

STREET SMART AND SCHOOL CATCHMENTS: A WALKABILITY ANALYSIS OF CHICAGO PUBLIC SCHOOLS

Abstract

When did children in the United States stop walking to school, and why? Aside from a reduced carbon footprint, the developmental benefits of walking for elementary school children abound, and have scientific and popular recognition. The kernel for this trend may have been the advent of suburbia or the influx of buses, both of which were catalyzed by the 1954 *Brown v. Board of Education* decision. A more proximate cause for the recent drop-off in pedestrian school-bound travelers may be found in larger patterns of traffic and transportation networks. Indeed, educational building site choice and surrounding traffic patterns can contribute to concerns of child safety and dangerous streets. Strategic urban planning and street design can promote walkable elementary school districts for children, even in dense urban areas such as Chicago. However, such an agenda must first reconcile with the paradoxical inequities embedded in the urban development process.

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Keywords

Education, urbanism, walkability, catchment, equity

Short Essay

The Chicago Public Schools (CPS) are a suitable case study for investigating such questions. The CPS as well as the Chicago Department of Transportation (CDOT) host a wealth of data concerning both schools and their adjacent street networks. Chicago also has a wide range of street typologies, from narrow allies and shortcuts to wide arterial highways with limited pedestrian crossing options. The district itself has historically oscillated between large, centrally located and economically constructed buildings designed to maximize the number of students, and smaller elementary units integrated into communities. Both CPS itself and grassroots organizations are aware of the dangers of contemporary car culture. The CDOT's 2013 publication, *Complete Streets: Design Guidelines*, ensured that there were crossing guards at all major intersections within a 200-meter range of elementary schools at the relevant times of day. Beginning in the South Shore neighborhood, the Black United Fund of Illinois (BUFI) created the Safe Passage program, which strategically places volunteers at dangerous intersections and has grown into a citywide program coordinated with CPS. This unique confluence of urban factors, and CPS's role as something of a model for large, urban school districts in the United States makes a child-centered walkability study of Chicago desirable and worthwhile.

Data analysts can learn much about CPS from basic mapping, even before a deeper exploration of network connectivity. The CPS system is composed of elementary schools with hard boundaries that determine enrollment. Magnet schools, which recruit outside of predetermined boundaries, account for 3 percent of elementary schools. The boundary areas vary widely in size and shape, with some containing multiple buildings split by age groups or other factors. There is also some spatial correlation of long-term teacher vacancies and substitute teacher request fulfillment rates. Such a finding suggests that teachers may be affected by trends in elementary school accessibility across community areas. Other factors such as compensation or housing choices likely affect this outcome. While parents may make similar choices about where to live based on factors beyond academic performance and spatial accessibility, the children who are the ultimate subject of this study do not. Children thus enter the elementary education network as if from behind a veil of ignorance.

A citywide map of catchment areas for CPS elementary schools shows which areas of Chicago are more or less within walking distance of an elementary school. Catchment refers to the subset of a network — usually a street network — that is within a certain distance of a central node. The distances used for a catchment study vary widely, depending on traveler ability and environment. Since the transportation grid usually navigates around obstructions such as buildings, it is almost always smaller than a simple circle with radius of the same distance. School accessibility can be conceptualized as a series of concentric catchment areas - within a quarter mile, a half-mile and three-quarters of a mile. Such a distribution illustrates a spectrum of areas within Chicago at various levels of service. However, anything outside of this range is commonly considered unwalkable by the juvenile end user. Patterns of proximity and remoteness already emerge at this scale. Several large areas of disservice call for further investigation.

The Fulton Market and Lakeshore East neighborhoods represent recent developments outside of walkable CPS access. Both neighborhoods feature centrally located private elementary schools. While both areas have a median income well into the six figures, it is difficult to imagine acute hardship caused by distance from public education options. This trend does, however, demonstrate a predisposition towards certain end users on the part of urban planners in Chicago. The residences of such planned developments have precluded engagement with the public education system. The omission of educational considerations would be a costly mistake for city planners as they position themselves to facilitate an affordable housing-based reimagining of LaSalle Street. Can discussions of affordability be limited to housing when elementary school tuitions resemble their post-secondary counterparts? If not, then the Chicago Department of Planning and Development may have to grapple with an emerging architectural form heretofore explored only in the boutique private sphere: the high-rise elementary school.

The main finding of this study, that areas excluded from the web of CPS are mainly planned developments with high-income residents, was unexpected. One possible interpretation of the findings is that issues of equity within CPS are far outweighed by the disinvestment of wealthy young families in public education systems. The method itself leaves much to be desired; networks of school accessibility are likely affected by traffic volume, street width and prevalence of green space. The built environment's ability to facilitate safe passages to learning institutions perhaps requires a more qualitative approach, incorporating surveys and design-based assessments of pedestrian infrastructure. Such an analysis should also consider whether streetscapes are related to crime, and the potential for the journey to school to become an extension of the curriculum. However, such considerations have been overshadowed by a perverse inequity in proximity to public elementary education.