

**A MODEL TO PRIORITIZE PEDESTRIAN FACILITIES
REQUIREMENTS IN AN URBAN AREA**

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DECLARATION OF THE CANDIDATE & SUPERVISOR

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Abstract

The model share of pedestrians in developing cities has the tendency of being very high as opposed to developed cities. For example, between 25-50% of trips in major Indian cities and about 50% of all trips in major African cities are made entirely on foot. However, though a significant number of trips are made by foot in majority of developing cities, pedestrian infrastructure, amenities, and services are often neglected in municipal planning and budgets (Fang, 2005). Pedestrian facilities in an urban area have a significant influence on the traffic flow and socio-economic environment. Improved walking facilities not only will generate new pedestrian flows, but it will also increase the comfort of the current walking population. Consequently, it will result in increasing of public transit usage and decrease in private vehicle trips. Herewith a need has arisen to measure the performance of pedestrian facilities for improvements and priority setting. In response, this study developed a model to prioritize road links for provision of pedestrian facilities in small and medium cities.

The model developed with three basic parameters namely; pedestrian demand, connectivity and evaluation of existing pedestrian facilities. When developing the model, a GIS based model for pedestrian demand was developed using six selected land uses. Moreover, GIS spatial analysis tools were employed to identify the shortest path where pedestrians prefer to walk as per their route choice preferences examination. The relative safety and convenience of routes could then be evaluated with respect to road prioritization for the provision of pedestrian facilities.

Finally a point scoring frame work was developed for prioritization of road links with an evaluation of existing pedestrian facilities. The model estimated and validated in this study can be applied to other developing countries with same socio-economic conditions. Since the six selected land uses are characteristically visible in most of the urban areas it should be a very rapid and simple process to apply this model and select road links to provide pedestrian facilities requirements or improvements

Keywords: Pedestrian demand, Connectivity, Point scoring framework, Developing countries

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LIST OF ABBREVIATIONS

| Abbreviation | Description |
|--------------|---------------------------------|
| ADB | Asian Development Bank |
| GIS | Geographical Information System |
| UDA | Urban Development Authority |
| MC | Municipal Council |
| UC | Urban Council |
| GND | Grama Niladari Division |
| O-D | Origin – Destination |
| CNR | Connected Node Ratio |
| PRD | Pedestrian Route Directness |
| LOS | Level of Service |
| PLOS | Pedestrian Level of Service |
| BLOS | Bicycle Level of Service |

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