

高明规划工作室

**GAOMING PLANNING STUDIO**

MIT | DEPARTMENT OF URBAN STUDIES AND PLANNING

SPRING 2005



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MIT DEPARTMENT OF URBAN STUDIES and PLANNING | SPRING 2005  
麻省理工学院都市研究和规划系 | 2005年春



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## TABLE OF CONTENTS

### 目录

Preface 序	5
Background 背景	6
Studio Objectives 高明工作室目标	7
Process 步骤	8
The Report 报告	11
Executive Summary 综合摘要	12
FIRST IMPRESSIONS 第一印象	
Introduction 序言	15
Regional Context 区域背景	16
Streets and Transportation 街道与交通	20
Riverfront 水滨地区	25
Housing, Density, and Land Use 住房，密度和土地利用	31
SITE ANALYSIS 当地状况分析	
Introduction 序言	35
Land Use and Transportation 土地利用和交通	37
Hydrology 水文状况	43
Streets 街道	51
Housing 住房	59
Villages 村庄	71
Waterfront 水滨	77
Open Space 开放空间	85

PLANNING FRAMEWORKS 规划框架	
Introduction 序言	93
Re-building the Urban Canal 重建都市秀丽河	95
Balancing Urban Growth 平衡城市增长	109
Gaoming: A Maturing City 高明：一个成熟中的城市	121
Greening Gaoming 绿化高明	133
Network City Gaoming 高明：网络之城	139
DESIGN AND PLANNING TYPOLOGIES 设计和规划类型	
Introduction 序言	153
Water 水	155
Transportation 交通	170
Density and Form: High-Density 密度和形式：高密度	186
Density and Form: Mid-Density 密度和形式：中等密度	195
Civic Centers 市政中心	205
Exploring Cultural Geometries 探索文化几何	231
Village Regeneration 乡村重建	243
Conclusions and Reflections 综述及思考	251
Acknowledgments 致谢	252
Sources 资料来源	254
Credits 工作室成员	257

在高明规划

## PREFACE

### 序

Gaoming—one of the five districts of Foshan City—is located in the northwest of the Pearl River Delta (PRD), the fastest growing and most productive region of China. The district has historically been an agricultural area with green rolling hills and paddy fields. It is located on the West branch of the Pearl River with water access to all of the major cities in the Delta and inland to Guangxi. Gaoming District has a population of about 250,000 with a planned doubling of its size in the next few decades to fulfill its role in the ongoing urbanization of Foshan City (total population of about 5.5 million). Foshan City and Gaoming District are rapidly developing into a single urban area that will assume an important role as the PRD continues to integrate economically and socially.

Gaoming is presently engaged in planning for its future as a balanced city with industry and agriculture while maintaining a strong emphasis on sustainability and environmental quality. The district recently completed its master plan, a planning effort in which several design institutes and a Hong Kong planning firm generated ideas for the entire district and for a new central area along the river.

佛山市五个区之一的高明坐落于中国发展最迅速、最具生产能力的珠江三角洲的西北部。自古以来就是有着绵延起伏的山丘和稻田的农业产区。它拥有珠江的支流—西江，水路可以通向珠江三角洲的各个主要城市，直至广西。高明现有人口25万，计划在未来几十年人口数量将翻倍以适应佛山市（总人口达550万）总体城市化的需要。在珠江三角洲继续实现经济和社会协调发展的同时佛山市和高明区将会迅速发展成为具有重要作用的都市区。

高明现在致力于将未来规划成一个工业和农业平衡发展的城市，同时又重视可持续发展和环境质量。高明最新的总体规划是由几家设计机构和一家香港规划公司共同完成的，它是整个地区和沿河新中心区的构想。

## BACKGROUND

### 背景

In the spring of 2005, an urban planning studio at the Massachusetts Institute of Technology's School of Architecture and Planning examined the future of Gaoming. This studio, sponsored by the Esquel Group, is one of a series of domestic and international studios and workshops carried out by MIT's City Design and Development group. These studios investigate current urban planning and city design issues in a dynamic setting. In recent years, these studios have put forward ideas for areas and sites in Boston, Washington, DC, Chile, Singapore, England and Spain among others.

To complement these efforts, the studio focused on planning and design options for the proposed new central area along the West River. Of particular interest to our client and to the studio group was the exploration of new ways of integrating water/hydrological factors into a modern city - including watershed and natural ecosystem protection, recreational activities, housing, transportation, and tourism.

The studio's pedagogic objectives were to introduce students from different backgrounds (architecture, environmental planning, international development, and policy) to the issues that can be addressed through design and planning, as well as to the techniques and values that must be engaged in that task. Beyond these educational purposes, there is also a wider important public objective. Typically, there has been a concerted effort to stimulate public understanding and debate about a current design or policy issue in that locale. Thus, the studio worked with our client—officials of the District of Gaoming and Foshan Municipality—who would hopefully benefit from the proposals that the studio generated.

2005年春，美国麻省理工学院建筑与规划学院的一个城市规划工作组探讨了高明的未来发展。由溢达集团赞助的高明工作室是麻省理工学院城市设计与发展组创办的一系列国内外工作室之一。这些工作室在一个充满活力的背景下，研究目前城市规划和设计的课题。近年来，这些工作室为波士顿、华盛顿、智利、新加坡、英国和西班牙等的一些地区和项目提出过设想。

同以上这些努力相同，高明工作室的重点是为计划在西江沿岸开发的新中心区提供规划和设计上的选择。项目委托人和工作组对与寻找将水/水文因素与现代城市发展综合起来的新途径尤为感兴趣，包括分水岭和自然生态系统保护、休闲娱乐活动、住房、交通和旅游观光。

高明工作室的教学目标是引导从不同背景（建筑、环境规划、国际发展和政策）来的学生通过设计和规划来解决问题，同时在工作中受益并培养技能。除了这些教学目的，还有更重要的公共目的。一直以来政府希望提高和促进公众对高明现有设计和政策问题的理解和讨论。于是高明工作室与高明区和佛山市的官员一同工作，希望可以从工作室的建议中受益。

## STUDIO OBJECTIVES

### 高明工作室目标

Using a holistic approach, the studio sought to address such issues as recreation, transportation, ecology, economic development, and community development in a number of ways, including:

- Compiling an inventory of the features that affect the site and the given problem;
  - Analyzing these factors to assess opportunities and constraints that the site and surrounding area afford;
  - Evaluating the potential for a sustainable approach to developing Gaoming's new central district as a model water city;
  - Establishing a process for creating design ideas and guidelines for planning a city with water and hydrology as the unifying elements;
  - Generating design and planning concepts;
  - Producing sets of design and planning prototypes and typologies and reporting on the options for Gaoming District;
  - Getting feedback and debriefing through public presentations and reports.
- 通过采用整体规划，工作室以各种方式探讨了娱乐、交通、生态、经济发展和社区发展等问题，例如：
- 收集整理各种关于所探讨课题和高明的资料；
  - 分析这些因素并剖析高明及其周边地区的机会和局限性；
  - 评估高明新区发展为现代水城的潜力；
  - 为规划以水和水文为基础的城市提出设计建立步骤、主张和指导方针；
  - 提出设计和规划理念；
  - 提出多种设计和规划模型，并汇报给高明区；
  - 通过公开陈述和汇报获取反馈意见。



## PROCESS

### 步骤

#### 1. Composition of the studio

Students with a multitude of backgrounds were selected to participate in the studio based on a competitive application process; the group chosen includes planners, urban designers, and architects with many different interests.

#### 2. Site visit

#### 3. Charrette in Gaoming and presentation

#### 4. Inventory and analysis

The initial inventory and analysis was intended to provide an understanding of the composite patterns and processes of the natural and man-made systems; to assess the opportunities and constraints (challenges); and to generate planning and design concepts which will aid in transforming the site into an urban place.

#### 5. Prototypes

Students also explored similar cases in which cities successfully and innovatively addressed the issues at hand.

#### 6. Personal abstraction and projection

As a self-reflective exercise, students paused midway through the process to present a variety of visions for Gaoming and to explain their ideas in relation to one or several of the site's major issues such as waterfront development, the distribution and location of land uses, streets and blocks, integration of natural systems, and the preservation of existing villages.

#### 1. 工作室组成

通过竞争激烈的申请审核过程来挑选具有不同背景的学生加入高明工作室，包括有不同兴趣的规划师、城市设计师和建筑师。

#### 2. 实地考察

#### 3. 高明研讨会和演讲

#### 4. 资料收集及分析

最初的资料收集和分析是为了便于理解综合模式，以及自然、人工系统；是为了评估机遇和局限（挑战）；是为了形成能够助高明转变为城市的规划和设计理念。

#### 5. 例证

学生们还研究了一些类似的案例，如：一些城市成功且有创意地解决了棘手的问题。

#### 6. 个人观念概括和计划

作为一个自我思考的锻炼，学生们在这个过程中展现了对高明未来的各种设想，通过相关的一个或多个问题来阐述他们的想法，例如：水滨发展、土地利用分配和定位、街道、整合自然系统、及保存现有村庄。

7. 整体规划及设计调查建议

中期评审的高明总体规划为客户提出了几种规划情景和选择。这一步反映了制订决策的三个特定层次：

- 1) 规划背景和首选设想：地区和城市的整体背景及首选方案的依据
- 2) 提出区域的总体规划
- 3) 详细的社区规划，提供一个特定土地利用区域的细节

8. 在高明的中期报告和第二次实地考察

9. 设计和规划类型的形成

工作的最后阶段是产生以下主题的设计、规划类型：水（水文）、交通和土地利用、密度和构成、市政中心、村庄。

10. 与高明市长和官员讨论

11. 修改以及汇报成果

12. 方案展示

13. 在高明做方案演讲

**7. Overall plan and suggested design investigations**

The master site plans prepared for the midterm review explored alternative planning scenarios and presented potential options to the client. This reflected three specific levels of decision-making:

- (1) Planning context and preferred scenario: the overall context at a regional and city scale and the basis for a preferred plan,
- (2) A proposed master plan for the site, and
- (3) An illustrative neighborhood plan that provides details for a specific land use area.

**8. Midterm review in Gaoming and additional site visits**

**9. Development of Design and Planning Typologies**

The final stage of work created specific typologies for design and planning along the following themes: water (hydrology) transportation and land use, density and form, civic centers, and villages.

**10. Review with the Mayor of Gaoming and city officials**

**11. Revisions and report production**

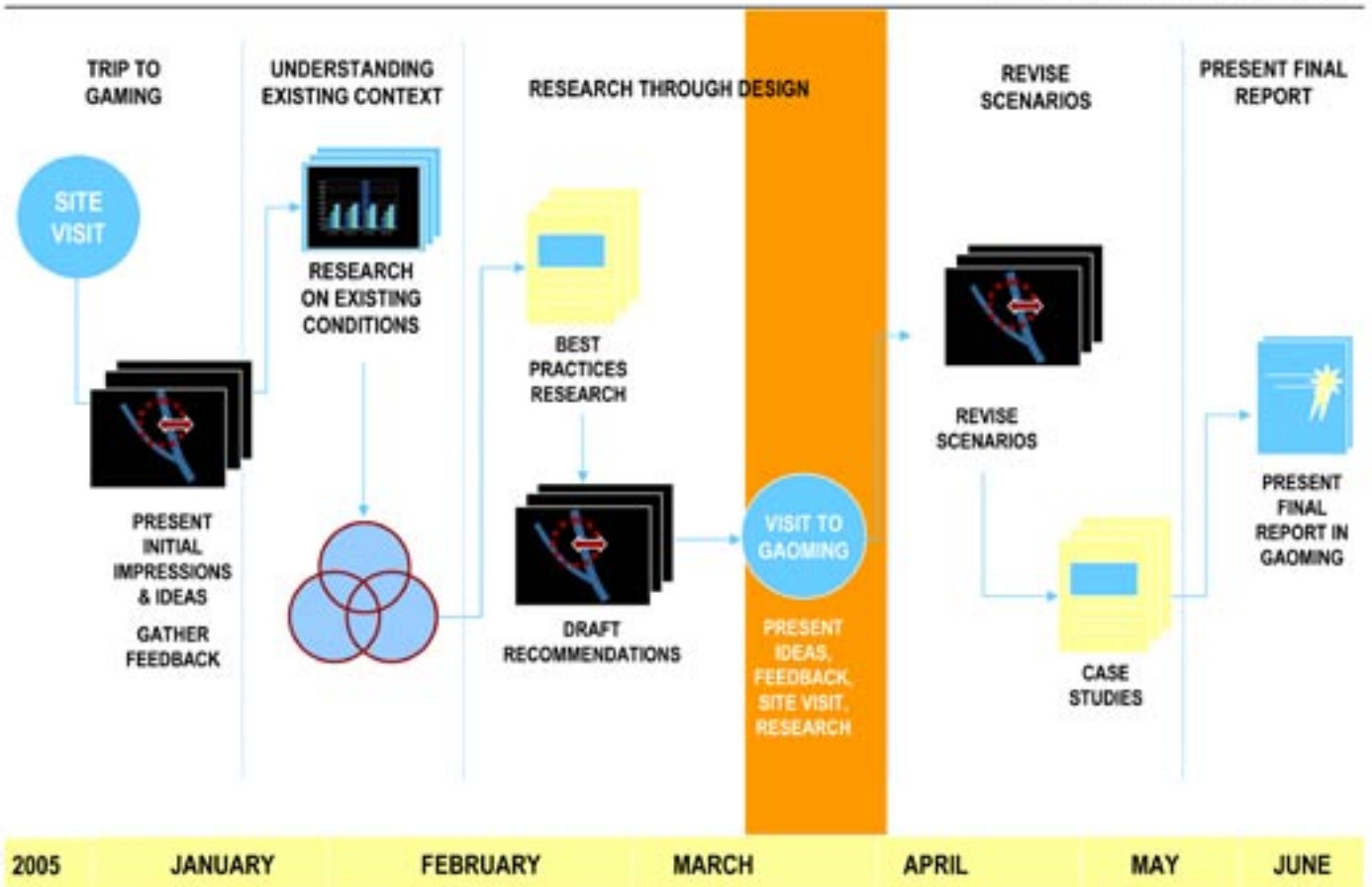
**12. Exhibition of project**

**13. Presentation of project in Gaoming**

# 在高明规划

## 麻省理工课题组规划流程

## STUDY PROCEDURE



## THE REPORT

### 报告

The remaining sections of this report detail the context of this project and the team's proposals. It describes the issues to be addressed in the planning and design of Gaoming and presents the investigations and proposals for the area that were prepared by the students. It is organized into four sections:

#### Section I: First Impressions

#### Section II: Context

#### Section III: Planning Frameworks

Re-Building the Urban Canal  
Balancing Urban Growth  
The Maturing City  
The Network City Gaoming  
A Healthy Gaoming

#### Section IV: Design and Planning Typologies

This section outlines specific interventions within the study site. It illustrates prototypical typologies for design implementations such as water, transportation and land use, and civic centers.

本报告的其他章节将详细阐述这个项目的背景和各小组的建议，并描述在高明规划和设计中处理的问题。学生们准备的调查报告和建议分为以下四个部分：

第一部分：第一印象

第二部分：地方分析

第三部分：规划框架  
重建城市内河  
绿色高明  
走向成熟的城市  
网络之城—高明  
健康高明

第四部分：设计和规划类型  
这部分概述了研究地区的特定建议，阐明了水、交通和土地利用、城市中心的设计实施原型。

## EXECUTIVE SUMMARY

### 综合摘要

Gaoming, a rapidly growing district in the corner of the Pearl River Delta, is on the cusp of establishing itself as a large city in the Foshan region, with the population expected to double in the next decade. However, this growth must be environmentally, economically, and socially sustainable to ensure that the district continues to prosper in the years to come.

This report documents the challenges and opportunities that lie ahead for Gaoming District, with specific attention to strategies and actions that can help to lay the groundwork for a vibrant new city in the decades to come.

Specifically, the report stresses the following points:

#### Water and Hydrology

- Water resources must be sheltered from pollution and integrated into new development to protect Gaoming's flood plain for future residents.

#### Waterfront Development

- Waterfront development should enhance access to the water for Gaoming's residents and leverage the rivers and canals as resources and catalysts for new development and community-building efforts.

#### Civic Center

- A new civic center for Gaoming should link the existing city to the new development and provide a focal point for civic life in the region in the years to come.

位于珠江三角洲一角的，迅速发展的高明正在全力建设成为佛山地区的一个大城市，其人口将在未来十年翻倍。然而，为了保证这一地区未来的繁荣，这种发展必须是环保的，有经济效益的，可持续发展的。

本报告指出了高明所面临的挑战与机遇，对策略和行动的重视将有助于为未来的活力新城打下基础。

报告尤其强调以下几点：

#### 水和水文

- 水源应远离污染，融入到新开发中去，为高明的后代保护洪泛区。

#### 水滨开发

- 水滨开发应增加居民接触水的机会，发挥河流、内河作为新开发和社区建设的资源和催化剂的作用。

#### 市政中心

- 新的高明城市中心应连接新老高明，为将来的城市生活提供焦点。

### 村庄、住宅及城市结构

- 新的住宅发展应为中、高密度，并集中在交通要道周围来开发，兼顾居住和商用，创建生机勃勃和适宜居住的城市。现有的村庄应融入新的城市脉络，以保护相关文化，保证居民从老城向新城的平稳过渡。

### 交通、街道和土地利用

- 综合交通和土地利用规划能够保证高明的新开发将为日益增长的人口提供住房、就业和休闲场所，同时又可以通过建立交通中转点、精心设计的街道模式和社区交流来增强流动性。

### 公园和开放空间

- 虽然规划仍在进行中，但是高明必须现在就预留出开放空间土地；公园、水路、以及其它自然资源应在开发前就保护起来。

### Villages, Housing, and Urban Form

- New housing development should concentrate high- and medium-density development along transit while integrating residential and commercial uses to create a vibrant, livable city. Existing villages should be integrated into the new urban fabric to preserve cultural relevancy and allow residents to transition peacefully from the old to the new.

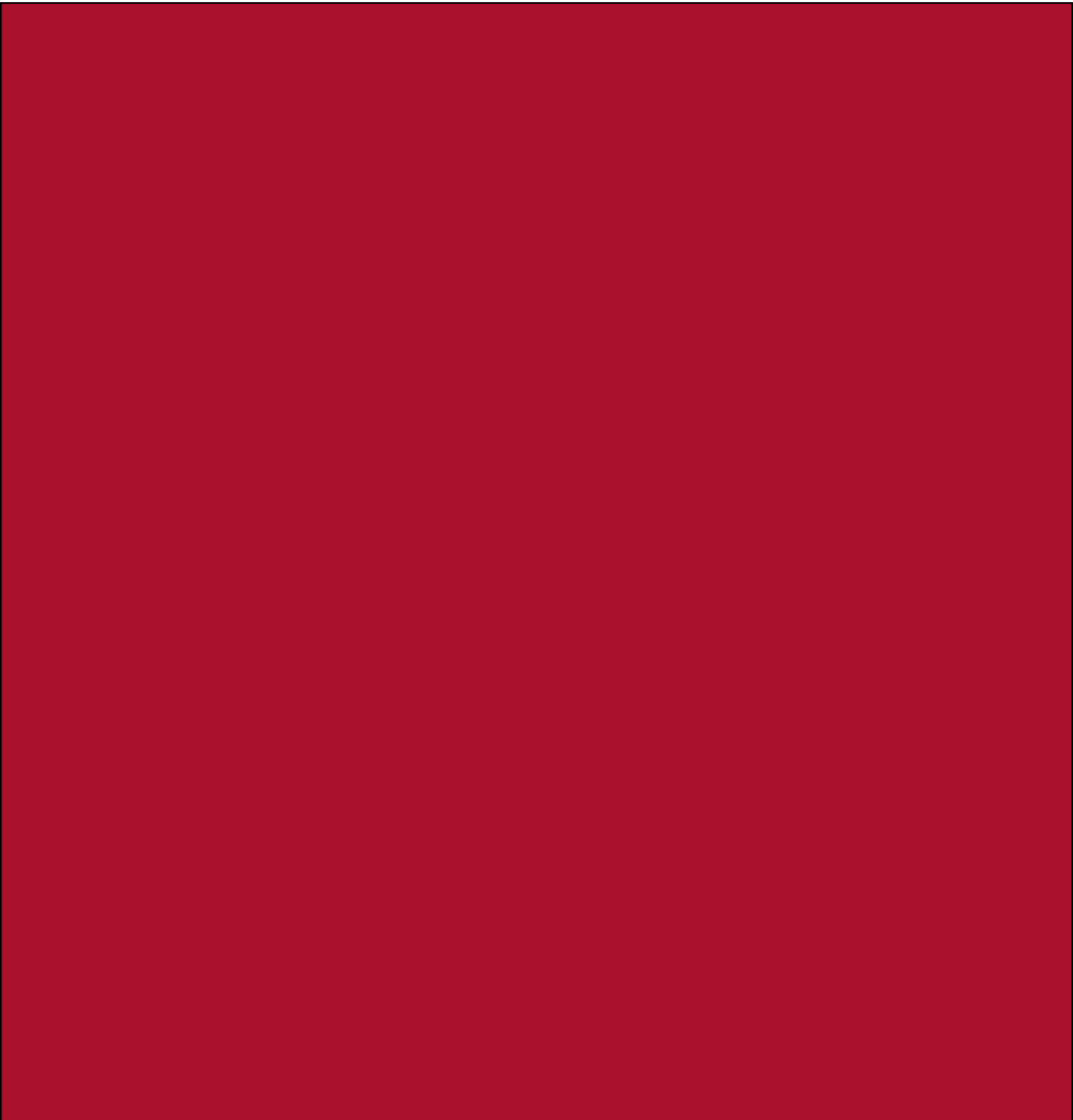
### Transportation, Streets, and Land Use

- Integrated transportation and land use planning can ensure that new development in Gaoming provides housing, employment, and leisure space for the growing population while enhancing mobility for all by establishing transit connections, well-designed street patterns, and community connections.

### Parks and Open Space

- Gaoming must designate land for open space now, while the planning process is still underway; parks, waterways, and other natural resources should be protected before development begins.

在高明规划



## FIRST IMPRESSIONS

### 第一印象

We arrived in Gaoming after several days of travel through Hong Kong, Shenzhen, and Foshan. As we moved further into the Pearl River Delta our perspective narrowed and became more local. Our first introduction to the PRD was in Hong Kong during a meeting at the University of Hong Kong where we learned about macro level impacts on the region. It was here that we first began thinking of the role the PRD plays in greater China; the “industrial seat” of the country was booming in many ways and growing rapidly. We also learned about the impact of such growth--the environmental effects of these industries on air and water quality was a subject that would be addressed in the coming meetings with the planners in Foshan and Gaoming. We traveled by train from Hong Kong to mainland China and arrived in the vibrant city of Shenzhen. Our stay was brief, but informative. We met with city planners and learned about the success of the city’s rapid development--and even rode on the new high speed underground metro line. Our travels took us to Guangzhou and Foshan next and it was during these visits that we began to understand our task more clearly. The planners presented us with large scale models of the regional hub of Foshan, described how Gaoming fit into the regional plans, and also presented us with the products of a design competition. In all, the meetings leading up to our work in Gaoming were seminal in shaping our first impressions of the region. Through these conversations, we were able to focus on four areas of exploration: regional context, waterfront, street network, and housing. Our first task would be to get a feel for the existing conditions. In the following chapter, we detail our first impressions of the regional context, waterfront, street network, and housing.

我们在对香港、深圳和佛山做了几天考察之后抵达了高明。随着足迹逐渐深入珠江三角洲，我们的观察越来越具体，越来越本地化。在香港大学的会谈中，我们第一次接触到了珠江三角洲，了解到宏观经济对这一地区的影响。就是在那时，我们开始思考珠江三角洲在大中华地区所扮演的角色。中国的工业排名不断上升，经济迅速发展。我们也看到这种飞速发展所造成的影响：例如工业对大气和水环境的影响将会是我们和佛山、高明的规划师们所讨论的一个话题。从香港乘火车，我们抵达了中国大陆的活力之城—深圳。我们的停留短暂但颇有收获。我们会见了深圳的规划师，了解了深圳飞速发展的成功经验，并乘坐了深圳的新型高速地铁。在接下来的广州和佛山之行中，我们对我们的任务理解得越来越清晰。规划师们向我们展示了佛山区域规划模型，讲述了高明的发展如何可以更好的融合到区域规划中，并给我们看了设计比赛中的作品。总之，高明工作的介绍会议帮助我们形成了对这一地区的第一印象。通过这些交谈，我们将重点放在四个开发方面：区域环境、水滨地区、街道网络和住房。第一个任务是要了解高明的现状。在后面的章节中，我们将详细阐述我们对区域环境、水滨地区、街道网络和住房的第一印象。



## REGIONAL CONTEXT

### 区域背景

Gaoming – because of its privileged location and abundant nature – has the opportunity to be a new manufacturing base in the Pearl River Delta (PRD). With thoughtful development, it can also be the driving force of the West River region.

The geographic proximity to the large industrial pole of Foshan City makes Gaoming a very attractive location for new industries. According to existing plans, Gaoming will soon be served by diverse arterial roads offering connectivity to the surrounding cities. Gaoming should also plan to use these roads and other new ways to provide public transportation at the same metropolitan scale.

Public transportation should also be employed to organize the new development of the city. The coordination between corridors of dedicated lines for buses, for example, should coincide with the denser areas of new development. This strategy, called Integrated Land Use Transportation Planning, allows for coherent concentration of population and commercial activity where the public transportation is more efficient. Moving away from the served corridors, the density becomes lower.

得益于它独特的地理位置和丰富的自然资源，高明有可能成为珠江三角洲的一个新兴的生产基地。如果有周密的发展规划，高明还有可能成为西江地区发展的龙头。

地理位置上靠近佛山市的大工业支柱区域，使得高明对于新兴工业具有很大的吸引力。根据现有的规划，高明将很快贯通不同的运输动脉，连接周边地区。高明还应规划利用这些道路和其它运输动脉来承担这一地区的公共交通。

公共交通还应被用来组织城市新的开发。比如公交专用通道之间的调整应该与新开发区的密集程度相一致。这个众所周知的策略叫做“整合土地利用和交通规划”。它考虑居住和商业活动的集中，使得公共交通更加有效。离交通要道越远，人口密度越低。

Probably the most striking feature of the city is its landscape, with abundant water throughout the territory both from the rivers (West River, Xiuli River and other streams) and from the innumerable fishponds. Gaoming should make use of the plentiful water resource, which can be very attractive for the urban organization of new developments. The river edges should be explored in the form of continuous green space and also by programming the waterfront with diverse activities. The concern about the water quality is then posed, given the notorious air pollution in the PRD region. The hope is that strategic policies will be coordinated through different governmental instances, in order to recover and maintain the water quality from areas further up the West River.

If the river water depends mostly on an efficient regional coordination, the city of Gaoming should employ advanced ecological techniques for the management of storm water and waste water. Two advanced techniques are dedicated wetlands and constructed swales, for example.

The theme of technology producing an ecological city can be attractive to new industries in the PRD that are essentially concerned with the environment. Gaoming can become a pole of green industries, a city engaged in the preservation of the natural resources and also in the quality of life of its population.

In that sense, all the above mentioned development strategies should be complemented by a strong educational system. If fast-paced industrialization is the most likely scenario for Gaoming in the next following years, the city should have a long term strategy of education in order to avoid the depression that many industrial cities in developed countries now face.

Gaoming has the opportunity to become a model of sustainable city for the PRD region. The city already benefits from an abundance of natural resources. What Gaoming needs is the exploration of development strategies that will protect its beautiful landscape. It needs intelligent development approaches that incorporate environmental and human resources, such as integrated land use transportation planning, metropolitan connectivity, coordinated water policy, ecological water treatment, and educational systems. The combination of unique nature, strategic location in the PRD and smart planning development will be the key to a successful Gaoming.



figure 1: Water Resources in Gaoming

图 1：高明的水资源



figure 2: Foshan Metropolitan Area

图 2：佛山大都市圈范围



figure 3: Fishponds in Gaoming

图 3：高明的鱼塘

## 在高明规划



figure 4: Integrated Land Use Transportation Typical Section



figure 5: Aerial View of Curitiba, Brazil



figure 6: BRT station in Curitiba, Brazil



figure 7: Constructed Wetland in Melbourne, Australia



figure 8: Infiltration Swale in Melbourne, Australia

高明最明显的特征大概就要算是它的地貌了，辖区内河流（西江、秀丽河以及其它河流）和不计其数的鱼塘构成了丰富的水资源。高明应充分利用大量的水资源，这些水资源对于新开发的城市具有很大的吸引力。河岸应开发成绵延的绿色空间，修建各种水滨活动设施。然而珠江三角洲严重的空气污染让人们水质提出了质疑。希望各地方政府能够协调战略方针，以恢复和维持包括西江上游的水质。

如果河流水质在很大程度上取决于有效的区域协作的话，高明当地应采用先进的生态技术来处理雨水和废水。例如，现在在新城，这些水通过湿地和人工湿地循环使用。

科技主题打造的新兴生态城市将吸引珠江三角洲关注环境的新兴工业。高明可以成为绿色产业基地，不仅注意保护自然资源，还致力于提高人民的生活质量。

从这个意义上来说，以上提到的所有发展策略还应有一套完善的教育体系来补充。如果高明未来的发展是迅速工业化，那她就应该有一个教育发展的长远规划，以避免现在许多发达国家的工业城市所面临的萧条。

高明有可能成为珠江三角洲可持续发展城市的模型。因为高明已经有了丰富的自然资源，她所需要的就是探寻能保护其优美风景的发展策略。她需要兼顾环境和人文资源的明智的发展策略，例如：整合土地利用、交通规划、大都市圈连通、协调的水资源政策、生态水处理方法、教育体系等。高明成功的关键就在于综合独特的自然条件、珠江三角洲的有利地势和明智的发展规划。

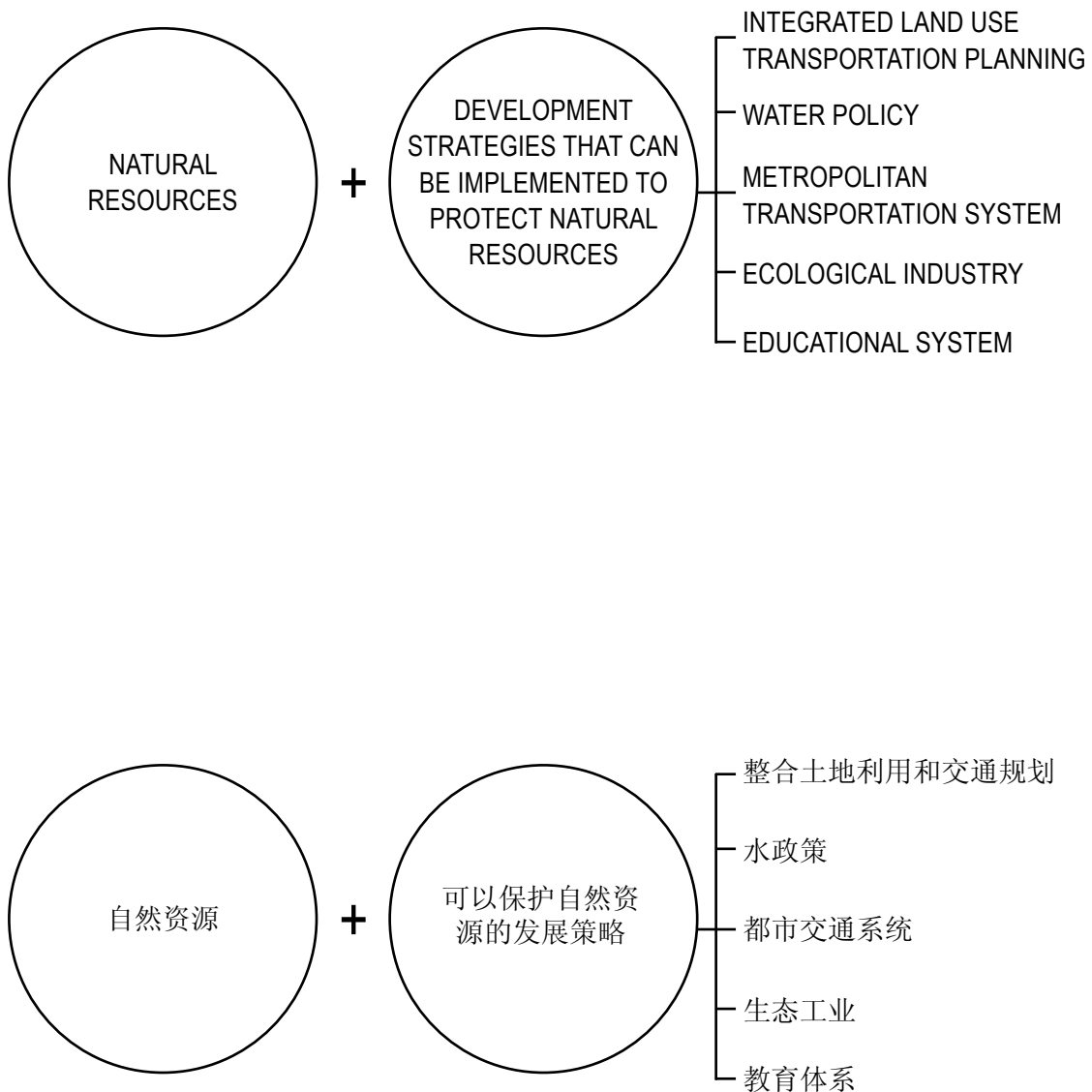


figure 9: Diagram of Strategy for Gaoming

图 9：高明的规划策略



## STREETS AND TRANSPORTATION

### 街道与交通

The studio's initial reaction was that Gaoming already contained many of the design solutions for future streets and transportation. Gaoming's urban context and natural assets today thus served as points of departure for the streets and transportation research, analysis and recommendations. Augmented by lessons learned from around the world, Gaoming is now in a fortunate position to maintain present day mobility and accessibility even as its population begins to soar.

But the time to act is now. Transportation infrastructure makes a lasting impact on urban development. It is therefore critical to think about how streets and transportation can preserve current mobility, prevent congestion and enhance future mobility. Planning for adaptability now, before the Gaoming central area is developed, makes the most economic and environmental sense for Gaoming, its people and landscape.

This section summarizes the transportation and street elements Gaoming may wish to preserve and enhance. It also discusses elements Gaoming would like to prevent and preempt, many of which we have heard from the officials in Foshan and Gaoming themselves. Four areas of recommendations and avenues of exploration are thus suggested to achieve these goals: street network, street typology, adaptability and water networks.

我们工作室最初的印象是高明已经有许多关于未来街道和交通设计的方案。高明现有的城市环境和自然资源可以作为对街道和交通研究、分析和建议的起点。吸收世界各地的经验，高明现在可以争取在人口激增的同时保持现有的交通流动性和可达性。

现在是应该行动的时候了。交通基础设施对城市的发展有着深远的影响。因此，考虑街道和交通如何才能保持现有的流动性，防止交通堵塞，以及增强今后的流动性就显得尤为重要。在高明发展新的中心区之前，现在就应该规划其适应能力，这将对高明市、高明市民和高明风景产生重要的经济和环保意义。

这部分概述了高明可以保护和加强的交通和街道要素，还讨论了我们从佛山和高明的官员那里听说的一些高明应当防止和预先考虑的因素。建议的四个方面和考察的途径预示着将实现以下目标：街道网络、街道结构、适应能力以及水网络。

## 水和街道网络

高明的水特点对我们在高明的区域交通研究有许多设计和实际上的影响。高明丰富的水资源在带来工程上的挑战的同时，也带来许许多多的机遇。西江、秀丽河及其延伸的内河网络可以作为高明中心区域交通系统和街道的特色和亮点。

作为典型的水城，高明可以通过对开放空间、水网络和街道进行创新式的整合，而成为真正的典范。一条条街道可以通过运河、开发空间、滨江/河道与水相交。水景将会使房产增值的同时增加环境效益，例如减少雨水流失，降低城市温度等。

## 街道生活

高明有着充满活力和丰富多彩的街道生活。在夜市上，市中心的人行道上摆满了各式各样的零售商品，高明向我们展现出一个富裕而生机勃勃的城市。可问题是如何在高明城市向外发展的同时保持和加强这种活力。

## WATER AND STREET NETWORKS

Gaoming's water features have tremendous design and practical implications for transportation in Gaoming and the site. While water poses engineering challenges, Gaoming's abundance of water resources also present tremendous opportunity. The West River, the Xiu Li river and its extensive canal network can serve as defining features and enhancements to the transportation system and streets in the Gaoming Central Area.

As a Model Water City, Gaoming can truly be a model through the innovative integration of open space, water networks and street. Individual streets can intersect with water through canals, open spaces and riverwalks. The water features will enhance real estate values while providing the added environmental benefits of reducing stormwater run-off and cooling the district.

## STREET LIFE

Gaoming also has a vibrant and diverse street life. With night markets, large sidewalks and a variety of business and retail throughout downtown, many elements of a rich and lively city are already contained within Gaoming. The question then is how to build such vitality and enhance it as Gaoming expands.

figure 1: the vibrant street life with a mix of pedestrians, bicycles, motorcycles, motorcycle taxis and automobiles in downtown Gaoming.

图 1：高明市中心充满活力的街道生活。行人、自行车、摩托车、摩托的士和汽车川流不息。



## 在高明规划



figure 2: the hierarchy of streets in Gaoming and other cities is important for transportation functions in downtown. This variability should be taken into account in planning the Gaoming Central Area.

图 2：高明和其他城市中街道的不同类型层次对于城中心交通的运作尤其重要。高明未来中心城区的设计应该考虑到街道的多元性。

### STREET VARIATION AND ADAPTABILITY

The variation in street types of downtown Gaoming is one way to maintain this vitality. Different street types serve different uses, provide different commercial and residential spaces, and help meet the diverse needs of any city. Like all cities, downtown Gaoming thrives on diversity and its streets differentiate over time. A challenge in designing the Gaoming Central Area is how to enable this diversity and allow for such change from the beginning. One way to accommodate urban diversity is through varying street sizes and types. The relationships of

### 街道改造和适应性调整

改造高明市区的街道类型是保持其活力的一个方法。不同的街道类型有不同的用途，提供不同的商业和住宅空间，有助于满足城市多样化的需求。像所有城市一样，高明市区的繁荣依赖于它的多样性。高明的街道随着时间不断变迁。对高明中心区规划设计提出的一个挑战就是如何使这种多样化成为可能，并且从一开始就允许这种变化。适应

城市多样化的一个途径就是改造街道的宽度和类型。街道的宽窄、街景、人行道设施、停车场之间的关系以及观光模式是历来就有的自然事物，但它们对我们今天如何规划和开发也至关重要。例如，既然现在步行通道对高明市区如此重要，那么就有必要从短期和长远的角度，在高明中心区采取措施保护步行通道和流动性。宽阔的人行道、宽敞的停车场、集中开发对于今天的高明来说也许是必要的，但是在将来，垂直发展和步行商业区也许更为合适。这样，街道的层次和结构，在这个报告中就显得尤为重要。

因此对街道的适应性调整就和初期他们的多样性一样重要。而街道调整的阶段性和发展的阶段性也一样重要。新建街道不仅应考虑到现在，更应考虑到适应未来的需要和变化。

different street widths, street landscaping, sidewalk amenities, parking treatments and travel patterns with land uses are natural processes which occur over time - but they are also critical to how we plan and expand today. For example, since pedestrian access is so crucial to downtown Gaoming today, it is critical to maintain measures that preserve pedestrian access and mobility in the short and long term of the Gaoming Central Area. Large sidewalks, parking, and clustered development may be necessary today, while transit rights of way, vertical growth and pedestrian malls may be most appropriate in the future. The street hierarchy and typology are thus critical to this report.

Adaptability of these streets is therefore just as important as their diversity from the outset. The phasing of streets is therefore just as important as the phasing of development. New streets must be considered in their present day terms, but must also be planned to accommodate future needs and changes.

2 Lanes of Traffic      2 条交通道  
 1 Service Lane        1 条辅助车道  
 1 Lane of Parking     1 街道边停车



1 Rapid Transit Lane    1 条公交快速道  
 2 Lanes of Traffic     2 条交通道  
 1 Service Lane        1 条辅助车道  
 1 Bicycle Lane         1 条自行车径



figure 3: street Adaptability: Streets should be designed to adapt to future needs. Above, a median designed for the short term can become a rapid transit right-of-way in the long term.

图 3：街道适应性：街道的设计应该可以适应未来的发展需要。如上图所示，街道中间短期的分隔地带未来可以开发作为公交快速道。



## 在高明规划



figure 4: the chance to plan the future is now. Development and streets in the Gaoming Central Area are still being planned. Above, the arterial extending north from downtown Gaoming through the Central Area.

图4：现在就是规划未来的时候。高明中心城区的发展和道路现在仍在被规划。上图是一条连接高明现在市中心和未来中心城区的主干道。

### STREET NETWORK

Putting it all together, we considered Gaoming's current street layout and possibilities for future networks of streets as Gaoming expands. The existing street network of Gaoming - a connected grid system - allows for multiple transportation options. Gaoming's existing street hierarchy provides the starting point for integrating land use and transportation planning in the future. Gaoming has a unique opportunity to lay out a new street network, hierarchy, and typology which, coordinated with land use plans and design elements, can enhance existing natural features, economic growth and the future generations of Gaoming.

### 街道网络

总而言之，我们要考虑到高明现在街道的规划，以及随着高明城市的扩大，未来街道网络的可能性。高明现有的街道网络呈现一个棋盘结构因而允许多种交通形式的存在。高明现有的街道层次为未来整合土地利用和交通规划提供了起点。高明有着独特的机遇来布局新的街道网络、层次和类型。这些网络、层次、类型和土地利用规划、设计要素相结合，将突出现有的自然特色，加快经济发展，造福后代。

## RIVERFRONT

### 水滨地区

#### RIVERFRONT AS AN OPPORTUNITY FOR GREEN DEVELOPMENT IN GAOMING

Gaoming's location along the West River, a branch of the Pearl River, provides a unique opportunity for green developments. Based on the available resources, Gaoming's current vision as a Capital City with Forest Hills (*Shanlin Shuidu*, 山林水都) is a good strategy for the city. Many of the current positive development practices should be preserved and continued, while green developments should pay special attention to Gaoming's most precious asset: the riverfront of the West River.

Green developments foster a sustainable future for Gaoming while allowing continued urban growth and improvement on GDP. In addition, green physical development along the riverfront provides unique opportunities to construct harmonious social relations by designing better civic spaces that encourage social encounters and interactions. The new green development will reconnect Gaoming with the West River, the cradle that has nurtured Gaoming from the very beginning.

#### OPPORTUNITIES AND CHALLENGES

There are presently many valuable opportunities which Gaoming's future green development could utilize:

#### 河岸是高明绿色开发的机遇

坐落于珠江支流的西江畔，高明在绿色开发方面有着独特的机遇。依托现有资源，高明现在“山林水都”的设想是打造城市的一个好策略。当前许多积极的发展模式应该被保存和提倡，同时未来的绿色开发尤其应关注高明宝贵的财产：西江河岸。

绿色开发在继续城市发展和国民生产总值增长的同时，帮助高明建设一个可持续发展的未来。此外，通过设计良好的市民空间，鼓励社会活动和互动，沿河两岸的绿色自然开发为建造和谐的社会关系提供了独一无二的条件。新的绿色开发将重新连接高明和其城市发源地—西江。

#### 机遇与挑战

高明的未来绿色开发有许多有价值

## 在高明规划

### Scenic riverfront

Situated upstream on the West River, Gaoming's riverfront is surrounded by attractive natural scenes. The water quality is relatively good, offering valuable opportunities for human interactions with the water.

### Water Transportation Links

The West River and the dense waterway network in the area are a valuable asset for transportation, tourism, production, dwelling, and a wide range of other functions.

### Local history

Gaoming has a distinctive history with its environment, especially with water. Fish ponds and waterfront villages document memorable local water culture from the early history of the town.

### Existing open space

There is currently an open space system in Gaoming that is composed of rolling hills, canal fronts, linear parks, plazas, and riverfront. This system provides a good foundation for future open space development.

Similar to other rapidly developing areas, Gaoming is also facing some challenges:

### Steep edge

The 10-meter tall dike currently cuts off the city from meaningful interactions with the West River. The steep edge of the dike largely discourages casual uses.

的机遇可供利用:

风景秀丽的河岸: 位于西江的上游, 高明的河岸遍布宜人的美景。相对优良的水质为人们与水之间的互动提供了绝好的机会。

水路运输连线: 西江与高明密布的水网构成可供交通、旅游、生产、生活以及其它各种用途的宝贵资源。

当地历史: 高明有着与众不同的历史环境, 尤其是她的水。鱼塘和渔村见证了当地自古以来特殊的水文化。

现有的开放空间: 今天, 高明有一个由绵延起伏的山丘、内河水道、沿河公园、广场与河岸组成的开放空间网络。这个网络为将来开放空间的发展奠定了良好的基础。

与其它迅速发展的地区相类似, 高明也面临着一些挑战:

陡峭的堤岸: 当前, 沿江10米高的堤坝切断了城市与西江的互动。陡峭的堤岸在很大程度上阻碍了沿江

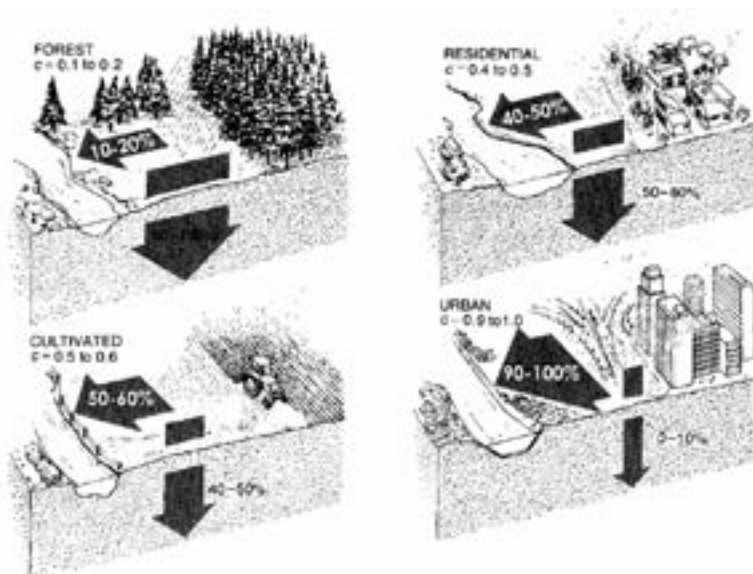


figure 1: different degrees of permeability based on ground surface treatments

图1: 不同地表拥有不同的水渗透率。

figure 2: surface parking of a stadium covered with grass, allowing higher permeability for storm water.

图2: 体育馆的停车场用草地覆盖, 以提高水的渗透率。



figure 3: extensive local fish ponds and water network are a part of the rich local physical and cultural history.

图3: 当地密集的鱼塘和水道是本地丰富的环境和文化历史的一部分。

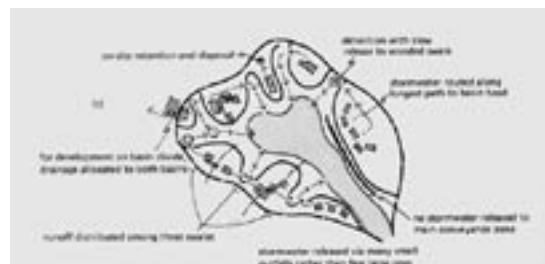
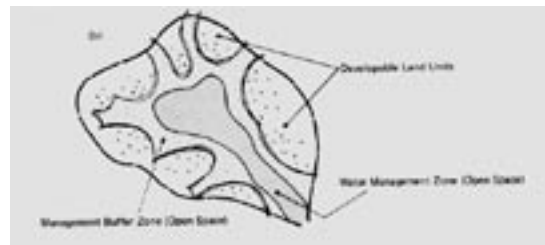


figure 4: Development pattern is informed by local hydrological conditions.

图4: 当地的水文条件影响了发展模式。



## 在高明规划

**Pollution:** Rapid growth of local industries is a potential challenge for the local environment, especially the industries emitting untreated water directly into the local water system.

### GREEN DEVELOPMENT:

#### Eco-tourism

Gaoming could consider taking advantage of its natural beauty through ecotourism—a strategy that fulfills multiple targets, improving local economy, raising natural preservation awareness, and protecting the environment. Ecotourism fits Gaoming's overall position of "Water Capital with Forest Hills" for green development. Gaoming's current exploration of ecotourism should be encouraged, such as its tourism development on Zhangmo Shan, Agrucultural Ecogarden, Linnan Jiuzhaigou.

#### Water Resources

As Gaoming's objective is to become a "Water Capital with Forest Hills," water resources should be one of its major goals for green development. This means it does not only focus on conventional practices like water use reduction or water pollution prevention, but also on more creative measures. For instance, the integration of open space system with the urban fabric increases the urban surface's permeability, thus reducing the amount of polluted storm water directly running into streams and rivers.

Furthermore, urban design should also reflect and respond to local hydrological conditions, allowing a systematic development of effective drainage patterns, minimizing storm drainage run-off, and replenishing ground water.

的休闲活动。

**污染:** 快速发展的工业对当地的环境是一个潜在的威胁，特别是未经处理的工业废水被直接排放到当地水域。

### 绿色开发:

#### 生态旅游:

高明可以考虑利用其自然资源开发生态旅游。这个策略可以实现多种目标：发展经济，提高人们保护自然的意识，以及保护环境。生态旅游与高明整体“山林水都”的绿色开发计划相适应。应鼓励高明现有的生态旅游开发，例如：皂幕山，农业生态园，岭南九寨沟。

#### 水资源:

高明的目标是成为“山林水都”，那么水资源应是其绿色开发的主要目标。这意味着不仅仅要聚焦在传统的减少水耗费、防止水污染的实践上，还应有创新的举措。例如：把开放空间整合于城市结构，以增加城市地表的渗透性，以减少被污染的雨水直接流入小溪和河流。

此外，城市设计还应表现和反应当地的水文状况。例如，系统发展高效排水模式，最小化雨水流失，以及补充地表水。

figure 5: various designs to foster a diverse and intimate relation between the water edge and its users.

图5：不同的设计以营造水边和使用者间多样化的亲密关系。



© E. Ben-Joseph

figure 6: the multi-functional “Emerald Necklace” in Boston has been continuously improved over the centuries.

图6: 波士顿多功能的“祖母绿项链”在过去的几个世纪中不断被改善。

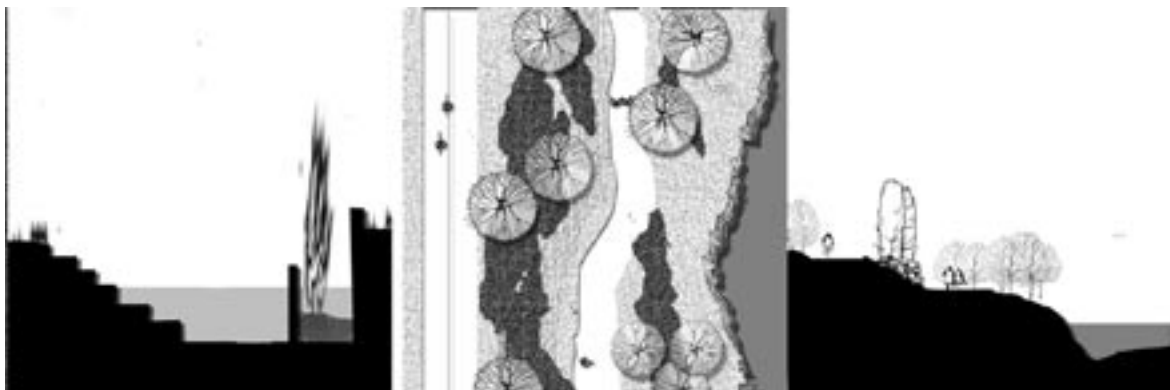


figure 7: annual charity rubber “Duck Race” attracts people in Singapore to the Boat Quay waterfront.

图7: 一年一度的慈善塑胶“鸭子游泳”比赛吸引着新加坡人到 Boat Quay 水边观摩。



© Singapore Urban Redevelopment Authority, *Shaping Singapore: A Pictorial Journey*



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### Public Open Space

Green development relies on the integration of a well-designed public open space system, which helps both the environment and the wellbeing of the people. The pressure from rapid development would lead to high demand in land. Although fully developing all available land might be economically compelling, a public open space system is an integral part of Gaoming's sustainable future for decades to come. For instance, the well-known Emerald Necklace open-space system in Boston is a result of continuous improvements through centuries. This system has been transformed from a simple open-space reserve to a multi-functional open space system for natural preservation, flood control, and leisure functions.

The rich local cultural history should also be incorporated into the development of the open space system, which could help extend and enrich the local water culture. For instance, the preservation and transformation of the current *ji-tang* (基塘) agricultural practices could lead to ecotourism. The development of riverfronts with open space for boat markets could reinvent the long-gone boat merchants scenes of the past.

Lastly, the treatment of the water edge, especially the dike, could become inviting for public gathering and daily socializing. A soft edge with various spatial options provides flexibility for different uses.

### Creating an Integrated Edge

A successful development along the West River waterfront ultimately demands an integrated edge. The fulfillment of green developments necessitates these various complementary systems working together. For instance, the development of transportation along the riverfront should incorporate the interconnections between various transportation modes (bus, water taxi, pedestrian pathways, etc.) and the space along the water edge. The clustering of various functions and programming should work cohesively while each node along the edge retaining its uniqueness within these integrated programs.

### 公共开放空间：

绿色开发依赖于一个完整的、精心设计的公共开放空间网络，它将有损于环境和人民生活。城市飞速发展的压力将会导致对土地利用的高需求。虽然充分开发所有可利用的土地可能产生巨大的经济效益，但是公共开放空间网络是高明未来可持续发展中不可缺少的一部分。例如：波士顿著名的“翡翠项链”开放空间网络就是几个世纪以来不断努力发展的结果。它由单一的预留空地转变为具有自然保护、洪水控制、休闲娱乐等多功能的开放空间网络

高明丰富的历史文化也应当融合在开放空间网络中，这样有助于延伸和发展当地的水文化。例如：保存和改造现有的基塘农业点，将其建成生态旅游点；把河岸发展成船上市场的开放空间，重现消失已久的船上贸易景象。

最后，水岸治理，尤其是堤坝，将会吸引公众和日常社会活动。具有多种空间结构的亲水堤岸将为不同用途创造便利条件。

### 建造完整统一的水岸：

西江沿岸的成功开发非常需要一个完整统一的水岸。要想实现绿色开发，就必须整合各种各样的补充系统。例如：沿河交通运输的发展应考虑到各种交通方式（汽车、水上巴士、人行走道等）和沿河岸空间的内在联系。聚集在一起的不同功能和设计既要相互融合，又要在整体规划中保持其各自的特色。

## HOUSING, DENSITY & LAND USE

### 住房，密度和土地利用

Upon site investigation in Gaoming, many intriguing aspects of the local culture emerge which should take priority in design of the extension of the city. Walking through the existing context, one experiences many diverse social activities including: singing and dancing in the park, jogging, Tai-Chi, fishing and farming along the coast and various other activities among the streets, including formal and informal markets. There also exists a mix of street performers, operating in any available open space, singing and dancing, bringing crowds of people all around them. The street life in Gaoming is alive and buzzing, and it may be said that this is a direct result of the tendency of Gaoming residents to look toward the streets and shops as an opportunity for social interaction.

Taking this observation into serious consideration, it is necessary to positively integrate this existing social culture into the new urban fabric and provide appropriate open space for these conditions. Therefore, our team explored the opportunity of scattering small green spaces throughout the city rather than allocating one only specific site for a large open space. Potentially, the new city of Gaoming could offer the same intensity of street life if open space is consistently provided within walking distance of any given point within the fabric. These smaller, evenly dispersed open spaces prove may be a better alternative, in that they provide inhabitants of the city with an intimate park setting within their neighborhood.

通过在高明的实地调查，我们发现当地有许多引人注目的文化场所，在设计城市外延的时候就要优先考虑这些文化场所。当你在现在的高明漫步的时候，能够体验到各式各样的社会活动，如：在公园里唱歌和跳舞，慢跑，打太极拳，在河岸边垂钓和耕种，以及在街上正规和非正规的市场里的各种活动。还有各种街头表演者在空地上唱歌、跳舞，和里里外外的观众。高明的街头活动是活跃而嘈杂的，这可以说是市民们倾向于把街道和商店作为社会互动场所的直接结果。

当我们认真考虑这些现象的时候，有必要将这些现存社会文化的积极元素融入到新的城市网络当中去，为这些活动提供适当的空间。我们组就是在寻找机会在城市中建造许多分散的、小的绿色空间，而不是仅仅建造一个特定的广阔空地。这样，如果开放空间都建造在城市网络中任何一点的步行范围之内，高明新城就有可能维持和老城同样频繁的社会活动。这些小型均匀分布的空地为城市居民送去社区小公园，这有可能是更好的选择。



## 在高明规划

### MAJOR / MINOR STREETS

Noticing that street life is an essential part of the city's culture, we proposed to provide an urban fabric that is sensitive to the human scale of pedestrian and cyclist. This may be achieved by creating a grid system of varying street widths and traffic densities. Therefore, major streets would be established as main retail and commercial streets, and the inner streets could decrease in scale, sometimes restricted only to pedestrian use. Understanding the rainy climate of the region, these major streets could have cantilevered overhangs, as we observed of many of Gaoming's existing typologies, or alternatively could be arcaded; both would shield the pedestrian from weather. Another aspect of the street network that we took note of was the somewhat chaotic interaction between pedestrian, motorist, and cyclist. This struck us as a very dangerous condition that hinders the sense of security for the pedestrian. Therefore, we recommend that a more integrated system of traffic coordination be investigated for the new areas of the city.

### HOUSING TYPOLOGIES

After observing the existing typologies within the city, we felt that there are three major housing classifications in Gaoming. These are: dormitories, mixed income, and luxury housing. A diverse range of use throughout the city is important in order to provide a dynamic environment, one comfortable to many different users; therefore, each of these could housing typologies could perhaps be mixed together. Their adjacency would allow for a cohesive city, one that does not create sections of lower income residents.

### PRESERVATION

On our site visit, we realized that the existing rural villages make up a large minority of the existing landscape, and therefore we feel that it is important for the city of Gaoming to selectively preserve some of these villages in order to salvage an aspect of the city's history. These preserved villages could potentially become areas of adaptive re-use, where they could emulate the Shanghai model of Xintiandi by housing retail and dining spaces

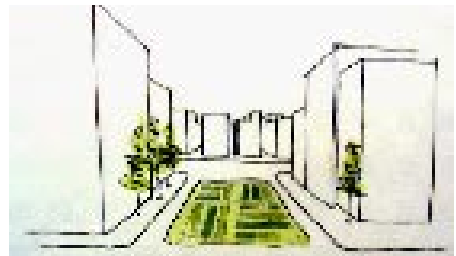


figure 1: sketch of open space within the housing block

图 2：住宅和开发空间草图



figure 2: wide sidewalk in Gaoming taken over as motorcycle parking area

图 3：高明宽大的行人道被用作摩托车的停放点



figure 3: sample block typology with various scales of integrated open space.

图 4：城市街区类型例子，融合和不同的规模和开放空间的整合



figures 4 and 5: existing landscape as potential for urbanized open spaces

图 5 和图 6：现有的土地有潜力成为未来都市中的开放空间



### 主干道：

注意到街道活动是城市文化的重要组成部分，我们建议创建一个适宜人们步行和骑自行车的城市网络。这个网络可以通过创建一个由宽窄不同、交通密度不同的街道而组成的棋盘网络来实现。这样，主干道将被建成主要的零售和商业街，而次干道则可以缩小规模，有时甚至可以变成步行街。为适应于这里的多雨气候，主干道可以建成像我们在高明看到的许多悬臂结构一样，或者是骑楼，为行人遮挡风雨。我们注意到高明街道网络的另一个特点是行人、摩托车、自行车的混杂行驶。这种危险的状况非常令我们担心，因为行人的安全容易被忽视。因此我们建议在新城区建立一套更完善的交通协调系统。

### 住宅结构：

在考察了高明现有的住宅类型之后，我们看到三种主要住房类型：宿舍型、混合收入型和高级住宅。为了展现一个充满活力的环境，城市住宅有必要呈现出多样化。一种住宅满足不同使用者的需要，这样就会把各种不同的住宅模式混合在一起。各种住宅相互交叉，可以形成一个有凝聚力的城市，而不会出现所谓的“贫民区”。

### 保护区：

在实地考察中，我们看到村庄占地面积的很大一部分。因此我们认为高明市有必要有选择的保护一些村庄，以在其大开发之前先抢救其城市的部分特征。这些保护村可以变为可适应性再利用的区域，就像上海的新天地，利用这些建筑来进行零售和餐饮业活动。

## 在高明规划

### EQUITY / CULTURE

Noticing that the city is a mix of diverse users, we felt that the way to continue this positive mix is by building new housing that provides units geared towards a wide range of incomes. Taking this mix as a sign of the social tendencies of the residents of Gaoming, we felt that it is necessary to re-invent and introduce the culture related to the villagers and farmers. One possible solution would be to provide urban green space within neighborhoods for individuals to grow their own personal crops for private consumption.

### 平等 / 文化:

看到不同收入人士在高明和睦为邻，我们感到要保持这种积极多元化聚居，就得建造符合为不同收入水平人士使用需要的住宅。把这种多元化聚居作为高明居民住宅趋势的标志，我们认为有必要重新引入和改进农田生活文化。一种可能的解决办法就是在城市小区划出一片绿地，供居民们种植一些其生活所需的农作物。



figures 6 and 7: current Land Use plan and study of occupying superblocks

图7和图8：现有土地利用规划和“巨型都市街区”研究