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The Integrated Development of Space of Coastal Defense Village in the Context of Cultural Heritage Safeguarding: A Case Study of Xiongya Garrison Village in Qingdao City, Shandong Province

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ABSTRACT

As modernization advances, protecting coastal defense cultural heritage within the spaces of Garrison-type villages presents significant challenges. This study focuses on Xiongya garrison village in Shandong Province, a key example of a Garrison-type village that retains coastal defense heritage. Using documentary analysis and qualitative methods, including participant observation and interviews, the research identifies issues in the integration of architectural heritage space, daily living spaces, and tourism spaces. Despite the local government's emphasis on preserving ancient villages and promoting tourism-driven economic development, these three spaces have not been cohesively unified. The lack of authenticity and failure to integrate protection into daily life have diminished the expression of the village's Outstanding Local Values (OLVs). Drawing on theories of tangible cultural heritage safeguarding and localization, this study analyzes the spatial issues in Xiongya garrison village and proposes an optimization strategy to strengthen villagers' proactive engagement in preserving coastal defense sites. The strategy focuses on normalizing the protection of coastal defense culture within daily life, guided by government policies. By leveraging the tourism sector, the approach aims to achieve a balanced development of architectural heritage space, villagers' daily living spaces, and tourism space. As urban development accelerates, this strategy holds the potential to transform Xiongya garrison village into a leading example of contemporary urban historical landscapes, promoting both heritage conservation and sustainable community development.

Keywords: Tangible Cultural Heritage Safeguarding, Coastal Defense Culture, Garrison-Type Villages, Authenticity, Protection of Normality

Introduction

Coastal defense heritage occupies a unique position in China's maritime defense history and the field of tangible cultural heritage, and it has begun to receive increasing attention. Garrison-type villages, as representatives of coastal defense culture, not only embody the rich cultural connotations of coastal defense but also reflect the military defensive functions of specific historical periods. As significant tangible cultural heritage, they hold unique historical and cultural value. For example, during the Ming and Qing dynasties (1490s-1730s), garrison and stations used for coastal defense in Shandong Province, such as

19 coastal fortifications, known as the "Nine Garrisons and Eighteen Stations", were constructed along the strategic coastal points to repel pirate raids and protect coastal residents effectively. Most of these garrisons, originally built for military defense purposes, disappeared throughout history. However, some have survived, albeit with functional transformations. They transitioned from military fortifications into civilian dwellings, gradually forming village settlements that no longer served military purposes. Certain structures that embody elements of coastal defense culture have been preserved as heritage, serving as memory points within garrison-type villages to highlight their historical role in coastal defense.

In recent years, the protection of tangible cultural heritage has been highly valued worldwide, accompanied by policy guidance, which has led to significant achievements in the development and preservation of cultural heritage in China. In this context, research on safeguarding ancient villages has also flourished. For example, Yang, Kai, Song, and Wang (2018) selected the ancient village of Wuyantou in Ningxi Town, Huangyan District, Taizhou City, Zhejiang Province, as a case study to demonstrate the specific transformation path and effectiveness of "active regeneration", highlighting the guiding value of planning and design in the implementation of the rural revitalization strategy. Wang (2023) analyzed how the spatial forms of ancient castle settlements in the Qin River Basin were shaped by factors such as spatial layout, geomancy, geography, and defense, emphasizing the concept of "harmony between humans and nature" and reflecting traditional culture and regional characteristics. While these studies mainly focused on the preservation, inheritance, and development of ancient villages founded in an agrarian culture, there had been little research on garrison-type villages from the standpoint of coastal defense culture. Lin (2009) studied the localization process of military households in Jinxiang garrison, Wenzhou, reflecting the evolution trends of garrison households in the southeastern coastal areas. Cheng (2022) focused on ancient coastal defense settlements, revealing the impact of coastal defense systems on settlement development when the local government applied Quanzhou's maritime civilization to the list of World Heritage. Yin, Wang, Tan, and Tian (2023) compared military and civilian fortresses in Wenzhou, analyzing their construction elements and exploring the structural framework of the national coastal defense system. From the perspective of case studies, some scholars have begun to study garrison-type villages, such as Xiongya Garrison Village in Jimo District, Qingdao City, Shandong Province. Qiao (2014) emphasized the importance of preserving traditional culture and the uniqueness of the architectural heritage of Xiongya Garrison Village amidst urbanization and called for the excavation of local culture to face the challenges of modernization. Similarly, Xu (2015) selected Xiongya Garrison Village as a case study to examine issues in the preservation and development of traditional villages in China. She analyzed the village's image elements and proposed corresponding preservation strategies by using urban imagery theory that balanced the needs of residents with the retention of traditional aesthetics, aiming to achieve sustainable development and "active regeneration" for the village. Based on the study presented above, it is clear that studies on garrison-type villages mostly focus on specific areas such as the history of coastal defensive systems, military deployment, and pirate scenarios, or the protection and usage of settlement heritage at the macro level. This gap has led to a lack of targeted and applicable theoretical frameworks and standards for preserving the architectural heritage of military coastal defense.

Currently, the majority of coastal defense architectural heritage has deteriorated or disappeared in China, and systematic, scientific, and professional ongoing maintenance for the garrison-type villages that have survived is required. For example, the Jimo ancient city in Qingdao, Shandong Province, is a completely new ancient city that was redesigned and rebuilt during the local shantytown renovation. In 1953, the city gate and portion of the city wall of Aoshan garrison, located 20 kilometers to the east of Jimo County, were demolished, as were

the majority of the ancient relics. Aoshan garrison town was designated as the core town of Blue Silicon Valley in 2012. Since then, the historical sites of Aoshan garrison have vanished. So, for the existing garrison-type villages in contemporary society, a key challenge is how to integrate the transformation and development of village spaces with an in-depth exploration of coastal defense culture. This involves properly protecting architectural sites while effectively combining insights from history, architecture, planning, and other disciplines. Adhering to a 'people-oriented' approach and enhancing the quality of life for local residents presents a sustainable development path that deserves further exploration. Therefore, re-studying the existing garrison-type villages in Shandong can offer both theoretical and practical insights for the transformation and development of similar village spaces. This, in turn, will provide a scientific foundation for the preservation and management of coastal defense cultural heritage in the future, ensuring that important historical memories are passed down to future generations.

Case Selection, Theory and Methodology

1. Case selection

Xiongya garrison village is located in the northeast of Jimo District, Qingdao City, Shandong Province, approximately 45 kilometers from Jimo's urban center (Figure 1). The city's administrative jurisdiction extends to the historical village, which has existed for nearly 600 years. Currently, Xiongya garrison Village has 461 households, with over 800 residents holding rural household registrations and living in the village. Most of these residents are elderly, and primarily engaged in farming. Younger generations have obtained urban household registrations and predominantly work in cities. The village has three small shops, which cater mainly to the needs of villagers and tourists during the peak tourism season. Additionally, two households engage in aquaculture on the beach in the eastern village. The remaining residents often sell their homegrown products, such as pumpkins, sweet potatoes, pheasant, and native eggs, at stalls of the village entrance or on the main street.



Figure 1. The location of Xiongya garrison village in China
Source: Adapted by the author from Google map (2025)

The selection of Xiongya garrison village as the case study was based on the following considerations:

1) Xiongya garrison village, as a designated cultural heritage site and a "National Historical and Cultural Village", exemplified the spatial layout and cultural connotations of an ancient coastal defense settlement which made it highly representative.

2) With the rapid pace of modernization and the expansion of surrounding urban areas, Xiongya garrison village has been integrated into the urban landscape, creating a connection between the village and the main urban area. This development trajectory sets it apart from that of many other ancient villages in contemporary society, giving it a peculiarity.

3) Xiongya garrison village has started to develop tourism, but its tourism resources are not as abundant or well-developed as those of other ancient villages, nor has it been integrated with other attractions within the surrounding villages. However, this early stage of tourism development is beginning to impact the preservation of the village's coastal defense cultural relics and the daily lives of its residents.

4) Xiongya garrison village continues to prioritize daily life and residence as its primary functions, with supporting facilities designed to meet the needs of its residents. However, the coastal defense cultural relics are also a significant aspect of the daily living space, and the villagers themselves play a crucial role in heritage protection. The future development direction of the village should, therefore, integrate these two aspects in an organically manner.

Xiongya garrison village has triple challenges during the process of urbanization: how to appropriately adjust and integrate architectural heritage space, daily living space, and tourism and leisure space. These challenges not only highlight the struggles of the village itself but also reflect the broader issues encountered by many ancient villages during modernization. The study of Xiongya garrison village's spatial development is both representative and relevant to the broader context of coastal defense cultural villages and the protection and development of ancient village culture.

Therefore, the study selected Xiongya garrison village as a representative case of coastal defense culture to analyze the evolution of its architectural heritage space, aiming to address the challenges and opportunities faced by the spatial integration of architectural heritage and daily living spaces in the development of garrison-type villages. The goal was to help the public understand the historical background, architectural space, and cultural heritage of coastal defense in this garrison-type village. Therefore, by capitalizing on the tourism economy, can achieve the integration of architectural heritage space, villagers' daily living areas, and tourism and leisure spaces, while ensuring the protection of the normality of the village's coastal defense cultural heritage.

2. Theory and Methodology

This study primarily traced the historical evolution of the architectural spaces in Xiongya garrison village by a literature review. Additionally, qualitative research methods, such as direct observation, participant observation, and in-depth interviews, were used to examine the existence of the village space. From April 11 to 25, 2024, a total of 12 informants, including villagers from different age groups and tourists, were selected for interviews to gain insights into the historical transformation of the village's spatial layout, the current state of coastal defense cultural heritage, and the expectations and appeals for the village's spatial development. The findings aimed to provide practical planning strategies for improving the quality of villagers' daily living spaces, protecting coastal defense cultural heritage, and integrating tourism resources.

This study primarily applies theories of tangible cultural heritage preservation and localization to analyze the historical and contemporary spatial characteristics of Xiongya garrison village. The concept of authenticity, central to the theory of tangible cultural heritage

preservation, extends beyond the material aspects of heritage. It embodies a comprehensive representation of historical, cultural, and social significance. In heritage preservation, authenticity is often intertwined with Outstanding Universal Values (OUVs), particularly in the protection of large-scale, globally recognized heritage sites. However, smaller, lesser-known local architectural sites, while integral to global cultural heritage, are often overlooked in preservation practices. These sites may not always apply to traditional models of preservation based on OUVs. Wang, W., and Wang, H. Y. (2025) put forward to the concept of Outstanding Local Values (OLVs), it provides a more appropriate framework for the preservation of smaller architectural sites. In her study of Thai temples, she emphasizes that those temple architectural heritage scattered in some temples should meet the basic conditions of authenticity, tailored to their specific context, and should convey their unique Outstanding Local Values. The coastal defense cultural relics in Xiongya garrison Village, as smaller architectural sites, are better preserved through the lens of OLVs, as this approach better supports their integrated development while preserving their local significance.

The protection of normality involves integrating protective measures into everyday management systems to address ongoing challenges across ecological, cultural, and social dimensions, thereby creating a long-term, stable, and systematic maintenance model. Wang, W., and Wang, H. Y. (2020), in her study of ancient temple sites in northeastern Thailand, proposed that through the protection of normality by local villagers, the architectural heritage in temple spaces can be revitalized, offering a new model for preserving contemporary small temple sites. Similarly, the architectural heritages in Xiongya garrison village are deeply intertwined with the daily lives of its residents. As such, the protection of normality can be achieved by linking the villagers' everyday activities to the preservation of these sites, ensuring their continued relevance and care within the community.

In Xiongya garrison village, current development trends indicate a growing integration of villagers' daily living spaces with architectural sites and tourism areas. This presents a challenge in the context of urbanization, as adapting the village's architectural form requires balancing heritage preservation with modern needs. The principle of authenticity emphasizes the preservation of coastal defense cultural heritage, yet the architectural forms of the villagers' living spaces often conflict with this principle. In contrast, the localization theory highlights the importance of specific geographical, cultural, and social contexts in shaping objects and spaces. It opposes the homogenization of architectural styles, advocating for designs that reflect local climate, materials, and culture, while also fostering a sense of belonging among residents by leveraging local resources. Unlike the principle of authenticity, which focuses primarily on architectural form, localization theory extends to include non-renewable local resources, such as the natural environment, lifestyle, traditional customs, and unique cultural practices. Therefore, the integrated development of architectural forms in Xiongya garrison village must not only preserve authenticity but also embrace the principles of localization. This ensures that the village's architectural form reflects both its historical and cultural significance, in line with the needs and identity of the local community.

Xiongya garrison village can also benefit from applying urban historical landscape theory to guide its planning and future development. This theory views the city as an integrated, dynamic, and multi-layered historical and cultural system. It goes beyond the focus on isolated historical buildings or monuments, encompassing elements such as urban topography, natural environment, built environment, spatial structure, and socio-cultural dynamics. Currently, Xiongya garrison Village is not only an ancient garrison-type village but also a key part of Jimo District, Qingdao City, serving as an important node in the urban historical landscape. Therefore, this study integrates the village's natural environment, culture, daily life, and tourism economy by combining tangible cultural heritage preservation with localization and historical

landscape theory. It emphasizes a holistic approach to preservation that is closely tied to the dynamics of urban development, offering a viable path for the protection and sustainable development of such villages.

The Village Space of Xiongya Garrison Village from the Perspective of Architectural Heritage Preservation

1. The historical transformation of the village space

Before becoming a rural settlement, Xiongya garrison village served as a military defensive site. Its establishment as a coastal defense garrison dated back to the Ming Dynasty. Over time, as the coastal defense function diminished, barracks were converted into residential dwellings, which began to emphasize their civil function. Eventually, with the increase in population, a village space was formed. The specific development process was as follows (Figure 2):

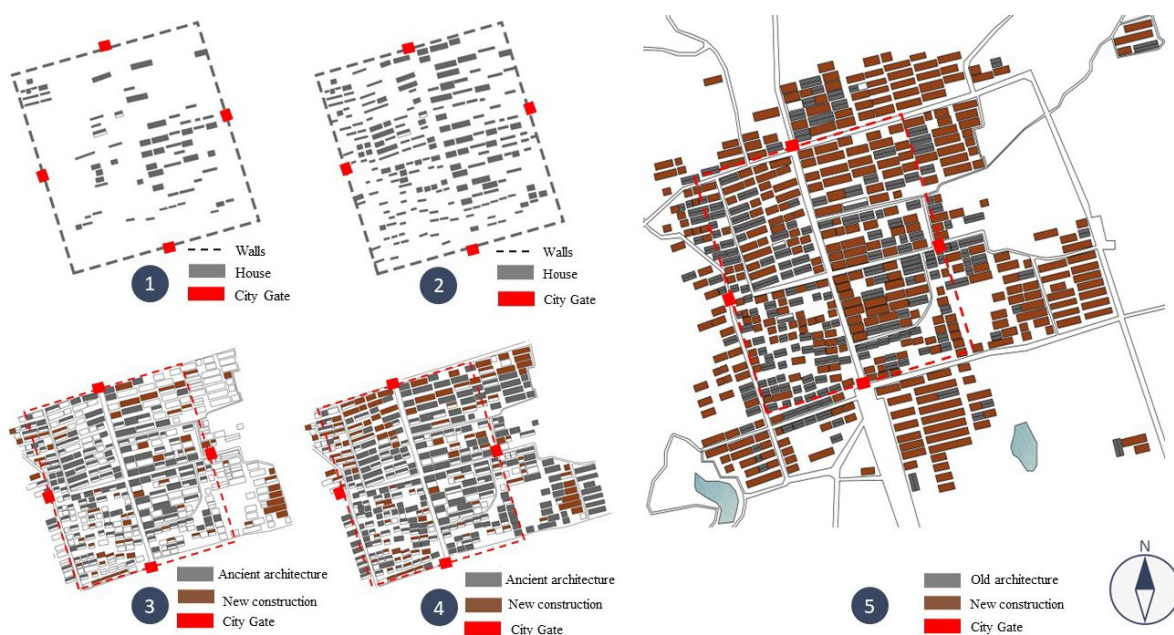


Figure 2. The historical transformation of the morphological layout of Xiongya garrison village from the Ming Dynasty to 2024 (1. Ming dynasty 2. Qing Dynasty 3. The 1950s-70s 4. The 1980s 5. From 2008 to 2024)

Source: Author (2024)

Coastal defense garrison period (1402–1734). The military layout of Xiongya garrison in the Ming and Qing dynasties was meticulously designed, with its road system and architectural configuration tightly centered around defensive needs. The city walls were tall and robust, with cleverly designed fortifications, while the arrangement of the military camps facilitated swift responses to pirate invasions.

Post-demilitarisation period of the Qing Dynasty (1734–1921). Along with the demilitarisation during the Qing Dynasty, Xiongya garrison began to transform into a civilian settlement. As its military functions weakened, the original facilities were gradually replaced by civilian buildings. The population structure began to change, and the spatial layout of the village was correspondingly adjusted, resulting in a unique civil village full of local features, which marked the initial transformation from a military to a civilian settlement.

Republic of China period (1921–1949). During this period of national turmoil, Xiongya Garrison Village experienced little change in its architectural space. Due to economic decline, social disorder, and resource scarcity, no large-scale construction projects were undertaken within the village.

The construction period of the Republic of China (1949–1978). Xiongya Garrison Village had development opportunities. With the advancement of national construction and the gradual improvement in living standards, the living conditions of villagers were improved. Traditional residential buildings underwent basic repairs and expansions, and roads were upgraded to meet essential travel needs.

The period after the reform and opening-up (1978–2008). The layout of the village was planned around production and daily life, with some construction of public service facilities. However, traditional landscape restoration and protection were not prioritized. The city walls were not restored following the principle of “restoring to the original state,” and historical buildings such as temples and ancestral halls were not comprehensively maintained. Additionally, the surrounding environment lacked proper management and renovation.

The period of the historical and cultural village (2008–2024). The local government began exploring innovative models for integrating ancient villages with modern society while ensuring a steady improvement in the villagers' quality of life. After being listed as a Shandong Provincial Cultural Relic Protection Unit in 2015, the village undertook infrastructure upgrades, improving utilities such as water, electricity, and communication, as well as initiating tourism development. In terms of cultural heritage preservation, the village started hosting folk festivals, coastal defense cultural exhibitions, and other activities to promote cultural transmission.

Xiongya Garrison Village, with its profound coastal defense culture, showed relatively stable housing layouts during the Ming and Qing dynasties. However, with the evolution of the times, the functionality of the village's housing layout gradually transformed, becoming increasingly diverse and expanded. The main driving forces of this change were population growth and shifts in family structures, which led to more varied demands for residential space. The originally simplistic residential layouts began to evolve into more segmented and multifunctional orientations. For instance, independent areas such as kitchens and bedrooms were added to meet the basic requirements of modern living.

2. The current status of the village space in Xiongya Garrison Village

2.1 Architectural heritage space, residents' daily living space, and village tourism space: the overlap of three spaces

The spatial characteristics of Xiongya Garrison Village are defined by the overlapping of three key areas: the architectural heritage space of coastal defense, the daily living space of the villagers, and the tourism space. This triple-layered spatial configuration is currently the most outstanding feature of the village. Each of these spaces possesses its unique attributes, and as the village develops, the nodes, pathways, and boundaries of these spaces increasingly intersect and influence one another. While this spatial overlap has temporarily enhanced the local cultural and economic value, it has also raised concerns about preserving the authenticity of the architectural heritage, reflecting its localization and cultural identity, and reconstructing its space. The unconnected nodes, blurred boundaries, and overlapping functions offer a valuable case for studying the spatial integration mechanisms of cultural heritage villages (Figure 3).

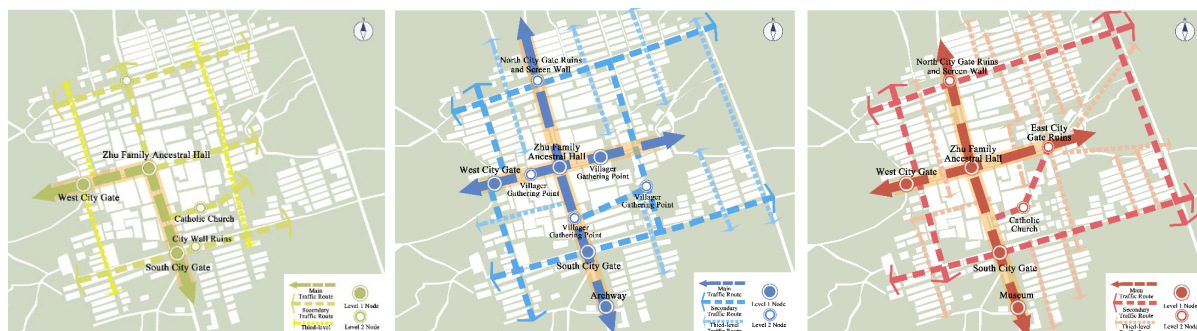


Figure 3. (Left) Architectural heritage nodes and roads related to villagers' daily activities. (Middle) Nodes and roads for villagers' daily activities. (Right) Main nodes and roads in the tourist route
 Source: Author (2025)

2.2 Architectural heritage space and daily life space—lack of "authenticity" protection of architectural nodes

Only a few buildings numbered 1, 2, 3, 5, 9, and 11 in Xiongya garrison village were retained (Figure 4). Other architectural relics of coastal defense culture had suffered damage and destruction at varying levels, or complete disappearance. The retained buildings faced further deterioration and decay due to a lack of professional and systematic restoration. The city gate and walls, as key nodes of the historical defense system of Xiongya garrison, had experienced secondary damage during the restoration process. The original walls that once surrounded the village had entirely collapsed, leaving only a fragment of the foundation in the southeastern village. The deterioration of these architectural heritage has disrupted the daily living spaces of the villagers, leading to a chaotic environment around certain ancient buildings, with debris scattered haphazardly. Overall, the cluttered environment had disrupted the integrity of the coastal defense architectural sites, making it difficult for visitors to intuitively appreciate and experience the historical significance of Xiongya garrison as a coastal defense stronghold. Meanwhile, the village museum, a key venue for promoting and preserving coastal defense culture, had not fulfilled its potential function. Its exhibitions were neither rich nor comprehensive, and the display formats were outdated and monotonous, failing to effectively provide visitors with an in-depth understanding of coastal defense culture. Consequently, the museum had not played its critical role in the cultural heritage system.



Figure 4. Distribution map of representative buildings in Xiongya garrison village
 Source: Author (2025)

2.3 Daily living space and tourism space: the preservation of local architectural style

During the development of Xiongya garrison village, some newly constructed houses failed to follow the principle of localization and neglected the traditional architectural style of the Jiaodong Peninsula in eastern Shandong. In particular, many buildings in the ancient city area incorporated modern construction materials instead of the local characteristic stone blocks. As a result, the local architectural identity was compromised. This stylistic discontinuity has led to a stark and unnatural contrast within the village's built environment, disrupting the overall visual harmony and weakening the continuity of its historical and cultural narrative. Consequently, the architectural heritage's Outstanding Landscape Values (OLVs) have been diminished. Without a distinct local architectural style, the villagers' buildings struggle to integrate with the surrounding coastal defense heritage, hindering both the development of tourism and efforts to promote and preserve the area's unique coastal defense culture.

2.4 Daily life space and tourism space with architectural heritage as nodes - accessibility of paths

Field investigations have revealed that the main road of Xiongya garrison village poses significant safety risks for tourists due to damaged surfaces and the absence of protective barriers, putting both pedestrians and vehicles at risk. These hazards not only endanger visitors but also hinder smooth access and circulation, thereby negatively affecting the development of tourism and leisure spaces within the village. For villagers, the branch roads are poorly designed and inefficient, with substandard conditions that obstruct regular traffic flow (see Figure 5). These limitations also restrict tourists' ability to engage deeply with the village's traditional architectural styles and local way of life. The overall inaccessibility of these pathways presents a serious challenge to both the preservation of the village's architectural heritage and the enhancement of daily living conditions for villagers, as well as the overall visitor experience. Furthermore, while Xiongya garrison village features key cultural landmarks—such as the South Gate, West Gate, and the Coastal Defense Museum—the lack of an integrated and accessible transportation network prevents these nodes from forming a coherent and connected cultural display route. As a result, tourists face difficulties in constructing a comprehensive

understanding of the village's historical and cultural significance, limiting their ability to fully appreciate its rich heritage as an ancient coastal defense stronghold.

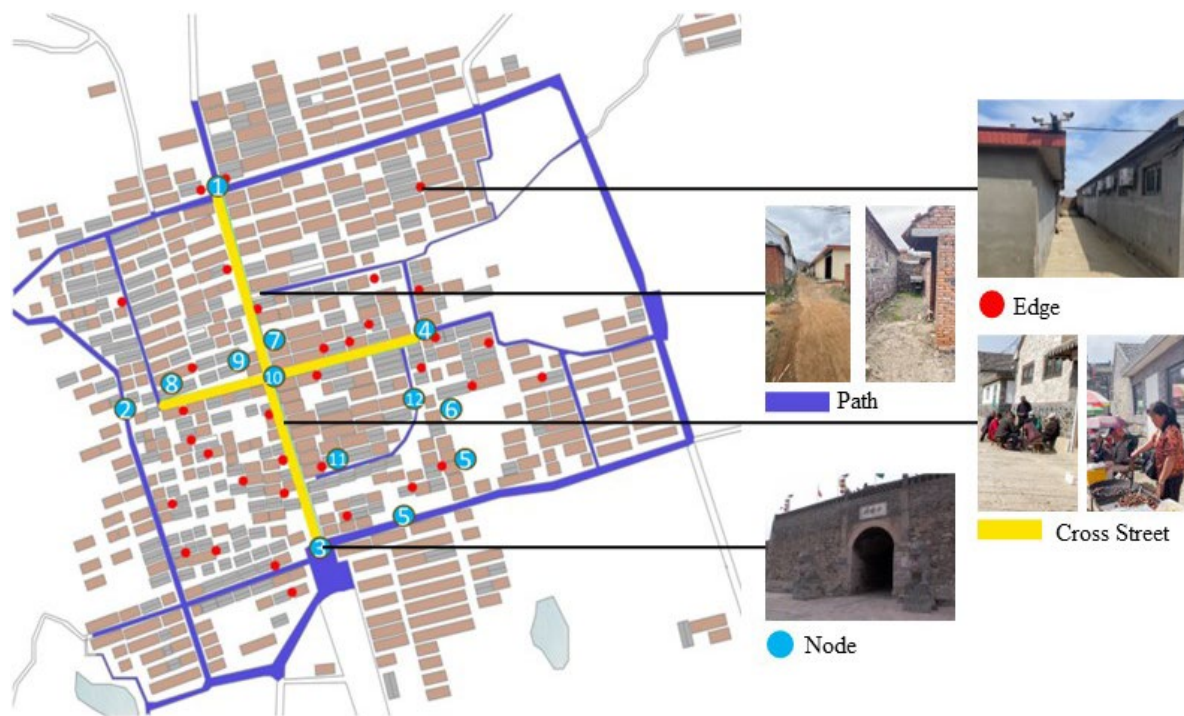


Figure 5. The current issues in village space of Xiongya garrison village
 Source: Author (2025)

The Causes of the Existing State of Xiongya Garrison Village and the Informants' Appeals at Present

Xiongya garrison village, as a representative site of coastal defense culture, has continuously evolved alongside historical developments. As the village transitioned from a military stronghold to a residential settlement, the lifestyles of its inhabitants also underwent a significant transformation. The traditional way of life—once centered around agriculture and coastal defense-related activities—has gradually given way to more diverse and modern living patterns. This shift has fundamentally altered the functional demands placed on the village's architectural spaces, reflecting broader trends in social and economic development. In recent times, as former coastal defense structures have come to be recognized as architectural heritage, the spatial organization of garrison-style villages has adapted accordingly. The transformation of Xiongya's three-tiered village space presents a range of challenges that warrant closer examination in order to identify their causes and support more effective and sustainable development moving forward.

1. Local government heritage protection lacks a "bottom-up" protection measure

Throughout different historical periods, government policies on land use, urban-rural development planning, and cultural heritage protection profoundly influenced the village. For example, during the Reform and Opening-Up period, the government encouraged new construction projects around the village to promote economic development, which significantly altered the spatial layout of the village and its relationship with the surrounding environment. Later, with the awakening of cultural heritage preservation awareness, relevant protection policies began to restrict and guide the renovation and construction of village spaces, aiming to strike a balance between development and preservation. For instance, the Shandong Provincial

Government's approval of the Historical and Cultural Village Protection Plan for Xiongya garrison village, Tianheng Town, Jimo District, Qingdao (2021–2035) reflected a consideration toward the village's preservation. While emphasizing an overarching preservation concept, the traditional layout and historical features, as unique cultural identifiers of Xiongya garrison village, had become core protection parts. However, because these initiatives were policy-driven and focused on individual architectural relics, it was impossible to integrate these preservation efforts into villagers' daily lives or to urge them to associate relic protection with lifestyle benefits. As a result, it was difficult to achieve harmony and coordination between architectural heritage spaces and the spaces of villagers' daily lives during the formation and development of the village.

2. Villagers lack a protection consciousness of normality for the architectural heritage in their daily life spaces

For a long time, the villagers of Xiongya garrison village had a relatively weak awareness of protecting architectural heritage. Due to a lack of deep understanding of the value of historical and cultural heritage, some villagers were occasionally engaged in destructive behavior toward ancient architectural sites in daily life. For instance, architectural protection principles were often disregarded when local people repaired or renovated the older dwellings. Original architectural structures and decorative elements were arbitrarily dismantled or altered, leading to the loss of historical information embedded in the heritages. This tendency had expedited the deterioration of the village's traditional architectural appearance, leading many ancient relics and dwellings to progressively lose their inherent local cultural significance.

Some villagers either misunderstood or expressed concerns about the task of safeguarding heritage sites, perceiving it as unrelated to the development of their own living spaces. This disconnect has contributed to a lack of awareness regarding the value of active preservation. In some cases, residents feared that heritage protection efforts—such as land requisition or construction restrictions—could negatively impact their interests, posing potential threats to their living environment or sources of income. As a result, when the local government introduced initiatives to integrate architectural heritage into the overall village layout, villagers were reluctant to participate and, in some instances, actively resisted, hindering the smooth implementation of these projects. A key challenge lies in helping villagers understand that preserving architectural heritage can directly enhance their quality of life and improve the spatial and cultural value of their surroundings. Encouraging their active involvement is essential, as villagers must be mobilized as the primary stakeholders in safeguarding the integrity of coastal defense cultural heritage. Addressing this issue is not only fundamental to the success of heritage protection strategies but also central to building a shared sense of responsibility within the local community.

3. Village spaces lack professional guidance in maintaining architectural localization and cultural authenticity

The integration of architectural heritage into contemporary village development is a complex and systematic undertaking that demands collaboration among professionals across multiple disciplines. In the case of Xiongya garrison village, a critical issue has been the insufficient professional guidance and support throughout the development of its architectural spaces. Whether during new construction, renovation, or routine maintenance, there has been a noticeable lack of experts in fields such as history and culture, architectural design, and heritage conservation to provide informed and scientific direction. As a result, many transformation and utilization efforts have lacked both coherence and long-term vision, failing to fully embody the historical and cultural significance of this ancient garrison-style village. The everyday living environment is largely devoid of elements that reflect the local coastal defense culture,

and beyond periodic temple fairs, there are few activities that actively promote or celebrate this unique heritage. For instance, certain tourism development projects have proceeded without the integration of professional tourism planning and heritage conservation, leading to mismatches between newly constructed facilities and the village's traditional architectural character. These inconsistencies have disrupted the harmony of the village's distinctive three-tiered spatial layout and weakened the expression of its coastal defense heritage.

4. The current expectations and appeals of the villagers regarding the village spaces

Amid the rise of tourism-driven development, questions have emerged about how to preserve the authenticity of architectural heritages while emphasizing the localized character of Xiongya garrison village. In-depth interviews with 12 residents and tourists revealed that 83% (10 respondents) strongly supported maintaining the village's original architectural style in future construction projects. Many emphasized that new developments should not compromise the authenticity of historical buildings. Several interviewees highlighted that preserving the village's core features, daily life scenes, and traditional spatial identity is crucial for attracting visitors and promoting sustainable village development. For instance, Ms. A, a 70-year-old farmer, expressed the hope that residents would use traditional or similar materials when renovating old houses, warning that the use of modern materials could erode the village's historical charm. Similarly, Mr. G, a 37-year-old local tea merchant, suggested that the village layout should reflect its historical military garrison structure. He believed this would help revive collective memory and offer both villagers and tourists an immersive cultural experience, reinforcing cultural identity and belonging. These perspectives underscore the importance of aligning development between heritage conservation and village cultural identity.

In exploring how road design and spatial boundaries can enhance interaction between villagers and tourists while supporting the preservation of village normality, all interviewed villagers unanimously emphasized that road construction must prioritize their daily needs. They expressed a strong desire for well-planned and renovated main roads that clearly separate pedestrian and vehicular traffic, ensuring both safety and accessibility. Villagers believed that only when their basic mobility needs are met can the architectural heritage space function normally and sustainably. For example, Mr. C, a 61-year-old farmer who sells regional specialties, suggested establishing designated roadside sales areas to help tourists easily discover and purchase local products, thereby enhancing both cultural exchange and economic activity. Mr. D, an 80-year-old farmer, noted the lack of resting and socializing spaces at key crossroads, stressing their importance for the elderly to foster community ties. From the visitor's perspective, Mr. A, a 40-year-old tourist and programmer, pointed out that poorly maintained roads hindered his movement and reduced his comfort while exploring the village. This, in turn, limited his ability to fully appreciate the village's historical charm and cultural richness. These insights highlight the need for inclusive, culturally sensitive infrastructure to support both heritage preservation and vibrant local life.

Regarding how to highlight the Outstanding Local Values by strengthening key coastal defense cultural nodes, 75% of informants (9 out of 12) believe that the current display of coastal defense cultural nodes within the village was inadequate, which reflected the villagers' concerns and worry about the state of showcasing and inheritance of the coastal defense culture. It also indicates that efforts must be strengthened to enhance the Outstanding Local Values of coastal defense cultural relics. In their daily lives, they had recognized that the existing spatial nodes failed to comprehensively and deeply present the rich cultural connotations of coastal defense heritage. For example, Mr. C, a 61-year-old farmer from Xiongya garrison village, believed that the current exhibits in the museum could not fully represent the entirety and essence of coastal defense culture. He suggested adding items related to the life scenes during the coastal defense garrison period to enhance the display. Mr. F, an 81-year-old retired soldier

and farmer from Xiongya garrison village, considered that the spatial nodes representing coastal defense culture were not coherent, resulting in a fragmented presentation of the culture, which made it difficult for villagers and tourists to form a complete and clear cognition for the village's culture.

The interviews with the respondents further clarified that Xiongya garrison village needs to develop a cohesive approach that integrates architectural heritage space, daily living space, and tourism space to better highlight the village's unique localization and Outstanding Local Values. This will also help guide the villagers in protection of normality and developing the unique coastal defense culture of Xiongya garrison village. However, some suggestions offered by villagers may not be fully compatible with the village's current conditions. For example, proposals to restore the village's spatial layout to mirror that of the historical garrison period—though aimed at reinforcing its cultural value—lack practical feasibility and fail to align with the village's present-day structure and land use patterns. Balancing historical representation with contemporary needs remains a key challenge in the sustainable development of Xiongya garrison village.

Optimization Strategies for Village Spaces in Xiongya Garrison Village from a Multifunctional Perspective

Based on the existing situation of Xiongya garrison village, the optimization of village spaces should focus on meeting three functional orientations. First, the protection of tangible cultural heritage must be implemented to revitalize the relics and bring them back to life. Second, the basic daily needs of villagers must be addressed to improve their quality of life. Third, tourists should be able to easily access the village space, with convenient and efficient tourism routes provided to ensure an excellent tourism experience. The three aspects are interconnected and mutually beneficial. The ultimate goal is to achieve sustainable development that fosters the coexistence of economic growth, cultural preservation, and daily life improvement.

1. The integrated development of architectural heritage space, daily life space and tourism space in Xiongya Garrison Village

Given the current conditions in Xiongya garrison village, it is evident that the traffic network within the three key spatial areas—heritage, residential, and tourism—is highly interconnected, with most major nodes located along primary roadways. As such, improving road infrastructure is the essential first step toward effectively integrating these spaces. Optimizing the village's internal transportation system includes the strategic placement of signboards at major attractions and intersections to offer clear, accessible navigation for tourists. In narrow alleyways, a one-way traffic system is introduced to ease congestion and ensure smooth movement for both residents and visitors. Selected alleys leading to the central crossroads are renovated to reflect the village's garrison-style heritage—using traditional materials such as old stone or gray brick pavements to evoke a historical atmosphere. Additionally, murals depicting coastal defense history are painted along the walls of these lanes, visually reinforcing the village's cultural identity. These enhancements not only enrich the everyday living environment for residents and foster greater awareness of heritage preservation, but also offer tourists a more immersive and authentic experience. Beyond the village core, transportation links to surrounding urban areas are strengthened through expanded public transit and new parking facilities. Furthermore, connections to nearby tourist destinations are improved through the creation of an integrated tourism loop, facilitating easy access and encouraging regional collaboration (Figure 6).



Figure 6. The triple overlapping of the nodes and roads of architectural heritage space, daily life space, tourism space in Xiongya garrison village
 Source: Author (2025)

2. Optimization strategies for characteristic coastal defense cultural spatial nodes

The restoration and enhancement of existing spatial nodes are essential to preserving the village's historical integrity. The principle of "restoring the old as the old" should guide the restoration of architectural structures to maintain their authenticity. For example, the damaged sections of the South and West Gates must be carefully repaired using bricks and stones that closely match the original materials, ensuring the restored gates retain the same color, texture, and craftsmanship. Additionally, environmental rehabilitation around the gates is crucial. Efforts should focus on clearing accumulated dirt and debris, removing unauthorized structures, and reinstating the original historical context to complement the gates and highlight the cultural significance of Xiongya garrison village.

The Coastal Defense Museum also requires modernization and expansion. During its reconstruction, efforts should be made to collect important relics tied to the village's coastal defense history from the Ming and Qing dynasties, including coastal defense maps, military equipment, and everyday items used by soldiers. These artifacts will enrich the museum's portrayal of the village's strategic importance and the lives of its defenders. To further engage visitors, interactive zones using Virtual Reality (VR) and Augmented Reality (AR) can be incorporated, offering innovative ways to experience coastal defense culture. These strategies will enhance the museum's educational impact and broaden its audience reach.

3. Integrating Surrounding Landscapes to Create an Urban Historical Landscape Zone

In planning the urban historical landscape, the natural resources of Dingzi Bay and Yuhuang Mountain should be harmoniously combined with the distinctive features of Xiongya

garrison village, including the city walls, beacon towers, central avenues, ancient trees, and plazas. This integration will create a cohesive and scenic area for visitors. Viewing platforms, hiking trails, and rest areas within the zone will be thoughtfully designed to offer convenient and comfortable sightseeing experiences. Cultural landmarks, such as Yuhuang Temple, along with its related temple fairs and ceremonial spaces, can further enrich the landscape. The placement of viewing platforms should be strategically planned to provide optimal views of Dingzi Bay's seascapes and the picturesque mountain vistas of Yuhuang Mountain. Hiking routes should be designed to balance aesthetic appeal with safety, guiding visitors through the dynamic interplay of mountains and lakes, allowing them to fully appreciate the natural beauty of the area. This approach fosters a seamless connection between coastal defense culture and the surrounding natural environment, enhancing the depth and diversity of visitors' experiences (Figure 7).



Figure 7. The planning of tourism circle centered as the Xiongya garrison village
Source: Author (2025)

Conclusion

Over the past 600 years, Xiongya garrison village has transitioned from a traditional coastal defense garrison to a modern residential community. However, as modernization accelerates, significant challenges persist in its architectural design, traffic layout, and mechanisms for cultural heritage preservation. Specifically, there are notable gaps in integrating architectural heritage space, residents' daily living space, and tourism spaces, preventing the effective unification of these three domains.

In the current context, where local governments prioritize the protection of ancient villages and the strategic development of tourism, the village faces numerous challenges. While local authorities are generally proactive in safeguarding cultural heritage, the top-down

protection strategy often overlooks the critical role of architectural heritage in connecting the village's three spaces. Moreover, traditional protection models fail to meet the demands of modern life. The principle of "restoring to the original state" and preserving local characteristics has not been effectively implemented, resulting in limited protection for both architectural heritage and the surrounding residential areas. Consequently, the Outstanding Local Values (OLVs) of the village's architectural heritage have not been fully realized or showcased.

Based on the needs and expectations of the villagers, the following strategic recommendations are proposed for the sustainable development of Xiongya garrison village:

1. Strengthen the coordination of the three spaces: The integration of architectural heritage, daily living, and tourism spaces is essential to achieve a harmonious balance by protecting coastal defense cultural relics, enhancing the quality of life for residents, and providing a positive experience for tourists. By aligning the village's growth with urban development, the protection of architectural heritage can be seamlessly incorporated into the everyday lives of villagers, maximizing the benefits of the village's dual identity as both an ancient village and a modern community.

2. Improve accessibility: Improving transportation infrastructure and linking coastal defense heritage nodes with the village and surrounding urban areas will enhance convenience. This will create stronger connections between the village and its residents, foster a sense of identity, and encourage positive interactions between tourists and the village and urban space.

3. Encourage villager participation: Villagers should be placed at the heart of heritage protection efforts. By empowering them to actively engage in the preservation of the coastal defense cultural heritage through activities and volunteer programs, their emotional connection to the village's history can be strengthened, thus increasing the overall value of the community.

4. Foster the integration of villages and cities: As modernization progresses, government policies, infrastructure development, and a supportive social and cultural environment should facilitate the integration of village construction into urban development strategies. This will create a new urban community that blends traditional elements with modern vitality, ensuring the village's distinctive role within the urban fabric.

The current spatial challenges of the garrison-type village require a multi-dimensional, comprehensive optimization strategy. By improving policy coordination and fostering the participation of villagers, Xiongya garrison village can achieve the sustainable integration of its three overlapping spaces. This will create diverse living spaces, preserve cultural heritage, and promote the harmonious coexistence of villages and cities. Moreover, the village's development as part of urban modernization will serve as a model for creating urban historical landscapes where nature, culture, tourism, heritage, and daily life coexist seamlessly, infusing urban development with the vitality of cultural heritage.

References

- Cheng, L. (2022). *Research on the spatial characteristics of coastal defense settlements in Quanzhou during the Ming and Qing Dynasties* [Master's thesis, Southeast University]. WANFANG. <https://d.wanfangdata.com.cn/thesis/ChhUaGVzaXNOZXdTmJyNDA5MjAxNTE3MjUSCUQwMzAxODEwMRoIZHk5eTFzazg%3D>
- Google map. (2025). @36.5844145,120.8619039,1120m. https://www.google.com/maps/@36.5844145,120.8619039,1120m/data=!3m1!1e3?entry=tu&g_ep=EgoyMDI2MDQxNS4wIKXMDSoASAFQAw%3D%3D
- Lin, C. Z. (2009). Localization of Military Households in the Coastal Defense Garrisons of the Ming and Qing Dynasties: Focusing on Wenzhou's Jinxiang Garrison. *Journal of Chinese Historical Geography*, 24(4), 115-125.

- Qiao, Y. (2014). *Research on the Protection and Planning of Traditional Chinese Village Landscapes: A Case Study of Xiongyao Garrison Village in Jimo, Qingdao* [Master's thesis, Qingdao University of Technology]. WANFANG. <https://d.wanfangdata.com.cn/thesis/Y2631323>
- Wang, W., & Wang, H. Y. (2020). Revitalization of the Sense of Place and the Protection of Normality for Local Temples in the Context of In-situ in the Northeast, Thailand. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 44, 803-810. <https://doi.org/10.5194/isprs-archives-XLIV-M-1-2020-803-2020>
- Wang, W., & Wang, H. Y. (2025). *The Revitalization Practices of Conveying Outstanding Local Values (OLVs) of Local Architectural Heritage in Daily Life: A Case Study of Pho Chai Temple, Thailand*. In Varma, A., Chand Sharma, V., & Tarsi, E (Eds.), *Lecture Notes in Civil Engineering. Proceedings of the 2nd International Conference on Trends in Architecture and Construction (ICTAC 2024)* (pp.79-93). Springer Nature Link. https://doi.org/10.1007/978-981-97-4988-1_6
- Wang, X. X. (2023). Research on the Defense System Based on the Space of the Ancient Castle in the Qinhe River Basin. *Architecture and Culture*, 2023(12), 203-205. <https://doi.org/10.19875/j.cnki.jzywh.2023.12.065>
- Xu, L. (2015). *Research on the Protection of Traditional Villages Based on Image Theory: A Case Study of the Historical and Cultural Village of Xiongya Garrison* [Master's thesis, Qingdao University of Technology]. WANFANG. <https://d.wanfangdata.com.cn/thesis/Y2982091>
- Yang, G. Q., Kai, X., Song, D. J., & Wang, Z., (2018). Exploring Approaches for Revitalizing Regeneration of Chinese Traditional Villages: a Case Study of Wuyantou Ancient Village in Huangyan, Zhejiang. *Southern Architecture*, 2018(5), 49-55. <https://doi.org/10.3969/j.issn.1000-0232.2018.05.049>
- Yin, Z. K., Wang, T., Tan, L. F., & Tian, L. (2023). A comparative study on the history and morphology of coastal defense military forts and civilian fort settlements in the Ming Dynasty - Taking Wenzhou, Zhejiang as an example. *Journal of Beijing University of Civil Engineering and Architecture*, 39(4), 1-8. <https://doi.org/10.19740/j.2096-9872.2023.04.01>