08	Digital enhancement of the World Heritage Site			●		●
09	Audience-oriented communication			●		●
10	Knowledge of the public				●	●
11	Enhancement of the World Heritage recognition	●		●		●
12	Training programs for institutions aimed at the enhancement of the Site				●	
13	Training programs for researchers and scientific institutions				●	
14	Training programs for cultural and tourist operators				●	
15	Integrated enhancement of the territory			●		●
16	Heritage education and training				●	●
17	Implementation of the new governance model				●	

Figure 6 - Projects Proposed in the Management Plan of Piazza del Duomo

Source: Developed based on the Management Plan for the Piazze del Duomo (2021)



2 SACRA DI SAN MICHELE

The Abbey of San Michele is a famous tourist spot in Piedmont. Also known as Sacra di San Michele, the monument was built in the 10th century as a monastery and resting space for pilgrims from France to Rome. The site has a unique historical and symbolic value to the region since it influenced the administration of part of Piedmont at the time. These characteristics, added to the building's unusual construction type and monumental value, have led to the effort to inscribe the abbey into the World Heritage List.

For this endeavor to succeed, it is necessary to analyze the area where the Sacra is located and its historical evolution. This chapter discusses the territory at a regional and local level. It also investigates the history of the Abbey and how it has influenced the area throughout the years.

2.1 Territorial Framework

2.1.1 Piedmont

Piedmont is one of the twenty regions of Italy, located in the northwestern extreme of the Italian peninsula. The region has an approximate area of 25.399 km². Its territory borders France, Switzerland, and the Italian regions of Lombardy, Aosta Valley, Emilia-Romagna, and Liguria. It is the second largest region of Italy, after Sicily. Piedmont is divided into eight provinces: Alessandria, Asti, Biella, Cuneo, Novarra, Metropolitan City of Turin, Verbano-Cusio-Ossola, and Cerceli. (Fig.7)

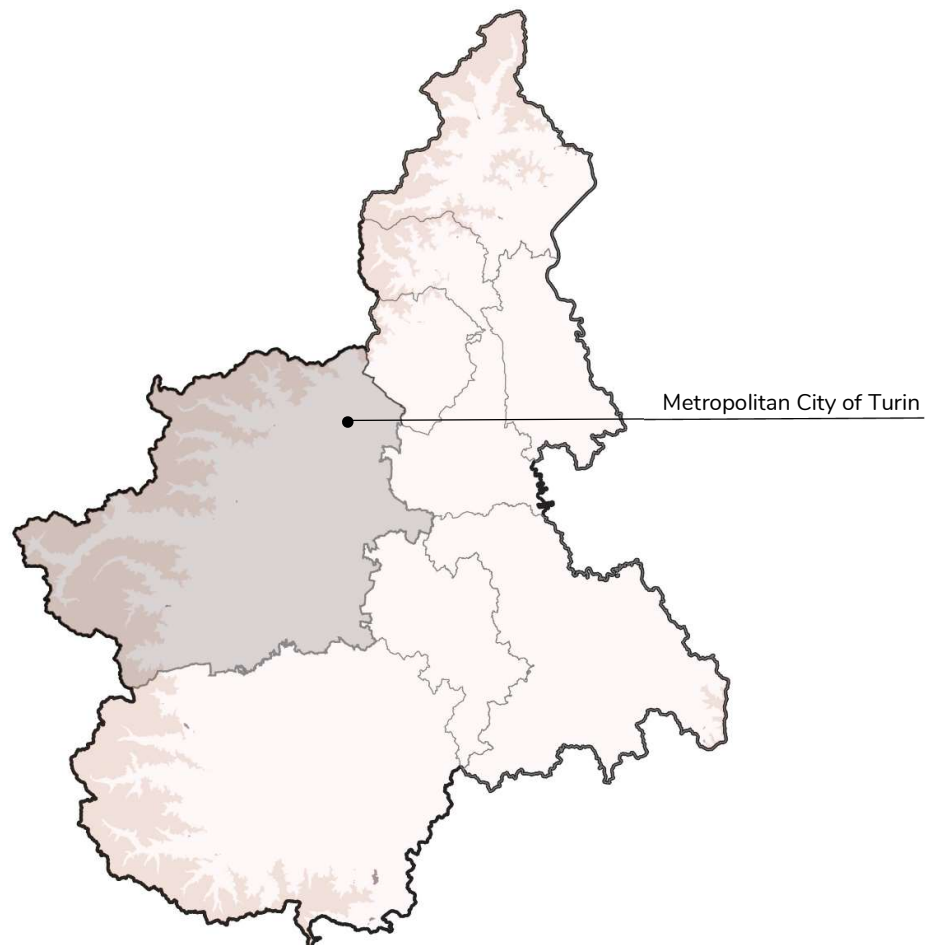


Figure 7 - Piedmont Map

Source: Developed by the author based on data from Geoportale Piedmont

Mountains

The name Piedmont means at the feet of the mountains. The term dates back to the 12th century when it was used to describe the stretch of land between Val Sangone, the Po River, and the Dora Riparia. (Cambiano, G., 2017) Today, the name is not as accurate as it used to be since it refers to the whole region. Approximately 43% of the territory is mountainous terrain, around 1.210.000 hectares. Besides mountains, the area comprises hills (30%) and plain regions (27%). (Regione Piemonte, 2010)

A series of watercourses run through the Piedmontese territory. They all connect in the Po Valley, the largest river in Italy, with 652 km. The region's other rivers are Tanaro, Dora Riparia, Dora Baltea, Sesia, Ticinio, Bormida, and Scrivia. The last two spring from the Apennine Mountains, while the other spring from the Alps. There are three lakes: Lago Maggiore, Lago d'Orta, and Lago di Viverone. (Regione Piemonte , 2010)

According to ISTAT, Piedmont has a population of 4.256.350 people. It has a more prominent number of women than men, 2.182.505 and 2.073.845, respectively. Most of the population is between 45 and 64 years old. A population of 441.095 foreigners lives in the region. The most expressive quantities are from Brazil, Sri Lanka, Pakistan, and India, with 231.310, 50.589, 36.315, and 36.153 people, respectively. The Organisation for Economic Co-operation and Development (*OECD*) data in 2021 reveals that the region's economy is mainly based on services and industrial sectors. Approximately 61% of total jobs are related to the service sector. One in every five jobs is related to the industry.

Regarding agriculture, 2.4% of employment rates are related to this sector. Historically, industrial growth happened unevenly, concentrating primarily in the metropolitan area of Turin and a few other centers. Most of the population and the job opportunities are clustered in the same place.

"The region exhibits a marked geographic polarisation, with a divide between Turin and the rest of the territory. The Functional Urban Area of Turin covers less than 7% of the region's geographic territory but hosts 40% of the total regional population and 44% of its workers in business sectors." (OECD 2021)

Piedmont has a growing tourist market. According to the *Osservatorio Turistico della Regione Piemonte*, in 2022, the region had 16,543 tourist accommodations comprised of 104,522 rooms and 246,750 beds. This number equals almost double the accommodations in 2019 when the area had 9.854. In 2021, the region had 2,39,590 and 2.194.958 tourists in July and August, respectively.

Before the Pandemic, INSTAT (2019) recorded the presence of 14.889.951 tourists in the area. Most international tourists came from Germany, France, and the United Kingdom, with 1.455.417, 792.453, and 763.736 visitors, respectively.

The Piedmontese region is known for its wine, typical food, and mountain views. The area has a series of World Heritage Sites. In 1997, the Vineyard landscapes of Rhoero and Monferrato were inscribed. Six years later, the Savoy Residences, a series of royal residences spread throughout Piedmont, became a UNESCO site. The Sacred Mounts of Piedmont and Lombardy joined in 2003. The Prehistoric Pile dwellings around the Alps became a part of the WHL in 2011. Most recently, the city of Ivrea was added to the list. (UNESCO, 2023) In summary, the region currently has five World Heritage Sites. (Fig. 8)

The Vineyard Landscape (Fig.9) encompasses five wine-growing regions in Piedmont. According to UNESCO (2014), *"Vine pollen has been found in the area dating from the 5th century BC when Piedmont was a place of contact and trade between the Etruscans and the Celts"*. The area was known even in Roman times for its good prospects for grape production. The landscape also offers panoramas of hillside villages, castles, and other buildings in harmony with the vineyards.

The Savoy Residences are a series of royal houses that started being built by Emmanuel-Philibert, Duke of Savoy. The properties are spread out in the territory.

"The Residences of the Royal House of Savoy comprise a large serial inscription of estates including 22 palaces and villas developed for administrative and recreational purposes in and around Turin by the dukes of Savoy from 1562. Eleven of the components of the property are in the center of Turin, and the remaining 11 located around the city according to a radial plan." (UNESCO, 1997)

The residences were part of a comprehensive plan involving a network of roads that connected them to the capital, Torino, at the time, as well as the creation of hunting routes and the construction of new buildings. Figure 10 shows one of these Residence, the Castle of Agliè.

The Sacred Mounts of Piedmont and Lombardy are a series of nine chapels or other architectural works created between the 16th and 17th centuries. (UNESCO, 2003) One of them being the Oropa Mount, in Biella. (Fig. 11) They are dedicated to distinct aspects of the Catholic faith. The Sacred Mountains also have works from the great Piedmontese and Lombard artists of the time, with depictions from the Bible.

The Prehistoric Pile Dwellings are a series of 111 small sites built around 5000 to 500 B.C., located around the Alps. They are in Austria, France, Germany, Switzerland, Slovenia, and Italy. The sites are rich in information about the early agrarian societies in the region. The Italian sites include the *Sito Palafitticolo del Lago di Viverone*, shown in figure 12.

"The sites have provided exceptional archaeological sources that allow an understanding of entire prehistoric villages and their detailed construction techniques and spatial development over very long periods. (...). This cumulative evidence has provided a unique insight into the domestic lives and settlements of some thirty different cultural groups in the Alpine lacustrine landscape that allowed the pile dwellings to flourish."(UNESCO, 2011)

Ivrea (Fig. 13) was developed as an industrial city housing Olivetti, accompanied by manufactured typewriters, calculators, and office computers. It was built between 1930 and 1960 by well-known Italian architects and urban planners. The buildings functioned as manufacturing, administration, residences, and administration, following the principles of the *Community Movement (Movimento Comunità)*. (UNESCO, 2018)

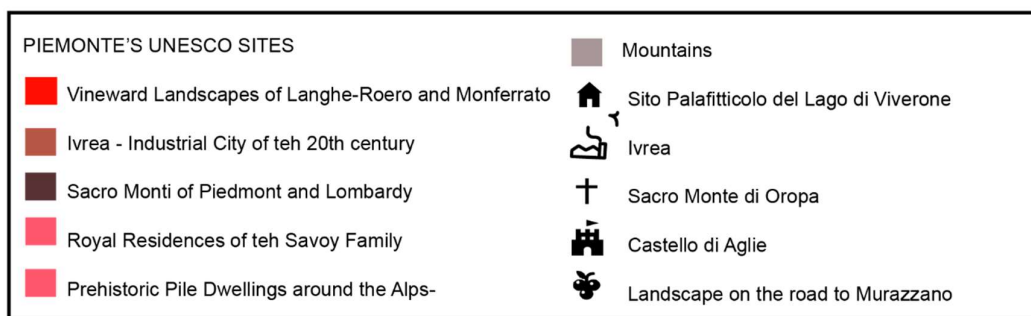
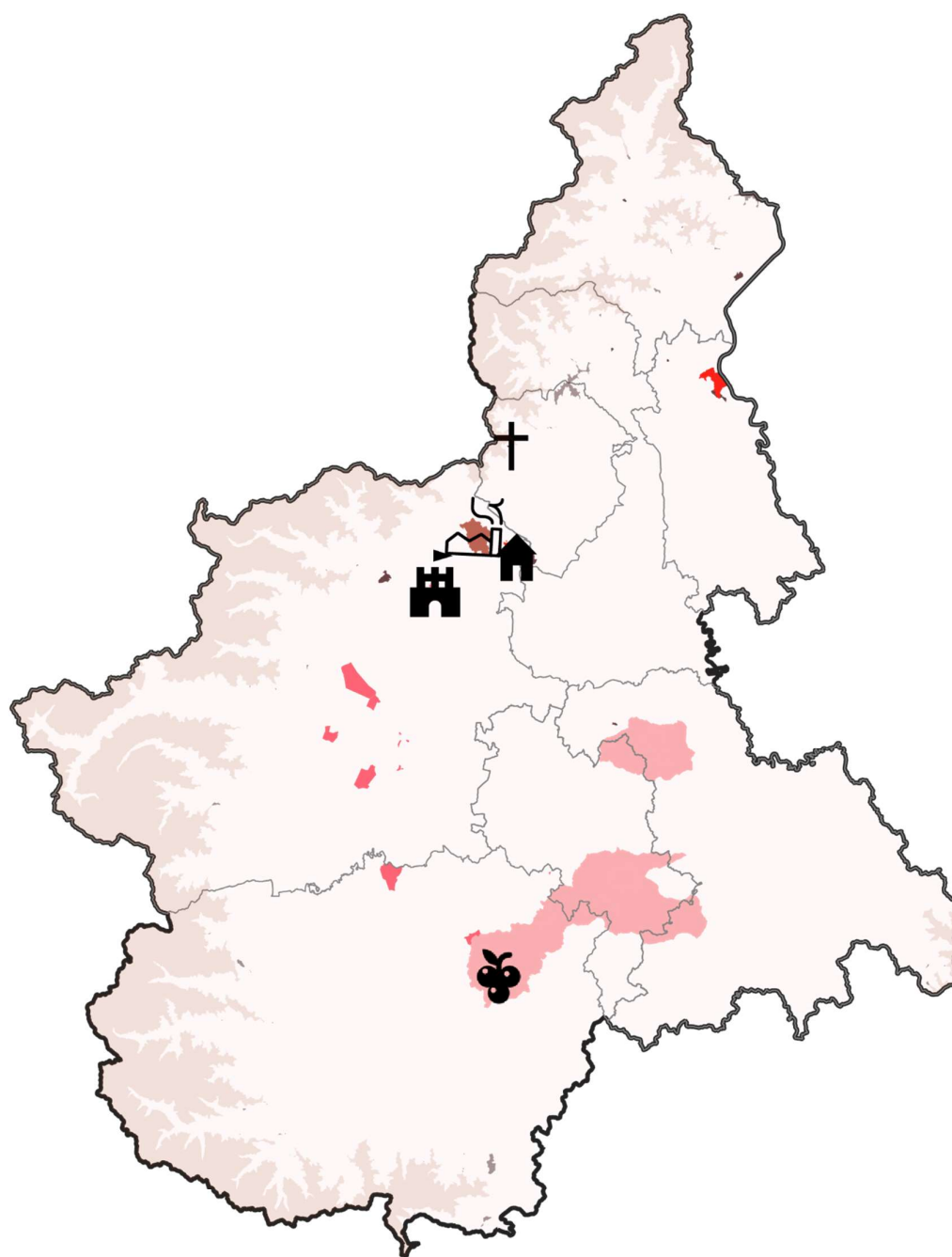


Figure 8 - UNESCO sites in Piedmont

Source: Developed by the author based on data from UNESCO and the Geoportale Piemonte

*Figure 9 – Langhe - Landscape
on the road to Murazzano*
Source: Valerio Li Vigni (2015)



Figure 10 - Aglie Castle
Source: Mario Turetta (N/D)



*Figure 11 Sacro Monte di
Oropa*
Source:
<https://www.sacrimonti.org/>





Figure 12 - Sito Palafitticolo del Lago di Viverone
Source: <https://visitcanavese.it/>



Figure 13 - Corso Jervis, in the foreground, the Officine ICO and the Social Services Centre
Source: Maurizio Gjivovich (2014)

2.1.2 Metropolitan City of Turin

The Metropolitan City of Turin comprises 312 municipalities, including the city of Turin, the province's capital. It has an area of 2.636km². Important cities are Torino, Moncalieri, Collegno, and Rivoli. It is bordered by Valle d'Aosta, to the north, France, to the west, and the provinces of Biella, Vercelli, Alessandria, Asti and Cuneo.

The mountainous part of the province is divided into sixteen "Mountain Unions." This designation was created to promote the development and preservation of mountainous areas. They are: Alpi Graie; Alta Valle Susa; Alto Canavese; Comuni Olimpici; Dora Baltea; Gran Paradiso; Mombarone; Pinerolese; Val Chiusella; Val Gailenca; Valle Sacra; Valle Susa; Valli Chiusone e Germanasca; Valli di Lanzo, Ceronda e Casternone, Valli Orco e Soana and Valsangone. (Città Metropolitana di Torino, 2023)

The following map (Fig. 14) shows these municipalities and highlights Susa and Sangone Valley, the Mountain Unions closely related to the Sacra di San Michele.

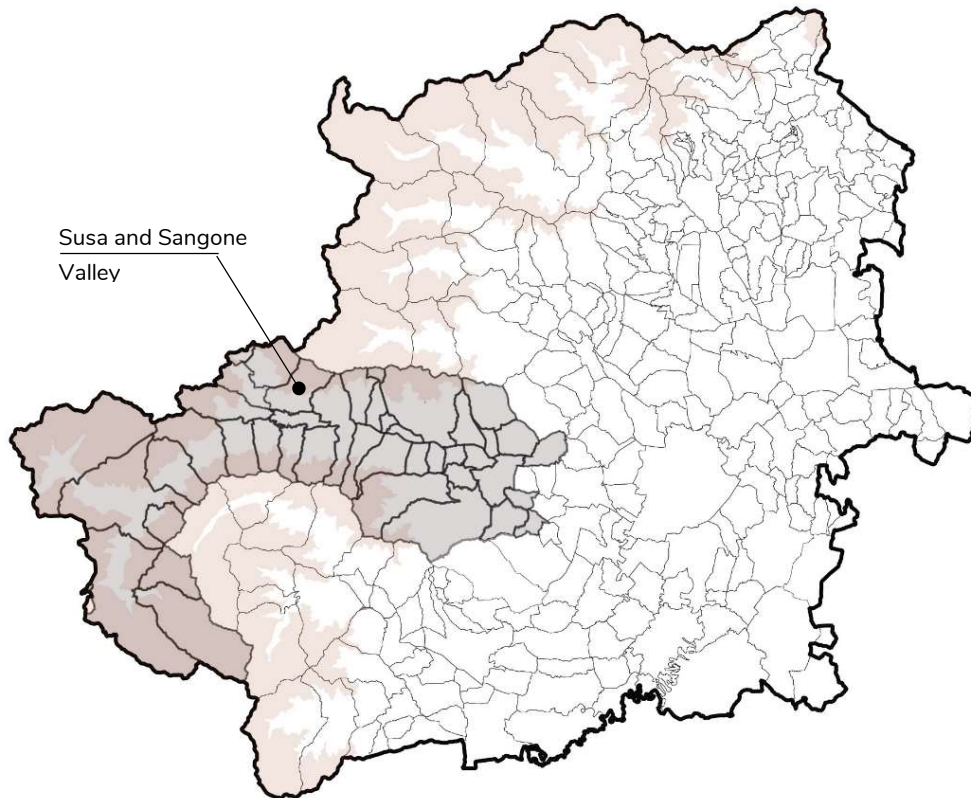


Figure 14 - Metropolitan City of Turin

Source: Developed by the author based on data from Geoportale Piedmont

Mountains

The Metropolitan City of Turin has several mountainous parts, most notably in the west and north, boarding Aosta Valley and France. These areas host portions of the Cottian Alps, the Graian Alps, and the Pennine Alps. The remaining borders are characterized by plain terrain or the presence of hills.

The province's highest point is the Tower of Roc, which is 4026 m. It is located in Gran Paradiso, on the border with the Aosta Valley. The area has a significant difference in altitude, with a variation of more than 600m. The population also follows a pattern regarding the height of the terrain. Plain areas have around 1.721.645 inhabitants, representing 75.8% of the population. Hill areas have 482.916 inhabitants, while mountainous regions have 66.880 residents, translating to 2.1% and 2.9%, respectively. (Città Metropolitana di Torino, 2021) Figure 15 illustrates the different heights of the Metropolitan City of Turin in red, relating it to the urbanized area in grey.

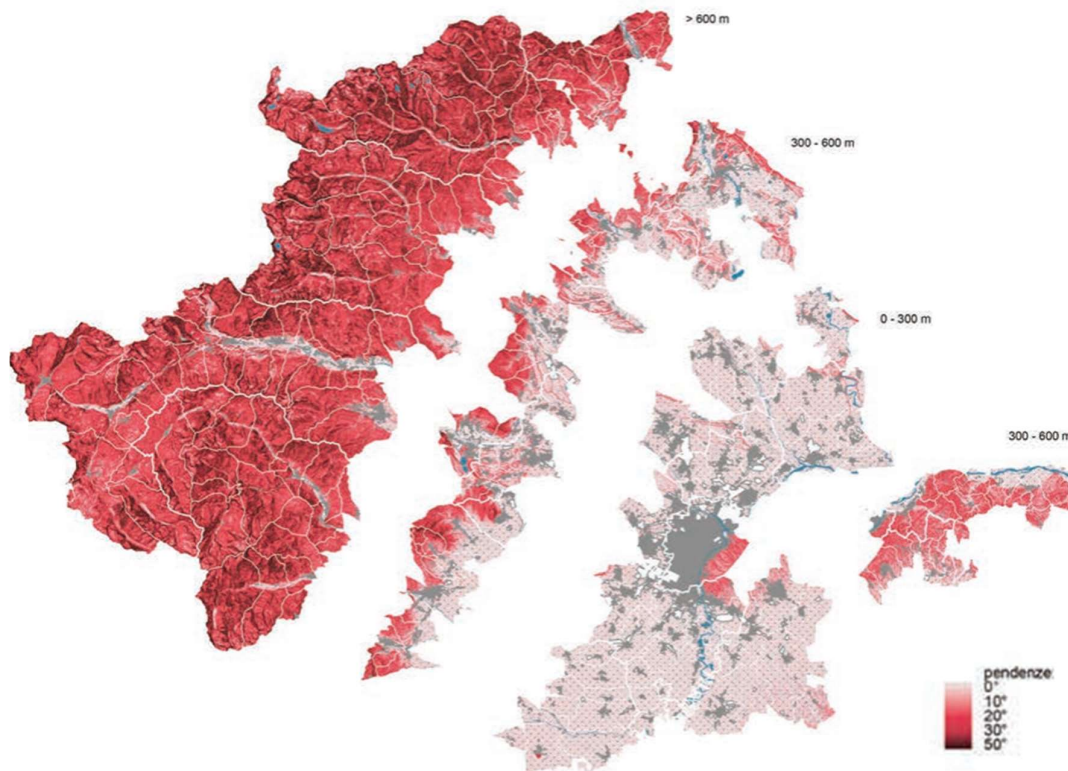


Figure 15 - Prevalent geographical conditions
Source: Piano Strategico Metropolitano 2021-2023, 2021

The River Po crosses the area, flowing from Cuneo and heading to the province of Vercelli. Other rivers are the Pellice, the Chisola, the Sangone, the Dora Riparia, the Stura di Lanzo, the Malone, the Orco, the Dora Baltea, and the Angrogna. Figure 16 shows the most important bodies of water in the region.

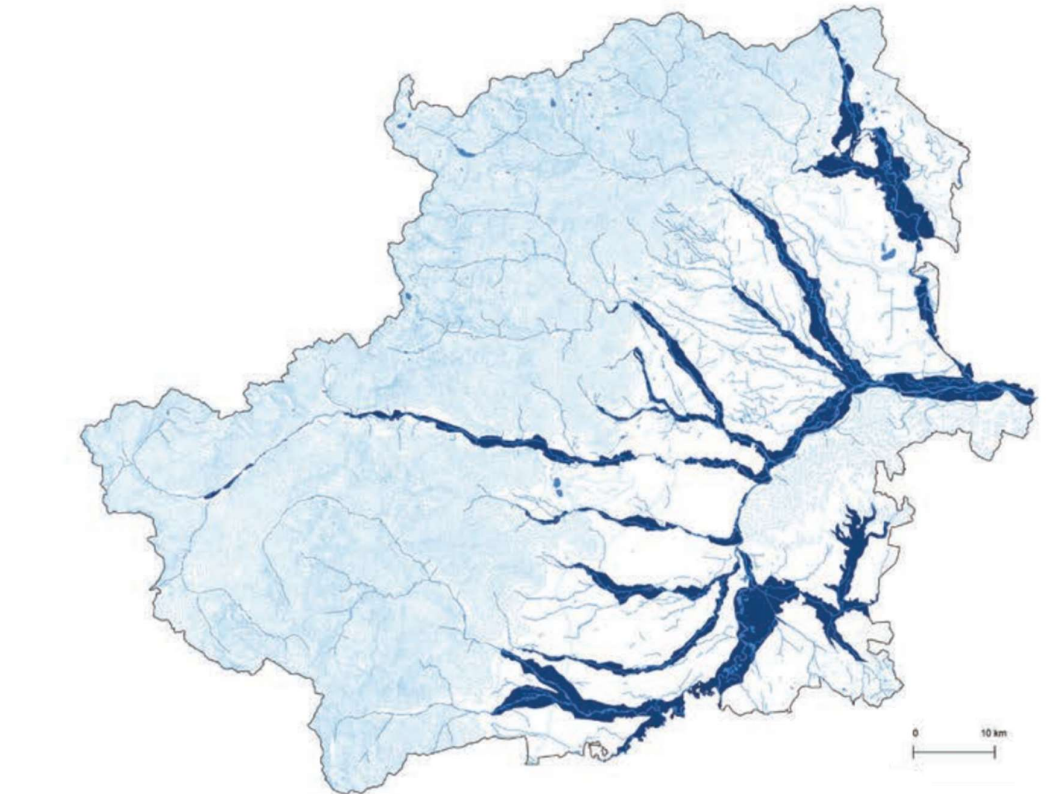


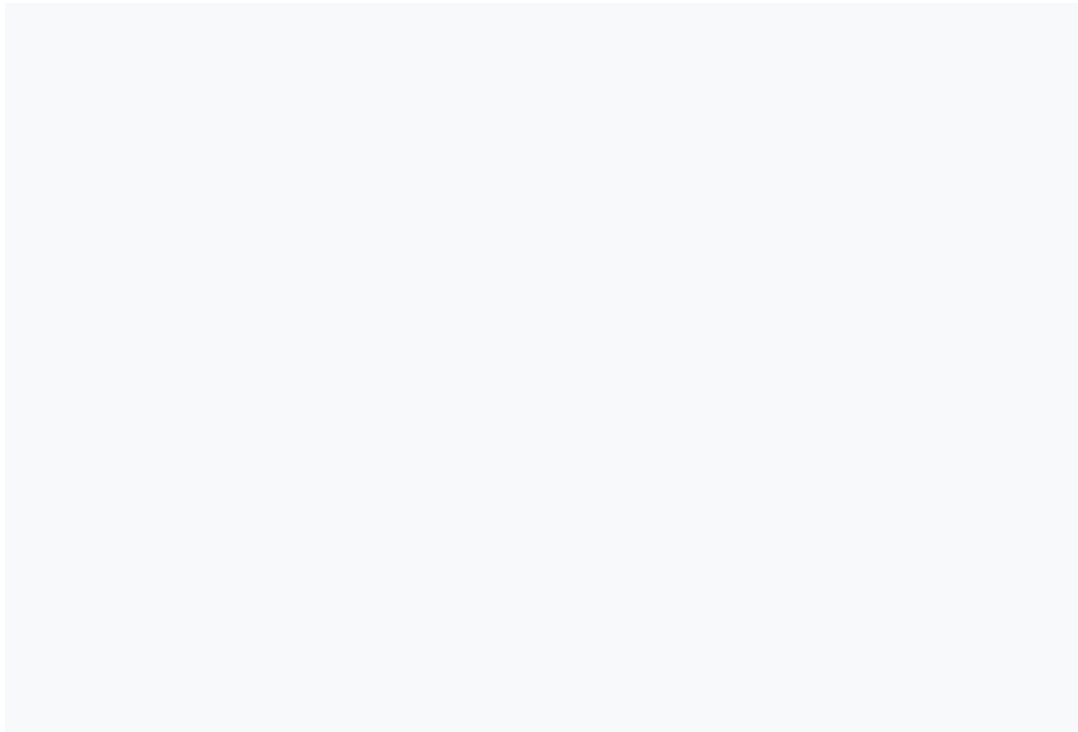
Figure 16 - The water system as an "inverse delta".
Source: Piano Strategico Metropolitano 2021-2023, 2021

According to ISTAT, in 2021, the province had a population of 2.208.370 people, the majority ranging from 45 to 59. There is a more significant number of women than men, with 1.144.910 and 1.074.296 people, respectively.

The economy of the metropolitan city is still more potent than that of the other provinces. It contributes 55% of the regional GDP, while the rest comprises the sum of the other seven. Industry accounts for around 23% of the economic composition of the area. It is followed by the manufacturing sector, with 20.3%, and the service sector, with 17.7%.

Compared to the other provinces, Torino has almost half of the traffic of tourists from Piedmont. The OECD reveals that in 2021, the number of arrivals in Torino was 2.544.181, equivalent to 45.83% of the arrivals in the whole region. While this number does not guarantee that people will stay in the province, the presence of tourists in the area is just as high. In 2021, 6.628.353 people, around 44,35% of the number of tourists in the region, stayed for some time in the Metropolitan region of Turin. Both the tourists that arrived and remained in the area for some time are, in the majority, Italians, followed by French and English visitors. The area had, in 2021, 4.157 tourist accommodations with 82.471 beds. The sector has been growing since 2019, when the number of hotels and other structures reached 2.841.

As of 2021, it has 220 museums or institutes, eight areas or archeological parks, and twenty-eight monuments or monumental complexes. Overall, the number of visitors to museums and other cultural heritage sites has declined since the pandemic. In 2019, the area received 400.949 tourists; in 2020 and 2021, it only reached 188.666 and 228.759, respectively. Data from the Osservatorio Turistico della Regione Piemonte reveals that the most visited museums of the region are the Egyptian Museum, the National Museum of Cinema, Torino's Royal Museum, and Venaria Reale.



2.1.3 Susa Valley

Susa Valley is an alpine valley located west of the Metropolitan City of Turin province, bordering France. It is in the northwestern portion of the country, assigned as the western Alps. The river Dora Riparia crosses the valley, eventually reaching the Po River. The valley extends around 80km, with approximately 90,000 inhabitants. (Unione Montane Valle Susa, 2021)

The valley has thirty-nine municipalities, most notably Susa, Avigliana, Bussoleno, Oulx, and Bardonecchia. The valley has two distinct Mountain Unions, Alta Valle Susa and Valle Susa. The following map (Fig. 17) shows the location of the Susa Valley to the Metropolitan City of Turin. It also highlights municipalities connected to the Sacra di San Michele.

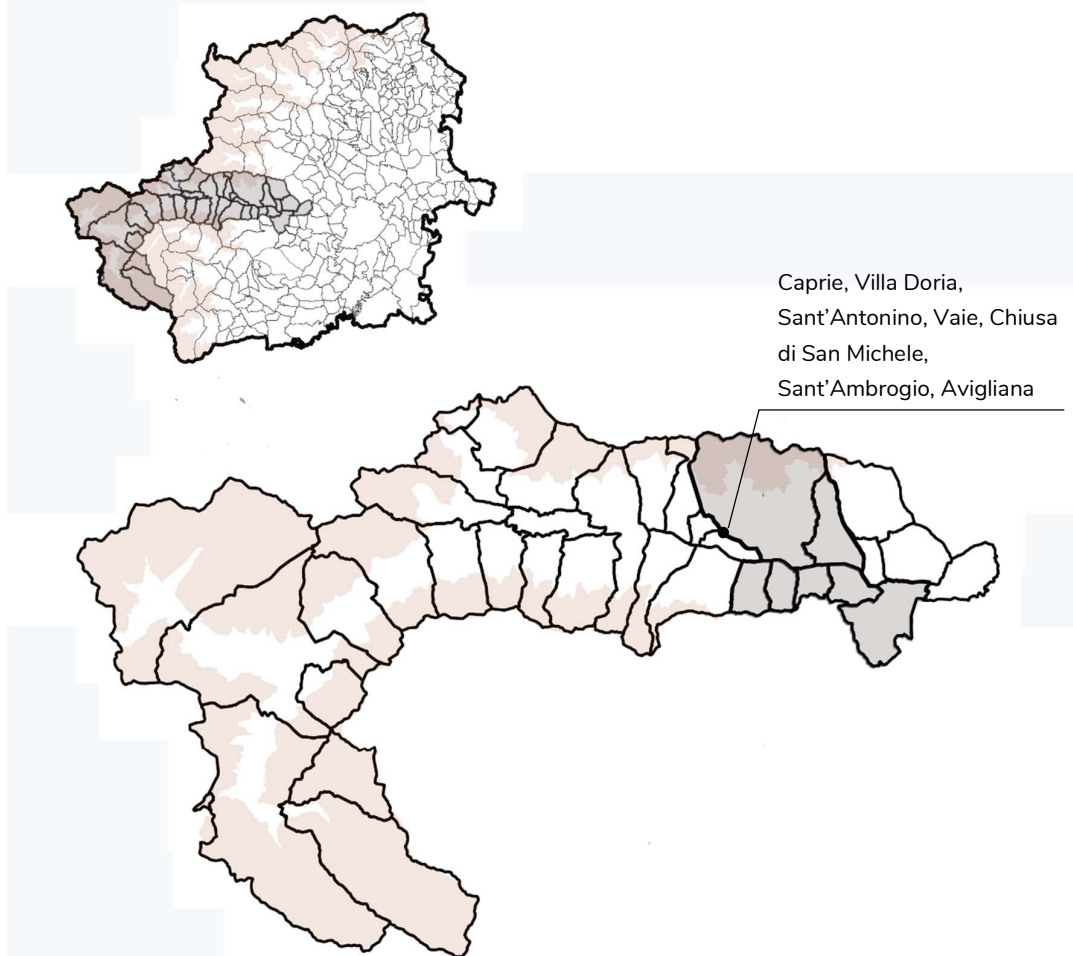


Figure 17 - Susa Valley

Source: Developed by the author based on data from Geoportale Piedmont

Mountains

Susa Valley originated around 60 to 2.5 million years ago during the Alpine orogeny process.¹ Its main river is the Dora Riparia. It is 125 km long. Essential lakes of the region are Lago Grande and Piccolo in Avigliana and Rochemolles in Bardonecchia. There are several protected areas in the region, mainly connected to lakes or mountains. Among them are the Gran Bosco di Salbertrand Natural Park, (Fig. 18) the Natural Park of the Lakes of Avigliana, and the Orsiera-Rocciavré Nature Park.



Figure 18 - Gran Bosco di Salbertrand Natural Park
Source: <https://www.hisour.com/fr>

The Valley has a series of communes with vastly different population numbers. The most populated municipalities are Avigliana, Susa, Buttigliera Alta, and Almesè, with 12,370 people, 5,940 people, 6,214 people, and 6,280 people, respectively. Moncenisio, Claviere, Exilles, and Sauze di Cesana were the least populated municipalities, with 47, 211, 241, and 243 inhabitants, in this order. (ISTAT, 2022)

¹ Orogeny refers to the process by which mountains are created by the movement of tectonic plates. The Alpine Orogeny was a mountain-building event that happened in Southern Europe. It caused the elevation of the Alps. This affected the Balkan Peninsula, England, France, Iceland, and Italy. Ghignone, Gattiglio, Balestro, and Borghi (2019).

The economy of the area is based heavily on the service sector, as well as seasonal tourism. While both the industrial and agricultural sectors used to be critical to the site, they are less dependable nowadays.

Susa Valley is part of a significant historical route from Italy to France. While this meant the area suffered from invasions throughout the years, it also has a rich cultural heritage. Historical routes like Via Francigena and the Roads of the Waldensians and the Huguenots pass through the area. Via Francigena is a well-known pilgrim path from the United Kingdom to Rome, still used today. Following this road, a series of churches and other religious buildings used to be part of the infrastructure for visiting travelers. The Roads of the Waldensians and the Huguenots is a route that follows the path done by the Huguenots and Waldesians when French King Louis XIV persecuted them. The trail passes through France, Germany, Switzerland, and Italy.

Religious buildings are not the only type of cultural heritage in the Valley. Historically, the area was a strategic point since the Roman Era. This continued through the rule of the Savoy and still rings true today with the current French-Italian borders. The construction of a system of military fortifications, castles, and defensive walls influenced the region's character. (Marchetelli, L. 1985)

The Susa Valley is very well connected to Torino. The area possesses the train line Torino-Susa. Trenitalia says the line connects the Porto Nuova Station in Torino to the Susa station. This journey takes around an hour and has stops in Gugliasco, Collegno, Alpignano, Rosta, Avigliana, Sant'Ambrogio, Condove, Chiusa di San Michele, Sant'Antonino Vaie, Borgone, Bruzolo, Bussoleno and finally Susa. The train works 13 times daily in each direction, starting from 05:00 am and ending at 23:00. There is a train every hour.

A train line is planned to connect Torino to Lyon, France. It would use most of the already existing line.

2.1.4 Sangone Valley

Sangone Valley is an alpine valley in the southeast of Susa Valley. The Sangone stream traces the valley. It comprises six municipalities: Coazze, Giaveno, Trana, Valgioie, Reano, and Sangano. It has an area of 165km², a population of around 29.600 people, and a density of 179,06 people/km². Figure 19 locates the Sangone Valley inside the Metropolitan City of Turin territory and accentuates the municipalities with a relationship to the Sacra.

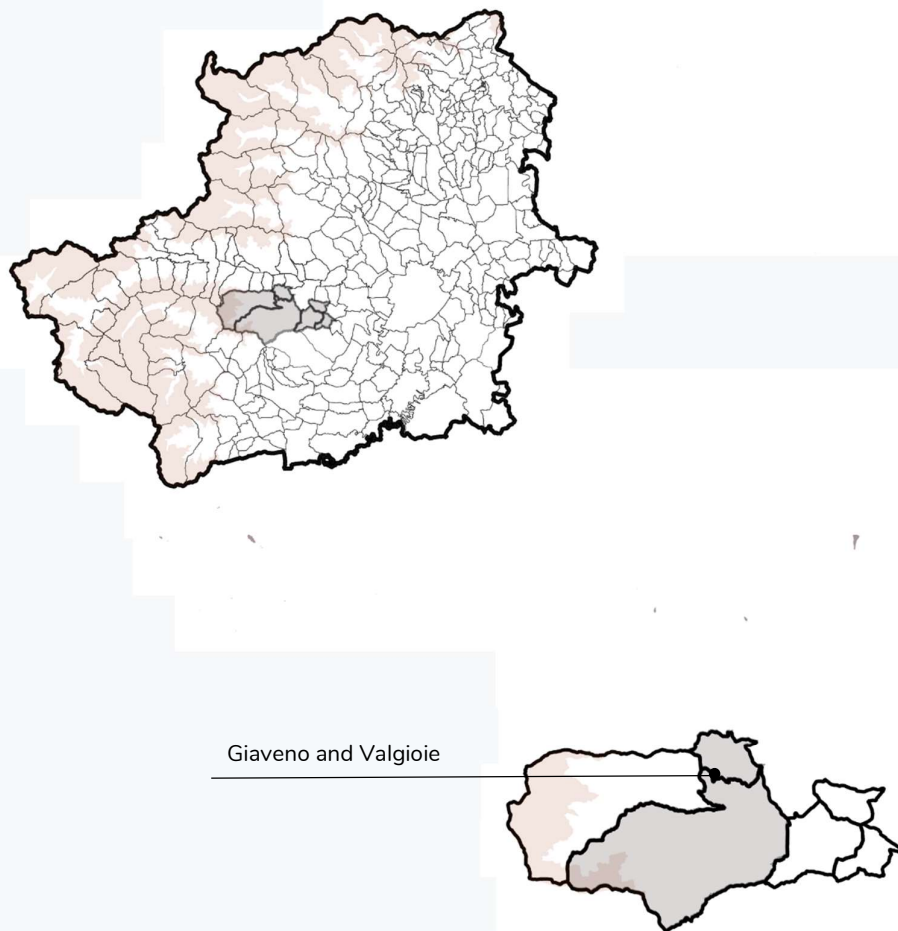


Figure 19 - Sangone Valley

Source: Developed by the author based on data from Geoportale Piedmont

Mountains

Sangone Valley is bordered in the north by the Susa Valley and to the south by Val Chisone. The Valley is part of the northern Cottian Alps, extending around 2km. It has a difference of altitude of approximately 2,300m. The highest point is Mount Rocciavrè, at 2719 m of height.

The climate is subjected to humid currents in the plain portions of the terrain. The different altitude levels often generate both currents and precipitations. The precipitations may vary from 1000 to 1500mm of rain per year. While the summer is the season with the least rainfall, especially in July, the area is not considered dry. The aridity found in the area is characteristic of the soil, which has a coarse grain size and high permeability. (Bisio, L. Allegro, G. 2014)

The Sangone River runs through the Valley for around 46km. The stream starts in the Cottilian Alps, almost 2000m above sea level, and flows until the river Po. It has a very uneven volume around the year due to water redraws of irrigation outlets.

The municipalities of Sangone Valley have a varied number of inhabitants. Giaveno is by far the most populous one, with 16.200 people, while the other has several inhabitants that span from nine hundred in Valgioie to 3900 in Trana. In general, they all experienced a slight growth in population in 2021, with Reano being the only exception. The people of all localities are aging, ranging from a median age of 46.5 and 49.1 years in Valgioie and Sangano, respectively. (ISTAT, 2021)

The economy of the area is based on the secondary and tertiary sectors. Agriculture is still an integral practice while less economically significant than it once was. Products such as potatoes, apples, and pears are cultivated. The area's woods are rich in chestnuts, beech, and mushrooms.

The Rea Botanical Garden (Fig. 20) was an important tourist location in the area, located in Trana. Recently, it stopped receiving visitors. According to the Ministry of Culture, the garden is not open any day of the week and is unavailable for reservations. The municipality, however, has a few other tourist attractions.

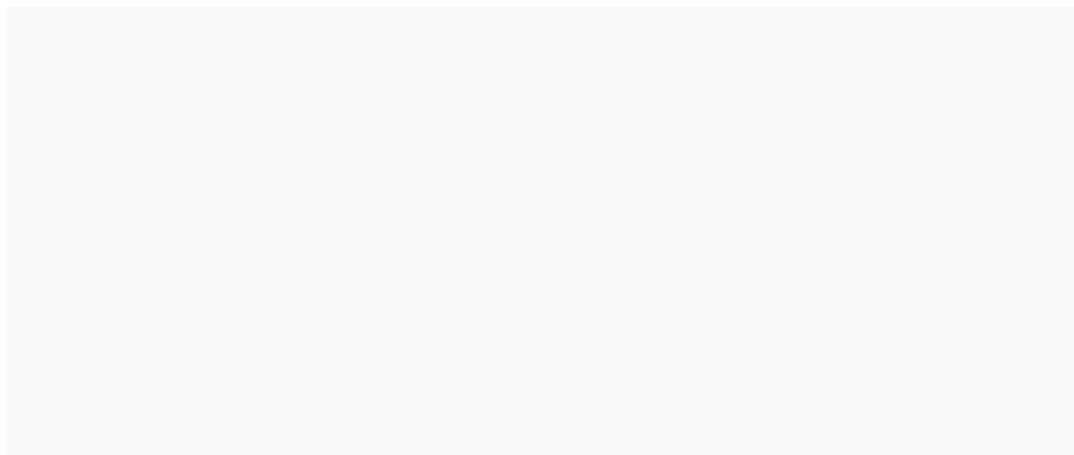
Giaveno and Coazze are the ones with the most significant tourist presence. Giaveno has around thirty-eight accommodations with 226 beds. Tourists stay there for a considerably long time, around 7.13 days. Coazze has fourteen accommodations with

a more significant number of beds; at 314 beds, tourists visit for 2.62 days. The other municipalities have around eight accommodations, with 186 beds, most of which are in Sangone. (OECD, 2021)

The Sangone Valley is less well-connected than the Susa Valley. The best way to reach the Valley from Turin is through private means or the train and busses. It is possible to get to Giaveno by using the Torino-Susa line, stopping in Avigliana, and going the rest of the way by car or bus.



Figure 20 - Rea Botanic Garden, in Trana
Source: <https://www.valsusaoggi.it>



2.2 Historical Framework

2.2.1 The Early History

The first traces of human settlements in the Alps come from the Ligurians, who occupied northern Italy and southern France. According to Marchetelli (1985), around the fifth century BC, the Celt population invaded Italy, spreading from Senegal to Rome. This occupation left a lot of Celtic superstitions in Susa Valley that still survive today. Eventually, the Romans also occupied the region, most likely around 122 BC. Both Avigliana and Susa have significant traces of Roman occupation. Avigliana had a *Statio ad fine*², a border station between Cisalpine Gaul and Transalpine Gaul.

There are traces of a Lombardian fortification system in the areas since the Valley narrows, making the point easily defendable. This fortification was a barrier to the Susa Valley, working primarily against a possible Frank invasion. leading to the name “*Le Chiuse*.”

“What is certain is that a village in this place was necessary to house the Lombard garrison, which must have been very numerous, given that relations with the Franks were continually tense.

It is difficult to establish under what precise circumstances S. Ambrogio may have been founded, during the two hundred years of Lombard's presence. However, suppose we accept this hypothesis, i.e., that the Lombards established the first inhabited center here. In that case, we must believe that the function of S. Ambrogio was linked to that of the Chiuse that, therefore, the town arose with precise military purposes before the locks were fortified or as a "work site" during the construction of the defensive works.” (Marchetelli, 1985)

Marchitelli (1985) relates that Lombard warriors used to move with their wives and children to the possible existence of small residence poles close to military bases. The site was destroyed between 574 and 636, leaving little trace. In 775, King Astolfo

² According to Marchitelli, L. 1985, the *Statio ad fine* was a border station that required uses such as warehouses, stables, and taverns.

restored the facilities. In time, the city became one of the most critical connections between France and Italy.

At the time, several complexes were being built with the auxiliary function of hospitality to pilgrims. Among them is the Novalesa Monastery, made in 726. In 820, Emperor Louis the Pious was interested in constructing a refuge for travelers, the Hospice of Moncenisio. According to Marchetelli (1985), the ancient Roman road on the left of the Dora was abandoned around the same time, and a new road was built on the right side of the river. This new road ran through Sant'Ambrogio, giving more importance to the village. While time brought prosperity to the area, the struggles among the successors of Charles the Great gave way to the Saracen invasion. Strategic points of the valley were occupied, blocking passages and interrupting trade.

"These Islamic bands settled in the mountains in a dominant position concerning the villages: one of these settlements was Frassinere, above Condove, and also above S. Ambrogio must have been a base of some sort, whose memory remains in the toponym "Truc Sarasin," near Pirschiriano. Although in 933, theoretically, the Valley had joined the Kingdom of Burgundy, while on this side of Chiuse began the Kingdom of Italy, for most of the X century, the Saracens were the real masters. Among other feats, they sacked and burned the Abbey of Novalesa (in 906), forcing the monks to flee to Turin under the protection of the Marquis of that city." (Marchetelli, 1985)

The raids were squashed by Arduino Glabrione, a Norman leader, and eventually, who fought them until 975. As a result, he obtained possession of Susa and the whole Valley. Works began to rebuild the settlement in Sant'Ambrogio after the end of the raids. Remnants of this era are the bell tower, raised from sixteen to a height of 34 meters.

2.2.2 The Conception of the Sacra and its Influence on Sant'Ambrogio

The documents regarding the foundation and history of the Sacra are uncertain. The Abbey of San Michele was probably founded around 983 and 987. Before

its construction, however, the area already had a religious order led by Giovanni Vincenzo. The community of hermit monks settled in Mount Carasio. They likely had some power in the community when the Sacra was built.

"The abbey of S. Michele della Chiusa still lacks a complete and systematic study of the various aspects of its history, and the deficiency is severe, at least for the medieval centuries in which the abbey reached its maximum splendor. It must be said that a complete paper of the abbey is missing, an ordered collection of those documents that have had troubled events of dispersion, some of which unfortunately not far from our times." (Sergi, 2011)

The document *"La Sacra di San Michele simbolo del Piemonte"* (2020) relates the construction of the Sacra to several factors. Pope Sylvester II, at the beginning of the 11th century, incentivized the construction of Benedictine abbeys or fortresses dedicated to Archangel St. Michael.

"The monastic phenomenon had been developing in the West starting from the fifth century, also concerning the social and political crisis of the Roman Empire. Men of culture, imperial officials, and senators of the most important families turned to the Church as the only structure capable of surviving the fall of the Empire." (Marchetelli, 1985)

There are different hypotheses regarding the motive of the construction. Some sources say the Pope imposed the task on Ugo di Montboissier, a French nobleman, as an alternative to seven years of exile due to his sins. (Piemonte, 2020). Arioli (1998), on the other hand, related the pilgrimage of Ugo and his wife, Isengarda, to Rome as one of the incentives for constructing the abbey. According to him, the nobleman was interested in building a place that could be used for short stays for nobles passing through the same path. He also attributed the choice to build the church in Italian territory instead of in France to an effort to create a place where the French Peregrines would feel at home. The arrival of Ugo and his court is depicted in figure 21.

"Ugo of Montboissier, promoter of the foundation, and the aristocrats of Auvergne and Aquitaine so present in the first life of the monastery, looked to the Po valley as a land of conquest: but as a non-passive land

of conquest, from which to draw such riches, but also prestige and culture.” (SERGI, 2011)

There is also a correlation between the end of the century and the desire to renew the territory that suffered from the invasion that, while sporadic, affected the economy and community of the valley (Marchetelli, 1985). This condition changed when the Marquise of Turin brought to the area his military power, which served as protection and reactivated the region's life.



Figure 21 - Ugo de Montboissier and his court
Source: Marchetelli, (1985)

The Sacra was built for a more exclusive public. Located in the Via Francigena Path, according to Sergi (2011), *“was protected; in sequence, by the kings of Burgundy, by the marquises of Turin, and by the counts of Savoy.”* He also related the dedication to St. Michel to this, saying his cult was “extraneous to popular devotion.” Following the story narrated by the monks of the Sacra, in the 10th century, Archangel Michel manifested himself on top of Mount Pirchiriano, the 962-meter-high mountain where the Sacra is located. The archangel is also notoriously linked to high places. Figure 22 gives a perspective of the monumental impact of the Sacra.



Figure 22 - Mount Pirchiriano
Source: <https://www.vallesusa-tesori.it/>

Mont Pirchiriano fits all these requirements. It was close to the Via Francigena while also of more challenging access, outside the path usually taken by the pilgrims.

“But the passage of the main road promoted San Michele to the function of a prestigious and comfortable hospitality center for high-ranking travelers, who could stay there for a long time, finding refined food and appreciating spare horses. The generosity of these distinguished guests did not leave the monks without cash. Still, above all, it ended up determining the physiognomy of their landed heritage: very extensive, certainly profitable, but dispersed because it drew on the wealth of distant donors, from the Po Valley to France central-southern, the area, the latter, where perhaps the cult and the material

presence of the Clusine monastery were most noticeable.” (SERGI, 2011)

The first known documents regarding the Sacra are from the 11th century, regarding the episcopal authority of the abbey. Benedetto Chiusa claimed autonomy from the Bishop of Turin, declaring they would only answer to the Pope. The bishops of Turin tried many times to deny this autonomy, going as far as to arrive armed to the mountain. The Sacra, however, proved capable of maintaining their prerogative and was given protection by Pope Paschal II in 1114. (Marchetelli, 1998)

“Since its foundation, the monastery vigorously sought the jurisdiction of the bishop of Turin: in particular, in the eleventh century, the monks came out clearly in favor of Roman centralist reform under their most famous abbot, Benedict II. This autonomy from temporal and ecclesial authority was quickly attained, and the abbey, thanks to its wide and generous hospitality, was able to stimulate exchanges of ideas not only in matters of practical order but also in matters of deep spiritual significance, which helped to create our common heritage of a great religious civilization.” (Sacra di San Michele)

The Sacra was able to acquire wealth quickly. Soon, Sant’Ambrogio became part of the domain of the abbey. The year this happened is unknown, but it is possibly in the Lombard era when the town had a castle. This building became the political-administrative seat of the abbot of the monastery. In the XIV century, the center included the villages of Novaretto, Celle, Caprie, Chiusa S. Michele, Vaie, and Valgioie.

The feudal dominion of the Sacra extended in Val Susa up to Collombardo and S. Antonino; in Val Sangone, it included Coazze and, later, Giaveno (from 1209) and Valgioie (from 1347). Countless properties of the Sacra in Italy, France, and Spain: In 1671, the period of most significant decline of the Abbey, there are still 176 places owned by it: up these places, the abbot had every spiritual right and temporal, civil, and criminal. (Marchetelli, 1985)

The amalgamation of these villages functioned as a kingdom, where the abbot was the monarch and the bishop the supreme judge. The "*Stato della Sacra*" (Fig. 23) lasted for around eight hundred years, even though from the mid-14th century, it was under the rule of the Savoy. Sant'Ambrogio was similar to the capital of a kingdom, given that it was the administrative center, dealing with documents and feudal and governmental deeds. Later, the abbey divided its administration between Sant'Ambrogio and Giaveno, a more populous city in Val Sangone.



Figure 23 - Diocese in which the Abbey of S. Michele had dependencies
Source: Marchetelli, (1985)

The Sacra began declining in 1381 until its definitive closure in 1622, partly due to a series of raids by English mercenaries that targeted both the Sacra and Sant'Ambrogio. In 1363, the castle of Sant'Ambrogio and the town were destroyed, presumably to steal the wages of the abbot. (Marchetelli, 1985)



Figure 24 - Sacra di San Michele
Source: Theatrum Statuum Regiae
Celsitudinis Sabaudiae Ducis, 2 voll.,
Amsterdam 1682, I, tav. 46

The number of monks in the monastery began to dwindle, from twenty in 1581 to three in 1622. The wars of the time didn't help in conserving the Sacra. In 1630, Sant'Ambrogio and Avigliana were on the stage for the "Battle of Avigliana", depicted in figure 25. In the following years, the municipality was ailed by hunger and plague. Between the wars, earthquakes, and the passing of time, the monastery was in a state of ruin.

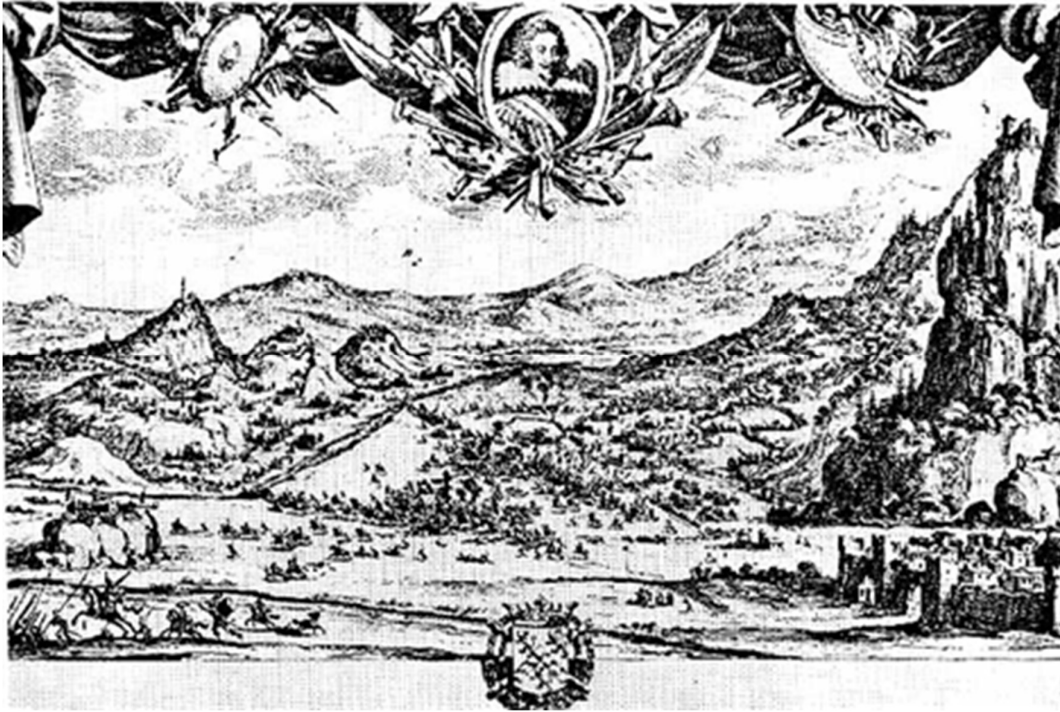


Figure 25 - Battle of Avigliana

Source: <https://www.comune.santambrogioditorino.to.it/>

From 1802 to 1814, Sant'Ambrogio and Susa Valley, as well as the whole of Piedmont, were under Napoleonic rule. The French rule lasted around ten years. However, not much is known about this time.

"After several attempts to restore the spiritual rule of the first monks and bring a new religion to the abbey, Cardinal Maurizio di Savoy in 1622 obtained from Pope Gregory XV the Bull of suppression of the monastic life. (...) The definitive suppression of the Abbey came in 1803, with the edict of Napoleon Bonaparte who suppressed all the convents and confiscated the property of the Church. Two centuries after the papal Bull of suppression, in 1817, later to the fall of the Napoleonic empire and the Restoration of the sovereign's European thrones, the commandery of the Savoyes on the Abbey of San Michele della Chiusad it was reconstituted." (Piemonte, 2020)

The Piedmontese region was significant on the international stage. From 1861 to 1865, Turin was the first capital of the Kingdom of Italy. (Marchetelli, 1985)



Figure 26 - Decree of Emanuele II that changes the name of the municipality from Sant'Ambrogio to Sant'Ambrogio di Torino
Source: appud Marchetelli, (1985)

In 1836, the site was rediscovered, primarily due to the romanticization of the medieval alpine constructions. King Carlo Alberto and Pope Gregorio XVI entrusted the Sacra perpetually to the P.P. Rosminiani, a charity institute. The monument was restored with the efforts of Carlo Alberto and Alfredo d'Andrade, as well as the continuous efforts of the Rossinian priests who settled in the church. Antonio Rosmini was tasked with the custody of the Abbey. He made sure that the monument would stay open to the public. (Arioli, 1998)

The 19th century brought the construction of the train line Torino Susa. Initially, the route had six fixed stations: Turin, Collegno, Alpignano, Avigliana, Bussoleno, and Susa. In 1861, Sant'Ambrogio received a fixed station because of the number of Caprie, Novaretto, Almese, and Villar Dora residents. (Marchetelli, 1985)

During the First World War, Sant'Ambrogio suffered from an earthquake in 1914. The aftershocks of this event could still be felt four years later. The municipality suffered a bombing in 1944. A year later, the Sacra was established as a meeting point with food and accommodation for the population if there was a need to evacuate the city. However, the site was never used for this purpose.

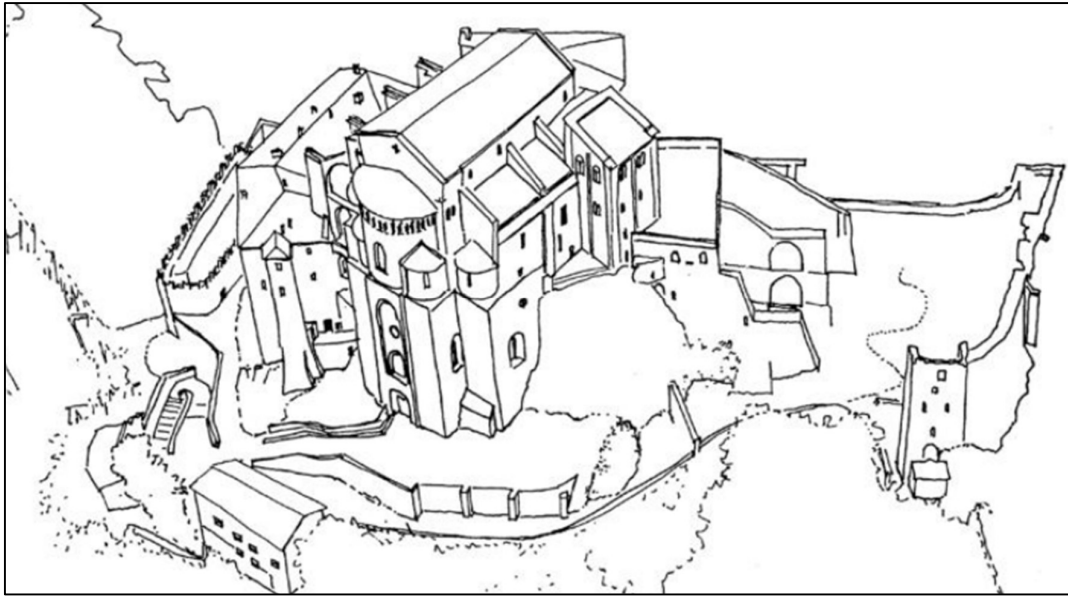


Figure 27 -Sacra di San Michele, general axonometric

Source: da BarrerA D., BiAncolini D., MASSABò ricci i., pApuzzi A., SALvAtori A., SerGi G. 1995

2.2.3 Construction and Evolution of the Sacra

Today, the documentation regarding the construction of the Sacra still needs to be clarified. According to the document *“La Sacra di San Michele: Simbolo del Piemonte”* (2020), there was a primitive chapel on the site that was updated two times before the construction of the building today known as the Sacra. While the history exists, not much is known about these first constructions.

“Even if the sources are not certain, the first chapel would be of Roman times, then enlarged by the Byzantines and therefore dedicated to the cult of Michele. At the end of the 900s, the hermit San Giovanni Vincenzo built the third and biggest chapel, the first of which can still be accessed today with just a ladder when you enter the basilica. That chapel is consecrated to the Angels, and that’s the reason why the sanctuary was given the title of “Sacred,” the term with which it is today known as the whole complex.” (Piemonte, 2020)

The complex of the Sacra extends to more than the Sacra. It has other constructions that used to be a part of the primary function of the Sacra. The Sepulcher of the Monks is one of them.

The “Sepulcher of the Monks” is the ruin-like structure at the end of the access road to the Sacra. It was probably built between 1066 and 1091 when the abbot Benedict II was responsible for the management of the Sacra.

“It is a central plan structure of octagonal shape, with apses protruding from the perimeter alternately rectangular and semicircular, in profile overstepped. More recent research has identified the monument with a church of the Holy Sepulcher, built at the entrance to the monastic complex.” (Tosco, 2022)

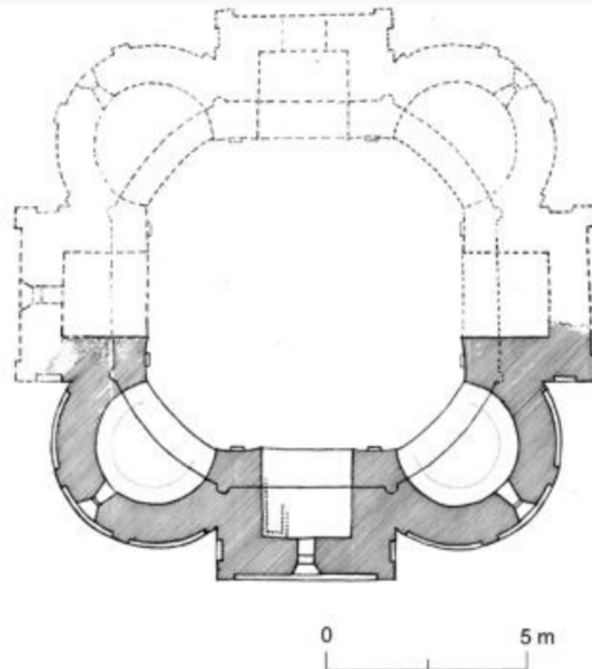


Figure 28 - Sacra di San Michele, Plan of the "Sepulcro dei Monaci"
Source: Gentile G. 1988
Hatched parts are still preserved in the elevation

The construction, shown in figure 28, was probably used for funeral ceremonies since similar chapels had this purpose. There is also a possibility that it was used for easter rites and liturgical purposes, much like other comparable structures. (Tosco, 2000)

Based on this construction's current condition, it's impossible to extrapolate where the entrance was located. Today, the monument is in a state of ruin, most likely due to earthquakes and the instability of the terrain. It was said to have been intact in 1621, in a deteriorated condition in 1661, and in a state of ruin by 1681. (Marchetelli, 1985). Arioli (1998) creates a hypothetical drawing of what the building could have looked. (Fig. 29) This drawing can be compared with figures 30.

Figure 29 - Drawing of a hypothetical reconstruction of the "Sepulcro dei Monaci" made by Luigi Arioli
Source: La Sacra di San Michele 1991-2001



Figure 30 - Sepolcri dei Monaci
Source:
<https://www.nonniavventura.it/la-sacra-di-san-michele/>



Figure 31 - Sepulchre of the Monks
Source: Sacra di San Michele



The abbey of San Michele has also been through several construction phases. Some evidence reveals that the first construction was made by a crypt, with three aligned and connected rooms. They sat directly on the stone.

"These little spaces of worship seem to testify to a phase in which they existed on the mountaintop of the individual chapels reserved for hermits of the first community. Archaeological research, directed in 1988-2003 by Luisella Pejrani Baricco for the Archaeological Superintendency of Piedmont, has identified other rooms located under the termination west of the church and, in particular, a long cell about 2 m, covered by a barrel vault." (Tosco, 2022)

In the 11th century, the spaces were unified with the construction of a wider church, with "three naves with three semicircular apses to the east." (Tosco, 2022) The remains are no longer accessible today. The only evidence of these spaces is the drawings by Alfredo d'Andrade during his restoration work in 1899. (Fig. 32) This construction phase was demolished in the 12th century to give way to the church preserved today.

Around 1110, the church was in the rebuilding process, attributed to the new prestige of the monks of San Michele. At the time, the holdings of the Sacra expanded to France and Spain. It was a very renowned pilgrimage destination, mainly for high-ranking visitors. The luxuries offered to the visitors at the time encouraged donations, making expanding the complex possible. (Piemonte. 2020)

The monks were interested in hiring well-known artists to redesign the decoration. They eventually employed Nicolò, known for his work in the Cathedral of Piacenza. He probably arrived in the area around the second decade of the 12th century. His most important work in the Abbey is the Zodiac Portal. Evidence shows that it was disassembled, probably from the complex's main entrance, and reassembled at the top of the "*Scalone dei Morti*."

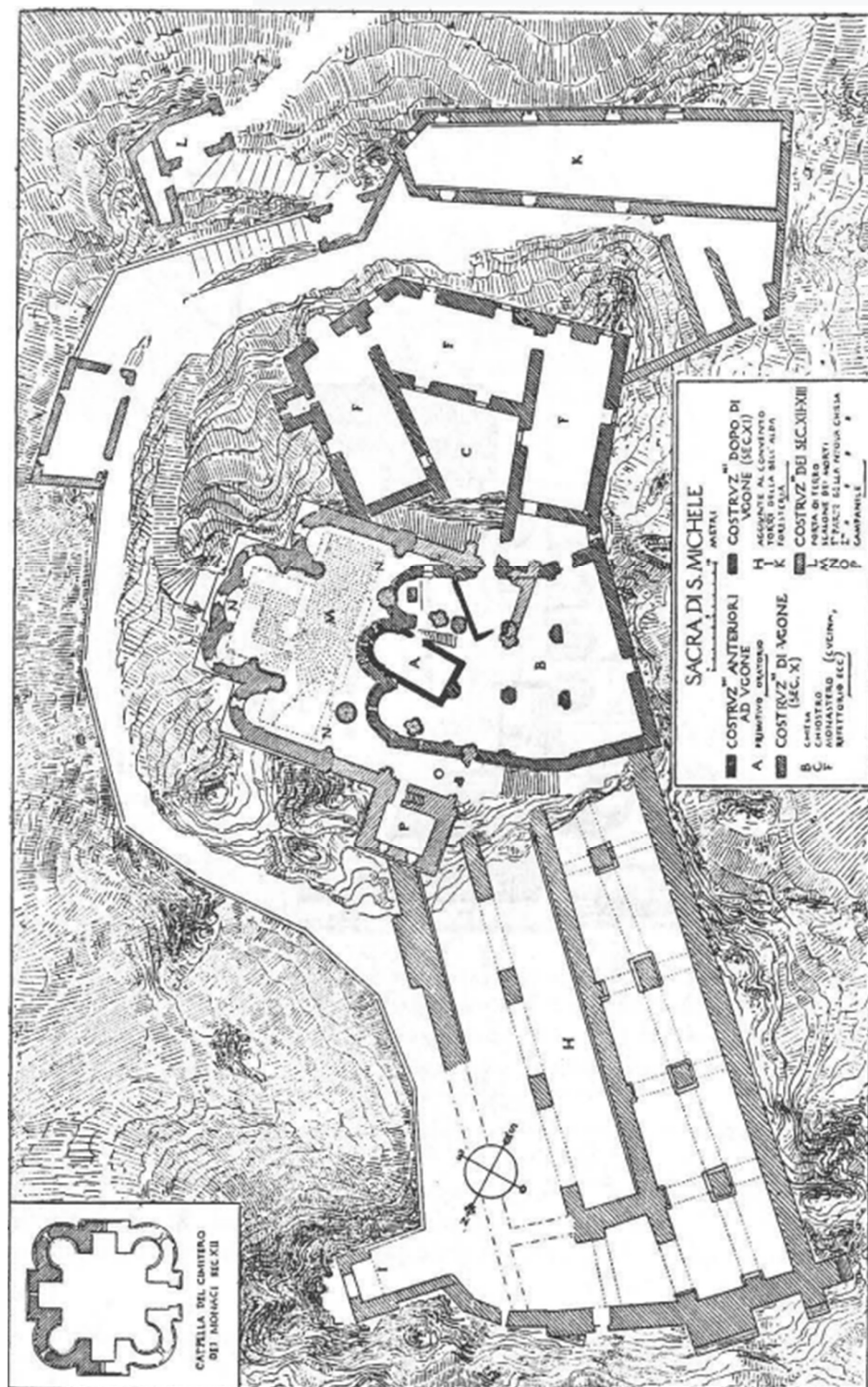


Figure 32 - Sacra di San Michele, reconstruction phases based on plan by A d'Andrade
Source: Alfredo d'Andrade, plan of the excavation of the Church di San Michele, apud Tosco, 2003

The Zodiac Portal (Fig. 33) is a decorative entrance made presumably by Nicolo and a group of other sculptors, one of them being Peter of Lyons. They used a local stone, easily accessible in the Alps. It was presumably built under the rule of abbot Ermengard, which lasted from 1095 to 1134. The portal is made of stone and presents a “strong theological and doctrinal figurative.” (Tosco, 2022)

“For the base was used in schist, a stone easy to work along the schistosity planes, suitable for support loads when stressed in the direction normal to the layers, less suitable for the detailed works of the sculptural reliefs. For the portal figures were adopted different stones, of better quality, with the prevalence of marbles available in the valley in the quarries already used in Roman times.” (Tosco, 2022)

The appearance and location of the portal today differ from the original. It was most likely located in the remains of the monastery's church since they were found there in the excavations done by d'Andrade. (Tosco, 2015) The pieces were restored and reassembled at the end of the *“Scalone di Morti,”* presumably because of its privileged position. Some of the sculptures of the portal are missing. They may have been destroyed, or the portal was never finished.

The sculptures in the portal show theological and common themes of the time. Common motifs include mythological creatures like sirens, griffins and animals, like eagles and snakes. (Fig. 34) Capitals also depict theological scenes featuring Cain, Able, and Samson. (Tosco, 2015)

“Recent research has made it possible to connect these representations with the visit of Innocent II. (...) During his visit, the pope had issued in the abbey a bull imposing the destruction of the castles of Lissieux and d'Illeé, disputed between the archbishop of Lyon and Guichard de Beaujeu, putting an end to one long quarrel between laymen and clergymen. The exaltation of Christian peace represented in the portal of the Zodiac corresponds well to the climate of conciliation promoted by the popes and the abbots of San Michele in the years following the Council of Worms.” (Tosco, 2015)

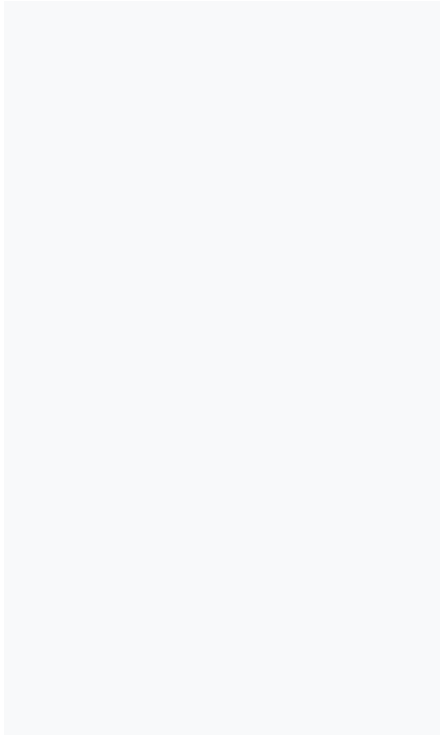


Figure 33 - Portale dello Zodiaco
Source: Marina Boschetti (2023)

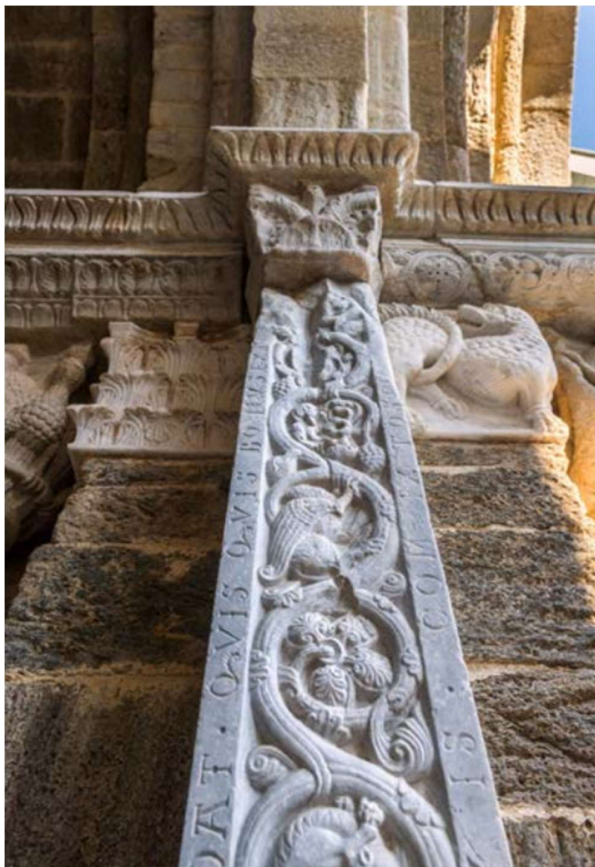


Figure 34 - Zodiac Portal Detail
Source: La Sacra di San Michele, Simbolo
del Piemonte (2020)

The strategic position of the Sacra made it necessary to build it in a more fortified way, superimposing the monastery structure with military construction, with a mainly vertical organization. It functioned as a fortress and even had a drawbridge. The monastery was built in masonry, without buttresses, and very few windows. The number of windows could also be related to the structure, which used the wall-vault connection as support, and the region's harsh climate. The barrel vaults were built using serpentine splinters bonded with lime and sand mortar. (DEBOVE, 1965)

The intervention at the time aimed to transform the abbey in monumental proportions. It was necessary to create a base that could comfortably accommodate the pilgrims who flocked to the area and serve as support for the new church. This problem was solved by the creation of an artificial base in masonry that held up the "platform support of the apse side of the new church." (Tosco, 2022) The construction presumably took place in the second quarter of the XII century. There is no date regarding the first church. The known information is based on the studies done by d'Andrade. (Fig. 35) An anonymous architect with significant expertise in vaulted systems built the structure. The result of this endeavor was the "Scaloni dei Morti." (Fig. 36)

"The structure came founded directly on the rock and supported on pillars supporting non-ribbed cross vaults up to a height of 22.55 m. In the construction site, state-of-the-art techniques are employed, with the use of suspended arches anchored to the corbels of the capitals to save the use of wooden uprights. Traces are still visible on the intrados of the vaults of the wooden ribs used during construction. The design idea of the great innovation was to give the base a double function: supporting the upper church and forming a street pilgrimage route. Pilgrims indeed walked this monumental passage, today called "Scalone dei Morti," obtained between the pillars of the base going up the staircase carved into the rock, up to the church superior. Such an elaborate engineering structure had never been seen in the Western Alps after the end of the Roman Empire." (Tosco, 2022)

There is a possibility that this section of the Sacra is unfinished. Many of the decorations were left incomplete, presumably because the intervention works had been discontinued for some time.

"The mastery stonemason active in the basement proves to be very skilled in the works of architecture while working serially in decorations, with results of clearly lower quality than the sculptures of the portal of the Zodiacs. The materials also differ significantly, and the walls use schist lime, a metamorphic rock widespread worldwide with vast outcrops in the valley, with a schist structure for floor parallels, which favors digging and squaring. For decorations in relief is instead inadequate, and the excessive graininess of the texture prevents the rough surface from retaining details." (Tosco, 2015)

The works were eventually put on hold after the completion of the base. The reason for the interruption is unknown. This phase can be recognized today when looking at the appearance of the reliefs, which remain rough. (Tosco, 2022) Eventually, the construction restarted after the demolition of the 11th-century church was completed. This new phase was when the new church was built above the base.

"The longitudinal body of the church with three naves instead was designed with a pillar-column alternation. The roof must have been cross vaulted uniform system. The vaults were restored during the twentieth-century restorations, replacing the vault with a seventeenth-century barrel vault on the central nave, while a system of trusses was inserted hidden in the attics in reinforced concrete. (...) Finally, many doubts remain for the western bays and for the termination of the church, which d'Andrade found in very bad condition and largely rebuilt, with the insert of a large segmental arch that communicates with the "old choir," a room originally independent of the present church." (Tosco, 2022)



Figure 35 - Hypothetic section of the first church, following d'Andrade Hypothesis
Source: Appud Tosco, C. (2023)

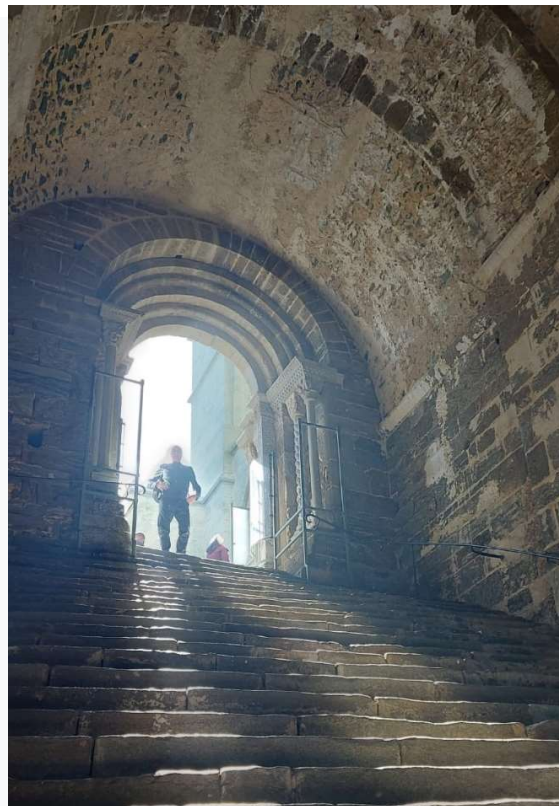


Figure 36 - Scalone dei Morti
Source: Marina Boschetti (2023)

Figure 37 - Ceilling Scalone dei Morti
Source: Marina M. Boschetti



Figure 38 - Scalona dei Morti and Portale del
Zodiaco
Source: Marina Boschetti, 2023



In the late 19th century, Alfredo d'Andrade, a Portuguese architect who later naturalized as Italian, worked on the restoration of the complex and developed a series of hypotheses regarding its construction. He is the only source of much of the known information about the Sacra. They live through his drawings, still saved in the Civic Gallery of Modern and Contemporary Art, at the State Archive, and at the Superintendence of Archaeology, Fine Arts, and Landscape.

Debole (1965) discusses the intentions of d'Andrade regarding the restoration of the 19th century. According to him, one of d'Andrade's objectives was to develop a "stylistic unit" never present in the monument. Most of these ideas can be seen in his drawing.

1. *"Elimination of all buildings which, added in recent centuries, mainly in the 1700s and 1800s, that altered the structure of the monument without constituting being objects worthy of being kept or restabilized;*
2. *Demolition of the barrel vault, cause of static instability but, above all, for creating a non-Gothic internal space and therefore inconsistent with the remaining parts of the church;*
3. *Construction of flying buttresses, designed to support the inclination of the south wall, in Romanesque-Gothic style, using stone equal to that of the Sacred and with an imitative character to make it relatively difficult for the layman to distinguish them from the original parts.*
4. *Completion of the bell tower, of the apse and the loggia, in front of the entrance door, in Gothic style with large richly decorated windows."* (Debove, 1968)

Unfortunately, he was not able to complete all of these actions. The restoration by Alfredo d'Andrade in 1889 was eventually interrupted due to lack of funds and restarted by Casare Berteia in 1925-1926 and Vittorio Mesturino in 1933-1936.

The flying buttresses projected by d'Andrade can be seen in figures 39 and 40.

Figure 39 - Flying Buttress by d'Andrade
Source: Marina Boschetti (2023)



Figure 40 - Flying buttress system, build by
d'Andrade
Source: Marina Boschetti (2022)





Figure 41 – Chapel Nave
Source: Marina Boschetti (2023_



Figure 42 - Chapel aisle
Source: Marina Boschetti (2023)

Interest in the Sacra has increased since the 1980s and can be attributed to P.P. Rosminiani's commitment and the general public's interest. Starting in 1985, the Sacra has had a series of restoration works. In 1991, fueled by the visit of the Pope, John Paul II, a series of changes was made, from removing the maintenance scaffolding to adding a new lighting system. The Polish Pope is shown in Figure 43, visiting the Sacra.

"The interiors have also undergone major renovation work. After years of second thoughts, the altar was adapted to the post-conciliar rite, and the presbytery was equipped with nine granite seats arranged in a semicircle, with the papal coat of arms in the center. The famous Triptych attributed to Defendente Ferrari has returned to renewed splendor (after some years in the laboratory); the heavy Savoy tombs have been vigorously cleaned." (Torino, 2020)

Between 1990 and 1991, the roof was restored. It also became clear that the ashlar had suffered from flaking, most likely due to the freeze-thaw circles. (Torino, 2020) Among the changes was the waterproofing of the terrace of the bell tower. Around the same time, works regarding the transportation of goods were also implemented. In 1995, a cable car was installed to transfer goods. The project considered the potential impact, making minimal interventions and camouflaging the path by following the natural slope of the mountain.

Thinking on the problem of accessibility inside the Sacra, an elevator was added, taking people from the site to a small hospitality sector and another elevator leading to the chapel. A series of ramps were also added to the site. (Fig. 44)

The "Sepulcro dei Monaci" was also part of the restoration efforts. It was done using the anastylosis method, modifying the image only when it is required for its conservation. (Torino, 2020)



Figure 43 - Pope John Paul II visiting the Sacra
Source: Torino, 2002

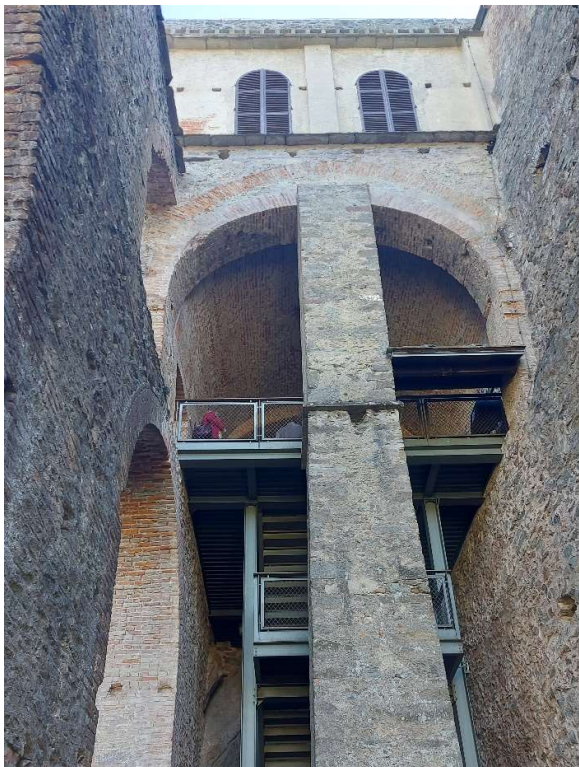


Figure 44 - Elevator and external stairs
Source: Marina Boschetti (2023)



Figure 45 - View of the Sacra from the entrance
Source: Marina Boschetti (2023)

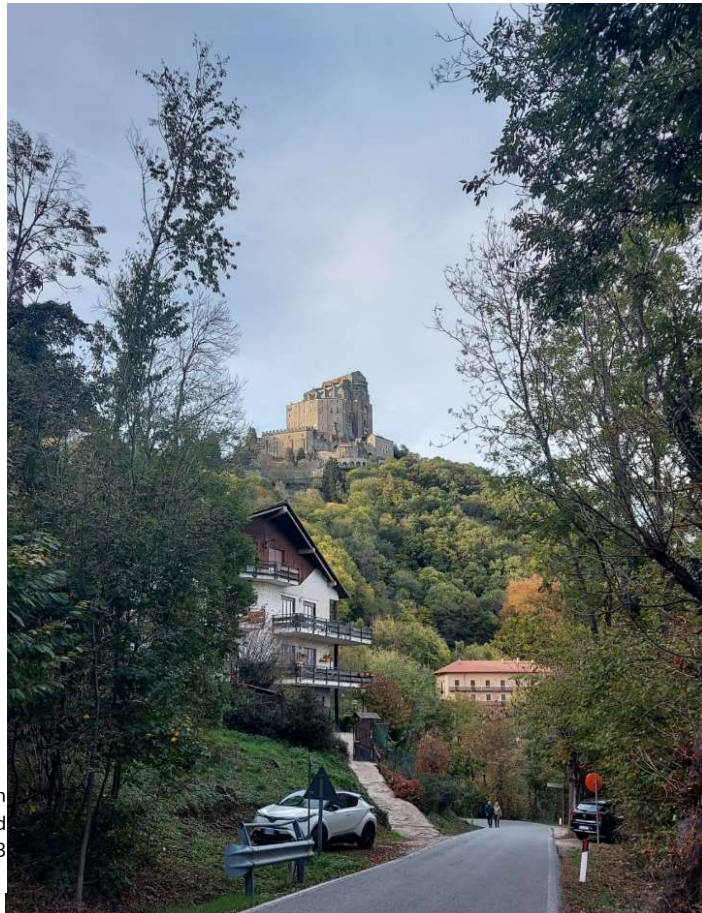


Figure 46 - View of the Sacra from the San Pietro neighborhood
Source: Marina Boschetti (2023)

2.2.4 The Sacra Today

According to Alleto (2001), in 1994, Piemonte approved a law to promote the knowledge and valorization of the monument. The Rosminiani Priest, which had the custody of the Sacra, declared that they could no longer guarantee the financial coverage for the maintenance of the site but were available to continue tasks related to property management. Because of this, Piemonte assumed its custody while maintaining the place for the priests in the management and religious, sacral, and cultural life of the Sacra. In 1995, it gained the title of Monument Symbol of Piedmont. At the same time, a law was implemented to protect the site. The law was eventually updated, and it is still valid today.

The Osservatorio Culturale del Piemonte reveals that this cultural site is one of the ten most visited museums of the Metropolitan City of Torino. The position of the Sacra in the list oscillates between sixth and tenth place. 2019 was at the bottom of the list, with 144,939 visitors. In 2020 and 2021, it maintained sixth place, with 85.963 and 91.233 visitors, respectively. The number of visitors increases in summer, as shown in Figure 47.

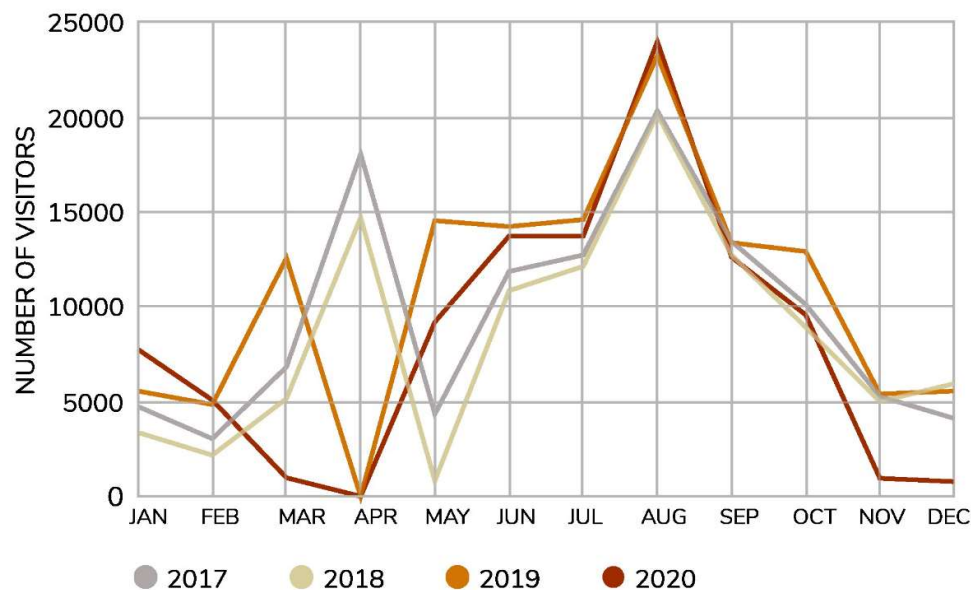


Figure 47 - Number of visitors in the Sacra by month

Source: Graph based on the data of the Osservatorio Culturale del Piemonte

Since 2016, the Sacra di San Michele has been a part of the Italian Tentative List for UNESCO. This action is the first step for inscribing a site on the World Heritage List. It was submitted with seven other medieval Benedictine Settlements.

"The proposed site includes eight medieval Benedictine settlements, selected throughout Italy, which, as a whole, represent a cultural phenomenon born in the Italian peninsula and spread out through medieval Europe. (...)

The renewal of the monastic experience also contributed to the development of medieval architecture, while the Gregorian Reform and the Cluniac Reforms of the late eleventh century offered further incentives to the development of Romanesque art and architecture. (...)

Therefore, Benedictine monasticism represents an excellent example of cultural interchanges and coexistence in the world's history, reflected and preserved in the architecture and art of medieval Europe."
(Permanent Delegation of Italy to UNESCO, 2016)

The monuments span from north to south of Italy, including the Subiaco Benedictine Complex, the Montecassino Complex, the Santa Maria di Farfa Abbey, all three located in Lazio, the San Vincenzo al Volturno Abbey in Molise, the San Pietro al Monte Church, in Lombardy, the San Vittore alle Chiuse di Genga complex, in Marche, Sant'Angelo in Formis Abbey, in Campagna, and finally the Sacra di San Michele complex, in Piedmont.

Most recently, the Sacra went through a new series of restorations because of the fire that afflicted the site in 2018. According to Torino Today (2018), the fire "affected the roof of the building, destroying part of the roof and seriously damaging the vaults of the top floor, compromised by the collapse of the wooden and stone elements of the roof and the water used for extinguishing." The works were divided into two parts; the first was to guarantee the consolidation of the walls and to reconstruct the roof. The second portion focused on strengthening the structure and increasing fire prevention infrastructure.



Figure 48 - Map of Benedictine sites

Source: based on data from https://www.treccani.it/monasteri_benedettini/

- | | |
|-----------------------------------|---------------------------------------|
| ● Monte Cassino Abbey | ● San Vincenzo al Volturno |
| ● Subiaco Benedictine Complex | ● Basilica di San Pietro al Monte |
| ● Abbazia di Santa Maria di Farfa | ● Abbazia di San Vittore delle Chiuse |
| ● Sant'Angelo in Formis | ● Sacra di San Michele |

Figure 49 - Subiaco Benedictine
Complex
Source:
<https://monasterosanbenedettosubiaco.it>



Figure 50 - Monte Cassino Abbey
Source:
<https://abbaziamontecassino.it>



Figure 51 - Abbazia S. Maria di
Farfa
Source:
<https://www.abbaziadifarfa.it/>





Figure 52 - Abbazia di San Vincenzo al Volturno

Source:

<https://www.abbaziasanvincenzo.it/>



Figure 53 - Basilica di San Pietro al Monte

Source:

<https://www.amicidisanpietro.it/>



Figure 54 - Abbazia di San Vittore delle Chiuse

Source:

<https://www.destinazionemarche.it/>

Figure 55 - Sant'Angelo Abbey,
in Formis
Source: <https://caserta.italiani.it/>



Figure 56 - Sacra di San Michele
Source:
<https://sacradisanmichele.com>





3 METHODOLOGY FOR STRATEGIC ASSESSMENT

A series of documents must be completed for a monument to be inscribed on the World Heritage List. Among these is the management plan. It consists of collecting information, assessing the situation, and developing strategies to guarantee the successful conservation of the site. The project needs to be constantly revised and updated to ensure the best possible outcomes are reached.

The Italian document “*Modello del Piano di Gestione*” indicates the necessary documents to develop a management plan. It reveals that developing a SWOT and a Stakeholder analysis are required for the planning process's knowledge portion. Both of these tools are extremely useful for the evaluation of the area as well as the elaboration and implementation of a plan to manage heritage sites. The document also mentions the development of a GIS database to monitor the site.

This chapter presents the methodology for the development of these techniques and other resources that can enrich the research.

3.1 STEEP Methodology

A STEEP Analysis is a tool for evaluating the factors that can impact and guide the design decision-making process. One of the first mentions of this technique was in 1967 by Francis Aguilar. The acronym changed from ETPS (economic, technical, political, and social) to STEPE (social, technical, political, and ecological). Variations are used today, the most known being STEEP (social, technological, environmental, economic, and political) or PESTEL, where the “l” stands for legal.

“The analysis is a useful tool for understanding the “big picture” of the environment in which you are operating, and the opportunities and threats that lie within it. By understanding the environment in which you operate (external to your company or department), you can take advantage of the opportunities and minimize the threats.” (Morrison, 2021)

The Social category (S) considers aspects related to the lives and opinions of citizens living in the investigated area. These aspects include age, gender, race, employment rate, migration rate, attitudes, thoughts, and social capital. This section contains cultural heritage.

The Technological category (T) considers if elements such as infrastructure that contribute to the economy are present or not in the area. They could refer to infrastructure in terms of cooperation, market competitiveness, or security. This category can refer to security devices, renewable energy, and accessibility.

The Environmental category (E) factors in the environmental characteristics such as air pollution, water quality, and the existence of protected areas. It serves as a way to monitor the conditions of the context.

The Economic category (E) refers to the condition of the sectors that contribute to the area's Gross Domestic Product (GDP). It should consider the attractiveness of the site to possible investors.

The Political category (P) considers the existence of projects, funds, or programs that can contribute to the project. It also evaluates the efficiency of the legal system when applied to similar projects.

3.2 SWOT Analysis

There is some debate on the first author to mention the SWOT analysis. Some attribute it to Albert Humprey, an American economist. It was developed between the 1960s and the 1970s. Others link the analysis to George Albert Smith Jr. and C. Roland Christensen, two Harvard Professors. (Friesner, 2011).

This method is a support tool that could, through the collection of information, rationalize the decision-making process. It initially applied solely to the field of business economics. Since the 1980s, it has been used in other areas, most notably as a step to territorial analysis and evaluating urban and architectural projects.

"SWOT Analysis is a strategic planning framework used in evaluation of an organization, a plan, a project or a business activity. SWOT Analysis is therefore a significant tool for situation analysis that helps the managers to identify organizational and environmental factors. SWOT Analysis has two dimensions: Internal and external. Internal dimension includes organizational factors, also strengths and weaknesses, external dimension includes environmental factors, also opportunities and threats." (Gürel, S., & Tat, M. 2017)

SWOT stands for Strength, Weakness, Opportunities, and Threats. The goal is to identify these characteristics in a determined plan or place. The strengths and weaknesses are endogenous factors specific to a specific context. They can change depending on the policies or interventions. Opportunities and weaknesses are exogenous factors, dependent on the external context. They are not easily subjected to change but can be managed to mitigate possible threats and increase opportunities.

It can be divided into a series of steps. The first is data collection; this depends on the specific subject or area to be studied. After this, the information needs to be identified and classified between strengths and weaknesses, for internal factors; and opportunities and threats, for external factors. Then, it is necessary to select possible strategies to maximize the strengths and opportunities and attempt to reduce and manage the weaknesses and threats. Finally, they must be assessed to determine their validity.

Usually, the various categories are represented using a matrix with four types. They can also be divided by thematic area, for example, environment or services.

The SWOT analysis can be combined with the STEEP methodology to create a more thorough and detailed overview of the monument. This can allow several sectors of the territory to be analyzed simultaneously. Since certain aspects are often connected, they can affect multiple areas. This technique allows the analysis to identify the links and make well-informed planning decisions.

3.3 Spatial SWOT Analysis

A Spatial SWOT analysis uses the Geographical Information System (GIS) as a complementary tool for representing the findings of a SWOT analysis. With this tool, it is possible to distribute the indicators found in the territory by superimposing different thematic layers. The result of this analysis is the creation of a “multi-attribute vector database.”

1. *“Develop a SWOT analysis by identifying the relevant factors of the internal and external environment;*
2. *Develop the spatial analysis using the GIS platform. This will take into account the spatial distribution of the indications previously identified in the SWOT analysis;*
3. *Create a series of strategic guidelines to monitor the situation, based on the previous indicators.” (Comino and Ferreti, 2016)*

Following the methodology proposed by Comino and Ferreti, the Spatial analysis is done as the next step, following the SWOT analysis. This tool can be handy to create management plans and predict possible problems and opportunities in a project. The graphical portion of this technique can also work successfully as an aid for presenting the project to potential stakeholders.

3.4 Stakeholder Analysis

Stakeholders' analysis is a project management tool based on identifying and categorizing actors impacted by a particular project. This technique is used to understand the needs and goals of every participant, be it investors, advisors, sponsors, or future users. It is a valuable resource for anticipating potential problems by analyzing the needs and expectations of every stakeholder since their interests may oppose each other or the project's end goal. It can be crucial in architecture for its capacity to help the development of a function based on an existing need.

"In the field of urban development projects, it is of particular importance to identify and analyze the interest of the organizations and individuals who have a stake in or can influence urban development projects, trying to accommodate the conflicts among them and focusing on the key issues in urban development." (Yang, 2013)

The stakeholder's analysis can be divided into six steps: identification, analysis, planning, executing, and monitoring. The first step consists of the organizations, groups, and people that can affect or be affected by the project or its outcome.

"It also analyzes and documents relevant information about stakeholder interests, participation, interdependencies, influence, and potential impact on the success of the project. The identification of stakeholders is based on data from the project charter, procurement documents, environmental factors of the business, and organizational assets." (Riahi, 2017)

The next step involves analyzing the role of the stakeholders in the project, their contributions, and their responsibilities. It could be done by elaborating on the specific needs, expectations, and goals of the groups involved. This step is instrumental in aligning and balancing the different interests of different stakeholders and preparing in case of limited funds.

The planning section mainly concerns developing different management strategies to address stakeholders and their involvement in a determined part of the

project. The managing method depends on the individual needs, interests, and their impact on the project's success.

"Based on the project management plan, the stakeholder register, the environmental factors of the company, and the organizational assets, the project manager will be in a position to "develop the stakeholder management plan." This plan, which is a component of the project management plan, will serve to determine the frequency and range of information provided to stakeholders. A stakeholder with other concerns is a potential risk to the project. To avoid spending too much time in the wrong place, a strategy based on the stakeholder's commitment level can be created." (Riahi, 2017)

The following steps are more straightforward. The execution involves constant communication with the stakeholders to guarantee that their needs and expectations are being met and to resolve any problem that can arise. The involvement of each stakeholder depends on their characteristics and the time they will be most useful in the project. The last step is the review of the previous processes and the resolution of any possible problems.

"The objective is to maintain or increase the effectiveness of stakeholder engagement activities throughout the life cycle of the project. This process is supported by the project management plan, the major problems registry, work performance data, and project documents. Using this input data and an information management system; the project manager will be able to broadcast information about the performance of the work to assess the overall effectiveness of the strategy adopted in managing the stakeholders." (Riahi, 2017)

The stakeholder's analysis is necessary for a management project for this capacity to plan and hypothesize the possible actions of each stakeholder. To do this, it is essential to analyze them and their importance in the project.

3.4.1 Classification of Actors

The classification of actors is an essential resource for identifying the nature of each stakeholder. This step is needed to understand the nature of each investor and help define how they can help or hinder the project's development. Bruno Dente (2014) divides actors into five categories: political actors, bureaucratic actors, special interests, general interests, and experts. The actors can fit more than one of the categories.

Political actors represent the public interest, and because of this, they base their decision-making on the widespread consensus. They are most likely elected representatives or workers in the public sector. Political actors have the freedom to compromise and are swayed by public opinion. Bureaucratic actors have the responsibility to intervene in a specific project. They have to follow clearly defined rules; their actions will be justified by their interpretation of the law. Their participation, or lack thereof, will always be motivated by the law. They have the power to develop and influence the creation of new laws. (Dente, 2014)

Special interests are actors who base their decisions on the fact that they are directly affected by the project's outcome. They can bear costs or benefits from the success of the project.

"May they be firms, individuals, organizations representing specific categories, or people who live in a specific area, decisional processes often witness the intervention of subjects that try to influence the outcomes in a utilitarian logic. (...) They will try and maximize the benefits and minimize the costs, therefore they will choose the alternative that allows them to reach this goal. And since participation in the decisional process involves costs, they will be available to accept agreements and compromises according to their interest to conclude the process they are involved in." (DANTE, 2014)

General interests don't necessarily have any political or legal influence but are nonetheless affected by the decisional process. Even lacking power, they have the right to speak about their interests. Examples of this would be nonprofit organizations. The

experts are actors who possess the necessary knowledge to influence the decision-making process. (Dente, 2014)

3.4.2 Resources

Resources can be described as how each actor influences a particular process. Dente (2014) separates resources into the following categories: political resources, economic resources, legal resources, and cognitive resources.

Political resources are the amount of support an actor can generate. It does not necessarily have to be a result of an election. Charisma, public campaigns, or personal status easily influence it.

"For example, show business people's commitment to humanitarian campaigns is aimed to increase popular consensus towards a cause, and therefore will be used by the promoters to persuade public authorities to adopt the policy decisions. From this point of view, the commitment of an actor like Richard Gere to the rights of the Tibetan people isn't very different from his colleague, George Clooney, for the promotion of a coffee brand (and, actually, for the resolution of conflicts in Sudan): it is a matter of using the popularity and authority these people have to cause changes in politicians or consumers' behavior." (DENTE, 2014)

Economic resources are the ability to mobilize money or other financial resources to change the actors' behavior. Economic resources can also influence the public perception of action.

"The easiest example refers to a public authority that promises to transfer resources to another body to overcome dissatisfaction about a controversial choice: this is what happens during environmental conflicts when compensation is offered. But the same goes for the incentives, used to stimulate the behavior of private firms that is essential to achieve some objectives (from the diffusion of green technologies for energy production to the establishment of new factories in the case of development policies)." (DENTE, 2014)

Legal resources are the advantages and disadvantages of particular legislation. This could include the responsibilities of a specific office, the legality of certain behaviors, the possibility of challenging an unlawful decision in front of a judge, or the existence of a formal procedure.

Cognitive resources could be statistical data, theories, or strategic knowledge used to enrich decision-making.

3.4.3 Stakeholder Circle

The Stakeholder Circle is a management methodology and visualization tool that assesses the relative influence that the stakeholders have in a determined project. The influence level is relative to the amount of power, proximity, and urgency. (Bourne and Walker, 2007)

“The Stakeholder Circle is based on the premise that a project can only exist with the informed consent of its stakeholder community. The methodology supported by the tool provides an effective mechanism for assessing the relative influence of a project’s stakeholders, understanding their expectations and defining appropriate engagement procedures to influence the key stakeholders expectations and perceptions to the benefit of the project”. (Bourne and Walker, 2007)

Power considers the ability to impact the project or its outcomes. Proximity refers to how closely they are associated with the project. Urgency corresponds with the level of commitment they have to the project. The circle diagram analyses and maps the attributes of each stakeholder, illustrated in Figure 57.

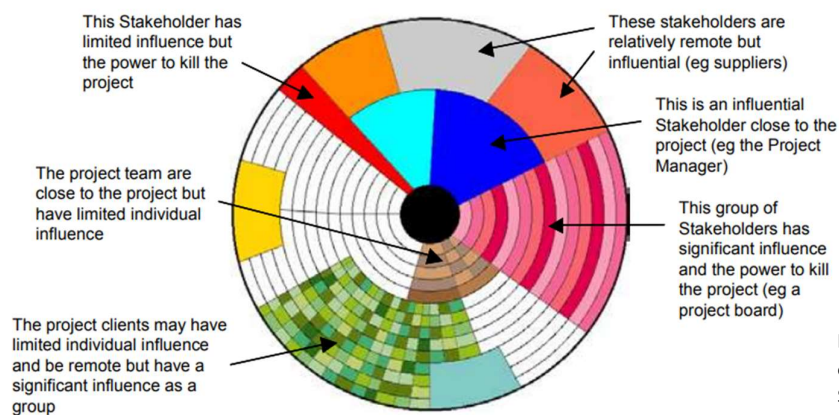


Figure 57 - Stakeholder cycle representation
Source: Bourne (2006)

The methodology can be divided into five parts: identify, prioritize, visualize, engage, and monitor. The first step consists of identifying the possible stakeholders. After that, they should be prioritized based on assessing their place in the power, proximity, and urgency index. This ranking ensures that the objectives and expectations of each stakeholder are acknowledged and managed. (Bourne, 2006)

The visualization is the translation of the previous analysis in the above diagram. The top 15 stakeholders are mapped according to their attributes in this process. Knowing when and how to engage with each of them is helpful.

The engagement step is analyzing all the data previously collected to create tailored messages for each stakeholder regarding their roles in the project and the expected outcomes.

The monitoring stage consists of the implementation of the strategies and continuous monitoring. Since the stakeholders can change over time, the process has to be reviewed and updated consistently to maintain the same level of effectiveness.

The critical elements of the diagram shown in Figure 58 are:

1. "Concentric lines: indicate the distance of stakeholders from the project.
2. The block size and area: indicate the scale and scope of influence.
3. Radial depth: indicates the degree of impact." (Bourne, 2005; Bourne and Walker, 2007)

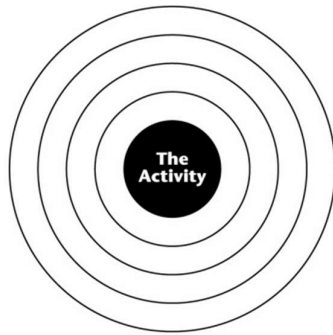


Figure 58.a - Base of Circle Diagram
Source: <https://www.stakeholdermapping.com/i>

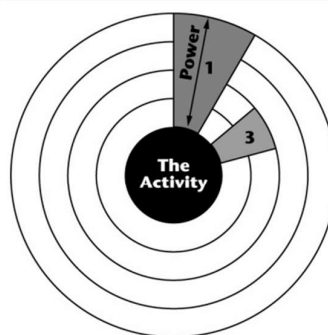


Figure 58.b - Power

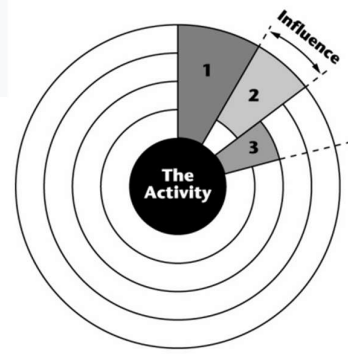
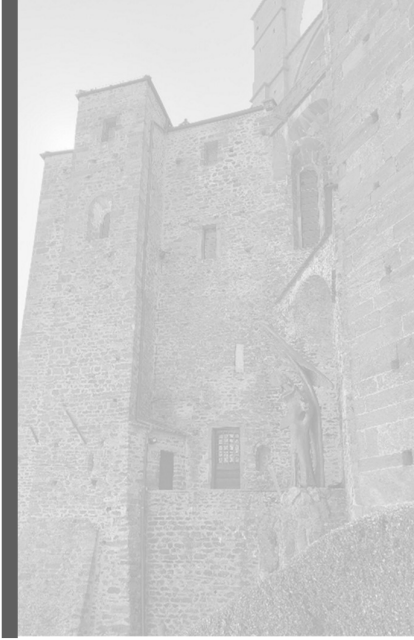


Figure 58.c - Influence

The result of this diagram is a comprehensive analysis of the stakeholders based on their importance, connection, and influence on the project. This study is invaluable to the development of a good management project.



4 IMPLEMENTATION OF THE STRATEGIC ASSESSMENT

The SWOT and the Stakeholders analysis are based on a compilation of information on the territory, the current state, and the general characteristics of the site. The research follows the STEEP methodology, linking it to a SWOT and Spatial SWOT analysis. After that, the stakeholders are identified and classified, together with their resources, to be ranked and represented in the Circle Diagram.

Before the strategic assessment was implemented, selecting the study area was necessary. When evaluating the site, it became clear that Sant'Ambrogio and the Sacra are not insular. They have an intrinsic connection to the municipalities around them. The following cities will be analyzed: Sant'Ambrogio di Torino, Chiusa di San Michele, Avigliana, Caprie, Valgioie, Sant'Antonino di Susa, Giaveno, and Vaie. All the selected municipalities are somewhat connected to the Sacra di San Michele, historically or politically. The municipalities, lakes, rivers, and main means of transportation are shown in Figure 59.

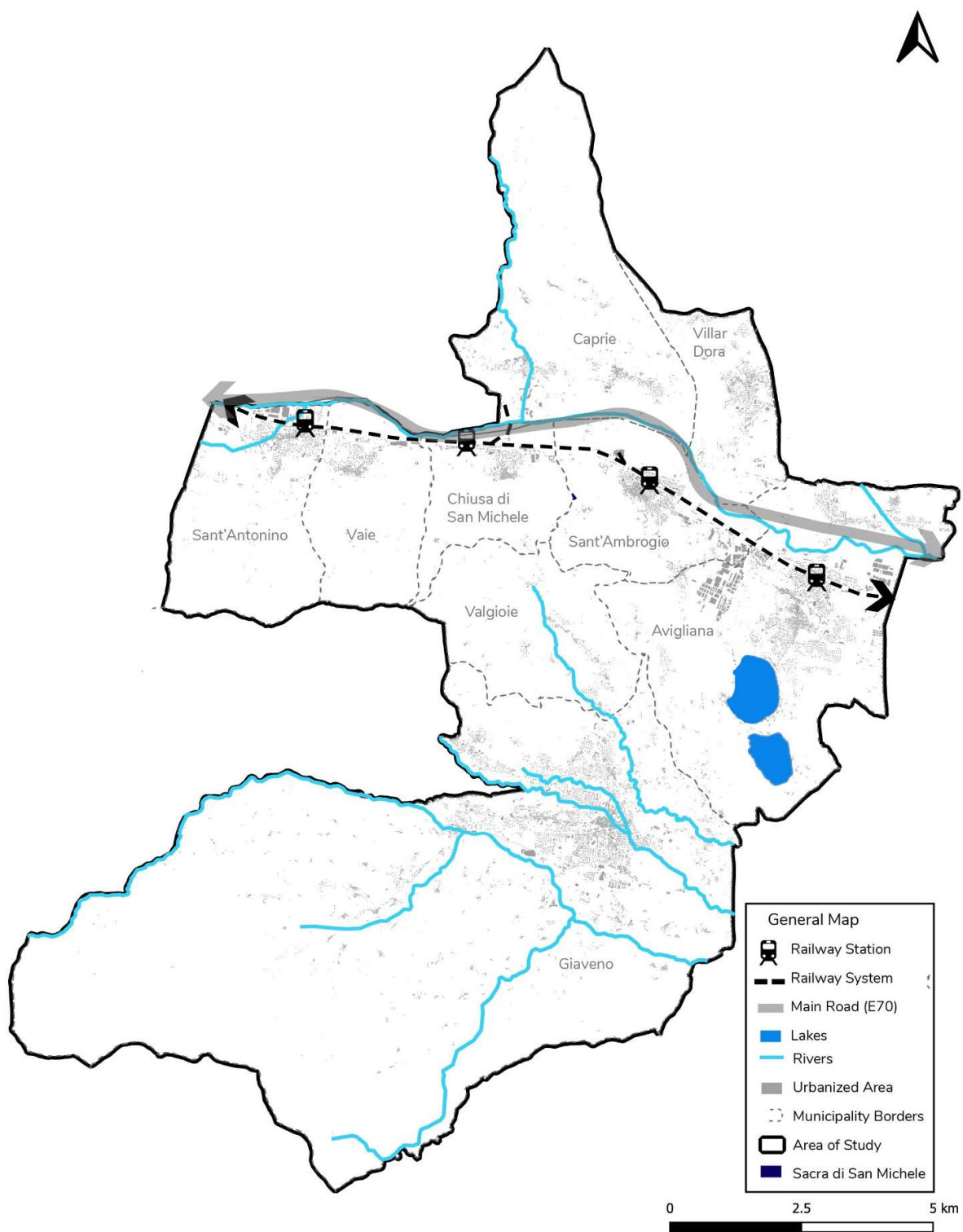


Figure 59 - Area of Study

Source: Developed by the author based on information from the Geoportale Piemonte

4.1 STEEP Methodology

The STEEP methodology provides a framework to analyze the site and its surrounding area. The social, technological, environmental, economic, and political categories offer a direction for the research. The Social category considers the population and the cultural heritage of the area. Technology refers to the mobility, accessibility, and energy production available. Environment explores the quality of air and water and any natural disasters that ail the region. Economy examines the industry, commerce, and services in the area today. Politics review the laws that impact the case study.

4.1.1 Social Aspects

Sant'Ambrogio has a population of 4.597 people, 438 of whom are foreigners. Most international people residing in the area come from Romania and Marroco. The number of women and men is almost equal, with 2.307 women and 2.290 men. The majority of the population is between 45 to 59 years old. (ISTAT, 2021)

According to ISTAT, the municipality has around 181.1 older people (more than 64 years old) for every one hundred young people (less than 14 years old). Additionally, the number of births has become lower than the number of deaths. This trend has been constantly repeating since 2014.

The municipalities have vastly different conditions regarding population. Valgioie has a population of 976 people and is the least populous municipality. Giaveno and Avigliana are the most populated municipalities, with 16,214 and 12,350 people, respectively.

In general, the population of the cities has been declining. In the last ten years, the population has decreased in most municipalities. While this can be related to the pandemic, municipalities such as Chiusa di San Michele have steadily declined in population since 2012. Avigliana and Valgioie are the only municipalities with an increase in population between 2012 and 2021. Avigliana went from a population of 12.262 people to 12.350, and Valgioie grew from 945 to 976 people.

Population ISTAT 2021						
MUNICIPALITY	2021	2012	Trend	Median Age	Immigrants	
					N.	%
Avigliana	12,350	12,262	0.7	47.0	655	5.30%
Caprie	2,060	2,113	-2.5	47.3	54	2.62%
Chiusa di San Michele	1,556	1,706	-8.8	47.3	136	8.74%
Caprie	2,060	2,113	-2.5	47.3	54	2.62%
Giaveno	16,214	16,255	-0.3	48.4	1,183	7.30%
Sant'Ambrogio di Torino	4,597	4,747	-3.2	46.2	438	9.53%
Sant'Antonino di Susa	4,064	4,325	-6.0	47.6	344	8.46%
Vaie	1,389	1,423	-2.4	47.0	96	6.91%
Valgioie	976	945	3.3	46.7	68	6.97%
Villar Dora	2,795	2,921	-4.3	47.5	113	4.04%
Italy	59,030,133	59,685,227	-1.1	46.2	5,030,716	8.52%

Table 1 - Population

The medium age of the population follows a similar trend. All the municipalities have equal or older people than the Italian average. They go from 46.2 in Sant'Ambrogio to 48.4 in Giaveno. (ISTAT, 2021)

Income and Unemployment		
MUNICIPALITY	Average	Unemployment Rate%
Avigliana	€ 21,992.0	10,45%
Chiusa di San Michele	€ 19,526.0	11,73%
Caprie	€ 20,899.0	9,25%
Giaveno	€ 20,751.0	11,05%
Sant'Ambrogio di Torino	€ 18,912.0	11,73%
Sant'Antonino di Susa	€ 18,725.0	11,11%
Vaie	€ 19,406.0	11,34%
Valgioie	€ 19,362.0	10,71%
Villar Dora	€ 21,530.0	9,45%
Italy	€ 21,801.0	10,1%

Table 2 - Average and Unemployment - ISTAT 2020

The medium yearly wage of the population is similar to the Italian average of 21.800 euros per year. They range from 18.725 in Sant'Antonino di Susa to 21.992 in Avigliana. Most municipalities, however, surpass the Italian and Piedmontese average

of 10.1% and 7.8% of the population, respectively. The only cities with a rate lower than the Italian average are Caprie, with 9,25%, and Villar Dora, with 9,45%. The unemployment rate of other municipalities goes from 10.45% in Avigliana to 11.73% in Chiusa di San Michele. (ISTAT, 2020)

The health system in the Metropolitan City of Turin has five districts: North Metropolitan Area, South Metropolitan Area, Central Metropolitan Area, Pinerolese, Susa, and Sangone Valley. The Susa and Sangone Valley are responsible for forty-three municipalities, including the eight in question.

The area in question possesses two health centers, one in Avigliana and one in Giaveno, according to the Azienda Sanitaria Locale di Collegno e Pinerolo. The health center in Avigliana focuses on continuous care, offering specialist consultations and help with noncomplex health problems. This center does not provide emergency care. On the other hand, the health center in Giaveno offers the same services, as well as emergency care and hospitalization facilities. In emergencies, the residents must go to Giaveno or the Hospital located in Susa.

Regarding schools, the area does not have any Universities. According to Geoportale Piemonte, there are only four secondary schools in the area: two in Avigliana and two in Giaveno. Other municipalities depend on these two for several essential aspects of day-to-day life.

The area is historically rich, possessing several churches, fortifications, and other elements that should be protected. Piedmont's Landscape Plan (PPR) and the General Metropolitan Territory Plan (PTGM) have selected specific necessary details in the region. They range from cultural routes to villas, parks, and gardens. While these documents were necessary, there were other sources of information. The Geoportal of Piedmont and Council of Europe also provided data on existing cultural heritage in the area.

The cultural routes are widely acknowledged because of their historical impact and international importance. Via Francigena and the Roads of the Waldensians and the Huguenots are recognized as cultural routes by the European Council. *Cammino dei Cammini* is a portion of the European Path of Sain-Michel. One of the main goals of the

trial is to regain the title of the cultural route of the European Council. All of them span more than one country. These roads are shown in Figure 60.

According to the "*Associassione Europea Via Francigene*," Via Francigena is a route that originated around the 7th century through a territory dispute between the Lombards and the Byzantines. It was necessary to connect the Reign of Pavia to the other southern dukedoms using a safe route. Initially, it crossed the Apennines near the Cisa Pass, then the Valle del Magra, and finally towards Lucca. It was named after the ancient name of the Cisa Pass (*Mons Langobardorum*), "*Via di Monte Bardone*." It was eventually abandoned and reached a state of ruin.

After the Lombards left, the Franks invaded the area, changing the road's name to Via Francigena, meaning "road that originates from France." The path evolved and became the primary connection between Europe's northern and southern areas. Around the end of the 10th century, the road started to be used by pilgrims who wanted to visit Rome, Jerusalem, and Santiago de Compostela. (Kerr, 2018)

The road became a critical commercial path. The flow became so expressive that a series of secondary pathways were created. The decline of the trail resulted from the sectioning of the route, which now possessed several points of start. Via Francigena was rediscovered around the 1990s, partly attributed to the publication of Giovanni Caselli's book *Via Francigena*. (Kerr, 2018)

The Route of the Valdesi and the Ugonotti is a cultural itinerary that follows the path of the Waldesians and Huguenots, exiled in 1680 from the Waldesian valleys and France due to religious persecution. They reached Switzerland and other parts of northern Europe, where they became refugees. The Waldesians returned in 1689. (Waldensian Foundation & Cultural Centre)

According to the European Council, the route is around 200 km long and involves four countries: Italy, France, Switzerland, and Germany. There are three distinct paths: the prison route, the exile route, and the repatriation route. Sant'Ambrogio is a part of the exile route. This path is around 340km long, passing through Italy, with 115km, France, with 215 km, and ending in Switzerland, with 10 km.

"It follows the route taken by one of the thirteen columns of about 3,000 Waldensians exiled from Piedmont in 1687, who were held in Piedmontese prisons and then forced to march to Geneva. The itinerary starts from Saluzzo in Italy, one of the places where the Waldensians were imprisoned, and crosses the Piedmontese plain on roads and cycle paths, arriving in Avigliana. Going up the old Royal Road in the Susa Valley, it reaches the Moncenisio Pass. From here, across the Maurienne, you arrive at Annecy and then Geneva." (Waldensian Foundation & Cultural Centre)

The entire journey can take 14 days, according to the Waldensian Foundation & Cultural Centre. It has fourteen phases. Route III, Piossasco – Avigliana, goes around the border of Giaveno, passing the lakes Picollo and Grande and reaching Avigliana. It extends 19.5km, taking around six hours to complete. It has medium difficulty. Route IV, Avigliana – Bussoleno, passes through Sant'Antonino di Susa, Chiusa di San Michele, and Sant'Ambrogio to finally arrive in Avigliana. It spans 25km, with an estimated duration of around seven hours. It is considered a route of medium difficulty.

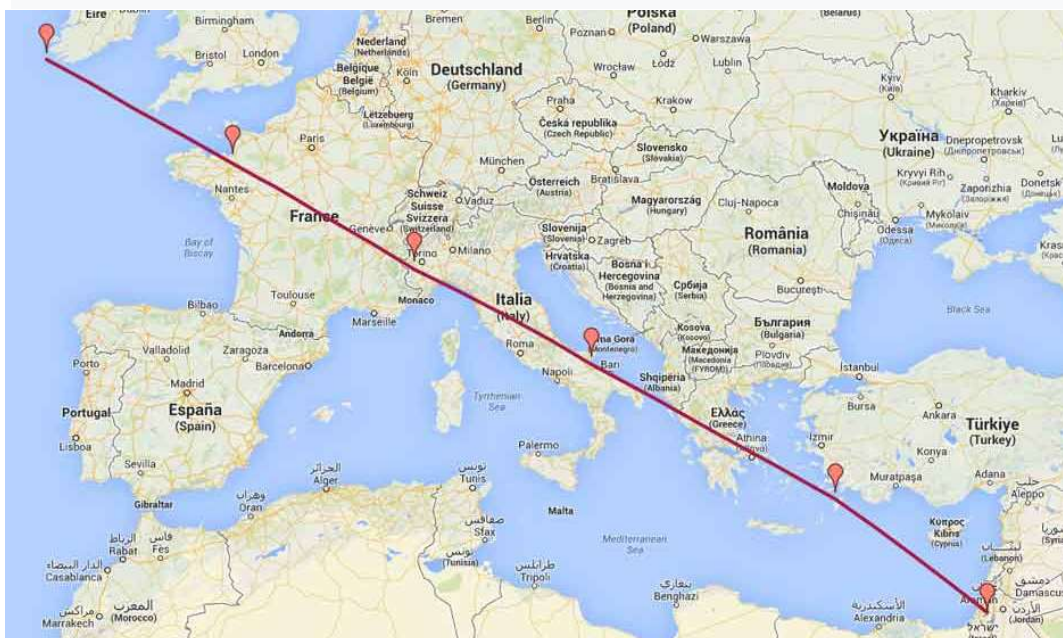


Figure 60 - Sain't Michel's Line

Source: <https://www.ilsapere.org/la-linea-di-san-michele/>

Michael's Path (Fig. 61) is an imaginary straight line that connects seven churches dedicated to the Archangel Michael from Ireland to Israel, called the Sacred Line of San Michele. The is around 2,000 km, passing through the sanctuaries of Skellig Michael, in Ireland; St Michael's Mount, in Great Britain; Mont Saint Michel, in France; the Sacra di San Michele, in Piedmont, Italy; San Michele in Apulia, Italy; St. Michael Monastery, in Greece, and Mount Carmel Monastery, in Israel. (Burnett, 2023)

The European Network of Sites and Paths of Saint-Michel is an association that coordinates the development of paths between sanctuaries of Archangel Michael in Europe and, as of 2023, is trying to regain mention in the Cultural Route Council of Europe. The Path of San Michele has officially become a part of this association. This Path refers to the route that connects the Sacra di San Michele to the Monte Sant'Angelo in Gargano. The trail passes through Sant'Antotoino di Susa, Chiusa di San Michele, Sant'Ambrogio, and Avigliana.

Many municipalities have enogastronomic fairs focused on promoting local goods and craftsmanship. They can be of local, regional, or national interest. The area has yearly regional fairs: Meliga Day in Sant'Ambrogio and Fungo in Festa in Giaveno.



Figure 61 - Meliga biscuit
Source: <https://vynnlife.com>

Meliga refers to a traditional Piedmontese biscuit, particularly in the Lanzo Valleys, Cuneo, and the Susa Valley. The fair happens every September when local agricultural products and handicrafts are showcased. The festival also has cultural events, shows, and demonstrations.

Fungo in Festa, similarly to Meliga Day, is a yearly fair marketed around the local product of Giaveno, the mushroom. It has tastings, exhibitions, and show-cooking using local products and other cultural attractions. It usually happens in October. These events can attract visitors from other municipalities and create more interest.

Historically, the area has deep connections to the pilgrimage movement, which explains the presence of many significant religious places. The Sacra of San Michele, an essential religious heritage, is not the only example in the area.

Avigliana has four significant sites: *Certosa di Mortera*, *Chiesa di San Pietro*, *Chiesa di Santa Maria*, and *Santuario della Madonna dei Laghi*. (*Piano territoriale generale metropolitano*, 2014) According to the Municipality of Avigliana, Ceresa di Mortera (Fig. 63) is another name for the Convent of San Francesco. Thomas Illyricus founded it in 1515 as a place of reflection and prayer. Throughout the years, it housed the Carthusian nuns and, today, is owned by the Social & Human Purpose Fund of REAM SGR of Turin. Today, it works as a hotel.

The Church of San Pietro (Fig. 64) dates back to the 12th century. A cemetery church in Avigliana still has various frescos from the 12th and 16th centuries. It has had several transformations through the years, having additions in the Gothic style. It also has one of the only accurate representations of the Avigliana Castle, in a fresco dating from the 13th to 15th century. (Municipality of Avigliana)

According to Tursmo Avigliana, the Church of Santa Maria Maggiore (Fig. 65) is documented to have existed since the 12th century. It was used to perform plebeian functions, eventually becoming a parish. It underwent several reformations, adding Gothic elements and several enlargements.

The *Santuario della Madonna dei Laghi* (Fig. 66) was built in 1622 on the edge of one of the two lakes of Avigliana. The construction was ordered by Carlo Emanuele I, using the plans of Nicola Ramelli, the ducal architect. The sanctuary had particular importance to the Savoya family.



Figure 65 - Certosa di Mortera
Source: <https://www.ospitalitareligiosa.com/>



Figure 65 - Chiesa di San Pietro
Source: <https://www.comune.avigliana.to.it/>



Figure 65 - Chiesa Di Santa Maria Maggiore
Source: <https://www.cittaecattedrali.it>



Figure 65 - Santuario Della Madonna Dei Laghi
Source: <https://www.valsusaoggi.it>

Giaveno also has an important religious site, the *Santuario Nostra Signora di Lourdes a Selvaggio*. The refuge is from 1909, with the plans drawn by Giulio Valotti. The church was redone from 1915 until 1926 under the master builder Andrea Bramante. (Visit Giaveno)



Figure 66 - Santuario di Nostra Signora di Lourdes
Source: <https://www.santuariodelselvaggiogiaveno.it/>

The Savoy family has significantly impacted the region by constructing several buildings. The "*Piano territoriale generale metropolitano*" (2014) reveals two notable sites in this category: the Avigliana Castle and the Savoya Tumb.

The Savoy Castle was built in Mount Pezzulano, following the orders of the Marquises Arduinici of Turin. It was used as the seat of the royal court by the Savoy, probably from 1137. It was destroyed in the 12th century by Federico Barbarossa. The Savoy eventually rebuilt the castle in 1189. It was partially demolished by French Marshal Catinat in 1691. Since 1836, the Sacra di San Michele has housed the remains of 24 members of the Savoy family. (*ValSusa Turismo*)

The city center functions as meeting places, work, and leisure. Today, several centers still maintain characteristics of their past. The architecture of the time, as well as its function, is preserved. According to the PTMG, Avigliana, Giaveno, Villar Dora, and Sant'Ambrogio are part of this category. They are shown in Figures 67, 68, 69, and 70

respectively. The historical centers are protected according to the plan by Article 36 of the PTMG.

"Article 36.

I. Safeguarding and enhancing the historical, artistic, cultural, and documentary heritage of the centers and historic cores;

II. Widespread accessibility to basic services for a better quality of life;

III. Better attractiveness of the metropolitan area." (Piano Territoriale Generale Metropolitano, 2017)

The *Piano Paesaggistico Regionale* (2017) identifies sites and buildings of historical interest. One of the categories created in the plan is Villas, Parks, and Gardens, where listed sites follow the mentioned typologies, which do not interfere with the consolidated views and maintain their historical-typological characteristics.

Giaveno has two sites that follow this category: the Palazzo Marchini and the Villa Venco. Palazzo Marchini (Fig. 71), previously known as Villa Grondana, was a villa that belonged to the Molines family from 1533 until 1901. It was later donated to the municipality. Today, it can only be viewed from the outside. Villa Venco is also mentioned, but no information regarding this building is available. (Visit Giaveno)

The PTGM (2017) identifies fortifications and other military constructions of socio-historical interest. Avigliana has two such structures, the Avigliana Castle and the Piazzaforte of Avigliana. Another significant site is the castle and city walls of Sant'Ambrogio and the "*Torre del Colle*" in Villar Dora.

The Avigliana Castle has a defensive function, evident by its position on Mount Pezzulano. Piazzaforte refers to the protection of the protective walls that surround the residential area of the city. Today, there are some remnants of the structure around the municipality.

Figure 67 - Avigliana City Center
Source: <https://fr.viamichelin.ch/>



Figure 68 - Giaveno City Center
Source: <https://www.lavalsusa.it/>



Figure 69 - Sant'Ambrogio City Center
Source: <https://www.lavalsusa.it/>



Figure 70 - Villar Dora City Center
Source: Gruppo Culturale Villardorese





Figure 71 - Palazzo Marchini
Source: <https://www.visitgiaveno.it/>



Figure 72 - Wall of Sant'Ambrogio
Source:
<https://www.comune.santambrogioditorino.to.it/>



Figure 73 - Torre del Colle
Source: <https://www.laboratorioaltevalli.it/>

The castle of Sant'Ambrogio was the administrative seat of the Sacra. It was rebuilt several times until General Catinat finally destroyed it in the 18th century. Today, it remains in ruins. The *Torre del Colle* (Fig. 73) was built between 1289 and 1290 under the orders of Amadeo V. Its primary function was to protect the *Molare del Ponte* settlement. It is located on a pre-Roman road that is still reachable today. It reaches nineteen meters, with a diameter of seven meters. (Sant'Ambrogio Municipality)

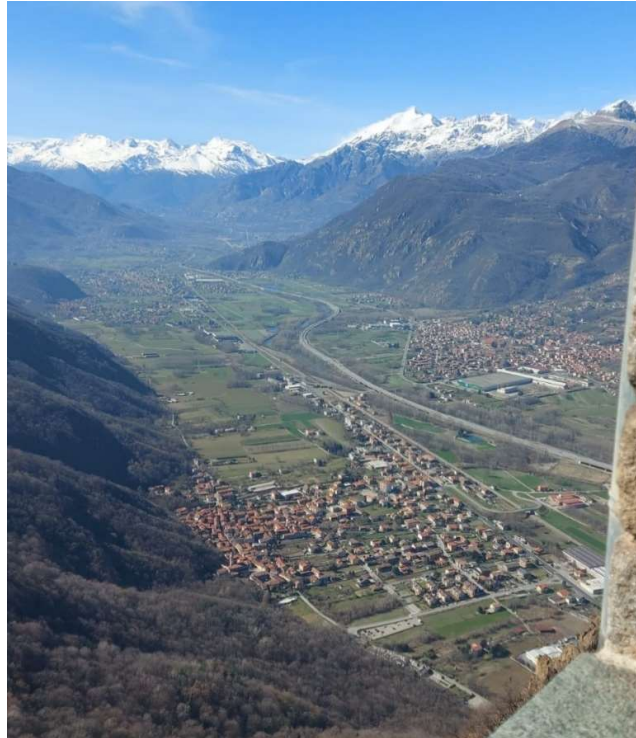


Figure 74 - View from the Terrece fo Sacra di San Michele
Source: Marina Boschetti

Viewpoints refer to areas that have a privileged view of the landscape. These can be a determined area or building and a cultural route. This category includes the Giaveno -Sacra di San Michele path, the Sant'Ambrogio – Sacra di San Michele Path, and the connection between Caprie and *Valle di Viù*. These are paths done on foot that connect the municipalities to the Sacra. (PPR, 2017)

Other places of interest are the panoramic view from Avigliana Castle and the Terrace of Sacra di San Michele. (Fig. 76) They offer a general view of the landscape; however, other elements, such as the industrial complex, can also be seen.

The PPR (2017) also identifies industrial heritage buildings or complexes with socio-historical importance. They can be used or discontinued, with functions related to

energy production, mining, or connected to other industrial and infrastructural processes. Notable places are Avigliana, with the Ex Dinamificio Nobel; Sant'Ambrogio, with the ex Maglificio Fratelli Bosio; and Sant'Antonino, with the Cotonificio Wild & Abeg.

According to the Avigliana Municipality, the Nobel Dynamite Factory (Fig. 75) was built in 1873, close to the woods in Avigliana. It was connected to the Avigliana station through a private railway. The factory had a chemical lab producing explosives, fertilizers, and paint. It was bombed in the Second World War and closed in the 1960s. It is now a museum showing workers' tools and day-to-day lives. The stone quarry of Avigliana, or Ex Cava Bertonasso, (Fig. 76) was active in the areas. It is still being determined when it started being used, but it was closed between 1980 and 2009. Today, it is used as a climbing spot.

The Ex Maglificio Fratelli Bosio (Fig. 77) was a knitwear factory founded in 1871 in Sant'Ambrogio. It was located close to Cantarana Canal, the main driving force for the machines. It eventually closed in 1953. It houses the Torino Motor Heritage Association and the San Michele Brewery. The quarries in Pirichiano (Fig. 80) were stone extraction quarries. They have been active since the 1900s. From the 1970s, they ceased activities due to environmental concerns. (Marchetelli, 1985)

The Cotonificio Wild & Abeg (Fig. 79) was a textile factory founded in the 19th century in Borgone; the company had fast growth and could create subsidiaries in Chianocco, Torino, and Sant'Antonino. The factory was sold and declared bankrupt in 1969. (Raimondo, 2020)

Molino du Detu (Fig. 80) is a mill, built in 1218, in Giaveno. The Benedictine monks of Sacra di San Michele owned the mill. In 1877, it was bought and restored, and its use became less frequent. Today, it works as a thematic tourist attraction. The Molino della Bernardina (Fig. 83) is a mill built in 1745 in Valgioie. It is still in use, following the historical practices of the region. (Visit Giaveno)

The furnaces of Villar Dora were constructed in 1700 and remained an essential portion of the municipality's economy for years. Now, only the ruins remain.

“Terra di Sacra” is an association born in 2019 to inscribe the Sacra di San Michele to UNESCO’s World Heritage List. At the time, the municipalities of Sant’Ambrogio, Chiusa di San Michele, Avigliana, Valgioie, Vaie, and Giaveno participated in the project. They were joined by the *“Unione Montagne Valle Susa,”* *“Amici della Sacra,”* *“Gruppo DAI Impresa,”* the Politecnico of Turin, and the Catholic University of Milan. The Promo Pa Foundation is also a part of this effort.

The Sacra has had various restorations, most recently starting in 2018. The most current restoration resulted from the fire that happened at the beginning of 2018, which destroyed part of the roof and damaged the vaults on the top floor.

Overall, the Sacra is very well-conserved. The timeline of the newest restoration, from the fire in January 2018 to the beginning of the restoration in October 2018, indicates that the monument is well managed by the Region of Piedmont and the Rosminiani Priests. As of March of 2023, the site still had some scaffolding, but they do not block the path of visitors. The area is well-maintained and cleaned.



Figure 75 – Museum Dynamite Nobel
Factory
Source: <https://www.cuneodice.it>



Figure 76 - Ex Cava Bertonasso
Source: <https://www.turismoavigliana.it/>



Figure 77 - - Ex Cottonificio Fratelli
Source: ATTIEH, V., ALGEMAYEL J., 2019



Figure 78 – Cave with chesnut
Source: Marchitelli (1985)

Figure 79 - - Cottonificio Wild &
Abeg
Source:
<https://www.laboratorioaltevalli.it>



Figure 80 - Molino Du Detu
Source: <https://mulindudetu.it/>



Figure 81 - Molino della
Bernardina
Source: <http://www.vaghis.it>



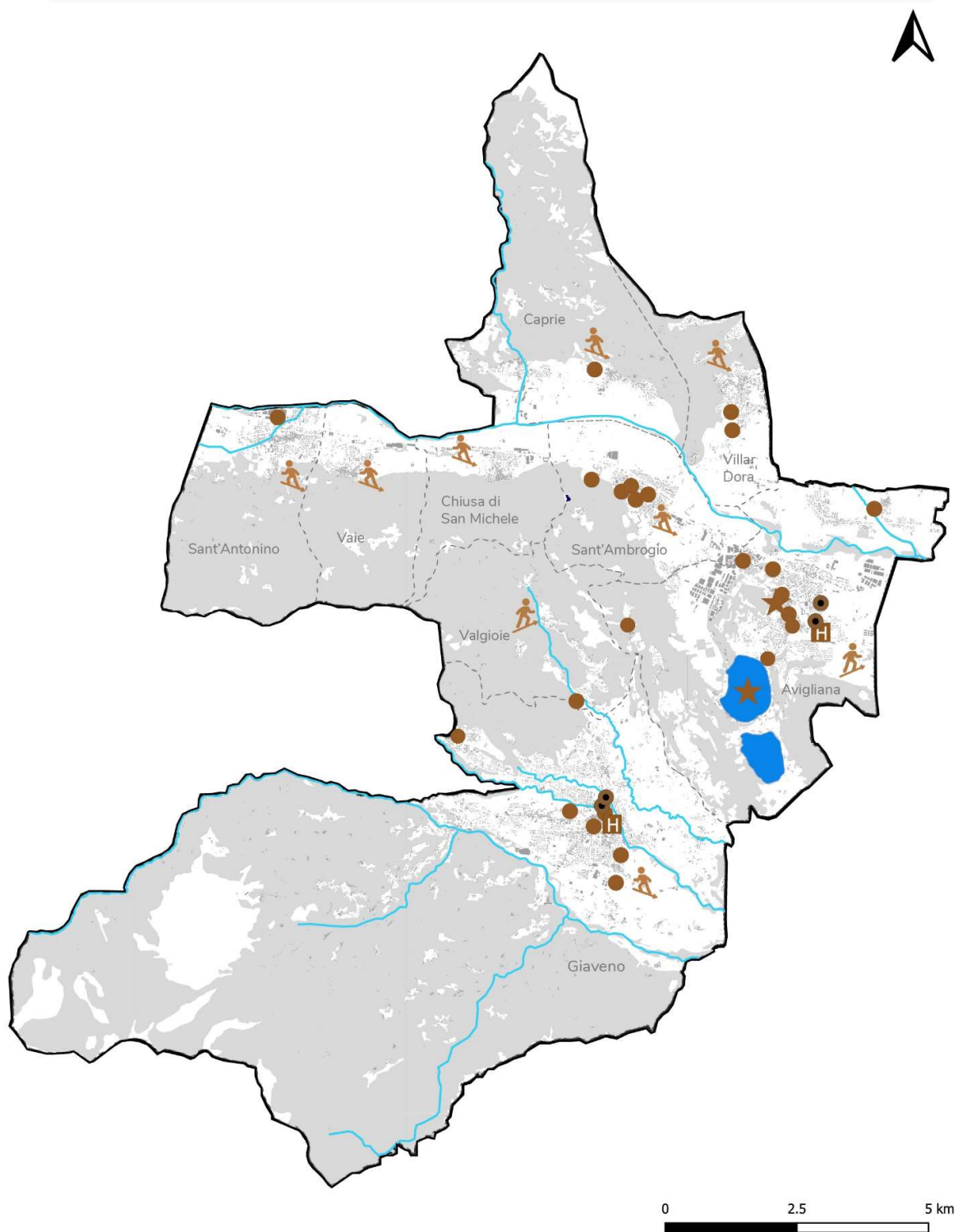
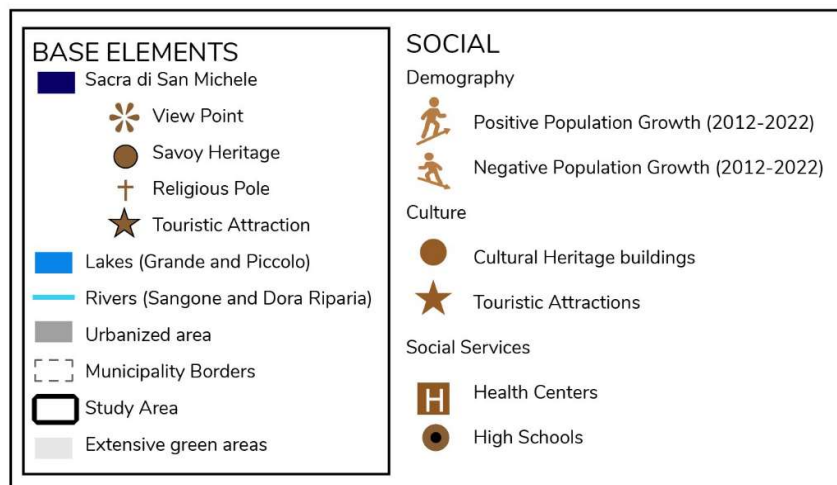
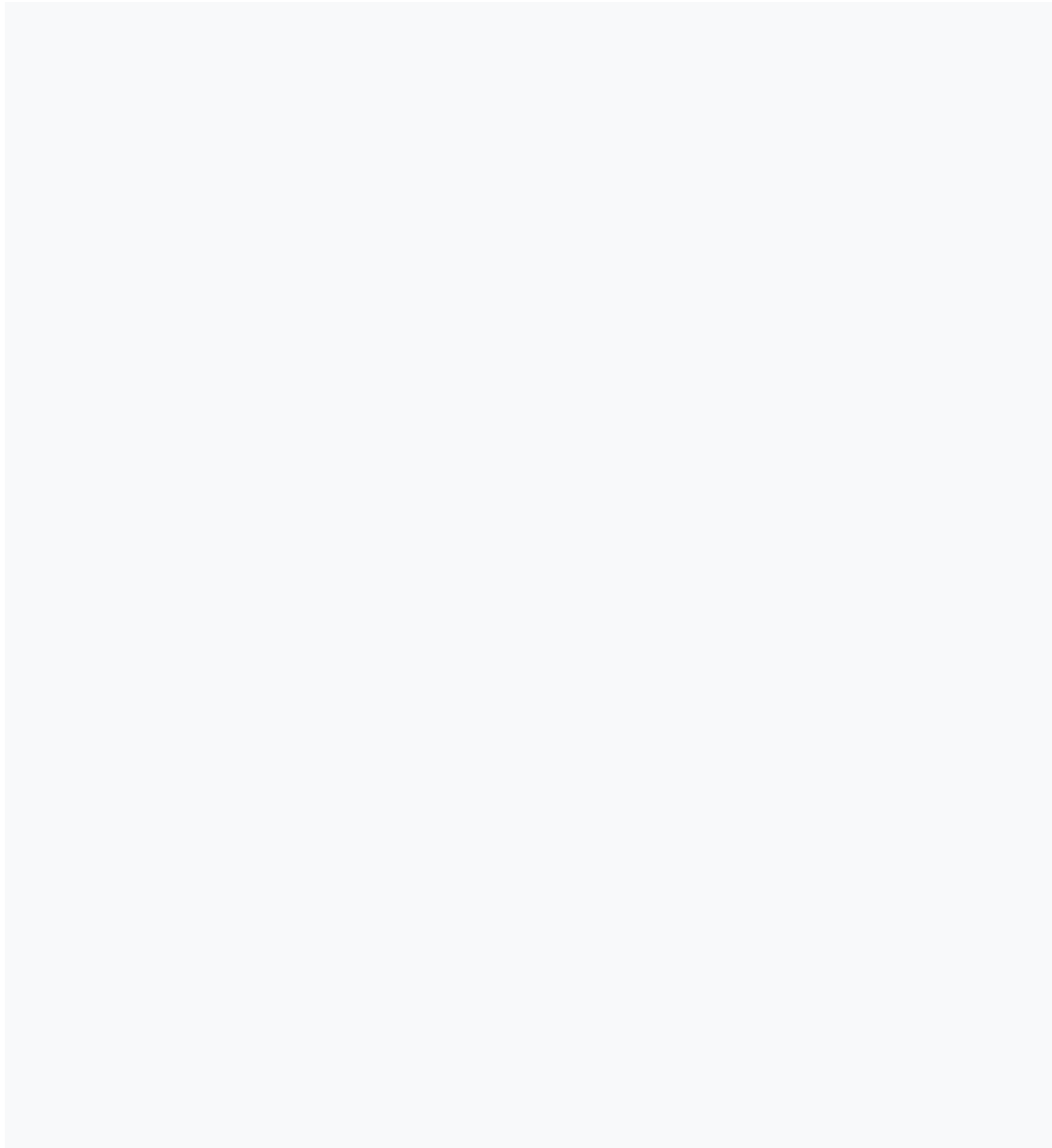


Figure 82 - Social Aspects of the Area

Source: Developed by the author based on information from the Geoportale Piemonte



4.1.2 Technological Aspects

Most municipalities mentioned can be connected to Turin using the Torino-Susa train line. This line, as the name says, goes from Torino to Susa in around one hour and ten minutes, according to Trenitalia. It has thirteen stops, Avigliana, Sant'Ambrogio, Chiusa di San Michele-Condove, and Sant'Antonino-Vaie being the relevant ones for the area. The ticket costs 3,40 euros. Municipalities like Giaveno, Villar Dore, Caprie, and Valgioie are not accessible by train. They can only be reached using the public transport system or private means.

A project to construct a train line that connects Turin to Lyon is in the works. This plan, shown in Figure 82, proposes commissioning a tunnel for the Avigliana-Orbassano portion and upgrading the historic line between Bussoleno and Avigliana. Concerning the area, the line will be updated and ready by 2030.

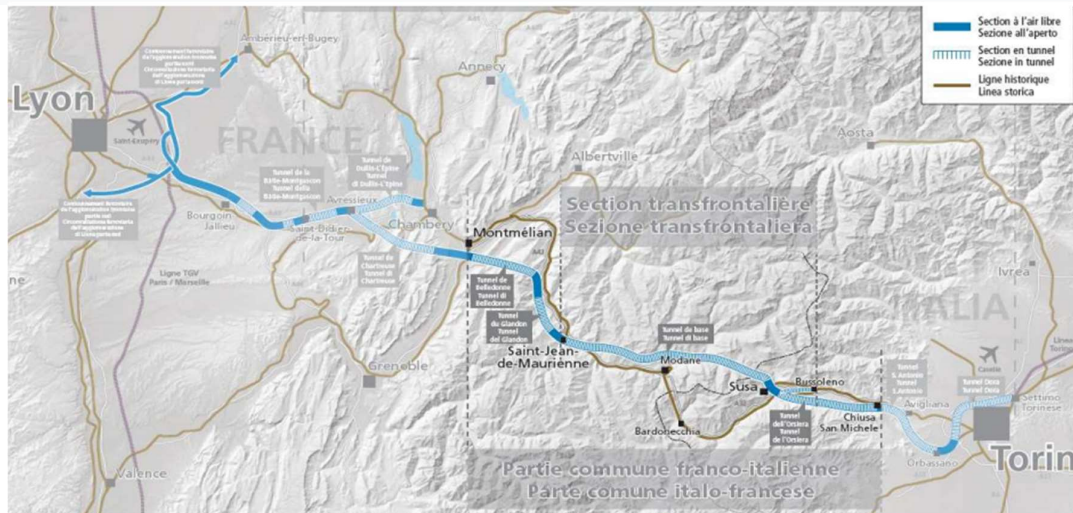


Figure 83 - Turin - Lyon Line
Source: Fasizzazione Del Progetto Della Nuova Linea Torino-Lione

Avigliana, Sant'Ambrogio, Chiusa de San Michele, Vaie, Capie, Villar Dora, and Sant'Antonino are connected using the highway SS25. Villar Dora is reachable from Turin from the E70, a parallel road to SS25. Caprie has a similar path to Villar Dora but also uses the SP24. To reach Giaveno, however, can only be connected by passing through Avialian first, using the highways SP589, SP 190, and SP188. Different from Giaveno, the path to Valgioie depends on the starting point. Municipalities of Sant'Antonino, Vaie, and Chiusa di San Michele can reach Valgioie using the highway

SP188 directly, while the shortest path to the other passes through both Avigliana and Giaveno.

Regardless of the path, all municipalities can be accessible by car. The same, however, cannot be said for public transport. Valgioie is unreachable using GTT public transport. The Cavourese bus company makes the only connection, providing only three daily rides. A car is necessary to get there. Giaveno, however, is not that easily accessible either. While Avigliana and Giaveno border each other, no direct bus exists between the cities. To reach Giaveno from Avigliana, it is necessary to first stop at Rivoli, Alvigiano, or Turin. The journey can take around two hours. The longest possible path using public transport would be the Sant'Antonino-Giaveno route. Using the train and at least two different bus lines would be necessary. The journey could take around two hours.

Villar Dora and Caprie are not directly connected to the line; they are accessible using the Alpignano or Avigliana stops and later using lines 1068 or 1091.

Sant'Ambrogio connects to the other municipalities using the train line and other private means. The Torino-Sant'Ambrogio path, for example, can be done by using the GTT bus system, with lines 33, M1, or 101, and transferring to suburban bus number 1068. This path takes around one hour and 50 minutes and has a one-way cost of approximately € 5. Villar Dora and Caprie can be reached using the GTT line 1068.

Bellando Tours offers transport from bus 095 from Porta Nuova to the Sant'Antonino and Sant'Ambrogio Railway station. This bus also passes through most of the municipalities using the Susa-Torino path. A one-way ticket costs € 2,10. There is also a line connecting Bussoleno to Avigliana and Giaveno. Arriva has a line that connects the municipalities of Sant'Antonino, Vaie, Chiusa di San Michele, and Avigliana to Susa.

Avigliana connects with Sant'Ambrogio by Cavourese bus, which connects the train station to Sacra di San Michele on the weekends and holidays. The bus service is offered by Cavourese, with five journeys per day for 2,3 euros. Unfortunately, the line only works on weekends and holidays.

Chiusa di Sant' Michele is especially important for its connection to the Sacra. The municipality is connected to the Sacra by pedestrian paths, most notably internationally

recognized as part of Via Francigena. Sant'Ambrogio also has a pedestrian path that connects the center of the municipality to the Sacra.

Generally, the connection between municipalities is good; however, it could be more varied. The train is by far the best transport option for most municipalities. The bus system is very complicated. Cities that border each other have no direct route. This problem also exacerbates the accessibility to healthcare. There are two main centers for health care in the area, one in Susa that is reachable by train and one in Giaveno. Even considering the close location between Giaveno and Avigliana, residents that do not have access to cars, for example, would have an easier time reaching Susa or even Torino using the train service than going to the one at Giaveno. Municipalities like Valgioie are also very dependent on cars. Valgioie does not have any public transport that can connect it to Giaveno.

The “*Unione Montana Valle di Susa*” (UMVS) developed and published 2021 a plan to establish a bicycle path in the Susa Valley area. The plan is named Ciclovía Francigena and is a bike path of national interest. The route will intercept around 35 cities in Piedmont, including Turin, Asti, and Alessandria, and 29 railway stations.

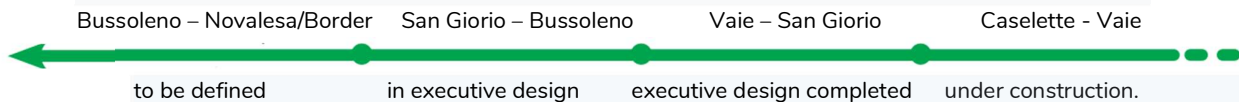


Figure 84- Francigena Bike Path Sections
Source: Unione Montagna Valle di Susa, 2021

The relevant paths are the Caselle-Vaie and Vaie-San Giorio routes. The section Caselle-Vaie encompasses Avigliana to Vaie, excluding only Saint'Antonino. According to the analysis done by UMVS, the region's biggest problem is that the Villar Villar Dora bridge (the vertical connection between Villar Dora and Sant'Ambrogio) is reported as abandoned and in need of restoration for cycling purposes. The Caprie, Condove, and Chiusa di San Michele connections have problems with the relationship between Chiusa di San Michele and the other municipalities. The bridges necessary to make this connection are private or do not have the required dimensions to add a bicycle

path. The final problem is the connection between Sant'Antonino and Borgo Susa, which is only characterized as in critical condition. (UMVS, 2021)

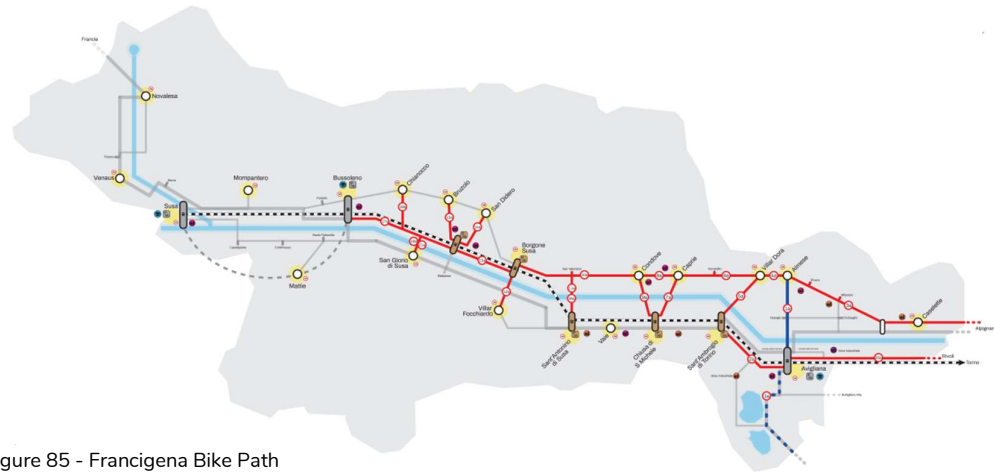
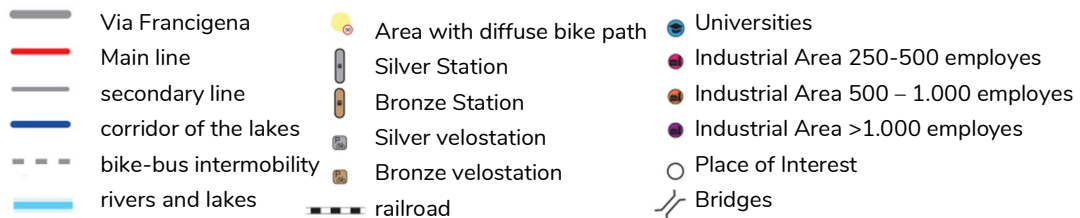


Figure 85 - Francigena Bike Path
Source: Unione Montagna Valle di Susa, 2021



The project (Fig. 85) distinguishes between three components of the system: nodes, the points of origin, destinations, and other attractive attributes of the area; networks, divided between the main line and the secondary line; and services and mobility systems to support and improve territorial accessibility.

Important things to consider regarding the nodes are the diffuse nature of the cities. The locations with this marker indicate that the city is a permeable urban area where cars, pedestrians, and cyclists can share the streets. This marker calls for implementing specific measures like limiting traffic speeds and lanes. This category also accounts for the existing train stations on the territory, divided according to the daily number of users. Avigliana, Bussoleno, and Susa are silver stations, with more than 2,500 passengers daily. Sant'Ambrogio, Chiusa di San Michele and Sant'Antonino are considered bronze stations, with more than 500 passengers per day. (UMVS, 2021)

The main is a faster route that connects the territory. Sant'Ambrogio has two paths connecting to the other cities: the Avigliana - Sant'Ambrogio di Torino path, with 4.4km, and the Sant'Ambrogio di Torino - Villar Dora/Almese path, with 4.8 km.

The secondary line has the function of collecting and connecting urban areas. The secondary lines also function as service areas with a high landscape value or significant work poles. Sant'Ambrogio has no direct connection to any secondary lines, but the Avigliana - Lake Piccolo route could be an asset. This route is 8.4 km.

The services are the integration of bike/bus or bike/train systems. This measure can create a more significant adhesion to the routes since it does not depend on the use of private transportation.

The Sacra di San Michele is also accessible using cars. They have a car parking space near the site, in Sacra in Piazzale Croce Nera. This paid parking space costs 2.5 euros for 2 hours and 2 euros for each additional hour. While this parking lot exists, it has a small number of spots when compared to the possible number of visitors. Many times, the cars have to park outside of the designated area.

The Sacra di San Michele is a famous regional tourist attraction in Piedmont. Because of this nature, the Sacra has been adapted to offer more accessibility to visitors. In 2004, there were several adaptations regarding the accessibility of the site. Measures like adding an elevator and reorganizing the traffic inside the Sacra so that wheelchair users could also visit it. While it is impossible to reach all the spaces, for example, the "Scalona dei Morti" is unreachable using a wheelchair.

The tickets to enter the Sacra vary depending on the age of the visitors. A full ticket costs 8 euros, there is also the option of reduced tickets, for 6 euros. Reduced tickets are available for visitors younger than 18 years old, older than 65 years, or disabled people and their plus one. Children younger than six years old and holders of the Piedmontese Museum Card can enter the Sacra for free. The Sacra is open most of the year. It opens every day, with a continuous time that changes depending on the time of year. It only closes for a short period, in winter, from 9 to 31 January.

The information available on the site is very accessible to visitors. The Sacra di San Michele website provides information about opening hours, means of

transportation, and events happening on the Sacra, also available on Instagram and Facebook accounts. The site also has history and general information on the Sacra. Plaques in several areas provide information on the site and the monument's history. They possess both QR codes if the visitor wants to learn more about the area. Some of the signs also have inscriptions in braille.

The area is also advertised on touristic sites like Visit Piedmont or even the sites for the municipality. While they exist, they only possess information about some of the cultural heritage in the area. While this is understandable, it can negatively impact the conservation of these sites.

While several research works regarding the Sacra, much information remains unknown. Carlo Tosco, a known researcher in the Sacra, highlights in his article "*La Sacra di San Michele come monumento europeo: l'architettura dei secoli X – XIII*" (2022) that the architectural history of the Sacra is "still open and full of research perspectives." He indicates that the continuation of research excavations could shed some light on the construction history of the site. Various research areas could help in this endeavor, such as creating a point cloud for the site.

In 2018, regional law n.12 of 3 August 2018 approved the Energetic Community of Susa Valley. It joins both the *Alto* and *Basso* Susa Valley. The main goal is to diversify energy production by increasing biomass and photovoltaic power stations for heating and hydroelectric and eolic power for electricity.

The *Gestore dei Servizi Energetici* (GSE) provides a comprehensive map of the locations and nature of the energy sources in Italy. It gives an overview of the study area. According to this feature, the energy is mostly from solar and hydraulic sources and bioenergy on a smaller scale. Based on the quantity and nominal power of the installations using solar energy in the area, it is possible to infer that they are primarily installed in houses. There is one bioenergy facility in the area, located in Avigiana. The surrounding area also possesses other bioenergy facilities in Raosta and Cassele. Regarding hydraulic power, there are ten installations in the area, close to the rivers. Most of them are in Giaveno.

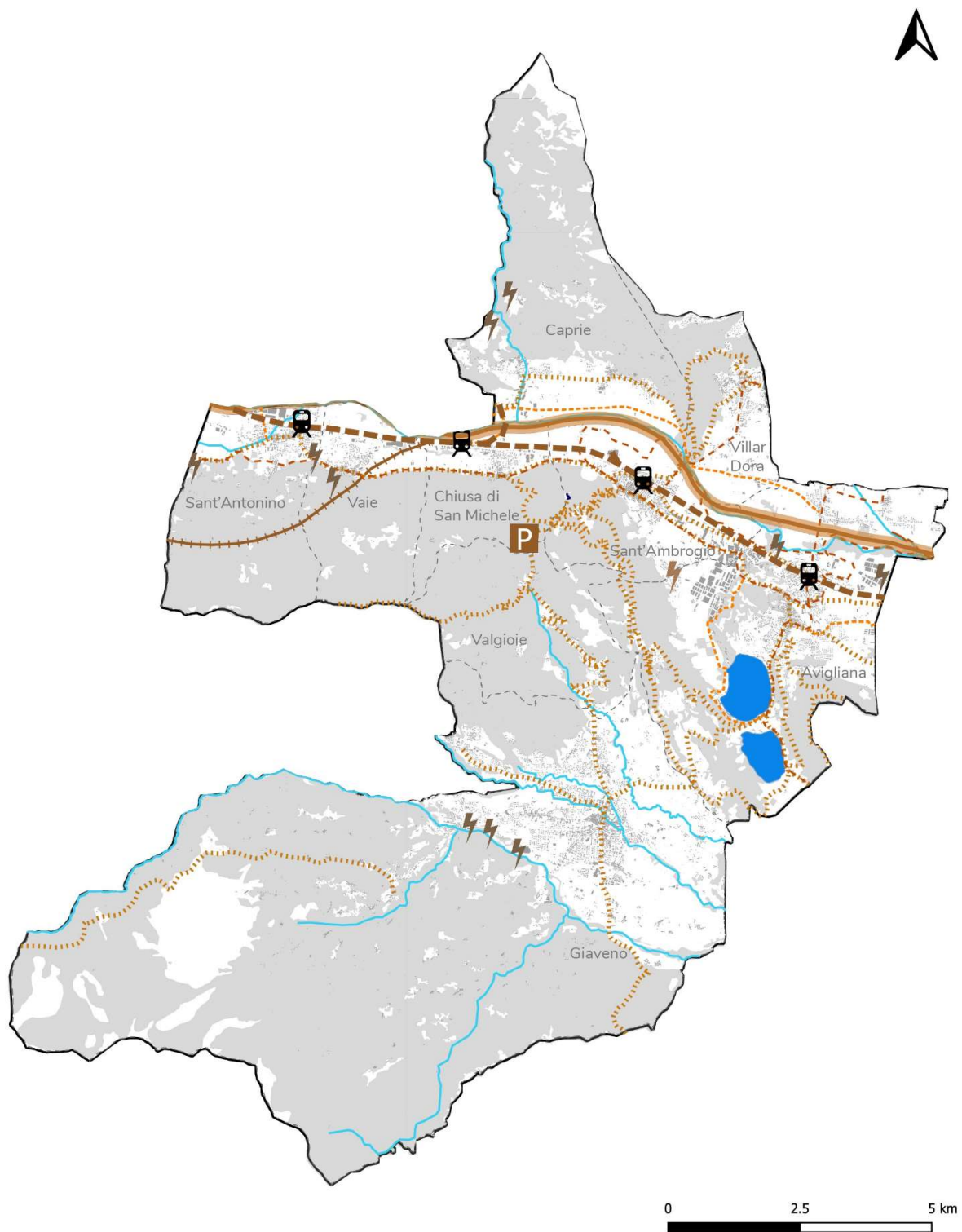
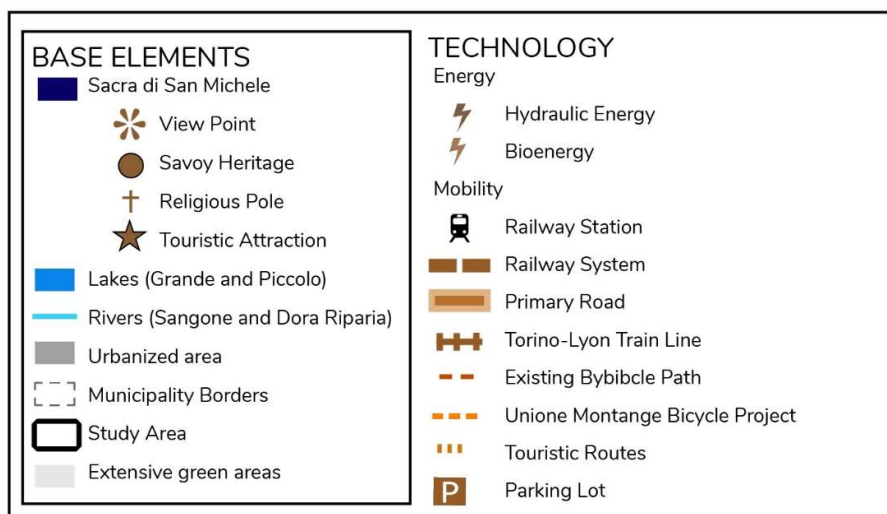


Figure 86 - Technological Aspects

Source: Developed by the author based on information from the Geoportale Piemonte



4.1.3 Environmental Aspects

The area is characterized by two important rivers, the Dora Riparia and the Sangone. They are evaluated to determine their comprehensive state, depending on their ecological state and chemical status. The comprehensive state can be good and not good. The ecological state relies on the presence of fish, fauna, macrophytic indices, and trophic levels. It has five categories: good, bad, high, rare, and sufficient. The chemical status considers the presence and quantity of dangerous substances. It can be regarded as good or not good. (ARPA Piemonte, 2021)

According to Arpa Piemonte, the Dora Riparia is divided into several patches. The patch related to the has a good comprehensive state. It has a sufficient ecological state and a good chemical state. The Sangone, on the other hand, has a poor comprehensive state. It has a sufficient ecological state and a good chemical state. While they have the same results, the difference in status is related to the other categories, such as morphological quality, hydro morphological index, and hydrological index, where Sangone has a worse classification than Dora Riparia.

Other significant bodies of water in the area are the Avigliana Lakes, Picollo, and Grande. Both lakes are in a not good comprehensive state. This condition is related to their ecological status, which is sufficient, and their good chemical status.

Subterranean water also follows a similar characterization. It has three main categories: superficial groundwater, deep groundwater, and mountain and hills groundwater. The first two categories also possess punctual stations that can have or do not have the same evaluation. (ARPA Piemonte, 2021)

Both the superficial groundwater and the station have a good chemical state. The deep groundwater station has a good state, while the groundwater has a scarce state. The mountains and hills groundwater has a good chemical state.

The Lakes of Avigliana, as well as the other systems, are protected by the Water Protection Plan of Piedmont.

Assessing the air quality is essential to guarantee the protection of the ecosystems and the health of the population in general. It is necessary to control the

presence of the most significant pollutants and estimate their distribution. The results of this analysis can develop detailed information on the air quality of a determined region. (ARPA Piemonte, 2021)

Notable pollutants considered are PM10 and PM2.5. They are taken into account because they are harmful to humans. Their toxicity due to their composition may contain benzos and toxic metals, such as lead, cadmium, nickel, and arsenic. All of these substances are limited by national legislation.

All the municipalities had between 14 to 20 $\mu\text{g}/\text{m}^3$ of PM10. The numbers for PM2.5 are different. The municipalities had between 11 and 16 $\mu\text{g}/\text{m}^3$ in the same period. This is relatively good since the annual average should be 40 $\mu\text{g}/\text{m}^3$.

Air Pollution (ARPA Piemonte 2021)		
Municipalities	PM10 annual average ($\mu\text{g}/\text{m}^3$)	PM2.5 annual average ($\mu\text{g}/\text{m}^3$)
Avigliana	19.95	18.88
Chiusa di San Michele	16.36	12.77
Caprie	19.23	15.56
Giaveno	16.16	15.53
Sant'Ambrogio di Torino	19.23	15.56
Sant'Antonino di Susa	14.56	11.36
Vaie	14.56	12.77
Valgioie	17.13	13.84
Villar Dora	19.26	15.56

Table 3 - Air Pollutants

The anti-smog protocol controls the daily emissions of PM10. This was a measure introduced in 2021 to Piedmont to evaluate based exclusively on the average daily concentrations of PM10 particulate matter forecast for the current day and the following two days by an air quality forecast modeling system. The protocol was updated in 2021 with the addition of the “traffic light” system. This mechanism activates temporary limitations to prevent the daily limit value of 50 $\mu\text{g}/\text{m}^3$ of PM10.

“The evaluation of the possible activation of one of the traffic light levels is carried out by ARPA Piemonte on the established control days, i.e., Monday, Wednesday, and Friday, using an algorithm that analyzes

the expected daily average concentration data of PM10, for the control day and the following two days, by its integrated modeling system for assessing and forecasting air quality and appropriately validated by Agency experts.” (ARPA Piemonte, 2021)

The plan also expanded the area where it is enforced. Municipalities with more than 10,000 people now also participate. Avigliana and Giaveno are currently affected by this new measure as part of the *Comuni Zona di Collina*. Today, the standard only applies to the transportation sector.

The plan is based on the daily evaluation of data. The measures are activated when the concentration of PM10 exceeds a specific number in a few consecutive days. It evaluates the data from Sunday, Monday, Tuesday, and Wednesday to do this. The plan has four different thresholds activated according to specific concentrations: yellow, orange, vermillion, and red. (ARPA Piemonte, 2021)

To activate the yellow threshold of PM10, it is necessary to have an equal concentration of 50 $\mu\text{g}/\text{m}^3$ for seven consecutive days. In this situation, there is a ban on the urban traffic of diesel vehicles, from 8.30 to 18.30 (the timetable can vary), under the threat of a ticket of 3 euros.

The orange threshold is activated when the level of PM10 is double the recommended amount for three days. This level bans the circulation of diesel vehicles from 8:30 to 18:30, under a fine of 6 euros.

The vermillion threshold is reached when the level of PM10 equals 150 $\mu\text{g}/\text{m}^3$ for three days. It reduces the speed limit on type A/B roads to a maximum of 90km/h (90km/h per type A road, 70 km/h per type B road)—all urban traffic for diesel vehicles from 8:30 to 18:30.

The threshold becomes red when the level of PM10 equals 180 $\mu\text{g}/\text{m}^3$ for three days. It bans the circulation of private vehicles in the urban and extra-urban areas on weekdays from 8:30 to 18:30 or permanently. The buses are free when this measure is implemented.

While it is unclear if Avigliana or Giaveno reached these levels, according to ARPA Piemonte, the *Comuni Zona di Collina* reached the orange threshold for ten days in the winter of 2021 and has never reached red in the same period.

The soil consumption in the area has remained the same. Looking at the data available in ARPA Piemonte, it is possible to compare the numbers of soil consumption in 2013 and 2021. They have not increased significantly. The municipalities that have shown the most significant change have been Valgioie and Avigliana. The increase is not related to a rise in urbanization but can be attributed to increased soil consumption on infrastructure in both municipalities.

While the numbers are good, there is always the possibility of an increase in urbanization in the municipalities. However, this is unlikely due to the negative growth of the area's population.

MUNICIPALITY	SURFACE (ha)	Urbanized Surface (2013)		Urbanized Surface (2021)	
		UBS (ha)	UBS (%)	UBS (ha)	UBS (%)
Avigliana	2,322	466	20.06	534.33	23.0%
Caprie	1,641	121	7.35	138.41	8.4%
Chiusa di San Michele	591.66	73	12.37	73.56	12.4%
Giaveno	7173.87	660	9.20	668.9	9.3%
Sant'Ambrogio di Tono	836.85	164	19.55	167.17	20.0%
Sant'Antonino di Susa	979.46	147	14.96	148.6	15.2%
Vaie	722.93	70	9.63	71.05	9.8%
Valgioie	912.02	55	5.99	57.32	6.3%
Villar Dora	570.68	127	22.21	127.95	22.4%

Table 4 - Urbanized Surface

All municipalities have a relatively good percentage of waste sorting. According to ARPA, Piemonte, Avigliana, Chiusa di San Michele, Sant'Ambrogio, Sant'Antonino, Giaveno, and Vaie separate more than 76% of their waste. Valgioie has a lower percentage of waste sorting, around 56%. The numbers could increase by creating programs focusing on this practice. There are waste centers in Avigliana, Giaveno, and Sant'Antonino. They are all used for domestic and non-domestic waste.

Waste Separation (ARPA Piemonte 2021)	
Municipalities	Waste Separation (%)
Avigliana	65,3
Chiusa di San Michele	70,2
Caprie	68,4
Giaveno	70,1
Sant'Ambrogio di Torino	68,9
Sant'Antonino di Susa	74,0
Vaie	68,7
Valgioie	54,5
Villar Dora	71,5

Table 5 - Waste Separation (%)

All municipalities have a considerable amount of territory of woods and forests. They all have an extensive green area connected to the more urbanized site. The presence, however, could become a problem if they are not adequately cared for. Green spaces without maintenance could become unsafe. Urban growth could also threaten these areas. This possibility is more unlikely when paired with the decreasing population of most municipalities. (PTMG, 2017)

Data from ARPA Piemonte (2021) shows that the most significant risks to the area are related to water and rain. The area near the Dora Riparia is susceptible to floods, most likely due to the river's overflow. The city centers of Sant'Antonino, Sant'Ambrogio, Chiusa di San Michele, Villar Dora, Caprie, and Vaie are susceptible to flood damage, probably due to their proximity to the mountains. Giaveno suffers from a similar problem, but the center is more susceptible to landslides than floods. The proximity to the mountains also affects Sant'Antonino, Vaie, Valgioie, Villar Dora, Caprie, and Giaveno in other ways. They have some unstable areas that are susceptible to mudslides. These problems could be exacerbated in the next few years, with the possible increase in rainfall.

In the last few years, fires in forest and wooded areas have also become a concern. With the temperature rise, fires started to be more common. They are a problem for the ecosystem and can severely increase air pollution.

In 2020, the SAFERS project was implemented. This project was developed to improve the management of forest fires. It creates a risk map using information gathered on satellites, cameras, and social media. Sixteen companies, including the Consortium for the Information System (CSI Piedmont) and the Links Foundation, endorsed this project.

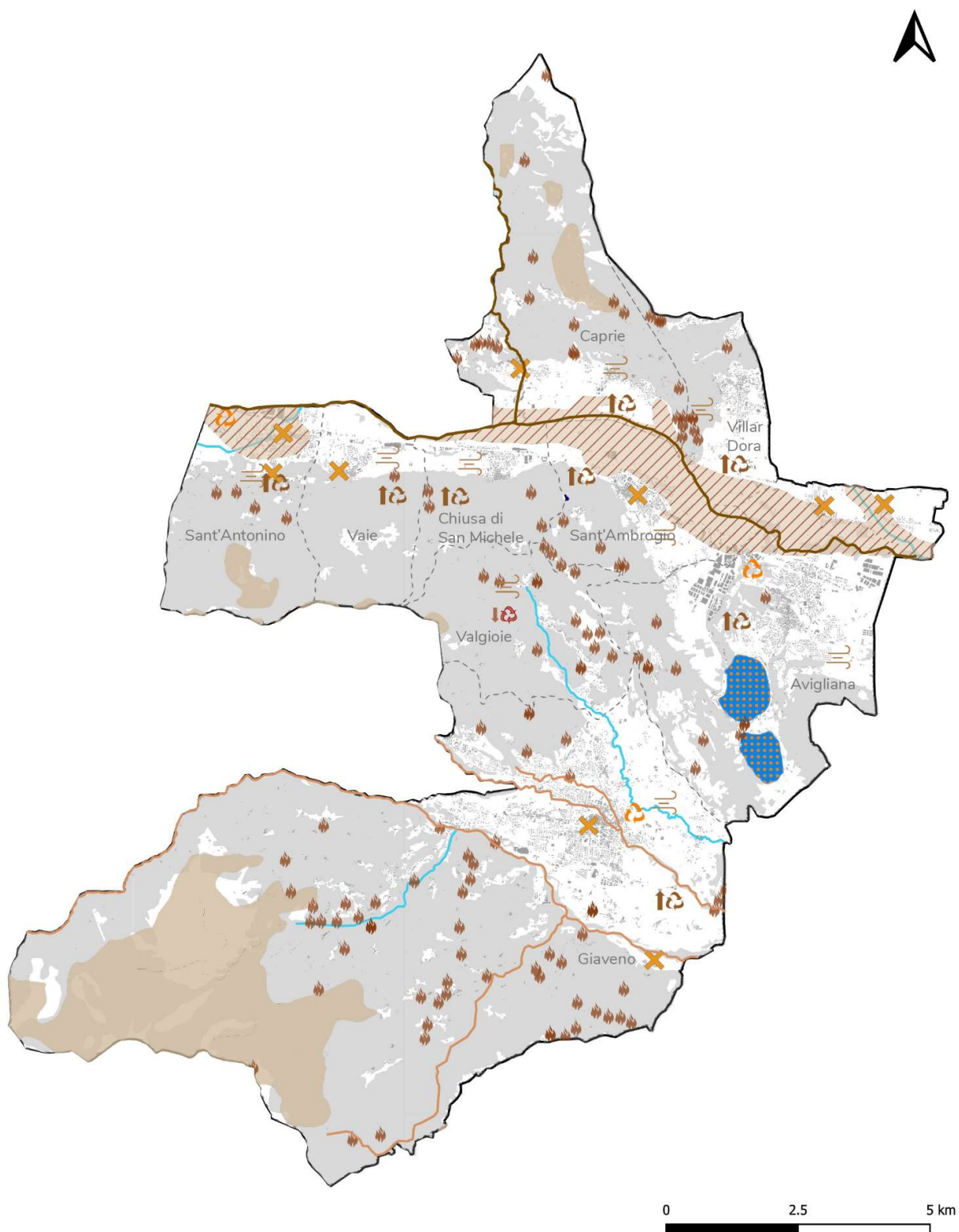
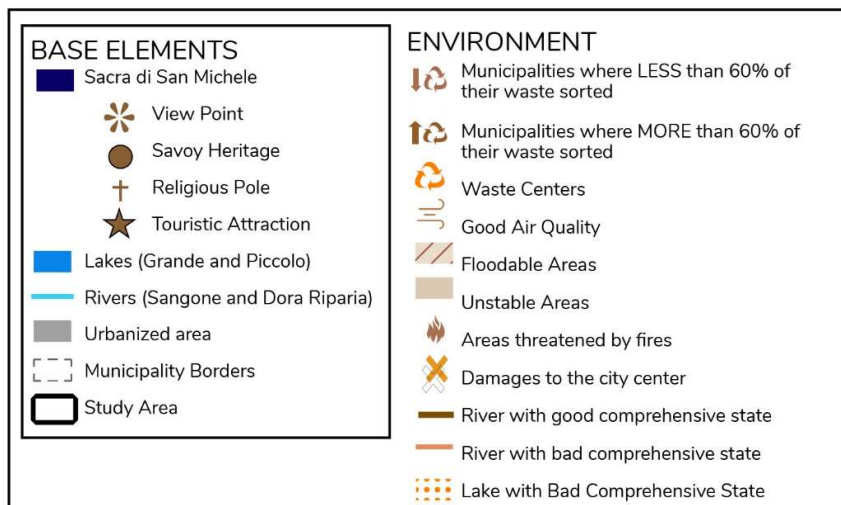


Figure 87- Environmental Factors

Source: Developed by the author based on information from the Geoportale Piemonte



4.1.4 Economical Aspects

Sant'Ambrogio has a small hospitality sector. According to the *Osservatorio Turistico della Regione Piemonte (OCP)*, in 2022, the municipality had five receptive locations and two touristic locations, with thirty-nine and seven beds, respectively. The presence of the Sacra also brings several tourists to the city.

Avigliana has a considerable number of hotels and other hospitality infrastructure. The municipality has twenty-one receptive and four tourist locations with 999 and 17 beds, respectively. Usually, tourists stay in Avigliana for 1,75 days. (OCP, 2022) Notable places in the area are its two lakes, Grande and Piccolo, tourist attractions in the summertime. The Nobel Dynamite Museum is also located in the municipality. The municipalities can also be linked to the tourism sector, most notably by the Via Francigena path. Giaveno has a more significant hospitality sector, with fourteen receptive locations and fifty-four touristic locations, with 108 and 118 beds, respectively. According to the *OCP* (2022), they usually spend 7,13 days in the municipality.

All other municipalities have a smaller hospitality sector. The difference in receptive locations and beds could be due to the communication between cities. For example, people who want to visit Chiusa di San Michele could stay several nights in Turin or Avigliana, going to the municipality for only a day.

Tourism (OCP, 2022)			
Municipalities	N. Location	N. Beds	N.O.D*
Avigliana	25	1016	1.75
Chiusa di San Michele	5	40	7.13
Caprie	5	21	N/A
Giaveno	38	226	N/A
Sant'Ambrogio di Torino	10	46	N/A
Sant'Antonino di Susa	7	50	N/A
Vaie	2	18	N/A
Valgioie	3	14	N/A
Villar Dora	2	10	N/A

Table 6 - Touristic Locations

*NOD: Number of days

The most prominent tourist attractions in the area are the Sacra di San Michele, the Avigliana Lakes, and Avigliana Castle. The other cultural sites are not well-known or advertised.

The area has a few significant productive regions. Avigliana has the most extensive production area, with three companies with a big size (250 to 1,000 employees). The municipality also has around seven medium size production areas (50 to 249 employees). They are primarily located on the borders of Sant'Ambrogio and Buttigliera Alta. Sant'Ambrogio, Sant'Antonino, Chiusa di San Michele, Caprie, and Giaveno also have at least one company of medium productive size. Vaie and Valgioie have a smaller productive area, not considered a production pole like the areas of Avigliana, Sant'Ambrogio, and Sant'Antonino. Valgioie does not possess any significant place related to production. It is possible to see that the most considerable sites are linked in some way to the railway line. The Giaveno production area is more decentralized. (PPR, 2017)

According to the PPR (2017), Avigliana, Vaie and Sant'Antonino have a primary commercial center outside Torino. Valgioie is considered a municipality with a lack of essential services. They do not have a productive or commercial area and are disconnected from the rest of the region because of the lack of mobility options. Access to education and healthcare is also compromised because of the difficulty of accessibility. In general, this is the municipality with the most significant risk related to the decrease in population because of the lack of services and the precarious connection to the rest of the area. While other small municipalities also have some problems regarding the availability of services, they benefit from the train line that enables communication between the municipalities and Turin.

There is a lack of services close to the Sacra. According to the book "La Sacra di San Michele 1991-2001", there used to be a bar close to the "Sepolcro dei Monaci." However, recent visits to the site show that both in October 2022 and March 2023, (Fig. 88 a and b) it was closed to the public.



Figure 88.a - View of the existing café in 2022
Source: Marina Boschetti

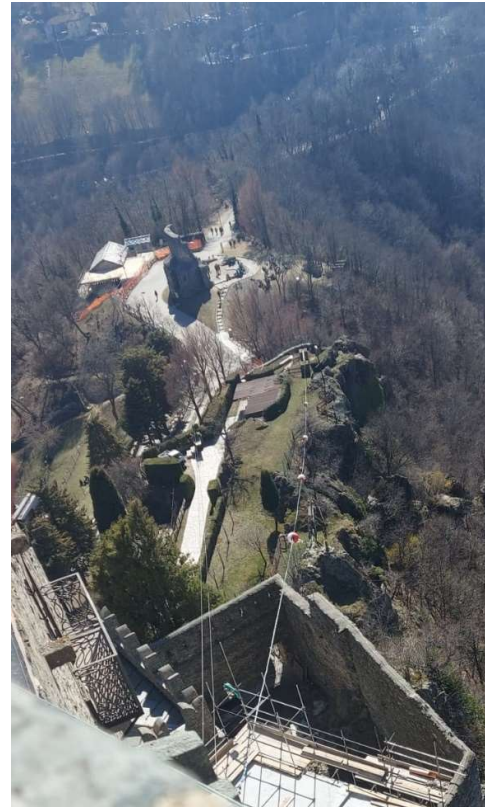
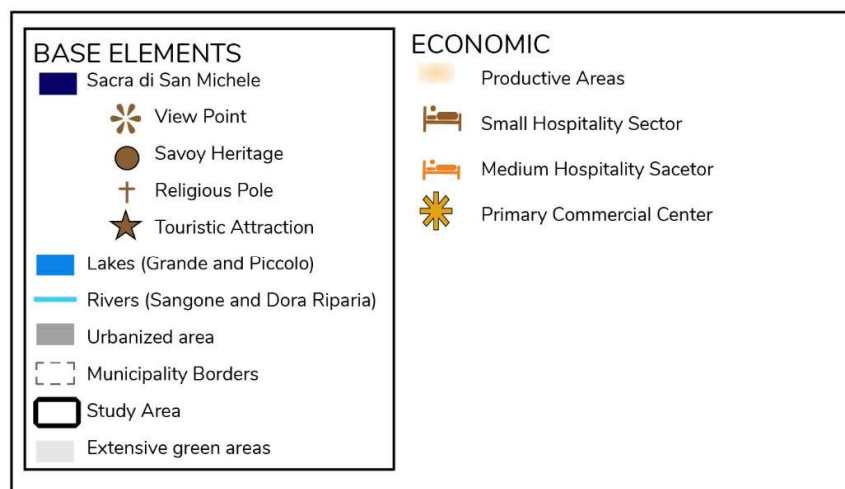


Figure 88.b - View to the existing café in 2023
Source: Marina Boschetti



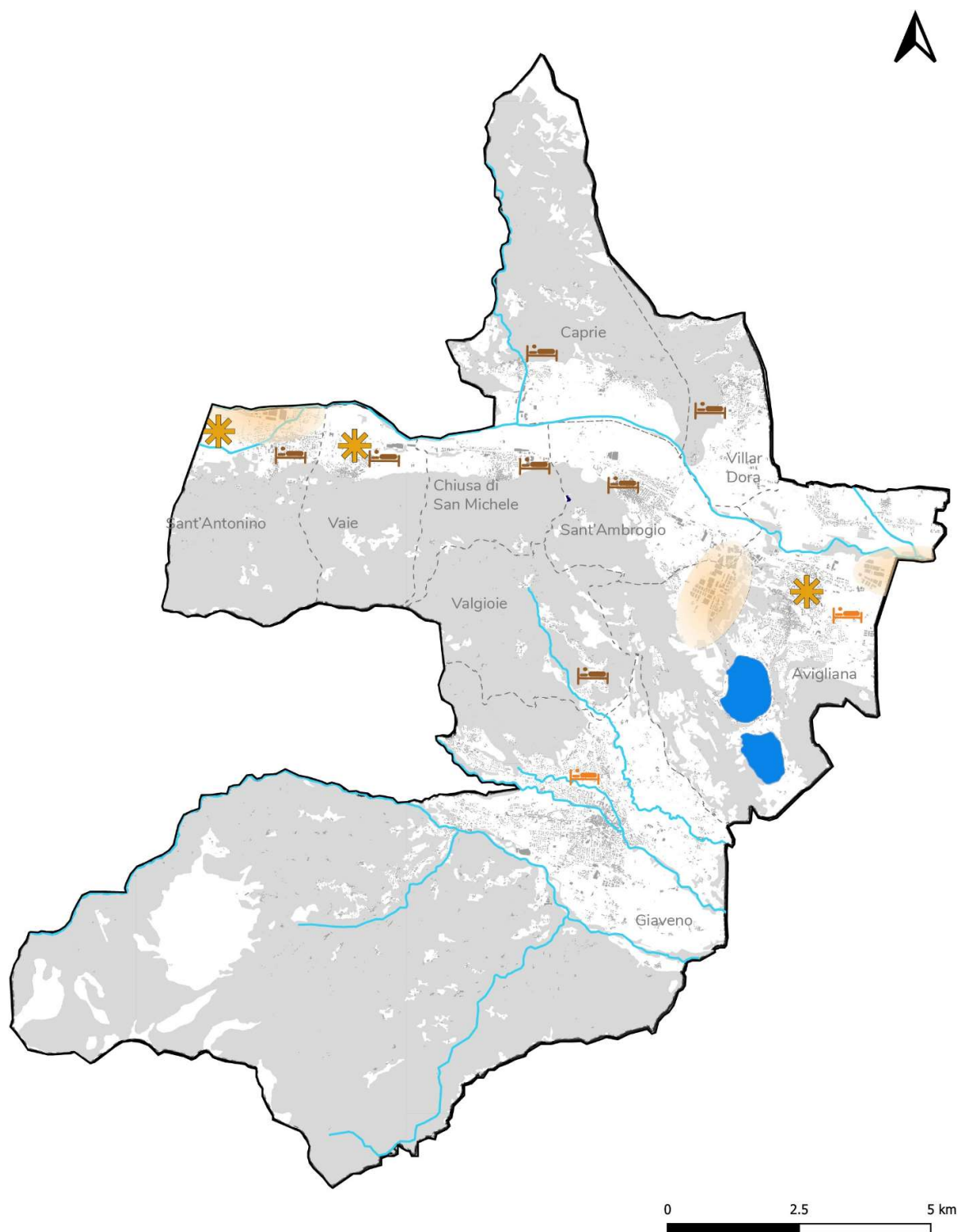


Figure 89 - Economical Aspects

Source: Developed by the author based on information from the Geoportale Piemonte

4.1.5 Political Aspects

Piano Paesaggistico Regionale

The "*Piano paesaggistico regionale*" (PPR) was approved in 2017 as a tool for regulating transformations and protecting and promoting the Piedmontese landscape. It utilizes buffer zones, protection zones, and other legal limitations to guarantee the preservation of the natural and manmade environment of the region. The plan also considers the valorization of UNESCO sites like the Wine landscapes of Piedmont, Langhe-Roero and Monferrato, and Ivrea. It takes into account several aspects, illustrated below.

A) "Naturalistic-environmental components,

They include mountain areas, the hydrographic system, the lakes and neighboring territories, the territories covered by woods, areas and elements of specific geomorphological and naturalistic interest, natural areas protected or biodiversity conservation, rural areas of high permeability, and areas of high agronomic interest. These components, to a considerable extent already the subject of various forms of protection, constitute a sensitive territorial heritage that the PPR, in general, protects from settlement and infrastructural developments.

B) Historical-cultural components

They include a large part of the regional cultural heritage, including the historic road networks and railways, areas of archaeological interest, historic centers, rural heritage, villas, gardens and parks, areas and facilities for leisure and tourism, and those of industrial and energy production of historical interest, the poles of religion and the systems of fortifications.

C) Perceptive-Identity components

They include lookout points, panoramic beauties, sites of scenic and aesthetic value, the visual relationships between settlement and context, rural areas of specific landscape interest, places, and identity elements. A set of places and relationships whose role the PPR recognizes as constitutive of the image of the region and its various parts, putting a barrier to the processes in the course of mutilation or

deterioration. Particular interest is attributed to the Sites inserted (or candidates upon inclusion) on the UNESCO World Heritage list.

D) Morphological-settlement components

They include consolidated urban areas, discontinuous suburban fabrics, settlements organized specialists, areas of settlement dispersion, specialized and complex infrastructural, and rural settlements of various levels. An exceptionally large and heterogeneous set of areas where settlement and infrastructural developments have historically concentrated and the consequent soil consumption, environmental pressures, and transformative thrusts, which the Ppr tends to control, triggering virtuous processes of requalification and recovery environment, also through the widespread use of "good practices." (Piano paesaggistico regionale, 2017)

The plan has six boards, with the main subjects being the creation of landscape units, the identification of the landscape assets, the landscape components, mobility, and strategies for protecting the landscape. The most relevant boards are II, VI, V, and VI, Landscape Assets, Landscape Components, Protected Areas, and Macro-Environments.

Board II, related to Landscape Assets, delimits three zones of public interest in the area:

- The Intermorainic Aviglianese area in the Municipalities of Rosta, Buttigliera Alta, Reano, Trana, Avigliana, Valgioie, S. Ambrogio di Torino, S. Michele Lock, Vaie and Coazze.
- The area around Mount Pirchiriano in the territories of the municipalities of Sant'Ambrogio Torinese and Chiusa di San Michele.
- The strip around the lakes Piccolo and Grande located within the municipality of Avigliana.

Legal measures protect these areas against modifying the appearance of the areas in the vicinity of the protected elements. This limits the types of volumes that can be built, the types of materials used, and the kinds of infrastructure that can be

implemented in the area. The measures are concerned with creating a cohesive urban area that does not interfere with the views of the Sacra di San Michele, the Lakes of Avigliana, and the natural landscape.

Board IV identifies the landscape assets of the regions, be it the cultural sites, panoramic paths, or the essential relations between the urban context. It also defines the areas according to their function, for example, residential.

Besides identifying assets, it also shows possible problems in connection in the area. Highway A32, located close to the railway line Torino-Susa, for example, is considered a physical barrier. The connection between Coazze-Giaveno and Vaie has a risk of loss of characteristics with population growth.

Board V lists the environmentally protected areas like UNESCO sites or other protected areas. The area only has a Special Protection Zone (ZPS) in the Avigliana Lakes.

Board VI divides the Piedmontese region into different macro-environments according to their characteristics. The area has tree-specific environments: Piedmont landscape, Franco-Provençal alpine landscape, and Occitan alpine landscape.

The Alpine landscape is articulated close to the mountainous territory. Rivers were and continue to be essential for the development of the area. Local communities are well-defined with autonomous cultures, typical settlement types, and different dialects. The Piedmontese landscape is a transitional space between the mountainous and plain areas. It can have the characteristics of both alpine and plain terrains.

Mountain Communities

A mountain community is a territorial association of mountain and partially mountainous municipalities.

"Are considered mountain territories the municipalities with a least 80% of their surface above 600 meters above sea level and those in which the difference in height between the lower and the upper altitude of the municipality's surface is not less than 600 meters." (Law 991 of 1952)

The mountain communities were established by Law n. 1102 on December 3, 1971. They aim to jointly perform certain municipal functions assigned explicitly by the region. They have an essential role in the management of the territory since the decentralized management benefits the smaller communities economically. The communities promote the valorization of the territory by creating the possibility of personalized area management depending on its specific needs.

The '*Consiglio dell'Unione Montana Valle Susa*' (UMVS) is one of this communities. It has 23 municipalities: Almesse, Avigliana, Borgone Susa, Bruzolo, Bussoleno, Caprie, Caselette, Chianocco, Chiusa di San Michele, Condove, Mattie, Mompantero, Novalesa, San Didero, San Giorio di Susa, Sant'Ambrogio di Torino, Sant'Antonino di Susa, Susa, Vaie, Venaus, Villar Dora, Villar Focchiardo.

The union has an area of about 420 km², with 67,500 inhabitants in 2018, according to the UMVS, and approximately 20,000 employees work in 5,000 companies. The median age is 46.7 years old. The settlements are generally compact, mainly concentrated close to the river axis of the Dora and the railroad network.

The main centers of the territory are Avigliana, Bussoleno, and Susa, with around 40% of the population. The municipalities of Sant'Ambrogio, Avigliana, Almesse, Villar Dora, and Caselette are essential from a socio-economic point of view since they are close to Turin and have more employment opportunities.

Sangone Valley has a similar organization, the "*Unione Dei Comuni Montani Valsangone*." It has six municipalities, the same amount as the Sanguine Valley: Coazze, Giaveno, Reano, Sangano, Trana, and Valgioie. This union has most of the municipalities of the geographical Sangone Valley, excluding only Bruino and Rivalta.

Mountain communities are also eligible to use the Regional Fund for the Mountains. This fund can be used to finance development plans for the unions. The amount received is proportional to the population of each union.

Touristic Municipalities

Touristic Municipalities are municipalities that can have a touristic vocation. They must also have an annual budget solely dedicated to tourism. Touristic Municipalities must follow one of the following criteria:

- a) "membership of the relevant local Tourist Agency (ATL).
- b) presence of a tourist information office (IAT).
- c) at least 150 beds in accommodation facilities and at least 5,000 tourists annually.
- d) at least one hundred beds in accommodation facilities and a tourist specialization index equal to or greater than 5.
- e) presence of second homes equal to at least 50% of the total number of homes in the municipal area.
- f) Municipalities falling within the territory of the national and regional parks.
- g) Municipalities characterized by the presence of historical, cultural, and religious attractions.
- h) Municipalities where thermal establishments are located.
- i) Municipalities in which there are cultural activities such as exhibitions, conferences, cultural events, and/or traditions such as fairs and markets, which affect at least six months of the year.
- l) Municipalities hosting sports facilities or sporting events of national and/or regional significance, which involve the participation of at least 20,000 visitors per year.
- m) Municipalities qualified by the presence of naturalistic-environmental attractions of national and/or regional value, involving the participation of at least 10,000 visitors per year.
- n) Municipalities hosting tourist attractions and/or tourist structures of at least regional importance of the private initiative with the participation of at least 10,000 visitors a year.
- o) Municipalities crossed by the major routes of the regional cycle network, by the regional network of routes excursions, from the Via Francigena or the historic/devotional paths and trails of Piedmont.
- p) Municipalities with a strong food and wine tourist value.
- q) Municipalities that have been awarded a local or national environmental tourism quality mark.
- r) Municipalities on the UNESCO World Heritage list." (Resolution of the Regional Council 2.9-6438, 2018)

Avigliana, Sant'Antonino, Sant'Ambrogio, Vaie, Caprie, and Giaveno are considered touristic municipalities. Touristic communities with less than 5,000 people are eligible for the Small Touristic Communities Fund. This fund was instituted to help develop the mobility system, accessibility, urban sustainability, and urban regeneration of these municipalities by Budget Law N. 197 of 2022. The cities that could benefit from this would be Caprie, Sant'Ambrogio, Sant'Antonino, and Vaie.

Monument Symbol of Piedmont

In 1994, the Sacra was declared the Monument Symbol of Piedmont. This title was accompanied by the Regional Law n. 68 of 1994, which dealt with the valorization of the monument. The first two articles focus on the acknowledgment of the monument and describe how the region should proceed regarding the preservation of the site.

"Article 1. Purpose.

The Region recognizes the Sacra di San Michele as a symbolic monument of Piedmont for its centuries-old history, for the testimonies of spirituality, daring, art, culture, and the admirable synthesis of the most peculiar characteristics that it can offer Piedmont, as well as for its exceptional location and visibility.

Article 2. Enhancement and promotion initiatives.

1. The Piedmont Region promotes knowledge and appreciation of the Sacra di San Michele with its initiatives and the support of qualified initiatives undertaken by other entities, including private individuals.

2. It also contributes to ensuring favorable conditions for the recovery and maintenance of the building's structural activities and for the realization of cultural initiatives which make it a center of exchange and integration of European regional cultures, spirituality, and peace."

(Regional Law n. 68 of 1994)

It also had an additional article that allocated financial resources for the monument's preservation. Eventually, a section regarding the law was still repealed by the Regional Law n.11 of 2018. This law maintains only the two first articles while elaborating on the financial support for the cultural monuments of the region.

"Article 46.

1. To guarantee the optimization of the resources allocated to the financing of this law, the Fund for Culture is established, divided into:

a) Fund of current resources intended to finance projects, initiatives, and activities for the promotion and enhancement of heritage, entertainment, and cultural activities as well as to support the Region in the pursuit of the institutional aims of the participating bodies; the Fund is established under mission 05 (Protection and enhancement of cultural assets and activities), program 05.02 (Cultural activities and various interventions in the cultural sector), title 1 (Current expenses) of the estimate of expenditure of the 2018 budget- 2020;

b) Fund of capital account resources intended for investments in the cultural field aimed at redevelopment, conservation, recovery, preparation, and enhancement interventions relating to cultural heritage, the construction, restructuring, and technological adaptation of rooms intended for cultural and entertainment, the establishment of entities owned by the Region, as well as financial facilitation instruments; the Fund is established under mission 05 (Protection and enhancement of cultural assets and activities), program 05.02 (Cultural activities and various interventions in the cultural sector), title 2 (Capital account expenditures) of the budget expenditure estimate 2018-2020." (Regional Law n. 11 of 2018)

In 1994, the Rosminiani Priests declared they could not continue being financially responsible for the Sacra. In the same year, the Regional Law of 21 December 1994, n. 68 was approved. With this law, the Piemonte Region became the custodian of the site. The region entrusted the priests with managing the Sacra di San Michele., while it maintained financial responsibility over the area.

In 2004, the "Agreement between the Piedmont Region and the Entity Sacra di San Michele for managing and enhancing the Sacra di San Michele" was born. This measure created a commission to evaluate and approve the site's valorization, restoration, and conservation decisions. It is composed of:

- I. *"The President, designated by the Institute of Charity (Rosminiani) but not a member of the Institute;*
- II. *the Councilor for Culture of the Piedmont Region or a person delegated by him;*
- III. *The Father Rector of the Religious House "Sacra di San Michele";*
- IV. *the Mayor of the Municipality of Avigliana or a person delegated by him;*
- V. *the Mayor of the Municipality of Chiusa di San Michele or a person delegated by him;*
- VI. *the Mayor of the Municipality of Sant'Ambrogio or a person delegated by him;*
- VII. *The Mayor of the Municipality of Valgioie or a person delegated by him;*
- VIII. *a representative of the Piedmont Superintendency for Architectural Heritage and Landscape." (Agreement between the Piedmont Region and the Entity Sacra di San Michele for the management and enhancement of the Sacra di San Michele, 2004)*

These Stakeholders are considerably influential in the decision-making process of Sacra and the area of interest as a whole. They are close to the site and can veto any project for the area. The law also determined that the following people/organizations have an advisory function:

- I. *"The Director of the "Giunta di Cultura, Turismo e Sport" of the Piedmontese Region or a person delegated by him;*
- II. *Two experts designated by the Rosminian Institute in matters concerning the history of the Sacra and its spiritual and philosophical issues;*
- III. *The President of the Sacra di San Michele Volunteer Association - AVOsacra or person thereof delegated;*
- IV. *The President of the Friends of the Sacra di San Michele Association or a person delegated by him." (Agreement between the Piedmont Region and the Entity Sacra di San Michele for the management and enhancement of the Sacra di San Michele, 2004)*

While not directly connected to the decision-making process, these organizations can have a determined amount of power by using their knowledge to influence any possible decisions.

BASE ELEMENTS

-  Sacra di San Michele
-  View Point
-  Savoy Heritage
-  Religious Pole
-  Touristic Attraction
-  Lakes (Grande and Piccolo)
-  Rivers (Sangone and Dora Riparia)
-  Urbanized area
-  Municipality Borders
-  Study Area

POLITICAL
Protected Areas

-  Protection area for Lakes Piccolo e Grande
-  Protection Area for Mount Pirichiano
-  Protection area Intermorenic Aviglianese
-  Extensive Green Areas
-  Touristic Municipalities
-  Municipalities related to the management of the Sacra

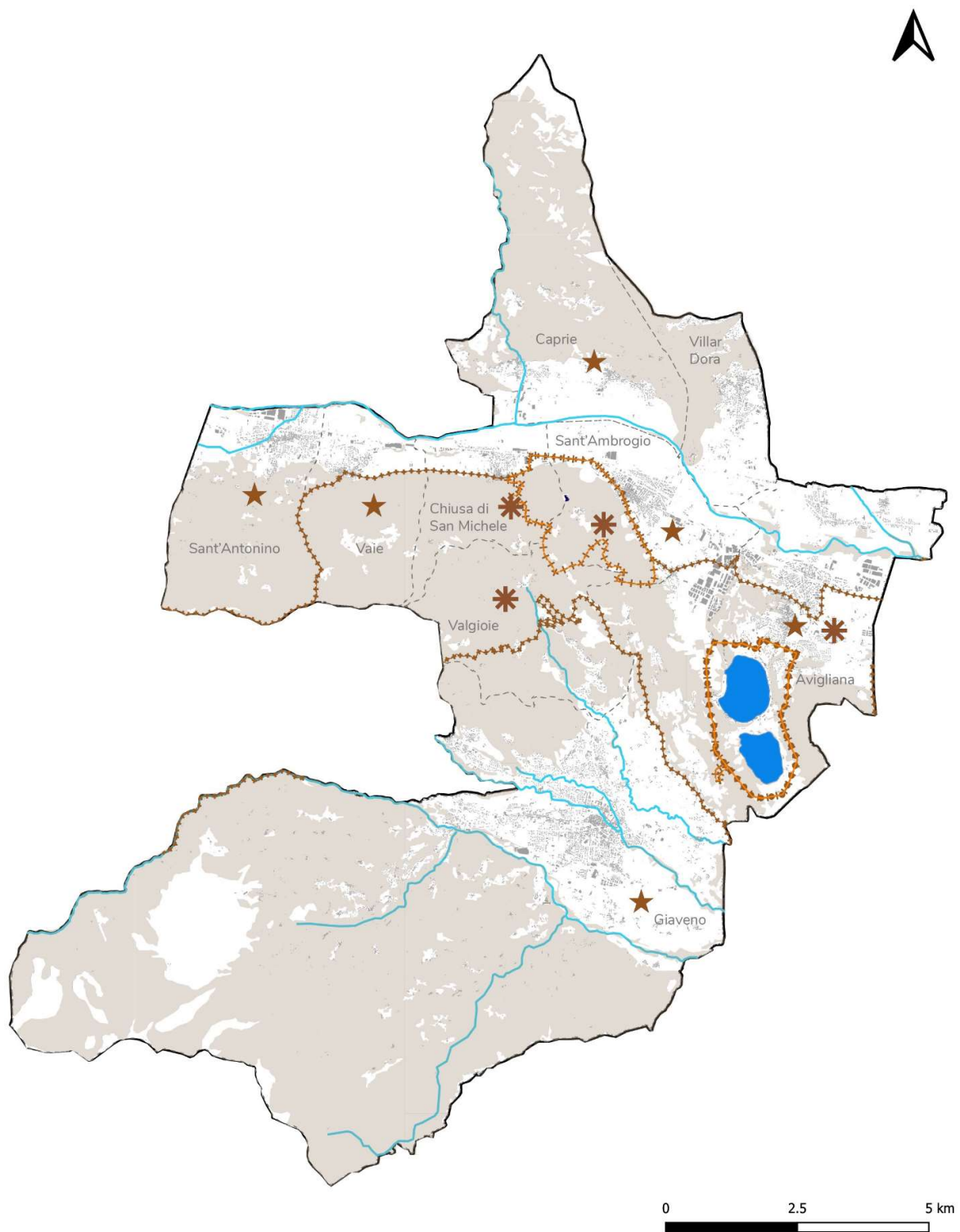
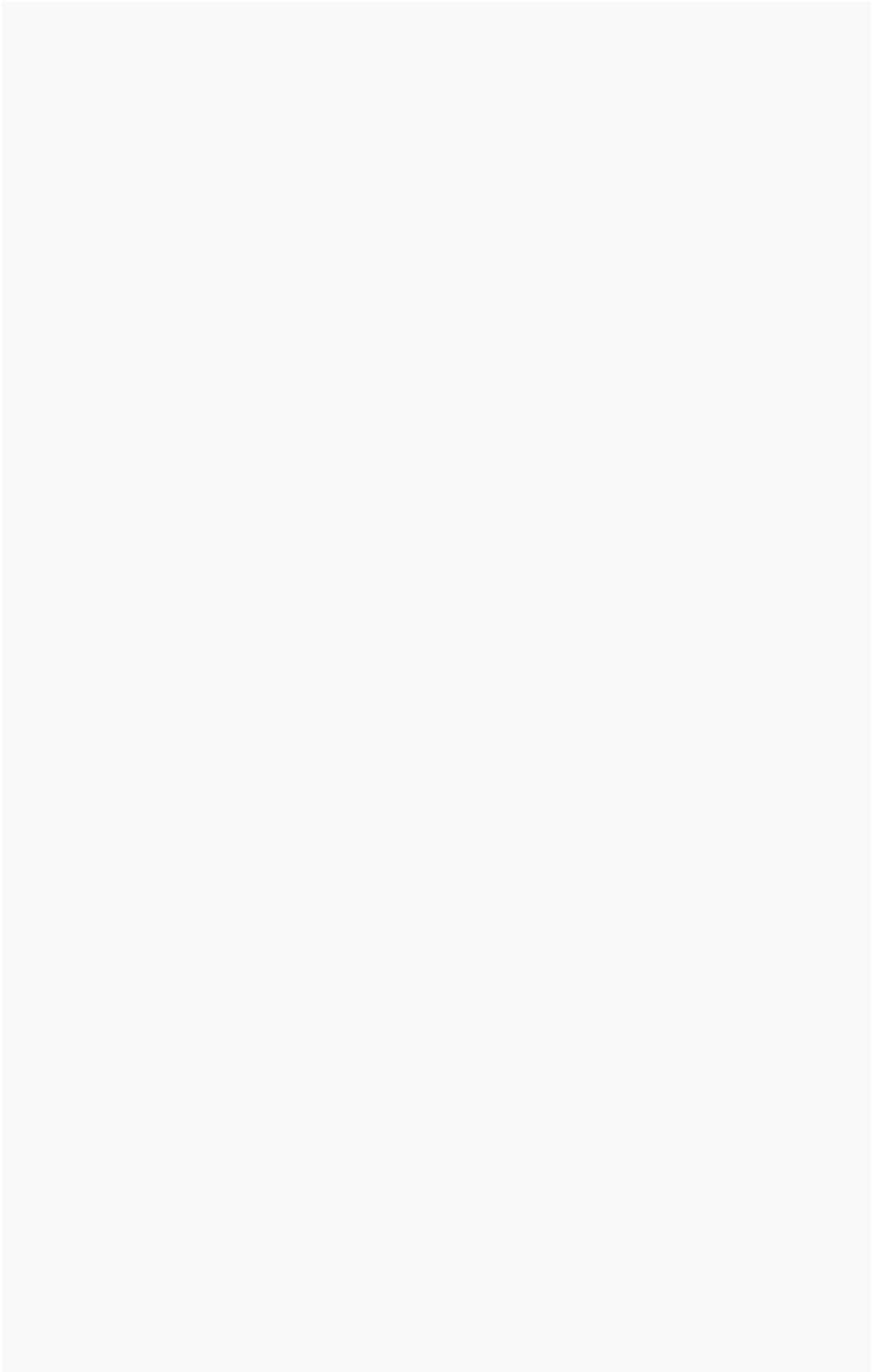


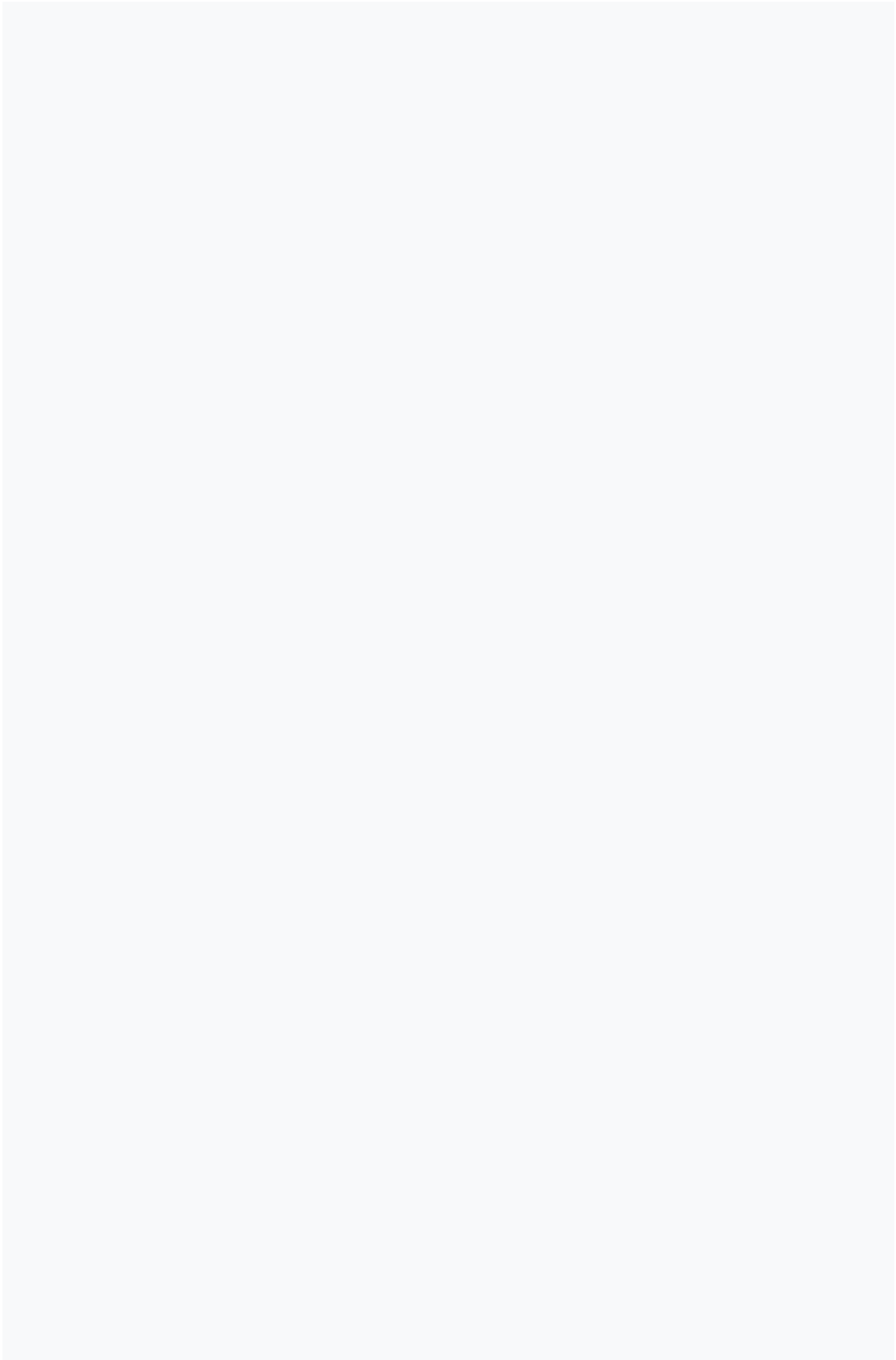
Figure 90 - Political Aspects

Source: Developed by the author based on information from the Geoportale Piemonte



4.2 SWOT Analysis

After the STEEP methodology, the following relevant step was to compile the relevant information about the area into a table and describe the aspects. The information must be organized according to the framework of strengths, weaknesses, opportunities, and threats. By joining both methodologies, it is possible to create a thematic analysis, considering the area's social, technological, environmental, economic, and political aspects. The result was a comprehensive analysis of the site and its different characteristics.



	ASPECTS		INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES
SOCIAL	DEMOGRAPHY	Population	Population Growth (2021)	Avigliana and Valgioie had a positive populational growth from 2012 to 2021	Caprie, Chiusa di San Michele, Sant'Ambrogio, Sant'Antonino, Giaveno, Villar Dora, and Vaie have had a negative populational growth from 2012 to 2021		Decrease in population due to aging and migration.	ISTAT
			Average Age (2021)		In general, the medium age of the population is equal to or higher than 46,2 (Italian average)			
			Immigration (2021)	Presence of immigration in all municipalities - municipalities are considered an attractive places to live				
		Income	Employment Rate (2019)		The unemployment rate for all the municipalities (between 10.45% and 11.73%) is more significant than both the Italian (10.1%) and the regional (7.8%) rates.			
			Income (2020)		Most municipalities have a lower medium income than the Italian average (21.800 euros per year), safe from Avigliana.			
	HEALTH	ASL TO3	Health Centers	The presence of Health Center of Avigliana and Giaveno	Does not accept emergency cases		Migration of the population in search of services	ASL Torino
	EDUCATION	Secondary School	Secondary Schools	Giaveno and Avigliana have two secondary schools.	Other municipalities depend on the structures of Giaveno and Avigliana.			Geoportale Piemonte
	CULTURE	Cultural Routes	Cultural Route Via Francigena	EU recognized cultural route that crosses Sant 'Antonino, Vaie, Chiusa di San Michele, Sant'Ambrogio, Avigliana, Villar Dora, and Caprie.				Piano Territoriale Generale Metropolitno (PTGM) - Piano Paesaggistico Regionale (PPR)
			Cultural Route Roads of the Waldensians and the Huguenots	EU recognized cultural route that crosses Sant'Ambrogio.				
			Camino dei Camini	International Cultural route				

Study area
 Sant'Ambrogio
 Sacra di San Michele

		ASPECTS	INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES
SOCIAL	CULTURE	Regional Fairs	Meliga Day - Sant'Ambrogio	Regional Touristic Attraction				Geoportale Piemonte
			Fungo in Festa - Giaveno					
		Religious Sites	Sacra di San Michele - Sant'Ambrogio	Touristic Attractions acknowledged by the Territorial Plan of the Metropolitan City of Turin (PTGM)		It could be part of a system of the tourist route Susa Valley and Val Sangone.	Lack of communication between the centers can cause them to be disregarded.	Piano Territoriale Generale Metropolitno (PTGM) - Piano Paesaggistico Regionale (PPR)
			A series of religious monuments recognized locally: Certosa di Mortera, Chiesa di San Pietro, Chiesa di Santa Maria, Santuario della Madonna dei Laghi - Avigliana.					
			Santuario Nostra Signora di Lourdes a Selvaggio - Giaveno					
		Savoy Cultural Heritage	Ruins of Avigliana Castle - Avigliana			It could be part of a system of the tourist route Susa Valley and Val Sangone.		Piano Paesaggistico Regionale (PPR)
			Tomb of the Savoy - Sant'Ambrogio					
		Historical Centers	Avigliana	Well-preserved areas with commerce and touristic appeal (PPR Piedmont)		It could be part of a system of the tourist route Susa Valley and Val Sangone.		
			Villar Dora					
			Giaveno					
			Sant'Ambrogio					
		Archeological sites	Avigliana	Cultural Heritage acknowledged by the Territorial Plan of the Metropolitan City of Turin (PTGM)		It could be part of a system of the tourist route Susa Valley and Val Sangone.		Piano Territoriale Generale Metropolitno (PTGM)
			Caprie					Pianificazione Territoriale e Strategica
		Villas, Parks and Gardens	Palazzo Marchini - Giaveno					Piano Paesaggistico Regionale (PPR)
		Fortification System - Military System	Castello and Piazzaforte - Avigliana					
			Torre del Colle - Villar Dora					
			Castello e cinta muraria - Sant'Ambrogio					

Study area

Sant'Ambrogio

Sacra di San Michele

		ASPECTS	INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES
SOCIAL	CULTURE	View points	Route - Giaveno/ Sacra di San Michele	A panoramic route that goes from Giaveno to Sacra di San Michele, passing through Valgioie		It could be part of a system of the tourist route Susa Valley and Val Sangone.	Urban development could block or interfere with the view.	Piano Paesaggistico Regionale (PPR)
			Route - Sant' Ambrogio/ Sacra di San Michele	A panoramic route that goes from Sant'Ambrogio to Sacra di San Michele	The location of the fountains in the route is not clearly indicated. The second portion of the trail has no water fountains.			
			Sacra di San Michele	View Point from the Sacra di San Michele	The industrial complex is visible from the Terrace of the Sacra.			
			Castello di Avigliana - Avigliana	Panoramic View Castello di Avigliana and Piazzale Chiesa Santa Maria		It could be part of a system of the tourist route Susa Valley and Val Sangone.	Urban development could block or interfere with the view.	
		Industrial Heritage	Ex Dinamitificio Nobel (Ecomuseo), Stone quarries - Avigliana	Touristic Attraction		It could be part of a system of the tourist route Susa Valley and Val Sangone.		Piano Paesaggistico Regionale (PPR)
			Maglificio Fratelli Bosio, quarries of Pirichiano - Sant'Ambrogio	The building now houses the Torino Heritage Association and the Birrificio San Michele.	Quarries are now abandoned.			
			Mullino Vers Sud - Valgioie	Still working with the same function.				
			Mullino Du Detu - Giaveno	Works as a thematic touristic attraction				
			Furnaces - Villar Dora		In a state of ruin			
			Cotonificio Wild & Abeg - Sant 'Antonino	Today, it is working with an industrial function.				
	State of Preservation	Sacra di San Michele	The site is well maintained; there is still some scaffolding, but they are not an obstacle for visitors.					

Study area

Sant'Ambrogio

Sacra di San Michele

		ASPECTS	INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES	
TECHNOLOGY	MOBILITY	Train	Trail line Torino - Susa	It connects Avigliana, Chiusa di San Michele, Sant'Ambrogio, Sant'Antonino, and Vaie to Turin. The ticket price depends on the station, but it is around 3-4.5 euros. It takes 45 min from Turin to Sant 'Antonino.	Giaveno and Valgioie are not directly connected to the train line. The train can function as a physical barrier, separating municipalities.	The project for the line Torino Lyon would bring more tourists to the area.	The creation of a new station for the Torino-Lyon line could obstruct the view from the Sacra.	Trenitalia	
		Bus Line	GTT - public transport	Bus line 1224 connects Sant'Antotnino to Avigliana	No service in Valgioie. There is no direct connection between Avigliana and Giaveno.	Increase in the number of bus lines and routes.	Dependency on cars to travel between municipalities. Valgioie can be specifically vulnerable in the case of anti-smog measures related to transportation.	GTT	
			Cavourese bus service - private	Connection Avigliana - Sacra di San Michele	Only five times a day, on weekends and holidays			Cavourese	
				Connection Avigliana - Giaveno	Only five times a day, on weekends and holidays				Bussoleno Bus
				Connection Giaveno Valgioie	Only three times a day				
			Bussoleno Bus - private	Avigliana and Giaveno	Only three times a day			Arrivi Italia	
			Arrivi Italia - private	Bus line 274 connects Sant'Antonino to Avigliana				Sacra di San Michele	
		Private vehicles	Car	Several roads connect the area	Many municipalities depend heavily on cars because of the lack of public transport.	Increase the number of bus lines and facilitate car parking.	An increase in parking spaces could negatively affect the surrounding area.		
				Good connection to the site by car	The number of parking spaces is insufficient.				
				Presence of parking spaces for visitors of the Sacra in Piazzale Croce Nera: 2.5 euros for 2 hours, 2 more each hour					
		Bicycle	Bicycle Routes	Already existing bicycle path between Casselete - Vaie	Existing bridges are not well maintained.	Plan for the bicycle path Unione Montagne Val Susa, possible connection to Giaveno	Lack of maintenance can prevent the creation of a continuous bike path.	Unione Montagna ValSussa	
		Accessibility for visitors	Sacra di San Michele	Accessible price for tickets	Part of the Sacra is not accessible to wheelchair users.	Create a more extensive connection between the Sacra and the Area.		Sacra di San Michele	
				Sacra is open all year round.					
				Partially accessible route for wheelchair users					
				Connected to tourist routes					

Study area
 Sant'Ambrogio
 Sacra di San Michele

	ASPECTS		INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES
TECHNOLOGY	ACCESSIBILITY OF INFORMATION	Susa Valley	Touristic information	Several sites focused on the advertisement of Piedmont and the regions, specifically.	Lesser known heritage is not well explored as a possible tourist destination.	Development of a comprehensive marketing plan for the area	Lack of advertisement could lead to the degradation of the lesser-known heritage	Visit Piedmont
		Sangone Valley						
		Sacra di San Michele	Information regarding prices and transportation	Information regarding the prices of tickets is readily available online. The Sacra di San Michele has details on how to get there. The Sacra also has an integrated system of QR codes that give information to visitors.	While the site is advertised, it focuses more on advertisements for people who already know about the Sacra.			Sacra di San Michele
			Social Media	The Sacra has Facebook and Instagram profiles that publicize events happening in the Sacra.				
			Research	Existence of various articles regarding the Sacra		Continuation of excavations could provide new information. Other resources, such as point clouds, could be useful	Danger of misinformation and loss of information with each passing year	
	ENERGY	Bioenergy	Installation for the production of energy	There is one Bioenergy plant in Avigliana		Diversify energy production by increasing biomass and photovoltaic power stations for heating and hydroelectric and Eolic power for electricity.		Gestore dei servizi energetici (GSE)
		Solar Energy Production	Installation for the production of energy	According to GSE, there are 963 instances of solar energy installation. Based on the nominal power of these installations, most of them are in residences.				
		Hydroelectric Energy Production	Installation for the production of energy	Presence of a more sustainable energy source				Unione Montagna ValSussa
		Energetic Community of Susa Valley	Alto and Basso Susa Valley					

Study area
 Sant'Ambrogio
 Sacra di San Michele

	ASPECTS		INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES
ENVIRONMENTAL	WATER	Rivers	Dora Riparia	Starting from Avigliana, the river has a good comprehensive state		Implement measures to increase the quality of the river waters.	Continuous decrease in the quality of the water	ARPA Piemonte
			Sangone		The river does not have a good comprehensive state.			
		Lakes	Lago Piccolo Avigliana		It does not have a good comprehensive state	Implement measures to increase the quality of the waters.	Continuous decrease in the quality of the water	
			Lago Grande Avigliana					
		Subterranean Streams	Superficial Groundwater Station	Good chemical state		Implement measures to increase the quality of the waters.	Continuous decrease in the quality of the water	
			Superficial Groundwater Body					
			Deep Groundwater Station					
			Deep Groundwater body		Scarce chemical state			
			Mountains and Hills Groundwater body	Good chemical state				
	AIR	Air Pollutants	PM10 -media annual (µg/m3) - 2022	Good State (from 14 to 20 µg/m³)				ARPA Piemonte
			PM2.5 -media annual (µg/m3) - 2022	Good State (from 11 to 15.6 µg/m³)				
		Anti Smog Protocol	Avigliana and Giaveno	Chiusa di San Michele, Sant 'Antonino, Sant'Ambrogio, Vaie, and Valgioie are not subjected to the anti-smog measures.	May suffer from measures of the antismog plan based on transportation measures	Incentivize the use of the bike.	There could be a difficulty in transportation between Valgioie and Avigliana when the anti-smog measures are implemented.	
	SOIL	Soil Consumption	Urbanized Area	From 2013 to 2021, the land consumption of all the municipalities has remained unchanged.			The urbanized area could increase.	ARPA Piemonte
	WASTE	Waste Sorting	Avigliana, Caprie Chiusa di San Michele, Giaveno, Sant'Ambrogio, Sant 'Antonino, Vaie, Valgioie and Villar Dora	Avigliana, Chiusa di San Michele, Giaveno, Sant'Ambrogio, Sant 'Antonino, and Vaie sort between 66 to 74% of their waste	Valgioie sorts around 56% of its waste	Waste sorting could be incentivized in all municipalities.		ARPA Piemonte
		Waste Centers	Sant 'Antonino, Giaveno and Avigliana	Waste centers for domestic and non-domestic waste				

Study area
 Sant'Ambrogio
 Sacra di San Michele

	ASPECTS		INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES
ENVIRONMENTAL	ECOSYSTEMS	Forest And Woods	Avigliana, Caprie Chiusa di San Michele, Giaveno, Sant'Ambrogio, Sant'Antonino, Vaie, Valgioie and Villar Dora	All municipalities have extensive green areas	It could become an unsafe area	Implementation of a plan to manage the green areas	The green areas could become unsafe.	ARPA Piemonte
		Floodable Areas	Flood events with return times between 25 and 50 years - Avigliana and Sant'Antonino		May have floods close to the Dora Riparia		Rise in the frequency of natural disasters.	ARPA Piemonte
	NATURAL DISASTERS		Flood events with return times of 50 years - Avigliana-Sant'Antonino					
		Unstable Areas	Sant'Antonino, Vaie, Valgioie, Caprie, Villar Dora, and Giaveno		May suffer from mudslides			
		Damages In The City Center	Sant'Antonino, Sant'Ambrogio, Chiusa di San Michele, Vaie, Villar Dora, Caprie, and Giaveno		May suffer from floods			
			Giaveno		May suffer from landslides			
ECONOMICAL	TOURISM	Accommodations	Touristic Accommodations	Giaveno and Avigliana are the most significant tourist poles, with 68 receptive locations and 226 beds, 25 receptive locations, and 1016 beds, respectively. Tourists stay around seven days in Giaveno and two days in Avigliana.	Smaller municipalities have a small hospitality sector	Create a connection between municipalities to encourage regional tourism.	Lack of suitable hospitality infrastructure can discourage short stays.	Osservatorio Culturale del Piemonte, 2022
		Touristic Attractions	Smaller museums and cultural heritage in general	Presence of small museums and churches		Create a connection between municipalities to encourage regional tourism.	Lack of conservation of smaller cultural attractions could lead to degradation.	Osservatorio Culturale del Piemonte, PPR
			Avigliana Lakes	Easily accessible from Torino				
			Castle of Avigliana					
			Sacra di San Michele	Sacra di San Michele is an important cultural site. Sacra di San Michele is one of the most visited sites in Piedmont. Low access ticket cost: Full ticket 8 Reduced ticket 6. It hosts exhibitions, events, and cultural initiatives. In 2019, it registered 144.939 visitors.		Create a connection between municipalities to encourage regional tourism.	An increase in the number of tourists can lead to the creation of new hospitality structures and the construction of new buildings.	

Study area
 Sant'Ambrogio
 Sacra di San Michele

	ASPECTS		INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES	
ECONOMICAL	INDUSTRY	Productive Areas	Avigliana, Chiusa di San Michele. Sant'Ambrogio, Sant 'Antonino, Vaie and Giaveno	Sant 'Antonino and the border between Sant'Ambrogio and Avigliana have the most extensive productive areas. It is big (250 to 1,000 employees) and medium (50 to 249 employees). Giaveno, Caprie, and Chiusa di San Michele also have productive areas of medium size. All municipalities connected to the railway have small productive regions close to the railway line.			The growth of the productive areas could have a negative impact.	Piano Territoriale Generale Metropolitno (PTGM)	
		COMMERCE AND OTHERS	Commerce	Commercial Centers	Vaie, Sant 'Antonino, and Avigliana have a primary commercial center	Other municipalities may become very dependent on the other areas. Valgioie lacks a lot of essential services	Diversify the services available in the municipalities.	Migration of the population to bigger cities	Piano Territoriale Generale Metropolitno (PTGM)
	Services		Overall services	Giaveno and Avigliana are the best-equipped municipalities in terms of health and education.	The café seems to be closed to the public in the last few years. There are no other cafés or restaurants close by				
			UNIONE MONTAGNE	Unione Comuni Montagne Valle Susa		Avigliana, Chiusa di San Michele, Sant'Ambrogio, Sant 'Antonino and Vaie	Development of projects and access to the regional funds dedicated to the development of mountain areas		
	Unione Commune Montagne ValSangone	Giaveno and Valgioie							
	POLITICAL	TOURISTIC MUNICIPALITY	Avigliana, Sant'Antonino, Sant'Ambrogio, Vaie, Caprie, and Giaveno	They are considered tourist municipalities.	Municipalities under 5,000 people can be eligible for funds to promote local tourism.				Regione Piemonte
		REGIONAL LAW n.11 of 2018	Piedmont	Sacra di San Michele	Regional law that protects local heritage. Has articles dealing with the financial help for monuments				Regione Piemonte

Study area

Sant’Ambrogio

Sacra di San Michele

	ASPECTS		INDICATORS/LOCATION	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	SOURCES
POLITICAL	ADMINISTRATION OF THE SACRA	Agreement between the Piedmont Region and the Entity Sacra di San Michele for the management and enhancement of the Sacra di San Michele	Avigliana, Chiusa di San Michele, Sant'Ambrogio, and Valgioie	These municipalities have decision power in any project involving the Sacra di San Michele.				Regione Piemonte
	PIANO PAESAGGISTICO REGIONALE 2017	T2 - Landscape Assets	Considerable public interest in the Intermorainic Aviglianese area in the Municipalities of Rosta, Buttigliera Alta, Reano, Trana, Avigliana, Valgioie, S. Ambrogio di Turin, S. Michele Lock, Vaie and Coazze	Safeguards the visibility of the area as a whole				Regione Piemonte
			Declaration of notable public interest of the area around Mount Pirchiriano in the territories of the municipalities of Sant'Ambrogio Torinese and Chiusa di San Michele	Protects the visibility of to and from the Sacra				
			Declaration of notable public interest of the strip around the lakes called Lago Piccolo and Lago Grande, located within the municipality of Avigliana	Safeguards the visibility of the fulcrum constituted by the sanctuary of the Madonna dei Laghi				
		T4 - Landscape components		Lists the heritage considered important and defines the possible negative aspects of a city	Highway A32 is considered a physical barrier.		The connection between Coazze-Giaveno and Vaie has a risk of loss of characteristics with population growth.	
		T5 - UNESCO sites, SIC e ZPS	ZPS Avigliana Lakes	Area of protection for the Avigliana Lakes				
		T6 - Macro-environments	Landscape	The area is classified as Piedmont landscape, Franco-Provençal alpine landscape, and Occitan alpine landscape				

Table 7 - SWOT Analysis

Study area

Sant'Ambrogio

Sacra di San Michele

Aspects like the negative population growth and lack of health care and educational services paint a picture of vulnerability in some municipalities. It is also clear that while parts of the municipality and the city of Turin are very well connected, some of them are still highly dependent on cars. The GTT public system does not service these cities and has little connection to other bus companies. Additionally, municipalities like Valgioie lack several essential services, such as commerce and educational institutions. These facts indicate a possible increase in migration from these municipalities to areas where services are readily available.

These factors, connected to the possible Anti-Smog measures that could affect Giaveno and Avigliana, reveal a threat to the municipality of Valgioie. This municipality is mainly contained to the rest of the area through and then Avigliana. It does not possess any GTT services, and the only other bus companies active in the area are the Cavourese busses, with a limited timetable. This is a threat to the municipality since, in the worst-case scenario, the use of cars in Giaveno and Avigliana could be prohibited, and they are the most convenient form of transport between the cities. While it does not disconnect the municipality from the rest of the area since they can still communicate with Sant'Ambrogio, it considerably increases the travel time between Valgio and Giaveno.

Considering that Giaveno does not have many public transport connections but is the only municipality in the area that can treat emergency cases, this could severely inconvenience Valgioie. Hypothetically, people from the city would need to travel to Sant'Ambrogio, Avigliana, and Giaveno to access the health centers. Alternatively, they could travel to Sant'Ambrogio and Susa, arguably a quicker trip. One possible solution to this problem is to increase the frequency of the already existing bus lines between the municipalities and incentivize the use of bikes.

Another area of concern is the rise in natural disasters. Several areas suffer from floods and other water-related incidents on a semi-regular frequency. This trend tends to increase exponentially in the following years.

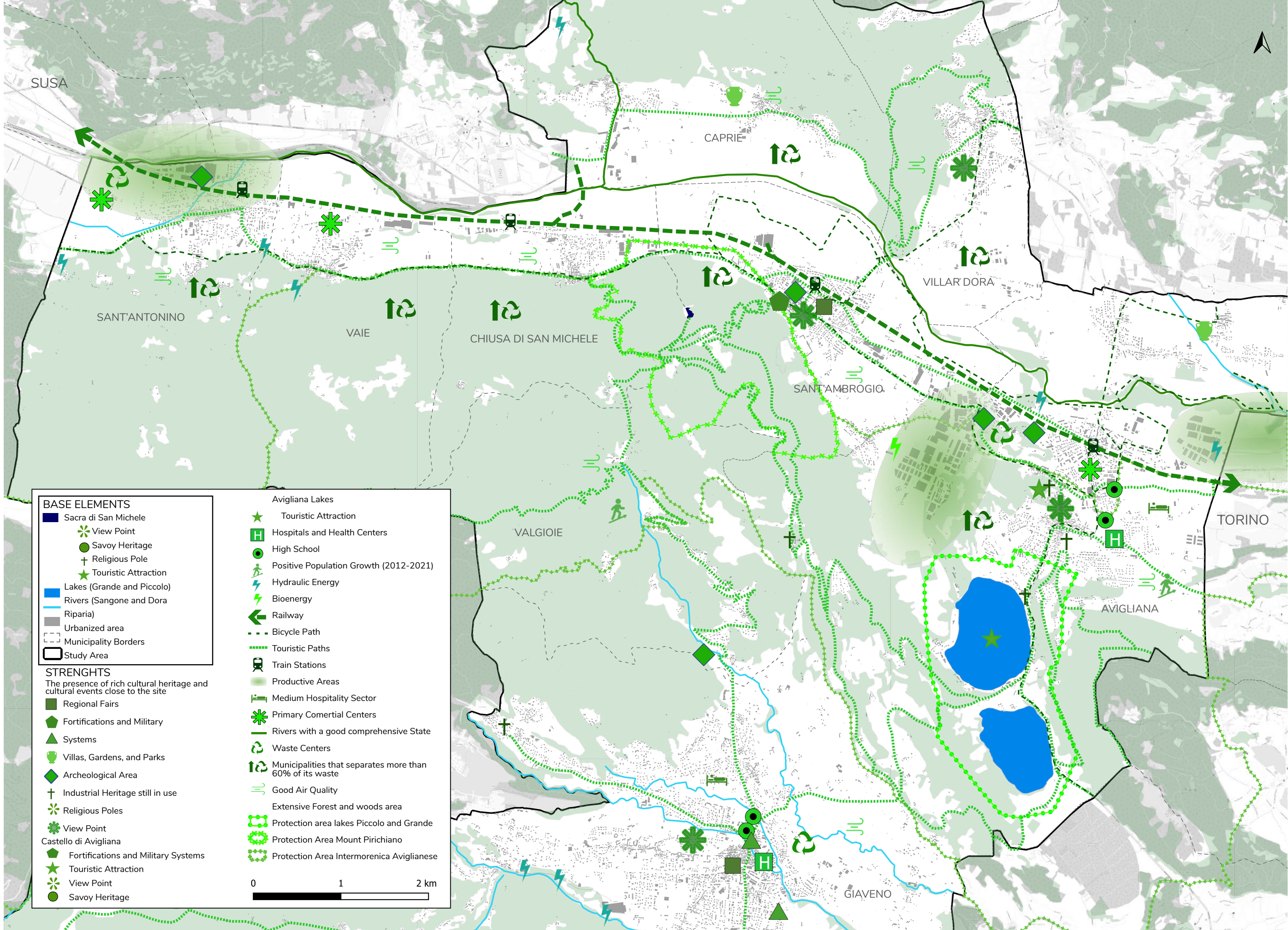
Regarding tourism, the smaller municipalities do not possess a significant hospitality sector. Most visitors would need to stop at Avigliana or Giaveno for more extended stays. This could mean that the other cities could be ignored as a possible touristic point and lead to the degradation of their cultural heritage in the long run.

In conclusion, many of the possible threats in the area are due to the lack of connection between the municipalities. This vulnerability could result in an increase in the migration of the population to bigger cities.

4.3 Spatial SWOT Analysis

As previously mentioned, the Spatial SWOT analysis is a tool that translates the findings of a SWOT analysis in a graphic format using a GIS tool. Using the steps proposed by Comino and Ferreti (2016), it was possible to develop four distinct thematic maps, showing strengths, weaknesses, opportunities, and threats. They were done using the QGIS platform.

This strategy can demonstrate possible vulnerabilities more didactically. The maps can serve as a tool to show potential stakeholders the endogenous and exogenous factors of the area. They can also illustrate the importance of participation in the projects since they show the area's vulnerability and possible strategies that can be used to solve them.



BASE ELEMENTS

- Sacra di San Michele
- View Point
- Savoy Heritage
- Religious Pole
- Touristic Attraction
- Lakes (Grande and Piccolo)
- Rivers (Sangone and Dora Riparia)
- Urbanized area
- Municipality Borders
- Study Area

STRENGTHS

The presence of rich cultural heritage and cultural events close to the site

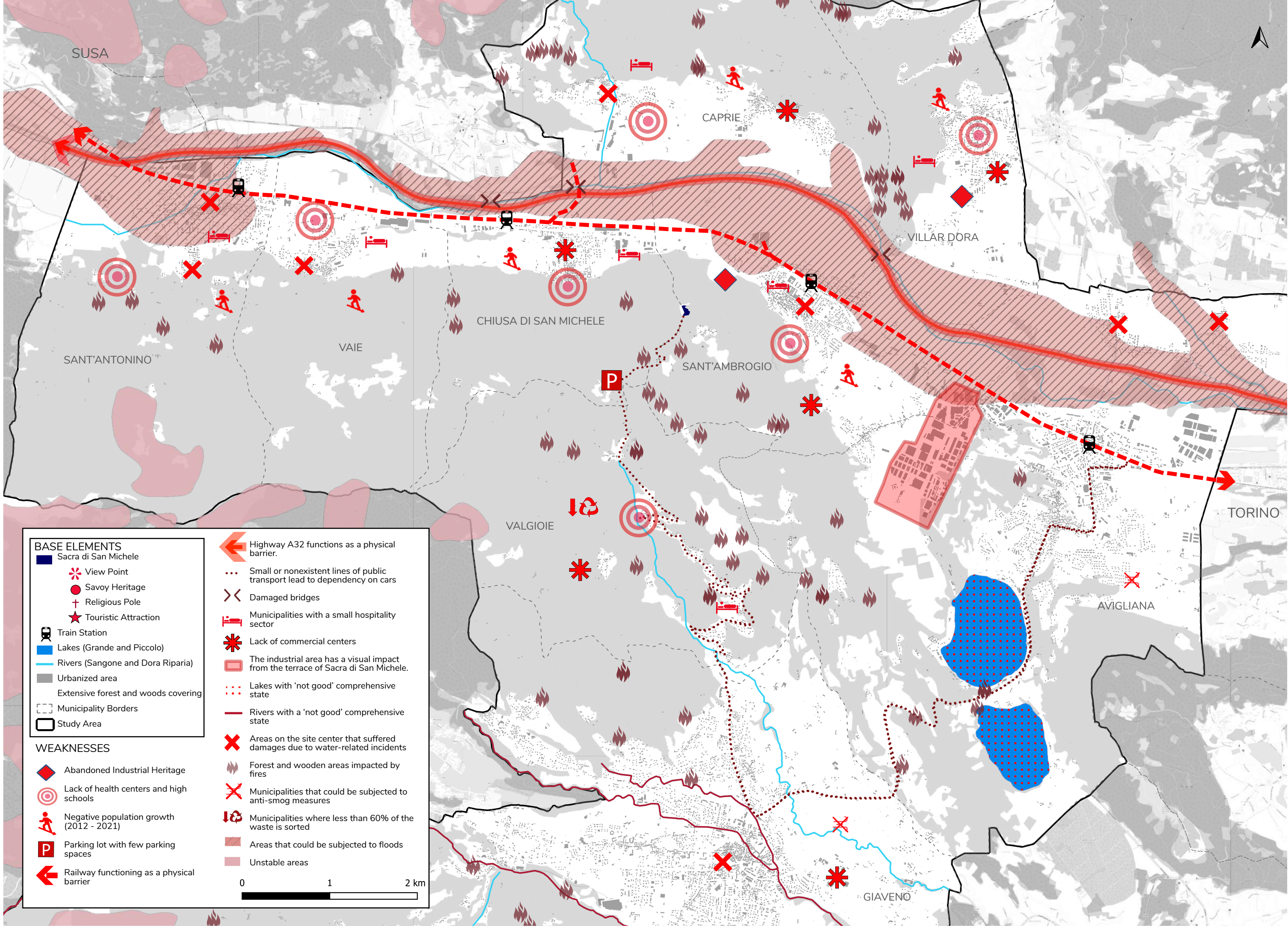
- Regional Fairs
- Fortifications and Military Systems
- Systems
- Villas, Gardens, and Parks
- Archeological Area
- Industrial Heritage still in use
- Religious Poles
- View Point

Castello di Avigliana

- Fortifications and Military Systems
- Touristic Attraction
- View Point
- Savoy Heritage

- Avigliana Lakes
- Touristic Attraction
- Hospitals and Health Centers
- High School
- Positive Population Growth (2012-2021)
- Hydraulic Energy
- Bioenergy
- Railway
- Bicycle Path
- Touristic Paths
- Train Stations
- Productive Areas
- Medium Hospitality Sector
- Primary Comercial Centers
- Rivers with a good comprehensive State
- Waste Centers
- Municipalities that separates more than 60% of its waste
- Good Air Quality
- Extensive Forest and woods area
- Protection area lakes Piccolo and Grande
- Protection Area Mount Pirichiano
- Protection Area Intermorenica Aviglianese

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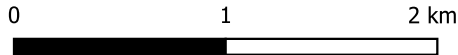
BASE ELEMENTS

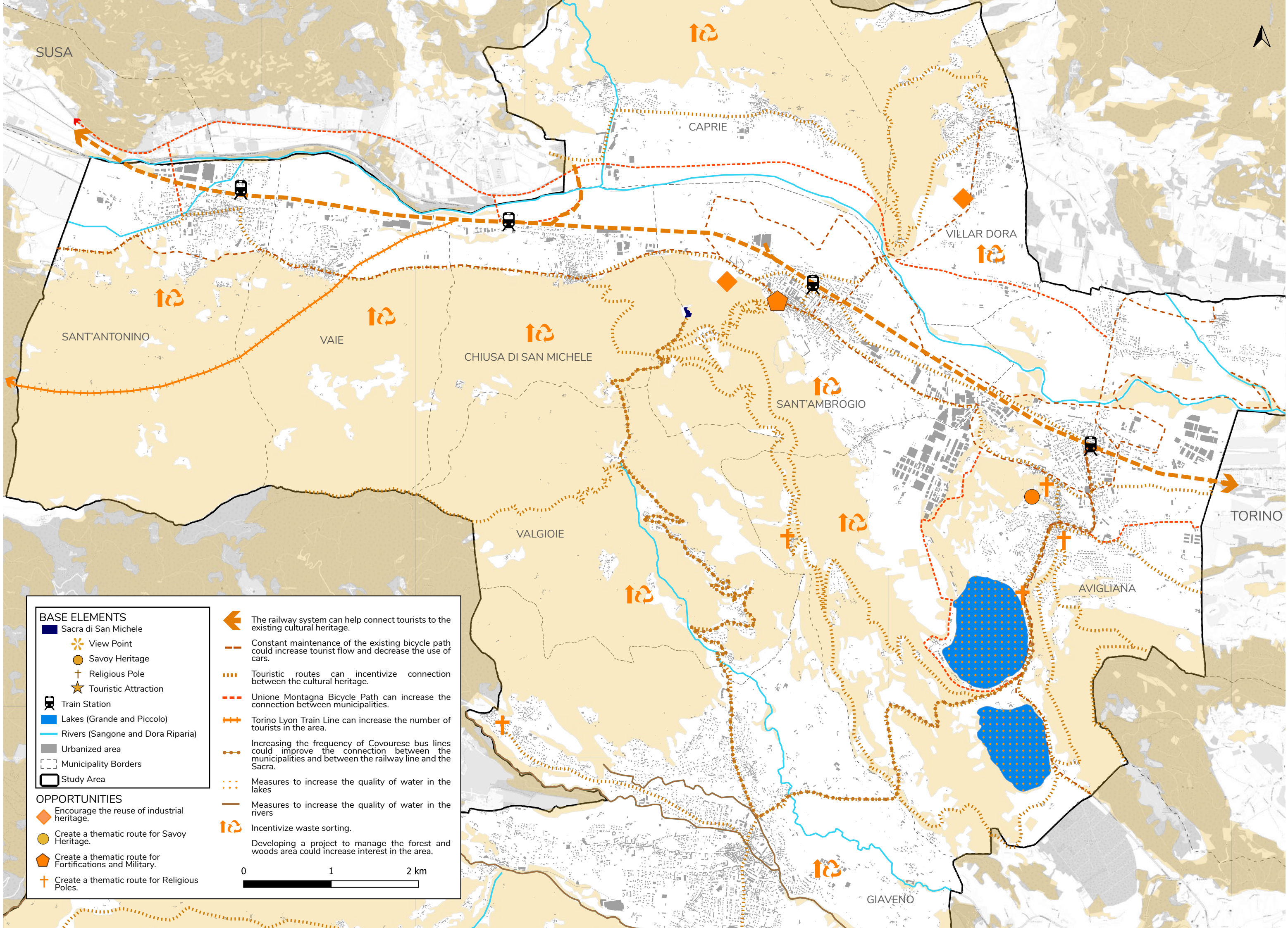
- Sacra di San Michele
- View Point
- Savoy Heritage
- Religious Pole
- Touristic Attraction
- Train Station
- Lakes (Grande and Piccolo)
- Rivers (Sangone and Dora Riparia)
- Urbanized area
- Extensive forest and woods covering
- Municipality Borders
- Study Area

WEAKNESSES

- Abandoned Industrial Heritage
- Lack of health centers and high schools
- Negative population growth (2012 - 2021)
- Parking lot with few parking spaces
- Railway functioning as a physical barrier

- Highway A32 functions as a physical barrier.
- Small or nonexistent lines of public transport lead to dependency on cars
- Damaged bridges
- Municipalities with a small hospitality sector
- Lack of commercial centers
- The industrial area has a visual impact from the terrace of Sacra di San Michele.
- Lakes with 'not good' comprehensive state
- Rivers with a 'not good' comprehensive state
- Areas on the site center that suffered damages due to water-related incidents
- Forest and wooden areas impacted by fires
- Municipalities that could be subjected to anti-smog measures
- Municipalities where less than 60% of the waste is sorted
- Areas that could be subjected to floods
- Unstable areas





BASE ELEMENTS

- Sacra di San Michele
- View Point
- Savoy Heritage
- Religious Pole
- Touristic Attraction
- Train Station
- Lakes (Grande and Piccolo)
- Rivers (Sangone and Dora Riparia)
- Urbanized area
- Municipality Borders
- Study Area

OPPORTUNITIES

- Encourage the reuse of industrial heritage.
- Create a thematic route for Savoy Heritage.
- Create a thematic route for Fortifications and Military.
- Create a thematic route for Religious Poles.



The railway system can help connect tourists to the existing cultural heritage.



Constant maintenance of the existing bicycle path could increase tourist flow and decrease the use of cars.



Touristic routes can incentivize connection between the cultural heritage.



Unione Montagna Bicycle Path can increase the connection between municipalities.



Torino Lyon Train Line can increase the number of tourists in the area.



Increasing the frequency of Covourese bus lines could improve the connection between the municipalities and between the railway line and the Sacra.



Measures to increase the quality of water in the lakes



Measures to increase the quality of water in the rivers



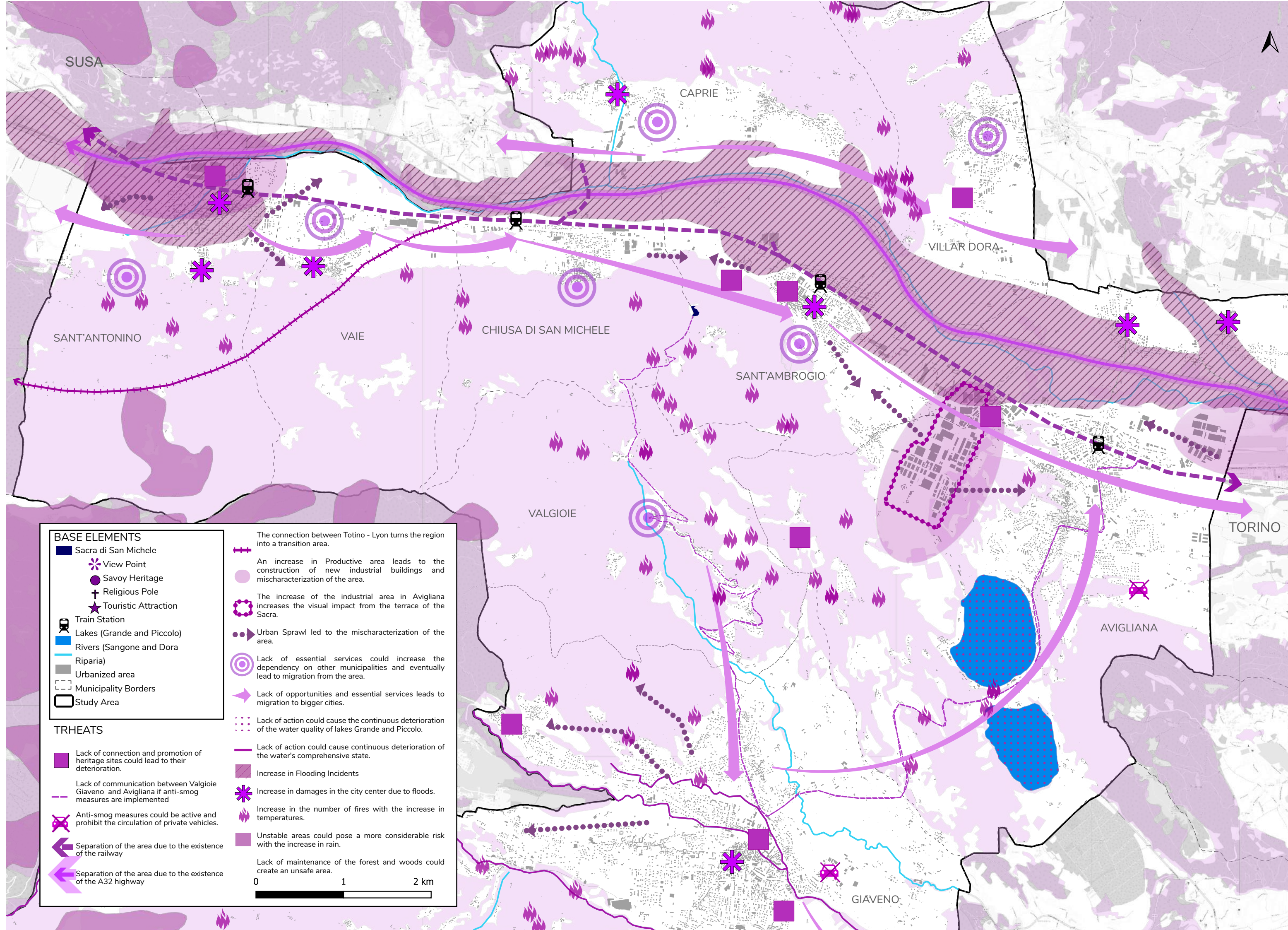
Incentivize waste sorting.

Developing a project to manage the forest and woods area could increase interest in the area.

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2 km



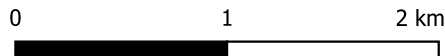
BASE ELEMENTS

- Sacra di San Michele
- View Point
- Savoy Heritage
- Religious Pole
- Touristic Attraction
- Train Station
- Lakes (Grande and Piccolo)
- Rivers (Sangone and Dora Riparia)
- Urbanized area
- Municipality Borders
- Study Area

TRHEATS

- Lack of connection and promotion of heritage sites could lead to their deterioration.
- Lack of communication between Valgioie Giaveno and Avigliana if anti-smog measures are implemented
- Anti-smog measures could be active and prohibit the circulation of private vehicles.
- Separation of the area due to the existence of the railway
- Separation of the area due to the existence of the A32 highway

- The connection between Torino - Lyon turns the region into a transition area.
- An increase in Productive area leads to the construction of new industrial buildings and mischaracterization of the area.
- The increase of the industrial area in Avigliana increases the visual impact from the terrace of the Sacra.
- Urban Sprawl led to the mischaracterization of the area.
- Lack of essential services could increase the dependency on other municipalities and eventually lead to migration from the area.
- Lack of opportunities and essential services leads to migration to bigger cities.
- Lack of action could cause the continuous deterioration of the water quality of lakes Grande and Piccolo.
- Lack of action could cause continuous deterioration of the water's comprehensive state.
- Increase in Flooding Incidents
- Increase in damages in the city center due to floods.
- Increase in the number of fires with the increase in temperatures.
- Unstable areas could pose a more considerable risk with the increase in rain.
- Lack of maintenance of the forest and woods could create an unsafe area.



The Spatial SWOT analysis illustrated the most relevant factors that affect the area. The map of strengths shows that the area possesses a vast variety of cultural heritage, connected by the various touristic routes. This connection could become an asset to local tourism. Today, there are also several laws concerning the construction of buildings. They can help maintain a connection between the whole territory.

The weakness map shows that mobility is one of the area's most significant vulnerabilities. While the train line exists, it does not reach the whole area. The Sacra also has a weak connection to the municipalities since it has few bus connections. Another concern is the lack of services in many cities.

The map of opportunities reveals the already existing mobility plans, such as the Francigena bicycle path. It also mentions the possibility of increasing the bus lines in the area.

The threats map also focuses on the area's lack of mobility and services. Both of these facts, together with the negative growth of the population, point to a possible increase in migration in the future.

4.4 Stakeholder Analysis

The Stakeholders Analysis focuses on compiling possible Sacra di San Michele stakeholders. These do not need to be directly related to the site but could benefit from the development of the Sacra tangentially. They range from public institutions to private companies with stakes in the area's development.

After identifying stakeholders, it is necessary to categorize them according to their power and resources. Then, there is a need to identify the stakeholder's objectives and interests to assess if they could help or hinder the project.

The information is then analyzed, in this case, using the stakeholder circle methodology. This technique considers the actors' power and influence to create a ranking of the most essential stakeholders. There was particular attention to

determining the stakeholders tasked with directly managing the Sacra and those that can interfere with possible plans more directly.

4.4.1 The Stakeholders

The initial step of the stakeholder analysis is to investigate possible organizations, entities, or companies that deal with heritage at a national level. It is also important to consider educational or research institutions that could be connected to the site by projects and other instances.

The Ministry of Cultural Heritage and Activities and Tourism and the Metropolitan City of Turin are governmental entities that deal with heritage but are not directly linked with the Sacra. Other sectors, such as the Piedmont Region, the Culture, Tourism, and Sports Council, and the Piedmont Superintendency for Architectural Heritage and Landscape, are more closely connected to the site. These three organizations are in some way directly related to the decision-making process or can function as consultants, as determined by the “Agreement between the Piedmont Region and the Entity Sacra di San Michele for the management and enhancement of the Sacra di San Michele.”

Other governmental entities would be UNESCO, Municipalities of Giaveno, Vaie, Sant’Antonino, Villar Dora, and Caprie. They are geographically close to the Sacra and connected to it through history, in the case of Giaveno, Caprie, Vaie, and Sant’Antonino, or through existing mobility plans, in the case of Villar Dora. The municipalities of Avigliana, Sant’Ambrogio, Valgioie, and Chiusa di San Michele are directly connected to the valorization of the site and management of the site.

These municipalities are a part of the Mountain Unions of the Valleys of Susa and Sangone. These communities have the power and financial capability to implement mobility plans and improve heritage valorization at a local level.

Regarding the touristic valorization of the area, organizations like Visit Piemonte, Turismo Torino e Provincia, and Pro Loco Sant’Ambrogio can influence this area at a regional and local level. While not a touristic organization, “*Terra di Sacra*” focuses on inscribing the Sacra in the WHL and creating a regional touristic plan for the territory.

The Sacra is located on an important cultural and historical route. Associations promoting such pathways could be tangentially connected to the Sacra. These include the European Network of Sites and Paths of Saint-Michel, *Associazione Europea Vie Francigene*, and the *Fondazione Centro Culturale Valdese*. They could benefit from promoting the Sacra since both the site and Sant'Ambrogio are a part of these routes.

Non-profit organizations, such as *Amici della Sacra*, UNlone VOLontari Culturali Associati (UNIVOCA), and the Assozazione Volontari di San Michele, could be helpful to advocate for the public. UNIVOCA and the Amici della Sacra have a role as consultants for possible projects for the valorization and management of the Sacra. Tourists and the community can also be considered as a different category of stakeholders.

SFM Torino and the Cavourese Bus Company are directly connected to the flow of tourists in the area. They are responsible for transporting passengers to Sant'Ambrogio and Sacra di San Michele. They are increasing the frequency of the train and bus lines, resulting in a possible increase in tourist flow in the area.

Since the XIX century, the Padre Rosminiani Charity Institution has managed the Sacra. While their role has changed through the years, they are still a part of the decision-making process and are tasked with collecting knowledge related to the site.

The Politecnico di Torino and the Links Foundation are other organizations connected to the site. They are both related to the research portion of the project. The "*Fondazione Comunitaria del Lucchese*" is connected to the inscription of the Sacra and other monuments in the Tentative List of Italy. The Promo Pa Foundation is currently working on the development plan for the Teera di Sacra association.

4.4.2 Actors Classification

Following the theories proposed by Bruno Dante (2014), the actors can be classified into five categories: political, neurocritical, general interest, special interest, and experts.

The political actors are likely, but not exclusively, public institutions that can be swayed by public opinion. Stakeholders considered political actors were the Ministry of

Culture, the Piedmont Superintendency for Architectural Heritage and Landscape, the Piedmont Region, the Metropolitan City of Turin, the Culture, the Council of Tourism and Sports, and the several municipalities that could benefit from the insertion of the Sacra di San Michele in the World Heritage List. They are all public institutions that manage and protect cultural heritage at a national, regional, and local level. These organizations are responsible for enacting the interests of the public in regards to the protection and maintenance of heritage.

The Bureaucratic actors are those who can change the laws that could affect the Sacra. This section is varied because several political actors also have bureaucratic characteristics. The ones that fit the criteria were UNESCO, the Mountain Unions of Susa Valley, and Sangone Valley.

General Interest actors are affected by the possible outcomes of the projects and have a certain political or bureaucratic power. This category includes tourism agencies since they are all organizations that deal with the valorization of tourism in general or the Sacra specifically. Such organizations are Visit Piemonte, Pro loco Sant'Ambrogio, and Turismo Torino e Provincia. Other associations included are The European Network of Sites and Paths of Saint-Michel, "*Associazione Europea Vie Francigene*" (AEVF), and the "*Fondazione Centro Culturale Valdese*." While not all of them are directly related to the Sacra, the monument's position regarding this route is valuable. The legitimacy given to a site after UNESCO recognition could influence the success of these cultural routes.

Non-profit organizations can also be considered general interest actors. Amici della Sacra, L'Unione Volontari Culturali Associati (UNIVOCA), and the Associazione Volontari Sacra di San Michele can advocate for the public interest. The SFM Torino and the Cavourese bus company could also indirectly benefit from the increase in the number of visitors in the Sacra since they provide access to Sant'Ambrogio, in the SFM case, and the Sacra, from a Cavourese bus line. Other actors that should be considered in this category are the tourists and the community.

Special Interest actors are those that are directly affected by the project.

"They will try and maximize the benefits and minimize the costs, therefore they will choose the alternative that allows them to reach this goal." (DANTE, 2014)

The Padre Rosminiani organization can be considered a special interest. They have managed the site for years but do not have any specific political or bureaucratic power, even though they can affect the decisions made regarding the Sacra. Other institutions, such as Piedmont Regions and the municipalities of Avigliana, Chiusa di San Michele, Sant'Ambrogio, and Valgioie, can also be considered special interest actors since they are more closely related to the costs and impacts of any possible projects. The "*Fondazione Comunitaria del Lecchese*" is funding the effort to inscribe eight monuments to the UNESCO World Heritage List, including the Sacra.

Experts would be the actors that concern themselves mainly with the knowledge to influence the project decisions. The Politecnico di Torino and the Links Foundation are working to inscribe the Sacra in the World Heritage List. To do this, they must produce a series proving the heritage site's value and developing a management project. Other organizations that could be considered experts are the Amici della Sacra, UNIVOCA, the Culture, Tourism, and Sports Council, and the Rosminiani Priests institution since they have advisory functions in the projects connected to the Sacra.

4.4.3 Resources

The resources can be classified into four categories: political, economic, legal, and cognitive. The categories are not mutually exclusive; each actor can access any resource combination. The resources of each actor are not strictly related to their classification.

Political resources are not exclusive to political actors. They are based on the level of influence an actor generates and depend on public opinion. Politicians and influencers, for example, could exercise this resource. Actors with this attribute would be the several municipalities of the area, the tourist organizations, the national institutions, and the visitors and community in general since they can influence the

opinion of other people, even on a small scale. Organizations such as Politecnico di Torino and Link Foundation also have this resource since they can legitimize any efforts.

Economic resources depend on the actor's ability to use their financial resources to influence other actors' actions. This resource is reserved mainly for national organizations like the Ministry of Cultural Heritage and Activities and Tourism and the Piedmont Superintendency for Architectural Heritage and Landscape. Other institutions that have this resource would be the SFM Torino and the Cavourese bus company since they can directly influence the flow of tourists with their practices.

Legal resources are based on the existing procedures and the organizations or people that can exploit them. In general, most of the national institutions would have these resources.

Cognitive resources refer to the availability of relevant information. Institutions that can have this knowledge are tasked with valorizing heritage, for example, the Piedmont Superintendency for Architectural Heritage and Landscape. Organizations specializing in acquiring and promoting learning, such as Politecnico di Torino and the Links Foundations, would also fit the criteria. All the area's municipalities could also have this resource since they have information regarding statistics of their respective regions.

ID	NAME	LEVEL	WEBSITE	OBJECTIVES	TYPE	RESOURCES			
						POLITIC	ECONOMIC	LEGAL	COGNITIVE
1	The United Nations Educational, Scientific and Cultural Organization (UNESCO)	International	https://whc.unesco.org/	Protection of the public interests	Burocratical, Political	X	X	X	X
2	Ministry of Culture	National	https://www.beniculturali.it/	Protection of the public interests, cultural and economic valorization	Burocratical, Political	X	X	X	X
3	Soprintendenza Archeologia, belle arti e paesaggio	National	http://www.sabap-to.beniculturali.it/	Knowledge, protection and cultural valorization	Burocratical, Political	X	X	X	X
4	Piedmont Region	Local	regione.piemonte.it	Cultural and economic valorization, communication, financial responsibility	Political, Burocratical, special interest	X	X	X	X
5	Giunta di Cultura, Turismo e Sport	Local	https://www.regione.piemonte.it	Cultural and economic valorization, communication, financial responsibility	Burocratical, Political	X		X	X
6	Città Metropolitana of Turin	Local	cittametropolitana.torino.it	Development and promotion of tourism, protection, and conservation of heritage, communication	Burocratical, Political	X		X	
7	Municipality of Sant'Ambrogio	Local	https://www.prolocosantambrogio-sacrasanmichele.it/?p=557	Development and promotion of tourism, protection, and conservation of heritage	Political, special interest	X		X	X
8	Municipality of Chiusa de San Michele	Local	https://www.comune.chiusadisanimichele.to.it/	Development and promotion of tourism, protection, and conservation of heritage	Political, special interest	X		X	X
9	Municipality of Avigliana	Local	https://www.comune.avigliana.to.it/it-it/home	Cultural and economic valorization, communication	Political, special interest	X		X	X
10	Municipality of Valgioie	Local	https://www.comune.valgioie.to.it/it-it/home	Cultural and economic valorization, communication	Political, special interest	X		X	X
11	Municipality of Sant'Antonino di Susa	Local	http://www.comune.santantoninodisusa.to.it/	Cultural and economic valorization, communication	Political	X			
12	Municipality of Giaveno	Local	https://www.comune.giaveno.to.it/	Cultural and economic valorization, communication	Political, special interest	X			
13	Municipality of Vaie	Local	https://comune.vaie.to.it/	Cultural and economic valorization, communication	Political, special interest	X			

ID	NAME	LEVEL	WEBSITE	OBJECTIVES	TYPE	RESOURCES			
						POLITIC	ECONOMIC	LEGAL	COGNITIVE
14	Municipality of Caprie	Local	https://comune.caprie.to.it/it-it/home	Cultural and economic valorization, communication	Political	X			
15	Municipality of Villar Dora	Local	https://www.comune.villardora.to.it/it-it/home	Cultural and economic valorization	Political	X			
16	Unione Montane Valle Susa	Local	unionemontanavallesusa.it	Development and promotion of tourism, cultural and economic valorization	Political	X		X	
17	Unione Montane ValSangone	Local	http://www.unionemontanavalsangone.it/	Development and promotion of tourism, cultural and economic valorization	Political	X		X	
18	Visit Piemonte	Local	https://www.visitpiemonte-dmo.org/chi-siamo/	Cultural and economic valorization, communication	General Interest	X			
19	Turismo Torino e Provincia s.c.r.l	Local	https://www.turismotorino.org/en/node/6969	Cultural and economic valorization, communication	General Interest	X			
20	The European Network of Sites and Paths of Saint-Michel	International	https://www.reseausaintmichel.eu/	Cultural valorization, touristic promotion	General Interest	X			X
21	Associazione Europea Vie Francigene (AEVF)	International	http://www.viefrancigene.org/	Cultural valorization, touristic promotion	General Interest	X			X
22	La Fondazione Centro Culturali Valdese	International	https://www.lestradedeivaldesi.com/scopri/	Cultural valorization, touristic promotion	General Interest	X			X
23	Padre Rosminiani	International	https://www.rosmini.it/Objects/Home1.asp	Knowledge, protection and cultural valorization, management	Special Interest, Experts	X		X	
24	SFM Torino	Local	https://www.sfmtorino.it/	Economic Valorization	General Interest		X		
25	Cavourese	Local	https://cavourese.it/it/contacts	Economic Valorization	General Interest		X		
26	Pro loco Sant'Ambrogio - Sacra de San Michele	Local	https://www.prolocosantambrogio-sacrasanmichele.it/?p=557	Conservation, cultural valorization, and defense interests of the community	General Interest	X			
27	Amici della Sacra	Local	https://www.amicidellasacra.it/	Conservation, cultural valorization, and defense interests of the community	General Interest, Experts	X			
28	L'UNlone VOlontari Culturali Associati (UNIVOCA)	Local	https://www.univoca.org/	Conservation, cultural valorization, and defense interests of the community	General Interest, Experts	X			X

ID	NAME	LEVEL	WEBSITE	OBJECTIVES	TYPE	RESOURCES			
						POLITIC	ECONOMIC	LEGAL	COGNITIVE
29	Associazione Volontari Sacra di San Michele	Local	http://www.avosacra.it/	Conservation, cultural valorization, and defense interests of the community	General Interest	X			X
30	Tourists	International/national/local	N/A	Promotion of local culture and tourism, leisure	General Interest	X			
31	Community	Local	N/A	Promotion of local culture, leisure	General Interest	X			
32	Politecnico di Torino	International/national/local	https://www.polito.it/	Proposal for management, valorization, knowledge, and protection	Experts	X			X
33	Links Foundation	National	https://linksfoundation.com/poc/	Proposal for management, valorization, knowledge, and protection	Experts	X			X
34	Promo Pa Foundation	National	https://www.promopa.it/	Proposal for management, valorization, knowledge, and protection	Experts	X			X
35	Terre di Sacra	Regional	n/a	Proposal for management, valorization, knowledge, and protection	Experts, General Interest	X			X
36	Fondazione Comunitaria del Lecchese	National	https://www.treccani.it/monasteri_benedettini/	Knowledge, protection, and cultural valorization	Experts, General Interest	X			X

Table 8 - Stakeholders Analysis

4.4.4 Circle Methodology

The Circle methodology is a form of stakeholder evaluation that considers the power, proximity, and urgency of a particular service for each possible stakeholder. Before the development of the analysis, there is a need for the prioritization of the stakeholders to better define their role in the project.

Each core characteristic of power, urgency, and proximity was quantified by evaluating the characteristics of each of the actors and rating them by using a symbolic numerical value. The stakeholders in each category could have low, medium, or high influence. A number from one to five was attributed to each response. In this situation, one means low, and five means high.

Then, the numbers were computed using an arithmetic medium. This term means that the value of each category will be added and then divided by the number of categories. The stakeholder with a value higher than or equal to three was considered in the circle analysis.

The circle diagram can be developed after assessing and defining the chosen stakeholders. The base diagram was created with five concentric circles. These circles represent the level of power of each stakeholder. The size of the section depends on the influence of each stakeholder. This value is an amalgamation of all the other characteristics. The level of proximity is determined by each stakeholder's position inside the concentric circles.

Stakeholders that possess a high level of power are the ones that can stop the project. The Sacra is managed by a series of different organizations and municipalities, all of which have a say in the continuation of the project. While UNESCO is not connected to the project, the organization can deny entry to the list or take it out of it.

N	NAME	POWER	URGENCY	PROXIMITY	VALUE (P+U+P/3)
1	The United Nations Educational, Scientific and Cultural Organization (UNESCO)	5	2	2	3
2	Ministry of Culture	5	2	2	3
3	Soprintendenza Archeologia, belle arti e paesaggio	5	3	3	3.67
4	Piedmont Region	5	4	5	4.67
5	Giunta di Cultura, Turismo e Sport	3	2	4	3
6	Città Metropolitana of Turin	2	3	4	3
7	Municipality of Sant'Ambrogio	5	4	5	4.67
8	Municipality of Chiusa de San Michele	5	4	5	4.67
9	Municipality of Avigliana	5	3	4	4
10	Municipality of Valgioe	5	3	4	4
11	Municipality of Giaveno	3	2	4	3
12	Municipality of Vaie	3	2	4	3
13	Unione Montane Valle Susa	4	2	4	3.33
14	Padre Rosminiani	5	5	5	5
15	Amici della Sacra	4	3	4	3.67
16	L'UNione VOLontari Culturali Associati (UNIVOCA)	3	2	4	3
17	Community	2	3	4	3
18	Politecnico di Torino	4	3	5	4
19	Links Foundation	4	3	5	4
20	Promo Pa Foundation	4	3	5	4
21	Terre di Sacra	4	5	5	4.67
22	Fondazione Comunitaria del Lecchese	5	4	3	4

Table 9 - Table for the stakeholder's circle

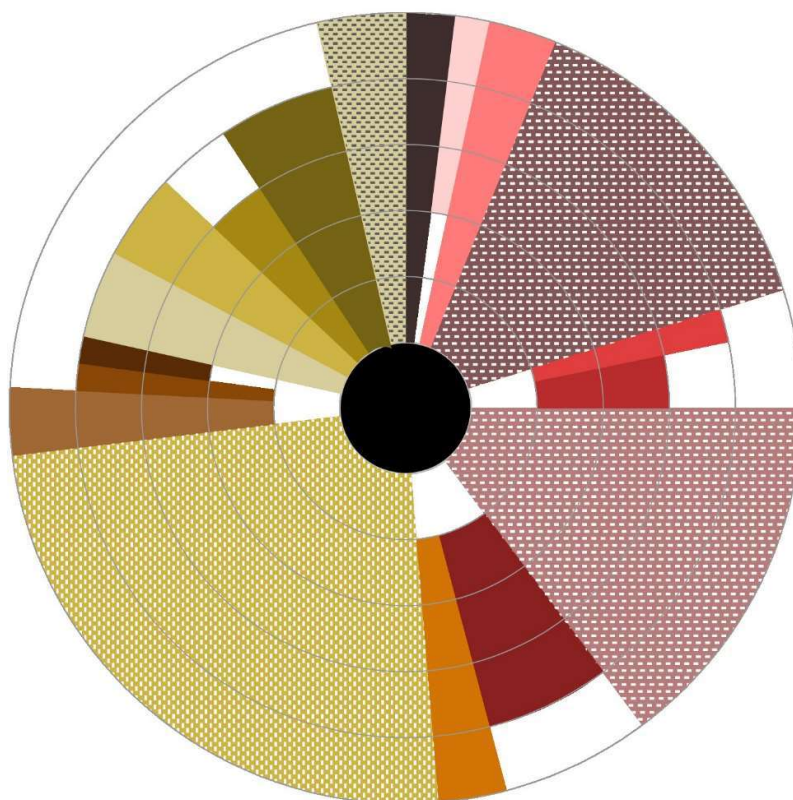


Figure 91 - Circle Diagram
Source: Developed by Marina Boschetti

According to the circle analysis, (Fig. 91) the most influential stakeholders are the Rosminiani Priests and the several municipalities involved, followed by the Piedmont Region. Other essential stakeholders include the UNIVOCA and Amici della Sacra organizations, Politecnico di Torino, and the Links Foundation.



CONCLUSION

The Sacra di San Michele is a monument intensely connected to the history and evolution of Low Susa Valley. While its political influence has diminished throughout the years, its symbolic role remains in the region. Adding this site to the World Heritage List would help strengthen its position in Italy and facilitate future restorations.

The inscription of the Sacra in the WHL would undoubtedly impact the local tourism of the Susa Valley. Today, the complex is already very popular with tourists, a tendency that will most likely increase. This would renew the surrounding area, which could benefit from the boost in local tourism. Today, Sant'Ambrogio, its immediate neighbors, have some problems regarding the population's negative growth, a condition seen throughout Italy. This new status would increase the population's interest in the region, fomenting the market and creating new opportunities. This could bring a new wave of people looking to live in the area and make the municipalities more attractive to the younger population.

For this to be possible, developing a management plan for the site is necessary. The first step is the development of the knowledge plan and research regarding the current state of the site, as well as the territory as a whole. The SWOT and stakeholder analyses are integral parts of this project.

These two documents are essential because they are the base of a successful management plan. Identifying the site's current situation is the base for developing any strategies for managing the area. The SWOT analysis is an asset for territorial analysis

and the basis for identifying possible solutions and obstacles for project decisions. A good SWOT analysis also indicates the potential stakeholders that could help develop the project according to the area's characteristics. Similarly, stakeholder analysis is an indispensable tool that can help define the needs and objectives. It can also predict any future problems in the relationship of the many stakeholders involved in a project.

Based on the SWOT and stakeholders analysis, it is possible to propose some actions to help guarantee the Sacra's preservation. This constitutes the creation of a preliminary action plan based on the Management Plan framework provided by UNESCO and other management plans already in use in other World Heritage Sites.

As previously mentioned, the Management Plan for the Piazza del Duomo in Pisa uses the five "c" s concepts (credibility, conservation, capacity building, communication, and community) to organize their projects inside their action plan. They create an idea of each category related to their case study.

- I. "Strengthen the Credibility of the World Heritage List;*
- II. Ensure the effective Conservation of World Heritage Properties;*
- III. Promote the development of effective capacity building in States Parties;*
- IV. Increase public awareness, involvement, and support for World Heritage through Communication;*
- V. Enhance the role of Communities in the implementation of the World Heritage Convention."* (UNESCO, 2021)

Following the example of the Piazza del Duomo, it is possible to define each category within the project. While UNESCO provides a guideline, applying these concepts can vary from project to project.

Credibility, for example, relates to enforcing the legitimacy of the World Heritage List. These would be the measures that promote the awareness of the WHL and the Sacra di San Michele. A conservation plan could also be considered a part of this category since the monument's protection maintains its status in the public eye.

Investing in research is also a way to increase interest and create awareness about the site. There are still many holes in the known information regarding the Sacra.

As the name implies, the conservation category promotes the conservation of the site and the other perceived values. As of now, the tentative list indicates that the "Early medieval Benedictine settlements in Italy" have the following Outstanding Universal Values.

II. *“Exhibit an important interchange of human values, over some time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning, or landscape design;*

V. *Be an outstanding example of a traditional human settlement, land use, or sea use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;*

VI. *to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.”*

(UNESCO, 1972)

The Sacra was not insular; it had several holdings outside the site and was intrinsically connected to the pilgrim routes. It was a center of knowledge of the time, with a vast library and education for the wealthier portion of the population. It was located in a privileged area as a viewing point for the neighboring municipalities.

Measures promoting conservation should aspire to preserve these characteristics. A conservation plan should focus on the Sacra and the possible visual impact of new constructions on the site. While the Via Francigena used to be the most crucial route to the Sacra, today, there is a need to create other ways to access the site, considering their impact on the area.

The Sacra, as a whole, is very well maintained. The main visitation path is very well organized and generally in good condition. The inside and outside the gate of the

Sacra, the environment is well maintained and clean. The most recent restoration of the Sacra is still ongoing. It started relatively quickly after the fire that happened in 2018.

This reveals that the monument has good and continuous upkeep.

The capacity building focuses on professionals and companies that can work in the continuous conservation of the monument. This portion should also consider the experts involved in the project, such as Link Foundation and the Politecnico di Torino. Capacity building can also refer to creating general training courses for the population. Between the several books housed in the library and the site as a whole, the creation of these courses could help both in the dissemination of knowledge and the awareness and credibility of the monument.

While the mountains make for a great view, the green areas surrounding the monument can become unsafe due to neglect. A plan that involves not only the area's management could be beneficial.

Communication can encompass different areas. There is a need to increase digital communication of the site itself, expanding the use of social media and other technologies. The development of educational material about the site could also be an asset.

While the status of the World Heritage List is very marketable, a plan focused on the marketing of the monument could exponentially increase the number of visitors to the site and the area in general. This plan could also involve other municipalities and generate a tourist interest in the area.

The community category includes people in the decision-making process and physical access to the Sacra. Meetings and round-tables involving the community could create a closer relationship between Sacra and the general public.

The area has several plans to reinforce its connections to Turin and France. Following the history of the Susa Valley, it could once again become an area of interest for both nations. While the benefits could be many, they come with a series of vulnerabilities that must be managed to guarantee the project's success.

The application of surveys for visitors of the Sacra could also be beneficial since they can indicate the needs and opinions of the public. It was noticeable that the immediate surroundings of the Sacra currently need a service area available to the visitors. A survey regarding the perception of the space could be beneficial to discover how this affects the visitors.

The mobility of the area is somewhat concerning. While the access to Sant'Ambrogio has an excellent connection to Torino, the Sacra does not. The Sant'Ambrogio, Giaveno, and Valgioie municipalities could work with transportation companies to increase the number and variety of public transportation that reach the area. This effort could incentivize tourism and increase the area's attractiveness to the residents. Eventually, the measures can change the residents' perception of the site. The increase in mobility can also guarantee that people continue to live in the area since living there does not necessarily affect their work or study opportunities.

These strategies can be evaluated by considering the UNESCO Cultural Indicators of 2030. The document provides four categories: Environment and Resilience, Prosperity and Livelihood, Knowledge and Skill, and Inclusion and Participation.

The Environment and Resilience category focuses on incentivizing sustainable development and protection of ecosystems. The area has some problems regarding fires and water damage. A plan regarding the possible mitigation measures and a management plan for the green spaces would address this vulnerability.

The Prosperity and Livelihood categories focus on sustainable tourism and commerce. It encompasses jobs, policies, and possible aids if needed and can be applied when dealing with regional tourism. The area could benefit from increased tourism since it could bring more jobs and positively change the prospects of the municipalities.

Knowledge and Skill can be comparable to capacity building and communication. This category aims to increase jobs, innovation, sustainable consumption, and education regarding climate change. The general education and dissemination of information can be related to this portion.

Inclusion and Participation refer to both physical accessibility, as well as accessibility to information. The increase in the variety of public transport fits this criterion. In general, measures promoting the dissemination of information and inclusion in the Sacra's visitation follow this category's principles.

The Sacra is embedded in the region as a historical and cultural monument. The management plan needs to address problems that affect it directly and the possible and existing conditions of its environment. The following table lists six achievable objectives, describing how they could be reached and categorizing them in the 5Cs categories and the Cultural Indicators.

The following steps for completing the management plan are analyzing and completing the knowledge plan. The nomination of the Sacra as a UNESCO site would surely increase the region's development and guarantee the conservation of the area's cultural heritage. The benefits would surpass the site's preservation and impact the community.

Action	Description	Credibility	Conservation	Communication	Capacity Building	Community	
01 Incentivize Research	Incentivize research regarding the history of the construction of the Sacra Historical and archeological research, using point clouds to record archeological findings. Use new technologies as tools to promote cultural heritage and disseminate information. Digitalize documents Develop educational materials						Increase the awareness of the public and the scientific community regarding the site.
02 Conservation Plan	Document and assess the current condition of the site Develop a detailed plan for the conservation of the site. Generate a monitoring plan based on possible risks to the site's conservation (pollutants, humidity). Develop training programs and generate knowledge to instruct workers in site conservation.						Promote the continuous conservation of the site. Mitigate possible risks to the cultural heritage.
03 Define the buffer and impact zones	Create an extensive study regarding the property's buffer zone, considering possible areas of visual impact. Create guidelines and possibly urban policies to guarantee the protection of the surrounding area. Develop a study of the effects of floods and fires in the study area.						Promote sustainable development for the surrounding areas.
04 Reinforce the Connection between the Sacra and the surrounding area	Promote accessibility by increasing and diversifying the transport options Incentivize tourism at a regional scale. Implement changes in the pedestrian routes leading to the Sacra by using urban design. Implement short-distance transportation between Sacra and other municipalities to decrease car use. Incentivize the protection and management of green areas.						Increase the number of visitors to the site. Create a more attractive environment for the community.
05 Disseminate knowledge	Training Courses aimed at professionals and stakeholders. Training courses aimed at the dissemination of information. Training courses aimed at students and the community in general. Establish a relationship between other Benedictine sites and other organizations directly related to the area.						Increase awareness about the site.
06 Communication with the Public	Proposed events to share and publicize the nomination project. Evaluate and increase access to information inside the Sacra. Facilitate visits for disabled people. Make information more accessible to visitors during the visit. Invest in art to disseminate knowledge of the site to the public. Application of surveys regarding possible needs of the Sacra.						Increase public awareness

Figure 92 - Preliminary proposals for the action plan of Sacra di San Michele
Source: Marina M. Boschetti



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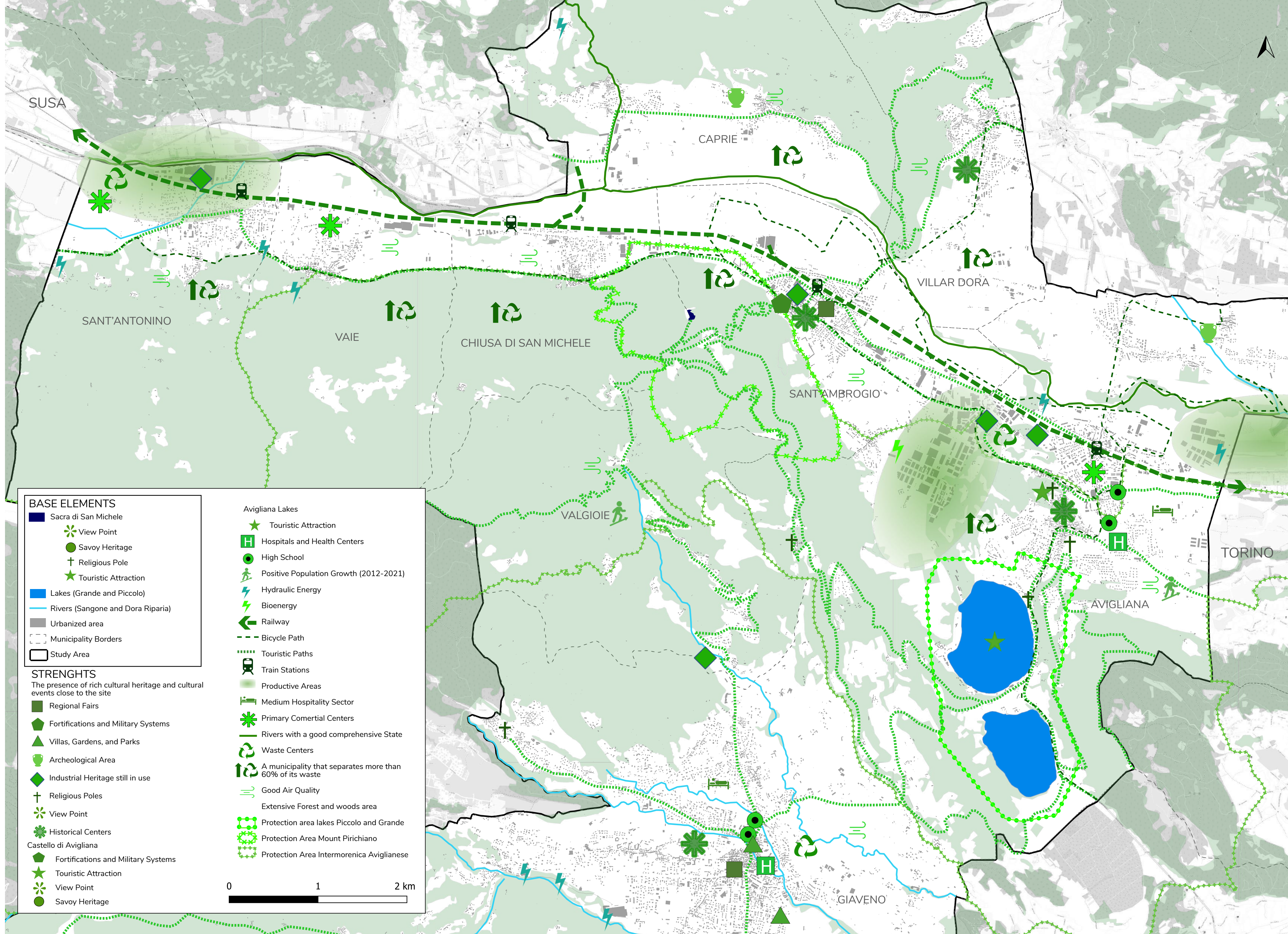
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BASE ELEMENTS

- Sacra di San Michele
- ✱ View Point
- Savoy Heritage
- ✝ Religious Pole
- ★ Touristic Attraction
- Lakes (Grande and Piccolo)
- Rivers (Sangone and Dora Riparia)
- Urbanized area
- Municipality Borders
- Study Area

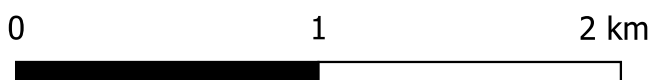
STRENGTHS

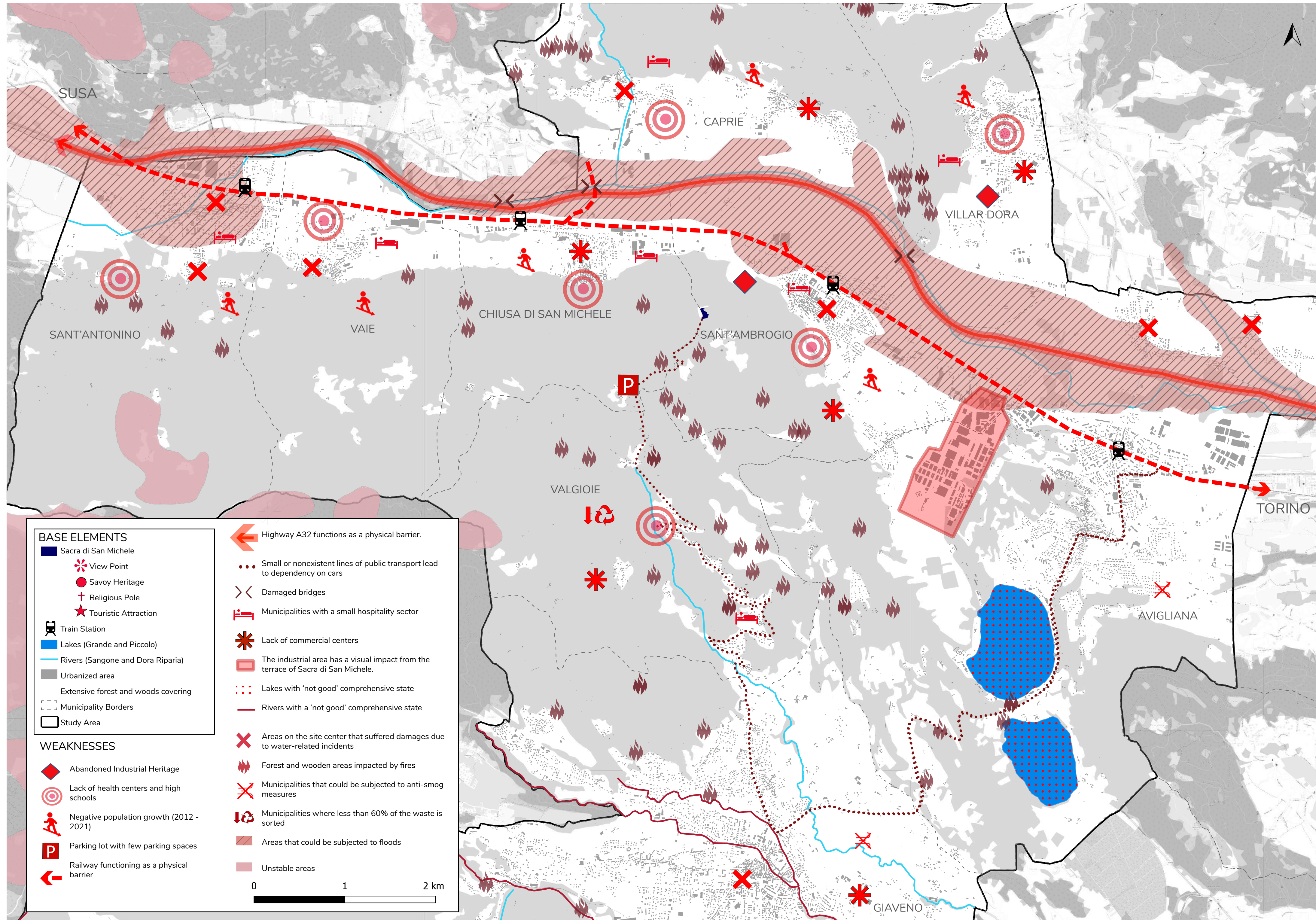
The presence of rich cultural heritage and cultural events close to the site

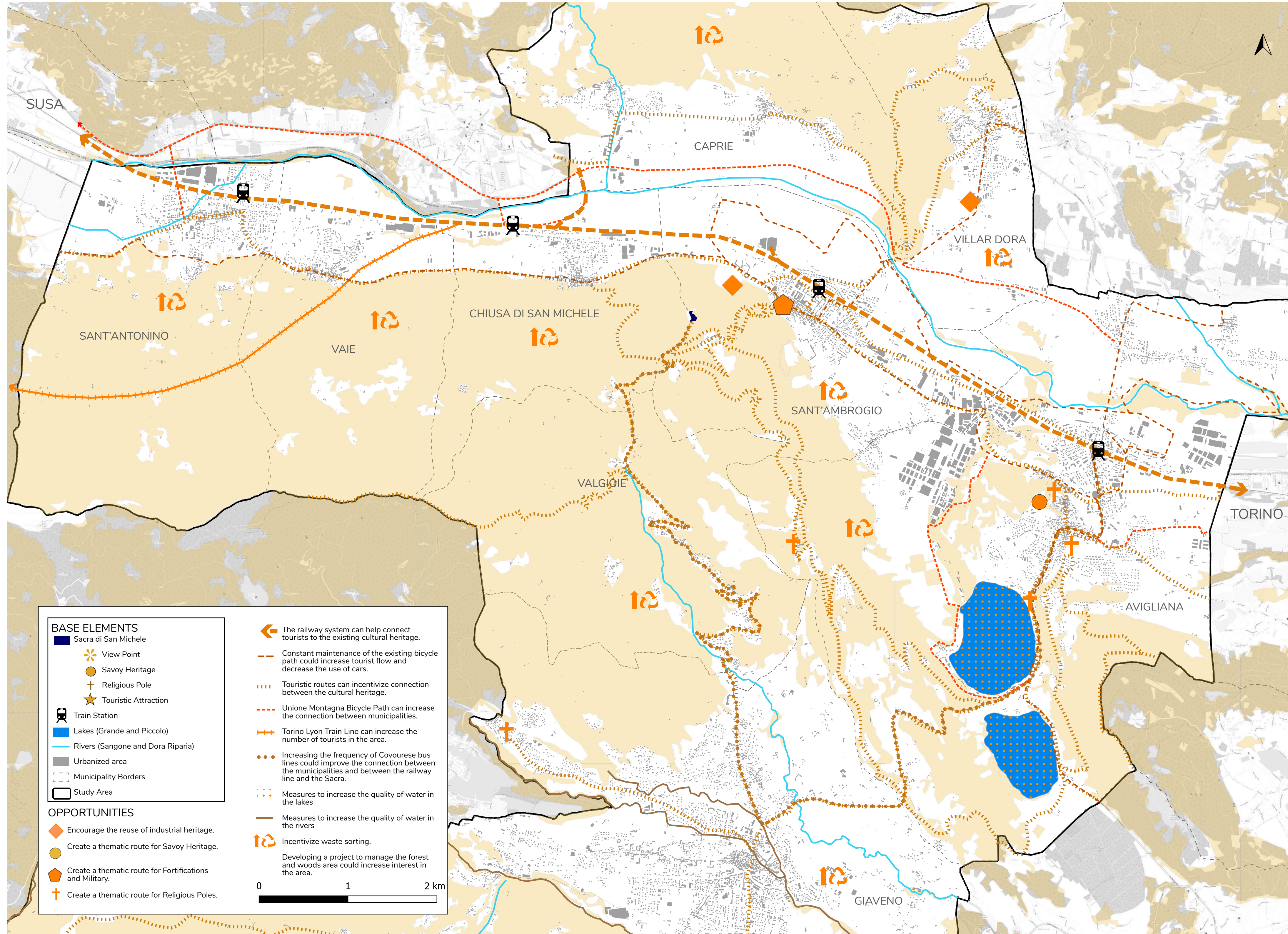
- Regional Fairs
- Fortifications and Military Systems
- ▲ Villas, Gardens, and Parks
- Archeological Area
- ◆ Industrial Heritage still in use
- ✝ Religious Poles
- ✱ View Point
- ✱ Historical Centers
- Castello di Avigliana
- Fortifications and Military Systems
- ★ Touristic Attraction
- ✱ View Point
- Savoy Heritage

Avigliana Lakes

- ★ Touristic Attraction
- Hospitals and Health Centers
- High School
- ▲ Positive Population Growth (2012-2021)
- ⚡ Hydraulic Energy
- ⚡ Bioenergy
- ← Railway
- Bicycle Path
- Touristic Paths
- Train Stations
- Productive Areas
- Medium Hospitality Sector
- ✱ Primary Comercial Centers
- Rivers with a good comprehensive State
- ♻️ Waste Centers
- ♻️ A municipality that separates more than 60% of its waste
- Good Air Quality
- Extensive Forest and woods area
- Protection area lakes Piccolo and Grande
- Protection Area Mount Pirichiano
- Protection Area Intermorenica Aviglianese







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OPPORTUNITIES

- Encourage the reuse of industrial heritage.
- Create a thematic route for Savoy Heritage.
- Create a thematic route for Fortifications and Military.
- Create a thematic route for Religious Poles.

The railway system can help connect tourists to the existing cultural heritage.

Constant maintenance of the existing bicycle path could increase tourist flow and decrease the use of cars.

Touristic routes can incentivize connection between the cultural heritage.

Unione Montagna Bicycle Path can increase the connection between municipalities.

Torino Lyon Train Line can increase the number of tourists in the area.

Increasing the frequency of Covourese bus lines could improve the connection between the municipalities and between the railway line and the Sacra.

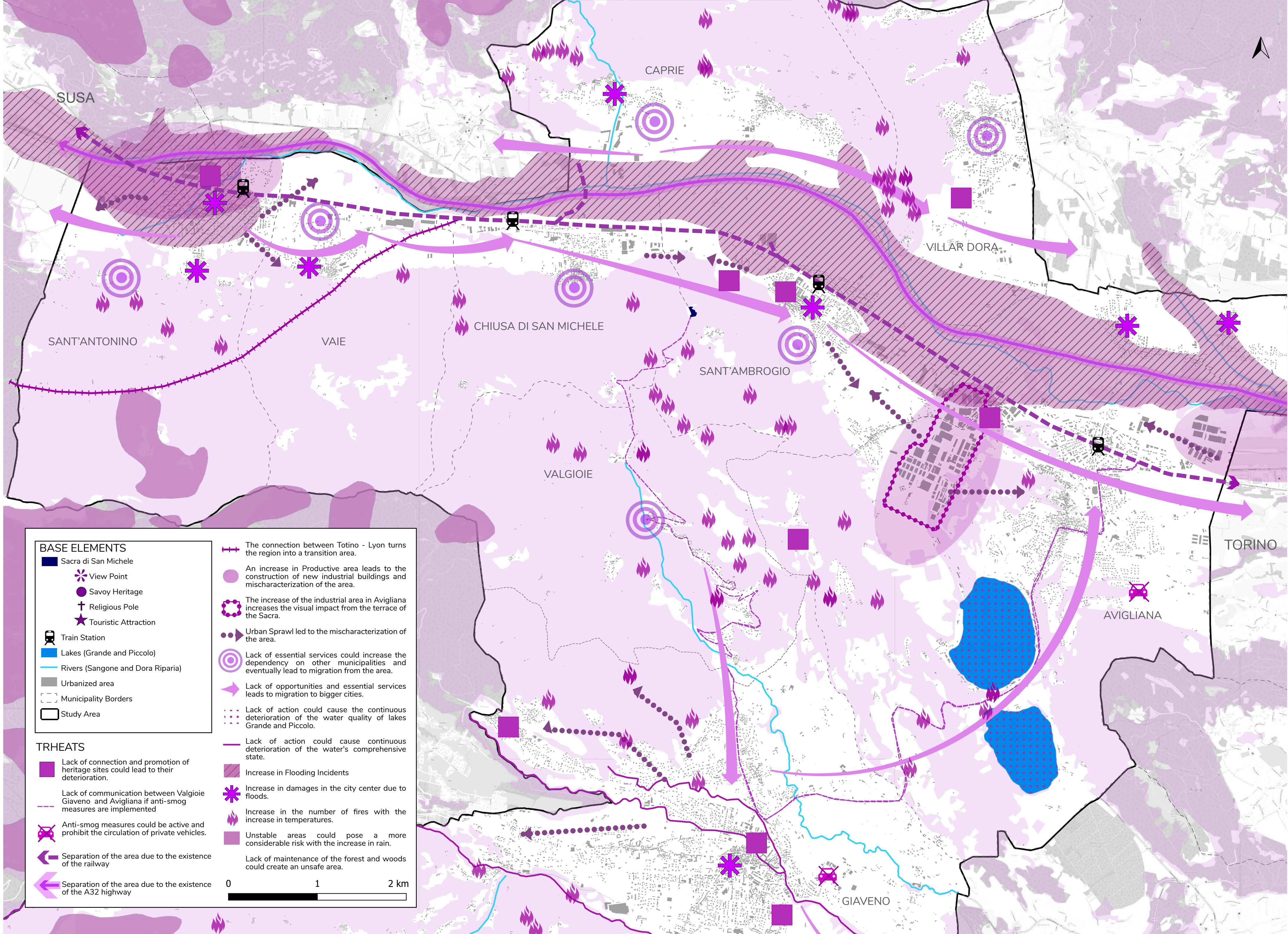
Measures to increase the quality of water in the lakes

Measures to increase the quality of water in the rivers

Incentivize waste sorting.

Developing a project to manage the forest and woods area could increase interest in the area.

0 1 2 km



BASE ELEMENTS

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- 🚂 Train Station
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TRHEATS

- Lack of connection and promotion of heritage sites could lead to their deterioration.
- Lack of communication between Valgioie Giaveno and Avigliana if anti-smog measures are implemented
- 🚫 Anti-smog measures could be active and prohibit the circulation of private vehicles.
- ← Separation of the area due to the existence of the railway
- ← Separation of the area due to the existence of the A32 highway

- The connection between Totino - Lyon turns the region into a transition area.
- An increase in Productive area leads to the construction of new industrial buildings and mischaracterization of the area.
- 🔴 The increase of the industrial area in Avigliana increases the visual impact from the terrace of the Sacra.
- Urban Sprawl led to the mischaracterization of the area.
- 🎯 Lack of essential services could increase the dependency on other municipalities and eventually lead to migration from the area.
- ➡ Lack of opportunities and essential services leads to migration to bigger cities.
- ⋯ Lack of action could cause the continuous deterioration of the water quality of lakes Grande and Piccolo.
- Lack of action could cause continuous deterioration of the water's comprehensive state.
- ▨ Increase in Flooding Incidents
- * Increase in damages in the city center due to floods.
- 🔥 Increase in the number of fires with the increase in temperatures.
- ▨ Unstable areas could pose a more considerable risk with the increase in rain.
- Lack of maintenance of the forest and woods could create an unsafe area.

0 1 2 km