

Maximizing the Community Services of Multi-Location Public Facilities in Urban Residential Areas by the Use of Constructing the Accessibility Index and Spatial Buffer Zone

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Abstract : Public use facilities provide the basic infrastructure supporting the needs of urban sustainable development. These facilities include roads (streets), parking areas, green spaces, public schools, and city parks. However, how to acquire land with the proper location and size still remains uncertain in a capitalist economy where land is largely privately owned, such as in cities in Taiwan. The issue concerning the proper acquisition of reserved land for local public facilities (RLPF) policies has been continuously debated by the Taiwanese government for more than 30 years. Lately, the government has been re-evaluating projects connected with existing RLPF policies from the viewpoints of the needs of local residents, including the living environments of older adults. This challenging task includes addressing the requests of official bureau administrators, citizens whose property rights and current use status are affected, and other stakeholders, along with the means of development. To simplify the decision to acquire or release public land, we selected only public facilities that are needed for living in the local community, including parks, green spaces, plaza squares, and land for kindergartens, schools, and local stadiums. This study categorized these spaces as the community's "leisure public facilities" (LPF). By constructing an accessibility index of the services of such multi-function facilities, we computed and produced a GIS map of spatial buffer zones for each LPF. Through these procedures, the service needs provided by each LPF were clearly identified. We then used spatial buffer zone envelope mapping to evaluate these service areas. The results obtained can help decide which RLPF should be acquired or released so that community services can be maximized under a limited budget.

Keywords : urban public facilities, community demand, accessibility, spatial buffer zone, Taiwan

Conference Title : ICUPRD 2024 : International Conference on Urban Planning and Regional Development

Conference Location : Athens, Greece

Conference Dates : April 04-05, 2024