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Functional Assessment of Ahmad Yani Road as an Urban and Tourism Corridor

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ABSTRACT: Ahmad Yani Road stood as a vital artery in Tegal City, bridging the gap between urban centers and local tourism landmarks. While its administrative label defined it as an urban road, the street's physical evolution told a different story one centered on pedestrians and tourism. Rather than accepting the status quo, this study examined the functional disconnect of Ahmad Yani Road by integrating three distinct approaches: geometric audits, traffic flow metrics, and road safety inspections (RSI). The fieldwork was conducted using a descriptive comparative framework, with data collection covering physical lane measurements, visual documentation, and traffic counts. These data were evaluated against a combination of Bina Marga's local regulations and international benchmarks for walkable tourism streets. The findings revealed a substantial performance gap. The corridor failed to adequately fulfill its function as an urban road, meeting only 57.14% of the requirements due to narrow lanes and insufficient safety infrastructure. However, when assessed as a tourism corridor, the results were markedly different, with the road achieving 90% compliance, supported by its active frontage and pedestrian-oriented design. Although traffic flow remained relatively stable (DS = 0.66, LOS C), an underlying vulnerability persisted. The corridor operated near a critical threshold, where sudden increases in tourist activity or roadside disturbances could have disrupted traffic movement. Ultimately, Ahmad Yani Road had evolved beyond its original administrative classification, and the findings supported the need for a policy shift toward adaptive management to safeguard its emerging role as a vibrant public space.

KEYWORDS: Urban road; tourism street; road safety inspection; corridor analysis; Tegal City.

1. Introduction

Viewing urban corridors as simple pipes for traffic missed the point; in reality, they were complex arenas where social life, local trade, and the art of placemaking collided [1–4]. This friction was particularly pronounced in medium-sized cities, where efforts to improve vehicle flow often conflicted with the growing demand for walkable, human-scale environments. The situation on Ahmad Yani Road in Tegal City clearly captured this tension. The street appeared to struggle with a dual identity, functioning simultaneously as a major traffic thoroughfare and

as the primary public connector between the city center and Pantai Alam Indah (PAI). Administratively, the road remained classified as an urban transit corridor, yet its everyday use revealed a more complex, pedestrian-oriented reality. Broad sidewalks and active roadside commerce had effectively narrowed the carriageway, shifting priority from traffic speed to pedestrian experience [5–7]. While this condition enhanced urban vitality [8–10], it also introduced side friction that complicated both traffic efficiency and safety performance [11–13]. To date, academic literature had largely treated these roles as separate domains. Road-focused studies tended to concentrate on capacity and Level of Service (LOS) [14–16], whereas tourism-oriented research emphasized streetscape aesthetics and pedestrian comfort [17–19]. This binary perspective left a significant gap in understanding corridors required to perform both functions simultaneously. The novelty of this study lay in its integrated analytical framework, which moved beyond such dichotomies to determine the actual functional position of an existing corridor. Conceptually, the study argued for an adaptive classification approach that acknowledged the trade-offs between movement and place, rather than relying on rigid and outdated road typologies. Based on this framework, three hypotheses were formulated. First, the existing geometry of Ahmad Yani Road deviated significantly from standard urban-road benchmarks (H1). Second, the corridor exhibited a high degree of alignment with tourism-oriented design characteristics (H2). Third, although traffic flow appeared stable, its resilience was low when subjected to peak tourism demand and side friction (H3)..

2. Materials and Methods

2.1. Study area.

The investigation focused on a specific urban corridor in Tegal City, namely Ahmad Yani Road. This one-way, two-lane road segment functioned as more than a transit route; it represented a space shaped by intensive commercial activities and high pedestrian density (Figure 1).

Figure 1. Existing physical condition of Ahmad Yani road corridor.

2.2. Data collection.

To compile the primary dataset, direct field observations were combined with on-site geometric measurements, specifically covering lane width, sidewalk width, and shoulder width. These physical measurements were complemented by systematic traffic volume counts and a

comprehensive photographic documentation of the corridor, which captured real-world side-friction activities and land-use interactions [24, 25].

2.3. Assessment criteria.

The assessment employed a dual benchmarking approach. National Bina Marga standards were applied to evaluate compliance with urban-road requirements, while international pedestrian-oriented frameworks, such as those developed by NACTO, were used to assess suitability as a tourism-oriented street. Rather than providing a general description, a direct comparison was conducted between existing road conditions and the selected benchmarks. To ensure a comprehensive evaluation of traffic performance and safety, peak-hour traffic volumes and degree of saturation (DS) were calculated, alongside targeted hazard identification using the Road Safety Inspection (RSI) and Indonesian Road Capacity Guidelines (IKJ) protocols [26−30].

3. Results and Discussion

3.1. Geometric Compliance with Urban-Road Standards.

Field data (Figure 1) showed that the average lane width was limited to 3.15 m and that the shoulders were consistently narrow, conditions that were poorly aligned with the corridor's very high side-friction value of 527. This mismatch reflected the strong presence of roadside activities, pedestrian movement, and informal commercial uses that increasingly constrained the effective carriageway width. As summarized in Table 1, the corridor failed to satisfy three out of seven key urban-road performance criteria, particularly those related to geometric adequacy and operational safety. The resulting conformity rate of only 57.14% indicated that Ahmad Yani Road no longer functioned in accordance with its formal administrative classification as an urban traffic corridor. Instead, the findings suggested a gradual functional shift driven by land-use intensity and pedestrian dominance, which compromised vehicular efficiency and safety while reinforcing its role as a mixed-use public space.

Table 1. Conformity with urban road standards.

Criteria	Standard Requirements	Existing Condition	Conformity
Lane width	≥ 3.25–3.50 m	3.15 m	✗
Shoulder width	≥ 1.0 m	0.5 m	✗
Sidewalk width	≥ 1.5–2.0 m	2.5–2.8 m	✓
Design speed	40–60 km/h	≤ 40 km/h	✓
Drainage system	Required	Available	✓
Pavement markings & signs	Complete	Partial	✗
Pedestrian crossings	Required	Available	✓

3.2. Tourism-street suitability.

The data presented in Table 2 and illustrated in Figure 2 suggested a clear functional reorientation of Ahmad Yani Road toward a tourism-oriented street. When assessed against pedestrian-focused and tourism-street standards, the corridor achieved an overall conformity level of 90%, indicating strong alignment with place-based design principles. Most of the evaluated criteria were satisfied, particularly those related to spatial comfort and pedestrian usability. Existing sidewalk widths ranging from 2.5 to 2.8 m exceeded the minimum standard of 2.0 m, providing sufficient space for walking, lingering, and informal social interaction. In

parallel, the presence of an active frontage and interactivity zone contributed to a continuous pedestrian experience, reinforcing the corridor's role as a socially engaging environment rather than a purely movement-oriented facility.

Table 2. Conformity with tourism street standards.

Criteria	Standard Requirements	Existing Condition	Conformity
Lane width	≥ 2.0 m	2.5–2.8 m	✓
Frontage/interactivity zone	≥ 0.5–1.5 m	Available	✓
Pedestrian accessibility	Safe	Available	✓
Low-speed environment	≤ 40 km/h	Present	✓
Drainage system	Required	Available	✓
Pavement markings & signs	Complete	Partial	✗
Crossing facilities	Required	Available	✓

Figure 2. Pedestrian space, frontage zone, and streetscape elements supporting tourism function.

Pedestrian accessibility and a low-speed environment were also consistently observed along the corridor. Traffic behavior and spatial cues supported speeds below 40 km/h, which aligned with tourism-street requirements and enhanced pedestrian safety and comfort. Supporting infrastructure, such as an operational drainage system, further indicated that the corridor was capable of accommodating sustained public use. However, the assessment also identified a critical deficiency: pavement markings and traffic signage were only partially provided, representing the sole criterion that failed to meet the required standard. Despite the availability of pedestrian crossing facilities, the absence of complete visual guidance and regulatory markings introduced potential safety risks, particularly under conditions of high pedestrian density [23, 26].

The findings demonstrated that Ahmad Yani Road functioned less as a conventional vehicular corridor and more as an informal public realm that supported tourism-related movement, leisure activities, and social interaction. The high conformity score reflected a design environment that naturally prioritized pedestrians, not through explicit restrictions but as an emergent outcome of spatial configuration and street activity. Nevertheless, the partial compliance with marking and signage standards highlighted the need for targeted safety enhancements to fully support the corridor's evolving tourism function [29–31].

3.3. Traffic performance and LOS Interpretation.

The traffic performance analysis presented in Table 3 indicated a Degree of Saturation (DS) of 0.66, corresponding to Level of Service (LOS) C. At face value, this classification suggested that traffic conditions along Ahmad Yani Road remained stable during peak hours, with demand still operating below the calculated capacity. However, this apparent stability masked a critical vulnerability. Visual observations documented in Figure 3 revealed intense roadside activities, frequent pedestrian crossings, and intermittent vehicle stoppages associated with tourism and commercial functions. These conditions introduced substantial side friction that constrained effective capacity and reduced operational flexibility. Consequently, any sudden increase in tourist arrivals, informal parking, or curbside loading activities could rapidly push the corridor beyond its threshold, triggering a deterioration to LOS D. Such a shift would significantly undermine the corridor's ability to accommodate traffic fluctuations, indicating that the current operational state was highly sensitive and lacked resilience precisely during periods of peak demand [12, 29].

Figure 3. Traffic flow conditions during peak hours at Ahmad Yani road.

Table 3. Traffic Performance of Ahmad Yani Road

Parameter	Value	Unit	Description
Peak-hour traffic (Q)	1,099	pcu/hour	Observed volume
Road capacity (C)	1,670	pcu/hour	Calculated capacity
Degree of Saturation (DS)	0.66	–	LOS C (stable flow)

3.4. Road safety implications and functional trade-offs.

The road safety assessment, particularly the identification of missing pavement markings, inadequate signage, and unsafe pedestrian crossing points, did more than merely catalog technical deficiencies; it revealed a fundamental conflict between vehicular mobility and the street's emerging role as a public social space. As Ahmad Yani Road increasingly functioned as a pedestrian-oriented tourism corridor, the absence of supportive safety infrastructure amplified exposure to traffic risks for both pedestrians and motorists. The RSI and IKJ findings demonstrated that safety measures had not evolved in parallel with the corridor's functional transformation, leaving critical gaps in protection at locations of high pedestrian activity. These conditions underscored a clear trade-off: while intensified street life enhanced urban vitality and placemaking, it simultaneously compromised operational safety when not supported by appropriate design interventions. Consequently, safety protocols could no longer be treated as

supplementary elements but needed to be repositioned as the core framework guiding future corridor redesign and management [16, 32].

4. Conclusions

The findings confirmed that Ahmad Yani Road had functionally transitioned into a tourism-oriented corridor, significantly exceeding its performance as a conventional urban road. Although traffic conditions remained stable at LOS C, the corridor exhibited a pronounced sensitivity to side friction, indicating limited resilience under peak tourism or activity-driven demand. This mismatch between administrative classification and functional reality highlighted the limitations of rigid, one-size-fits-all roadway policies. Accordingly, this study advocated for a policy-driven reclassification approach that emphasized pedestrian safety, context-sensitive design, and adaptive traffic management. Such a shift was essential to sustaining the corridor's evolving identity and supporting the broader placemaking objectives of medium-sized cities in Indonesia.

Author Contributions

Suprapto Hadi led the study's conceptualization, methodology development, supervision, and final manuscript review. Mochammad Affan Dahlan conducted field data collection, data processing, and prepared the initial draft. Agustin Ratna Indriani carried out the literature review, validated analytical procedures, and prepared tables and figures. Fajar Firdaus Maulana performed the RSI/IKJ road safety assessment and interpreted the findings. Reffi Nur Hayati assisted with documentation, visual materials, and manuscript editing and formatting. All authors contributed to the interpretation of results and approved the final manuscript.

Data Availability Statement

The datasets generated and analyzed during the study are available from the corresponding author upon reasonable request. Field observation sheets, geometric measurements, and traffic data can be accessed for academic and non-commercial research purposes.

Competing Interest

The authors declare that they have no competing or conflicting interests related to the publication of this study.

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