

# Revitalising Public Spaces and Promoting Social Cohesion through a Sustainable Urban Design: Case Study in the Xirokrini-Vardaris Area of Thessaloniki

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## Abstract

This article presents a comprehensive site analysis of the Xirokrini-Vardaris area in Thessaloniki, identifying challenges such as isolation from an abandoned train station, car-centric dominance of parking, underutilised green spaces, and lack of vibrant social areas. To address these, the study team proposes sustainable interventions to transform the Xirokrini-Vardaris area into a vibrant and sustainable urban environment: enhancing social housing with vegetation green walls for microclimate regulation, privacy, security, and air purification. It emphasises redesigning green spaces to invite community interaction, prioritising pedestrian infrastructure, and fostering inclusivity through clear public-private delineation. These interventions aim to create a sustainable, vibrant, and inclusive urban environment, fostering social cohesion and pedestrian mobility. Thessaloniki can thus pave the way for resilient, people-centric urban development.

## 1. Introduction

A good city centre is the core of a lively and liveable urban area (Paumier, 2004). It needs a clear identity, a sense of place, and a variety of functions. Urban design, built environment, transportation and infrastructures shape its quality. Urban design arranges and presents buildings, streets, public spaces, and landmarks. The built environment provides shelter, services, and amenities. Transportation moves people and goods within and across the city centre. They should be reliable, adequate, adaptable, and integrated (McGranahan & Satterthwaite 2003).

Therefore, a centre of the future must be able to face various challenges including shifting shopping patterns, declining foot traffic, rising rents, and regulatory barriers, which have been further exacerbated by the Covid-19 pandemic. This article explores revitalisation strategies for the historic centre of Thessaloniki, focusing on adapting and thriving amidst changing urban dynamics.

Urban design can facilitate more integrated cityscapes and shape public space in cities that face social and political conflicts (Gaffikin et al., 2010). Madanipour (1999) shows how public space can foster social and functional integration, as well as place identity and consumption, but also how it can be threatened by segregation and privatisation.

This article focuses on the Xirokrini-Vardaris area in Thessaloniki, exploring how urban design can breathe new life into this historic part of the city. The aim is to find sustainable solutions that make the area livelier, connected, and people-friendly, setting an example for other cities to follow.

## 2. Prologe

Though it might not be globally renowned, Xirokrini holds distinctive characteristics that make it a compelling focal point of study. Thus, introducing this paper in the area alone presents a valuable opportunity to delve into a neighbourhood of significant importance and potential.

Among the several compelling reasons why one might choose to focus on this area, one must first and foremost highlight its geographical significance. Xirokrini's location could be a key factor for two reasons. First, this part of the city has always served as the main entrance to the historical centre of Thessaloniki. It would probably be interesting to explore how urban design and transportation networks have evolved while preserving their heritage. Second, its posi-

tion within the city and proximity to important landmarks, transportation hubs, and commercial districts might make it a critical junction for urban mobility and development. In addition, its contour-forming landscape deduces the environmental challenge of susceptibility to flooding, the treatment of which makes it an intriguing case study.

The potential role of Xirokrini as a transportation nexus is another reason to focus on this area. Xirokrini serves also as an internal distribution centre since both the New Train Station and the Intercity Bus Station are located nearby. So, by examining its infrastructure and connectivity, researchers can yield valuable insights into the challenges and opportunities associated with managing urban mobility effectively. Additionally, any distinct socio-economic, cultural, or environmental dynamics within the area could significantly influence urban design and infrastructure needs, enhancing the overall significance of the study.

Last but not least, the historical and architectural significance of the widespread area of Vardaris might shed light on the evolution of urban design and transportation networks over time while preserving heritage. As the area seems to be the main subject of local government initiatives and future development plans, investigating the impacts of these projects can provide a foundation for assessing their effectiveness and potential benefits. Ultimately, the study of Xirokrini Vardaris can contribute valuable insights to the broader discourse on urban sustainability, liveability, and effective strategies for addressing urban challenges.

### 3. Site Analysis

The study team arrived at the site of analysis on the 30th of May at the meeting point that was set at the New Train Station of Thessaloniki. The groups, accompanied by instructors and other participants of the workshop-summer school, conducted a site visit within the study area, making brief stops at regular intervals. During these pauses, they engaged in a comparative analysis of the environment before and after each halt, intending to develop a comprehensive understanding of the area. This exercise was guided by a critical commentary and reflective approach since revisiting the site would be a work against the scarce available study time. At the last stop, most of the time was devoted to an open discussion primarily centred around the easternmost section of the area, which, in comparison to the rest of the locale, is situated closer to the city centre and experiences greater vitality.

After analysing the site (see Fig. 1) based on storyboards (see Fig. 2), it was evident that the Xirokrini Vardaris area is currently experiencing, all in all, a state



Fig. 1: Site location, own illustration based on Google Maps

of recession and abandonment. Through interactions with residents, a common sentiment emerges wherein there is a profound attachment to their place of residence, coupled with a strong desire to witness its restoration to its former splendour. Notably, during interviews, one respondent aptly characterised the area as a „centre off-centre,“ underscoring its potential significance within the broader urban context. Regrettably, the lack of substantial efforts to ameliorate the residents' living conditions is evident, revealing a gap between the area's current state and its envisioned potential, as previously summarised.

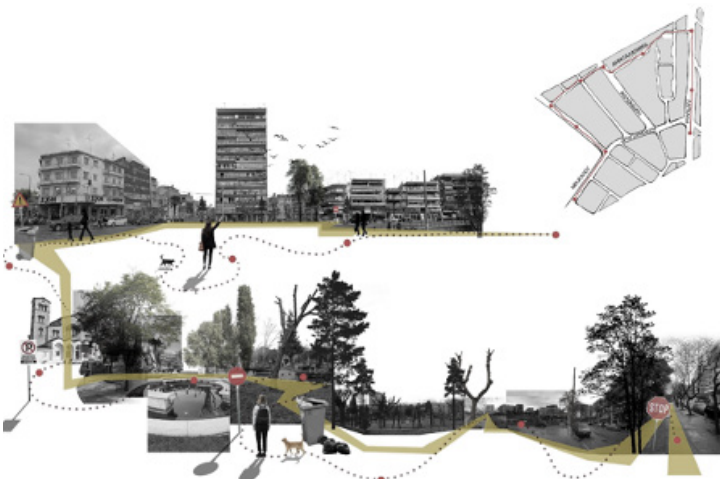


Fig. 2: Site location, own illustration based on Google Maps

## 4. Problems Identified

Having acquired a thorough knowledge of the whereabouts of the investigated area, the team compiles a list of issues identified during the recognition phase, aiming for a more effective resolution. Undoubtedly, these issues are numerous and challenging to entirely address within this brief time frame. Hence, their resolution will be undertaken within the framework of assessing prior proposals (i.e., those suggested in preceding studies) and complementing them with contemporary recommendations.

### 1. Disconnected and Isolated

To begin with, the train station in the area presents a distinct sense of abandonment and isolation. It lacks vibrancy and fails to serve as a hub for community interaction and mobility. Its neglected state contributes to a feeling of disconnection from the surrounding neighbourhood. Moreover, the sole presence of the train station creates a division, resulting in two distinct districts. The facade of the station facing Michail Kalou Street injects into the visual continuity of the urban fabric, hindering social cohesion and inhibiting the flow of people and activities between the areas. The perception of the district as a potential „ghetto“ due to the station’s proximity further exacerbates the sense of isolation.

### 2. The Dominance of Parking Spaces

The presence of numerous parking spaces and the prioritisation of cars over other modes of transportation dominate the site. This excessive allocation of space to parking inhibits the potential for vibrant and pedestrian-friendly urban spaces. It also perpetuates a car-centric mindset that prioritises convenience over sustainable mobility options. To create a more sustainable and people-oriented urban environment, there is a need to shift the focus from parking spaces to alternative modes of transportation. Encouraging walking, cycling (wherever it can be encouraged due to the land’s slope) and public transit should take precedence, to reduce the dependency on cars and improve the overall quality of the built environment.

### 4. Visibility and noise concerns

Although Lagada Street runs adjacent to the site, its visibility could be improved, resulting in a lack



Fig. 3: Low-quality green spaces (own depiction with illustration)



Fig. 4: Street parking (own depiction with illustration)

of integration with the surrounding urban fabric. The physical barriers obstruct the view, preventing the street from becoming visible and the noise pollution can have negative effects on human health such as anxiety and sleep disturbance. Efforts should be made to strike a balance between improving the visibility of Lagada Street (see Fig. 5) and mitigating noise concerns. Implementing design interventions that provide visual connections while effectively managing noise pollution can contribute to a more integrated and livable urban environment.

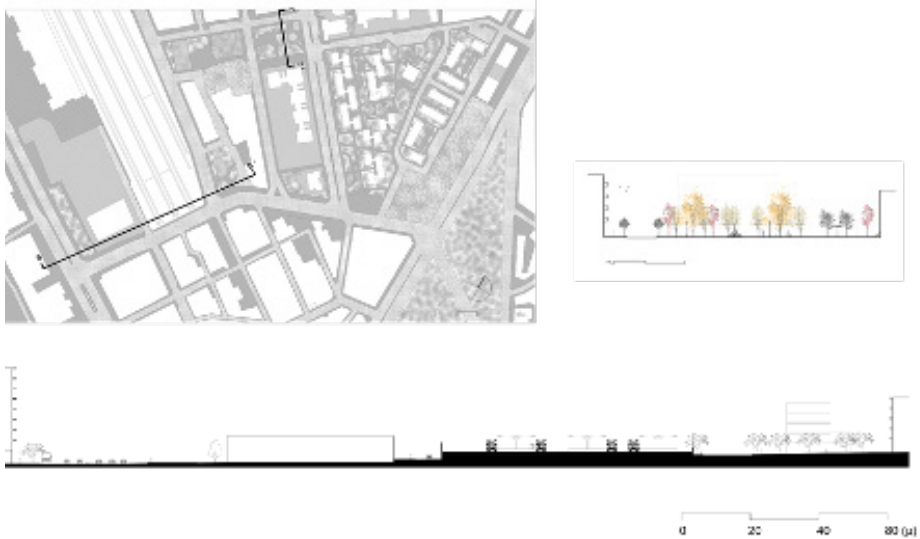


Fig. 5: Street sections (own drawing)

## 5. Lack of Vibrant social Spaces

The absence of vibrant street life is evident, with a dearth of cafes, restaurants, bars, and other social gathering spots. The lack of diverse and lively social spaces hampers community interaction, diminishes opportunities for leisure activities, and inhibits the overall vitality of the area. Creating an inviting and inclusive streetscape is essential for revitalising the area. Encouraging the development of vibrant street-level activities, fostering the establishment of cafes, restaurants, and other amenities, and organising community events can stimulate social interaction and enhance the overall quality of life for residents.

## 6. Dilapidated Structures

Many buildings in the area exhibit signs of deterioration and require renovation. Their worn-out facades and outdated appearances contribute to a sense of neglect and disinvestment in the urban fabric. Addressing these issues is crucial to rejuvenate the area and enhance its visual appeal. Investing in the reno-



Fig. 6: Sidewalk accompanying parking space (own depiction with illustration)



Fig. 7: Space that can be utilised (own depiction with illustration)



Fig. 8: Conflict between pedestrian and parking space (own depiction with illustration)

vation and restoration of buildings can significantly improve the overall aesthetic quality of the area. This includes repairing facades, refreshing building colours, and implementing green renovation practices to promote sustainability.

## 7. Empty Spaces and Potential

The presence of empty spaces waiting for development offers an opportunity for optimal land use planning. These vacant areas can be transformed into vibrant public spaces, mixed-use developments, or green corridors, maximising the potential of the site, and enhancing its functionality (see Fig. 7). To ensure a cohesive and well-designed built environment, it is essential to develop a comprehensive vision for the area's development. This vision should emphasise mixed building typologies, blending residential, commercial, and recreational spaces to promote diversity, inclusivity, and a sense of place.

## 8. Insufficient Pedestrian Infrastructure

The current state of the area lacks adequate pedestrian infrastructure, making it challenging for pedestrians to navigate and access different parts of the neighbourhood. Insufficient sidewalk width, poor pavement conditions, and limited pedestrian crossings hamper walkability and safety (see Fig. 8). Prioritising the needs of pedestrians is crucial for creating a walkable and inclusive urban environment. Improving sidewalk conditions, expanding pedestrian pathways, providing clear signage, and incorporating safe and accessible pedestrian crossings can enhance the overall pedestrian experience and promote active transportation.

## 9. Defining Public and Private Boundaries

The existing urban fabric lacks clear delineation between public and private spaces, especially in proximity to social housing units. This ambiguity can lead to confusion and hinder community engagement. Establishing clear boundaries and crea-

ting well-defined public spaces can foster a sense of ownership, safety, and inclusivity. Creating designated public spaces like plazas, parks, and community centres encourages social interaction and community engagement. By promoting a sense of collective ownership and safety, these spaces can strengthen community bonds and contribute to a vibrant and cohesive neighbourhood.

## 5. Verdant Vertical Efficacy: Elevating Social Housing Through Botanic Green Walls for a Resilient and Ensured Residential Milieu

The designated area of investigation serves as a pivotal juncture of considerable untapped potential, as highlighted earlier, where diverse typologies of the pre-existing designed space and the organised surroundings intersect. The team apprehends this area as a composite of discrete, seemingly disparate subregions, which rest upon the „fissures“ resulting from past interventions, each necessitating distinct contemporary approaches. This underscores the belief held by the team that strategic micromanipulations can yield noteworthy transformations. Unfortunately, the current state of affairs remains below par, given the possibilities inherent in this locale. The prospect of enhancing the living conditions for its residents, coupled with its strategic positioning and potential impact on the urban landscape, propels our conviction that with appropriately tailored interventions, a myriad of positive outcomes can indeed be realised.

The anthropocentric methodology employed throughout the study necessitated a re-evaluation of privacy considerations within the confines of the Axiou Labor Housing complex. In this context, more pronouncedly than in comparable zones, efforts were directed towards the meticulous delineation of the notions of public, semi-public, semi-private, and private spheres, employing nuanced strategies to ameliorate the residents' habitation conditions. By replicating elements observed in other densely frequented locales within Thessaloniki, and incorporating ecologically amiable attributes, such as green walls, one can effectively delimit the area in a manner that lucidly discerns spaces allocated for communal utilisation from those designated for the denizens' exclusive use.

### 1. Microclimate Control and Environmental Benefits

Incorporating a vegetation green wall can facilitate the regulation of the microclimate within the housing project. The dense foliage of the green wall acts as a natural barrier, reducing the impact of harsh weather conditions and providing thermal insulation (see Fig. 9). Green walls have been found to have a small improvement in the microclimate of their surroundings (Balany et al. 2022). They can reduce the surface temperature of building walls, potentially reducing



indoor temperature (Balany et al., 2022). The presence of plants also improves air quality by filtering pollutants, enhancing the overall well-being and health of residents.

## 2. Air Purification

Green walls can help to improve air quality by absorbing pollutants such as nitrogen dioxide, ozone, and particulate matter (PM). They also release oxygen into the air, which can help to improve respiratory health. Paull et al. (2020) found that green walls could significantly reduce PM levels and Ysebaert et al. (2021) conclude that green walls have the potential to significantly reduce PM levels, especially in areas with high traffic or industrial pollution. This is important for the Xirokrini-Vardaris Area, a transportation nexus that serves as an internal distribution centre for the city.



Fig. 9: Conceptual design of the vegetation green wall

## 3. Privacy and Visual Limits

To ensure privacy and create visual limits, the front façade, where the bathrooms are located, can be adorned with vegetated green walls as well. This strategic placement not only shields the interior of the homes from external view but also creates an aesthetically pleasing environment. Residents can enjoy a sense of seclusion and tranquillity while maintaining a connection to nature. Additionally, the visual perception created by the green colour and plants can give a feeling of comfort and calmness, which can help reduce mental stress and improve cognitive function (Erçin & Usluer, 2022).

## 4. Security Enhancement

Integrating a green wall also serves as an additional security measure for the social housing project. The lush vegetation acts as a natural deterrent, creating a physical barrier that enhances the privacy and safety of residents (see Fig. 10). The dense foliage restricts unauthorised access and provides a sense of security and comfort within the living space.

The two previously mentioned key objectives will come into realisation through the simultaneous placement of small glass structures, a concept inspired by

the corresponding glass pavilions of Thessaloniki's Nea Paralia. In this case, their form is dictated by the architectural principles that govern the entirety of the Axios Social Housing Complex: Copy, Mirror, Rotate. Thus, through this partial transparency of the new buildings, the bridging of previous awkward voids is achieved, infusing an element from the broader urban context of Thessaloniki. These structures can accommodate activities of the tertiary sector that enhance focus, and by operating nearly round-the-clock, contribute to the natural security of the area.



Fig. 10: Aerial view of the design proposal

The accompanying figure is a proposal illustrating road sections within the Vardaris Xirokrini area.. Additionally, the image outlines the planned locations for the implementation of green walls and glass buildings.

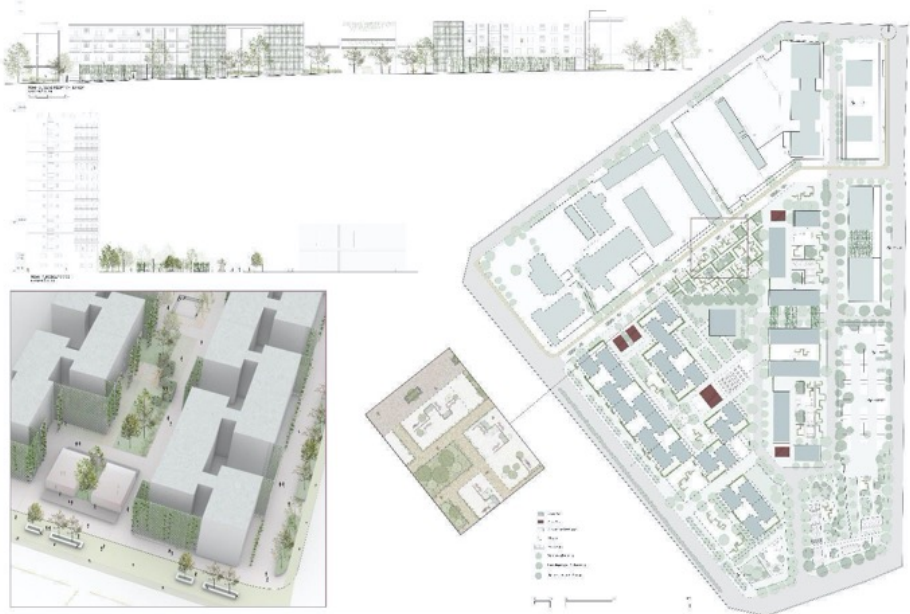


Fig. 11: Design proposal and sections of site area

In pursuit of the continuation of this vision, the purpose is to create spaces where the inhabitants of the area can gather not just to reside, but to learn, create, work, play, and live together. The eastern part of the study area offers the most suitable location for realising this dream as mentioned while first visiting the area of study. This area, situated at the junction between the central and off-centre parts, experiences heightened foot traffic. Most of the ground-level spaces are occupied by various stores, while several workshops also operate here (see Fig. 12). Nevertheless, the prevailing inward focus inhibits its development. The objective is to counteract this tendency and highlight these workshops, aiming to pique the citizens' interest.



Fig.12: Section of Vakchou Street

These workshops are situated at the intersection of Vakchou Street and Tandaulou Street. These two thoroughfares operate on a scheduled basis and function as woonerf streets. They feature pavement composed of more forgiving tiles and experience reduced vehicular traffic, rendering them safe environments for local residents to access and visit (see Fig.13)

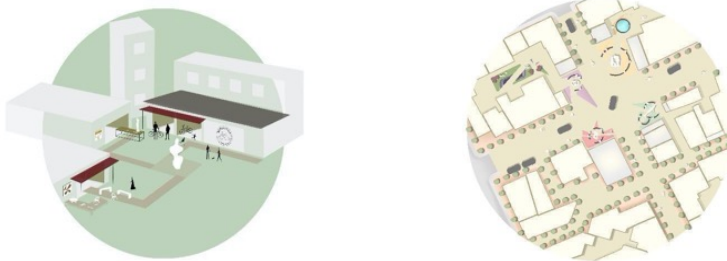


Fig. 13: Design proposal for open public spaces

What's more, vacant, undeveloped spaces transform into public open areas that call upon people to points of interest in the area, such as focal points, small interior plazas within the uncovered spaces of the building blocks, small parks, open-air cinemas (see Fig. 14). In this manner, the inactive facades of the buildings are brought to life, while the human potential within the area engages in creative activity.



Fig. 14: Design proposal section of the unbuilt area between buildings

Last but not least, a green network that includes building facades and rooftops and spreads through uncovered spaces, is directed towards its natural release points in the already established green parks and playgrounds, leading people back to where it originated from (see Fig. 15).



Fig. 15: Design proposal section of Ioannou Farmaki Street

## 6. Conclusion

To conclude, the designated area under investigation holds untapped potential as a vital intersection where various elements of the existing designed space and organised surroundings intersect. The team envisions this space as a combination of discrete subregions shaped by past interventions, necessitating distinct contemporary approaches for transformation. Despite the current state falling short of its potential, the team believes that strategic micro-level interventions can lead to significant positive outcomes for the area's residents and their impact on the urban landscape.

The anthropocentric approach adopted in the study prompts a re-evaluation of privacy considerations within the Axios Labor Housing complex. The meticulous differentiation of public, semi-public, semi-private, and private spheres using nuanced strategies is central to this re-evaluation. Incorporating green walls and emulating successful practices from similar areas within Thessaloniki allows for a clear distinction between communal and exclusive spaces, ultimately enhancing living conditions while fostering connections with nature.

The proposed interventions encompass various benefits, including microclimate regulation through vegetation, sand mitigation, flood prevention, privacy enhancement, and improved security. Additionally, the incorporation of small glass structures inspired by Nea Paralia's pavilions aligns with the architectural principles of the Axios Social Housing Complex, bridging voids and offering opportunities for continuous activities.

By establishing environments where the residents can come together not only to dwell but also to engage in learning, creatively endeavour and work and truly co-living, the area is given back the element it lacked. The eastern section of the study area stands out as the most suitable site for materialising this aspiration. Vice versa, this area seeks to be transformed into a space where residents would not only live but also learn, work, and play, guided by the green flow that directs them to established green areas. So, connecting vacant and communal open spaces through a green network to beckon people into small inner plazas, compact parks and open-air cinemas, can ultimately work beneficially as the significant difference between the studied area and the rest of the city. After all, the individual, the human being, constitutes an integral element of the architectural conception.

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