Walking is an activity that most people engaged in and it is the simplest way for majority of people to go about their daily life. Generally, walking behavior can be categorized into three types: occupational, recreational and utilitarian walking. Among them, recreational and utilitarian walking are frequently compared with neighborhood environment. The purpose of this study is to detect the characteristics of people’s walking behavior with the People Flow Data of Tokyo Metropolitan Area and to evaluate the neighborhood environment of these people to find potential relationships between patterns of people’s walking behavior and the physical attributes of their neighborhood environments.

In this study, the People Flow Data of Tokyo in 2008 was used for the measurement of people’s utilitarian walking time (UWT) (Fig. 1) and recreational walking time (RWT). The total number of samples in this dataset reached 576,806. The People Flow Data is a data set processed by Center for Spatial Information Science (CSIS), the University of Tokyo.

Fig 1. Average UWT of residents in TMA

Residential density (RD), street connectivity (SC), land use diversity (LUD), bus stops density (BSD), railway station accessibility (RSA), sightseeing spots accessibility (SSA), greenness density (GD) and parks density (PD) were selected to evaluate the neighborhood environment which defined as a 1 km buffer from each residence. The multiple regression model was used to determine which criteria were significant for UWT and RWT. The results showed that the UWT of each person were more related to RD, SC, LUD, BSD and RSA while the RWT of each person were more related to SC, GD and PD.

In this context, the utilitarian walkability (Fig. 2) and recreational walkability were calculated separately with different combination of criteria. The results from evaluating utilitarian and recreational walkability had a consistency with the results of residents’ utilitarian walking time and recreational walking time derived from the People Flow Data where people living in the areas with higher walkability had longer walking time.

Fig 2. Utilitarian walkability in TMA