STREETSCAPE PLANNING GUIDELINES FOR WALKABLE CAMPUS

BY

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ABSTRACT

Walkability is an indicator for a walkable area and it is one of the fundamental principles to achieve sustainable environment. Streets that boost positive attachment between pedestrians and their surrounding would invite and attract more pedestrian utilization to it. This study focuses on street walkability on university campus. Recently, numerous Malaysian campuses are striving toward sustainability by promoting walking and cycling as a culture among students. This study believes that proper streetscape design is essential to enhance street walkability in campus. A walkable street comprises comfort, connectivity, safety and accessibility attributes to enhance the affinity of a street. The lack of concern for streetscape design, results in unfriendly street which seem to be the issue which requires fullest attention by campus planners. This study aims to overcome this shortcoming by suggesting possible streetscape guidelines to optimize streetscape design on campus for walkability enhancement. The objectives are to identify streetscape elements and walkability factors on Malaysian campus, to identify factors influencing pedestrian preferences of streetscape elements on campus, to assess the sidewalk design and determine the Pedestrian Level of Service(PLOS) and to suggest streetscape elements and composition for a walkable campus. Selecting the International Islamic University Malaysia (IIUM) Gombak as the site study, this research adopted a mixed method involving qualitative and quantitative approaches. The quantitative approach was conducted through pedestrian counting and questionnaire survey forms which were distributed among 425 IIUM students who lived on campus. Qualitative techniques involving the site inventory and observation, which aimed at assessing campus streetscape elements, were completed using the site inventory checklist. Frequencies, Relative Important Index (RII), Pedestrian Level of Service (PLOS), and Exploratory Factor Analysis (EFA) were used to analyzed the data. The findings indicate that comfort is the most significant factor contributing to street walkability, followed by safety, accessibility and connectivity. Pedestrian activities, physical safety, permeability and directness, pedestrian conflicts, ease of movement, traffic safety, vision at night, access to facilities, sidewalk connectivity and time/distance factors were 10 underlying sub-factors identified under these four main factors, which were highly influenced by streetscape elements that formed the streets area. All of these findings were later used to produce suitable streetscape guidelines for a walkable campus.

خلاصة البحث

القدرة على المشي أو ما يدعى الإمشائية في المنطقة القابلة للمشي في الشوارع، وهو واحد من المبادئ الأساسية لتحقيق بيئة مستدامة .علماً أن الشوارع التي تعزز ممرات المشاة والمناطق المحيطة بها تترك أثر ايجابي لجذب المزيد من المشاة إليها .إن هذه الدراسة تتركز على المشي في شوارع الحرم الجامعي .في الآونة الأخيرة، العديد من الجامعات الماليزية تسعى جاهدة من أجل تحقيق الاستدامة من خلال تعزيز المشي وركوب الدراجات بين الطلاب .هذه الدراسة، تعتمد على التأكيد بأن تصميم الشوارع المناسبة هو ضروري لتعزيز المشي في شوارع و ممرات الحرم الجامعي. إن الشارع المدعم بمناطق قابلة للمشي يؤمن بشكل ايجابي الراحة، والاتصال، والسلامة وسهولة الاتصال بالممرات و تقارب بينها .عدم الاهتمام بتصميم الشوارع، أدى إلى جعل الشارع غير ودي حيث يبدو أن هذه القضية تتطلب قدر من الاهتمام .وتهدف هذه الدراسة إلى التغلب على هذا القصور من خلال اقتراح إرشادات الشوارع الممكنة لتحسين تصميم الشوارع في الحرم الجامعي لتعزيز المشي .وتتمثل الأهداف في تحديد عناصر الشوارع وعوامل المشي في الحرم الجامعي، لتحديد العوامل التي تؤثر على تفضيلات المشاة من عناصر الشوارع في الحرم الجامعي، لتقييم تصميم الرصيف وتحديد مستوى المشاة للخدمة (بلوس) واقتراح عناصر الشوارع وتكوينها في الحرم لتصبح قابلة للمشي .وقد اختارت هذه الدراسة المنهج المختلط للنهج النوعي والكمي أيضا .تم توزيع مقاربة كمية تم إجراؤها من خلال عد المشاة واستمارات استبيان. الاستبيان بين 425 من أفراد عينة الدراسة من طلاب الجامعة الاسلامية الذين عاشوا في الحرم الجامعي .التقنيات النوعية تنطوي على جرد الموقع والمراقبة، وتهدف إلى تقييم عناصر الشوارع الحرم الجامعي وبذلك يتم الانتهاء باستخدام القائمة المرجعية. تم استخدام الترددات والمؤشرات الهامة النسبية، ومستوى الخدمة للمشاة (بلوس)، وتحليل العوامل الاستكشافية (إفا) لتحليل البيانات .وأشارت النتائج إلى أن الراحة هي أهم عامل يسهم في إمكانية المشي في الشوارع، تليها السلامة، وإمكانية الوصول، والاتصال .علما أن أنشطة المشاة هي : السلامة الجسدية والنفاذية وحركة الاتجاه المباشر والاتصال بالمشاة وسهولة الحركة والسلامة المرورية والرؤية الليلية والوصول إلى المرافق واتصال الأرصفة وعوامل الوقت / المسافة. كل هذه العشرة عوامل الفرعية أساسية تم تحديدها في إطار هذه العوامل الأربعة الرئيسية، متأثرة بشدة بعناصر الشوارع التي شكلت منطقة الشوارع .تم استخدام كل هذه النتائج لاحقا لإنتاج مبادئ توجيهية مناسبة في شوارع الحرم الجامعي.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Built Environment).

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DECLARATION

I hereby declare that this thesis is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Amanina Binti Nashar

Signature ..... Date .....

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TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATION

ATM	Automated Teller Machine
HCM	Highway Capacity Manual
IIUM	International Islamic University Malaysia
JPBD	Jabatan Perancang Bandar Dan Desa (Department of Urban and Regional Planning)
LOS	Level of Services
NLP	National Landscape Planning
RII	Relative Important Index
SACC	Safety, Accessibility, Comfort , Connectivity
USM	Universiti Sains Malaysia
UPM	Universiti Putra Malaysia