

# A Typology-based Study on the Design of Spatial Renewal in Historic Districts

## -- Handan City Crosstown Street as an Example

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### Abstract

**This paper takes the space of Crosstown Street in Handan City as the research object, simplifies and refines the spatial texture form of the neighborhood from the perspective of typology, summarizes the spatial composition law of the historical neighborhood, proposes the principles of typology for the conservation and renewal of historical space, and provides a new entry point for the study of conservation and renewal of urban historical neighborhoods.**

### Keywords

**Typology; Historic district space; Renewal design.**

## 1. Introduction

The street space of the historic district reflects both the traditional texture of the city and the lifestyle of the local residents, recording the local history and culture, regional environment, aesthetics, value orientation and other factors [1]. In order to solve the problem of cultural deficiency in the design practice of street renewal in historical districts, the relationship between historical tradition and modernity is solved in a rational and dialectical way by applying typological methods [2]. To extract the structural prototype of the neighborhood and translate the prototype to a certain place, an "ideal" prototype of the historic district with appropriate theoretical basis is constructed (Figure 1).

## 2. Theoretical Foundations

### 2.1. Typological Approach

The key to the typological approach is to take a dialectical view of the contradiction between history and modernity, and to extract the invariable and variable archetypes in the regional features. The complex forms are summarized through rational simplification, and the core connotations are expressed in geometric forms, which are then designed and studied according to their archetypes [3]. The typology summarizes and analyzes the spatial characteristics of neighborhoods at both macro and micro levels, and provides a theoretical basis for the typological integration and reorganization of neighborhood spaces.

The key to typology is to look rationally at the contradiction between history and modernity and to extract the archetypes of unchanging and variable regional features. Through rational simplification to summarize the complex shape, the core connotation is expressed in geometric

shape, followed by design research based on its prototype [3]. The spatial characteristics of the block are summarized and analyzed from two aspects, macro and micro, to provide a basis for the typological reorganization of the block space.

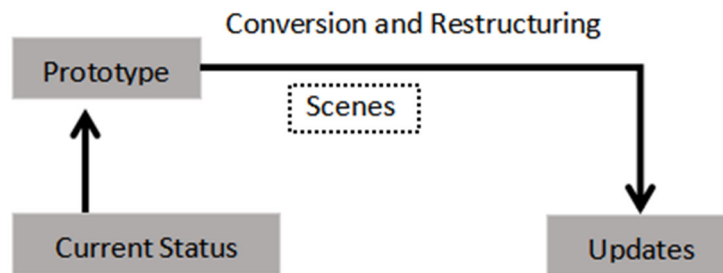


Figure 1. Typological approach to research and design

## 2.2. Historic District Spaces

The space of historic districts as a spatial system is a complex result of economic phenomena, cultural phenomena, social development. It is the comprehensive result of natural interaction between special geographical environment and human activities [4]. In this paper, we study the historical district of Crosstown Street, which flourished in Xing Shang and flourished in Warring States and Han Dynasty, and retained a certain number and scale of historical remains, such as Hanshan Academy, Handan Palace, and Hui Chexiang Stele Pavilion, and also integrated a certain urban function and life content of urban lots.

## 3. Spatial Research and Analysis of the Crosstown Street Neighborhood

### 3.1. Selection of Research Subjects

In this paper, the southern section of the historical district of Handan String Street (Figure 2) (south of Renmin Road, north of Chengnan Street, east of Lingshi North Street and west of Chengnei Middle Street) with well-preserved historical texture is located in the core of Handan city, with more commercial, cultural and office buildings around the site and a more developed traffic road network.






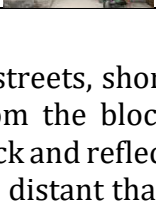


Figure 2. Crosstown Street Scoping

### 3.2. Research Findings and Analysis

Through on-site research, fixed locations of key nodes were recorded and photographed to lay the foundation for prototype extraction. On this basis, the sites were counted from five indicators: spatial attributes, human behavior, spatial morphology, landscape effects, and preservation. (As shown in Table 1).

**Table 1.** Street spaces with different attributes on Crosstown Street

Space properties	human behaviour	Space pattern	Landscape Effect	Whether to retain	Current photos
Street space	Traffic and parking	open space	general	Yes	
residential building	Passage, stay	The building is enclosed on both sides into a rectangular space	general	Yes	
Courtyard space	Passage, stay	Courtyard space	general	Yes	
Tourism and Cultural Space	Access, Viewing	open space	general	Yes	
Neighborhood commercial space	Passage, stay	open space	general	Yes	
Residents spontaneously fought for	Access and placement of transport	semi-open space	general	Yes	

In terms of neighborhood form, there are several categories: main streets, long streets, short streets, and narrow streets. Main Streets (Figure 3) are the roads leading from the block entrance to the center of the block, and the wider roads are the backbone of the block and reflect the spirit of the neighborhood as a whole. Long and short streets are slightly less distant than the main streets, but so are the main streets of the neighborhood. Because of the intense land use in this area, houses are often connected together, creating narrow streets, which creates a type of narrow alley (Figure 4). The porches on either side of the narrow alley are usually fenced on both sides, and because of the small distance in front of the porch, the narrow alley aisle can usually only be crossed by one or two people.

#### 4. Interpretation of the Spatial Characteristics of the Crosstown Street Neighborhood

The Crosstown Street Historic District is one of the most complete historical locations in Handan, containing a large number of realistic historical buildings and spatial environments. In order to protect the principles of spatial scale and spatial order, the overall structure of the historic district sought a better basis for subsequent planning, and the following categories of

elements were extracted from the spatial composition of the residential areas within the district (Figure 5):



**Figure 5.** Commercial area enclosure Self-generating compound courtyard Multi-level ranks

#### 4.1. General Layout

The role of the historic district in the city is essentially through groups. Typically, each "body" forms a horizontal "face" within the city, which extends horizontally within the city. The Crosstown Street area is a typical low-rise, high-density area with a similar general layout of "bodies" and "faces".

#### 4.2. Spatial Sequence

Spatial sequencing is diverse, with different spaces corresponding to different functions. The neighborhood adopts a "free" road network system, from neighborhood space to courtyard and indoor space, adapting to a variety of functions such as urban life, neighborhood life and family life, with privacy gradually increasing and scale gradually decreasing. The rich spatial hierarchy of public space - semi-public space - semi-personal space - personal space creates a multi-level migration between neighborhood space and living space, forming a spatial structure that makes all parts of the neighborhood space interdependent, forming a network to support the lives of residents.

#### 4.3. Neighbourhood Spatial Scale

Streets of different scales bring different spatial experiences such as open and closed, intimate and reverent. Nearby residential roads are complex in function, primarily addressing the traffic patterns of pedestrians, but also taking on the function of residents' outdoor activities. As a result, activities along the roadway are diverse and people-oriented. Some make use of the width of the nearby streets and set up landscape vignettes on site to provide small communication and leisure places, creating an atmosphere of warm interaction between neighbors.

### 5. Conclusion

Based on the typological approach, this paper identifies and picks up the types of spaces with living atmosphere in the Crosstown Street neighborhood, searches for the deep structure of the historic district, summarizes the principles of conservation and renewal of the historic district based on the typological theory, establishes the overall idea of conservation urban design of the historic district, reorganizes and reproduces according to the new living scenes, and helps to reach the coordination of preservation and renewal.

(1) The principle of satisfying psychological needs, crosstown neighborhoods simultaneously serve as places where citizens live and embody the city's unique spirit of place. The preservation and renewal of the neighborhood should not only address the residents' demands for urgent improvement of living conditions, but also satisfy their psychological needs. From the perspective of typology, the principle of satisfying psychological needs is the essential psychological needs of people, which need to be reflected in space and entities, touching people's heartfelt memories and enhancing the sense of belonging to the neighborhood.

(2) The principle of overall coordination

Any neighbourhood that is part of the organic whole of the city should not be separated from the city and integrated into the established historical spatial form of the city. The conservation and renewal of historic districts should be considered from the perspective of the city as a whole, and the role of historic districts in the urban form should be explored.

(3) The principle of organic development

Careful consideration is given to the heritage and environment of historic districts, dealing with the contradiction between the unstoppable need for economic development and the limitation of such development in order to protect the physical environment. Through dialogue, perseverance and exchange between history and reality, the potential is stimulated by appropriate development mechanisms. Careful consideration of the context and environment of the historical region, dealing with the contradictions that constrain development and protecting the unstoppable need for economic development and the physical environment. Promote potential through dialogue, politics and exchange between history and reality and appropriate development mechanisms.

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