

城垣下的绿谱

南京明城墙绿道空间特征与服务绩效图解

GREEN SPECTRUM ALONG THE CITY WALL

Graphic Analysis of Spatial Characteristics and Service Performance
of the Nanjing Ming Dynasty City Wall Greenway

周聪惠 等著
ZHOU Conghui et al



东南大学出版社
SOUTHEAST UNIVERSITY PRESS

国家自然科学基金项目 (批准号: 51408121)

Funded by National Natural Science Foundation of China (No. 51408121)

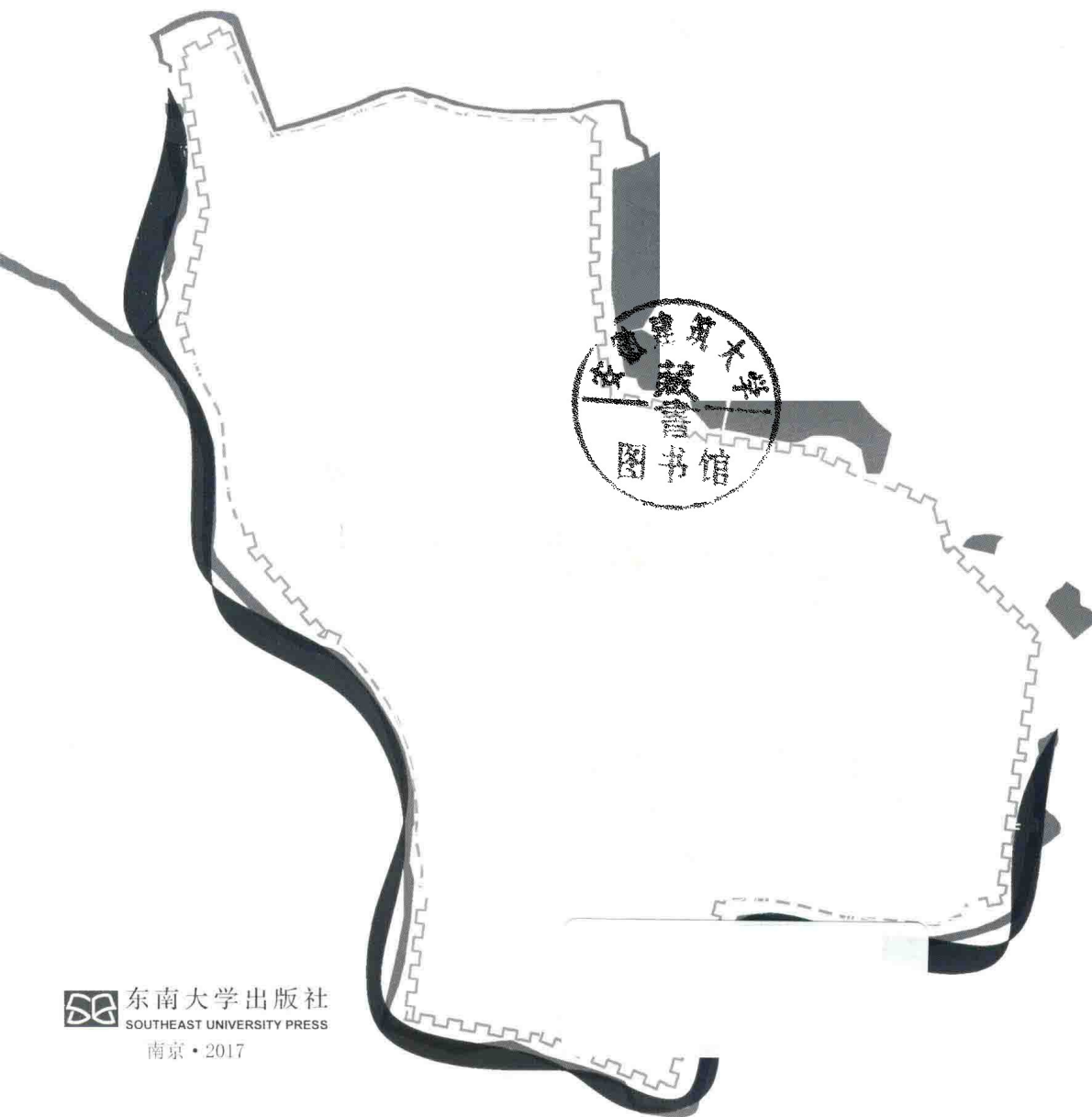
城垣下的绿谱

南京明城墙绿道空间特征与服务绩效图解

GREEN SPECTRUM ALONG THE CITY WALL

Graphic Analysis of Spatial Characteristics and Service Performance
of the Nanjing Ming Dynasty City Wall Greenway

周聪惠 等著
ZHOU Conghui et al



东南大学出版社
SOUTHEAST UNIVERSITY PRESS

南京 • 2017

内容提要

本书以南京明城墙绿道为研究对象,通过多轮使用人群信息采集、问题分析、信息补充等环节,用定量方法将绿道的服务绩效、内部和外部空间特征进行梳理和描述,并在此基础上将绿道服务绩效指标与其内部和外部空间特征指标进行关联分析,进而尝试从中发现绿道内、外部空间特征对服务绩效的影响方式和作用规律。

全书在表达上依托直观易懂的图解方式来展示研究思路、方法、过程和成果,除了希望其能为相关科研人员和规划设计从业者提供有益的参照信息外,还寄予书中研究内容和成果能被更多非专业人士所认知和理解,并期待激发出广大社会公众的兴趣和积极性,更加主动地关注和投身参与到身边诸如绿道一类城市公共空间规划设计、优化提升和建设使用中来。

图书在版编目(CIP)数据

城垣下的绿谱:南京明城墙绿道空间特征与服务绩效图解 / 周聪惠等著. — 南京:东南大学出版社, 2017.9
ISBN 978-7-5641-7378-4

I. ①城… II. ①周… III. ①城墙-绿化-研究-南京 IV. ①TU985.253.1

中国版本图书馆CIP数据核字(2017)第193634号

书 名:城垣下的绿谱:南京明城墙绿道空间特征与服务绩效图解

著 者:周聪惠 等

策划编辑:孙惠玉 责任编辑:徐步政 邮箱:1821877582@qq.com

出版发行:东南大学出版社 社址:南京市四牌楼2号(210096)

网 址:<http://www.seupress.com>

出 版 人:江建中

印 刷:恒美印务(广州)有限公司

开 本:889mm×1194mm 1/16 印张:21 字数:640千

版 次:2017年9月第1版 2017年9月第1次印刷

书 号:ISBN 978-7-5641-7378-4 定价:139.00元

经 销:全国各地新华书店 发行热线:025-83790519 83791830

*版权所有,侵权必究

*本社图书若有印装质量问题,请直接与营销部联系。电话(传真):025-83791830

编写翻译人员 | AUTHORS AND TRANSLATORS

主要作者

周聪惠（副教授，东南大学建筑学院景观学系）

Main Author

Zhou Conghui (Associate Professor, Department of Landscape Architecture, School of Architecture, Southeast University)

其他作者

吴 韵（研究助理，东南大学建筑学院景观学系）

Other Authors

Wu Yun (Research Assistant, Department of Landscape Architecture, School of Architecture, Southeast University)

胡 樱（研究助理，东南大学建筑学院景观学系）

Hu Ying (Research Assistant, Department of Landscape Architecture, School of Architecture, Southeast University)

容梓昊（研究助理，东南大学建筑学院景观学系）

Rong Zihao (Research Assistant, Department of Landscape Architecture, School of Architecture, Southeast University)

戴文嘉（研究助理，东南大学建筑学院景观学系）

Dai Wenjia (Research Assistant, Department of Landscape Architecture, School of Architecture, Southeast University)

英文翻译

田 恬

English Translator

Tian Tian

英文译审

斯蒂芙·查韦斯（哥伦比亚大学城市设计实验室）

Edit Proofreader

Steff Chavez (Urban Design Lab at Columbia University)

序言 | 绿色基础设施的“道”和“墙”

FOREWORD | Green Infrastructure as Ways and Walls

城市已步入绿色基础设施发展的又一个重要阶段。在全球前所未有的城市化进程和生态风险中，城市成了保障我们未来的关键。鉴于此，重新思考城市基础设施的功能成为当前迫切需求。城市既可能是破坏生态环境的潜在风险，也可成为应对新的生态挑战的灵丹妙药。创新型城市战略必须着力于重塑诸如水和能源等重要资源的分配和消费方式，这也一直是千年以来城市形成的核心所在。而与社会“共融”相关的社会基础设施问题，则对达成公众共识、保障新理念的成功推行同样至关重要。南京明城墙绿道项目就是将古城墙作为新型基础设施利用的再思考。本研究在增进对社会准则的认知理解上做出了重要贡献，而对社会准则的充分认知则是南京明城墙绿道这类有深远影响的高标准项目保持长期成功运行的必然要求。

城市线性绿化景观的规划建设早在现代城市主义潮流中就已开始。长期以来，“绿带”一直是欧美城市发展理论中的重要策略，例如，在公园之间或为引入自然特性来建立联系的相关策略。纽约的 F. L. Olmsted 和伦敦的 E. Howard 留下的遗产逐渐演变成风靡 20 世纪的基础设施概念，如 F. J. Osborn 的《绿带城市》（1946 年版）。作为一个常见的英文术语，“绿道”出现于 1960 年代，并由 W. H. Whyte 在《最后景观》（1968 年版）中将其理论化。在过去半个世纪中，“绿道”一词逐渐成为城市绿色基础设施中最为人熟知的概念，其主要任务是重新利用 19 世纪遗留的基础设施，如已不使用的铁路路段或废弃的工业滨水区。“公园路”名下的绿道则是试图缓解 20 世纪以来城市空间被干道网等交通设施分割所带来的危害。

Cities have arrived at a next moment for green infrastructure. With unprecedented global urbanization and unprecedented global ecological risk, cities are key players in securing our future. Seen in this light, rethinking how our urban infrastructure functions is a priority. Cities are at risk to be casualties; but they also may be panaceas for the new ecological challenges. Innovative urban strategies must of necessity focus on reinventing distribution and consumption of resources such as water and energy, which have been at the heart of city formation for millennia. Also crucial are questions of social infrastructure related to *communitas*; to the kind of public consensus that is needed to insure the success of new concepts. Nanjing's greenway initiative is important for rethinking the function of its ancient urban wall as new infrastructure. And this study is a significant contribution to increased understanding of the social norms required for the long-term success of an ambitious project.

Linear urban green landscapes have a long history of deployment in modernist urbanism. In European and American urban theory the "green belt" has long been a prominent strategy, for example as linkage strategy between parks or for assimilation of natural features. The legacies of Frederick Law Olmsted in New York and Ebenezer Howard in London evolved into prevalent 20th century infrastructural concepts like Frederic J. Osborn's *Greenbelt-Cities* (1946). As a common English-language term "greenway" appears to date from the period of the 1960's and well-theorized by William H. Whyte in *The Last Landscape* (1968). During the last half-century, the term "greenway" evolved as the most ubiquitous concept for urban green infrastructure. Greenways were tasked with repurposing 19th century infrastructure such as unused rail cuts or abandoned industrial waterfronts. The greenway under the rubric of "parkway" would attempt to mitigate the hazards of 20th century urban traffic-related incisions such as highways.

在1930年代完成的长达3500km的东海岸Appalachian游径是北美最宏大的绿道景观。近年来，中国广东省建设了总长达2372km的绿道网，其连接了珠江口区域的众多工业遗址。这是目前中国最长的绿道网，它解决了土地再利用尤其是工业废弃地再利用的相关问题。该绿道网最终还将与香港和澳门的绿道系统相连。在北京，目前已建成长达710km的绿道，而未来在城市内河沿线还计划修建134km的绿道。四川省省会成都市、湖北省省会武汉市以及长三角区域的主要城市均已启动绿道规划建设，并已初见成效，南京市的绿道规划建设就是其中之一。但是，让南京绿道规划建设脱颖而出的则是绿道与明城墙的结合及其在文化层面的彰显。

在世界各地，老城墙已所剩无几。北美城市从未拥有过城墙，在欧洲，目前遗存规模最大的军事防御城墙位于法国卡尔卡索纳（Carcassonne，总人口4.7万人）。同等级别的其他“绿墙”案例还有意大利卢卡（Lucca，总人口8.4万人）或西班牙阿维拉（Avila，总人口5.8万人）。对于欧洲大城市而言，在20世纪城墙已消失殆尽，其中包括1929年被基本抹去的巴黎市外墙。相反的是，南京（总人口823万人）却仍坐拥长达25.1km的独特城墙基础设施，并有着与欧洲对应城墙截然不同的城市空间文脉。在中国，唯一可与之媲美的是西安（总人口847万人）的明城墙。但两地截然不同的气候条件使得“城墙绿道”战略仅在南京实施起来较为现实。而南京的城墙绿道建构战略以及对城墙沿线土地最优和最高效再利用的评价让人能被本研究所吸引。在城市总人口基本相当的纽约市有一处名

Completed in the 1930's, the 3,500 kilometer long Appalachian Trail on the East Coast is the most ambitious greenway landscape in North America. Recent examples in China include the 2,372 kilometer greenway chain in Guangdong tying together industrial sites along the Pearl River estuary. It is the longest in China and addresses the repurposing question, especially as relates to abandoned industrial sites. Eventually it will connect to greenways in Hong Kong and Macau. Beijing has built 710 kilometers of greenway with plans to build an additional 134 kilometers alongside its aqueducts. Similarly Chengdu, the capital of Sichuan Province; Wuhan, the capital of Hubei province; and several major cities in the Yangtze River Delta started their greenway projects and have reached their initial goals. Nanjing is far from alone in its greenway initiative. Its distinction, however, is its merging with the Ming Dynasty Wall and with an associated cultural dimension.

Little is left of old city walls anywhere. North American cities never had walls. In Europe, the largest remaining fortification walls are at Carcassonne (population 47,000) in France. Other "green wall" examples on that scale include Lucca (population 84,000) in Italy or Avila (population 58,000) in Spain. For larger cities in Europe, the walls disappeared by the 20th Century including the outer wall in Paris which was totally erased by 1929. By contrast Nanjing (population 8.23 million) still enjoys a unique wall infrastructure, at 25.1 kilometers length and within a vastly different context than European counterparts. The only comparable infrastructure in China is the Ming Dynasty Wall at Xi'an (population 8.47 million). But climate differences between the two cities make a "green wall" strategy realistic only at Nanjing. The strategy for "greening" at Nanjing makes this study interesting, together with evaluation of the best and highest re-use. In New York, which shares an equivalent population as Nanjing, perhaps a 20th century equivalent is the High Line elevated rail infrastructure, also recently repurposed as

为“高线”（铁路高架桥基础设施）的地方，在近年也被规划为城市公园，并可作为南京明城墙绿道的对照。虽然“高线”修建于20世纪，较明朝相距甚远，并且其2.33km的总长度在尺度上也相对更小，但并不妨碍两者相互分享和汲取各自的经验教训。

与“高线”一样，南京城墙也与城市的空间和社会肌理紧密交织，并将绩效提升视为绿色基础设施建构的重要策略。促进社会共融是下一代绿色基础设施的重要使命，这也必须与新的社区管理形式结合，因此，有必要从新的社会粒层来理解基础设施的空间文脉。本研究的一个开创性方面正与此问题相关。

鉴于城市在我们不断改变的生态环境中的重要性，共同利益的最大化将成为下一代绿色基础设施的关键问题，因为它对于维持设施运行效率，并在文化维度上激发出全新风貌至关重要。当然，如果在功能或土地使用方面处理失当，绿道将会损耗空间资源或需要过度维护，从而阻碍其正常运行和发展。本研究加大在社会层面的研究力度，也将为各个地区城市绿化战略实施功效的优化提升提供分析和借鉴。

本研究最显著的特征是将远程（无人机）监控与地面调查相结合，采集了新一代的数据进行分析，并成为基础设施研究的关键部分。通过在调查技术和分析手段上的创新，研究能深入掌握绿道的功能运转细节。数据涵盖了南京明城墙绿道沿线的6个典型区段，所有区段均位于公众可达条件下，每个区段以50m为基本单元被划分为20-30个研究“切片”。数据采集过程中，在具有代表性的季节和周天时段进行了超过100次（含预调研与6个区段正式调研合计次数）的调查。数据采集范畴包含了城墙绿道内、外部的公共空间特征以及与绿道使用相关的信息。数据被细分来研究要素之间的相互作用，以解读公共空间的功能共性，进而提取积极的作用因素，并对可能的功能修复策略加以探讨。虽然本研究时段以一年为限，但其发展出

a park, although its origins are obviously far from Ming Dynasty origins, and at 2.33 kilometers a far smaller scale. Yet there are likely lessons to be shared from both initiatives.

Like the High Line, the Nanjing wall is closely intertwined with the city's spatial and social fabric with heightened effectiveness as a green infrastructure strategy. Social propinquity is important to next generation green infrastructure, which must be integrated with new forms of community stewardship. Therefore infrastructural context must be understood at new levels of social granularity. A pioneering aspect of this study has exactly to do with this question.

Given the importance of cities in our changing ecological global context, maximized co-benefits of next generation infrastructure is essential for both efficiencies of maintenance and for encouraging the cultural dimension of a new world outlook. Of course there are obstacles given that greenways are space consumptive and require inordinate maintenance not fully justified by the function; or even justified in terms of land use. The heightened social dimension of this study provides analytics for improved effectiveness of urban greening strategies everywhere.

Most significantly this study deploys a new generation of data analytics to become an essential part of the infrastructure equation; through the deployment of remote (drone) surveillance in combination with ground surveys. A remarkable level of functional detail could be obtained and processed entailing innovation in survey technique and analysis. The data involved six typical segments along greenway, each of which was divided into 20 to 30 fifty-meter "slices" across the entire range of public access conditions. For data collection, more than 100 surveys were completed, distributed over a representative range of time of day and season. Data collected was inclusive of public space characteristics and use conditions inside, outside, and on top of the greenway walls. Data was decomposed into binary relationships between elements as a first step in understanding commonalities in public space function; positive attributes to be promulgated; and possible functional remediation strategies. While the study period was limited to a single year, it has developed techniques that could be adapted for the continuous infrastructure monitoring that will be more and more an essential for distributed infrastructural maintenance in cities everywhere.

了一套能够针对基础设施绩效进行持续监测的技术。值得注意的是，该类持续监测将在各城市基础设施的维护使用中变得日益重要。

在数据可视化方面的创新也是该研究的重要部分，如此一来将能方便社会公众认知和理解整个研究的过程和结果。归根结底，普罗大众才是将南京明城墙转型为下一代绿色基础设施的主要利益相关者。与世界各地城市居民一样，南京市民对城市绿色基础设施规划、设计、优化和重建的兴趣和参与是应对全球生态变化挑战的重要组成部分。

纽约市哥伦比亚大学地球研究院城市设计实验室对该研究尤感兴趣。在精神和方法层面，该研究与我们的基础设施调研有着很多共同点。该研究的发起人周聪惠副教授曾在2010–2011年以访问学者身份到访哥伦比亚大学城市设计实验室，并参与了当时正在进行的纽约布鲁克林区 Gowanus 运河修复和再利用课题，以及中国四川省泸州市古蔺县新城设施再生与规划设计课题。本次针对南京的研究很大程度上是对全球各城市共同关注问题和类似研究的更进一步探索。

理查德·普朗兹

哥伦比亚大学建筑学教授

哥伦比亚大学地球研究院城市设计实验室主任

（序言作者要感谢哥伦比亚大学城市设计实验室高级研究助理 Zhou Yijia 在本研究解读时的协助）

Innovation in visualization of data was also an important component of the study, such that the process and results can be easily understood by the general public who are, after all, principal stakeholders in insuring that Nanjing's walls fulfill their mandate as next generation green infrastructure. As with urban dwellers everywhere in the world, in Nanjing citizen interest and participation in infrastructure planning, design, optimization and reconstruction is an essential ingredient in meeting the challenges of global ecological change.

For the Urban Design Lab (UDL) at the Earth Institute at Columbia University in New York, this study is of particular interest. In spirit and method it shares much with our own infrastructural investigations. It is significant that this work has been initiated by Prof. Conghui Zhou, who was Visiting Scholar at the Urban Design Lab during the period 2010–2011. He participated in on-going UDL research on the remediation and repurposing of the Gowanus Canal in Brooklyn; and in explorations of infrastructural innovation for the Gulin New Town in Sichuan Province in China. This study for Nanjing is a significant further exploration of shared concerns - similar explorations by others in cities across the globe.

Richard Plunz

Professor of Architecture, Columbia University

Director, Urban Design Lab, The Earth Institute, Columbia University

（The author wishes to thank Yijia Zhou, Senior Research Assistant in the Columbia Urban Design Lab, for her assistance in researching aspects of this text）

前言 | PREFACE

“绿道”作为官方专业术语首次出现于 1987 年美国总统户外游憩委员会报告中，但其规划思想则可追溯到 19 世纪末美国的公园路规划及后续一系列相关实践探索。经过一百多年的发展，目前的绿道规划设计实践已整合了风景园林学、城乡规划学、生态学、地理学、游憩学等多个学科相关知识，并覆盖了建成环境和自然环境两大空间范畴。对比自然环境中的绿道，建成环境绿道通常是城市慢行系统的重要载体，与居民日常生活联系更加紧密，使用频率和密度需求也更高，但目前世界上对该部分绿道规划设计的相关研究还相对滞后，针对性的规划选线和设计实施技术参照也相当匮乏。

当前城市发展过程中资源与环境问题的日益加剧，迫使城市土地使用由以外延增量为为主的粗放低效方式向以内涵存量为为主的集约高效方式转变。在许多经济发达但城市人口密集、土地资源紧张的国家和地区，建成环境中的绿道在串联城市空间、整合城市资源、提升城市品质、带动城市更新方面的功能开始逐渐显现。在日本东京，有学者针对建成区中人口密度过高、资源紧张、环境恶化等问题提出了“纤维化”的绿廊建设计划，旨在通过统筹调控道路、遗址和街巷等建成区固有空间和设施来完成绿道精细化布局，达到空间整合、社会服务和生态改善的效果。新加坡则通过在高密度城市环境中建构多级绿道网，对城市用地、现有设施等进行最大整合，提升城市内部的连通度和用地效率。

As an official technical term, “greenway” first appeared in a 1987 report issued by President’s Commission on Americans Outdoors but its planning concept can date back to parkway planning in the United States (US) at the end of the 19th century and a series of following relevant practices and explorations. After more than 100 years of development, the planning, design, and practice of greenways has integrated relevant knowledge of multiple disciplines including landscape architecture, urban and rural planning, ecology, geography, recreation studies, and so on, and covers two spatial categories including built environment and natural environment. Compared to a greenway in a natural environment, the one in a built environment is usually a very important carrier of an urban slow-traffic system. It is more closely linked to residents’ daily life and in high demand with regard to frequency and density of use. However, relevant research on the planning and design of greenways in the world relatively lags behind at present, and the technical reference for targeted planning, design, and implementation are rather scanty.

With the increasing aggravation of issues related to resources and environment in urban development, urban land use has been reduced to transforming from the extensive and inefficient way that centers on extensions and increment to the intensive and highly efficient one that focuses on intension and stock. In many countries and regions that are economically developed but densely populated in urban areas with a shortage of land resources, greenways in a built environment have gradually emerged to serve as a link to urban space, integrate urban resources, improve the quality of urban areas, and drive urban renewal. In Tokyo, Japan, Olmo Hidetoshi has proposed a “fibrillated” greenway construction plan, which is aimed at overpopulation, resource shortage, environmental degradation and other such problems in built-up areas, for the purpose of completing a refined layout for the greenway through adjusting and controlling as a whole the inherent space and facilities in built-up areas including roads, historical relics, streets and alleys, so as to achieve the desired result of spatial integration, social services, and ecological improvement. Singapore has maximized the integration of urban land use, existing facilities and so on by constructing a multilevel greenway network in a highly dense urban built environment, so as to improve connectivity and land use efficiency inside a city.

但在操作层面，通过建成环境绿道合理的规划设计来实现服务绩效的最大化并非易事。一方面，由于绿道外向关联型的功能服务属性，其规划建设的集约程度或用地效率很难通过其自身的单位用地开发强度、土地经济产出效率等工业、商业类用地效率评价指标来进行衡量。另一方面，除满足自身结构合理性需求外，建成环境中绿道的规划设计和服务绩效还将受到城市用地格局、路网水网结构、城市人口分布等外部空间环境的影响，其中影响因素众多，作用方式也较复杂。

为此，从2013年开始我通过主持一系列国家和省部级科研课题的机会，围绕建成环境中绿色基础服务设施的规划建构与优化更新问题展开一系列研究，而对绿道服务绩效的界定与衡量、绿道空间布局的影响因素及其作用规律等方面的探讨就是其中的重要方向之一。幸运的是，在研究过程中，我还同时得到负责主持与该研究紧密相关的中心城绿道规划、设计以及调研类课题的机会，从而能及时在规划设计实践中对相关研究成果加以应用检验。南京明城墙绿道服务绩效调查分析及其内外空间特征研究就是其中的重要板块之一。

依托身在南京的便利条件，研究团队在对南京建成环境多条绿道进行预调研的基础上，锁定位于南京中心城区核心地段、内外部空间特征丰富的明城墙绿道作为研究对象。在南京明城墙绿道已建成并投入使用的西线和南线上选取了6个长度在1000m至1500m之间的典型区段作为调查和分析样本，并通

However, in terms of operation, it is not easy to maximize service performance through feasible planning and design of greenways in a built environment. On the one hand, due to its service functional attribute of external connection, it is very hard to measure the planning and construction intensity or land use efficiency of the greenway through its own industrial and commercial land use efficiency evaluation indicators including development, intensity of unit land use, output efficiency of land economy, and so on. On the other hand, apart from meeting feasible requirements of its own structure, the planning and design of the greenway in a built environment will also be influenced by external space and environment including urban land use pattern, the structures of road system and network of rivers, distribution of urban population and so on, among which there are many influencing factors and complex modes of action.

To this end, since 2013, the author has been conducting research on the planning and regeneration of green infrastructure in built environment, through scientific research projects including funding from the National Science Foundation of China, the China Postdoctoral Science Foundation, and other special funding. In the research, one of the key components is the definition and measurement of service performance of the greenway, influencing factors of spatial distribution of the greenway, and its functions and laws. Fortunately, in the process of research, the author has also had the opportunity to take charge of presiding over the planning, design, and research topics of central city greenways closely related to this research, so as to put into use and test relevant research results during the process of planning, design, and practice in time. One of the important sectors is survey and analysis of service performance of the Nanjing Ming Dynasty City Wall Greenway, and the study on the characteristics of both its interior and exterior spaces.

Relying on the convenience of being in Nanjing, our team focuses on the Nanjing Ming Dynasty City Wall Greenway as its object of study, which is located in the core area of downtown Nanjing and rich in internal and external spatial characteristics, based on

过多轮反复地使用人群信息采集、问题分析、信息补充等环节，用定量方法将绿道的服务绩效、内外部空间特征进行梳理和描述，并在此基础上将绿道服务绩效指标与其内部和外部空间特征指标进行关联分析，进而尝试从中发现绿道内外部空间特征对服务绩效的影响方式和作用规律，希望借此能为众多正在或即将开展的相关规划设计实践做出一些有益探索。

本书在表达上依托直观易懂的图解方式来展示研究思路、方法、过程和成果，除了希望它为相关科研人员和规划从业者提供些许有益的参照信息外，还寄予本书中的研究内容和成果易于被更多非专业人士，尤其是社会公众认知和理解，也期待借此激发广大社会公众对于身边城市公共空间品质的关注和兴趣，并更加主动地参与到所在城市公共空间的规划设计、优化提升和建设使用中来，从而共同推动我们所生活的城市朝着宜居和可持续发展方向不断前行。

a preliminary survey of and review on multiple greenways in the built environment of Nanjing. As samples of study and analysis, our team selects six typical segments (1,000m-1,500m in length) along the west and south lines of the Nanjing Ming Dynasty City Wall Greenway, which have been completed and put into use, and uses quantitative methods to put in order and describe the service performance and interior and exterior spatial characteristics of the greenway through multiple rounds of repeated use of user information acquisition, problem analysis, information supplement, etc. On this basis, our team conducts correlation analysis on the service performance indicators and interior and exterior spatial characteristics of the greenway, so as to attempt to find out how interior and exterior spatial characteristics of the greenway influence service performance, as well as the functions and laws of the greenway, in the hope of making some useful explorations for numerous relevant planning, design, and practice, which are or will be carried out.

In terms of expression, this book relies on a visual, straightforward, graphic method to exhibit study ideas, methods, processes, and results. In addition to hoping that this book can become a convenient bond through which relevant research personnel and planning and design professionals exchange their respective ideas and practices, the author also hopes that the study content and results in this book can be easily perceived and understood by more nonprofessionals, especially the public, by which their interests and concerns towards the quality of urban public space could be partly aroused and may be further attracted to throw themselves into, and participate in the planning, design, optimization, and reconstruction of urban public space like greenways so as to jointly promote the city where we live to move in the direction of sustainability and habitability.

目录 | CONTENTS

序言	FOREWORD	06
前言	PREFACE	10
总论	Introduction	003
什么是绿道	What is a greenway	004
建成环境中的绿道	Greenways in a built environment	009
为什么要关注建成环境中绿道的服务绩效与空间特征问题	Why should importance be attached to the spatial characteristics and service performance	012
研究的困难与挑战	Study difficulties and challenges	014
怎样开展本研究	How to carry out this study	018
研究对象的确定	Establishment of Study Object	021
为什么选择南京明城墙绿道	Why choose the Nanjing Ming Dynasty City Wall Greenway	022
怎样选取研究区段	How to select study segments	028
研究区段基本概况	Basic introduction of study segments	030
绿道服务绩效调查	Survey of Service Performance of the Greenway	045
怎样开展调查	How to conduct the survey	046
怎样采集人群使用信息	How to collect information on greenway utilization	048
调查方案	Survey plan	050

052	调查结果 Survey result
091	绿道内部空间特征分析 Characteristic Analysis of the Interior Space of the Greenway
092	什么是绿道内部空间 What constitutes the interior space of a greenway
095	怎样关联分析绿道内部空间特征与服务绩效 How to correlate and analyze the characteristics of greenway interior space and service performance
096	绿道内部空间特征与服务绩效分析 Analysis of characteristics of the greenway interior space and service performance
183	内部空间要素服务绩效分析 Analysis of service performance of key elements of the greenway interior space
223	绿道外部空间特征分析 Characteristic Analysis of the Exterior Space of the Greenway
224	什么是绿道外部空间 What is the exterior space of a greenway
226	怎样关联分析绿道外部空间特征与服务绩效 How to correlate and analyze the characteristics of greenway exterior space and service performance
228	外部空间特征与服务绩效关联分析 Correlation analysis of characteristics of greenway exterior space and greenway service performance
299	对规划设计的反思与讨论 Reflections and Discussions of Design and Planning
300	如何改良建成环境绿道的空间设计 How to improve space design of the greenway in a built environment
306	如何优化建成环境绿道的规划选线 How to optimize the greenway planning in a built environment
314	主要参考文献 MAIN REFERENCES
320	后记 AFTERWORD



总论

Introduction

什么是绿道

What is a greenway

绿道其实是在被城市快速扩张撕裂成破碎化的自然环境之间建立起来的稳定联系渠道,它通常覆盖建成环境与自然环境,以游憩为主导功能,并兼具生态保护、历史文化资源保护、城乡连接、社区生活品质改善等多种功能。

1987年,美国总统户外游憩委员会在户外运动报告中首次对绿道进行了官方描述,即“绿道是让我们每一个美国居民便捷地进入自然世界的依托和愿景。绿道是由地方所创造的绿指,它由社区伸出,能够连接并贯穿于美国境内的所有社区。它们

A greenway is a stable channel of connection built between natural environments, which are torn to pieces due to rapid urban expansion. It usually covers built environment and natural environment. With recreation as its dominant function, it also has a variety of functions including ecological protection, historical and cultural resources protection, connection between urban and rural areas, quality improvement of community life and so on.

In 1987, President's Commission on Americans Outdoors described greenways for the first time, "We have a vision for allowing every American easy access to the natural world- Greenways. Greenways are fingers of green that reach out from and around and through communities all across America, created by local action. They will

