

# 基于场所体验的空间营造

## ——深圳市国际山公园街区公共开放空间设计

### Placemaking Based on Site Experience

#### —Landscape Design of Parkhill Commons in Shenzhen

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#### 摘要

社区公园和街道等公共开放空间是居民日常进行社交和休闲活动的重要场所，其空间环境设计直接影响居民的场所体验。尽管已有较多学者从注意力恢复、压力舒缓等视角探究公共开放空间场所体验对使用者行为和身心的影响，但在设计实践中，这些理论成果较少被应用于相关设计实践中。本文以深圳市国际山公园街区公共开放空间设计项目为例展开探讨。项目团队梳理了相关研究成果，总结出具有健康促进作用的疗愈环境及社会资本友好型社区的相关空间特征；进而以此为设计目标，从空间分区、种植设计、服务设施、慢行街区方面制定了相应的设计策略，期望通过提升场所体验吸引和服务社区居民，创造富有活力、令人身心愉悦的公共开放空间，使社会效益最大化，进而形成具有凝聚力的慢行街区。项目建成后，项目团队通过实地回访了解了场地的实际使用情况和公众评价，评估了设计策略的成效。问卷调查和实地观察结果显示，项目的整体设计效果符合预期目标。本项目结论为社区级公共开放空间的设计实践提供了设计参考和依据，以期促进相关理论研究与设计实践的有效衔接。

#### 关键词

社区公园；场所体验；公共开放空间；空间感知；注意力恢复；户外活动；慢行街区

#### ABSTRACT

Placemaking of public open spaces, such as community parks and streetscapes that are foundational to residents' daily social and recreational life, can significantly influence their site experience. Scholars have explored the influence of such kind of experience on users' behavioral, physical, and mental conditions from multiple perspectives including attention restoration and stress reduction. However, the findings are seldom applied in practice to convey certain design concepts. This article introduces the landscape design project of Parkhill Commons in Shenzhen. The project team reviewed relevant research findings, and characterized the health-promoting restorative environment and social-capital-friendly communities. Accordingly, strategies for activity zones, planting design, service facilities, and slow-traffic neighborhoods were proposed to enhance site experience and serve nearby residents by creating vital and pleasant community-level public open spaces, and to maximize the social benefits and reinforce community cohesion. After completion, the project team has investigated the site usage and the public's evaluation, in order to stimulate reflections on design strategies. Results from the questionnaire survey and field observation show the effect of placemaking strategies on users' site experience. This article provides references for placemaking practice of community-level public open spaces and is expected to help bridge the gap between theoretical research and design practice.

#### KEYWORDS

Community Parks; Site Experience; Public Open Spaces; Spatial Perception; Attention Restoration; Outdoor Activities; Slow-Traffic Neighborhoods

## 1 设计背景

社区公园和街道等公共开放空间是城市居民日常生活中主要的活动空间。通过提升公众在使用过程中获得的场所体验，能够促进公共健康、提高生活满意度，从而增强社区活力。已有较多学者探究了社交活动促进<sup>[1]</sup>、环境设计与安全感<sup>[2][3]</sup>、注意力恢复<sup>[4]</sup>、压力舒缓<sup>[5]</sup>、自然氛围营造<sup>[6][7]</sup>、体育活动与建成环境<sup>[8]</sup>等相关理念和措施，为社区级公共开放空间的设计实践提供了理论基础。

然而，在相关设计实践中，设计师倾向于通过主观的文字描述或抽象的艺术手法来呈现设计理念，较少传达设计元素的必要性；在落实过程中，由于缺乏可被公共感知与认可的设计途径，一些优秀的设计理念不被重视，甚至无法落地；在项目建成后，设计师也欠缺对使用者场所体验的经验总结。

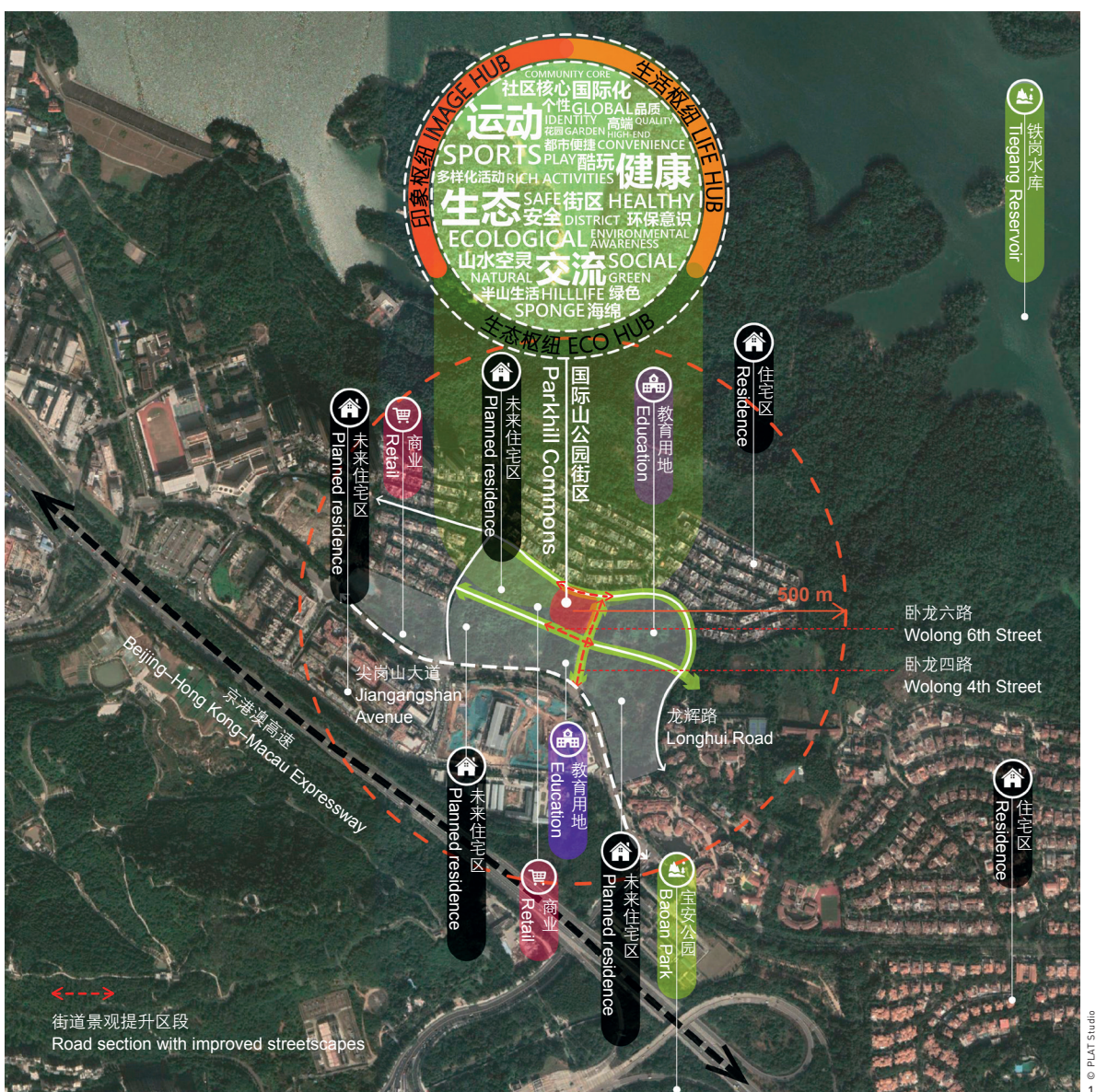
为回应上述问题，本文以深圳市国际山公园街区公共开放空间设计项目为例展开探讨。该项目依据既有研究成果设定设计目标，制定了能够提升场所体验的设计策略；建成后，项目团队通过实地回访了解场地的实际使用情况和公众评价，对设计策略进行总结，以期促进相关理论研究与设计实践的有效衔接。

## 2 场地介绍

项目位于深圳市宝安区，包含新建的国际山公园（总面积约4 000m<sup>2</sup>）和改建的社区街道景观（总面积约7 860m<sup>2</sup>）两部分。项目场地现为次生林所覆盖，南北高差约5m，靠近水库和茂密林地，小气候环境宜人。项目主要服务于周边500m范围内的在建高密度居住区和现状低密度居住区的各年龄段居民。因场地紧邻学校与幼儿园，设计方案特别考虑了儿童及代际同住家庭的使用需求。周边现状道路均为车行道，无临街休憩场地，慢行体验不佳。整体而言，项目场地内社区级公共开放空间极为匮乏，难以满足新开发区域居民的使用需求（图1）。

## 3 场所体验相关理论研究成果

为提升居民在社区级公共开放空间中的场所体验，项目团队梳理相关研究成果，总结了具有健康促进作用的疗愈环境及社会资本友好型社区的相关空间特征。



1. 项目场地及周边用地规划  
1. Location map of Parkhill Commons

在注意力恢复理论（Attention Restoration Theory, ART）中，斯蒂芬·卡普兰提出了疗愈性空间的四种自然环境特征——远离感（Being Away）、魅力（Fascination）、兼容性（Compatibility）和延展性（Extent）。其中，远离感指空间能够让使用者脱离日常生活节奏，得到放松；魅力指空间通过丰富的自然要素吸引人们注意的能力，通过恢复主动性注意力缓解精神疲劳；兼容性指空间可支持不同类型活动的开展；延展性指空间本身具有丰富且连贯的内容<sup>[9]</sup>。在压力舒缓理论中（Stress Reduction

Theory），罗杰·乌尔里奇表示，以树木及其他植被和水景为主的自然景观有助于减轻人们在压力下产生的症状<sup>[10]</sup>。此外，大量研究已证实，城市中的自然元素（特别是树木）对于公众心理健康具有促进作用<sup>[4][11][12]</sup>。

社区级公共开放空间是邻近居民最易使用的场地，承载着强化社区纽带、促进邻里交往的功能。设计可通过营造开阔的视野和秩序井然的景观空间，形成“关怀线索”（cues to care）以吸引“街道目光”（eyes on the street），提高人们的安全



- ① 半山生活馆  
Hill-Life Hall
- ② 旱喷广场  
Dry Fountain Plaza
- ③ 海绵绿地  
Sponge Lawn
- ④ 生态绿阶  
Eco-Stairs
- ⑤ 园景树 (乌桕)  
Landscape tree (*Triadica Sebifera*)
- ⑥ 酷玩坡地  
Play Terrace
- ⑦ 旋风球场  
Storm Court
- ⑧ 打卡标识墙  
Entry signage
- ⑨ 运动风向标  
Wind Vanes
- ⑩ 绿波雨水花园  
Wave Rain Garden

2. 国际山公园设计方案平面图  
2. Site plan for Parkhill

感<sup>[13]</sup>，保证场地活力；创造“席坐景观”（sitting landscapes）<sup>[14]</sup>，鼓励居民主动选择慢行出行方式，增加社交机会<sup>[15]</sup>。此外，通过提升环境的美学价值和可达性，也可以增加社区居民的户外活动量<sup>[16]</sup>。

## 4 设计策略

面对场地异形、高差大、总面积小，以及服务人群数量大且多样等挑战，设计方案基于生态功能和经济效益层面的考量，期望通过提升场所体验吸引和服务社区居民，创造富有活力、令人身心愉悦的公共开放空间，使社会效益最大化。

### 4.1 空间分区

首先，在公园内建设旱喷广场、海绵绿地、生态绿阶、酷玩坡地（2~14岁）、旋风球场，以及绿波雨水花园六个不同功能的空间，以满足社区居民多样化的使用需求。在空间划分上，为了消纳场地高差显著及不规则的边界形态，设计通过攀爬坡、草坡、台阶、座阶、挡土墙等竖向设计元素将场地划分为三层台地结构（图2）。

对于紧邻街道的小型社区公园而言，水声是减少交通噪音干扰、增强场所体验的有效途径<sup>[17]</sup>。因此，项目团队在旱喷广场设置了旱喷与镜面水结合的人造水景，期望喷泉开启时能够吸引儿童与水互动玩耍；关闭后也能成为日常活动的空间（图3~5）。

海绵绿地为35m×22m的开敞空间，在外围设置“观察—参与—休憩”的过渡空间，以期增加人们在此停留和活动的空间。海绵绿地连同旱喷广场与生态绿阶，不仅串联起了半山生活馆室内空间与公园的轴线式开放空间，而且在场地南部组成了一个剧场式空间，提高了社区活动的多样性和场地活力（图6）。

在公园中部，设计利用场地高差构建了酷玩坡地与旋风球场，形成了相对独立的的活动空间。其中，酷玩坡地的设计依据来源于一项针对深圳8个儿童游戏场地开展的研究<sup>[18]</sup>。研究显示，在沙地上布置复合功能区对儿童游戏行为的支持度较高。而旋风球场占地约400m<sup>2</sup>，是公园内唯一的硬质运动场地。地面及墙面上的抽象图案和划线提示人们场地不只为篮球运动而设立，不同年龄段的居民能够于

不同时段在此进行多样化的活动（图7）。

在公园北侧，绿波雨水花园是面向林荫街道开放的半围合被动活动空间，微微起伏的地形与层次丰富的植被赋予其相对安静的半私密氛围。

与此同时，设计还考虑了各个功能空间的场所界定和视线连贯性。每个活动分区都通过丰富的植物来划定边界，不仅在一定程度上保留了场地原有的山林体验，也有利于削弱周边交通噪音。此外，不同高程的台地空间能使街道与公园、公园内部不同功能区域之间形成多向互看的条件，为使用者营造轻松和安全的空间氛围。例如，在酷玩坡地活动场地周边和高层平台设置座椅，给家长提供了既可观察孩子活动又不影响孩子自主玩耍的空间。旋风球场利用地形高差和座位设置，为运动者和其他人提供互看的机会；球场以绿篱和挡土墙围合，可防止篮球飞出；二层走廊和外部社区街道视线相通，加强了场地内外的视线连贯性（图8）。

### 4.2 种植设计

根据ART理论，如果人们所接触到的自然环境具有柔引力——魅力的一种类型——那么他们就



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能因暂时逃离生活压力而获得远离感，促进注意力恢复<sup>[41][9]</sup>。在场地中，项目团队通过地形阻隔和植被遮挡创造出了一些具有柔引力的独立小空间供使用者安静自处、获得休息与放松。设计选用具有独特气味的灌木，如洋紫荆（*Bauhinia variegata*）、九里香（*Murraya exotica*）、紫娇花（*Tulbaghia violacea*）和具有鲜明季相特色的乔木，如粉红钟花（*Handroanthus impetiginosus*）、乌桕（*Triadica sebifera*）、小叶紫薇（*Lagerstroemia parviflora*），围合静谧空间，创造疗愈性环境所需条件（图9）。

研究表明，竖向搭配丰富的植被群落对人类

健康具有促进作用<sup>[19]</sup>。设计通过局部保留现状大型乔木，增加地被层和由季相变化显著的乡土植物组成的中间层，丰富竖向植被搭配。同时，亦有研究表明，当社区的树冠覆盖率从较低水平增加到26.45%时，居民的心理压力得到了一定的缓解；但当树冠覆盖密度继续增长后，对心理压力的缓解程度并未持续增加<sup>[20]</sup>。因此，项目团队并没有一味地追求高密度的乔木空间，而是巧妙利用地形，前后借景，将分割空间的植物带宽度控制在恰能种植乔木的1.5m。

研究表明，低矮茂密、杂乱且缺少维护的植被

3. 喷泉关闭时，水景展示出镜面效果。
4. 喷泉开启时，水声有助于减少交通噪音。
5. 一名儿童在家长的保护下伸手触摸水景。

3. The water feature displays a reflecting surface when the fountain is shut off.
4. The sound of the fountain helps drown out traffic noise.
5. A child reaches out to touch the water under the protection of her parent.

与犯罪行为正相关<sup>[21][22]</sup>。为增强场地使用者的安全感，除有防护需求的篮球场、台地边界绿篱外，乔木下方低矮地被高度控制在1m以下；同时选用易养护的植物种类，以减少因养护不足导致的植被蔓生问题（图10，11）。

#### 4.3 服务设施

研究发现，在深圳小微公共开放空间中，相比于硬质铺装，人们更偏爱在活动草坪休憩或开展体育和社交活动<sup>[23][24]</sup>。而通过在草地边缘种植大树则能从视觉上营造出更加绿色的自然环境氛围<sup>[25]</sup>。项



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6. 由西侧半山生活馆与东侧植被覆盖的生态绿阶围合而成的开敞草坪空间是承载社区活动的舞台和重心。

6. Sponge Lawn located between Hill-Life Hall to the west and Eco-Stairs to the east acts as a stage and anchor to Parkhill Commons.

目团队将海绵绿地定位为这类活动草坪空间，为其规划了多种规模、类型的活动使用情景及季节性活动建议，以满足不同人群的使用需求（图12）。

儿童游乐设施应当支持儿童活动的多样性<sup>[26][27]</sup>，并且不同类型的游乐设施可以引发儿童不同的行为：如可供多人共同参与的有助于鼓励儿童之间的协作，而沙坑中的搭建游戏能有效激发儿童想象力的交流与碰撞<sup>[27]</sup>。据此，项目团队在酷玩坡地构造了复合功能玩耍环线：通过攀爬设施和滑梯连接两个高程平台上的各类游乐设施，构建面向多年龄段、高密度且互相串连的游乐设施组合和路线设计，增强场地的延展性和兼容性（图13，14）。此外，依据既有研究成果<sup>[28]</sup>，本项目将游乐设施与种植景观相结合，引导儿童开展游戏活动：如酷玩坡地的树屋赋予了儿童近距离观察、触摸树木的机会；生态绿阶上点植的开花树木指引出S型线路，儿童可以在其间躲藏、奔跑、攀爬、拾捡花瓣等。

研究表明，公共空间中户外家具的形式对小微

公共开放空间的活力有显著影响<sup>[29]</sup>。家具本身的多样性及其与空间的互动细节设计，有助于提升场地的空间兼容性，更灵活地满足不同人群的需求。本项目中，团队设计或选择了九种形式的桌椅形式，分布在各个功能区。长凳的宽度为70cm或90cm，也可用作侧桌。单人可移动座椅设计为90cm宽，可供两人亲密共坐；宽大的扶手和额外的座椅宽度也可用于放置物品。这些座椅平时围放在草地西北角的大树下，在举办大型活动时可根据活动需求重新摆放（图15）。

#### 4.4 慢行街区

慢行街区的建立有助于增加居民间的社交机会，增进社区凝聚力。研究表明，老年人倾向于在宽阔的人行道上行走，并在此进行积极的体育锻炼<sup>[30]</sup>。此外，导向性良好的街道空间能够增强人们（特别是老年人）步行或开展其他户外活动的意愿<sup>[31]</sup>。因此，社区街道的设计方案将卧龙六路原本仅1.5m宽的人行道加宽至4.2m，在所有道路补植行

道树以增加街道林荫空间，同时设置座椅，改善人行道的照明系统，在促进老年人步行<sup>[32]</sup>的同时提升居民采取慢行方式出行的场所体验。此外，项目还在街道中设计了由风向标、导视柱、标牌等设施组成的标识系统，可以帮助居民轻松认路。风向标位于公园的制高点街角，以剪影的形式展示出人们能在公园中开展的各项活动。这种带有社区空间象征意义的符号也有助于增强居民的社区认同感（图16）。

## 5 场地回访

在项目建成约半年后，项目团队于2021年12月初通过问卷访谈与实地观察的形式进行了场地回访。回访时间为天气晴好的三个工作日及两个休息日（10:00~19:00），休息日期间公园海绵草地曾举办对公众开放的游园活动（14:00~19:00）。

一对一问卷调查共收回有效问卷91人份（女52人，男39人，年龄跨度为13~75岁），其中83人参与了随后的访谈。所有受访者均为自愿，且在调查开始前预先被告知研究目的，其个人隐私信息不会被泄漏；所有未成年人均在监护人陪同下接受调查及访谈。

调查问卷询问了受访者的公园使用频率，以及他们在公园中的场所体验。根据问卷结果，约85%的受访者与孩子同行，约63%为附近居民，约44%为首次来访（图17）。在后续访谈环节，调查人员进一步询问了受访者的场所体验。通过将收集到的反馈进行关键词提炼，归类合并后可总结出使用者的场所体验特征。例如，对于场地内的自然景观，有数位受访者提到了“环境好”“舒适度高”“安静休闲”等描述疗愈性环境特征的用词；对于海绵绿地，使用者认为其“空间大”“舒服”“有社区感”，反映出这一开放空间具有较高的兼容性；有多位家长认为酷玩坡地视线通透，活动类型丰富，孩子乐于玩耍的时间较长（大于2h），家长在监护的同时还能与其他家长社交；而对于两位分别于工作日错峰来场地打球的受访者而言，在旋风球场这样环境好、独立的户外球场打球“很解压”。在访谈环节无受访者直接提及标识系统，因此各类标识系统对场所体验的作用仍有待进一步研究。

在回访覆盖时间段内，项目团队按照公园功能分区与街道划分观察区，记录各区域内使用人数与其活动内容，每小时进行一次。可以发现，周末

各区域的使用人数均明显多于工作日。项目团队预想的多种活动在各区内均有出现，如发生在酷玩坡地玩耍的儿童有序排队、互相帮助、协作玩耍等情景；发生在旋风球场的羽毛球、太极扇、儿童小轮车等运动；发生在雨水花园和生态绿阶的被动休闲活动；发生在海绵绿地上的活动类型最为丰富，包括野餐、露营、晒太阳、散步、聊天及其他各类主题活动等。

在人群活动的分布上，可以发现使用者并未被局限在某一特定区域（表1）。如儿童活动虽然主要发生在酷玩坡地，但在其他各个观察区也有分布。在视线通达性方面，监护孩子的家长不仅大量分布在酷玩坡地的高层平台上，也常见于海绵绿地及其东西两侧的大楼梯上；旋风球场二层走廊上往往能吸引人们驻足观看场内的活动。在设施选择方面，观察结果显示，相比于固定的座椅形式，人们会优先选择可移动家具组合；野餐桌椅使用度较高，可不时观察到人们在此小憩用餐；在旱喷广场水景旁的座椅就座率也较高。

综合而言，设施丰富、具有强延展性的酷玩坡地使用率最高；使用者通常在自然环境优美、可提供远离感且具有柔引力的绿波雨水花园和生态绿阶中进行被动休闲活动；最具兼容性的海绵绿地容纳、吸引了最多人群类型，并且支持多样活动的开展。这样的使用情况与设计预期基本相符：功能性场地服务于特定的人群，复合型空间对不同类型的

人群和活动都具有吸引力。从各个年龄段使用者的积极评价和描述，以及实地观察到的丰富活动形式来看，使用者在场地中呈现了放松身心、玩耍锻炼、享受社区生活的状态，这些都是本项目社会效益的直接体现。

## 6 经验总结与反思

本项目基于现有理论研究制定了场所体验的设计策略，调查回访验证了项目的整体设计效果符合预期目标，一些空间（如酷玩坡地）的受欢迎程度甚至高于预期。然而，项目建于一块空地之上，因而无法进行设计前后的场所体验和各类绩效对比；加之目前周边居民区建设尚未完工，通过场地回访获得的使用者反馈并不能涵盖所有目标人群。此外，场地周边类似户外活动设施与场地的稀缺、游园活动的策划等因素均可能影响回访结果。例如，在大型活动期间，活动内容可能超越空间本身成为吸引使用者的主要因素。

在实践中，项目团队还发现部分研究成果过于概括化，较难支撑对空间布局、设施布置、材料选择、种植设计等设计细节的决策。未来，项目团队将持续跟进本项目的使用状况，采用更科学的调研方法、从较长的时间跨度上分析使用者的真实体验和感受，以期更好地为相关研究与设计实践提供参考。LAF

## 项目信息

项目地址：中国广东省深圳市

项目面积：约11 860m<sup>2</sup>

项目委托：深圳万科

景观设计：PLAT事务所

设计团队：廖德轩、王诗婷、蓝仕霖、高梅、秦晓晴、霍思汀、隋虎、彭静、华英华、Iris Soh、王瀚宇、Sophanut Jamonak、李翔宇、孙一诺、Katrina Ortiz、钟炜娟

合作团队：深圳万科景观团队、深圳本末度景观设计有限公司、广州普邦园林股份有限公司、深圳市华汇设计有限公司、筑博设计股份有限公司

设计时间：2020年11月~2021年4月

施工时间：2021年4~6月

建成时间：2021年6月

7. 在没有篮球活动的时间段，老年居民在旋风球场演练太极拳。
8. 适度的树冠覆盖率保证了场地中各功能分区间视线的通透性，赋予使用者安全感。
7. The elderly play Tai Chi fans at Storm Court when there is no basketball activity.
8. A moderate tree canopy coverage can enhance the visual continuity of the site and guarantee the sight lines across various activity zones, providing visitors a sense of safety.



## 1 Design Background

Public open spaces such as community parks and streetscapes are foundational spaces for urban residents' daily life. Enhancing the site experience in public open spaces can promote public health, improve life satisfaction, and contributes to community vibrancy. Scholars have explored concepts and measures from perspectives of social encouragement<sup>[1]</sup>, environmental design and the sense of safety<sup>[2][3]</sup>, attention restoration<sup>[4]</sup>, stress reduction<sup>[5]</sup>, creating natural atmosphere<sup>[6][7]</sup>, and associations between the built environment and physical activities<sup>[8]</sup>, which have provided a theoretical basis for the placemaking practice of community public open spaces.

However, in practice, designers prefer employing subjective descriptions or abstract artistic methods to present design concepts while seldom conveying the necessity of incorporating certain design elements. In construction, due to the lack of widely-perceived and recognized design approaches, some excellent design concepts are undervalued or rejected. After completion, designers may not reflect on users' site experience.

In response to these problems, this article

introduces the landscape design project of Parkhill Commons in Shenzhen, which learned from existing research findings to develop design purposes and strategies that can maximize the site experience. After completion of the project, the project team has investigated park usage and the public's evaluation, in order to stimulate reflections on design strategies. These findings are expected to help bridge the gap between theoretical research and design practice.

## 2 Site Introduction

Parkhill Commons in Baoan District, Shenzhen, covers Parkhill (about 4,000 m<sup>2</sup>) and its neighboring streets (about 7,860 m<sup>2</sup>). With secondary woods, and close to a reservoir and dense forest, the site has a pleasant microclimate with an elevation change of about 5 meters from north to south. Parkhill mainly serves residents of all ages who live within a 500-meters range in the planned high-density and the existing low- and medium-density communities. To better serve a nearby school and kindergarten, the design scheme particularly takes the needs of children and multi-generational families into consideration. Existing streets served only vehicles and lacked open space, resulting

in an unwelcoming experience for cyclists and pedestrians. On the whole, the previous community-level public open spaces were too scarce to accommodate residents' needs in the newly developed Parkhill Commons (Fig. 1).

## 3 Theoretical Research Results on Site Experience

To enhance residents' site experience in community-level public open spaces, the project team reviewed relevant research findings to characterize the health-promoting restorative environment and social-capital-friendly communities.

In Attention Restoration Theory (ART), Stephen Kaplan proposed four characteristics

9. 富有层次的植被遮挡围合，形成了静谧的疗愈性环境。
10. 生态绿阶通过间植的粉红钟花来提供林荫、丰富空间变化；片植的低矮多年生地被在丰富植被群落竖向搭配的同时保证了视线的通透性。
9. A quiet restorative environment is formed by enclosed and layered vegetation.
10. Eco-Stairs provides shades and diverse spatial experience with *Handroanthus impetiginosus*. Understory covers planted in belts enrich the diversity of vertical vegetation while ensuring an open viewshed.



of restorative natural environments, i.e. Being Away, Fascination, Compatibility, and Extent. Being Away means that the space allows people to get distance from their daily routines and to relax. Fascination is the capacity of a space to capture people's attention through intriguing natural elements, where people can recover from mental fatigue by resting directed attention. Compatibility means that the space can support diverse activities. Extent refers to the coherent content of a substantial scope in the environment<sup>[9]</sup>. In Stress Reduction Theory, Roger Ulrich suggested that certain natural settings dominated by trees or water can help reduce the physiological signs of stress<sup>[10]</sup>. In addition, a large number of studies have verified that urban natural elements, especially trees, are conducive to the public's mental health<sup>[4][11][12]</sup>.

Community-level public open spaces are the most accessible sites for nearby residents, which can reinforce community interaction and cohesion. Intentional design can enhance people's sense of safety and bring vitality to the site by creating an open viewshed and well-maintained landscape, an approach aiming at drawing more "eyes on the street" through "cues to care"<sup>[13]</sup>. By providing "sitting landscapes"<sup>[14]</sup>, public open spaces can encourage residents to choose slow traffic (i.e. walking or biking), which therefore will increase social contact<sup>[15]</sup>. Moreover, enhanced aesthetic value and accessibility can also promote residents' outdoor activities<sup>[16]</sup>.

#### 4 Design Strategies

In response to challenges of irregular boundaries, elevation differences, limited size, and a relatively large number and wide range of users, the design scheme strived to enhance site experience and serve nearby residents by creating vital and pleasant community-level public open spaces. The design strategies may



11. 下木植被除防护性绿篱外，均为易养护、低矮疏朗的灌木和地被。

11. Except for protective hedges, low and sparse shrubs and understory covers that are easy to maintain were selected for the underwood.

maximize the social benefits while considering the ecological and economic performance.

#### 4.1 Activity Zones

The project designed six activity zones to meet the diverse needs of users: Dry Fountain Plaza, Sponge Lawn, Eco-Stairs, Play Terrace (for children aged between 2 and 14), Storm Court, and Wave Rain Garden. In dealing with the elevation differences and irregular boundaries, the site was divided into three primary terraces by vertical design elements such as climbing slopes, grass slopes, steps, seating stairs, and retaining walls (Fig. 2).

Research has proven that the sound of water in small-scale community parks near streets can effectively drown out traffic noise and enhance site experience<sup>[17]</sup>. The project team introduced a Dry Fountain Plaza with a water feature contrasting a still surface with low bubbling

elements. The water feature sits at grade, encouraging children's interaction with water. When the fountain is shut off, the plaza can become a space for daily activities (Fig. 3 ~ 5).

The Sponge Lawn is an open space covering an area of 35 m × 22 m. At its edges, a transitional space was designed to encourage users to observe and participate in activities or stay awhile. The lawn, Dry Fountain Plaza and Eco-Stairs form a linear sequence of spaces that connects the Hill-Life Hall and creates an amphitheater in the south, providing a variety of activities and enhancing the site's vitality (Fig. 6).

The two recreational spaces—Play Terrace and Storm Court—were created to maximize the playing space for users given the steep elevation change. Play Terrace was designed according to research on eight children's playgrounds in Shenzhen<sup>[18]</sup>, which finds that a multi-use



12. 公园开放并投入使用后，海绵绿地在周末常常被用于举办主题活动，活动内容包括运动会、帐篷节、音乐节、游园会、集市、长桌烧烤等。

12. After being open to the public, Sponge Lawn has supported a series of themed activities on weekends, including sports, tent festivals, music festivals, carnival, fairs, and barbecues.

12  
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playing area arranged on a sandpit can better support children's play behaviors. Storm Court, with an area of 400 m<sup>2</sup>, is the only hard-paved sports field in Parkhill. The mural and bright ground striping invite residents of all ages and embrace activities more than basketball throughout the day (Fig. 7).

In the north of Parkhill, Wave Rain Garden is a semi-enclosed space for passive activities which faces the shaded street. The slightly undulating topography and rich layers of vegetation add a relatively quiet and semi-private atmosphere to the site.

In addition, the design used abundant plants to outline the boundary of each activity zone and enhance the visual continuity of the site. In this way, the design preserved part of the natural experience provided by the previous woodland which helps reduce the surrounding traffic noise. Furthermore, the design of terrace spaces at different elevations improves the viewshed of

the street, Parkhill, and different activity zones, creating a relaxing and safe spatial atmosphere for users. For example, seats were arranged around activity space and the upper platform of Play Terrace, which provides more space for parents to watch over their children without affecting their play. In Storm Court, the design of elevation difference and seats layout offers an open view for the users; the court is enclosed by hedge and retaining walls, which can ensure the playing safety; the open viewshed between the upper platform and the surrounding sidewalk also enhances the visual continuity of the site (Fig. 8).

#### 4.2 Planting Design

According to ART, when people expose to natural environments with soft fascination—a type of fascination of nature—they can feel a sense of being away due to temporary escape from stress of daily life, which would facilitate

attention recovery<sup>[4][19]</sup>. On the site, the project team has provided separated small spaces with soft fascination for residents to rest and relax through the creation of topographical barriers and plant shading. The design added fragrant shrubs such as *Bauhinia variegata*, *Murraya exotica*, *Tulbaghia violacea*, and trees with seasonal landscape effects such as *Handroanthus impetiginosus*, *Triadica sebifera*, and *Lagerstroemia parviflora*, to enclose intimate spaces that serve as restorative environments (Fig. 9).

Research shows that heterogeneity in vertical planting design can promote human health<sup>[19]</sup>. The design enriched the diversity of vertical vegetation by partially preserving the existing large trees, and adding understory layers and intermediate layers composed of native plants with obvious seasonal changes. Meanwhile, research also shows that individuals' psychological distress relieves when the tree



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13

canopy coverage reaches 26.45% from a lower level; but as the tree canopy coverage further increases, the psychological distress symptoms barely improve<sup>[20]</sup>. Therefore, the project team did not pursue high density of tree canopy, but wisely used the topography and viewing

borrowing and controlled the width of the planting strips within 1.5m for tree planting.

Studies also show that low, dense, messy, and poorly maintained vegetation is positively correlated to criminal behaviors<sup>[21][22]</sup>. In order to ensure a sense of safety, the understory plants

are below one meter in height, except the hedges around the boundaries of Storm Court and Play Terrace boundary for protection purposes. Plant species that are easy to maintain were selected to reduce vegetation sprawling that may be caused by insufficient maintenance (Fig. 10, 11).

Considering factors such as texture, seasonal changes, smell, and maintenance requirements, the design finally selected 18 ground covers species that are diverse in shape and texture, and free toxic, including *Melinis minutiflora*, *Belamcanda chinensis*, *Breynia disticha*, *Asclepias curassavica*, and *Brickellia eupatorioides*. They increase the abundance of vegetation communities and provide children opportunities to touch and smell the fragrance.

#### 4.3 Service Facilities

Research has found that in small- and micro-scale public open spaces of Shenzhen, people prefer lawns rather than hard pavement for recreational, exercising, and social activities<sup>[23][24]</sup>. Moreover, lining big trees on the edge of the lawn can visually create a greener natural environment<sup>[25]</sup>. On this basis, the project team proposed a Sponge Lawn to serve seasonal activities of varied scales and types that could satisfy all groups' needs (Fig. 12).

As for children's playground, it is necessary to support a wide range of activities<sup>[26][27]</sup> and encourage a variety of movement and play options with corresponding types of play facilities. For example, activities that engage multiple players can foster collaboration, while building games in sandpit can fuel imagination and social interactions<sup>[27]</sup>. The design introduced a Play Terrace where the climbing facilities and slides connect other facilities set on two terraces of different elevations. The densely distributed facilities can easily combine with each other and create diverse movement lines, expanding the extent and compatibility of the site by serving children of all ages (Fig. 13, 14). Guided by previous research findings<sup>[28]</sup>, this design also



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14

13. 在不同高程的酷玩坡地与海绵绿地，人们的视线穿透丰富的植物边界，可以多向互看，营造出轻松和安全的空间氛围。
14. 酷玩坡地的游乐设施间形成了多个玩耍环线，有助于增加儿童体力活动强度和活动时间。
13. The different elevations of Play Terrace and Sponge Lawn allow people to observe each other through abundant vegetation boundaries, creating a relaxing and safe spatial atmosphere.
14. Diverse moving lines created through varied facilities in Play Terrace can increase the intensity and duration of children's physical activities.

introduced natural elements to Play Terrace to stimulate more activities, including close observation and touch of trees via the tree house, and hide and seek, running, climbing, and picking up petals on the S-shaped route indicated by several flowering trees at Eco-Stairs.

It is also proven that forms of the outdoor furniture can significantly influence the vitality of small- and micro-scale public open spaces<sup>[29]</sup>. Diverse forms of furniture with innovative design for people's interaction with space is conducive to embracing a wider range of users. The project team designed and selected nine types of tables and chairs for different zones. For instance, benches with a width of 70 or 90 centimeters can serve as a side table. The 90-centimeter wide movable chairs allow two persons to sit together closely. Their wide armrests and large seating space are also suitable for placing items. During events,

these chairs, usually put under the tree in the northwest corner of the lawn, can be rearranged to fit the needs (Fig. 15).

#### 4.4 Slow-Traffic Community

The establishment of slow-traffic neighborhoods can help increase social interaction and promote community cohesion. Research has shown the elderly's preference for wide sidewalks to walk and participate in active physical exercises<sup>[30]</sup>. In addition, well-guided streetscapes will encourage residents, especially the elderly, to walk or take part in other outdoor activities<sup>[31]</sup>. Therefore, the project widened the sidewalks of Wolong 6th Road from 1.5 to 4.2 meters. By adding street trees shading, installing seats, and improving the lighting system of the sidewalks, not only walking opportunity of the elderly<sup>[32]</sup> can increase, but also residents' site experience of slow-traffic will be enhanced. Moreover, a signage system consisting of wind

vanes, guide posts, and information signs was designed to show the way. The wind vanes locate at the highest corner, displaying silhouettes of various activities that could occur in the site. Such structures with symbolic meanings of the community can also enhance residents' sense of identity (Fig. 16).

#### 5 Return Visits to the Site

In early December 2021, about half a year after construction was completed, the project team made return visits to the site for a questionnaire survey and field observation. The survey was conducted on three sunny weekdays and a weekend from 10:00 to 19:00, when there were open-day activities held from 14:00 to 19:00 on the weekend on Sponge Lawn.

A total of 91 valid one-to-one questionnaires were collected from respondents (52 females and 39 males aged between 13 and 75), and 83 of them participated in the subsequent interviews. Conforming to related ethical standards, all respondents were voluntary and informed of the research purpose before the survey. All minors were surveyed and interviewed with their guardians.

The questionnaire surveyed respondents' frequencies of using Parkill and their site experience. Results showed that about 85% of the respondents visited with children, about 63% were nearby residents, and about 44% were visiting for the first time (Fig. 17). Respondents' site experience was collected in the subsequent interview through keyword extraction to categorize and summarize the corresponding spatial features. Results indicated that several respondents mentioned terms such as "sound environment," "comfortable," and "quiet and relaxing," which are usually used to describe a restorative environment. As for Sponge Lawn, interviewees considered it "a large space," "comfortable," and "enhancing community identity," which

15. 傍晚时分，居民们在单人可移动座椅上休憩。  
15. At nightfall, residents rest on the movable chairs.



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15

reflect the high compatibility of this open space. Many parents commented that Play Terrace not only provides a variety of activities for children to enjoy playing for a long time (more than 2 hours), but also brings about a sense of safety by the open viewshed so that parents can socialize while watching over the children. Two of the respondents playing basketball in Storm Court on weekdays described that it was “decompressing” to exercise in such a sound independent outdoor space. Site experience of the signage system is to be further studied as none of the respondent mentioned elements from it.

During the return visits, the project team conducted field observations in areas by different activity zones of Parkhill and its surrounding streetscapes to record the number of users and corresponding activities occurred per hour in each area. It can be found that the number of users on weekends was much higher than that on weekdays. Many activities envisioned by the project team happened in each area. For instance, in Play Terrace, children queue up for their turns, help each other, and play together; in Storm Court, activities such as playing badminton, Tai Chi fans, and children’s cycling were observed. In Wave Rain Garden and Eco-Stairs, there were passive recreational activities. The most diverse activities were seen on Sponge Lawn, including picnicking, camping, sunbathing, walking, chatting, and other themed activities.

Table 1 shows a wide distribution of activities happening in Parkhill. For example, although mainly seen in Play Terrace, children’s playing activities also occurred in other observation areas. Parents’ activity of watching over their children was found not only on the higher terrace of Play Terrace, but also on Sponge Lawn and wide stairs to Play Terrace’s east and west, indicating an open viewshed between these two activity zones. The second terrace of Storm Court also attracted users



16. 风向标是公园的制高点，其社区空间象征意义有助于增强居民的社区认同感。

16. The wind vanes marks the highest point of Parkhill, which symbolizes the community identity and can enhance residents’ sense of ownership.

to stop and watch activities happening in the field. In furniture selection, the observation results showed that users prefer movable sets of tables and chairs to the fixed ones; picnic tables with chairs were popular for a rest with snacks; and seats close to the waterscape of Dry Fountain Plaza were also frequently used.

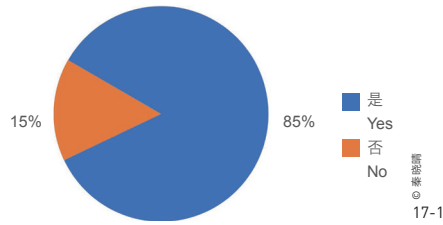
Overall, Play Terrace with diverse facilities and functions was the most frequently visited activity zone. Wave Rain Garden and Eco-Stairs were favored by users for passive activities due to the sense of being away and soft fascination offered by the natural environment. Sponge Lawn providing a variety of activities attracted and accommodated multiple groups of users. Generally, the observed activities corresponded well with the design purposes that functional spaces are to serve specific groups of users and compatible spaces may attract all groups of users and activities. The positive feedback by

users of all ages and the rich activities observed revealed the high social benefits brought by the project that users were relaxed and enjoyed playing, exercising, as well as the community life in Parkhill Commons.

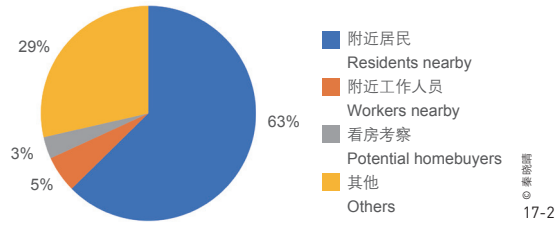
## 6 Conclusion

This project proposed a series of design strategies based on existing research findings. Return visits to the site verified that the completed project performed as envisioned—some activity zones (such as Play Terrace) were even more popular than expected. However, comparison on site experience and performance before and after the design intervention can hardly be carried out as the site was a vacant lot before. Besides, respondents surveyed cannot fully cover all target groups as some of the residence was still under construction then.

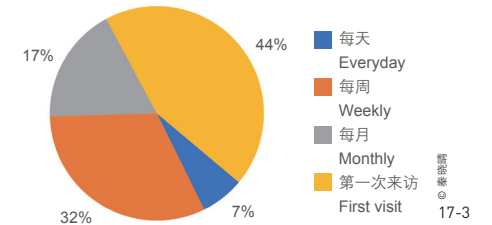
是否与儿童同行  
Whether accompanied with children



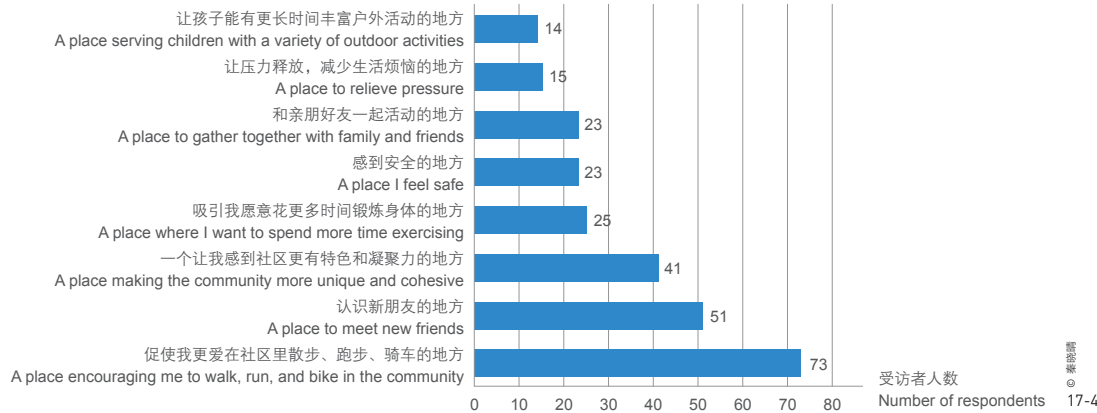
受访者来源  
Where the respondents are from



受访者来访频率  
Respondents' visiting frequency



场所体验  
Site experience



17. 国际山公园街区场所体验问卷结果  
17. Questionnaire results on site experience in Parkhill Commons

表1: 各分区活动观察结果  
Table 1: Activities observed in each area

分区 Observation area	主要活动内容 Main activities	瞬时最大人数 Instantaneous maximum number of users	工作日平均每小时使用人数 Average number of users per hour on weekdays	休息日平均每小时使用人数 Average number of users per hour on weekend
旱喷广场 Dry Fountain Plaza	站立观望、静坐、聊天、吃东西、玩耍 Standing and looking around, sitting, chatting, eating, and free play	19	< 1	12
海绵绿地 Sponge Lawn	聚会、奔跑、野餐、露营、晒太阳、拍照、遛狗、静坐、散步、站立观望、聊天、布置活动场地、游园会活动、烧烤活动、滑板、踢足球 Gathering, running, picnicking, camping, sunbathing, taking pictures, walking dogs, sitting, strolling, standing and looking around, chatting, site arrangement for fairs, lawn fairs, barbecues, and playing skateboard or football	175	2	57
生态绿阶 Eco-Stairs	散步、静坐、玩耍、休息、站立观望、聊天 Strolling, sitting, free play, resting, standing and looking around, and chatting	28	< 1	8
酷玩坡地 Play Terrace	玩耍、静坐、聊天、站立观望、滑滑梯、攀爬、荡秋千、骑跷跷板、骑摇摇马、聊天、玩沙子、散步 Free play, sitting, chatting, standing and looking around, sliding, climbing, swinging, seesawing, playing rocking horse, chatting, playing with sand, and strolling	125	10	85
旋风球场 Storm Court	打篮球、打羽毛球、跑跳、太极、遛狗、静坐、站立观望、拍照、玩耍 Playing basketball or badminton, running and jumping, playing Tai Chi, walking dogs, sitting, standing and looking around, taking pictures, and free play	22	< 1	8
绿波雨水花园 Wave Rain Garden	散步、太极、静坐、玩耍、睡觉、站立观望 Strolling, playing Tai Chi, sitting, free play, napping, and standing and looking around	6	< 1	2
周边人行道与街角 Surrounding sidewalks and street corners	散步、跑步、站立观望、聊天、静坐、打篮球 Strolling, running, standing and looking around, chatting, sitting, and playing basketball	17	1	10

Other factors, such as the scarcity of similar outdoor facilities and public open spaces, and major events, may influence the survey outcomes. For instance, the event itself may outweigh the space in attracting users.

In addition, the project team also found that some of the research findings were too generic to be translated into specific measures, failing to guide the detail design regarding spatial layout, facility arrangement, material selection, and planting design. Further investigation on users' feedback employing more scientific methods and for a longer time-span may better indicate the actual site experience of users, so as to better support future research and design practice. **LAF**

#### PROJECT INFORMATION

**LOCATION:** Shenzhen City, Guangdong Province, China

**AREA (SIZE):** Approximately 11,860 m<sup>2</sup>

**CLIENT:** Vanke Shenzhen

**LANDSCAPE DESIGN:** PLAT Studio

**DESIGN TEAM:** Fred Liao, Kit Shih-Ting Wang, Shih-Lin Lan, Maggie Kao, Qin Xiaoqing, Huo Siting, Tiger Sui, David Jing Peng, Hua Yinghua, Iris Soh, Daniel Wang, Sophanut Jamonak, Li Xiangyu, Sun YINUO, Katrina Ortiz, Joan Zhong

**COLLABORATORS:** Vanke Shenzhen Landscape Team; Origin-End Anchoring Landscape Design Co., LTD.; Pubang Landscape Architecture Co., Ltd.; Shenzhen Huahui Design Co., Ltd.; Zhubo Design Co., Ltd.

**DESIGN PERIOD:** November, 2020 ~ April, 2021

**CONSTRUCTION PERIOD:** April ~ June, 2021

**COMPLETED TIME:** June, 2021

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