

# Urban Streetscape Design

## 城市街道景观设计

(德)佩特拉·芬克 编 张晨 殷文文 译

辽宁科学技术出版社



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# PREFACE 序言



Cities have always been the centres of invention, innovation and intellectual and economic developments. They are more and more expanding, and are getting denser but also wealthier and more attractive and stimulating. More and more people are moving to live in a city, with reasons varying from economic opportunities and education to quality of life. This trend can be observed globally, from the redevelopment of city centres and districts in Europe, the United States or Australia to newly built urban developments in Asia and the Middle East. In the 19th century cities were home to cutting-edge production facilities and factories whilst in the 20th century the emphasis shifted towards pleasure and consumption. As Edward Glaeser, a Harvard University economist, points out: "Urban enjoyments help determine a city's success. Talent is mobile, and it seeks out good places to consume as well as produce." These urban enjoyments include not only the provision of museums, theatres, restaurants and sports facilities but also parks, city squares, boulevards and promenades – a well-designed urban infrastructure with a vibrant street life that makes people feel safe and relaxed during day and night, and encourages a more outward-facing, social, active, happy and healthy lifestyle.

Streets are an important part of this urban infrastructure. Streets are means of transport and connections to many places whether we walk, cycle, use public transit or drive but they are also places in their own right, not just passages from one location to another, and they are vital in giving a distinctive character to an area and providing structure for a village, town or city.

Streetscapes are the visual elements of a street, including the road, open public spaces, the building fabric, trees, lighting, street furniture, signage and everything else that creates a street's identity. In short, streetscape is all that we see in the street – the complete scene. Streets and streetscapes are public spaces where people – street users, residents of the neighbourhood and visitors – engage in a wide range of activities: travel, promenading, meeting and socialising, relaxing and visiting cafés, shops or markets. They are a fundamental element of the public realm – the public space we

城市一直是发明、创新、智能和经济开发的中心。它们的面积日渐扩张，人口日渐密集，同时也变得更加富庶、更具吸引力。越来越多的人选择在城市生活，其原因五花八门：有的是为了寻求经济机遇，有的为了更好的教育，还有的为了提升生活质量。这种现象正呈现全球化的趋势，不仅体现在欧美国家的城市中心改造，还体现在亚洲和中东国家的新建城市开发中。19世纪的城市是尖端生产设备和工厂的家园，20世纪的城市则开始注重娱乐和消费。哈佛大学经济学家爱德华·格莱泽指出：“城市的乐趣决定了城市的成功。才智是移动的，它会寻找适合自己消费和产出的地方。”城市乐趣不仅包括博物馆、剧院、餐厅和体育设施，还包括公园、城市广场、林荫道、散步道等。设计良好的城市基础设施与充满活力的街道生活会让人们感到安心和放松，从而实现更社会化、更外向、活泼、快乐和健康的生活方式。

街道是城市基础设施的重要组成部分。街道既是交通系统的一部分，让我们通过步行、骑车、使用公共交通、驾车与其他场所联系起来，同时也拥有独特的场所感，而不仅仅是某段通道。它们对地方特色的营造以及村庄、城镇和城市结构的建设至关重要。

街道景观是街道的重要元素，其中包括道路、开放公共空间、建筑肌理、街道、照明、街道设施、引导标示以及其他一切用于营造街道身份的元素。简而言之，街道景观就是我们在街道上所看见的一切。街道和街道景观属于公共空间，街道使用者、周边居民和



all share and where we come together and interact – and support atmosphere, aesthetic quality, individuality as well as economic activity, health and social cohesion of a neighbourhood, community or city. Attractive and safe streetscapes can generate a range of environmental, social and economic benefits. They invite people to walk and cycle, and in the process reduce vehicle traffic, improve public health, stimulate local economic activity and attract more residents and visitors.

The development of contemporary good streetscape designs lasting time is based on the following principles: Reducing clutter whilst preserving the historic fabric of the surrounding built environment and respecting and enhancing the local character of the area; Creating simple and clean designs from a pared-down and minimal palette of materials with coordinated colours and textures; Contemporary streetscapes should ensure inclusive and equal access for every user; Maintenance is an important feature of a successful lasting design and should be considered from the start of the design process.

Designers and local planning departments should be open-minded and not afraid to investigate and welcome experimental and innovative streetscape design solutions. The role of the inhabitant and visitor, the user of the public space, is crucial as well. Jonathan Hill argues: “The architect and user both produce architecture, the former by design, the latter by use. As architecture is experienced, it is made by the user as much as the architect. Neither are the two terms mutually exclusive. They exist within each other. Just as the architect is also a user, the user can be an illegal architect.” Realising, analysing and responding to the evolving and changing needs of this diverse and ever growing group of city dwellers should inform the continuous development, advancement and improvement of urban and streetscape design, and consequently a higher quality of city life.

游客在街道上进行各种各样的活动：旅行、散步、会面、社交、休闲、餐饮、购物等。街道是公共领域（我们共享的公共空间）的基础元素，它们支撑着周边、社区乃至城市的氛围、美观度、个性、经济活动以及健康和社会凝聚力。富有吸引力而又安全的街道景观能够为环境、社会和经济带来积极的影响。它们鼓励人们步行和骑车，从而减少了机动车的通行，改善公共健康水平，刺激本地经济活动，吸引更多的居民和游客。

良好而持久的现代街道景观设计的开发应当遵循以下原则：减少零散设计、保留原有的城市肌理、尊重并提升本区域特色；利用简单的材料和相配的色彩和纹理打造简洁设计；现代街道景观应当保证各种使用者的同等使用；成功的设计应当在一开始就考虑到维护保养的重要性。

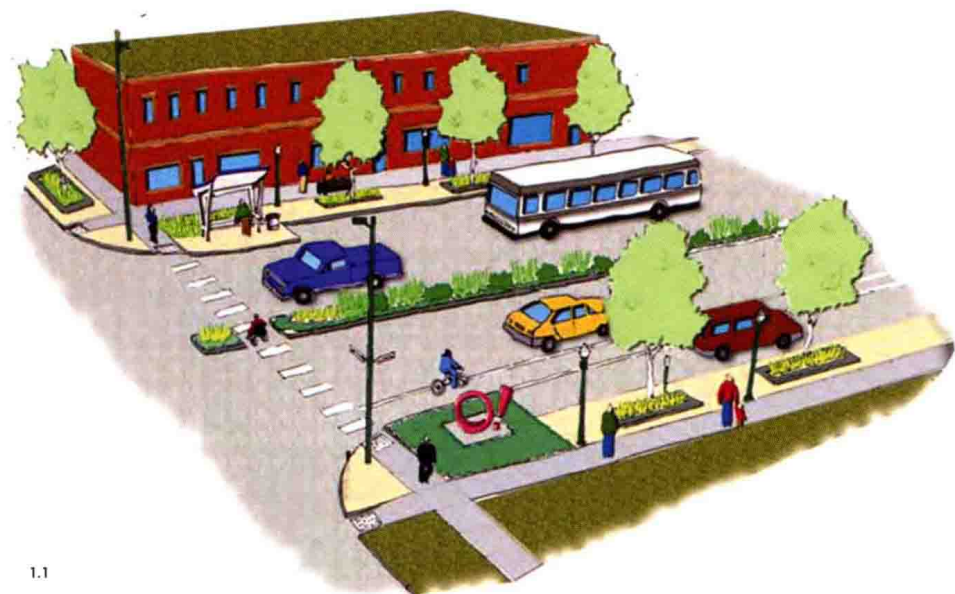
设计师和地方规划部门应当开拓思维，积极尝试试验性、创新性街道景观设计方案。作为公共空间的使用者，居民和游客的意见也具有重大意义。强纳森·希尔认为：“建筑师和使用者都是建筑的创造者，前者通过设计，后者通过使用。建筑的生命是由二者赋予的。二者相辅相成，密不可分。建筑师是使用者，使用者也是建筑师。”对不断变化、成长的城市居民进行了解、分析和回应是城市开发和街道景观设计重点，也是打造更高品质的城市生活的关键所在。



## 1. Overview

### 1.1 Introduction

The character of the city and its neighbourhoods is largely determined by the appearance of its streetscape. A streetscape is the result of two things: the physical environment and the uses that take place within public space. To help shape the character of new areas and protect the quality of existing neighbourhoods, the planning department has in place streetscape standards, guidelines, and policies to guide changes to public space. Physical features that are considered can include sidewalk paving material, fences and retaining walls, street trees and their spacing, and other infrastructure like street lights or curb and gutters. Uses that impact the character of public space include sidewalk cafés, vending, street festivals, and other impermanent activities. (Fig.1.1)



1.1

## 1. 街道景观设计概述

### 1.1 基本概念

一个城市及其社区的性格往往由这座城市的街道景观所决定，而后者的好坏又取决于以下两点：一是街道景观所处的物理环境，二是街道景观的使用情况。为了能够让新的地区更有个性，保护原有的社区环境不被破坏，城市的规划部门会专门为街道景观制定标准、指南和政策。设计街道景观时需要考虑的物理元素包括：人行道的铺路材料、围栏和挡土墙、景观树，以及街灯、路缘石和水沟等设施。而能够对街道景观造成影响的因素则包括：街边的咖啡店、商店以及在街上举行的各种临时性节庆活动或其他永久性活动等。（见图 1.1）

1.1 The public realm includes streets, sidewalks, landscaping and lighting.

1.1 公共领域包括街道、步行街、景观和照明。

## 1.2 Development of Streetscape Design Discipline

The discipline of streetscape design has a rich history and has changed markedly in emphasis over the years. Alker Tripp and then Colin Buchanan developed much of the early influential thinking – based on a modernist vision – with separate spaces for pedestrians and motor vehicles. Much of this work was premised on understanding and accommodating the huge projected growth in traffic. A “safe” environment was perceived as requiring segregation between the car, pedestrians and other activities; meaning pedestrian decks, flyovers and precincts. The result was focused therefore on facilitating increased traffic flow. These principles became the prevailing norm in traffic engineering practice and continue, in the main, to this day. Even in rural areas, the principle of segregation has become important, with the pedestrian, cycle and vehicle environment conceived as separate issues.

A marked change in direction was provided by the tradition of traffic calming, which has developed over the last 30 years in mainland Europe. Stemming from design practice in residential streets in The Netherlands, the traffic calming movement has been reinvigorated by the recent urban design and renaissance agendas in the UK and continental Europe, New Urbanism in the USA, and more general moves towards sustainable development. The woonerf principle for shared priority in residential areas has become particularly influential. Early practitioners in the UK, such as Carmen Hass-Klau and Tim Pharoah, “imported” many of these principles and interpreted them for the UK context. “Context sensitive design” and “shared space” practice has further evolved from these early experiments in traffic calming. The latter in particular emphasises a greater understanding of behavioural and psychological issues – considering how people and traffic interact in spaces. Hans Monderman in The Netherlands, David Engwicht in Australia, Michel Deronzier in France and Ben Hamilton-Baillie in the UK have been leading proponents of this shared space approach.

The contextual design and shared space philosophy is gaining greater credence across Europe and North America. A number of towns, cities

## 1.2 街道景观设计准则的发展

关于街道景观设计准则的研究有着很丰富的历史，随着时间的推移，其强调的重点也在不断变化。阿尔克·特里普和科林·布坎南可谓是这一领域的先驱，奠定了街道景观设计准则的思想基础，用现代的视角将行人空间和机动车空间分离开来。街道景观设计中，理解并妥善处理好未来可能会面临的交通客流增长至关重要。想要打造一个安全的街道环境，则应利用步行甲板、立交桥和管辖区等方式，将车辆、行人以及其他活动分离开来，应对不断增长的交通客流。这一分离准则现已逐渐成为交通工程学的主流规范，并且同样适用于乡村地区的街道景观设计。

“交通减速”是促使街道景观设计准则发生巨大转折的重要因素，在过去的30年间，这一传统在欧洲大陆逐渐兴起。最初只是在荷兰的居民区街道设计中要求车辆减速，但近些年来，随着在英国和欧洲大陆兴起的城市设计和复兴议程运动，在美国兴起的新都市主义，以及在更广阔的范围内盛行的可持续发展运动的共同推动下，交通减速又重新兴起。在居民区的街道景观设计中，对有绿地的安全道路的优先共享原则尤为重要。英国的一些早期街道设计从业者，如卡门·哈斯克劳和蒂姆·法罗等，就曾将交通减速原则“进口”到英国，使之与英国当地环境相适合。随后，在交通减速的基础上又衍生出“公路环保关联性设计”以及“共享空间”等设计准则。“共享空间”设计准则特别强调行为和心理因素，探求空间内人与交通的和谐互动。荷兰人汉斯·莫德曼、澳大利亚人大卫·英格威志、法国人麦克·得亨兹以及英国人本·汉密尔顿·拜利耶是“共享空间”设计准则的主要支持者。

近些年来，“公路环保关联性设计”和“共享空间”设计在欧洲和北美地区的影响力逐日增强。英国的一些城镇和乡村开始以这两种设计标准为基础，对街道景观设计进行重新解读。



and rural centres in the UK are beginning to re-interpret streetscape design, drawing on "context sensitive design" and "shared space" approaches.

A number of principles appear to be emerging:

- Travel behaviour on roads with a public character is better influenced more by the expression of the environment than by the usual tools of the traffic engineering professions (such as signing and road marking).
- Speed of traffic is, to a great extent, determined by the degree of "psychological retreat" from roads and streets by residents and other participants. Reversing this retreat is critical to reconciling the multiple roles of streets and public spaces.
- Shared space allows public spaces to develop the existing information given by the space. Traffic engineering tools are best used reticently, with the built and natural environment used to achieve the required behaviour.
- The character of the space – the context, history, morphology and landscape – becomes critical to use.
- Highway engineering evolves into a more holistic view of streetscape design. Highway engineers' responsibility becomes the wider road users' responsibility. There is a move from the use of standards towards context sensitive design, and from the safety audit to the wider design audit.
- There is a role for experimentation and monitoring of new schemes rather

一系列的街道景观设计准则应运而生：

- 与交通工程常用的信号和路标相比，环境应是影响公众道路行为的更主要的因素
- 在很大程度上，车辆的速度是由其周围的居民以及其他道路使用者对街道所产生的“心理撤退”的程度大小所决定的。逆转这种“心理撤退”对于协调街道和公共空间的多种角色的关系至关重要
- 对公共空间内的共享空间进行充分利用，有助于改善整个道路环境。须谨慎使用交通工程工具，使之与周围的建造环境和自然环境协调一致
- 空间的特点，包括环境、历史、形态以及景观等，对于街道空间的使用至关重要
- 道路工程已经演变成为街道景观设计的一个十分关键的元素。道路工程师必须为广大的道路使用者负责。街道设计的标准正在向“公路环保关联性设计”靠拢，不仅关注道路的安全性，更关注道路的设计
- 应对新的街道设计标准进行大胆试验，并积极开发新的方案，而不是仅对这些设计标准是否有效进行假设（对于有效性的假设只是空谈）



1.2 The key tenets of the new proposal for Passeig de St Joanare to reduce the number of traffic lanes, create leisure zones under the trees and segregate the bicycle lane.

1.2 新设计的重点在于减少交通车道的数量、在树下打造休闲区以及独立自行车道。

er than an assumption concerning the effectiveness of standard measures (which are often themselves based on little evidence).

- Streetscape design is premised on the promotion of quality of life or civility rather than traffic throughput and volume. (Fig.1.2)

The collaborative European research project "Arterial Streets for People" (ARTISTS) explored the classification of street function in more detail. They developed a classification system to inform the design of street space based on 1) street sections having both a link status and a place status, and 2) the link and place status will depend on the immediate attributes of the street section and their role in the wider street network and urban system. This is an important step forward in recognition that wider issues such as place making are important to streetscape design.

By defining the relative importance of streets in terms of place and movement functions, subsequent design choices can be informed more effectively to avoid the marginalisation of pedestrians and cyclists and promote more integrated patterns of development. This approach allows design practitioners to adopt a different approach to hierarchy, whereby, historically, street designs were only based on traffic considerations. The government's technical guidance on street design examines the balance between place and movement, describes the limitations of conventional classifications and road hierarchies and incorporates the evolution of a design agenda into the streetscape design environment.

### 1.3 Basic Principles of Streetscape Design

Six fundamental principles will help achieve the goal of creating high-quality, environmentally responsible streetscapes.

- Implement sustainable practices
- Develop Complete Streets
- Use cohesive design elements
- Promote security and safety
- Coordinate maintenance with design
- Protect and enhance historic character

- 与增强交通吞吐量和体量相比，街道景观设计更应致力于改善人们的生活质量，推动人类文明（见图1.2）

一项名为“人们的主干道”（简称ARTISTS）的欧洲合作研究项目对街道的功能进行了详细分类。该项目开发了一种能够推动街道空间设计发展的分类系统，这一系统以以下两点为基础：1）街道分区包含两种状态：一是与其他空间相连接，二是位于某一特定位置；2）这两种状态都与该街道分区的直接属性，以及它在整个街道系统和城市系统中所扮演的角色密切相关。能够认识并理解以上两点对于街道景观设计至关重要，它将有助于设计者在“空间建造”等问题上做出合理的决策。

明确街道的相对重要性不仅能够给街道的设计者提供更多的设计选择，有效避免行人和骑车者被“边缘化”，令街道在形式上更为完整，还为设计者呈现一种全新的道路分级方法。政府部门在街道设计方面的技术指南则要对空间和流动之间的平衡性进行检验，对传统街道分类和道路分级方法的诸多限制进行描述，并及时地将设计上一系列新变化和新发展融入到街道环境设计指南中。

#### 1.3 街道景观设计的基本原则

打造优质又环保的街道景观，需遵循以下6个基本原则：

- 使用可持续性设计手法
- 打造完整街道
- 使用有凝聚力的设计元素
- 注重安全防范工作
- 协调维护与设计之间的关系
- 保护并增强当地的历史特色



### 1.3.1 Implement Sustainable Practices

Sustainable processes or states can be maintained indefinitely at a specific level. Sustainable design for streetscapes affects the flow of storm water through the area, the materials used, and the consumption or renewal of energy and resources. (Fig.1.3)

Elements of sustainable streetscape design include:

- Storm water management
- Use of sustainable materials
- Lighting
- Landscaping & urban heat island

#### a. Storm Water Management

Storm water runoff that is not properly managed flows rapidly over impervious surfaces (paved surfaces or other materials that do not absorb water), picking up debris and pollutants along the way and washing them into rivers and streams. Poorly managed storm water runoff also causes flooding and erosion, destroys habitat and contributes to combined sewer overflows (CSOs). Unmanaged runoff contributes to sewer back-ups in homes in parts of the city with combined storm water and sewer systems.

Integrating best storm water management practices (BMPs) into building and site development can reduce the damaging effects of urbanisation on rivers and streams. Disconnecting the flow from storm sewers and directing runoff to natural systems such as landscaped planters, swales and rain gardens reduces water velocity and cleans storm water runoff. Natural storm water systems also permit reduced pipe size for storm sewers.

Best Management Practices (BMPs) include bio-swales, pervious paving, rain gardens, and rain barrels. The following techniques should be considered in street and parking area design and integrated into the streetscape:

Bio-swales, depressions sloped on either side, contain vegetation or riprap that maximise the amount of time water spends over permeable

### 1.3.1 使用可持续性设计手法

可持续性是指让某一过程或状态在特定的条件下一直持续下去。街道景观的可持续性设计会影响该区雨水的流动、材料的使用以及能源的消耗与更新（见图1.3）。可持续街道景观设计应考虑以下元素：

- 雨水管理
- 使用可持续材料
- 可持续照明
- 景观绿化及城市热岛效应

#### a. 雨水管理

非渗透性的街道表面（铺路材料无法吸水）不能及时对地表雨水径流进行有效控制，导致雨水在流淌过程中将残骸或污染物带入江河。没有得到有效管理的雨



1.3

1.3 The streetscape design features planters specifically designed for storm water infiltration and to handle a “ten-year” rain storm. During a storm, rainwater flows from the street into the gutters and is then diverted into the infiltration planters, by way of cuts in the curb, and percolates back into the ground. This system minimises the amount of storm water runoff into the city’s system, cleans the water through a natural process and recharges the region’s aquifers.

1.3 街道景观中特别设计的花盆有雨水渗透功能。降雨过程中，雨水从街道流入排水沟，随后通过路缘石进入渗透花盆，并重新流回地面。这样的设计能大大减少进入城市系统中的雨水，实现天然的雨水净化，补充当地的地下储水量。