TAO ZHU

CHANG’AN AXIS PROJECT
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Project Details

Designer
Tao Zhu, CCAU (Centre for Chinese Architecture & Urbanism), HKU

Title
Chang’an Axis Project

Function
The public space system of Chang’an Town

Location
Chang’an Town, Dongguan Municipality, Guangdong, China

Client
Chang’an Town Government

Practical Completion
2016-2018
Funding
$3 million HKD

Area/Size:
10 km²

Contributing partners
Ronald Coase Centre for Property Rights Research, HKU (research partner), The Division of Landscape Architecture, HKU (research partner), Huanan Chaungtu Design Com. Ltd, Dongguan (collaborating architect)
Summary of the Work and its Significance, Originality, and Rigor

Chang’an Axis Project is a unique urban regeneration program. Integrating various expertise of the university, it helps Chang’an, a Chinese industrial town, on its urbanization process through a precise design intervention – constructing a city-scaled public space corridor.

Over three years, the project has streamlined a working process from multidisciplinary researches on urban history, economics, policy and physical environment, to various design engagements, including urban planning, urban design, architectural and landscape design. By connecting
长安实验
Chang’an Experiment

产业创新
Industry Innovation

城市创新
City Innovation

制度创新
Institutional Innovation

世界工厂转型
World factory transformation

MIT Hong Kong Innovation Node

新型城镇化
New type of urbanization

HKUrbanLab
Center for Chinese Architecture & Urbanism

从管制型政府转为服务型政府
Changing from a regulatory government to a service-oriented government
scholars and designers with officials and the public, the project demonstrates a productive model for knowledge exchange. By helping the government to work simultaneously on the city’s spatial, economic, and political sectors, the project also exemplifies the importance and efficacy of adopting a holistic approach to city development for Chinese urbanism today.

**Background**

Chang’an Town is a remarkable example of China’s industrialization and urbanization being operating on the township level over the past four decades. The town is located in the south of Dongguan Municipality, Guangdong, neighboring with Shenzhen. Starting from a rural commune in 1978, it has
developed into one of China’s top high-tech manufacturing towns today. It owns a land of 80 km², with a population of one million, including 5,000 local household-registered residents and 950,000 immigrant workers.

Since 2016, Tao Zhu has been commissioned by the Chang’an government to conduct a series of research and design programs to assist in Chang’an’s city development. The Chang’an Axis Project is a key component among the outputs Zhu has produced.
Research
Zhu and his CCAU team and research partners carried out five research projects in 2016 and 2017 respectively.

2016: The history of Chang’an’s city development 1978-2018; a survey of Chang’an heritage of traditional urban fabric, buildings and landscape; a study of land policy on compensation and interest sharing mechanism;

2017: The upgrading of Chang’an town center; the strategic plan for Chang’an to establish infrastructural connections with other neighboring cities such as Shenzhen and Guangzhou.
The research process helped Zhu to develop systematic knowledge and insights of Chang’an, which soon served as a solid foundation for him to launch another parallel set of engagements with the town - design intervention.

**Design Proposal**

In late 2016, Zhu proposed to the Chang’an government to construct a new public space corridor, by linking up Chang’qing Road, the city’s central boulevard, with the west bank of Maozhou River, the border line between Chang’an/Dongguan and Shenzhen. Naming it ‘Chang’an Axis,’ Zhu envisioned this corridor of 14.5km to set up a unique public space model in the world: It combines a straight Haussmannian boulevard that runs through the town
center, with a meandering river bank on the town’s edge, which can potentially open a dialogue with its neighboring city Shenzhen.

According to Zhu’s plan, the axis would connect longitudinally the city area with mountains on its north and sea beach on its south, enabling its citizens to experience a full range of natural-urban landscape within a 160-minute walk or 1-hour biking. It could also help the city to extend southward its social services, which had been overly concentrated in its northern town center, naturally paving the way for the city to expend to its new southern district. Transversally, the axis would trigger rejuvenations of the local communities it touches upon, especially those along Maozhou River, which had been suffering from environmental pollution, economic setback and community degradation, a result of
disorganized industrialization during the past three decades.

**Implementation**

Zhu’s proposal was well received by both Chang’an town government and Dongguan Municipality. Through numerous meetings with the officials and public consultations, Zhu’s scheme of ‘Chang’an Axis’ was officially adopted into the Master Plan of Chang’an 2017-2022. During the years of 2017-18, the concept had generated a series of urban regeneration projects along the Axis, including river cleaning and riverbank landscaping campaigns, community regeneration planning and actions, transportation system upgrading, and several architectural projects. (Please see the attached brochure for details.)
Impact

The Chang’an Axis Project has produced enormous impact on both physical environment and intangible sectors of Chang’an.

For an urbanistic example, in 2018, after fighting for two years against the official plan to construct a highway along the Maozhou River, Zhu finally convinced both Dongguan Municipality and Chang’an Town to turn the river bank into a public park, permanently. In late 2018, an ‘experimental segment’ of the river bank was built into a park, which the Chang’an citizens appreciated tremendously.

In terms of policy-making, the town government has developed an awareness of proactively allocating public services and high-end industries along the axis, in order to boost the growth of the Axis,
the urban corridor. Furthermore, the local communities along the Axis are transforming rapidly too, with more and more rivers cleaned, dead-end streets opened, and social life revived.
Appendix

Chang'an Axis Project

Chang'an Axis, the corridor that connects Changqing Road and the west bank of Maozhou River of Chang'an, Dongguan.

The Axis, like a bow fully stretched, with one arm connecting Chang'an's history and present, another its future, with its arrow pointing at the thriving economy of the Greater Bay Area.

Changqing Road

Changqing Road is a grand boulevard running through the Chang'an town center. It was originally the Changqing Irrigation Channel for agricultural purpose and was later covered by concrete slabs. The Road showcases the great achievement made by Chang'an government during the period of China’s Reform and Opening-up, a landmark civic space of which the Chang'an people have been proud.
Changqing Chanel in the 80s

Today's Changqing Road

河

海
Maozhou River

Maozhou River serves a border between Chang’an (Dongguan) and Shenzhen. It has been long treated by both cities as a remote margin and sewage pipe. Today with the regional cities merging into the single Greater Bay Area and the rapid outflow of capital from Shenzhen and Hong Kong, Maozhou River is suddenly turned into the frontier of Chang’an’s development and the active interface between Dongguang and Shenzhen. Since 2016, Dongguan and Shenzhen have been paying great effort on improving of Maozhou River, announcing the rise of the “Era of Maozhou River”, reminding one of the “Era of Shenzhen River,” during which the energy of Hong Kong boosted the development of Shenzhen 30 years ago.
Transition from “Period of Shenzhen River” to “Period of Maozhou River”
Chang’an Axis

The straight Changqing Road, in connection with the winding Maozhou River, will formulate the Changan Axis, a new public space corridor of 14.5 km. Starting from the mountains on the north of Chang’an, running southward across the town center, via Maozhou River, the Axis reaches Chang’an’s new coastal area by the sea.

If the Axis accomplished, its significance to Chang’an will be comparable to that of the Champs Elysees plus the Seine to Paris.
Paris-Champs Elysees

Barcelona-La Ramblas

Berlin-Unter den Linden

Berlin-Unter den Linden

Hiroshima-Peace Boulevard

8 KM

1.5 KM

1.4 KM

3.5 KM

3.6 KM
我们认为茅洲河景观工程应兼具五大功能：

- 绿色基础设施
- 城市空间升级
- 休闲空间营造
- 城市产业升级
- 莞深双城互动
The significance of Chang'an Axis is multifold
Public space
Ecology and landscape
Traffic connection
Urban renewal
Intercity collaboration
Industrial upgrading
...
Chang’an Axis has a potential to set up a unique model of public space: it combines the straight boulevard along the central axis of the current town center with the winding river that runs toward the seashore, similar to connecting the Champs Elysees with the Seine in Paris.

The Axis will also encourage “urban acupuncture” onto it to remedy the damaged urban areas caused by the previous careless urban development, hence catalyzing a series of public space regeneration projects.
Project A:
Upgrade of Chang’an Square in the town center

The Chang’an Square, the most prominent public space of the town, occupies an area of about 90,000 m². The implementation of Chang’an Axis will bring it opportunities for a series of comprehensive upgrades.

The square can become a ‘thick magic carpet.’ By maximizing the spatial potential both above and below the ground, by integrating subway system and underground culverts with aboveground infrastructure, by accommodating a wide range of commercial and cultural facilities, the square can fulfill multiple functions, including parking, ecological recovery, and civic life cultivation. It has a potential to become a model square for numerous contemporary Chinese cities.
Looking towards Chang'an Pavilion and Lianhua Mountain from the Southeast

Sunken water feature at the main entrance

Sunken courtyard on the east side

Looking towards Chang'an Pavilion and Lianhua Mountain from the Southeast
The national infrastructure G4 sharply cuts into the ChangAn city and creates a hidden diagonal border. A border that is left unattended. This phenomenon does not occur only in Chang An, but throughout China in an escalating pace. An irreversible development that prioritizes freeways instead of lives on grounds.

Urban Scale 1:5000

The opportunity given by the infrastructure is a continuous shaded corridor that connects from the regional bus terminal and the MaoZhou River Port. Its sharp diagonal cut intersects many axis of the city and is a potential turning point to revitalize the end of city boulevard through the reprogramming of this abandoned ground.

The distinctive emptiness can bring in another new order into the city, a system that is not confined to any existing urban hierarchy.

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**Project B:**
Revitalization of public space under G4 Highway Overpass

A ribbon park could be created under the G4 Highway Overpass which connects the south end of Changqing Road and the west bank of Maozhou River.
The Chang’an Axis connects the rich natural resources on the town’s north with the south, forming a landscape corridor of mountains, lakes, rivers and sea, transforming the town into a garden city.
Project: Revitalization of Changqing Channel

The Chang'an Axis connects the rich natural resources on the town’s north with the south, forming a landscape corridor of mountains, lakes, rivers and sea, transforming the town into a garden city.

The project is divided into two sections at the north entrance of Jinxia Pedestrian Street.

The northern section will remain its current condition with underground culverts and paved boulevard above. Wherever there are public spaces available next to the channel, e.g. Chang’an Square, the hidden water can be drawn from the underground culverts to the public areas to form various water parks for the town.

In the southern section, which is occupied with less pedestrians and traffic, the covering slabs can be partially removed to create open water features. Full opening is possible for the section of Jinxia Pedestrian Street. This effort will not only recover the previous connection between Changqing Channel and Maozhou River, but also add charm to Jinxia Pedestrian Street.
358 Interprovince Link
Maozhou River
Changqing Road
Jinxia Walking Street

Revitalization through water in Chang’ an Square

Towards North:
Improvement of existing condition

Water feature at the intersection of Jinxia Walking Street and Jinxiang Road

Toward South:
Fixation of water body

Estuary of Changqing Channel
Revitalize Chang'an Square with water landscape:

The concept Sponge City can be prompted in Chang’an Square. Through the processes of collecting, permeating, filtering and storing water, along with flood drainage and organizing water into landscape design, the square can exemplify well how to recover its water resource both ecologically and aesthetically.
Recovery of Changqing Channel section along Jinxia Walking Street

Water feature at the entrance of Jinxia Walking Street

Fixation of water body along Jinxia Walking Street
Estuary of Changqing Channel

By creating public water feature through opening the culverts and connecting Changqing Channel and Dongyin River with Maozhou River under ground level, the site retains its close relationship with water which then vitalizes the community.

Student project by Kay Bernardlan, HKU
Project: Maozhou River Bank
Landscaping

With the turn from “the Era of Shenzhen River” into “the Era of Maozhou River,” the landscaping of Maozhou River Bank should fulfill five functions altogether: infrastructural development, leisure place creation, community regeneration, industrial upgrading, and Dongguan-Shenzhen interaction.
长安茅洲河景观系统及交通体系概念规划

香港大学中国建筑与城市研究中心  朱涛建筑设计(深圳)有限公司

Several segments of the designed area

- 两车道（城区段+2车道+绿化+厂房）
- 无车道（城区段+公园）
- 两车道（城区段+2车道+绿化+公建）

- 四车道（红树林+海堤段+4车道+湿地）
- 两车道（城区段+2车道+绿化+厂房）
- 两车道（城区段+公园）
- 无车道（城区段+公园）

- 几个设计区域的段落

- 城市中心 + 2车道 + 绿化 + 公建
- 红树林 + 海堤段 + 4车道 + 湿地
- 城市中心 + 公园

- 森林
- 绿化
- 公共空间

- 建安路
- 新民路
- 107国道振安东路

- 自行车租赁处
- 服务中心
- 公共厕所
- 移动零售装置
- 书报亭
- 舞台
- 休闲运动场
- 两车道

- 海堤段 + 公园 + 2车道 + 厂房
- 城区段 + 公园 + 2车道 + 绿化 + 公建
- 城区段 + 公园 + 2车道 + 绿化 + 厂房
“Sponge City” system planning

1. Community rain garden
2. Community street retention zone
3. Ecological retention zone
4. River

Community rain garden
Community street retention zone
Ecological retention zone
River
Wetland park can alleviate flooding caused by backflow of seawater in Maozhou River
Remin River merges into Maozhou River after passing by Xinmin Neighborhood. Today, a set of remediation projects, including sewage control, water cleaning, landscape intervention, and pollutant control, are in progress. The River is transforming from a sewage channel into an illustration of eco system, leisure space and cultural memory of Chang’ an.
Application of “Sponge City”
Renmin River after design
Chang’an Axis can be a corridor promoting green travel. While encouraging citizens’ walking and biking, it will also adopt various efficient and environment-friendly public transits, prompting Chang’an’s development of green transportation system.
Project: Slow Traffic System for Changqing Road

- Improvement of slow traffic area along Changqing Road
- Skybridge above 358 Interprovince Link
- Improvement of slow traffic space at the intersection of G4 Overpass and Zhen'an Road East
Project: Slow Traffic System for Changqing Road

Traffic analysis of west bank of Maozhou River

Proposal on landscape design along the bank
04 Urban Renewal

Chang’an Axis can be a catalyst for the development of urban districts. It will triggers a series of regeneration of nodal areas and local communities along its spine.
Project: Integrated Development of Maozhou River Area
Project: Slow Traffic System for Changqing Road

Xinmin Community is a key node in the developmental Chang’an Axis. Seizing the opportunity to launch its urban regeneration rapidly, Xinmin can develop into a vibrant community incorporating with the emerging aerotropolis of Shenzhen, as all as contributing to Chang’an’s’ development.
新民滨海宜居小镇的建议开发功能主要包括六大类：

1. 社区居住
2. 文创产业
3. 实业基地
4. 多元商业
5. 水滨景观
6. 辅助配套

每一大类又可根据具体开发产品的不同，分为若干小类。

新民社区处于深圳大空港和会展中心的 15 公里辐射区内，长安现有镇区和长安滨海新区的关键节点，位置得天独厚。新民应尽快淘汰现有的高能耗、高污染、生产力低下的粗放产业，制定前瞻性政策和开发策略，建设完善的配套服务设施，积极发展与临空产业与会展业配套的产业，扶持制造业的转型升级，吸引科技研发、文化创意、设计、策划、广告咨询等产业入驻。

如策划精准、行动迅速，新民社区有望在五年内成为为深圳大空港和长安镇中心配套服务的创意社区。如未来十年中长安滨海新区发展顺利，新民社区与之积极配合，新民社区甚至有可能超越单纯为深圳空港和长安镇中心配套服务的功能，而成为粤港澳湾区中的一个活力创意社区。

产业定位：湾区创意社区

Function diagram of Xinmin Neighborhood

Axonometric drawing of Xin'an Neighborhood
The development of Chang’an Axis can help Chang’an to transform from an introvert landlocked town into an extrovert coastal city. It also serves an immediate interface for the interaction between Dongguan and Shenzhen.
Project: Connection of the Water Systems of Chang’an Town and Its New Developing District

The Chang’an Axis Project urges Chang’an government to carefully consider the various system connections between its current town and its new Developing District, including the water systems, ecosystems, and transportation systems.

1 Imagination of wetland park
2 Imagination of Binhai New Area
Satellite map overlapped with the 2016 Overall Planning

Water system  Ecological system  Transportation system

Water systems, ecological systems and transportation systems of the new and the old areas of Chang'an
Chang’an Axis is not only the city’s central axis, but also the artery of its economic and industrial development. From its north to south, it links up a series of important areas: Technology-Business District, 358 Urban Living Area, High-tech Manufacturing Area, Maozhou River Area for Emerging Industries, Xinmin Area for Developed Industries, Binhai Bay New Area, High-end Industrial Area, Coastal Cultural and Scenic Area.
Project: Chang'an Technology-Business District
Project:
Chang’an Innovation Square
The Chang'an Axis, a bow fully stretched, with one arm connecting Chang'an’s history and present, another connecting its future, with an arrow shooting toward the thriving economy of the Greater Bay Area.
The Department of Architecture educates students in an active culture of service, scholarship and invention. Uniquely situated at the crossroads of China and global influence, the Department takes the approach that design is best explored from a sophisticated understanding of both. With a multidisciplinary curriculum emphasizing technology, history and culture, students gain broad knowledge and skills in the management of the environmental, social, and aesthetic challenges of contemporary architectural practice. With opportunities for design workshops, international exchanges, and study travel, graduates of the Department of Architecture are well prepared for contribution to both international and local communities of architects and designers.