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Research on the Renovation Design of Urban Underground Vacant Commercial Spaces Based on Narrative Theory: A Case Study of Changzhou South Street

Qualification work for obtaining a Master's degree

in specialty 022 Design

The qualification work contains the results of own research.

The use of ideas, results and texts of other authors must be referenced to the appropriate source.

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Annotation

Urban underground commercial spaces often lose their original vitality when commercial functions, mobility patterns and local cultural narratives change. Driven by the transition of Chinese cities from incremental expansion to stock-based urban renewal, a growing number of underground commercial passages attached to historic streets have been left underused or partly vacant. The problem is not only a matter of physical vacancy or decaying finishes. It also concerns the loss of recognisable place identity, weak emotional connection between citizens and the site, and the difficulty of making an enclosed, below-grade space legible, safe and inviting to different users. Conventional renovation, which often concentrates on surface refurbishment and tenant reorganisation, frequently fails to restore the narrative continuity that once tied such spaces to the life of the street above. This thesis examines the renovation design of urban underground vacant commercial spaces from the perspective of spatial narrative theory, using Changzhou South Street, a historic commercial district in Changzhou, China, as a case study. The research combines literature review, comparative case study, field-observation planning, spatial analysis and design translation, and is organised around four interlinked tasks: clarifying key concepts, reviewing Chinese and international scholarship, analysing representative adaptive-reuse projects, and translating the findings into a concrete design framework. It argues that renovation should not be reduced to a replacement of finishes or commercial layouts. Instead, it should reconstruct a coherent sequence of spatial experiences in which local memory, pedestrian movement, light, material, signage and public functions work together to tell the story of the place. On this basis, the thesis proposes a four-stage narrative framework of memory recognition, spatial transition, scene construction and daily activation, and further develops preliminary design guidelines covering entrance visibility, vertical and horizontal circulation, narrative nodes, flexible commercial support, wayfinding, accessibility, safety, maintenance and phased implementation. The framework is then applied to the underground commercial strip connecting the Taifuli redevelopment with the above-ground South Street pedestrian area. Because the project evidence, measured drawings and final design images are not yet supplied, site-specific findings and detailed drawings are marked for later supplementation. The value of the present work lies in establishing a traceable research and design framework that can be completed after the author adds verified site data and project drawings, and in offering a transferable narrative-design reference for similar historic-district underground vacant spaces.

Keywords: Urban renewal; Underground commercial space; Spatial narrative; Collective memory; Environmental design

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CHAPTER 1 INTRODUCTION

1.1 Background and relevance

Urban renewal has entered a stage in which the quality of existing space is more important than the simple expansion of new construction. Commercial streets that once relied on a stable flow of pedestrians may experience declining footfall, functional mismatch and fragmented management. When such streets contain underground commercial passages, the difficulties become more complex: the space is physically enclosed, its entrances are often visually weak, and the relationship between the underground level and the public life of the street is easy to break. A renovation project therefore needs to address both spatial performance and the meaning that users attach to the place.

Changzhou South Street provides a suitable case frame for this research because it is associated with the historical commercial identity of the city and has experienced several phases of commercial transformation. Public historical materials describe South Street as a long-established commercial area that has been reconstructed and upgraded over time, while the contemporary task is to maintain its historical recognition and adapt it to present-day urban life. The precise condition of the underground commercial space, including vacant units, circulation bottlenecks, lighting conditions and current business distribution, requires field verification and is therefore reserved for later supplementation in this working thesis.

The relevance of the topic lies in the possibility of treating renovation as a process of narrative reconstruction. A place is not experienced as a neutral container. It is read through entrances, thresholds, routes, objects, textures, names, memories and repeated daily actions. Lynch emphasised the importance of paths, edges, districts, nodes and landmarks in the formation of urban image [23]. Halbwachs explained that collective memory is supported by social and spatial frameworks [24]. Norberg-Schulz connected architectural meaning with the character of place [25]. These ideas suggest that an underground commercial space can regain recognisability when its spatial sequence makes local identity visible and experienceable.

The study is also relevant to environmental design education and practice. It links urban renewal, interior spatial organisation, public experience and cultural expression within one design problem. The research does not claim that narrative design can solve every commercial or management problem. Rather, it proposes a practical design logic that helps the designer decide which local elements should be retained, how they can be translated into a contemporary spatial

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language, and how cultural expression can coexist with circulation, accessibility, safety and everyday commercial use.

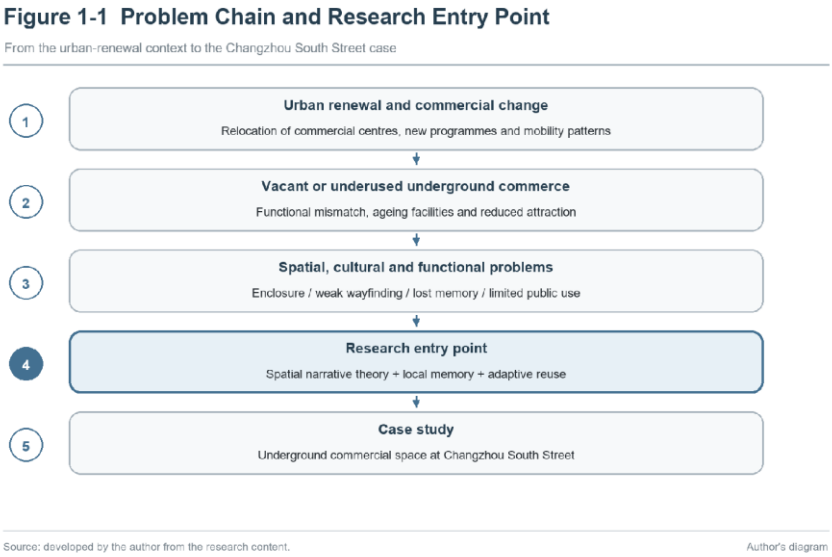


Figure 1-1 Problem Chain and Research Entry Point

1.2 Aim and objectives

The aim of this research is to develop a narrative-theory-based renovation design framework for urban underground vacant commercial spaces and to translate the framework into a preliminary design direction for Changzhou South Street.

The objectives are as follows:

1. To define the key concepts of underground vacant commercial space, spatial narrative, collective memory and adaptive reuse.
2. To review relevant Chinese and international research on urban renewal, underground public space, narrative environments, place identity and heritage-sensitive design.
3. To establish a field-research and evidence-collection framework for the underground commercial space at Changzhou South Street.
4. To analyse comparable renovation cases and extract transferable principles rather than copying their visual styles.
5. To construct a narrative sequence that connects street memory, underground transition and contemporary daily activity.
6. To propose a preliminary renovation scheme, a drawing list and a set of design guidelines that can be completed after verified site data and project drawings are added.

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1.3 Subject and object of research

The object of research is the regeneration process of urban underground vacant commercial spaces, with particular attention to the transformation of spaces that have lost commercial vitality but retain a potential relationship with the surrounding urban memory and pedestrian network.

The subject of research is the design method and practical translation of narrative theory in the renovation of such spaces. It includes the adaptation of narrative elements to enclosed underground conditions, the extraction and expression of local memory, the organisation of movement and scenes, and the balance between cultural narrative, public use and commercial support.

The distinction between object and subject is important. The underground space is not treated only as a physical object to be decorated. The study examines the process by which users encounter, interpret and reuse the space. Accordingly, spatial design is considered a medium that organises experience and supports a renewed relationship between the place and its users.

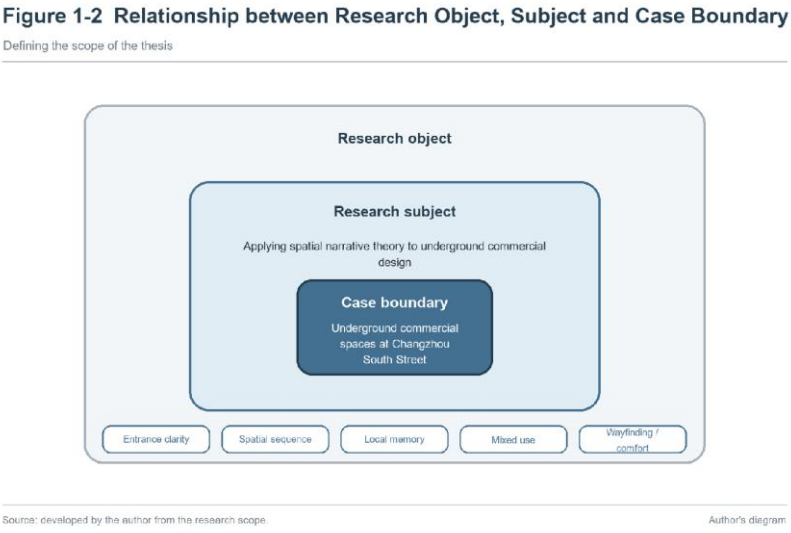


Figure 1-2 Relationship between Research Object, Subject and Case Boundary

1.4 Research questions

The research is organised around four questions:

1. How can spatial narrative theory be translated into operational design decisions for an enclosed underground commercial environment?

2. Which types of local memory and street identity can be transformed into spatial elements without producing a literal or nostalgic imitation?

3. How can circulation, lighting, thresholds, signage and public functions make the underground space more legible and welcoming?

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4. How can a renovation proposal balance cultural expression with commercial flexibility, accessibility, safety and long-term maintenance?

1.5 Research methods and data boundaries

The study adopts a qualitative, design-oriented methodology. Literature review is used to establish the conceptual foundation. Comparative case study is used to identify design patterns in adaptive reuse, narrative environments and public-space regeneration. Field observation and spatial analysis are planned for the Changzhou South Street site. The design translation stage tests how the theoretical findings can be organised into a spatial sequence and a set of design guidelines.

The current document distinguishes between verified material, analytical inference and future evidence. Historical and theoretical statements are supported by published sources. General design strategies are presented as research propositions. Site dimensions, photographs, user counts, business data, fire-safety conditions and final drawings are not assumed. They are identified in the relevant sections as material to be added after the author completes the site survey.

This boundary is methodological rather than a weakness to be hidden. In environmental design research, a responsible proposal must show which decisions depend on measured conditions. The document therefore includes evidence tables and drawing placeholders that indicate where the final project should connect observation, analysis and design.

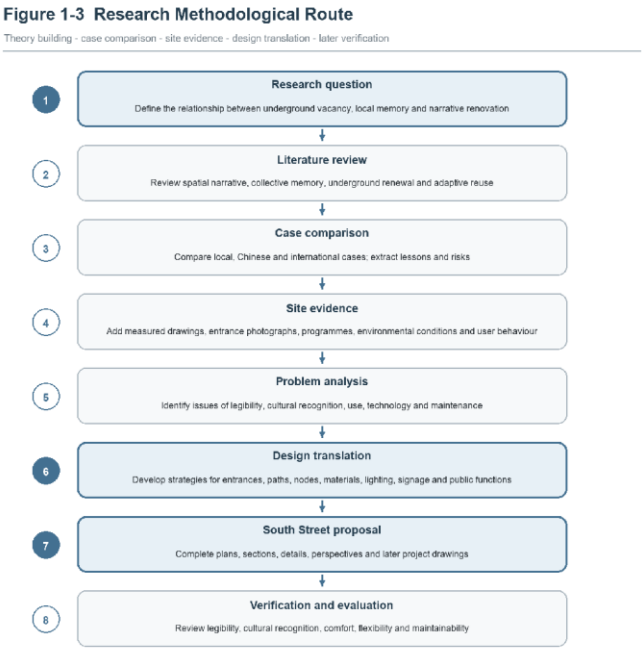


Figure 1-3 Research Methodological Route

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1.6 Research content and structure

Chapter 1 introduces the problem, purpose, research object, research subject, questions, methods and evidence boundary. Chapter 2 develops the theoretical foundation and reviews Chinese and international literature. Chapter 3 establishes the site background and presents a structured framework for analysing the current underground space. Chapter 4 translates the theoretical findings into a narrative-based renovation strategy. Chapter 5 organises the detailed design content and reserves specific locations for plans, sections, perspectives and technical drawings. Chapter 6 summarises the research findings, discusses limitations and identifies future work.

The structure follows the logic of context, theory, evidence, strategy and design translation. It is intended to support later revision rather than to close the project prematurely. Once the author provides the site drawings and project images, the placeholders in Chapters 3 and 5 can be replaced without changing the central argument.

1.7 Summary

This chapter frames the renovation of Changzhou South Street's underground commercial space as an environmental design problem involving physical vacancy, spatial legibility and cultural memory. The research proposes narrative theory as a method for connecting these dimensions. The next chapter defines the relevant concepts and examines the theoretical and practical knowledge that supports the proposed design framework.

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CHAPTER 2 THEORETICAL FOUNDATION AND LITERATURE REVIEW

2.1 Definition of key concepts

Urban underground vacant commercial space refers in this thesis to an underground or semi-underground commercial environment whose original business capacity, pedestrian attraction or functional organisation has weakened. Vacancy is understood broadly. It may mean empty units, low-use corridors, declining commercial activity, or a mismatch between the current spatial structure and the needs of users. This definition avoids equating vacancy only with complete physical emptiness.

Spatial narrative refers to the organisation of meaning through the sequence of spatial events. It does not mean that architecture literally tells a story in the same way as a novel. Rather, spatial elements establish a beginning, transition, emphasis, pause and return. Psarra argues that architecture can structure movement and interpretation through spatial relationships [32]. Coates similarly describes narrative architecture as an approach in which spatial form, memory and experience are brought into an interpretive relationship [33].

Collective memory is used to describe socially shared images, practices and references associated with a place. It is not treated as a fixed historical object. Memory changes as people use, narrate and reinterpret a place. Therefore, the design task is not to reproduce an imagined past, but to make selected local references available for contemporary recognition and use.

Adaptive reuse means the transformation of an existing structure or spatial system for new or renewed use. In this thesis, adaptive reuse is expanded from a technical strategy to a cultural and experiential strategy. The goal is to retain the spatial potential of the existing environment while introducing new programmes, circulation and environmental performance.

2.2 Spatial narrative theory

Narrative thinking becomes useful in environmental design when it helps the designer organise relationships over time. A person does not perceive an underground commercial space from one fixed viewpoint. The experience develops through approach, descent, orientation, movement, encounter and departure. The design can therefore be evaluated as a sequence rather than as an isolated plan or a single perspective.

A narrative sequence normally contains several kinds of spatial moment. The first is the recognition moment, where the user understands that the underground space is connected to a

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specific street and cultural context. The second is the transition moment, where the user moves from the open street into an enclosed environment. The third is the discovery moment, where a spatial node, object, light source or activity provides a reason to slow down. The fourth is the participation moment, where the user can shop, rest, observe, communicate or contribute. The final moment is the return to the street with a changed understanding of the place.

The value of this structure is not the production of a theatrical route. It is the creation of a readable and varied environment. A narrative space needs ordinary zones as well as highlighted nodes. If every location is visually intense, the user loses hierarchy. If no location has emphasis, the space becomes anonymous. The design strategy in this thesis therefore uses a controlled contrast between background, transition, node and destination.

2.3 Environmental perception, place identity and memory

Environmental perception is formed through sensory information, movement and prior knowledge. Lynch's five elements provide a useful language for analysing how users construct an image of the city [23]. Although an underground commercial space is smaller than a city, the same principles remain relevant. Entrances and corridors can act as paths; changes in level can act as edges; activity clusters can act as nodes; distinctive objects or light sources can act as landmarks.

Place identity is strengthened when physical form, use and meaning are mutually legible. Relph warned against placelessness, a condition in which places become interchangeable and detached from lived experience [29]. Tuan distinguished space from place by emphasising experience, attachment and value [28]. These arguments are important for underground environments because the absence of daylight and distant urban views can increase the risk of spatial anonymity.

Memory-based design should be selective and critical. A literal imitation of old signs, colours or architectural details can produce a themed interior rather than a meaningful place. A more durable approach is to extract relationships: the rhythm of a street frontage, the scale of a market stall, the material trace of a local craft, the sound of a familiar activity, or the social pattern of meeting and waiting. Such relationships can be translated into contemporary details without pretending that the new space is an untouched historical scene.

2.4 Adaptive reuse and urban regeneration

Adaptive reuse literature suggests that existing buildings contain material, spatial, environmental and social resources that should be assessed before replacement. Douglas

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describes adaptation as a process involving the adjustment of buildings to new requirements while managing technical, economic and cultural constraints [35]. Plevoets and Cleempoel place adaptive reuse within a broader debate about heritage, design attitude and sustainable urban development [34].

For underground commercial space, adaptive reuse has several specific implications. First, the existing structural grid, ceiling height, fire compartments and service routes constrain the design. Second, the space may require stronger wayfinding, lighting and ventilation than a conventional above-ground retail interior. Third, the design must reconnect the underground level with the public life of the street. Fourth, phased implementation may be more realistic than a single total replacement because commercial activity, property ownership and construction conditions can be fragmented.

Urban regeneration should also be evaluated through public value. A renovated underground environment may support commerce, but its contribution can also include safer movement, accessible rest, cultural education, small-scale events and a more continuous pedestrian network. The design framework therefore treats commercial use as one layer within a mixed public environment rather than the only measure of success.

2.5 Review of Chinese and international research

Chinese research on urban renewal and environmental design provides a strong foundation for understanding the relationship between spatial form, public life and local culture. Wu Liangyong's human settlements approach places the built environment within a wider system of social, ecological and cultural relationships [1]. Wang Jianguo's urban design research emphasises the interaction between urban form, public space and design control [2]. Zhang Song's work on historic urban conservation highlights the need to connect protection with contemporary use [13]. These sources support a design position that is neither demolition-led nor purely nostalgic.

Research on underground space and human factors further indicates that underground environments require attention to orientation, visibility, safety, comfort and behavioural patterns. Recent Chinese studies have examined human-factor-oriented interface design and decision-making in underground public spaces [16]. Policy discussions on urban renewal have also shifted toward the improvement of existing environments and the coordination of public needs, spatial quality and operational feasibility [15].

International research contributes theories of place, memory, narrative and adaptive reuse. Lynch [23], Halbwachs [24], Norberg-Schulz [25], Bachelard [26], Alexander et al. [27], Relph

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[29] and Tuan [28] help explain how users perceive and remember environments. Gehl's work focuses on the relationship between spatial conditions and everyday public life [31]. The UNESCO Historic Urban Landscape Recommendation encourages an integrated approach to heritage, development and community value [38].

The existing literature has three limitations in relation to this thesis. First, studies of underground commercial regeneration often emphasise engineering, circulation or commercial efficiency and give less attention to narrative and memory. Second, studies of spatial narrative frequently focus on museums, exhibitions or symbolic architecture rather than ordinary commercial environments. Third, local design references are sometimes reduced to visual motifs without a clear method for evaluating whether they improve orientation and public use. The present thesis addresses these limitations by combining narrative sequence, memory translation and operational design criteria.

2.5.1 Comparative cases and transferable lessons

The selected cases provide a more concrete basis for comparison than a general classification alone. They show that an underground commercial renovation has to coordinate three questions at the same time: how people find and move through the space, how a local story is made recognisable, and how cultural content remains usable within an everyday commercial environment. The following cases are therefore treated as reference evidence rather than as ready-made design models.

Case 1. Changzhou Yanling IN Street: transport connection and mixed programming

The Yanling IN Street case is especially relevant because it is located near the intersection of Yanling West Road and the Nandajie Station of Changzhou Metro Line 2. The underground commercial route connects with nearby public and commercial nodes, including the Zhonglou Square underground passage, Wuyue Plaza, the Qu Qiubai Memorial Hall, Dami Alley, Laimeng Metropolis, New Century Mall and Taifu Department Store. Its three thematic areas, described as the food area, design area and subculture area, provide a clear example of combining food, design, culture and entertainment instead of relying on a single retail type.

The transferable lesson is not the reproduction of its visual language. It is the organisation of an identifiable entrance system, a clear sequence of themed areas and a continuous connection between metro access, street space, public attractions and underground commercial functions. For South Street, this suggests that the entrance should be designed as part of the street network. Maps, sightlines, lighting and naming should help users understand both where they are and why they should continue underground.

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Case 2. Wenheyou in Changsha: local memory and multisensory narrative

Wenheyou is a narrative environment based on the everyday life of Changsha in the 1980s. Sloping roofs, brick houses, repair stalls, grocery shops, old barber shops, black-and-white televisions and enamel basins construct a recognisable social scene. Dialect, hawking sounds, food smells and the scale of ordinary shopfronts extend the story beyond visual decoration. This case demonstrates that a commercial environment becomes persuasive when its narrative material is connected to local experience.

The caution is equally important. The local Changsha store and stores in other cities do not have the same cultural effect, because a copied scene can lose its relationship with the place where it is installed. South Street should therefore begin with a verified list of local cultural genes: old businesses, commercial routines, street names, food practices, material traces and residents' memories. Only after this list has been checked should sound, smell, objects or interactive displays be introduced as design media.

Case 3. Heping Guoju in Beijing Wangfujing: the risk of place mismatch

Heping Guoju attempts to evoke Beijing alley life through grain-ticket shops, old bicycles and other objects associated with the 1980s. As a reference case, it is useful precisely because several limitations can be identified: the nostalgic image can be disconnected from Wangfujing's actual commercial identity, static displays may not create enough interaction, and a closed underground setting can remain disconnected from the high-end commercial environment above.

For South Street, the case gives three negative design criteria. First, local identity cannot be replaced by a generic memory style. Second, a sequence of display walls should not be mistaken for a usable public space. Third, the underground level must maintain a cultural and functional relationship with the street above. The future design should therefore combine memory content with sitting, eating, making, discussion or small events, subject to verified site and management conditions.

Case 4. Chengdu Eastern Suburb Memory: industrial traces and public activity

Chengdu Eastern Suburb Memory is described as the adaptive reuse of the former Hongguang electronic-tube factory. Existing industrial traces, such as air-raid shelters, equipment rooms, pipes and machine components, are combined with projection, local bands, intangible-cultural-heritage workshops and leisure uses. The case suggests that an old structure becomes meaningful when its material traces are allowed to support present-day activity.

A limitation of this type of project is that industrial narrative can remain at the level of static display if the route does not form a complete experiential sequence. Applied to South Street, the

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lesson is to retain valuable spatial traces where they can be verified, then connect them with interaction, temporary activities and local commercial practices. The desired sequence should move from recognition to transition, discovery, participation and return, rather than stopping at visual appreciation.

Case 5. Manchester Museum of Science and Industry: authentic material and interaction

The underground exhibition example associated with the Manchester Museum of Science and Industry retains textile machinery and steam pipes and uses interactive devices to let visitors understand production processes through action. Its value for this thesis lies in the combination of local history, physical evidence and participation. A photograph or label can introduce a story, but a small operation, demonstration or changeable display can make the story easier to understand.

The direct application to South Street should remain light and maintainable. Possible translations include a small display of local shop tools, a hands-on explanation of traditional making, a changing archive of commercial memories or a participatory map. These elements must be based on verified local material and must not obstruct circulation, fire safety or daily business.

Case 6. International references: time sequence, mixed use and environmental support

Additional international examples include Tokyo Midtown's time-based underground commercial sequence, London's Aldwych Station, a Berlin underground ecological exhibition hall and a Brooklyn nostalgic market. Together they provide three supplementary lessons. Tokyo Midtown shows how a time line can organise changes in material, colour and programme; Aldwych demonstrates the value of retaining distinctive original components while allowing cultural, commercial and public uses to share infrastructure; the Berlin example reminds the designer that ventilation, moisture control, natural or assisted air movement and ecological comfort are part of the underground experience; the Brooklyn case warns that an unclear entrance and weak connection with local history can undermine an otherwise attractive theme.

These international examples cannot be transferred directly to South Street because their structural, ownership and operational conditions differ. They are useful as design questions: Can South Street be organised through its own verified historical stages? Which existing elements should be retained? How will ventilation, lighting, moisture and maintenance support the narrative? Is the entrance visible enough for a first-time visitor? The answers must be established through site evidence rather than imported from the cases.

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The combined comparison produces a specific design direction for South Street. First, establish a cultural-gene inventory and separate verified local evidence from imagined nostalgia. Second, construct the route as an entrance-recognition, underground-transition, memory-node, commercial-or-public-activity and return sequence. Third, use durable physical elements as the narrative base and treat digital or interactive media as replaceable layers. Fourth, connect the underground level with metro access, street life, surrounding public facilities and the existing commercial network. Fifth, evaluate every narrative element together with accessibility, fire safety, ventilation, cleaning, ownership and phased implementation.

The preliminary programme ideas, including a possible mix of first-store offerings, local cultural and creative products and local food, or a narrative core with supporting commerce and interactive leisure, should be treated only as working hypotheses. The final proportions must be adjusted after the author verifies the site area, existing units, management conditions and operational requirements. This distinction keeps the case comparison useful without turning an untested programme ratio into a factual conclusion.

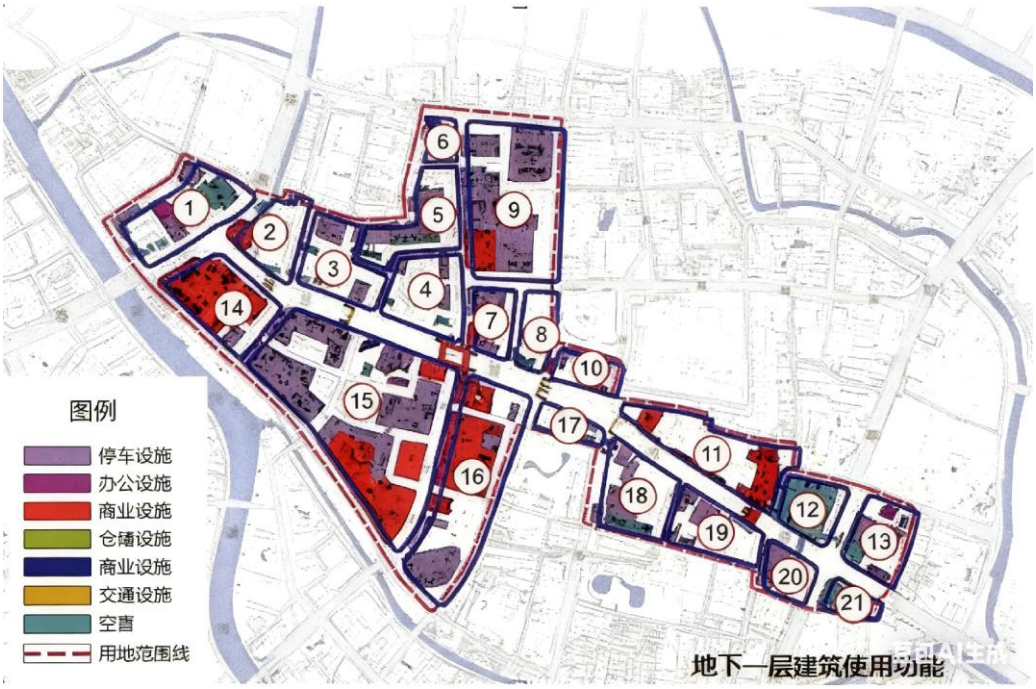


Figure 2-1 Functional distribution of underground space along Yanling West Road, Changzhou

Source: Changzhou Planning and Design Institute, General Survey of Underground Space along Yanling West Road, 2016.

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Figure 2-2 Entrance space of Yanling IN Street in Changzhou

Source: Changzhou Metro public account.

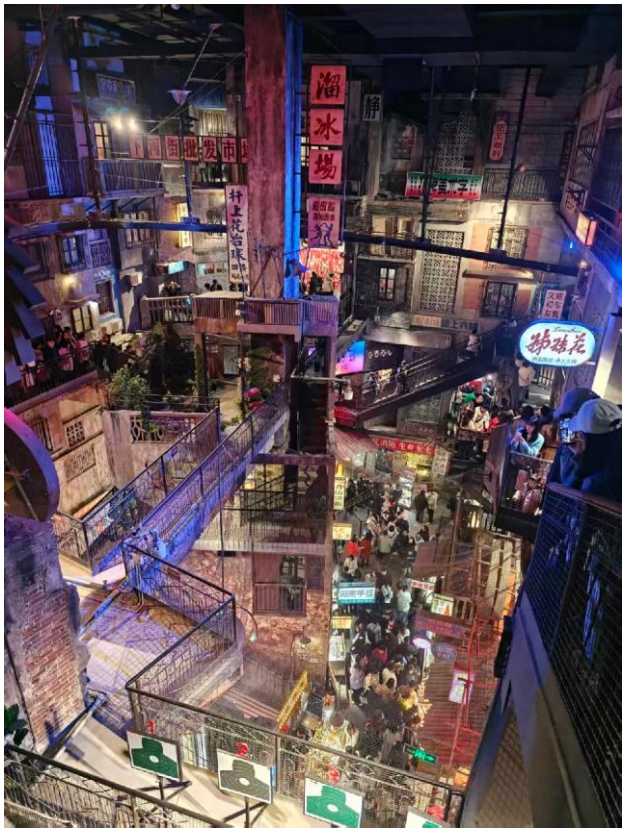


Figure 2-3 Place-based narrative space at Wenheyou in Changsha

Source: photographed by the author in February 2025.

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Figure 2-4 Nostalgic commercial scene at Heping Guoju, Wangfujing, Beijing

Source: case image.

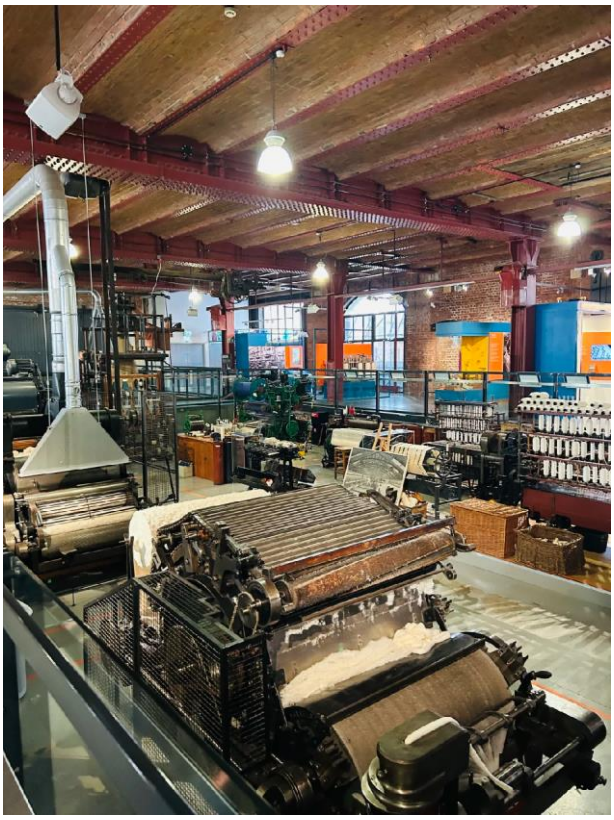


Figure 2-5 Retained industrial equipment as a spatial memory element

Source: Xiaohongshu account @小虾沙拉.

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Figure 2-6 Industrial-history exhibition space at the Manchester Museum of Science and Industry

Source: Xiaohongshu account @小虾沙拉.

Project and address	Spatial character	Main functions	Transferable lessons
Changzhou Yanling IN Street; around Yanling West Road and Nandajie Station, Zhonglou District, Changzhou, Jiangsu, China (underground boundary to be verified)	Transit-oriented underground commercial renewal; themed zoning and mixed programming	Metro connection, food, design, culture and entertainment	Link the entrance system with the street; use themed zones and continuous wayfinding; connect metro access, public facilities and the commercial network
Super Wenheyou, Hisense Plaza; No. 36 Xiangjiang Middle Road, Tianxin District, Changsha, Hunan, China	Nostalgic everyday-life setting, immersive scenes and multisensory narrative	Food, street experience, performances and consumption	Connect local memory with sound, smell and everyday scale; allow cultural content and food operation to support each other; avoid context-free copying
Heping Guoju, Wangfujing; underground level of Beijing Department Store, No. 255 Wangfujing Street, Dongcheng District, Beijing, China	Themed nostalgia and immersive reconstruction	Nostalgic display, food, photography and visitor experience	Avoid place mismatch, static display and disconnection between the underground setting and the commercial street above; combine cultural display with real public use

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Project and address	Spatial character	Main functions	Transferable lessons
Eastern Suburb Memory, Chengdu; No. 4 Jianshe South Branch Road, Chenghua District, Chengdu, Sichuan, China	Industrial-heritage renewal, creative culture and public activity	Performances, industrial-memory display, creative retail, food and leisure	Retain authentic industrial traces; connect exhibition with activity, commerce and leisure; build a route from observation to participation
Science and Industry Museum, Manchester; Liverpool Road, Castlefield, Manchester M3 4FP, UK	Industrial-heritage museum, object-based display and interactive education	Industrial-history exhibitions, science education, interactive learning and public visits	Use authentic machinery and pipes as narrative evidence; use interaction to improve understanding; treat it as an industrial-narrative reference rather than a verified “underground textile factory exhibition”
Energiebunker Wilhelmsburg (verifiable reference replacing the “Berlin underground ecological exhibition hall” label); Neuhöfer Straße 7, 21107 Hamburg, Germany	Adaptive reuse of a wartime bunker, renewable-energy infrastructure and historical interpretation	Energy centre, thermal storage, public exhibition, café and viewing	Design ventilation, energy, environmental comfort and historical narrative together; clarify that the project is in Hamburg, not Berlin
The Underbelly Project at the South 4th Street subway shell (underground cultural reference replacing the “Brooklyn underground nostalgic market” label); South 4th Street / Broadway area, Williamsburg, Brooklyn, New York, USA (no public street number)	Unofficial underground street art, concealed access and non-commercial use	One-off or periodical underground art exhibition, not a market	Concealed access, weak accessibility and a closed site can reduce publicness; an underground art project should not be described as an open commercial market
Flatbush Central Caribbean Marketplace (alternative reference retaining the market function); 2123 Caton Avenue, Brooklyn, NY 11226, USA	Community cultural market, immigrant culture and entrepreneurship support	Market stalls, food, craft products, training and community events	Combine local culture with commercial operation; support community participation and small businesses; clarify that this is not an underground project

Table 2-1 Comparison of selected cases: address, spatial character, functions and transferable lessons

Source: compiled by the author from project, city and public institutional materials. The labels “Berlin underground ecological exhibition hall” and “Brooklyn underground nostalgic market” could not be verified as public projects with the stated names and functions. The table therefore uses Energiebunker Wilhelmsburg and the Underbelly Project as qualified references, and lists Flatbush Central Caribbean Marketplace separately as a market reference. Address verification sources are listed in References [45]-[48].

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2.5.2 Research synthesis and design principles

The literature can be synthesised into five design principles. The first is contextual continuity: the underground environment should explain its relationship with the street above. The second is experiential legibility: users should understand movement and destination through spatial form, not through signs alone. The third is selective memory translation: local references should be chosen, abstracted and tested rather than copied. The fourth is programme hybridity: commercial, cultural and everyday public uses should support one another. The fifth is operational realism: safety, maintenance, ownership and phasing should be considered at the beginning of design.

These principles also define the research contribution of the thesis. The contribution is not a new historical interpretation of Changzhou or a universal commercial model. It is a design-research method for connecting narrative material with a practical spatial sequence in a small and potentially fragmented underground environment.

2.6 Conceptual framework

The conceptual framework developed in this thesis has four layers. The first layer is context: street history, local commercial culture, urban renewal conditions and underground spatial constraints. The second layer is narrative material: memory fragments, everyday practices, objects, materials, names, sounds and social activities. The third layer is spatial translation: thresholds, paths, nodes, pauses, views, light, texture, signage and programme. The fourth layer is use evaluation: legibility, accessibility, comfort, cultural recognition, flexibility and maintainability.

The framework can be represented as a chain: local context is interpreted as narrative material; narrative material is translated into a spatial sequence; the sequence is tested through user movement and daily activity; the result is adjusted through evidence and operational feedback. This chain prevents the design from jumping directly from a vague cultural idea to decorative treatment.

2.7 Summary

This chapter defines the central concepts and positions the thesis within research on spatial narrative, collective memory, adaptive reuse, underground public space and urban renewal. The literature indicates that an underground commercial renovation should be understood as a problem of spatial experience, public connection and cultural interpretation. Chapter 3 applies this theoretical position to the background and evidence structure of Changzhou South Street.

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CHAPTER 3 SITE BACKGROUND AND EXISTING CONDITION ANALYSIS

3.1 Site context: Changzhou and South Street

Changzhou is a historic city in the Yangtze River Delta with a dense relationship between commercial streets, canal systems, neighbourhood life and local cultural memory. South Street is widely recognised as part of the city's traditional commercial landscape. Public materials describe the area as a long-established urban commercial street that has undergone reconstruction and functional adjustment. This historical continuity makes it a meaningful context for a renovation study that seeks to connect contemporary use with local identity.

The case boundary of this thesis is the underground commercial space associated with Changzhou South Street. The exact boundary, entrances, ownership units, structural grid, service routes and current business distribution must be confirmed by the author's site survey. The design discussion in this chapter therefore distinguishes between a confirmed historical context and a preliminary spatial hypothesis.

3.2 Historical layers and commercial context

A historic commercial street usually contains several layers at the same time: the memory of traditional trade, the spatial order of streets and lanes, later commercial construction, current consumption patterns and the expectations of visitors. These layers should not be arranged as a simple timeline in which the past is presented as authentic and the present as a problem. A more useful approach is to identify which relationships still have public meaning and how they can be made visible in a contemporary environment.

For the South Street case, potential narrative materials may include the street's commercial identity, the rhythm of shopfronts and arcades, local food and craft practices, everyday meeting patterns, historical names, maps, photographs and oral memories. These are preliminary categories rather than confirmed design elements. The author should select only those materials that can be supported by archival sources, interviews, site observation or project documentation.

3.3 Existing-condition survey framework

The existing-condition survey should record the space at three scales. At the urban scale, it should document the relationship between the underground entrances, South Street, nearby public transport, pedestrian routes and adjacent public facilities. At the architectural scale, it should record plan dimensions, ceiling height, columns, stairs, elevators, fire exits, ventilation,

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drainage, service rooms, storefronts and signage. At the experiential scale, it should record light contrast, sound, smell, thermal comfort, visibility, perceived safety, resting behaviour and points of hesitation.

The survey should combine measured drawings, photographs, annotated walking routes and time-based observation. At least three observation periods are recommended: a weekday daytime period, a weekday evening period and a weekend period. The final number of observations, routes and participants should be stated only after the author completes the fieldwork.

Scale	Evidence to record	Method	Output
Urban	Entrances, pedestrian links, transport and nearby public facilities	Map annotation and walking observation	Context map
Architectural	Plan, section, structure, services, signage and fire exits	Measurement, photography and drawing review	Existing-condition drawings
Experiential	Light, sound, smell, comfort, visibility and hesitation points	Time-based observation and short interviews	Experience map

Table 3-1 Proposed existing-condition evidence framework

3.3.1 Environmental and technical indicators

The field survey should include a technical record because the underground environment is strongly influenced by systems that are not immediately visible in a perspective drawing. The record should include ceiling and floor levels, lighting type and approximate brightness, ventilation outlets, signs of dampness, drainage points, acoustic conditions, emergency equipment, handrail continuity and the location of service doors. These observations do not replace professional inspection, but they identify the design constraints that must be verified.

The author should prepare a two-layer drawing set. The first layer records the existing condition without design interpretation. The second layer maps the design opportunities and constraints, such as potential view corridors, locations for narrative nodes, areas unsuitable for long-term occupation, and points where the route conflicts with service access. Keeping these layers separate will make the later design argument more transparent.

Scale	Evidence to record	Method	Output
Urban	Entrances, pedestrian links, transport and nearby public facilities	Map annotation and walking observation	Context map

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Scale	Evidence to record	Method	Output
Architectural	Plan, section, structure, services, signage and fire exits	Measurement, photography and drawing review	Existing-condition drawings
Experiential	Light, sound, smell, comfort, visibility and hesitation points	Time-based observation and short interviews	Experience map

Table 3-1 Proposed existing-condition evidence framework

3.4 User and behaviour analysis framework

The underground space may serve different users: local residents, workers, visitors, shoppers, delivery staff, older people, children and people with mobility or sensory needs. These groups may use the same corridor for different purposes. A resident may seek a shortcut, a visitor may seek orientation and cultural information, and a commercial operator may prioritise visibility and delivery access. The design should therefore avoid treating users as a single abstract customer.

The proposed behaviour analysis includes route mapping, dwell-point mapping, conflict-point recording and short semi-structured interviews. The interview questions should focus on how users find the entrance, what makes them continue or turn back, which elements they recognise as local, where they feel comfortable staying, and what functions they expect from the renovated space. The results can be coded into needs for orientation, rest, social interaction, consumption, learning and cultural recognition.

3.4.1 User groups and time-based patterns

A first round of analysis can use four broad user groups: pass-through users, destination users, staying users and service users. Pass-through users value speed and clarity. Destination users need a clear reason to reach a shop, public room or event. Staying users need seating, comfort and a sense of welcome. Service users need access that does not conflict with the public route. The groups may overlap, but the distinction helps the designer test whether one spatial decision creates a benefit for one group and a problem for another.

Time-based observation is equally important. A route that appears empty in the afternoon may become crowded during evening commuting or weekend activity. The author should record not only the number of people but also the type of movement, direction, dwell duration and interaction with shopfronts. These records can support a more precise decision about where to place displays, seating and temporary activities.

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3.5 Preliminary problems and opportunities

Before the site evidence is added, four preliminary problem categories can be identified from the research direction. The first is weak connection: the underground space may not clearly communicate its relationship with the street above. The second is weak legibility: users may have difficulty understanding the route, destination and available functions. The third is weak identity: generic finishes and signage may not express the specific character of South Street. The fourth is weak activation: commercial units alone may not provide enough reason for users to stay or return.

The corresponding opportunities are to strengthen thresholds, create a readable narrative route, translate local memory into contemporary spatial elements, and introduce mixed public functions that support everyday use. These opportunities must be tested against actual dimensions, fire-safety requirements, property boundaries and operational conditions before they become final design decisions.

3.5.1 Spatial, cultural and operational problem matrix

The preliminary diagnosis can be organised into three connected categories. Spatial problems include weak entrances, long undifferentiated corridors, blind corners, poor lighting and unclear destinations. Cultural problems include the absence of local references, the separation of commercial activity from memory, and the use of generic visual language. Operational problems include fragmented ownership, uncertain vacancy, maintenance pressure, limited construction access and the need to keep some businesses operating during renovation.

The categories should not be treated independently. A weak entrance may be both a spatial and operational problem; a cultural display may fail because it blocks a service route; a visually attractive material may be unsuitable because it is difficult to clean. The design process should therefore use a matrix that records the problem, evidence, design response, responsible party and future verification method.

3.6 Evidence to be added by the author

The following evidence is required before the design chapter can be treated as a completed project: verified site boundary; current plan and section drawings; entrance photographs; measured dimensions; lighting and ventilation information; current business and vacancy map; pedestrian observation records; interviews or questionnaires; local historical sources; building and fire-safety constraints; and the author's final design drawings.

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3.7 Summary

This chapter establishes the site context and a responsible method for documenting the existing underground space. It does not replace fieldwork with assumptions. Instead, it identifies the evidence needed to connect the narrative framework with the actual site. Chapter 4 develops the design strategy that will be tested against this evidence.

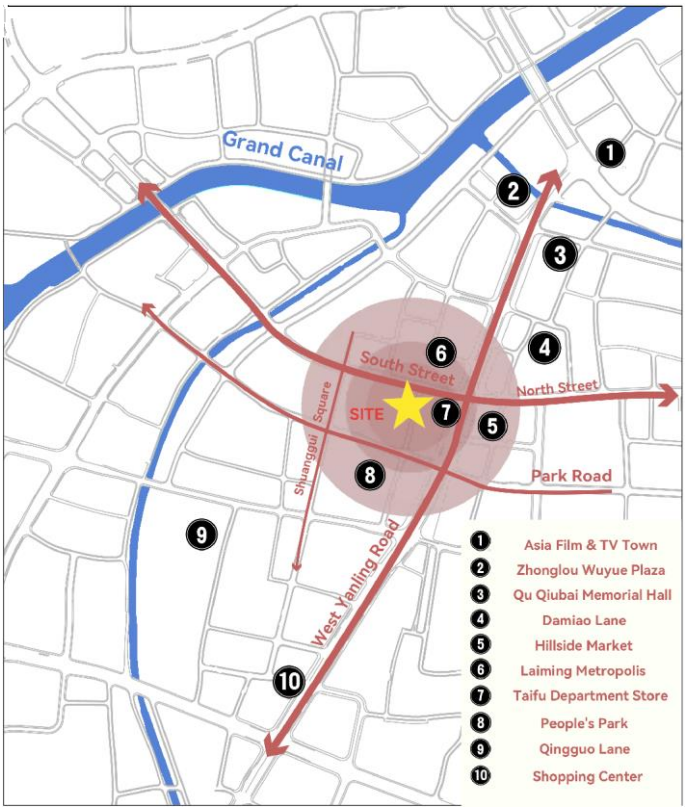


Figure 3-1 Site context and South Street connection

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CHAPTER 4 NARRATIVE-BASED RENOVATION DESIGN STRATEGY

4.1 Overall positioning

The proposed positioning is a contemporary underground public-commercial environment that makes the memory of South Street readable through movement, material, light and activity. The space should not be designed as a historical replica or a purely commercial corridor. It should operate as a connective layer between the street, local memory and present-day urban life.

The strategy has three simultaneous goals: improve the basic usability of the underground space; create an identifiable narrative sequence; and provide flexible conditions for commercial and public activities. These goals should be balanced rather than ranked in a fixed order. A visually expressive environment that is difficult to navigate is unsuccessful, as is a highly efficient corridor that has no local identity.

4.2 Narrative structure: recognition, transition, discovery and participation

The first narrative stage is recognition. At the street entrance, users should understand that the underground space belongs to South Street rather than to an anonymous transport or retail system. Recognition can be supported by a clear entrance frame, a concise identity statement, a visible map and one carefully selected local reference.

The second stage is transition. The change in brightness, ceiling condition, sound and material should be controlled. A sudden descent into a dark corridor can produce psychological resistance. Gradual lighting, continuous handrails, accessible routes and a clear visual destination can reduce this resistance.

The third stage is discovery. The route should contain a limited number of narrative nodes. Each node can present a different relationship between memory and present use: a material detail, a small exhibition, an image layer, a local product display, a resting platform or a view toward activity. The node should not block circulation.

The fourth stage is participation. Users should be able to do something in the space rather than only look at it. Flexible stalls, small workshops, community displays, reading areas, food-related activities or seasonal events can make the narrative a living process. The final programme must be determined by the project owner and site conditions.

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4.3 Spatial sequence and circulation

The circulation system should distinguish the main public route from service and emergency routes. The main route needs visual continuity, while secondary routes can provide access to commercial units and quieter areas. Directional decisions should be made at visible points rather than hidden behind signs.

A narrative route can be organised as a sequence of threshold, orientation node, memory corridor, activity node, flexible public room and return connection. This is a design hypothesis. The actual number and position of nodes must respond to the site plan. The route should also permit non-linear movement so that users can enter, pause and leave without completing every part of the sequence.

4.4 Material, light, colour and signage

Material translation should begin with local relationships rather than decorative imitation. For example, the rhythm of traditional shopfronts may be translated into modular display frames; the texture of a local construction material may be abstracted into a wall surface; the pattern of a market or street may inform the spacing of lights and floor zones. Each translation should be tested for durability, cleaning, fire performance and replacement cost.

Lighting should support orientation and comfort. A continuous low-level route light can establish movement, while brighter nodes can mark destinations. Glare and strong contrast should be controlled, especially at stairs and entrances. Colour should be used as a system for zones and information, not as an arbitrary historic decoration.

Signage should combine identity, direction, function and emergency information. It should remain readable for first-time users and should not rely only on language. Symbol, contrast, height, tactile information and consistent placement are part of the environmental design.

4.5 Functional integration

A mixed programme can help prevent the underground space from becoming dependent on one type of business. The proposed programme categories are: everyday retail or food support; small-scale cultural display; flexible community or workshop space; rest and waiting; and necessary service functions. These categories should be arranged so that active uses support passive uses and neither blocks the main route.

The design should also consider time. Some activities may operate during the day, while others may be more suitable for evening use. Seasonal exhibitions or temporary markets can

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provide change without requiring a permanent rebuilding of the space. Flexible partitions, movable display units and accessible power points can support this adaptability.

4.6 Accessibility, safety and maintenance

Narrative quality cannot replace basic safety. The scheme should maintain clear fire egress, adequate corridor width, accessible ramps or lifts, non-slip surfaces, emergency lighting, ventilation and visibility. The author must confirm the applicable Chinese codes and the building's existing approvals before finalising the drawings.

Maintenance should be considered at the same time as visual design. Underground environments are vulnerable to moisture, dust, wear and equipment failure. Materials should be selected with a clear cleaning and replacement strategy. Digital media should not become the only carrier of the narrative because it may fail, age or require specialist management. A layered system combining durable physical elements with replaceable content is more resilient.

4.7 Evaluation indicators

The preliminary evaluation system contains five dimensions: spatial legibility, cultural recognisability, user comfort, programme flexibility and operational feasibility. Each dimension should be evaluated with a mixture of observation, user feedback and design review. The indicators are not presented as a completed quantitative result; they are a tool for the author's later verification.

Dimension	Preliminary indicator	Verification after site survey
Legibility	Users can identify entrance, route and destination	Route observation and wayfinding test
Cultural recognition	Users can connect selected elements with South Street	Interview and image-supported feedback
Comfort	Light, sound, ventilation, seating and perceived safety are acceptable	Environmental observation and user feedback
Flexibility	Space can support changing commercial and public programmes	Plan review and operation scenario
Feasibility	Materials, systems and phasing are maintainable	Technical review and cost discussion

Table 4-1 Preliminary evaluation indicators

4.8 Summary

This chapter translates the theoretical discussion into a design strategy based on recognition, transition, discovery and participation. It establishes a framework for circulation, narrative

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nodes, material translation, lighting, signage, mixed functions, accessibility and maintenance. Chapter 5 applies the framework to the proposed design content while clearly marking the locations where project drawings and measured evidence must be added.

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CHAPTER 5 DETAILED RENOVATION DESIGN OF CHANGZHOU SOUTH STREET UNDERGROUND COMMERCIAL SPACE

5.1 Design scope and zoning

The detailed design should begin with a verified boundary plan. The plan should identify all public entrances, service access points, vertical circulation, structural obstacles, commercial units, public rooms, fire exits and areas that cannot be modified. Based on this plan, the space can be divided into arrival, orientation, narrative circulation, active commercial support, flexible public use and service zones.

The zoning principle is to place the most public and legible functions near the main entrance, locate deeper spaces as destinations rather than residual corridors, and use nodes to connect different routes. The final zoning must be revised after the author provides the actual plan.

5.1.1 Spatial hierarchy and design control

The renovation should establish a hierarchy between primary, secondary and support spaces. Primary spaces are the entrance, main public route and central node. They need the clearest identity, lighting and orientation. Secondary spaces include commercial frontages, side routes and smaller narrative nodes. Support spaces include storage, service access, equipment and emergency functions. The hierarchy should be visible in the plan, section, lighting system and material palette.

Design control is necessary to prevent the narrative system from becoming visually fragmented. A limited set of modules, sign proportions, lighting positions, material tones and display heights can create continuity while allowing individual businesses to retain differences. The control system should be written as a small design guide and included in the final appendix.

5.2 Entrance and arrival space

The entrance is the first narrative decision. It should be visible from the street, accessible to different users and visually connected to a destination below. The entrance composition may include a clear name, a short historical reference, a map, a lighting transition and a view or framed image that suggests the underground route.

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The entrance should avoid excessive visual density. A single strong identity element is more effective than a collection of unrelated motifs. If the site has several entrances, the author should determine whether they require a common identity system with different local markers.

5.3 Memory corridor and narrative nodes

The main corridor can be organised as a sequence of background surfaces and selected nodes. Background surfaces provide continuity and allow shopfronts, information and circulation to remain readable. Nodes provide pauses and interpretation. A node may be a small archive wall, a material sample, a digital or printed image layer, a display of local practices, or a platform for temporary activity.

Each node should answer three questions: what local relationship does it express; what can the user do there; and how does it connect to the next space? If a node only presents an image without supporting movement or activity, it should be treated as an exhibition element rather than a spatial narrative node.

5.4 Central public and exhibition space

A central public space can provide the underground environment with a destination and a place for social activity. It may contain a compact exhibition, a community table, a reading area, a small workshop or a flexible event setting. The final function should be selected according to ownership, management and fire-safety constraints.

The central space should remain visually connected to the circulation route. Partial transparency, changes in ceiling treatment or controlled lighting can mark its boundary without making it feel closed. The space should also have a clear alternative route so that events do not block ordinary movement.

5.5 Commercial-support space

Commercial units should be integrated as participants in the narrative rather than treated as unrelated advertisements. Display modules can use a common dimension and material language while allowing individual businesses to retain their identity. The layout should provide reasonable visibility, delivery access, storage and maintenance.

The renovation should not assume that all commercial units will have the same business type. A flexible frontage system can support food, retail, cultural products or temporary uses. The author should add a business and vacancy map after the site survey and use it to determine which units need activation, consolidation or non-commercial support.

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5.6 Lighting, wayfinding and sensory comfort

Lighting design should be documented through a plan, section and representative perspective. The plan should identify general illumination, threshold lighting, node lighting, emergency lighting and signage lighting. The section should show how brightness changes between the street, stairs, entrance and underground route.

Wayfinding should be tested through a first-time-user route. The user should be able to answer: where am I, where can I go, what is the destination, and how can I return? Information should be placed before decision points, not after them. Acoustic comfort, odour control, ventilation and seating should also be recorded as part of the sensory environment.

5.6.1 Technical verification and detail design

The final design package should include a reflected ceiling or lighting plan, a wayfinding elevation, representative wall and floor details, a material schedule and an accessibility review. These drawings should show the relationship between the narrative idea and construction detail. For example, a memory wall should identify its substrate, fixing method, lighting, cleaning access and content replacement method rather than appearing only as a decorative image.

The author should also prepare a design decision log. Each important decision can be recorded with four fields: source evidence, spatial problem, design response and verification status. This log will help distinguish decisions supported by site data from decisions that remain conceptual.

5.7 Drawing and visualisation list to be added

The following drawings should be supplied by the author in the later project stage. Their titles are prepared here so that the final thesis can preserve a complete chapter structure.

5.8 Phasing and implementation

A phased implementation strategy may be appropriate for a commercial underground environment. Phase one can address safety, lighting, wayfinding, cleaning and the most visible entrance conditions. Phase two can introduce narrative surfaces, public nodes and flexible commercial modules. Phase three can add exhibitions, workshops, seasonal events and evaluation-based adjustments.

The actual phases should be linked to ownership, budget, construction access and business continuity. The thesis should not claim a completed implementation unless the author supplies construction records or post-occupancy evidence.

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5.9 Summary

This chapter turns the design strategy into a set of spatial components: entrance, orientation, memory corridor, narrative nodes, central public space, commercial support, lighting and wayfinding. The content is intentionally structured to receive the author's later plans, sections, elevations, renderings and site photographs. The conclusion will explain the contribution and limits of this working design framework.



Figure 5-1 Site boundary and existing circulation plan

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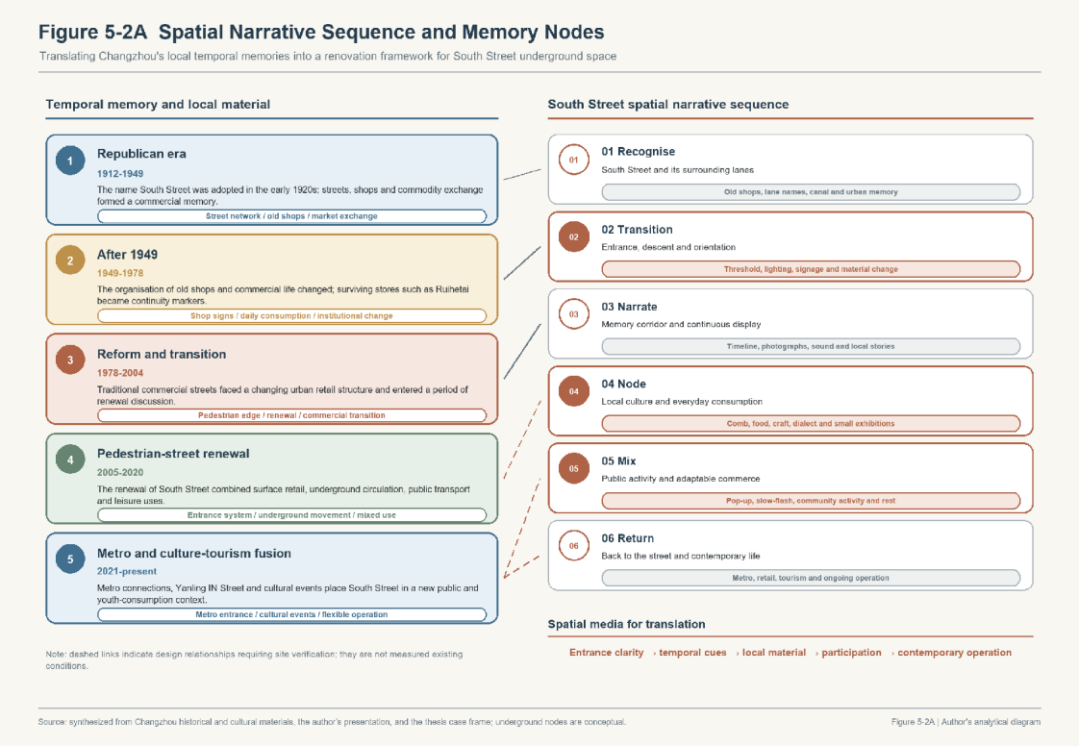


Figure 5-2 Narrative sequence and memory-node diagram



Figure 5-3 Renovation plan and zoning

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Figure 5-4 Central public-space perspective

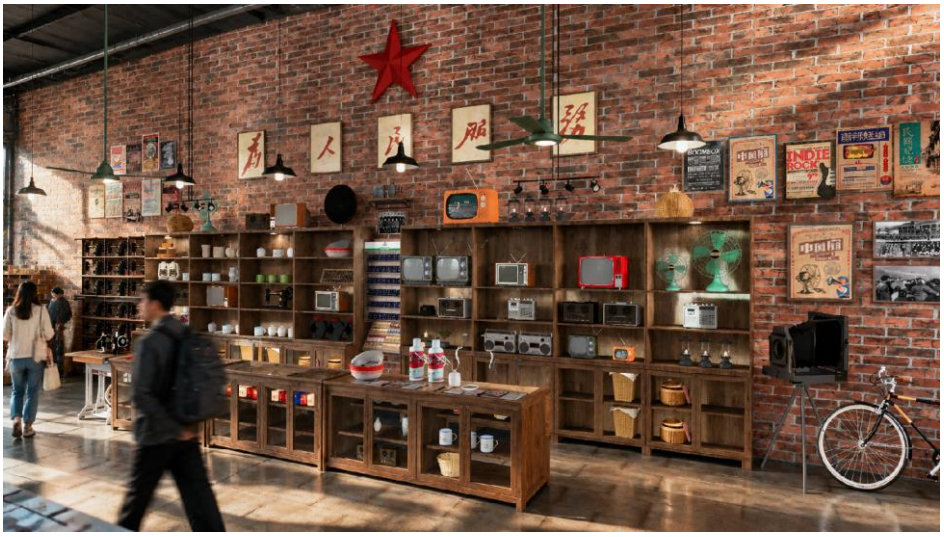


Figure 5-5 Narrative thematic spatial renderings



Figure 5-6 Narrative thematic spatial detail renderings

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Figure 5-7 Interior renderings of the nostalgic narrative-themed space



Figure 5-8 Renderings of an open-air public dining space 1



Figure 5-9 Renderings of an open-air public dining space 2

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Figure 5-10 Renderings of an open-air public dining space

Store Category	Business Description	Area	Type	Core Facilities
Class A Store	Simple meals & small bowls (limited dine-in), local specialty merchandise, nostalgic themed retail	40–80m²	Permanent Shop	F&B: Water supply & drainage + smoke exhaust; Retail: Standard water & electricity
Class B Store	Food stall, small kiosk with no dine-in service	15–35m²	Permanent Shop	Smoke exhaust, water supply & drainage, high-power electricity; takeaway only
Class C Store ①	Cultural & creative / handcrafts / pre-packaged snacks, basic market booth	8m² (2m×4m)	Temporary Pop-up Booth	General lighting & standard power sockets, no water drainage or smoke exhaust
Class C Store ②	Fresh snacks, food tasting market booth	8m² (2m×4m)	Temporary Pop-up Booth	High-power sockets. Hot food requires special mall approval; open flame prohibited

Figure 5-11 Store Attribute Categories



Figure 5-12 Render of a Category C store

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CHAPTER 6 CONCLUSION AND FUTURE RESEARCH

6.1 Main findings

This study focuses on the regeneration of underutilized underground commercial spaces on South Street (Nandajie) in Changzhou. Through literature review, case comparison and conceptual design analysis, it establishes a research framework spanning problem identification, narrative extraction and spatial translation. Rather than regarding underground space regeneration as mere decorative renovation or tenant replacement, the research frames it as an integrated process involving environmental adaptation, restoration of public accessibility, interpretation of local culture, and subsequent operation and maintenance.

First, the regeneration of idle underground commercial spaces must address both spatial conditions and user experience. Clear circulation paths, recognizable nodes, comfortable stay conditions and functional adaptation constitute key criteria for reintroducing vacant commercial spaces into urban daily life.

Second, spatial narrative serves as an operable medium for embedding local memory into design. Local cultural materials should first undergo source verification and thematic classification before being translated into entrance landmarks, route organization, node layout, material selection, lighting control, graphic signage and event programming. This creates a closed workflow of “evidence collection — memory extraction — narrative sequence — spatial translation — user feedback”, preventing local culture from being reduced to superficial nostalgic ornamentation.

Third, the design scheme for Changzhou South Street shall be grounded in the verification of local cultural materials. Alley commerce, time-honored brands, local cuisine, comb-and-shu craft, and canal heritage can all act as memory clues for subsequent investigation and screening. The core of design is not to replicate a retro aesthetic, but to translate authentic life experiences associated with South Street into legible, participatory and maintainable spatial elements.

Fourth, the conceptual narrative sequence illustrated in Figure 5-2 — “ground-level district recognition — underground entrance transition — memory corridor — local cultural node — public activity — ground-level circulation return” — can be adopted for the underground space of South Street. This sequence links urban recognition from the street level, directional transition within underground spaces, immersive engagement with local memory and contemporary public activities, facilitating a continuous experiential route.

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In conclusion, the effectiveness of narrative-led regeneration should not be judged by visual outcomes alone. Instead, it requires comprehensive evaluation across dimensions including identity recognition, spatial legibility, environmental comfort, functional flexibility, cultural engagement and maintainability. Only when local memory connects with real spatial behaviours, daily activities and operational constraints can underground spaces transform from forgotten residual sites into urban interfaces with public value.

6.2 Theoretical and practical value

The theoretical value of this study lies in its attempt to connect spatial narrative theory with the specific conditions of underground commercial space regeneration. The research transforms narrative from abstract thematic expression into a design method for organizing circulation, memory, lingering and activities. It also expands the focus of adaptive reuse from the preservation of physical structures to the reconstruction of public experience, local identity and relationships of daily use. Accordingly, a logical chain of "space — memory — narrative — use" is established, offering a debatable analytical perspective for culturally sensitive regeneration of ordinary urban underground spaces.

The practical value of this study is that it puts forward a relatively clear workflow: collecting on-site, historical and usage evidence; classifying local cultural materials by source, time and theme; constructing spatial narrative sequences; translating selected memory relationships into entrances, circulation routes, nodes, materials, signage and activities; and revising the scheme through user observation, technical verification and maintenance requirements. This workflow can serve as a reference for similar underground commercial spaces, yet it does not mean that the same form can be directly applied in different cities.

For the South Street project, practical priorities are implemented in several interrelated aspects. Entrances are designed to strengthen visual and directional connections with ground-level blocks. Underground circulation routes improve spatial legibility through continuous lighting, signage and spatial rhythm. Memory corridors and local nodes carry verified historical materials, craft displays, food culture or community events. Pop-up exhibitions, rest areas, light catering and small-scale public activities can enhance the functional flexibility of the space.

From a broader perspective, what this research discusses is not a fixed "retro underground street" style, but a regeneration approach that validates local evidence first and then organizes spatial experience. It provides certain inspiration for conventional underground commercial floors, transit connection spaces and urban stock public spaces.

6.3 Limitations

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The research methodology is primarily qualitative. Case comparison is mainly adopted to extract experience in spatial narrative, adaptive reuse and public activity programming. However, the study has not assembled sufficient cross-regional samples, and lacks quantitative evidence such as pedestrian flow, route selection, dwell time, user satisfaction and operational data. Therefore, the evaluation dimensions proposed in this paper cannot be interpreted as an indicator system validated by statistical tests.

In addition, local memory materials require cross-verification through local chronicles, archives, materials from museums and cultural institutions, oral interviews and on-site observation. Figure 5-2 and the design proposals in Chapter 5 remain preliminary design propositions, which have not undergone construction drawing development, technical coordination or post-occupancy evaluation after completion. In the absence of such evidence, this paper draws no definitive conclusions regarding improvements in pedestrian flow, user satisfaction, commercial revenue growth or energy performance.

6.4 Future research directions

Future research may adopt semi-structured interviews, on-site route observation, behavioral recording, and targeted questionnaire surveys to verify whether the proposed narrative sequence effectively enhances spatial recognition, directional comprehension, user willingness to stay, and cultural engagement. Furthermore, an evaluation matrix consisting of cultural recognition, spatial legibility, environmental comfort, functional flexibility, accessibility, maintainability, and operational adaptability can be established to provide a more rigorous comparative basis for design judgment.

Following the project implementation, post-occupancy evaluation (POE) should be conducted in subsequent research to continuously record changes in pedestrian flow, the distribution of user staying and activities, user feedback, commercial tenant updates, equipment maintenance conditions, and spatial management costs. Only through continuous before-and-after field observation can it be further examined whether spatial narrative strategies genuinely improve the public utilization of underground spaces, rather than merely remaining at the level of schematic design and visual presentation. Based on empirical observation results, the commercial formats of the underground space can be timely adjusted and iteratively optimized. In this way, the declining commercial area in this prime urban location can sustain vitality through continuous adaptive renewal.

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