

## THE EVOLUTION OF URBAN MORPHOLOGY IN THE CREATIVE INDUSTRY-DRIVEN RENEWAL OF EXISTING RESIDENTIAL AREAS -TAKING THE URBAN DESIGN OF ANSHAN NEW VILLAGE IN SHANGHAI AS AN EXAMPLE

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### **Abstract**

*In China, the focus of urban development has shifted from incremental expansion to inventory renewal. On the one hand, existing residential areas in urban built-up area are seeking for new chance and intervention to achieve the transformation of urban form and public space. On the other hand, creative industry-driven renewal brings out the transformation and development of urban form based on the integration of society, industry and space. So the evolution of urban morphology reflects the result of organization of creative industry and its functional space. This article takes the case of creative industry driven urban renewal design in Anshan New Village, Shanghai as an example, showing the significant effects on urban form evolution of existing residential areas.*

**Keyword:** CREATIVE INDUSTRY; EXISTING RESIDENTIAL AREA; URBAN FORM

### **Introduction**

The paper explores the top-down transformation of urban morphology in the renewal process driven by creative industry in the high-density and common use residential area in Asian city. Instead of abandoned industrial area of declining urban area in most western cities, the spatial distribution of creative industries in residential area need to cater for residents' everyday life and vibration of creative industry. This paper provides one potential path of transformation of urban morphology in Anshan new village in Shanghai, a typical Asian city, through both spatial elements analysis and social-economic elements analysis.

### **Background**

#### ***Creative cultural industry and urban renewal***

The city is a container of culture.(Lewis Mumford,1938). The cultural creative industry emphasizes the radiation and value-added effects of culture and creativity. Urban space reconstruction is to solve the essential problem about the unbalanced urban cultural quality and spatial development by reshaping the urban space. The development of cultural and creative industries conforms to the trend of urban function transformation in the new era, and the new wave of urban space reconstruction also provides a good development space for the further development of cultural and creative industries. (Jialin Xu, Guangzhen Wang, 2020)

#### ***Innovative district***

The innovation district is a concept proposed by Bruce Katz of the Brookings Institution in 2014 (Katz B, 2014). It refers to a type of district that is strongly influenced by small-scale innovative companies. These urban areas are generally located in the central area of the city or close to the central area of the city. Through the partial transformation and development of decaying old urban areas, old industrial areas, waterfront wharves and other areas, innovative industries and related functions are introduced to form industrial clusters to attain the urban revival. The innovation district is a specific type of urban area in which small-scale innovative enterprises and existing urban functions coexist. The development of innovation district has become an important stimulator of urban regeneration worldwide. (XU Kai et al.,2020)

### ***Renovation of existing residential area***

The renovation of existing settlements abroad has mainly gone through three stages. The first stage is characterized by large-scale demolition, reconstruction and removal of urban poor pools; The second stage focuses on both new construction and renovation, especially for the protection and restoration of historical heritage buildings; The third stage takes remediation and maintenance development as the main purpose, that is, the repair and transformation projects begin to prosper. In practical projects, the renewal and reconstruction of existing residential areas in foreign countries tend to be the reconstruction of the building itself, but the overall renewal is still focused on the interior of the residential area, and little attention is paid to the streets of the residential area and the outer urban space.

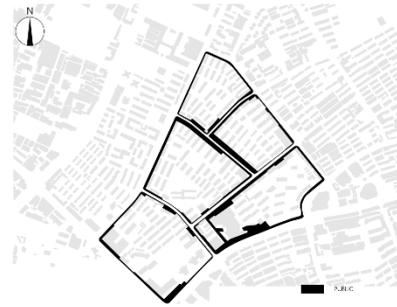
### **Methodology**

Anchored on the site, Anshan new village, the paper conducts an overview research on both spatial layer and social-economic layer. As for the spatial layer, it includes the physical elements: current figure-ground, interior pedestrian network, distribution of existing traffic road, bus & metro station and their accessibility, and other spatial elements sensitive to people are included: building height, street interface, and open green space. As for the social-economic elements, it mainly contains the three current elements: plot ownership division, function composition and specific index. From the analysis all above, the paper concludes on the advantages and disadvantages rooted in both space and industry. Then combined with advantage resources of surrounding area, the design identifies the main industry to be inserted into the site and the main spatial area to be renovated. Through mapping, multiple diagrams demonstrate the transformation of urban morphology and change of related index of each site. Third step, it shows the guidelines about the public space and typology of industrial space through the case study.

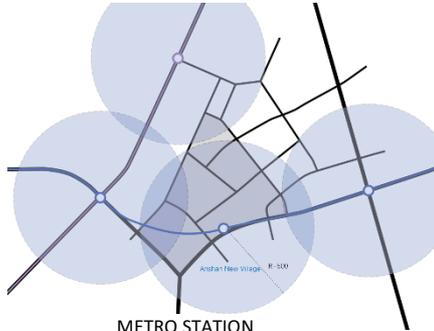
The evolution of urban morphology in the creative industry-driven renewal of existing residential areas - taking the urban design of Anshan new village in Shanghai as an example



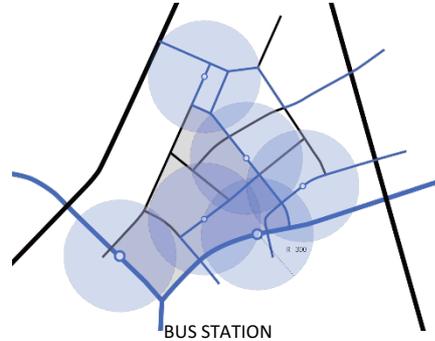
FIGURE-GROUND



PEDESTRAIN SPACE



METRO STATION



BUS STATION



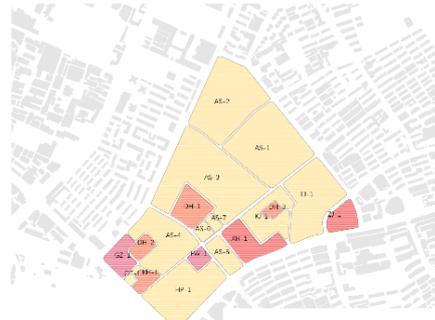
BUILDING HEIGHT



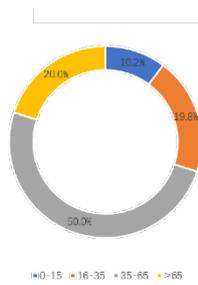
GREEN SPACE



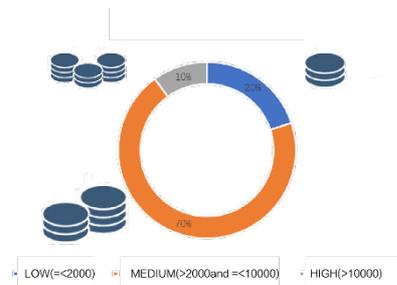
FUNCTION



PLOT DEVISION



AGE STRUCTURE



SALARY STRUCTURE

**Figure 1.** Current analysis of figure-ground, pedestrian network, traffic road, accessibility of bus & metro station, building height, street interface, and open green space, plot ownership division, function composition, Age and income composition.

**Table 1.** Index Table of each current plot

| ITEM                            | AS-1  | AS-2  | AS-3  | AS-4  | AS-5  | TJ-1  | KJ-1  | HP-1   | OT-1  | ZJ-1   | XH-1  | FW-1  | GZ-1  | DH-1  | DH-2  | KH-1  |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|-------|-------|-------|-------|-------|
| PLOT AREA                       | 53232 | 49458 | 73434 | 30379 | 7594  | 39136 | 22438 | 37863  | 2757  | 8953   | 20495 | 4168  | 9970  | 15297 | 4632  | 4548  |
| SITE AREA                       | 45310 | 43604 | 65615 | 28742 | 6642  | 34320 | 21079 | 31194  | 2399  | 7196   | 16695 | 3232  | 8902  | 14331 | 4632  | 4119  |
| BASE AREA                       | 17071 | 14034 | 19089 | 11233 | 2752  | 11432 | 6806  | 5753   | 1012  | 4148   | 6966  | 1968  | 5161  | 2535  | 1210  | 1258  |
| FLOOR AREA                      | 89785 | 82088 | 91048 | 67398 | 12972 | 94924 | 34503 | 149912 | 4702  | 49427  | 44536 | 5904  | 74319 | 6774  | 3120  | 3526  |
| SITE COVERAGE                   | 37.7% | 32.2% | 29.1% | 39.1% | 41.4% | 33.3% | 32.3% | 18.4%  | 42.2% | 57.6%  | 41.7% | 60.9% | 58.0% | 17.7% | 26.1% | 30.5% |
| PLOT RATIO                      | 1.98  | 1.88  | 1.39  | 2.34  | 1.95  | 2.77  | 1.64  | 4.81   | 1.96  | 6.87   | 2.67  | 1.83  | 8.35  | 0.47  | 0.67  | 0.86  |
| TOTAL PLOT AREA                 |       |       |       |       |       |       |       |        |       | 426849 |       |       |       |       |       |       |
| TOTAL SITE AREA                 |       |       |       |       |       |       |       |        |       | 338012 |       |       |       |       |       |       |
| TOTAL BASE AREA                 |       |       |       |       |       |       |       |        |       | 112428 |       |       |       |       |       |       |
| TOTAL FLOOR AREA                |       |       |       |       |       |       |       |        |       | 814938 |       |       |       |       |       |       |
| AVERAGE SITE COVERAGE INTENSITY |       |       |       |       |       |       |       |        |       | 37.40% |       |       |       |       |       |       |
| AVERAGE PLOT RATIO              |       |       |       |       |       |       |       |        |       | 2.65   |       |       |       |       |       |       |

## Results

### *Advantage and disadvantage of research elements*

As for spatial elements in the study area, the figure-ground plan is arranged related to the plots' rights boundary, but the street interface is broken and its continuity and opening is insufficient. Pedestrian space is along the boundary of the plot with poor spatial experience; Also the walking space inside the plot is not enough; the paths inside the old workers' community are lacking of connection between the pedestrian spaces. The good point is road structure in the area is evenly distributed with good vehicle accessibility. And distribution of bus stops can basically cover the travel needs of residents in the community. The subway station is located in the south of the plot and adjacent to Kongjiang Road. Currently, a commercial complex is being developed, But the site has poor permeability to the residential areas inside the plot. It is necessary to bypass the urban roads on the east and west sides of the site and lack continuous open walking paths inside. The overall height of the building presents a characteristic of gradually decreasing from the boundary of Southeast-Kongjiang Road to the internal multi-storey residential buildings. The existing green space is mainly the public Sujiatun route-shaped park, and the rest are located in the semi-public green space inside the residential area. Although there are supporting facilities, the overall green space is poor in openness and connectivity.

As for social-economic elements in study area. The overall functional layout is relatively isolated. The interior of the plot is mainly for residential functions. The high-rise commercial complexes and newly built high-rises are concentrated on the side of Kongjiang Road, and the bottom merchants along the street are arranged along both sides of Anshan Road and the south side of Dahushan Road. The ownership of the plots is divided according to the original urban roads and the surrounding walls of the boundaries of each district. Except for

the Anshan Sancun plot on the north side, the other plots are trivial and lack integrated design of the plots. Regarding the development intensity, there is still development potential in the TOD site area along Kongjiang Road, which can be strengthened in the next design

### Strategies in urban renewal

At the spatial planning level: Keep the street structure of the original block and carry out a stable and quiet transformation to create a pedestrian-friendly area street as much as possible; Renovate the original closed street interface to make it an active interface for industry placement and residents' participation; Set up a space node at the junction of the street to become a space for the conversion and transition of different blocks in the area, and at the same time provide space for the industry to be placed; For areas close to traffic arteries or stations, increase the development intensity to provide space for industrial placement.

In terms of industry replacement: First determine the functional organization and participants. For the functional organization, it is necessary to combine the extraction of industrial elements around the region, try to extract the functions with basic conditions, and determine the leading industry and the subsidiary industry from this; for the participants, there are mainly two types of people, one is for related industries. The other type is the staff who enjoy industrial services. Among the people who enjoy the services of the industry, carefully consider the role of the residents.

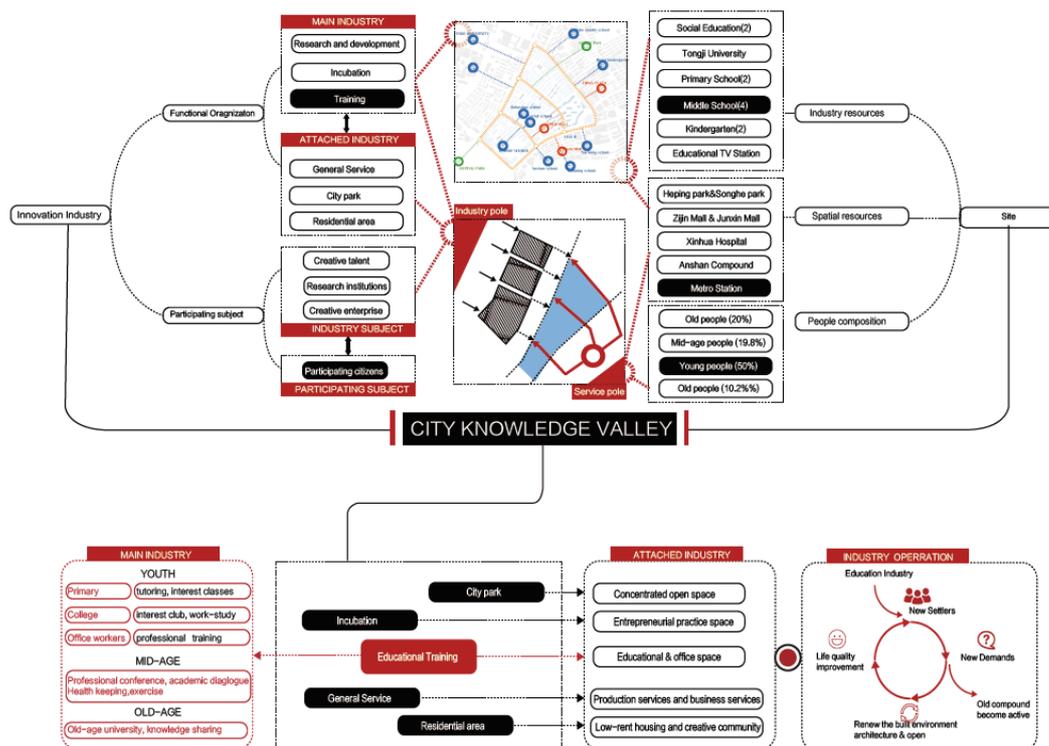


Figure 2. Industry organization.

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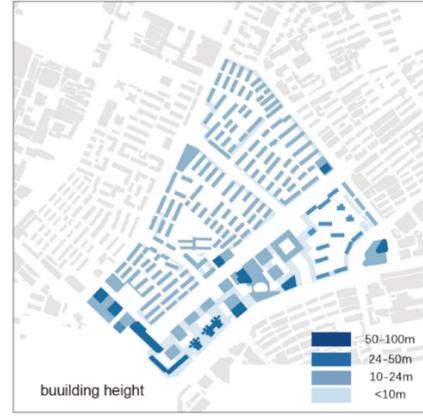
FIGURE-GROUND



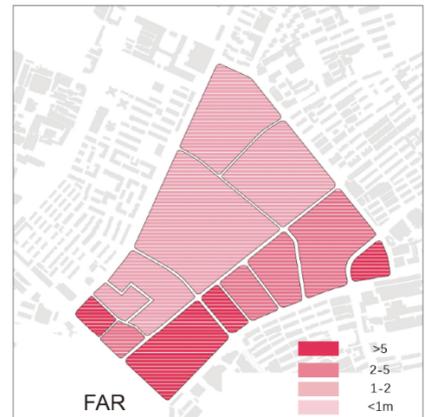
PEDESTRAIN SPACE



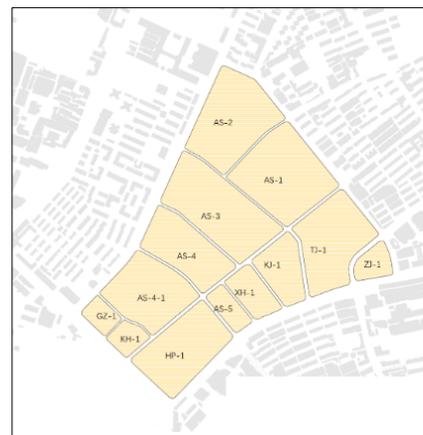
ROAD SYSTEM



HEIGHT



FAR



PLOT DIVISION



FUNCTION



NEW INDUSTRY

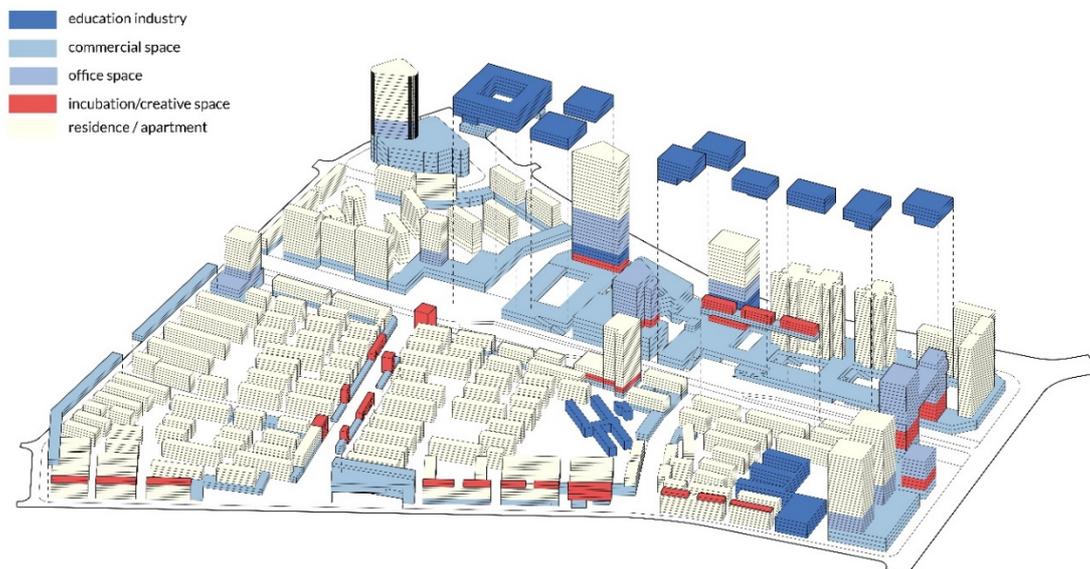
**Figure 3.** Future condition of figure-ground, pedestrian network, traffic road, building height, plot ownership division, function composition, and new industry distribution.

The diagrams of future condition demonstrate a more orderly spatial structure in figure-ground plan, along with a variety of new creative industrial elements inserted in the site, shaping both the street interface and spatial cognition of the residential block. What’s more, it shows the significant change in overall construction area in site from the figures in index table, with higher FAR and density, which provides more positive space for creative industry.

**Table 2.** Index Table of each current plot after modification

| ITEM                            | AS-1   | AS-2   | AS-3   | AS-4    | AS-4-1 | AS-5   | TJ-1    | KJ-1     | HP-1     | ZJ-1   | XH-1   | GZ-1   | KH-1   |
|---------------------------------|--------|--------|--------|---------|--------|--------|---------|----------|----------|--------|--------|--------|--------|
| PLOT AREA                       | 53232  | 49458  | 56416  | 32889   | 64287  | 7594   | 39136   | 24618    | 42031    | 8953   | 16848  | 9970   | 8409   |
| SITE AREA                       | 45310  | 43604  | 50409  | 31116.7 | 42330  | 6642   | 34320   | 23126    | 31194    | 7196   | 13730  | 8902   | 7615   |
| BASE AREA                       | 27015  | 22208  | 26204  | 16989.7 | 17233  | 3533.5 | 13384.8 | 11806    | 7753     | 4148   | 6966   | 5161   | 1858   |
| FLOOR AREA                      | 96729  | 98505  | 91048  | 67523   | 74811  | 14081  | 98498   | 109848.5 | 158912   | 49427  | 44536  | 74319  | 4026   |
| SITE COVERAGE INTENSITY         | 59.60% | 50.90% | 52.00% | 54.60%  | 40.70% | 53.20% | 39.00%  | 51.10%   | 24.90%   | 57.60% | 50.70% | 58.00% | 24.40% |
| PLOT RATIO                      | 2.13   | 2.26   | 1.81   | 2.17    | 1.76   | 2.12   | 2.87    | 4.75     | 5.09     | 6.87   | 3.24   | 8.35   | 0.53   |
| TOTAL PLOT AREA                 |        |        |        |         |        |        |         |          | 426849   |        |        |        |        |
| TOTAL SITE AREA                 |        |        |        |         |        |        |         |          | 345494.7 |        |        |        |        |
| TOTAL BASE AREA                 |        |        |        |         |        |        |         |          | 164260   |        |        |        |        |
| TOTAL FLOOR AREA                |        |        |        |         |        |        |         |          | 982263.5 |        |        |        |        |
| AVERAGE SITE COVERAGE INTENSITY |        |        |        |         |        |        |         |          | 47.4%    |        |        |        |        |
| AVERAGE PLOT RATIO              |        |        |        |         |        |        |         |          | 3.38     |        |        |        |        |

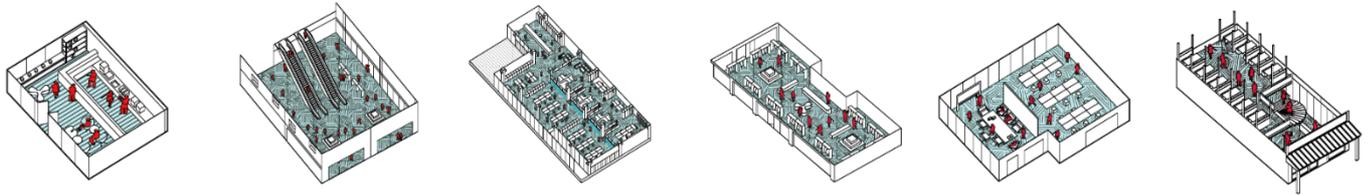
**Guidelines and typology for industry space**



As for specific location of creative industry space, the design of large scale industrial space focuses on the area adjacent to the main urban road. This arrangement is adapted to the practical need of user group and economic laws, bringing in more chance of industrial activities, providing large amount of industrial space along the metro station and inner pedestrian street. Besides, the small scale industrial space, like scattered incubation/shared space, is combined with existing residential buildings, acting as flexible plugins to serve

for the fusion of industrial activity and everyday life. And through the case study, several typical industry units can be extracted from the current case, which can be applied to both large and small scale intervention of industrial space.

**Figure 4.** Guideline diagram of new industry location in axonometric view.



**Figure 5.** Diagram of typical unit of industry space.

## Discussions

The practice in Anshan new village just provides the potential transformation in urban morphology of spatial layer. And what makes it more meaningful is the different indexes controlling each plot and guidelines making sure the spatial form under the design. And the interesting fact is, although under the same index figures, the urban form can change itself according to different design strategy. This gives the flexibility and variety for both urban designers in arranging the creative industry and architects in shaping the specific volume of buildings.

## Conclusions

By digging out the advantages and disadvantages of current spatial elements and social-economic situation in research sample, Anshan new village. It provides one potential procedure for innovative industry intervention combined with renovation of existing residential area. At space level, weak interventions along the boundary of existing residential plot give the flexibility in improvement of public space and new industry placement, while the strong interventions close to main traffic road and public transportation give the potential in complexing development of both commercial business and dwellings. At social-economic level, main industry should correspond to the advantage resources around the residential site, and attached industry should pay more attention to satisfy the demand of industry and local daily life.

## References

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