

SUSTAINABLE TRANSPORT NETWORK FOR THE URBAN REHABILITATION OF AN OLD TOWN IN SOUTHERN ITALY

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ABSTRACT

Scalea, a town in the south of Italy, almost completely abandoned and affected by a lack of public transport connections between the historical part (10–11th century) and the new one (20th century), is chosen as case study. Thanks to a detailed comparative analysis of the historical centers of southern Italy, it emerged that Scalea encloses the typical architectural and logistical-infrastructural features of the entire Region. Scalea is characterized by two types of mobility: the “internal” one consisting in stairway paths, in larger part, and few squares; the second one, defined as “external”, because connecting the old center to the rest of the urban territory, is almost affected by the absence of public transport services. The aim of this research is to furnish a sustainable design proposal to enhance and revitalize the old part of the city improving its external mobility reusing the disused and existing railway integrated with greener paths. In order to facilitate a quick and easy access to the historical center, a cycling and walking path network is suggested. The old town, the railway station, the seafront, the existing cycling path as well as the commercial part of the town, are the main important nodes of the suggested design network proposal. Three different cycling and walking path layers are considered: the first one consisting in the reuse of the old and abandoned railway as well as the galleries; the second layer connecting the main squares of the old town to the existing cycling path and the commercial area of the new part; the last one from the western part of the old town to the seafront. The combination of changes, described above, would provide the revitalization of the historical city center for future generations through a new accessibility design that would help them to enjoy both architectural heritage value and urban sustainable mobility.

Keywords: urban rehabilitation, sustainability, historical centers.

1 INTRODUCTION

According to the “World Heritage Cities Programme” of UNESCO, the current trend involving historical centers consists in an increasing of the pressure on historic cities due to lack of policies to recognize and facilitate sustainable use of heritage assets [1]. On one hand, in the European context, certain urban regions, especially in southern Italy, are experiencing an actual decline in population leading to a progressive abandon of the historical centers in order to moving forwards the most peripheral areas, better connected than the historical ones to the principal infrastructures [2]. On the other hand, ranging from traffic and tourism pressures concentrated in few months, especially from June to the beginning of September (summer Italian season), and inner city functional changes, the issues negatively impacting on the cultural-historic significance of urban heritage sites are numerous, often interrelated and increasing in complexity. Parallel to the rapid diffusion of economic globalization, there seems to be a tendency towards a concentration of urban regeneration and development projects in historic inner cities [3].

An urban rehabilitation design, focusing on the infrastructural connection between the old and the new part of the city of Scalea, is proposed. Through this case study, the revitalization of the abandoned historical center and the recovery of the existing railway paths is achieved, demonstrating how it is possible to move on sustainable design proposals on minor historical



centers putting in practice few strategic operations as well as taking into account the existing resources [4].

1.1 Historical context

Scalea represents one of the main important cultural heritage sites of southern Italy. It is located in the northern sector of the Calabria region ($39^{\circ}48'N$ and $15^{\circ}47'E$) at an average altitude of 62 meters above sea level along the Tyrrhenian Sea (Fig. 1) and has a population of around 11000 people increasing up to 150000 people during summer. Inhabited since prehistorical times, Scalea was founded during wars between the Byzantine Empire and Normans (approximately 9th–12th century). During the Middle Age, the town became increasingly important in the Calabrian context, especially for the morphology and the architecture of the old town and for the strategic importance of its castle located in the top of the hill [4].

The first human settlement took place in the year 1000. In order to improve the defensive characteristics of the town, a fortified center on the promontory was built, thereby giving rise to what is actually known as the “historical center” of the town. The original inhabited center has “concentric” features, consisting in circular sectors that correspond to different historical eras which developed chronologically from the top (the older – the defensive center represented by the castle) to the bottom (the newer – the Church of St. Nicholas in Plateis) (Fig. 2).

The pyramidal configuration of the historical center is additionally conditioned by the promontory’ shape that has determined the development of the center according to its morphology through a “stepped” system. Due to that specific urban features, the name

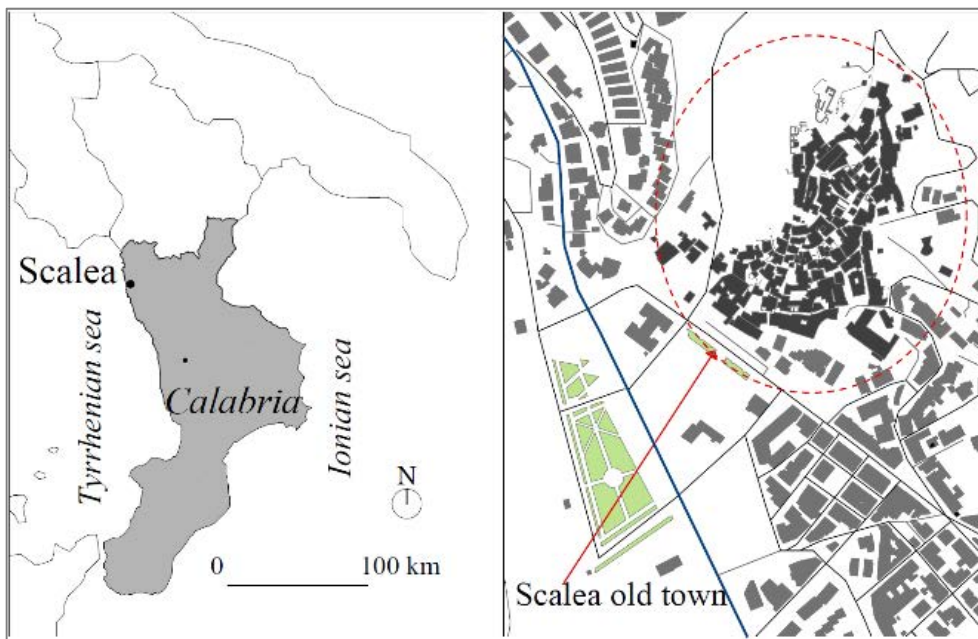


Figure 1: Location of Scalea in southern Italy and a schematic plan of the old town.



Figure 2: Concentric development of the historical center of Scalea, from the top to the bottom.

“Scalea” has been chosen, probably originating from the Latin “ascula” (that means stair) or from the Greek “Daskalion” or “Daskalia” –in Medieval Greek “kondoskalion” (that means small port).

Regarding Scalea’s settlement layout, the inhabitable old surface area is very limited. The ground floor of the old buildings located in the historical center is almost reserved for shops, storage, or shelter for livestock. Buildings grew primarily upward with storey height determined by human height. The main entrances are often located on different levels, following the inclination of the promontory. Those construction patterns affect the thoroughfares of the entire city. Routes appear fragmented where there is a change from one urban area to another, with a spatial interruption discernible both along the horizontal axis transitioning from an alley to a small square, and the vertical axis, observing from below the profiles of the buildings characterized by small balconies and indentations that widen the street.

Until the early years of the 20th century, the inhabited complex strongly maintained its characteristic, with its urban identity, excepting for few and far constructions principally employed for agricultural purposes. The old center remained alive and inhabited for centuries, but, in the last decades, it suffered an undergone drastic depopulation and abandonment.

With the construction of the railway, the problem of locating the railway station emerged. Indeed, it was impossible to insert the railway station in the historical center for lack of space. Thus, the infrastructural node was positioned over the historical center in a flat area at 5 km away. The railway line across the historical center underground through a tunnel dug into the rock of the promontory (Fig. 3).



Figure 3: Photo of the historical center taken in the early 60s, when the old railway was still in operation.

In the 1950s, during the period called “the Italian economic miracle” or the “economic boom” which was the phase of Italian history of strong economic growth and technological advance, a slow “internal migration” connected to the population increase, began. During that period a progressive decline of the historical medieval city center started in order to move to new and modern buildings realized on the vast plain situated between the rail line and the coast. The area around the station acquired its own vitality, offering more commercial opportunities than those offered by the old center. The new focal infrastructural point had a primary role in the urban development overturning the old hierarchies and bringing preeminence from “above” (the hill – the historical center) to “below” (the valley – the new part of Scalea) as well as marginalizing the agricultural economy of the mid-coast and favoring the establishment of various scattered commercial activities.

In the 1960s, as a result of the change from the single track to the double track of the train, the old route that crossed the old town underground was abandoned in favor of a new route (Fig. 4). In the same period, the station was moved about 100 meters further towards the sea, where it is actually located, with a much more modern and organized structure.

In the 1970s and 1980s, the territory experienced a widespread and highly convulsive process of urbanization and housing speculation. Local natural resources were consumed due to the exponential growth of habitations and to the tourist accommodations that took the role of “second homes”. Scalea lived a consistent urban growth. The attention of the municipal government did not focused on the problems of new settlements, built through authorized and non-authorized (informal) processes. Most of those housing areas grew rapidly and were characterized by overcrowding, poor-quality construction, bad sites, and so forth.



Figure 4: Photo of the historical center taken nowadays, in the same area of the Fig. 3; showing the old railway tunnel and the disused route.

The number of properties grew sharply and the urban footprint expanded like an “oil slick” toward the south, where the topography was favorable, but also toward the north until the border of the municipal territory. The consequence of that growth was the progressive abandon of the old town in order to move towards the new residential areas located in the modern part of the town. The strong urban growth lead the historical center of Scalea to a strong abandon. The majority of the historical buildings are actually disused and destined to decay due to the lack of maintenance. Moreover, these older housing buildings, in the inner parts of the historical center, are often home for lower-income families and they have physical, social, economic and cultural values different from, and beyond the perceptions of, bureaucrats or planners.

1.2 Railway settlement

The railway network represents an important infrastructural element both for residents and tourists. As well as experienced by Scalea, railways with a strong tourist vocation were mainly realized in the years between the end of the 19th century and the beginning of the 20th century. During that period, the railway represented an innovative infrastructural element that helped people to reach suggestive and far areas in short times. That fact was also correlated to the economic boom experienced by the modern man, closely linked to the availability of time and money exceeding the vital needs of nutrition and housing.

In Scalea's context, the railway system of the city is crucial to its daily functions, especially during summer. It allows people to easily come on holiday or facilitates the mobility of the population living in the proximity of the city. In a summer day, it is estimated that 68% of passenger-trips are made on the railway at an average distance of 250km per trip.

The majority of the tourists commuters use the railways to reach the city and only a majority of the rest use buses. There are commuters who own their own vehicles as well. But

when tourists come to the city, no public transport services are available to connect the railway station to the most important urban areas of Scalea. A lack of transport public connections between the principal nodes and the historical center is detected. In particular, the most important nodes of the city are: the railway station representing the “main door” of the city; the old town, due to its architectural and historical value; the seafront of a length of 6 km that represents the main path connecting the entire city along the northern-southern axis. The current urban mobility service is therefore insufficient to meet the needs of the large number of people who reach Scalea during summer.

2 THE PROJECT

The focus of the revitalisation and rehabilitation of the historical center of Scalea is focused on whole areas, not just individual buildings, and on social communities, not just the physical environment. The rehabilitation design proposal emphasises the importance of a comprehensive and integrated approach (taking into account political, social, cultural, economic, architectural and urban elements) to planning for the older area, and especially the need to consider complete conservation/rehabilitation design, not only focusing on individual buildings. Sustainable urban regeneration needs to consider not only the unique mix of regional growth drivers and constraints, but also specific local precinct characteristics [5].

A technical analysis about the needs of the community and the entire territory, taking into account the benefits of a possible technical intervention on the historical center, is carried out.

The main axes and the connection infrastructures (existing and potential) are identified as well as the poles that would have a principal role for the tourist flux. In particular, the railway station and the junction with the new motorway “highway” are the principal nodes in a large scale interesting not only the municipality of Scalea but also the entire territory neighbouring Scalea.

The analysis on large scale is then connected to a study focused on the Scalea’s territory. Its principal urban points include the beach and the bathing establishments as well as the commercial area that should be linked to the historical center.

Moreover, in the analysis, specific economic elements, strongly connected to the urban context, are taken into account. On one hand, the need of increasing the economic activity creating new employments and job opportunities, and, on the other hand, the lack of housing for those who cannot afford a house, as well as the need to widen the offer addressed to tourists both in terms of receptivity and in terms of attractiveness and interest. All mentioned economic elements are strongly interconnected and they should be improved in order to ensure a good urban efficiency [6].

2.1 Objectives

The objective of the resettlement and rehabilitation project are:

- a) to ensure resettlement and rehabilitation of the railway tracks and its galleries to facilitate the laying of new tracks between the railway station and the principal nodes of the city;
- b) to connect the old town to the existing cycling path and the commercial area of the new part;
- c) to connect transversally the city from the western part of the old town to the seafront;
- d) rehabilitation of the historic center and its revitalization for accommodation and housing purposes;
- e) to perform the above task in a low-cost, participatory manner with the willing consent of the community and the cooperation of the relevant governmental agencies;



- f) to demonstrate a model of resettlement and rehabilitation that addresses the needs of communities and tourists at the same time as supporting, even enhancing, the economic, transport and engineering objectives of Scalea municipality that will be the project funder.

2.2 Design proposal for transport network

The design proposal focuses on connecting the old and new part of the city through a sustainable urban system consisting in a network of pedestrian-cycle paths linking the most important parts of the city including the railway station (used by tourists mainly in summer and by workers who daily use the train), the seafront, the shopping area and the existing cycle path.

Over years, an urban change involving territories and internal mobility is happened. Most of Italian historical urban centers were conceived and built when vehicles did not exist. Mobility was completely different from what we experience today, both in big cities and in small towns. People generally moved almost exclusively on foot. On the contrary, nowadays, the machine is the most used transport tool.

The present research aims to analyze, study and develop pedestrian cycle paths as integrative and substitutive elements of driveways paths throughout the territory of Scalea. The proposal design also aims to encourage tourists and citizens to abandon the compulsive use of the private car and to develop a propensity towards eco-friendly transport means that have low environmental impact and that allow to improve people enjoying the landscape beauties of the place.

A new cycle-pedestrian path defined as a “green way”, with green and urban elements, starting from the current railway station is proposed, in order to better connect the historical center. It will be start parallel to the railway tracks and then it will continue following the old route of the railway network (currently no longer used) (Fig. 5(a)). In this way, the disused railway network as well as the abandoned galleries will be rehabilitated reducing costs related to the construction of a new cycling path far away of the mentioned points. The railway station is located at a higher altitude than the rest of the city and the cycle path network would take advantage of the old route and the existing tunnel to enter the historical center at an intermediate level with respect to its pyramid-shaped development. It would also ease the connection with the highest part of the historical center which is generally difficult to reach, with a difference in altitude of about 40 meters from the low part up to the bottom of it. An additional cycle-pedestrian connection re-connecting the old town to the current cycle path that runs for about 3 km along the coast, offering an easy sea access, is proposed. Other pedestrian cycle paths will start instead from the lower part of the historical center ensuring rapid connections and slight slopes to users (Fig. 6).

Particular attention is also given to public spaces, squares and areas that would become centers of aggregation and places where to place public services (Fig. 5(b)). In order to facilitate a fast connection to the cycle paths, parking lots and short paths would be integrated with the pedestrian mobility characterizing the inner part of the historical center. Moreover, “free wifi zones” will be available in the entire area of the old town to make it more attractive to young people and tourists.

Cycle paths will be characterized by some differences according to the conditions of the route. The cycle path, installed along the old railway track, is exclusively dedicated to cyclists and pedestrians taking advantage of the old railway system and the tunnels providing two lanes for bicycles (one in each direction) plus one reserved for pedestrians. For what regards the connecting branches with the seafront, the shopping area and the existing cycle path, the

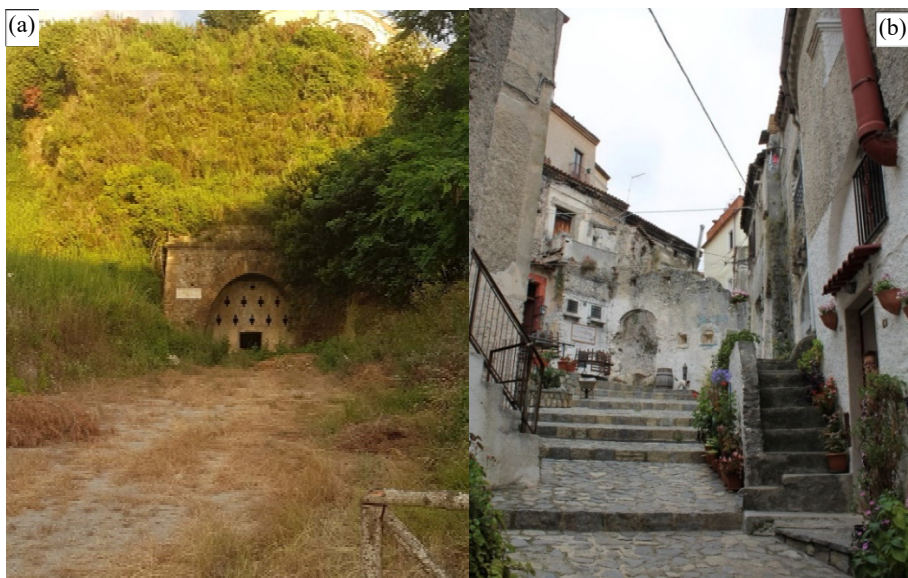


Figure 5: (a) Old and abandoned railway tunnel; (b) Pedestrian routes of the historical center with stairs.



Figure 6: Proposed network of pedestrian-cycle paths.



route will be flanked by the driveway even though maintaining a distinction and protection from it. In order to facilitate a comfortable use of the new paths, relaxing areas, kiosks and bars are considered. The aim of the new paths is to ease a slow tourism, better connecting the historical center to the rest of the city.

Moreover, Scalea has to be considered a seaside resort for its touristic vocation which increases twentyfold its population during the summer period. Tourism is a socio-economic phenomenon generating economic incomes. Nowadays, tourist attraction is no longer based only on the attractiveness and endowment of natural and cultural resources, but it is strongly linked to the existence on the territory of a dense network of integrated services [7]. Above all, transport infrastructures and accessibility represent the main elements. Transport system is considered as the set of infrastructures, vehicles and services that allow the development of social and productive activities [8]. Analyzing the existing transport network of the modern part, infrastructures do not represent a problem [9]. In fact, in the modern part of Scalea, the physical endowment of the infrastructural network can be considered as sufficient to satisfy the considerable increase in population in the summer period. Physical features of the existing network are characterized by arteries including a carriageway of about 6 meters large usable for the two-way flow. Public and private parkings are also sufficient in number even though traffic episodes are not avoided. The problem of traffic congestion can be ascribed to the intersections and exchanges with secondary mobility that can be solved with a careful traffic regulation policy. During summer, the traffic flow increase can be solved by reorganizing the mobility system, discouraging the use of individual cars in favor of slow mobility public transport, which also would be useful to connect parts of the old city that are currently disconnected with respect to the modern city center. For what concerning the old town, the use of the car is excluded a priori due to the features of the settlement system even though nearby areas could be used as parking lots.

2.3 Design proposal for the rehabilitation of the old town

The second phase of the design proposal is focused on the historical center and on a possible solution for its regeneration. In particular, this part will be characterized by four steps:

- a) recovery of the buildings' functions;
- b) increase of the number of available public housing;
- c) increase of the tourist accommodations;
- d) repopulation by residents.

The first issue aims to recover the functionality of historical buildings which are currently affected by partial disuse and in some cases by severe structural decay. The recovery consists in creating new residential and commercial units without altering the original typology of the building and respecting the local environment and the cultural context. The obtained recovered units would be available to host different functions in the same building: the lower level would be destined to commercial activities such as artisans' workshops, shops selling souvenirs and local products, little markets; the upper floors would host rooms and apartments for both public housing and tourist accommodations. For tourists, the "Albergo Diffuso" (Dispersed hotel) [10] would be a sustainable option in order to better locate rooms and services along the entire historical centers. The presence of tourist accommodations in the historical center would provide notable benefits for the guests, not only economically – in fact cooperative management can be carried out at costs very competitive with regards to larger hotels – but also in terms of quality of life, allowing them to easily enjoy an authentic urban experience very close to the sea. The study also includes the removal of architectural barriers in order to reserve ground-floor accommodations for guests with disabilities.

The design for public housing would involve three housing management strategies: real estate purchased by the local government and sold at reduced rates; public housing in the strict sense (publicly owned) or subsidized housing aimed at a collaboration between public entities and private investors. The group together with involved residents would begin a rough mapping of the settlement. This would be as much to help the plane-table surveyors later, as it would be to help communities understand what surveys represent, and while this would be done, much of the community profile would be also completed. This also would create a direct link between investigators and active members of the community.

The combination of changes described above would provide a revitalization of the historical city center. Its repopulation would be easily accomplished by mixing together tourists and merchants (with either new or relocated businesses) with both public housing assignees and families without need of social assistance. In this way, an ideal social fusion would be achieved which would lead to an integration, thereby overcoming the historical trend of the “ghettoisation” of the less affluent social classes [11].

For what concerning legal and economic aspects, the entire process would begin obtaining statements of interest from the properties’ owners who would be involved in the rehabilitation project. Owners could form an association setting up and managing the hotel-borough, keeping a set number of restored properties for residential use. The public administration would invest in infrastructures and urban planning as described above in the design proposal. Moreover, the public administration could reduce taxes for whom are interested in investing in the design area. Additionally, buildings without owners (lost land register) would be acquired by the municipal government’s responsibility, carrying out renovations in order to get the properties back on the market for selling with low-cost leases or for public housing. The municipal government would also guarantee the legal assistance and the technical support over the design process. Communities would be informed that government and city officials would be checking on this process. Indeed, ensuring accuracy is essential to establish good faith and the credibility among communities.

Through the regeneration of the historical center of Scalea, the same design model, based on social, economic, architectural and cultural strategies, could be replied in adjacent territories for urban improvements generating significant economic impact [12].

3 CONCLUSION

The analysis carried out highlights the main factors that influence the urban transport network and the issues that should be a priority in the recovery operations, as well as the possible strategies that could be implemented to link the urban sectors. In particular, project strategies are proposed, useful for defining an overall solution that involves all the analyzed levels. Strategies that could be considered as an intervention model to carry out for future investigations on similar case studies. Many historical centers would be saved from their non-stop decay.

The urban design proposal guarantees a holistic vision of transformation processes that an architectural project is unable to control. It also guarantees legally and irreversibly the conservation of the cultural heritage and it invites through each intervention within the city to reflect on the identity of the cultural heritage. Considerations on the need for area rehabilitation and revitalization approaches which maintain the typical urban tissue and essential qualities of the historical center and of the life of the communities residing there, but which can also adapt the physical structures and activities to some of the present day requirements, are furnished.

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