

Land Use and Walkability around a Newly Built Light Rail Transit Line: The Houston TRAIN Study¹⁴⁷⁶ Board #269 May 28, 900 AM - 1030 AM

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C-39 Free Communication/Poster - Physical Activity Promotion Programming in Adults Thursday, May 28, 2015, 7:30 AM - 12:30 PM Room: Exhibit Hall F

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PURPOSE: Light rail is a form of transit that may encourage physical activity. However, walkability of a neighborhood is a key assumption for active transportation to be an effective source of physical activity. If an area around a transit station is not walkable, then other forms of travel may be chosen. The Houston Travel Related Activity in Neighborhoods (TRAIN) study examines the effect of the introduction of a light rail transit (LRT) system on physical activity in a low-income, majority-minority urban community in Houston, Texas. The purpose of the current study was to compare associations between residential land use and measures of walkability around stations on a new light rail system.

METHODS: Field audits were conducted in summer, 2014 by the Houston TRAIN study team. Census blocks within a half-mile buffer of the LRT stations were audited. Each side of the census block is one street segment and both sides of the street were observed. The St. Louis Audit Tool (Analytic Version) was used for the environmental audit. A total of 539 street segments were audited. Chi-square tests were conducted to examine the association of residential land use and walkability of the segments.

RESULTS: Half (52.1%) of the audited segments were low residential use (0–33.3% for residential use). The majority (63.5%) of the audited segments had little availability to alternative transportation modes (e.g., bikes). The majority of the segments had sidewalks on one side-only (15.8%) or both sides of the street (60.1%) with 66.8% of those in good condition (e.g. no cracks or broken sections). Significant inverse associations were found between residential land use and sidewalk presence $\chi^2(4, N = 454) = 68.1, p < .001$ and levelness and condition $\chi^2(4, N = 353) = 32.2, p < .001$.

CONCLUSION: Low residential land use is associated with higher walkability (i.e., more sidewalks and better levelness and condition) around stations in a newly constructed light rail transit line. The observed built environment features such as land use type and sidewalk presence may impact transit-related behaviors and overall physical activity volume.

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