AESOP 2025 CONGRESS
Istanbul, 7-11 July
AESOP
YTÜ YILDIZ TEKNİK ÜNİVERSİTESİ

Comprehensive Evaluation of Child-Friendly Public Spaces: Zumrutevler Case as Istanbul's First Permanent Two-Stage Street Transformation

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Contents

Introduction

Purpose of the Thesis

Assessment on whether the environments or streets transformed through a phased design approach result in sustainably child-friendly spaces once permanently implemented

Scope of the Thesis

Evaluation of child-centered street transformations, guided by international design frameworks and a phased design approach, to assess their impact on creating sustainable, child-friendly urban spaces across multiple urban scales.

Method of the Thesis

Multiscalar evaluation combining international design criteria, spatial analysis, interviews, and observational studies to assess the effectiveness of a two-phase child-friendly street transformation in Istanbul.

components of aim

to reveal the child-friendliness of those places which experienced two-staged design process in order to create child-friendly space

to question the sustainability of child-friendly spaces where phased street transformations have been realized in a permanent state

research questions

Q1
What methods can be used to measure the child-friendliness of two-stage street transformations, and how do they vary across urban scales?

Q2
What criteria must be met for public open spaces to be considered child-friendly, and how do these criteria vary across different urban scales?

Q3
How do planning decisions made at different urban scales influence the spatial use of child-friendly street transformation projects?

Q4
To what extent do permanently implemented, phased child-friendly transformations maintain their child-friendliness when assessed through user behavior and established criteria?

Q5
How can the long-term sustainability of spaces transformed through a child-friendly design approach be ensured within the framework of child-friendly urbanism?

objectives of the thesis

objective 1
Define criteria and methods for each transformation phase.

objective 2
Analyze how decisions affect spatial use and child-friendliness.

objective 3
Investigate the effectiveness and adaptability of the phased design approach.

objective 4
Examine how user behaviors reflect the success or limitations.

objective 5
Propose strategic recommendations

Literature Review

Play and Children in a City

Children in Public Spaces

Child-Friendly Cities

Norm

Initiative

Child-Friendly Street Transformations

Temporary

Permanent

Child-Friendly Approaches of Local Authorities

Child-Centered Design Guidelines of Different Authorities and Initiatives

Research Methodology

Determination of Design Criteria

Transformation Process

Neighborhood Scale

Design Detail Scale

How to identify and analyze these criteria

Statement of Case Study

Transformation Process

Land Use and Accessibility

Design Material

Pedestrian Behaviours

Discussion and Design Recommendations Based on Findings

Children in Public Spaces

- healthy children, healthy societies
- right to play
- streets as the first places to experience the city

Child-Friendly Cities

first mentioned in Habitat II in 1996

initiated by UNICEF

supporting municipal governments in **implementing children's rights at the local level** based on the UN Convention on the Rights of the Child

SDG - Goal 11 - Sustainable Cities and Communities

Krysiak, N. (2018). Where do the children play: designing child-friendly compact cities.
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Child-Centred Street Transformation

- dominance of vehicles on streets
- children’s independent mobility
- temporary street transformations - play streets
- permanent street transformations - two-stage with **tactical urbanism**

Methodology

Methodology

pre-project

during interim

after implementation

Methodology

Name	Institution	Year	Scope
Designing Streets for Kids	NACTO & GDCI	2019	Global
ITCN Design Guidelines	The Ministry of Housing and Urban Affairs, Government of India	2019	India
Child-Friendly Cities: Planning and Design Guidelines	Government of Israel	2023	Israel
Streets for Walking & Cycling: Designing for Safety, Accessibility, and Comfort in African Cities	UN-Habitat & ITDP	2015	Africa
Cities Safer by Design	WRI	2015	Global

Methodology

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Cities Safer by Design	WRI	2015	Global

Methodology

Three spatial scales of evaluation:

Decision-making process

Neighbourhood scale

Design detail scale

Common criteria consolidated, unique ones retained.

7 decision-making criteria

7 neighbourhood-level criteria

36 design-scale criteria

Methodology

- **Data Collection Methods:**

Document analysis and expert interviews (decision-making)

Mapping and spatial analysis (neighbourhood scale)

Field observation, measurement, pedestrian counts, photography (design scale)

- **Observation Timing:**

January 13, 2025 – 14:35 to 15:15

Targeted school dismissal time to observe real user behavior

- **Key Metrics:**

Accessibility distances (300–600 m)

Pedestrian crossing intervals (50–100 m)

Sidewalk widths, surface quality, seating, play elements

- **Evaluation Approach:**

Scoring system applied at all scales

Combined qualitative and quantitative data for holistic assessment

Results

Two-Phased Implementation Success:

The transformation followed an interim (rehearsal) and permanent phase. The temporary stage allowed evaluation before permanent changes.

Significant Space Reallocation:

1,075 m^2 of vehicular area converted to pedestrian use; 550 m^2 became public space, with more green and social areas.

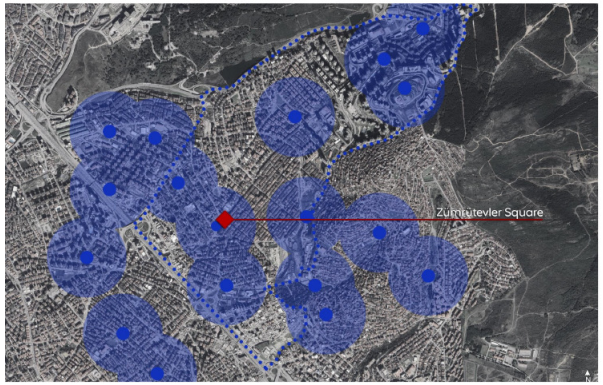
Increased Usage & Mobility:

Post-project data shows a 72% increase in square usage; child presence and elderly use rose dramatically; independent mobility improved by 43%.

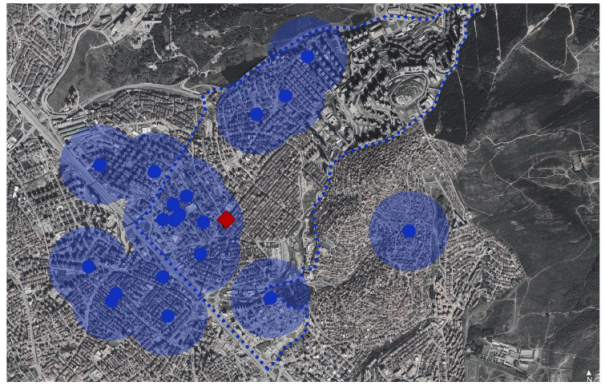
Results

The Parameters for Evaluation	Provided (1)	Not provided (0)	Score (/7)
Prepare an action plan.	x		1
Fostering inclusive participation through partnerships and collective action	x		1
Involve children and caregivers in the process.	x		1
Adaptive planning, balancing experimental approaches	x		1
Encourage experimentation through temporary interventions and showcase potential solutions	x		1
Oversight and coordination of place	x		1
Evaluation of expenses and advantages	x		1
		Total	**7**

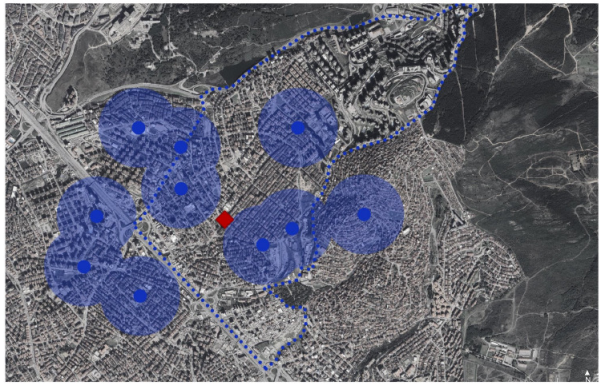
Results



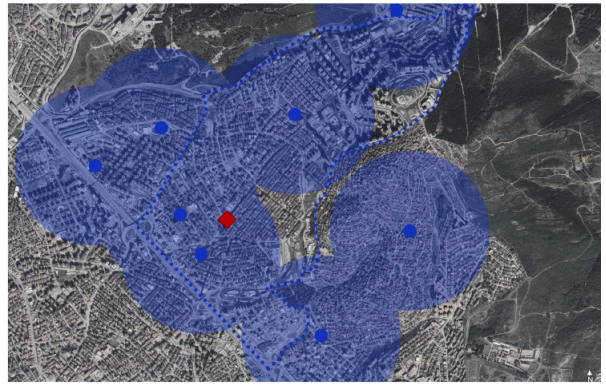
open spaces



nursery schools

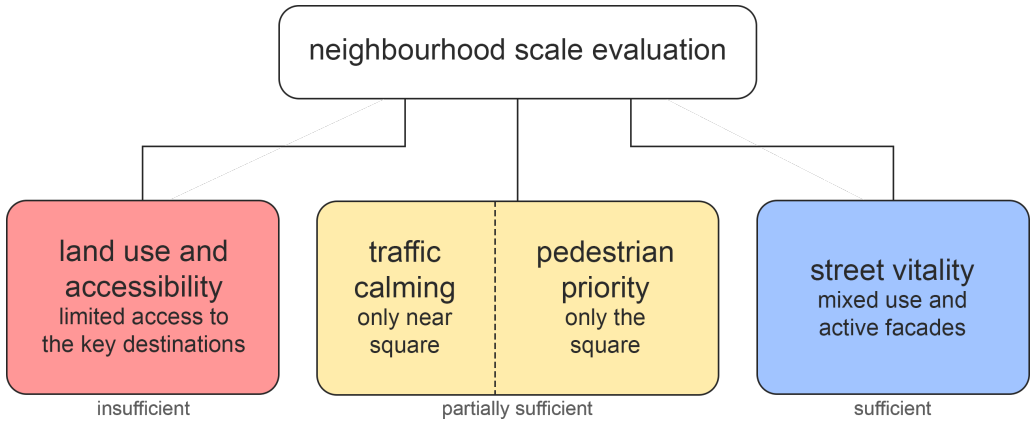


health facilities

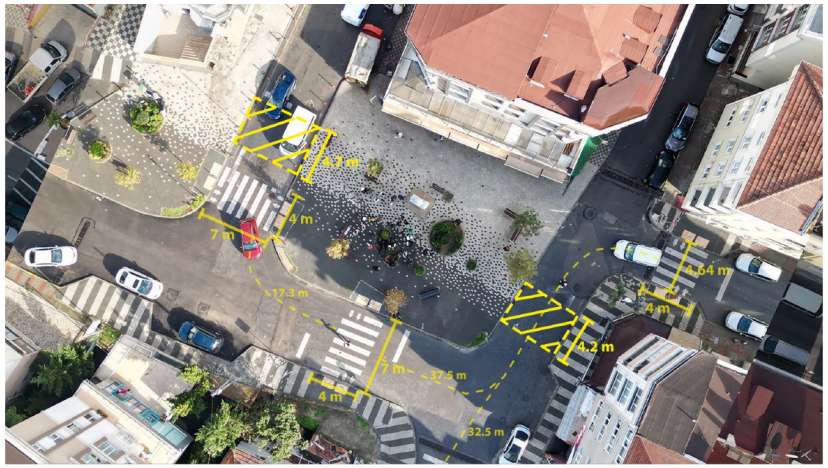


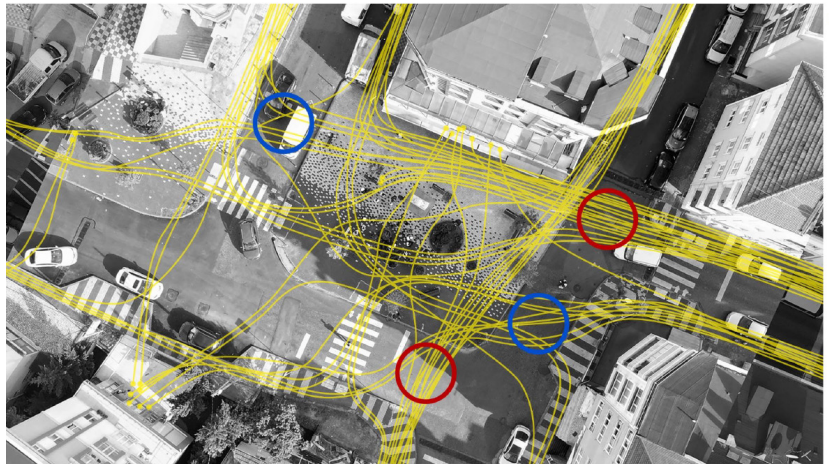
primary schools

The Parameters for Evaluation	Provided (1)	Not provided (0)	Score (/7)
Reduce trip journey with keeping the distances (minimum 300 m to open spaces, nursery school, health facilities, and minimum 600 m to primary school)		x	0
Local mobility parks		x	0
Traffic-calming measures		x	0
Pedestrian-first zones to encourage walking		x	0
Low-emission zones		x	0
Active facades	x		1
Windows and main doorways	x		1
		Total	2



Results

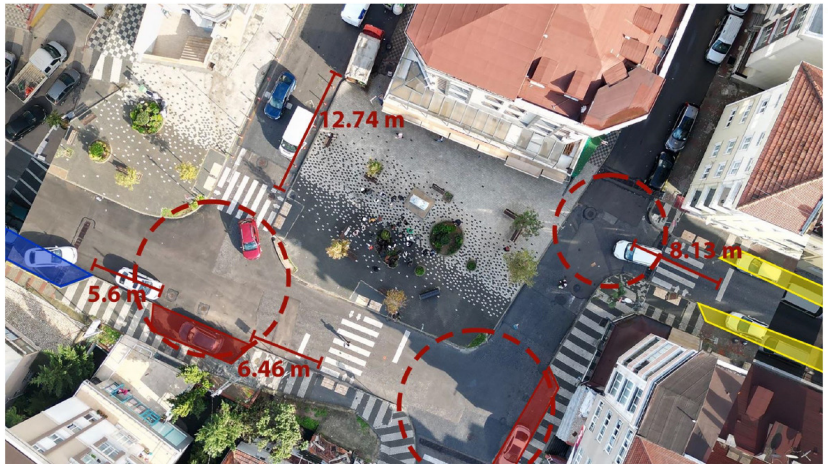




the route of each pedestrian

speed bumps where pedestrian crossings are concentrated

spaces where pedestrian crossings are concentrated

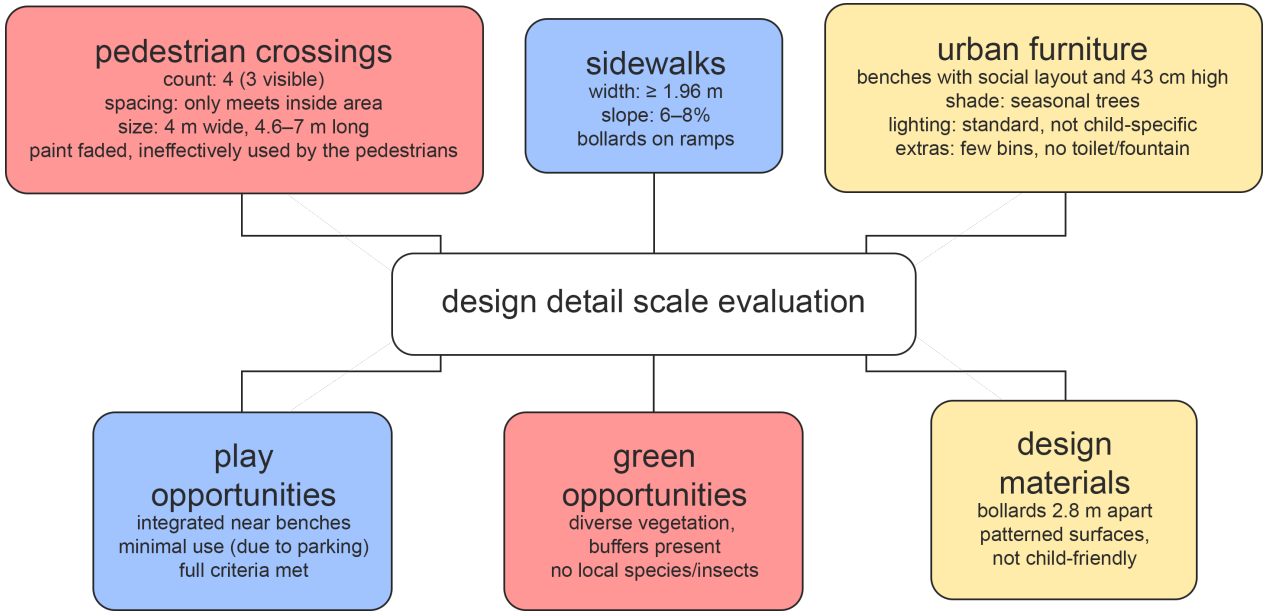


parking pockets right next to pedestrian crossing

parking lot that is 5.6 meters far from intersection point

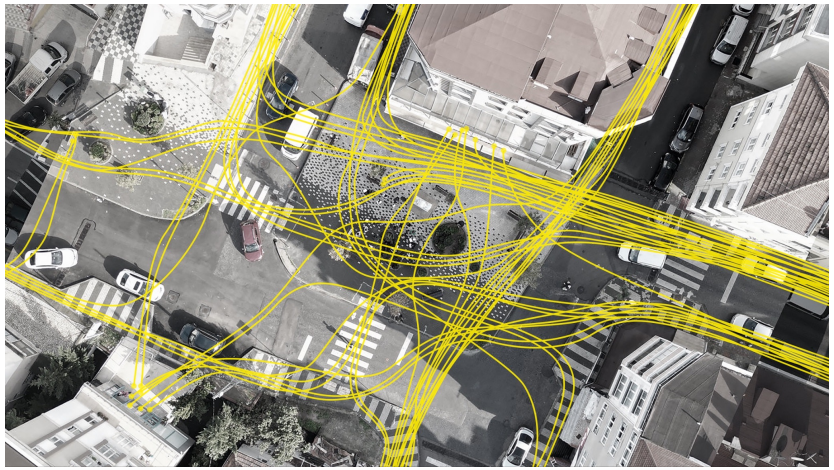
parking lots located inside intersection points

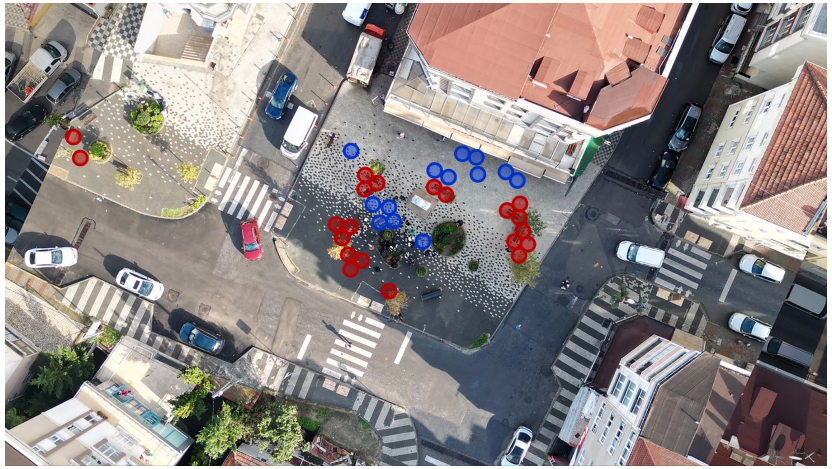
Results



The Parameters for Evaluation	Provided (1)	Not provided (0)	Score (/36)
Short crossings at least 1.8 m wide, and ideally 2.4 m wide)	x		1
Pedestrian crossings every 50 to 100 m	x		1
Visible, wide and bright crossings		x	0
Raised crosswalks		x	0
No parking within 6 to 8 m of intersections, stop bars at least 3 m from crossings, and minimize visual obstructions within 3 to 5 m of crossings		x	0
Visible corners	x		1
Continuous, accessible and obstruct-free pathways (at least 1.8–2.4 m wide in residential settings, 2.4–4.5 m wide in downtowns, school zones, or commercial areas)	x		1
Ideal pedestrian ramps (maximum slope of 10%, ideally 8%)	x		1
Chicanes		x	0
Street furniture zones	x		1
Appropriate seating dimensions	x		1
Enough seatings (every 50 to 100 m)	x		1
Seating in various locations	x		1
Seating with shading	x		1
Seating with shelter and protection		x	0
Appropriate lighting		x	0
Child-friendly wayfinding solutions		x	0
Trash cans	x		1
Public toilets		x	0
Drinking fountains		x	0
Wi-fi and charging		x	0
Shading and cooling elements		x	0
Incorporate art and play with seatings	x		1
Different types of learning	x		1
Creative play opportunities	x		1
Plant zones in different places	x		1
Different height trees for kids to enjoy	x		1
Room for insects and spiders		x	0
Indigenous and local species		x	0
Retain existing trees		x	0
Engaging colorful, different patterns on sidewalks	x		1
Child-friendly ground cover materials		x	0
No obstruct in public realm		x	0
Obstacles between different pavements			
Low fences	x		1
Boulders with min 1.2 m spacing	x		1
		Total	**19**

Results





Discussion

Phased, Inclusive Process:
The project adopted a flexible, participatory design method with a rehearsal phase, enabling community input and iteration.

Stakeholder Engagement:
Despite the absence of a larger-scale directive, the project successfully coordinated multiple actors and involved children and caregivers.

Neighbourhood Disconnect:
The square is well-designed locally but lacks integration with wider neighbourhood infrastructure like schools, parks, and calming zones.

Design-Use Mismatch:
Design elements met technical criteria, but observed user behaviour did not align with intended play/stay uses—space functions mainly as a transit route.

Vehicle Dominance:
Persistent vehicle presence and informal pedestrian routes limit safety and reduce the child-friendliness of the area.

Beyond Technical Standards:
Child-friendly design must account for lived experiences, not just technical benchmarks.

Conclusion

Multi-Scale Evaluation is Essential:
Understanding child-friendly design effectiveness requires analysis at process, neighbourhood, and detailed design levels.

Rigid Criteria ≠ Universal Success:
Some design parameters were hard to implement or maintain; flexible, context-sensitive frameworks are needed.

Low Child Visibility:
Despite the child-focused goal, the space was underused by children—mainly serving as a passageway, not a play area.

Governance Challenges:
Institutional overlap caused coordination issues, affecting the consistency of implementation.

Missed Rehearsal Opportunity:
A second rehearsal phase could have refined the design further—future projects should include iterative testing.

Policy Implication:
Zümrütevler offers valuable lessons for scaling child-friendly urbanism: long-term planning, cross-sector collaboration, and adaptability are key.

Conclusion

Further Studies:

- A detailed examination of the rehearsal phase will provide a better understanding of the transformation process.
- Testing a second rehearsal phase could enhance public engagement and allow more refined, participatory design decisions.
- Exploring coordination models between multiple institutions may help overcome administrative barriers in future urban interventions.
- Future studies could assess how child-friendly strategies evolve over time, especially under urban pressures such as densification and traffic demands.

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