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REVIEWER'S REPORT

Manuscript No.: IJAR-51609 Date: 16-05-2025

Title: MEASURING SPATIAL ADAPTABILITY ALONG BRT CORRIDORS: WHY FORM, REGULATION, AND ACCESSIBILITY MUST BE MEASURED TOGETHER

Recommendation:
Accept as it is.....YES.....
Accept after minor revision.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		√		
Techn. Quality		√		
Clarity			√	
Significance			√	

Reviewer's Name: Mr Mir Bilal

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Abstract:

The abstract provides a concise and comprehensive summary of the study, outlining the development and application of the Spatial Adaptability Index (SAI) to Guatemala City's Transmetro Lines 7 and 12. It effectively describes the multidimensional nature of the SAI, incorporating urban morphology, density potential, transit accessibility, land value elasticity, and zoning flexibility. The use of Principal Component Analysis (PCA) and spatial clustering to uncover latent spatial patterns is appropriately mentioned. The findings highlight the complex interplay between accessibility, regulatory frameworks, and spatial configurations, stressing that accessibility alone does not guarantee urban transformation. The abstract concludes by positioning the SAI as both an analytical tool and a strategic framework, relevant for sustainable and equitable transit-oriented development (TOD).

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Introduction:

The introduction frames the research within the broader context of urban transformation and the role of infrastructure investment in shaping spatial development. It clearly articulates the significance of BRT corridors in fostering connectivity and sustainable growth. The discussion on the influence of adjacent urban areas and their characteristics—such as morphology, accessibility, zoning, and land value—provides a strong rationale for the integrated approach proposed by the study.

The description of the Transmetro lines 7 and 12 in Guatemala City grounds the research in a real-world case study, highlighting the contrasting urban contexts these lines traverse and the resulting spatial dynamics. This contextualization aids in understanding the diverse challenges and opportunities for urban adaptation along the corridor.

Methodology and Data:

The application of PCA and spatial clustering techniques for analyzing urban blocks according to adaptability levels reflects a robust quantitative approach. The integration of multiple dimensions into a single index (SAI) suggests a comprehensive and innovative methodological framework. Although further methodological details are not provided in this excerpt, the overall approach appears well-justified and methodologically sound.

Significance and Contribution:

The study advances the understanding of spatial adaptability in the context of transit infrastructure by highlighting the necessity of considering regulatory and market factors alongside physical accessibility and form. The SAI offers a valuable diagnostic and planning tool for urban policymakers, particularly in rapidly urbanizing environments like Guatemala City. This multidimensional perspective enriches transit-oriented development literature and offers practical insights for equitable urban interventions.

Writing and Presentation:

The manuscript is clearly written, logically organized, and uses precise terminology appropriate for an academic audience in urban planning and geography. The flow from the problem statement to the case study and analytical framework is coherent and engaging.

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Keywords:
The keywords selected—Spatial Adaptability Index (SAI), Transit-Oriented Development (TOD), Bus Rapid Transit (BRT), Guatemala City—accurately reflect the core themes of the paper and enhance its discoverability.

Summary:

This manuscript presents a well-constructed, multidimensional framework (SAI) to assess urban adaptability along BRT corridors, demonstrated through a relevant case study in Guatemala City. The integration of urban morphology, regulatory context, and accessibility into a composite index is a significant contribution to urban planning scholarship and practice. The findings underscore the complexity of spatial transformation in transit-adjacent areas and provide actionable insights for sustainable, inclusive development.