



Cairo University

ASSESSING WALKABILITY IN NEW CITIES IN EGYPT

By

Lobna Ahmed Galal

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Architectural Engineering

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Summary:

Creating walkable environments is acknowledged for its importance for health, environment, and economy. There have been considerable interventions towards sustainable urban mobility worldwide. On the other hand, increasing networks of urban roads and sub-urban sprawl trends are highly encouraged in Egypt, while walking has been given minimal consideration in urban planning and investments. This has created hostile environments for pedestrians particularly in new cities where walking act as gap filler, not by design or choice, but for the lack of adequate public transport. The research aimed at examining how walking can fill the gap of service in new cities as well as examining how the "GIS-based walkability index" developed by Frank et al. (2005; 2006; 2010) can assess walkability in the contexts of new cities in Egypt, in addition to exploring the areas where priority for enhancement and redevelopment of the built environment should be given.

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Dedication

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Abstract

Assessing walkability in new cities in Egypt

Walking as a mode of transport has been given minimal consideration in urban planning and investments in Egypt, even though walkability is highly cost effective; it requires the lowest operating costs, yet, it is not considered corresponding to development. This has created inhospitable environments for pedestrians; poor quality infrastructure for walking suffering from the absence of dedicated corridors, unsafe walking environments, and in urban planning terms; most of services and activities are placed in large distances.

On the other hand, increasing motorization by expanding the network of urban roads, and sub-urban sprawl trends are highly encouraged in Egypt. This matter has given rise to difficulties in access to places in terms of; time, cost, and comfort, in addition to the negative externalities generated from moving within and around cities that influence the environmental, social, and economic sustainability of cities. The distances to and within the new cities are very large only connected with private cars, and inadequate public and informal transport, while, walking acts as gap filler by serving other modes of transport not by design or choice, but for the lack of adequate public transport.

Creating walkable environments is acknowledged for its importance for health, environment, and economy in this regard the research objective was to examine how walking can fill the gap of service of transport in new cities. It also aimed to test how the "GIS-based walkability index" developed by Frank et al. (2005; 2006; 2010) can be used to assess walkability in the contexts in neighborhoods of new cities (Sixth of October city).

Therefore, the research was dealing with the objective measuring of the built environment attributes that are related to walking (Net residential density, intersection density, land-use mix, and retail-floor area ratio) following the procedure developed by the International Physical Activity and Environment Network (IPEN).

The results revealed consistency with the followed procedure of (Frank et al. 2010) despite the problems and limitations. Moreover, the walkability level at the block group scale across the study area were measured and mapped, and could be used to determine the areas where priority for enhancement and redevelopment should be given, so effective services can be developed and providing appropriate resources and support.