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风景园林设计项目的经济绩效评估

德克萨斯州案例研究的经验与教训

Assessing Economic Performance of Landscape Architecture Projects Lessons Learned from Texas Case Studies

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摘要: 通过研究德克萨斯州 5 个项目 / 案例的经济绩效成果, 评估了风景园林与经济活动之间的关系。5 个项目 / 案例分别为: 克莱德·沃伦公园 (Klyde Warren Park)、凯蒂步道 (Katy Trail)、德州大学达拉斯分校校园特色景观概念性规划 (UT Dallas Campus Identity and Landscape Framework Plan)、阿狄森公园 (Addison Circle) 和布法罗河湾散步道 (Buffalo Bayou Promenade)。研究采用了定量和定性相结合的实证调查法, 首先评价了风景园林设计及相关设计领域的经济评估和绩效研究情况。之后重点研究了所选项目的景观类型、过程和结果, 以突出在经济绩效研究中, 确定统一标准和全面框架的重要性。最后, 讨论了通过实证证据和系统性调查对经济活动进行研究的价值, 并将经济活动作为景观绩效的一部分。总之, 综合标准、方法与案例研究的结果来说明不同城市风景园林设计类型项目的经济影响, 还讨论了通过统一标准方法来获得可靠实证结果的价值。结果表明, 从案例中可以看到, 经济绩效并不总是容易被量化的, 同样也并非所有的设计改进均与经济活动直接相关。因此, 这项研究强调了记录指定的景观项目中所有直接、间接和连锁的经济效应, 并突出其经济价值的重要性。这也表明, 未来的风景园林设计将对社会产生更大的经济影响和价值。

关键词: 景观绩效; 经济活动; 案例研究; 设计评估; 价值

Abstract: This paper evaluates the relationship between landscape architecture and economic activity by reviewing the economic performance findings from five projects/case studies in Texas. The landscape architecture projects/typologies reviewed are: Klyde Warren Park; Katy Trail; UT Dallas Campus Identity and Landscape Framework Plan; Addison Circle; Buffalo Bayou Promenade. The research is an empirical inquiry on project evaluation which combines quantitative and qualitative methods. First, the paper reviews economic evaluation and performance studies in landscape architecture and relevant design fields. Second, the paper focuses on the selected landscape typologies, procedures and findings to highlight the importance of identifying consistent criteria, and comprehensive framework to study economic performance. Finally, it discusses the value of studying economic activity as part of landscape performance with empirical evidence and systematic research. In conclusion, the paper synthesizes criteria, methods, and findings from the case studies to illustrate the economic implications of varying urban landscape architecture project typologies. The paper also discusses the value of utilizing consistent set of criteria and methods to acquire reliable empirical results. The results reveal that economic performance is not always easily quantifiable, nor that all design improvements directly tie to economic activity in landscape architecture based on the case studies reviewed. Therefore, this research emphasizes the importance of documenting all direct, indirect, and ripple economic effects of a given landscape architecture project to highlight its economic value. Such emphasis also denotes a critical dimension of landscape architecture's future to communicate the greater economic impact and value to the society.

Key words: Landscape Performance; Economic Activity; Case Study; Design Evaluation; Value

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1 引言

“第一是区位，第二是区位，第三还是区位”是房地产领域公认的准则，它决定着项目的经济利益和成败。最近，建筑的经济含义已通过实证研究和详实数据得到了各界的充分认可。事实上，在最近几十年的建筑中，设计在房地产开发中逐渐成为一个增值项（费格斯·地段，地段，建筑师·华尔街日报，2005）。建筑研究的一个关键因素是理解建筑绩效，从而认识到设计项目的效用和成功之处（普赖泽尔，1988；霍尔，1966）。因此，近几十年中社会、环境、经济、生理和美学因素逐渐成为规划和设计著作中的焦点。具体说来，近年来设计项目的经济绩效开始逐渐被关注，有了更多直接、间接和/或间接连锁反应的评估研究（德格鲁特等，2002；中心城市政策研究，1999）。

相对于建筑的相关标准，人们较晚才认可将项目经济绩效的措施和报告纳入衡量风景园林价值的必要标准。可能有人会争辩说风景园林设计项目的经济意义一向难以界定，绿色空间的位置也一向被认定为房地产开发区域（例如中央公园的引进和成熟，以及它对周边房地产市场的影响）。在大多数情况下，规划设计领域并没有对风景园林设计的价值进行科学系统的实证研究。这不像建筑，一个建筑物或一个建筑群可以直接刺激经济活动，而景观设计的价值则通常更难衡量，因此，景观设计项目的经济绩效通常需要通过间接价值和/或连锁反应来衡量。

本文评价了城市景观设计项目的经济绩效，并通过回顾德州5个项目中与经济绩效相关的过程和结果，着重评价了风景园林设计与经济活动的关系。这些项目/类型有：克莱德·沃伦公园，达拉斯（城市公园）；凯蒂步道，达拉斯（城市步道）；德州大学达拉

斯分校校园特色景观概念性规划，理查森（校园景观）；阿狄森公园，阿狄森（混合型开发）和布法罗河湾散步道，休斯顿（线性公园/水系统修复）。此外，该研究还参考了与风景园林经济价值相关的风景园林设计学文献，并重点关注了与当今设计实践关系密切的风景园林类型（布兰德等，2011；希勒，2006；康普顿，2001）。研究的关联性源于风景园林设计师分析与理解动态城市风景的能力，这些景观项目可以促进经济活动（凡德穆伦等，2011；奥兹迪尔，2008；佐拉斯等，2007；本格齐亚，2003；德格鲁特等，2002）。

2 文献综述

2.1 评估与绩效

项目评估与绩效在规划设计过程中十分重要，它便于人们学习以往经验并引导未来实践。早期评估领域的学术著作源于关注建设环境和行为的建筑文献（例如霍尔，1966；索默，1966）。20世纪80年代，联合设计领域开始在用后评估（POE）框架下调整这些评估技术。POE被简单地定义为在一个给定的、使用中的设备上对其结构设计元素进行性能评价（贝尔瑟等，1988）。项目的评估与绩效受POE框架影响，并在上世纪90年代初期的风景园林文献中进一步得到修改，例如布考特等，1994。特别是《人性场所》、《景观设计案例研究方法》等开创性著作提升了系统文献和景观项目评估的价值（马库斯 & 弗朗西斯 1998；弗朗西斯，1999）。过去20年的风景园林文献开始关注评估景观项目的价值（奥兹迪尔，2008；弗朗西斯，2003；马库斯 & 弗朗西斯，1998；布考特等，1994；怀特，1990）。尽管这些早期研究的参数和方法有限，但它推动了近些年的综合评价研究，包括各种社会、经济和环境因素。最近，更广泛的设

计文献反映了评估案例研究方面的突破性进展，包括城市土地学会做出的努力，美国绿色建筑协会对绿色建筑评估体系（LEED）的研究，美国风景园林基金会（LAF）的案例研究调查（CSI）计划，环境保护机构的最佳管理实践，可持续网站倡议活动以及文化景观基金会的最新倡议，例如EPA，2014；LAF，2014；SSI，2014；TCLF，2014；ULI，2014。

2.2 案例研究方法

与其他设计领域类似，对风景园林设计的评价和绩效研究通常采用案例研究法（殷，2009；弗朗西斯，1999）。案例研究法比较适合设计专业，其灵活的特性便于深入研究独特的项目。这种方法同样适用于景观设计，强调绩效研究的价值和相关性。文献综述表明，除了过去几年中独立进行的大量案例研究，还有许多针对项目绩效评估的系统性研究，如城市土地学会发起的ULI案例研究和LAF发起的CSI计划（LAF，2014；ULI，2014）。这些案例研究着眼于一个更加全面的绩效指标，包括但不限于对社会、环境和/或经济因素的评估。迄今为止，大多数调查仍专注于使用一系列主观的定性标准和指标对特殊案例进行研究。对大多数案例来说，其研究的方法的有效性和可靠性只能通过研究程序所暗示出来的特性来进行审视。除了极少数案例，用统一标准对大量项目进行实证系统调查仍基本空白。过去10年的文献重点提出了多种可根据经济因素进行绩效研究的指标。以往的研究为风景园林设计行业提供了丰富的实践经验参考，尤其是本研究采用的指标和变量列表就是早期研究的成果，例如LAF，2014；ULI，2014；奥兹迪尔，2008。回顾以往的研究和文献，并将他们应用于所有的案例研究中，可以保证标准统一，且方法具有可复制性（表1）。

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1 克莱德·沃伦公园主场馆和喷泉游乐区 (图片来源: T.R. 奥兹迪尔)
Klyde Warren Park Pavilion and Fountain Play Area (Photo Credit: T.R. Ozdil)

2.3 经济活动、绩效和影响因素

城市景观是经济、社会和环境活动的中心,能够容纳人们的行为和需求。文献表明,近年来与提高改进风景园林设计和城市设计相关的经济因素和方法正在引起越来越多的关注。在一些互补的领域,定性和定量的评估技术经改编,被用于研究设计的经济影响(普雷科索维奇等,2011;奥兹迪尔,2008 & 2012;杰尔克,2008;希勒,2006;麦金杜等,2005;本格齐亚,2013;卡莫纳等,2001 & 2002;康普顿,2001)。大多数经济绩效指标和方法由城市土地学会发展案例研究(ULI,2014)和美国风景园林基金会(LAF,2014)归类。文献也表明,由于风景园林设计项目的复杂性和经济活动收益的模糊性,绩效通常表示为直接,间接和/或连锁反应以及市场估价(德格鲁特等,2002;城市政策研究中心,1999)。直接影响通常表现为经济活动最初的变化,间接影响是指产品和服务的供应商所经历的直接改变。连锁反应则是最初的购买对更大范围经济的影响(城市政策研究中心,1999)。城市景观项目的经济评估方法似乎可以得出直接和间接的市场估值(德格鲁特等,2002)。直接的经济绩效价值可以通过风景园林设计项目本身元素(如付费停车,小卖部/餐厅,或者通过可持续材料来节省开支)所产生的经济价值来得到验证。间接的经济绩效价值体现在相近产业和/或周边城市环境出现的经济活动。而连锁反应则是反映在(举例说明)安装太阳能灯具之后为太阳能行业创造的就业机会。

本研究的重点是通过研究所选择的景观类型、过程和结果来突显研究经济绩效的重要性。

3 研究方法

这项研究遵循定量和定性的方法(LAF,2014;戴明等,2011;奥兹迪尔,2008;墨菲,2005;莫廷,1999;弗朗西斯,1999;马库斯等,1998;贝尔瑟等,1988)来记录和评价5个城市景观设计项目,以评估其经济绩效优势并获得启示。在过去3年中,作者记录了在德州广受赞誉的城市景观设计项目的经济活动和效益以完成这一研究。这些项目/类型有:克莱德·沃伦公园,达拉斯(城市公园);德州大学达拉斯分校校园特色景观概念性规划,理查森(校园景观);凯蒂步道,达拉斯(城市步道);阿狄森公园,阿狄森(多功能开发)和布法罗河湾散步道,休斯顿(线性公园/水系统修复)。这些案例研究的方法论基础主要是对绩效指标和变量进行了系统评价,这些数据来自于:(1)ULI案例研究和LAF景观绩效系列案例研究简报(LAF,2014),(2)经济绩效文献中面向设计师和规划师的案例研究方法(奥兹迪尔,2008;麦金杜等,2005;卡莫纳等,2001;康普顿,2001),以及(3)从项目公司,项目利益相关者,地方、州和/或联邦的公共资源和数据库收集的相关间接数据(表1)。

调查开始后,研究小组在5个项目中开展了系统性研究,采用了可复制的绩效标准和方法。这种实证的方法让小组受益匪浅。在所有的实例中,衡量标准均在第一时间敲定。接下来,这些绩效指标被分配给每个研究案例,以更好的记录和报告他们各种经济绩效的质量。最初的目标是要在所有案例研究中,确定一套衡量绩效收益的统一标准。在对经

济活动有更加充分的了解后,也会制定更详细的绩效标准。这也帮助研究小组打消了对数据可用性,不同的项目类型、项目目标和结果的担心。

案例研究审查从项目公司、项目利益相关者、公共资源以及私人数据库获得档案数据和间接数据。经济数据则取自文献(表1),经过系统的收集、组织和审查以保证数据的严谨和完整。研究设备取得的数据经分析后,综合概括为5个研究案例的经济绩效收益。场地观察、拍照、场地调研和技术分析也可应用在大多数案例调查中,来记录和显示经济活动和绩效。

对所有案例的调查分析集中在:首先是与场地相关的绩效收益,之后是最接近的邻里区域,最后是项目街区群/邻里/社区或邮政编码来掌握其经济活动和绩效。例如,直接的绩效收益与间接的绩效收益和项目的四周邻里相比会更受重视。总之,这些数据经过了系统性的审查,并通过适当的分析得出了绩效评估的具体标准。这些在下面的详细结果中均有呈现。这项研究的目的是在客观的标准下,通过记录和评价绩效来突出5个城市风景园林设计项目的价值和意义,并对未来的城市景观产生启示作用。

4 案例研究结果

4.1 克莱德·沃伦公园,达拉斯

克莱德沃伦公园(KWP)(图1)建造在8车道的伍德尔罗杰斯高速公路上方,占地5.2英亩(约21043m²)。2012年10月之前,这块用地一直处于闲置状态。这个革新性的公园由詹姆斯·伯内特工作室设计,拥有积极规划管理的景观元素,成为连接达拉斯住宅区和市区的枢纽。通过公共/私人合作伙伴关系,公园成功筹到约1.15亿美元资金来实现

愿景。KWP 案例研究表明，经济绩效有直接和间接 2 种结果。在开始建设的时候，公园大约提供了 170 个工作岗位（毕尔克，2013），这对 KWP 的经济收益产生了直接影响。目前，KWP 雇佣了 8 个全职人员和 5 个兼职人员进行后续的维护和运作（巴肖普，2013）。餐厅、小卖部、食品售卖车以及重要活动时的户外租金不仅增加了公园基金会的收入，也通过交税增加了城市的收入。可持续的实践如 LED 照明灯具每年为公园节省 11 279 美元（毕尔克，2013），土工泡沫的使用减轻了 180 吨的甲板负荷，每年可节省开支约 6 600 美元。人们保护邻里社区意识的觉醒则是该项目间接绩效的体现。公园建成后，麦金尼大道的电车载客量增加了 61%（弗里克，2012），该区域上升的人气所带动的城市主要街区公共交通基础

设施投资约为 990 万美元（达特，2013）。分析人口普查数据可以看到，距离公园 2 个街区以内的范围内，人口增长了 8.8%，住房增加了 4.1-4.8%，空置率下降了 12.1-13.1%。公园北部住宅区的出租率增长了 44%，南部艺术区的出租率则增长了 18.9%。最后，两个地标性房地产项目——博物馆大楼和麦金尼 2000 均建在 KWP 附近，其总价值达到 2.91 亿美元（2013 年）（麦金尼 2000，2013；DCAD，2013；博物馆大楼，2013；格林，2012；威隆斯基，2013）。对于 KWP，经济绩效因素包含对其自身空间、社区空间以及整个达拉斯的有益作用。但由于公园建成时间不长，某种程度上限制了经济效益的研究。公园附近的住房和办公建筑均在不断增长，使房地产市场持续增值。可以说，KWP 的设计将一个曾经看

似毫无希望的边缘地段转变为一个机遇。它是绿色基础设施和娱乐设施可以为城市景观增加经济价值的有力例证（LAF，2013a）。

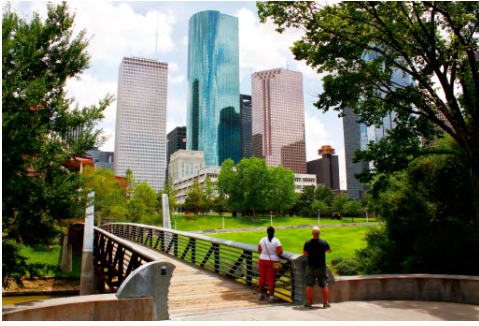
4.2 布法罗河湾散步道，休斯顿

萨宾 - 巴格比散步道（又名布法罗河湾散步道）（图 2）位于德克萨斯州休斯顿，是一个 23 英亩（约 93 078m²）的城市滨水公园和休闲区，由 SWA 景观设计公司设计。场地位于 45 号州际公路的立交桥下方。公园于 2006 年落成，它成功地将布法罗河湾由一个硬化地段转变成一个有效的绿色基础设施和繁荣的城市滨水区。该项目将一条曾经被人忽视、杂草丛生、有碍观瞻的硬质河道变成了一个 3 000 英尺（0.9144km）长的城市公园。这个 1 500 万美元的标志性项目（一期）是公共 / 私人

表 1 经济绩效指标文献综述表

Table 1 Literature Review Matrix for Economic Performance Indicators

城市设计项目评价 Urban Design Project Evaluation 经济指标 Economic Indicators (文献综述, & 可用数据) (review of literature, & available data) (奥兹迪尔等, 2008) (Ozdil, et. al, 2008)	ULI 案例研究摘要 ULI Case Studies Summary 经济指标 Economic Indicators (评价 10 个案例研究) (review of 10 case studies) (斯图尔特, 2014) (Stewart, 2014)	LAF 案例研究摘要 LAF Case Studies Summary Economic Indicators 经济指标 Economic Indicators (评价 10 个案例研究) (review of 10 case studies) (斯图尔特, 2014) (Stewart, 2014)
人口影响 Population Implications 营业场所 Business Establishments 就业的家庭 Employment by Household 城市零售业应纳税销售额 City Retail Taxable Sales 新的销售税许可证 New Sales Tax Permit 商业地产价值 Commercial Property Values 重建项目 Rehabilitation Projects 新建筑 New Construction 楼房出售 Buildings Sold 合资企业 Joint Ventures 志愿服务时间 Volunteer Hours 商业开始迁回与扩大 Business Starts Ups Relocation & Expansion	邻近产业 Adjacent Property 商业机会 Commercial Opportunities 社区背景 Community Context 历史背景 Historic Context 土地利用 Land Use 生存几率 Living Opportunities 市场潜力 Marketing Potential 混合使用 Mixed-use infill 公共 / 私人合作 Public/Private Partnership 生活质量 Quality of Life 零售业商机 Retail Opportunities 退休 Retirement 营业税收入 Sales Tax Revenue 社会经济因素 Socio-economic Factors	邻近产业 Adjacent Property 商业机会 Commercial Opportunities 直接提供就业岗位数 Direct Job Creation 区域联系 District Connectivity 能源创造 Energy Creation 环境 / 生态学背景 Environmental/Ecological Context 就业机会 Job Creation 生存几率 Living Opportunities 污染减排 Pollution Reduction 财产税 Property Taxes 生活质量 Quality of Life 零售业商机 Retail Opportunities 营业税收入 Sales Tax Revenue 旅游业 Tourism



2



3

2 萨宾 - 巴格比散步道人行天桥 (图片来源: T.R. 奥兹迪尔)

Sabine-to-Bagby Promenade Pedestrian Bridge Crossing (Photo Credit: T.R. Ozdil) Katy Trail, Dallas 达拉斯凯蒂步道

3 凯蒂步道 (图片来源: D. 斯图尔特)

Katy Trail with Adjacent Uses (Photo Credit: D. Stewart)

合作的结果, 目的是恢复和振兴布法罗河口走廊。布法罗河湾散步道 (BBP) 案例的研究产生了与经济绩效相关的多种结果。由于间接数据较为充分, 且提供了对该项目创造的价值考察, 我们可以深入了解项目产生的经济效益。在这个案例中, 几乎所有的经济影响均是间接或连锁的效应。BBP 打破了被约束的边界, 为连接休斯顿中心区 (downtown) 和中城区 (midtown) 创造了可能。人口普查数据 (美国 2000 年和 2010 年人口普查) 的前后审查显示, BBP 对城市核心区的复兴有间接作用。2000 年至 2012 年, 随着布法罗河湾环境的不断改善, 人口增加了 34%, 这对就业和房地产市场有着间接作用。与此同时, 项目对住房的影响包括使用中的居住单元达 961 个, 使用中的 50 个单元以上的构筑物达 787 个, 出租的单元达 470 个。2008 年至 2012 年, 就业人数增加 10 454 人, 中心区机构单位数量增加 182 个, 中城区机构单位则从 3 个增加到 30 个。另外一个间接作用是零售销售额的变化——中心区增长了 4 680 万美元, 中城区增长了 1 540 万美元。除此之外, 与 BBP 相邻的住宅小区新开发了 198 个住宅单元, 市值已增长 40% (HCAD, 2013)。尽管大多数经济绩效指标在早期研究中已有记载, 但这个项目仍面临着地理位置、目标和任务等一系列挑战, 且与工程相关的档案和间接数据均十分有限。总之, 本调查距 BBP 开放已有 7 年时间, 这为经济效益的研究提供了更加科学的样本。清晰的前后数据对比有力证明了 BBP 对休斯

顿市中心区复兴产生了间接作用。

4.3 凯蒂步道, 达拉斯 (图片来源: 斯图尔特)

凯蒂步道 (图 3) 是一条位于达拉斯上城区的人行步道。其规划始于 20 世纪 80 年代, 由 SWA 公司主持设计, 并于 2000 年建成向公众开放。作为“铁轨变为步道”项目的一部分, 该项目建造在得克萨斯州至密苏里的一条废弃的铁路之上。1997 年凯蒂步道之友组织的成立, 刺激了 2 300 万美元的总体规划资金及后续运营资金的筹备工作。凯蒂步道的落成正是达拉斯城市组织、达拉斯地区捷运组织 (DART) 与区域电力供应商 (ONCOR) 之间成功开展公私合作伙伴关系的结果。步道沿线 1 英里 (约 1.61km) 范围内拥有着 30 万潜在使用者, 凯蒂步道通过设置双向自行车道和人行步道促进连通, 通过本土植物设计保证可持续发展, 通过增强沿线开发刺激经济 (洛克伍德, 2007; 斯图尔特, 2014 年)。对凯蒂步道沿途经济绩效的研究表明其经济价值有着显著提升。凯蒂步道的经济影响力是它与周围地块良性互动及沿途土地多样化利用开发的产物。廊道间接经济效益的研究从 3 个层次的缓冲区进行: 紧邻步道廊道边缘的地块, 大约 0.25 英里 (约 0.40km) 范围内的区域以及 0.5 英里 (约 0.81km) 范围内的区域。土地利用数据的分析集中在 2000 年、2005 年和 2010 年之间的土地使用面积百分比变化上。沿途相邻地块的商业价值从 2000 年 -2010 年

增长了约 7%。此外, 同时段内沿途住宅土地使用增长了近 13% (NCTCOG & US Census, 2014)。综上所述, 商业用地的增加表明潜在经济活动的增加, 而多样的住宅用地的增加表明密度的增加, 更多的居民也将有助于地方税收和经济的发展。达拉斯房产评估中心 (The Dallas Central Appraisal District, 简称 DCAD) 提供了大量 2004 年以来可用于这项研究的房产价格数据。沿途周边地块从 2004 年至 2013 年间, 附近地块均价大约增长了 38%。其中, 位于 0.25 英里 (约 0.40km) 缓冲区内的地块均价增长约 43% (DCAD, 2014; 斯图尔特, 2014)。我们还研究了销售总额、营业税收入、机构数量及就业率, 并记录了每段步道各种积极的变化。但由于存在干扰因素, 研究者认为结果还不够充分。这些数据为区域或人口普查层面上的, 在地理范围上比地块层面的数据要大得多, 因而在比较中关注了更多大范围的数据所造成的干扰因素。凯蒂步道经济绩效的研究表明了数据的可用性的重要性 (斯图尔特, 2014)。

4.4 德克萨斯大学达拉斯分校校园特色景观框架规划, 理查德森

德克萨斯大学达拉斯分校的校园特征和景观框架规划的一期规划 (UTD) (图 4) 已经完成于 2010 年。PWP 景观事务所给出了这样一个设计目标, 即将校园从一个以汽车为中心的环境转变为支持步行的校园景观。最初, 这个 33 英亩 (约 133 546m²) 的项目由德克萨



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4 德克萨斯大学达拉斯分校中央广场 (图片来源: T.R. 奥兹迪尔)

The University of Texas at Dallas Campus Central Mall
(Photo Credit: T.R. Ozdil)

5 阿狄森公园街景 (图片来源: T.R. 奥兹迪尔)

Addison Circle Streetscape (Photo Credit: T.R. Ozdil)

斯大学投资,初期的投资为600万美元,后来的3000万美元私人捐款使项目得以推进和扩大。通过大量乡土植物以及5000株自然乔木的种植,校园景观得到了提升。景观帮助了校园的形象转变,并使学校成为了学生、教师、工作人员以及周边社区的骄傲。UTD案例的研究还揭示出与经济因素(包括直接和间接)相关的多种景观绩效的发现。规划刺激了经济活动,对招生率和捐赠产生了直接的影响。这一崭新的项目使得2010到2012年的招生率增长了13%。根据预计,到2018年,每年招生率将增加4%(UTD年报,2012)。景观更新的新鲜感吸引了3120万美元的私人捐助用以资助建设和实现未来校园愿景。这个项目直接的影响是从2008年10月到2010年10月间一共创造了设计、施工和咨询等72个工作机会(UTD Construction Facts, 2010)。对UTD来说,经济收益没有那么明显,主要是环境和美学价值创造的间接影响。由于校园面积巨大,因而附近区域并没有开发项目,这是该研究一大局限。虽然未来的规划和建设还在进行中,例如即将建成的达拉斯快速交通(Dallas Area Rapid Transit, 简称DART)的棉花带线(Cotton Belt Line)位于学校附近,预计将会对紧挨校园北部的交通广场产生影响。总而言之,环境的改善在推动间接经济价值增加的同时,勾勒了大学可持续性发展计划的轮廓。

4.5 阿狄森公园, 阿狄森

20世纪90年代末,阿狄森公园(图5)作为阿狄森的城市中心而建。在20世纪90年代的早期和中期,阿狄森市与RTKL一起合作,选择了一块面积达80英亩(约323749m²)[到2011年已经增至124英亩(约501810m²)]的土地,作为他们最后一次创造社区心脏的机会。设计是公共与私人合作的成果。开发计划包括结合了居住、商业、办公、公共和市政等部分的规划。规划详细规定了用地类型和尺度、允许的密度和相关的绿色基础设施;设计集中在4个区域:收费公路对面区域、阿狄森城市中心、达拉斯快速交通枢纽区和邻近的城市住宅区。设计对各部分元素进行了物质与功能上的结合,包括相对紧张的土地使用状况与能促进不同区域活动的连贯步行空间从城市延期偿付花园式公寓住宅的方面考虑,设计富有远见地创造一个包含城市居住、办公、酒店和零售的高密度混合功能空间。更重要的是,一个方便步行街道网络、一系列公园和地标雕塑定义了社区生活的焦点。开发计划在创造了北德州最早的“生活-工作-娱乐”多类型开发模式案例,这个开发模式创造了自给自足的城市空间(奥兹迪尔等,2011;RTKL,2010)。研究阿狄森公园案例研究在揭示景观项目直接和间接经济绩效方面表现出更强的复杂性和挑战性。截至2011年,公园124英亩(约501810m²)的土地中有71英亩(约287327m²)属于私人所有,53英亩(约214483m²)属于公有。2011年,规划于20世纪90年代晚期的居住区已经从3500个单元

变为含有4800个单元的470万平方英尺(约436644m²)的混合住宅。同年,商业机构(包含办公室、酒店和零售空间)的混合商业已经从400万平方英尺(约371612m²)增加到600万平方英尺(约557418m²)。阿狄森市给阿狄森公园项目投入1070万美元来修建基础设施,包括提升道路和开放空间。2009年,阿狄森公园的私人投资总额达到3.2亿美元,与公共融资的比率接近29:1。2008年,物业税年收入估值超过100万。从2000年到2014年阿狄森市的人口密度从2387人/平方英里预计增加至3769人/平方英里。同一时段,家庭平均收入从45998美元预计增至71636美元,阿狄森市人口普查区域内的住宅空置率减少了1.2%,同时平均租金从751美元预计增至1398美元。数据还表明,从2006年到2009年,在人口普查地段(包含阿狄森公园)的就业率几乎翻了一番(奥兹迪尔,2012;RTKL,2010;韦弗,2008;奥兹迪尔等,2011)。尽管数据的可用性限制了研究者直接描述景观组成的直接影响,但阿狄森公园经济绩效研究仍阐述了总体发展规划中综合性结构的影响,并以此为例说明经验数据和良好的经济绩效结果。

5 结论与讨论

本文通过相关文献的综述及5个德克萨斯州项目与案例的经济绩效研究,对风景园林与经济绩效之间的关系进行了评估。这些景观项目包括:达拉斯的克莱德·沃伦公园,

达拉斯的凯蒂步道，理查森的德克萨斯大学达拉斯分校校园特色景观框架规划，阿狄森的阿狄森公园，休斯顿的布法罗河湾散步道。更广泛的文献综述表明，近年来关于风景园林经济绩效的研究已经取得了显著的进展。尤其是20世纪90年代末至21世纪初，随着可持续发展理念和绿色设计实践愈发深入人心，工艺技术更加成熟，人们对于规划设计项目的了解更加深入，评估也趋于严格。近年来，有关经济绩效研究评价方法的关注也更为广泛，由通过描述与认知驱动的案例研究转为通过数据驱动的、全方位的、实证的以及系统的研究。虽然在绩效研究中存在关于“衡量什么”与“如何衡量”等诸多模糊之处，但是它可以囊括所有社会的、环境的和经济的因素（参见美国风景园林基金会案例研究调查计划的案例研究）。研究从曾经的仅注重诸如经济等单一问题或因素转变为注重深层细节并包含可复制方法、可靠结论的复杂程序。这一经济绩效研究是与景观绩效研究中一些最新发展相对应的。它表明在大多数情况下，经济活动一直是所有规划设计活动的预期成果中的一部分。另一方面，基于共同的指标和研究框架的景观经济绩效的实证性研究还处于起步阶段，有待更多相关研究来丰富这一领域。

审视以上案例研究可以发现，当涉及到经济活动的调查与记录时，景观项目的复杂本质决定了景观绩效的研究需要更加综合与全面。结果表明了寻找经济上所有直接的、间接的以及进一步连锁反应的重要性（德格鲁特等，2002；城市政策研究中心，1997），即便如此，由于地理尺度和项目本身存在差异，研究的结论仍具有一定的局限性。

5个案例研究的结果表明，大多数项目均能发起某一类直接经济活动。例如，几乎在所有的情况下，项目的建造、使用和维护均

能增加就业。在克莱德·沃伦公园案例与阿狄森公园案例当中，景观项目中诸如餐厅、小卖部、餐车以及重要活动时的户内外出租等也开始作为项目的直接产出而产生经济收益（销售额或税收）。而像凯蒂步道这样的项目由于其受线性空间限制，在场地内部实现直接经济活动几乎是不可能的。另一方面，如果研究专门针对诸如吸收二氧化碳、清洁空气或通过景观手段过滤水等环境改善所转换成的经济影响，这些也可被视为城市景观项目的直接经济影响的一部分。

正如以上案例研究所揭示的，大多数由城市景观项目带动的经济活动是对其周围环境、社区、地区甚至整个城市间接影响的产物。正如凯蒂步道、布法罗河湾散步道与克莱德·沃伦公园的案例研究所表明的那样，记录的经济绩效指标大多是间接的，不如说是紧邻的周围用地的一种功能。作为景观改善结果而产生的间接经济活动主要表现为房地产开发、地价、土地租金、零售额、税收以及能产生更广泛经济发展的公私合作等的增加（表2所示为本研究报告涉及的所有指标）。几乎在所有情况下，直接和间接的活动都很容易产生连锁反应。例如，从布法罗河湾散步道中太阳能供电照明设施的安装到太阳能经济引起的就业岗位数量的增加就是一种连锁反应。

研究结果表明，如果在某个案例的研究过程中，由于需要进行更加细致的研究而特别制定了专门的（唯一的）经济绩效因子，那么在这种情况下，该研究在方法、度量和指标上的横向一致性和可复制性也是可以达到的。回顾案例研究可以发现，经济绩效研究比可能的社会和环境研究更易于得到可量化的实证研究数据。正如下面的表格所示，一组具有一致性的经济变量能精确描述一个项目的经济绩效（表2）。在上述每个案例研究中，文献综述为我们提供

了可用的指标，这些指标都可以提供经验数据，而某个指标反应的是直接、间接还是连锁的影响，这在每个案例研究中却有所不同。如果一个项目有一个特殊的有别于其他项目的性质，方法就需要进行微调。例如，德克萨斯大学达拉斯分校案例研究需要诸如入学情况及私人捐赠等额外的经济变量。该项讨论的旨在确保，对多个案例研究的审视能够推进这些典型的经验性和系统性的研究，这些研究与众多景观项目具有一致的评价标准。

通过对这5个城市景观项目的综述，我们还能发现某些领域和复杂性必须在未来的经济绩效研究中加以认知。一个项目的实体品质，如项目类型，大小，形状，位置和落成时间是影响经验性的经济绩效研究框架的关键问题。正如本研究所示，上述品质在这些项目间的差异性对本研究构成了一定挑战，但最终丰富了研究结果。例如，一个项目的区位似乎是一种确定的品质，因为其经济价值已被充分论证。在这种情况下，选择城市景观的案例研究就产生了一组具有一致性的项目。景观项目的尺度与形式对经济效益有直接影响。从研究程序性方面来看，经济绩效研究数据的可得性就成为了所有评估中的一个关键因素。对于风景园林而言，虽然收集原始数据（而不是档案和间接数据）似乎可以确保知识创造的科学严谨性且更具有有效性和可靠性，但是为每一个项目收集这些原始经济数据需要耗费大量的人力物力以及时间成本。因此，除非能够持续对一个景观项目进行评估和记录，否则，可靠和详实的二级数据可以作为经济绩效研究的一个重要部分。

总之，本文试图借鉴过去的研究以及5个落成项目中的经验以讨论城市景观项目的经济绩效，并在一定程度上展现了该领域存在的诸多议题与成果。然而，它并没有对“为

表 2 所有案例研究中经济绩效结果的总结
Table 2 Summary of Economic Performance Findings for All Case Studies

经济活动	案例研究 Case Studies				
	克莱德·沃伦公园 (Klyde Warren Park)	布法罗河湾散步道 (Buffalo Bayou Promenade)	凯蒂步道 (Katy Trail)	德克萨斯大学达拉斯分校 (UTD Campus)	阿狄森公园 (Addison Circle)
	城市公园, 5.2 英亩 (Urban Park 5.2 acre)	线性公园, 23 英亩 (Linear Park 23 acre)	步道系统, 3.5 英里 (Trail System 3.5 miles)	校园, 33 英亩 (Campus 33 acre)	城镇中心, 80 英亩 (Town Center 80 acre)
建筑材料节约成本 (Cost savings on building material)	●	●	○	●	○
地价 (Property value)	●	●	●	●	●
创造就业 (Job creation)	●	○	●	●	●
捐赠与基金 (Donations and fundings)	●	○	●	●	●
交通运输的影响 (公共、私人等) (Transportation impacts (public, private, & etc.))	●	○	○	○	○
PID, TIF 奖励和 / 或财政奖励等 (Award of PID, TIF's and/or financial incentives etc.)	●	○	●		○
建造 / 工作机会 (Establishment/ Employment opportunities)	●	●	○	○	○
节能 (Energy savings)	●	○	○	○	○
零售 (包括税收) (Retail & Sales (value as well as tax implications))	○	○	○	○	○
入住情况 (Housing occupancy)	●	●	○	○	●
房地产开发的影响 (Real estate development impacts)	●	●	○	○	○
土地利用 (Land Use)	●	○	●	○	○
办公出租空间影响 (Office rental space impacts)	○	●	○	○	○
交通 (Transportation implications)	○	○	○	○	○
学生入学增加 (Rise in student enrollment)				●	

图例:

绩效标准 / 指标适用于所有案例
 绩效标准 / 指标适用于该案例
 绩效标准 / 指标适用于该案例, 但未得到数据
 绩效标准 / 指标适用于所有案例, 但未得到数据

Legend:
 Performance criteria/indicators applicable of all cases
 Performance criteria/indicators specific to case study
 Performance criteria/indicators specific to case study but data was not attainable
 Performance criteria/indicators applicable of all cases but data was not attainable

什么需要测量景观项目的经济绩效”这一问题做出回应。但它有力地论证了绩效研究是风景园林学的一个必要组成部分, 它能使我们从以往的项目中吸取教训进而指导将来的设计。它有助于未来对从业者的教育, 并预示着未

来的风景园林研究与理论将作为一项以知识为基础的活动。研究者认为, 对于此类研究的关注应当超越对风景园林师自我实现的关注……运用实证证据和系统性的研究评估景观经济绩效可以确保我们与专业人士间的

交流能够基于逻辑清晰的语言以及详实可靠的数据和方法。最终, 这种经济绩效的综述可以成为绩效研究的一个重要方面, 并促进未来的风景园林取得更大的社会影响力与价值。最后一个问题在更大的层面上——“通过景

观促进健康与充实、吸收二氧化碳与净化空气、清洁或过滤水体的经济价值是什么？”，这些问题的答案尚未确定，这必将成为未来风景园林学研究的重要课题。

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1 Introduction

“Location, location, location” is the accepted nomenclature in real estate fields that economic benefits and the success of a project loosely can be induced to its location. Not until recently, the economic implication of architecture is widely recognized with empirical research and hard data. Indeed, within the more recent decades architecture, design has started to be recognized as a value adding property of real estate development (See “*Location, Location, Architect*” article by Fergunos at The Wall Street Journal, 2005). A critical element of architectural studies is to understand building performance to appreciate the utility and success of a given design project (Preiser, 1988; Hall, 1966). As a result, social, environmental, economic, physiological, or aesthetic factors became the focus in design and planning literature within the recent decades. Specifically, the economic performance of a design project started to be scrutinized as direct, indirect, and/or indirect ripple effects valuation (de Groot et al., 2002; The Center for Urban Policy Research, 1999) more within the recent years.

The measure and report of economic performance of a project as a necessary dimension of communicating landscape architecture value (Bookout et.al., 1994) received recognition later

than the architectural community. One may argue that the economic implication of a landscape architecture project has always been implicitly evident, and the location of a green space has always been considered in real estate fields (see examples like the introduction and maturation of Central Park and its effect on the adjacent real estate market). In most instances, though, it has not been scrutinized as scientific and systematic empirical research in design and planning fields. Unlike architecture, where a building or groups of buildings directly stimulate economic activity, the value of landscape architecture is often more complex to capture. This is a result of the fact that the economic performance of a project in landscape architecture is often measured through its indirect value and/or ripple effects.

This paper reviews the economic performance of urban landscape architecture projects. Specifically, it reviews the relationship between landscape architecture and economic activity through a review of procedures and findings relevant to the economic performance of five projects in Texas. The projects/typologies reviewed are: Klyde Warren Park, Dallas (urban park); Katy Trail, Dallas (Urban Trail); UT Dallas Campus Identity and Landscape Framework Plan, Richardson (campus landscape); Addison Circle, Addison (mixed-use development) Buffalo Bayou Promenade, Houston (linear park/stream restoration). Additionally, the research builds upon relevant landscape architecture literature in concern to the economic value of landscape. Specifically, the focus occurs upon a landscape typology that is germane to today’s design practice (Brander et.al, 2011; Sherer, 2006; Crompton, 2001). The

research’s relevancy stems from the landscape architect’s ability to analyze and understand dynamic, urban landscapes as they stimulate economic activity (see such as Vandermeulen et al., 2011; Ozdil, 2008; Tzoulas et al., 2007; Bengochea, 2003 de Groot et al., 2002).

2 Literature Review

2.1 Evaluation and Performance

Project evaluation and performance are considered as the critical dimensions of design and planning processes to inform future practices and learning with past lessons. Early scholarly work in the area of evaluation stem from architectural literature with a focus on the built environment and behavior (see for example Hall, 1966; Sommer, 1966). Allied design fields began to adapt these evaluation techniques in the 1980’s under the Post Occupancy Evaluation (POE) framework. POE is defined simply as the assessment of the performance of physical design elements in a given, in-use facility (Preiser et al., 1988). Project evaluation and performance, influenced by the POE framework, gained greater adaptation in landscape architecture literature in the early 1990’s (see example Bookout, et.al, 1994). Specifically, seminal works such as *People Places and A Case Study Method for Landscape Architecture* elevated the value of the systematic documentation and evaluation of landscape projects (Marcus & Francis 1998; Francis, 1999). Landscape architecture literature from the past two decades notes the value of evaluating landscape projects (Ozdil, 2008; Francis, 2003; Marcus & Francis 1998; Bookout et. al., 1994; Whyte, 1990). These earlier studies, with limited number of variables and methods, set the stage

for comprehensive evaluation studies within the recent years scrutinizing various social, economic, environmental factors. Recently, broader design literature witnesses a significant spike of such evaluative case studies, including efforts by Urban Lands Institute, US Green Building Council's studies on LEED projects, Landscape Architecture Foundation's (LAF) Case Study Investigation (CSI) program, Environmental Protection Agencies Best Management Practices, Sustainable Sites Initiatives, and the Cultural Landscape Foundation's recent initiatives (See such as EPA, 2014; LAF, 2014; SSI, 2014; TCLF, 2014; ULI, 2014).

2.2 Case Study Approach

The evaluation and performance studies in landscape architecture typically adopted the case study approach (Yin, 2009; Francis, 1999) similar to other allied design fields. The case study approach has appeal to the design profession due to its accommodating qualities to study singular projects with greater depth. This approach is also adopted in landscape architecture to stress the value and the relevance of performance studies. The literature review reveals that in addition to numerous case studies produced independently within the past decades more structured attempts such as ULI Case Studies initiated by Urban Land Institute and the CSI Program, initiated by LAF (LAF, 2014; ULI, 2014) found its place in project performance and evaluation. These case studies focus on a more comprehensive set of performance indicators including, but not limited, to the evaluation of social, environmental and/or economic factors. Most inquiry to date focus on singular cases studied independently with a

subjective set of qualitative criteria and indicators. The validity and reliability of the methods of most case studies can be scrutinized due to implicit and project specific nature of adopted procedures. Other than a handful of cases, the empirical and systematic inquiry with consistent criteria on numerous projects is minimally tested up to date. Literature of the past decade highlights a variety of indicators which can be organized under economic factors for performance studies. Previous research sets the stage for broader empirical applications to inform landscape architecture scholarship and profession. In particular, the list of indicators and variables adopted in this research are a product of a systematic review of earlier research (see such as LAF, 2014, ULI, 2014, Ozdil, 2008). The review of previous research and documentation, and adaptation of them to all case studies assured a level of consistency and replicability in methodology initially set forth for this research (see Table.1).

2.3 Economic Activity, Performance, & Factors

Urban landscapes are epicenters of economic, social and environmental activity to accommodate human behaviors and needs. The review of the literature reveals a greater focus on understanding economic factors and methods in relation to design improvements in landscape architecture and urban design within the recent years. The review illustrates an adaptation of both qualitative and quantitative evaluation techniques to study economic implications of design in these complementary fields. (Prekosovich et al., 2011; Ozdil, 2008 & 2012; Jerke, 2008; Sherer, 2006;

McIndoe et.al, 2005; Bengochea, 2013; Carmona et al., 2001 & 2002; Crompton, 2001). The review also reveals that most economic performance indicators and methods are cataloged by the Urban Land Institute Development Case Studies (ULI, 2014) and the Landscape Architecture Foundation (LAF, 2014). The literature seem to also suggest that due to the complex nature of landscape architectural projects and intangible benefits of the economic activity, (performance) is typically illustrated as an amalgamation of direct, indirect, and/or indirect ripple effects and market valuation (de Groot et al., 2002; The Center for Urban Policy Research, 1999). Direct effect is typically defined as the initial change in economic activities/purchases whereas indirect effect is the change directly experienced by the suppliers of the products and services. Ripple effect is the impact of initial purchases to greater economies (The Center for Urban Policy Research, 1999). The economic valuation methods for urban landscape architecture projects seem to produce direct and indirect market valuation (de Groot et al., 2002). The direct economic performance value can be exemplified by the economic value initiated by the programmatic elements (such as paid parking, a kiosk/restaurant, or cost savings through sustainable materials) of landscape architecture project itself. Indirect economic implications would be the economic activity created in adjacent properties and/or surrounding urban context. Ripple effect is exemplified by (as an example) the impact of the installation of solar powered lighting to number of jobs created in solar economy. It is a partial focus of this research to review selected urban landscape typologies, procedures and findings to highlight the importance of studying

economic performance.

3 Methodology

This research followed quantitative and qualitative methods (LAF, 2014; Deming et. al., 2011; Ozdil, 2008; Murphy, 2005; Moughtin, 1999; Francis, 1999; Marcus et. al. 1998; Preiser et. al., 1988) to document and review five urban landscape architectural projects, to assess their economic performance benefits and to draw lessons. These studies have been completed by the authors within the past three years to document economic activity and performance of well recognized urban landscape projects in Texas. The projects/typologies reviewed are: Klyde Warren Park, Dallas (urban park); UT Dallas Campus Identity and Landscape Framework Plan, Richardson (Campus); Katy Trail, Dallas (Urban Trail); Addison Circle, Addison (Mixed-use development); Buffalo Bayou Promenade, Houston (linear park/stream restoration). Methodological underpinnings of these case studies were primarily derived from a systematic review of performance criteria and variables from: (1)ULI Case Studies and the LAF's landscape performance series Case Study Briefs (LAF, 2014), (2)The case study methods geared for designers and planners in economic performance literature (Ozdil, 2008; McIndoe et.al, 2005; Carmona et al., 2001; Crompton, 2001), and (3)project related secondary data collected from project firms, project stakeholders, public resources and databases from local, state, and/or federal sources (see Table 1).

At the start of the investigation, the research team benefited from empirical methods to conduct a systematic research that produces replicable

performance criteria and methods in all five sites. For all instances the measurable criteria were identified first. Next, these performance indicators were appropriated for each case study site to better document and report their various economic performance qualities. While identifying consistent set of performance benefits in all case studies was the initial goal, customization of detailed performance criteria later in the process allowed more detailed understanding of economic activity. This also helped the research team to overcome the concerns about data availability and, varying project typologies, project goals and outcomes.

The case study reviews seek out archival and secondary data attainable from project firms, project stakeholders, public resources, and private databases. The economic data, consistent with literature (see Table.1), were systematically collected, organized, and reviewed for their content rigor and integrity. The data gathered from all the research instruments were later analyzed, synthesized and summarized as the economic performance benefits for each of the five case studies under investigation. Passive observations, photography, site inventory and analysis techniques were also utilized in most instances to document and visualize economic activity and performance of the case study sites (Gehl et. al., 2013; Marcus & Francis 1998).

The analysis of the investigations in all cases focused on first, site related performance benefits, then its immediate adjecencies, and finally on the project block group/neighborhood/district or zip code to economic activity and performance. For example, direct performance benefits retain higher emphasis in comparison to indirect performance

benefits and findings about the project adjacencies, or neighborhoods. In conclusion, the data were systematically reviewed and appropriate methods for analysis for specific performance criteria were highlighted in the detailed findings below. The research was designed to highlight the values and the significance of five urban landscape architecture projects by utilizing objective measures and by documenting and evaluating their performances to inform future urban landscapes.

4 Case Study Findings and Results

4.1 Klyde Warren Park, Dallas

Klyde Warren Park (KWP)(Fig.1) is a 5.2 acre urban park created over an existing 8-lane Woodall Rogers freeway on a suspended infrastructure in October 2012. Designed by the Office of James Burnett this innovative park has been a vehicle to connect Uptown and Downtown of Dallas with actively programmed and managed landscape elements. The project achieves its vision through a collaborative public/private partnership to help fund the approximately \$115 million park. KWP case study produced various direct and indirect economic landscape performance results. As a direct impact KWP's economic benefits began during construction where estimated 170 jobs were created during construction (Bjerke, 2013) Presently, KWP employs 8 full time and 5 part time positions to conduct the ongoing maintenance and operations (Barshop, 2013). Restaurants, kiosks, and food trucks as well as outdoor rental for specific events also start generating revenue not only for the Park foundation but also for the city through taxes. Sustainable practices such as LED lighting allowed the park to save \$11,279 annually

(Bjerke, 2013) and the use of geo foam lowered the deck load by 180 tons through the use of geo foam with a cost saving of approximately \$6,600. Indirect impact has been witnessed in the form of increase demand to project neighborhood and district. As a result of the impact of the park, the McKinney Avenue Trolley witnessed a 61% bump in ridership since KWP's opening (Flick, 2012) and popularity of the area influenced the projected \$9.9 million investment into the city's Main Street District public transit infrastructure (DART, 2013). The analysis of census data shows a projected population increase of 8.8% (within two block groups where KWP resides), housing increases by 4.1-4.8%, vacancy decreases by 12.1-13.1% and the Uptown District block group (north of KWP) shows a projected increase in 'renter occupied units' of 44.0% while the Arts District block group (south of KWP) shows a projected increase in 'renter occupied units' of 18.9%. Finally, through two key real estate projects, Museum Tower and 2000 McKinney, and total property value of \$291 million (as of 2013) are found on the adjacencies of KWP (2000 McKinney, 2013; DCAD, 2013; Museum Tower, 2013; Greene, 2012; and Wilonsky, 2013). For KWP, economic performance factors contain unique benefits to the space itself, to the district, and the city of Dallas. The relative newness of KWP is a limitation in the study of economic benefits. On the adjacencies, real estate market value is consistently increased in both housing and office structures. In conclusion, KWP's design turns a once perceived impenetrable edge condition to a design opportunity. This project was a significant example of how green infrastructure and recreational amenity can add economic value

to urban landscape (LAF, 2013a).

4.2 Buffalo Bayou Promenade, Houston

Sabine-to-Bagby Promenade (also known as Buffalo Bayou Promenade)(Fig.2) is a 23-acre urban water front park and a recreation area designed by the SWA Group beneath the Interstate 45 overpass in Houston, Texas. The park is completed in 2006 and has transformed an impermeable segment of Buffalo Bayou into a functioning green infrastructure and a thriving urban waterfront. The project converts a neglected, overgrown, eyesore channelized stream into 3,000 linear feet of urban park. The \$15 million landmark project (1st phase) was the result of a public/private partnership to restore and revitalize the Buffalo Bayou corridor. Buffalo Bayou Promenade (BBP) case study research produced various results concerning economic performance. The review of economic indicators seems to be more informative where secondary data was attainable and provided insight to the value created as results of this project. Almost all the economic impacts recorded in this case were through indirect or ripple effect. BBP turns a constrained edge condition into an opportunity to connect the downtown and midtown districts of Houston. A before and after review of census data (US Census 2000 and 2010) displays the indirect effect of the introduction of BBP and its impact on the city core's revival. 34.0% change in population from 2000 to 2012 along with improvements in Buffalo Bayou seems to impact employment, real estate market and value. The housing impact, during the same time frame, includes values of change for 'occupied housing units' of 961, 'occupied structures with 50+

units' of 787, and 'renter occupied units' of 470. Employment (population in work force) increases by 10,454 between 2008 and 2012. During the same time frame, the number of establishments increase by 182 (downtown block group) and from 3 to 30 (midtown block group). An indirect impact is the increase in retail sales by \$46.8 million (downtown block group) and by \$15.4 million (midtown block group). Finally, a development adjacent to BBP introduces 198 additional housing units and has seen a property value increase by 40% (HCAD, 2013). Although most economic performance indicators identified earlier in the research were documented for BBP, this project offered a different set of challenges due its location and project goals and mission. The availability of archival and secondary data concerning its engineering was minimally available. In conclusion, the seven year time frame between BBP's opening and the time of the research allowed for a stronger economic benefits study. Clear before and after data is available to create a stronger argument for BBP's indirect effect on Houston's downtown renaissance (LAF, 2013b).

4.3 Katy Trail, Dallas

The Katy Trail (Fig.3) is an urban, pedestrian trail within Dallas' Uptown District. While planning for the trail began in the 1980's, the SWA Group design, opened for use in the year 2000. The project arose as part of The Rails to Trails Conservancy project and has overlaid on an abandoned Texas to Missouri right-of-way. In 1997, the establishment of the Friends of the Katy Trail stimulated funding for the proposed \$23 million dollar master plan and continues to generate funding for its ongoing

operation. The Katy Trail is a result of a successful public-private partnership among the City of Dallas, Dallas Area Rapid Transit (DART), and ONCOR the regional electricity provider. With 300,000 potential users within a 1 mile radius of the trail, the Katy Trail promotes connectivity with dual bike and pedestrian trails, sustainability through native plant design and economic stimulus with a noted increase in development along the trail (Lockwood, 2007; Stewart, 2014). The performance study illustrated that The Katy Trail, along its adjacencies, experiences a noted increase in economic value. The economic impact of Katy Trail is a product of its interaction with surrounding parcels and varying land uses along its path. The trail corridor is primarily studied through indirect impacts in three buffer zones; adjacencies (properties/parcels touching the boundaries of the trail corridor, 0.25 mile buffer area, as well as the area defined by 0.5 mile from the trail. The analysis of land use data concentrates on percent change in land use square footage between the (years) 2000, 2005 and 2010 data-sets. Positive economic change occurs with commercial growth at approximately 7% (from 2000 to 2010) along adjacent parcels. Additionally, 13% multi-family land use growth is noted during this time frame along adjacent parcels (NCTCOG & US Census, 2014). In summary, commercial land use increases signify increase potential for economic activity and multi-family land use increases signify an increase in density which corresponds to a larger population that contributes to the tax base and local economy. The Dallas Central Appraisal District offers substantial property value data back to 2004 that this research can utilize. Adjacent parcels along the trail display

an approximate 38% mean value increase in value between 2004 and 2013. Additionally, parcels within the 0.25 mile buffer display an increase in mean value by approximately 43% (DCAD, 2014; Stewart, 2014). The study of gross sales, sales tax revenue, number of establishments, employment are also conducted and varying positive changes are recorded in various portions of the trail but results deemed limited by the researchers due to confounding factors. These data are attainable only for Zip Code or Census Tract level, much larger geographies than parcel level data. Confounding factors created greater concerns with these large scale geographies for data in comparison. The Katy Trail economic performance study illustrates the importance of the availability of data to produce robust economic performance results (Stewart, 2014).

4.4 The UT Dallas Campus Identity & Landscape Framework Plan, Richardson

The University of Texas at Dallas Campus Identity & Landscape Framework Plan Phase.1 (UTD) (Fig.4) was completed in 2010. PWP Landscape Architecture led the design vision to transition the campus from a car-centric environment to a pedestrian friendly campus landscape. The 33 acre project was initially funded through the University of Texas system, additional sources enabled the original \$6 million plan to move forward and later be augmented through a \$30 million private donation. The campus enhancements were aided through substantial native plantings and through an increase of the canopy tree count by adding 5000 natural trees on-site. The landscape has helped transform the image of the campus and become

a source of pride to student, faculty, and staff as well as to the surrounding community. UTD also revealed various landscape performance findings in concern to direct and indirect economic factors. The Phase 1 plan indirectly impacts enrollment and donations in a positive manner which believed to stimulate economic activity. While as a fairly new project, there has been an observed enrollment increase of 13% from 2010 to 2012. To 2018, the annual enrollment was projected to increase 4% as well (UTD Annual Report, 2012). The excitement of the updated landscape stimulated \$31.2 million in private donations to fund the construction and future university initiatives. As a direct impact the project created approximately 72 design, construction and or consultations jobs from October 2008 to October 2010 (UTD Construction Facts, 2010). For UTD, economic benefits were more implicit, and the indirect effects were created through the environmental and aesthetic value of the Phase 1 landscape design. A limitation in the economic study comes from the large footprint of the campus thus the lack of adjacent development in close proximity. Although future plans exist and evolving, such as Dallas Area Rapid Transit (DART)'s Cotton Belt Line comes to fruition are in the adjacencies the UTD enhancements is assumed to impact the proposed transit plaza directly north of the campus grounds. In conclusion, the environmental improvements drive the indirect economic value increases while outlining the university's sustainable initiative (LAF, 2013c).

4.5 Addison Circle, Addison

Addison Circle (Fig.5) was built as the town-

center for the City of Addison in late 1990s. In collaboration in the early and mid-1990's with RTKL, the Town of Addison identified an 80-acre (reached 124 acres in 2011) site as its last chance to create a heart for the community. The design is evolved as an outcome of a unique public/private partnership. The development includes residential, commercial, office, public and civic components in conformance with a coherent plan. The design/plan specifies the type and scale of uses, permitted densities, and related green infrastructure. The design concentrates on four sub-districts; the toll way fronting zone, Addison Town Center, the DART station area, and adjacent, urban residential neighborhoods. The design has significant functional and physical integration of project components, a relatively intense use of land, and uninterrupted pedestrian spaces and connections to stimulate activity across sub-districts. Respecting the Town's moratorium on garden-style apartments, a high-density, mixed-use urban residential district, office, hotel and retail space are created in this visionary development. More importantly, a pedestrian-friendly street grid, a series of public parks and a landmark sculpture have defined a focus for community life. The development presents one of the earliest examples of multimodal live-work-play development creating self-sufficient urban environment in North Texas (Ozdil et.al, 2011; RTKL, 2010). Addison Circle presents added complexities and challenges to reveal direct and indirect impacts of landscape architecture project's economic performance. Of the 124 acre developed by the year 2011, 71 acres is noted private and 53 acres public/row. Residential district planned for 3500 units in late 1990s is

cited as 4,800 and 4.7 million SF mixed-residential in 2011. The commercial component (including office, hotel and retail space) initially created up to 4 million SF is cited as 6 million SF mixed-commercial in 2011. The City of Addison invested \$10.7 million for in the Addison Circle project to infrastructure, including roads and open space improvements. As of 2009 private investment in Addison Circle totals 320 million dollars and the ratio of public financing the total estimated to be 1:29. Estimated annual property tax revenue from the assessed values equated over \$1 million in revenue in year 2008. Population density per square mile in Addison increased from 2,397 in 2000 to est. 3,769 in 2014. Median household income for the same time period increase from \$45, 998 to \$71,636. Housing vacancy in Addison Census Tract reduced by 1.2% percent while median rent increased from \$751 to est. \$1,398 for the same time period. Data also illustrate that number of employment within the Census track including Addison Circle nearly doubled between 2006 and 2009 (Ozdil, 2012; RTKL, 2010 & Weaver, 2008 in Ozdil et.al, 2011). Although data availability prevents researchers to illustrate direct impacts of landscape components, Addison Circle economic performance study demonstrates the impact of combined structural components of master planned development to exemplify empirical data and robust economic performance results.

5 Conclusions & Discussions

This paper evaluated the relationship between landscape architecture and economic activity by reviewing relevant literature and the economic performance findings from five projects/case

studies in Texas. The landscape architecture projects/typologies reviewed are: Klyde Warren Park, Dallas; Katy Trail, Dallas; UT Dallas Campus Identity and Landscape Framework Plan, Richardson; Addison Circle, Addison; Buffalo Bayou Promenade, Houston. The review of the broader literature illustrated that the significant progress is being made in performance studies within the recent years in landscape architecture. Especially, the rising awareness concerning sustainability and green design practices in the late 1990's and early 2000's, with improved technological capabilities, seem to encourage a rigorous assessment and understanding of design and planning projects. The focus of the evaluation techniques for performance studies also seem to be broadening from descriptive and perception driven case studies to data driven, comprehensive, empirical, and systematic research within the recent years. Although many ambiguities exist in 'what to measure' and 'how to measure' in performance studies, they start to become more inclusive of all social, environmental, and economic factors (see LAF CSI case studies). Those performance studies that focus on singular issue/factor such as economics, start scrutinizing deeper level of details and complex procedures encouraging replicable methods and reliable results. This economic performance study is responding to some of these recent developments in landscape performance studies. This study illustrates that economic activity in most cases has been at least one of the intended outcomes of all design and planning activities. On the other hand, the empirical studies with consistent indicators and research framework to study economic performance is more of a recent

activity and it is an area open to more research in landscape architecture.

The examination of the case studies reveal that the complex nature of landscape architectural projects, and their inherent, intangible qualities, require such performance studies to be more comprehensive and inclusive when it comes to documenting economic activity. The results suggest the importance of seeking all direct, indirect, and ripple economic effects (de Groot et al., 2002; The Center for Urban Policy Research, 1997) even if such studies produces limited results for varying geospatial scales and projects.

The review of five case studies illustrate that most projects initiated a level of direct economic activity in one form for another. For example, in almost all instances jobs are created during the construction, and/or after the completion of the projects as part of maintenance and operations. In the case of Klyde Warren Park and Addison Circle, the programmable elements of landscape projects such as the restaurants, kiosks, or food trucks as well as indoor/outdoor rental for specific events also start generating revenue (sales or tax) as a direct outcome of the projects. Projects like Katy Trail illustrates that achieving direct economic activity within the site is next to impossible due to its spatial limitations as a linear space. On the other hand if the research was to specifically focus on converting the economic implications of environmental improvements such as sequestering carbon dioxide for cleaner air, or filtering water through landscape features, these items would also be considered as part of the direct economic impacts of all urban landscape projects.

As it is revealed in the case study briefs above,

the majority of the economic activity generated as a result of urban landscape projects was a product of their indirect effect in their adjacencies, neighborhoods/ districts, and even their cities. As the Katy Trail study, Buffalo Bayou Promenade, Klyde Warren Park studies specifically illustrate, the economic performance indicators recorded are mostly indirect and are more of a function of the immediate adjacencies. The documented indirect economic activities generated as a result of landscape improvements was mostly in the form of increases in real estate development, property values, property rentals, retail sales and tax revenue as well as public private partnerships that generate broader economic developments (see Table 2 below for all indicators reviewed in this research). Almost in all instances, direct and/or indirect activities are prone to produce ripple effects. For example, the impact of the installation of solar powered lighting in Buffalo Bayou Promenade to the number of jobs created in solar economy is considered as a ripple effect.

The findings illustrate that a level consistency and replicability in methodology, as well as performance measures/indicators, can be achieved, if the case specific (unique) economic performance factors are customized later in the process for greater detail. The review of the case studies reveals that economic performance studies are more prone to produce quantifiable data for empirical research than perhaps social and environmental studies. As it is illustrated in the table below, a consistent set of economic variables can detail the economic performance of a project (Table 2). In all case studies, most of the pre-determined variables, as result of literature review, produce

empirical data. The variation occurred whether the performance indicators illustrate direct, indirect, or ripple effect one case to the other. Fine-tuning of the methodology occurred when a project had a very specific quality unlike the others have. For example, the UTD campus study required additional exploration of economic variables such as enrollment or private donations. The review was assuring that the study of multiple case studies leads to a promotion of cross-sectional empirical and systematic research with consistent criteria on numerous projects in landscape architecture.

The review of five urban landscape projects also reveals certain areas and complexities one must recognize in future economic performance research. The physical qualities of a project such as project type, size, form, location, and project time on the ground are some of the key issues that impact the empirical economic performance research framework. As it is illustrated in this study, such variation among the projects reviewed was challenging but ultimately enriched the findings. For example, the location of a project seems to be a deterministic quality in arguing economic value through strong evidence. In this instance, choosing urban landscape architecture case studies produce a more consistent set of projects to review. The size or the form of a landscape project influenced the directness of the economic impact. On the more procedural side, the availability and/or attainability of economic performance study data was a critical factor in all of the evaluations. Although collecting primary data (as opposed to archival and secondary data) seems to assure greater validity and reliability to promote the scientific rigor for knowledge creation, in landscape architecture,

it is an exhausting/costly endeavor to collect primary economic data for every project over long periods of time. Unless continuing evaluation and documentation of a project is a mission of a landscape architecture project, the inquiry of reliable and robust secondary/archival data is found to be an essential dimension of economic performance studies.

In conclusion, this paper is an attempt to draw lessons from the review of past research as well as five completed projects to discuss the economic performance of urban landscape projects. The paper up to a point revealed many results and issues on the topic. Yet, it did not respond to the question “why one should measure economic performance of landscape architectural projects?” It can be validly argued that studying performance is a necessary dimension of landscape architecture to inform future designs with lessons from the past. It helps in the education of future practitioners, and/or inform landscape architecture research and theory in the future as a knowledge-based activity. Researcher’s believe that the concerns of such studies should be inclusive beyond the self-fulfilling prophecy among landscape architecture academics and professionals. The value of assessing economic performance of landscape architecture with empirical evidence and systematic research communicates the value of the profession to other “non-landscape architects” with valid language and reliable and robust data and methods. Ultimately, such economic performance review is belied to be a critical dimension of performance research and landscape architecture in the future to communicate the greater impact and value to the society. One final question is that in the

greater scheme of things is “what is the economic implications of creating environments to promote healthy and fulfilling life, sequestering carbon dioxide for cleaning air, or cleaning or slowing the water through landscapes?” yet to be determined. These difficult questions must be the topic for future landscape research to validate the scholarship and profession of landscape architecture.

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参考文献 /Reference

- [1]2000 McKinney Avenue[Z/OL]. 2000 McKinney Avenue,2013.[2013-07-01]
<http://www.2000mckinneyavenue.com/>
- [2]Barshop C. (2013, June). The Park Foundation (Operations & Maintenance). (interviews)[z].
- [3]Bengochea Morancho A. A hedonic valuation of urban green areas[J]. *Landscape and Urban Planning*,2003:35-42.
- [4]Bookout L W, Beyard M D, Fader S W.Value by design: Landscape site planning and amenities[M]. Washington DC:The Urban Land Institute,1994.
- [5]Bjerke, K. (2013, June 21). Klyde Warren Park (Construction Man-Hours). (D. Stewart, Interviewer) [z].
- [6]Carlisle Stephanie,Pevzner Nicholas. NYC High performance Landscape Guidelines Retrieved January 20, 2014[Z/OL].. from: <http://landscapeurbanism.com/article/high-performance-landscapes/>
- [7]Carmona, M., Punter, J., & Chapman, D. (2002). From Design Policy to Design Quality: The treatment of design in community strategies, local development framework and action plans[M]. Cardiff City: RTPi.
- [8]Carmona, M., Maghalhaes, C. d., Edwards, M., Awour, B., &Aminossehe, S. (2001). *The Value of Urban Design*[M]. London: Commission for Architecture and the Built Environment.
- [9]CPC. (2011). *Report on the Public Use in Central Park*[M]. New York: Central Park Conservancy.
- [10]Chiesura, A.(2004). The role of urban parks for the sustainable city[J]. *Landscape & Urban Planning*, 68, 129-

138.

- [11]City of Dallas Parks and Recreation. (2012). *How Do We Rate?*[M]. Dallas: City of Dallas.
- [12]Crompton, J.L. (2001, November). *Parks and Economic Development*[Z]. American Planning Association.
- [13]DallasCounty Appraisal District. (2013). *DCAD Property Map*. Retrieved July 2013[Z/OL]. from Dallas Central Appraisal District: <http://www.dallascad.org>
- [14]DallasCounty Appraisal District. (2014). *DCAD GIS Exchange*. Retrieved February 2014[Z/OL]. from Dallas Central Appraisal District: <http://www.dallascad.org>
- [15]DART. (2013, July) [Z/OL]. Retrieved from Dallas Area Rapid Transit: www.dart.org
- [16]de Groot, R. S., Wilson, M. A., & Boumans, R. M. (2002). A typology for the classification, description and valuation of ecosystem functions, goods and services[J]. *Ecological Economics*, 393-409.
- [17]Deming, M. E., &Swaffield, S. R. (2011). *Landscape architecture research: Inquiry, strategy, design*[M]. Hoboken, NJ: Wiley.
- [18]EPA- Environmental Protection Agency (2014). *Case Studies & Best Practices*[Z/OL]. Retrieved on August 25st, 2014 from <http://www.epa.gov/lean/environment/studies/>
- [19]Flick, D. (2012, December 10). Klyde Warren Park boosts McKinney Avenue trolley ridership. Retrieved July 2013[N/OL]. from Dallas News: <http://www.dallasnews.com/news/transportation/20121209-klyde-warren-park-boosts-mckinney-avenue-trolley-ridership.ece>
- [20]Francis, M. (2003).*Urban Open Space: Designing for User Needs*[M]. Island Press.Washington, D.C.
- [21]Francis, M. (1999). A case study method for landscape architecture[Z/OL]. Landscape Architecture Foundation, Washington, D.C. (Last Accessed <http://www.lafoundation.org/research/case-study-method/>)
- [22]Frangos, Alex (April 20, 2005). “Location, Location, Architect” [N].*The Wall Street Journal*.
- [23]Gehl, J. &Svarre, B. (2013). *How to study public life: Methods in urban design*[M]. S.I.: Island Press.
- [24]Greene, M. (2012). Klyde Warren Park landscape review: 'Right plant, right place', *The Dallas Morning News*[N/OL].. Retrieved from <http://www.dallasnews.com/lifestyles/headlines/20121026-klyde-warren-park-landscape-review-right-plant-right-place.ece>
- [25]Harris County. (2013) [Z/OL].. Retrieved July 2013, from Harris County Appraisal District: <http://www.hcad.org>
- [26]Jerke, D., Porter, D., &Lassar, T. (2008). *Urban design and the bottom line: Optimizing the return on perception*[M].. Washington D.C.:The Urban Land Institute.

- [27]LAF-Landscape Architecture Foundation (2014). Case Study Briefs[N/OL]. (Last Accessed, August 5, 2014) <http://www.lafoundation.org/research/landscape-performance-series/case-studies/>
- [28]LAFOzdil, Taner R., & Modi, S., & Stewart, D. (2013a). "Case Study Investigation 2013: Klyde Warren Park". OJB. Landscape Performance Series[N/OL]. Landscape Architecture Foundation, Washington D.C. (Peer-reviewed). <http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/612/>
- [29]LAFOzdil, Taner R., & Modi, S., & Stewart, D. (2013b). "Case Study Investigation 2013: Buffalo Bayou Promenade". SWA Group. Landscape Performance Series[N/OL]. Landscape Architecture Foundation, Washington D.C. (Peer-reviewed). <http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/623/>
- [30]LAFOzdil, Taner R., & Modi, S., & Stewart, D. (2013c). "Case Study Investigation 2013: University of Texas at Dallas Campus Identity and Landscape Framework Plan". PWP Landscape. Landscape Performance Series[N/OL]. Landscape Architecture Foundation, Washington D.C. (Peer-reviewed). <http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/624/>
- [31]Marcus, C. C., & Francis, C. (1998). Peoples place: Design guidelines for urban open space[M]. London: Van Nostrand Reinhold.
- [32]McIndoe, G., Chapman, R., McDonald, C., Holden, G., & Howden-Chapman, P. (2005). The value of urban design[M]. Wellington, New Zealand: Ministry for the Environment.
- [33]Minecozzi, (2011). The value of downtown. A Profitable investment for the community[M]. Retrieved on August 25, 2014 from <http://www.friendsmidcoast.org/documents/planningtools/>
- [34]Moughtin, C. (1999). Urban design: Methods and techniques[M]. Boston, MA: Architectural Press.
- [35]Murphy, M. D. (2005). Landscape architecture theory: An evolving body of thought[M]. Long Grove, Ill: Waveland Press Inc.
- [36]Museum Tower. (2013, July) [N/OL]. Retrieved from Museum Tower Dallas: www.museumtowerdallas.com
- [37]North Central Texas Council of Governments. (2014). GIS Clearinghouse[N/OL]. Retrieved from NCTCOG: <http://www.nctcog.org>
- [38]Olin, L. (1988). Form, Meaning, and Expression in Landscape Architecture[J]. Landscape Architecture Journal, 149-168.
- [39]Ozdil, Taner R. (2008). Economic Value of Urban Design[Z]. VDM Verlag Dr. Muller, Munich.
- [40]Ozdil, Taner R. Edt. (October, 2011). 10 North Texas Case Studies as Regional Best Practices[N/OL]. Case Studies are individually published on Vision North Texas Website <http://www.visionnorthtexas.org/2011Casestudies/2011studies.asp>
- [41]Ozdil, Taner R. (June, 2012). Searching for Value Creation Indicators and Mixed-Use Environments in North Texas[Z]. Environmental Design Research Association (EDRA 43 Seattle).
- [42]Ozdil, Taner R., & Modi, S., & Stewart, D. (March, 2014). "Texas Three-Step' Landscape Performance Research: Learning from Buffalo Bayou Promenade Klyde Warren Park, and UT Dallas Campus Plan" Council of Educators in Landscape Architecture (CELA-2014) [Z]. Proceedings. Baltimore, MD.
- [43]Preiser, W. F.E., Rabinowitz, H. Z., & White E. T. (1988). Post occupancy evaluation[M]. New York: Van Nostrand Reinhold.
- [44]Pogodzinski, J., & Kos, R. M. (2013). Economic Development & GIS[M]. Redlands: Esri Press.
- [45]Prekosovich, M., Martinez, H., Sierra, A., Bian, C., & Re No, Y. (2011). Woodall Rodgers Park, "The Park" Dallas[M]. College Station: Texas A&M University.
- [46]RTRL (2010). Addison Circle Data[Z]. Provided by the Firm.
- [47]PWP Landscape Architecture. (2010). Campus Site Development Plan 2008-2050[M]. Richardson: The University of Texas at Dallas.
- [48]Sherer, P. (2006). The Benefits of Parks: Why America Needs More City Parks and Open Space[M]. San Francisco: The Trust for Public Land.
- [49]Sommer R. (1969). Personal space: The Behavioral basis for design[M]. Englewood Cliffs, NJ: Prentice-Hall.
- [50]Stewart, Dylan (2014). Assessing the Economic Value of Linear Landscapes: Learning from The Katy and Santa Fe Trails in Dallas, Texas[Z]. Non-published Thesis, The University of Texas at Arlington.
- [51]SSI - Sustainable Sites Initiative (2014). Certificate Sites[Z/OL]. Retrieved on August 15 2014 from <http://www.sustainablesites.org/>
- [52]SWA Group. (2013). Katy Trail. Retrieved 2013[Z/OL], from SWA: <http://www.swagroup.com/project/katy-trail.html>
- [53]TCLF - The Cultural Landscape Architecture Foundation (2014) [N/OL]. Retrieved on August 15st, 2014 from <https://tclf.org/news/features/whats-out-there-texas-program-officially-launched>
- [54]The Center for Urban Policy Research. (1999). Historic preservation at work for the Texas economy: A report[R]. New Jersey, Austin: Texas Historical Commission.
- [55]Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., Kazmierczak, A., Niemela, J., & James, P. (2007). Promoting ecosystem and human health in urban areas using Green Infrastructure: A literature review[J]. Landscape and Urban Planning, 167-179.
- [56]U.S Department of Transportation, F. H. A. (March 2013). Highway Statistics 2011[Z/OL]. From <http://www.fhwa.dot.gov/policyinformation/statistics/2011/vm1.cfm>
- [57]U.S. Environmental Protection Agency (2012). Water Trivia Facts[Z/OL]. From http://water.epa.gov/learn/kids/drinkingwater/water_trivia_facts.cfm
- [58]ULI - Urban Land Institute. (2014). ULI Development Case Studies[Z/OL]. Retrieved July 2014, from ULI Development Case Studies: <http://casestudies.uli.org/>
- [59]US Census Bureau. (2013). Retrieved July 2013[Z/OL], from United States Census Bureau: <http://www.census.gov/>
- [60]USGBC-LEED (2014). Us Green Building Council[Z/OL]. Retrieved on August 15st, 2014 from <http://www.usgbc.org/leed>
- [61]Vandermeulen, V., Verspecht, A., Vermeire, B., Van Huylenbroeck, G., & Gellynck, X. (2011). The use of economic valuation to create public support for green infrastructure investments in urban areas[J]. Landscape and Urban Planning, 198-207
- [62]Weaver, Karla (2008). National Association of Industrial and Official Properties: Sustainable Development Properties[Z/OL]. Retrieved on August 2010, from http://www.nactcog.org/trans/sustdev/landuse/NAIOP_062408.pdf RTRL, 2009; Weaver, 2008
- [63]Wilonsky, R. (2013). City hopes Klyde Warren Park improvement district will improve everything from Perot Museum to Arts District[N/OL]. The Dallas Morning News. Retrieved from <http://cityhallblog.dallasnews.com/2013/06/city-hopes-klyde-warren-park-improvement-district-will-improve-everything-from-perot-museum-to-arts-district.html/>
- [64]Whyte, H. W. (Writer/Director). (1990). The social life of small urban spaces [Video Recording] [N]. New York: Municipal Art Society.
- [65]Yin, Robert K. (2009). Applied social research methods series, 4th ed[Z]. Los Angeles, Sage Publication.