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From Corridor Patterns to a Community Hub: A Pattern-Language Design Proposal and Community-Service Framework for the Rajabasa Education Corridor, Bandar Lampung

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Abstract

Rajabasa, at the northern gateway of Bandar Lampung, is a student district whose main corridor, Jalan ZA Pagar Alam, has grown into a dense mixed-use strip with little public space. Field observation identified four linked problems: pavements occupied by informal traders and waiting motorcycle-taxi drivers; fragmented green space; an unshaded corridor with nowhere to stay; and outdoor heat under a tropical rainforest climate. This article reports a design-stage community service (PKM) activity in Architectural Design Studio 4 at Institut Teknologi Sumatera. The team mapped everyday events across the seven neighbourhoods of Rajabasa, scored them with a rubric drawn from Christopher Alexander's pattern language, and linked every issue to a design response through an issue–pattern–response matrix. The output, The Comix Community Hub, is a five-storey proposal on a 10,500 m² site in Nunyai combining a public library, a UMKM court and a driver base; it meets all planning controls and keeps most of the site green and open.

Keywords: community service (PKM); pattern language; context-driven design; public library; micro-enterprise (UMKM); service-learning; Bandar Lampung.

1. INTRODUCTION

1.1. The community problem and its context

Rajabasa subdistrict sits at the northern entrance of Bandar Lampung, the capital of Lampung Province. Its seven neighbourhoods surround Universitas Lampung and a cluster of other campuses, so the corridor along Jalan ZA Pagar Alam functions as the spine of a student district: boarding houses, eateries, laundries, print shops and small stores line the road and operate from early morning until late at night. Growth has been fast and incremental. Family houses have turned into boarding rooms and shopfronts, and open land has given way to building, usually without a matching upgrade of pavements, drainage or public space. Figure 1 locates the study area and the project site; Figure 2 shows the corridor mapping produced during fieldwork.

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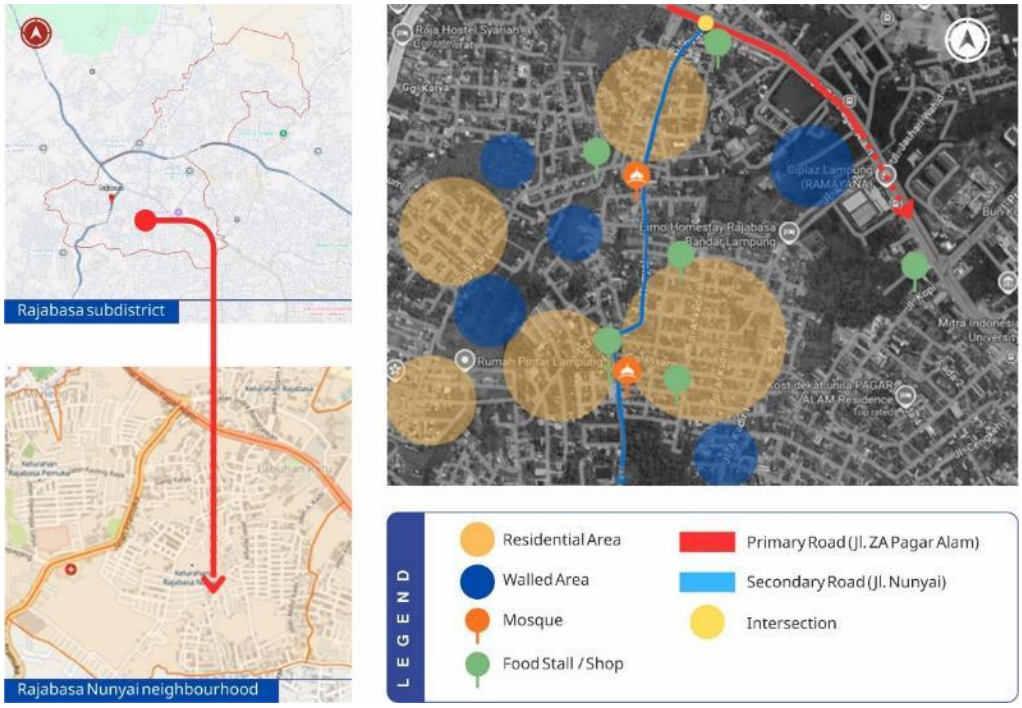

Figure 1. Study-area location: Indonesia, Lampung Province, Bandar Lampung, Rajabasa subdistrict, Nunyai neighbourhood and the 10,500 m² project site on Jalan ZA Pagar Alam.

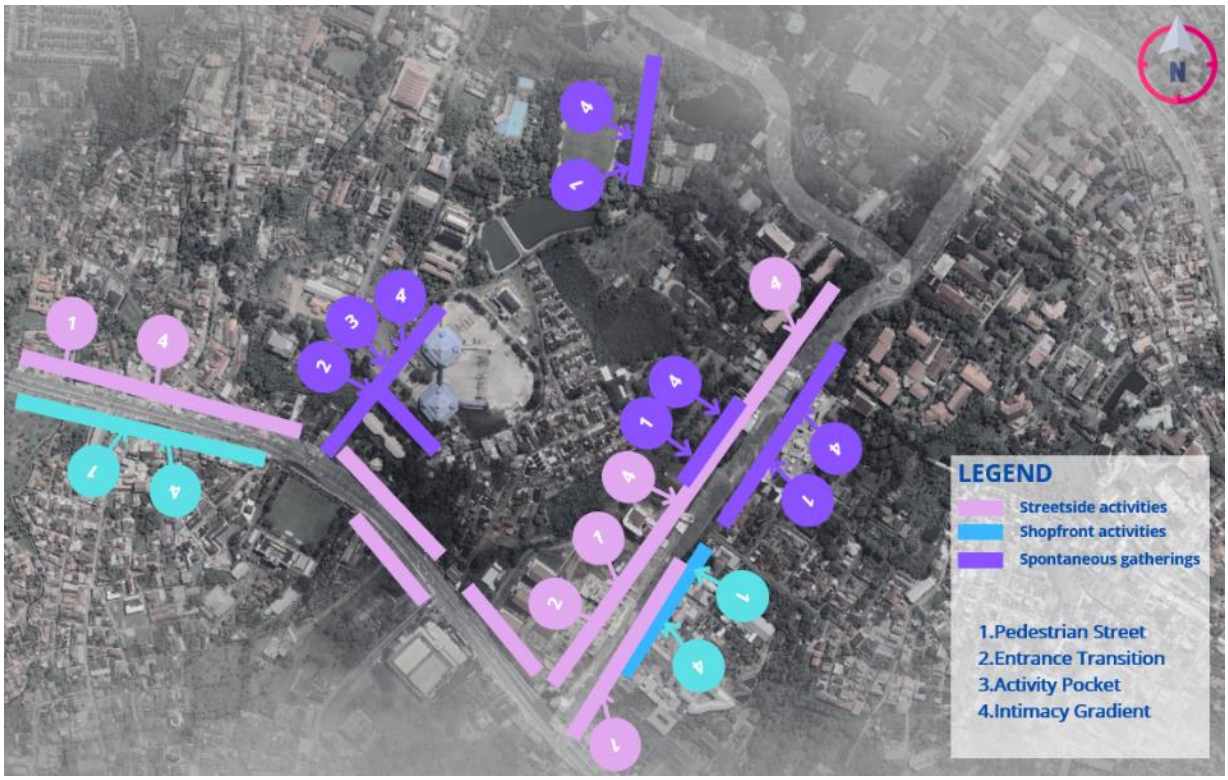

Figure 2. Corridor mapping of the study area: roadside activity (pink), shopfront activity (blue) and spontaneous gathering points (purple), annotated with the pattern concepts used in the analysis (pedestrian street, entrance transition, activity pocket, intimacy gradient).

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Direct observation along the corridor recorded four linked problems, as evidenced by the field photographs in Figure 3. First, informal traders and waiting app-based motorcycle-taxi (ojek online) drivers occupy the pavements and road shoulders, so pedestrians step into the carriageway and short queues of traffic build at busy points. Second, green space exists only as small, scattered pockets that do not connect into a usable network. Third, the corridor offers no shade and no place to stay, so encounters remain brief and transactional: people arrive, buy, and leave. Fourth, the climate makes unprotected outdoor space genuinely uncomfortable. Bandar Lampung has a tropical rainforest climate (Köppen class Af) with daytime highs of 30–32°C, humidity between roughly 80% and 100%, and annual rainfall of about 2,200–2,700 mm (Peel et al., 2007). Spot measurements on the site recorded about 32°C during the day and 24°C at night. Table 1 summarises the profile of the study area and site.

Figure 3. Field-based activity mapping along the Rajabasa corridor: informal roadside trading, spontaneous parking, waiting online motorcycle-taxi drivers, and pedestrians displaced from the pavement

Table 1. Profile of the study area and project site.

Item	Profile
Administrative area	Rajabasa subdistrict, Bandar Lampung; intervention site in Nunyai neighbourhood
Main user groups	University students (majority), residents, UMKM (micro-enterprise) traders, ojek online and delivery drivers, and commuters through Rajabasa Terminal
Nearby higher-education institutions	Universitas Lampung, IIB Darmajaya, Universitas Bandar Lampung (postgraduate campus), Universitas Mitra Indonesia, Politeknik Negeri Lampung.
Road hierarchy at the site	Jalan ZA Pagar Alam (primary collector, ≈18 m), Jalan Pramuka (secondary collector, ≈12 m), and Jalan Indra Bangsawan (local road, ≈4 m).
Public transport	Key transport nodes include Rajabasa Terminal (serving city and inter-city buses) and informal online motorcycle taxi bases dispersed along the corridor.
Climate	Tropical rainforest (Af) (Peel et al., 2007); daytime highs 30–32°C; humidity ≈80–100%; annual rainfall ≈2,200–2,700 mm; site spot measurement ≈32°C day/ 24°C night

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Existing land use	Mixed ribbon development: boarding houses, small commerce and services along the corridor; settlement and education behind
Planning designation	RTRW Bandar Lampung City: medium-density settlement, education and small industry (Pemerintah Kota Bandar Lampung, 2011)

1.2. Position and objectives

Community service (pengabdian kepada masyarakat, PKM) in architecture often takes the form of one-way counselling or short training sessions (Newton, 2022). That format rarely engages a defined spatial problem and rarely shows change. Stronger PKM practice links a diagnosed problem to a concrete intervention, involves the affected community, and measures the result; studies of participatory and assistance-based programmes report higher ownership and better fit when residents help define needs and shape space (Burgess et al., 2022; Geekiyanage et al., 2021; Haldane et al., 2019; Lakhanpaul et al., 2020). Reviews of community-based architectural pedagogy reach a similar conclusion: credible work treats the design product as evidence of a community-oriented method, not as the sole contribution (Iqbal & Shafique, 2025), and recent studio models explicitly use pattern language as the bridge between field observation and design generation (Lima et al., 2026).

This article follows that logic. It documents the chain from the community problem through the engagement and analysis process to evidence-based design decisions and the design output, and it concludes with the validation and evaluation plan. The activity was delivered through the Architectural Design Studio 4 (STUPA 4) at Institut Teknologi Sumatera (ITERA) under the theme Dynami(city), using Christopher Alexander's A Pattern Language (Dawes & Ostwald, 2017) as the analytical instrument. One point of honesty frames the whole article: community participation to date consists of structured observation of corridor users, not yet of consultation or co-design. The article therefore presents the design as a proposal with expected benefits, and it specifies the stakeholder validation, feedback, and measurement steps that the follow-on phase must complete before any claim of realised benefit can be made.

The objectives are threefold: to document the community problem of the Rajabasa corridor with field evidence; to show, step by step, how pattern-language analysis turned that evidence into a context-driven public building, The Comix Community Hub; and to define the indicators by which the follow-on phase will validate and measure the intervention.

2. COMMUNITY-SERVICE DESIGN METHODOLOGY

2.1. Conceptual basis and precedents

Three ideas underpin the method. The first is pattern language. Alexander and colleagues describe the built environment as a network of named, recurring relationships between space and use, from the region down to a window seat (Dawes & Ostwald, 2017). Later scholarship confirms that patterns remain a workable instrument for analysing and generating design (Dawes & Ostwald, 2017; Kowaltowski et al., 2024). Reading a neighbourhood through its patterns of events keeps the designer accountable to what people do rather than to abstract form. The second is service learning. In architectural education, this means structuring a studio so that student learning and community benefit develop together, with the community as a partner rather than an object of study (Iqbal & Shafique, 2025; Newton, 2022). The third is context-driven design under a tropical climate: passive measures such as orientation, shading, cross-ventilation, and vegetated ground carry most of the comfort burden, so they must be designed in from the start rather than added as icons at the end.

Precedents were consulted to test the programme mix of library, micro-enterprise space, and mobility functions. Table 2 compares four cases against fixed criteria. Three lessons carried into the design: a compact library can double

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as a neighbourhood gathering space; UMKM trading can share shaded, semi-open structures with public space; and pedestrian routes work best when separated from traffic without displacing local commerce.

Table 2. Precedent comparison framework.

Precedent	Context	Main users	Programme	Climate response	Transferable lesson	Source
Microlibrary Warak Kayu, Semarang, Indonesia	Dense tropical urban neighbourhood	Children, families, and local residents	Library, reading area, and community space	Shaded elevated volume, cross-ventilation and porous timber façade	A compact library can function as both a learning facility and a neighbourhood gathering space	(Mona Lestari, 2023)
Alun-Alun Cemara Miagan, Mojokerto, Indonesia	Participatory village public square	Residents, UMKM vendors, youth, visitors	UMKM building, shaded canopy, plaza, pedestrian paths, community space	Shaded semi-open spaces reduce heat exposure	Combine UMKM, public space, and shading through flexible phased design	(Redyantanu, 2025)
ElMosky TOD, Cairo	Dense historic commercial district	Residents, traders, pedestrians, transit users	Pedestrian streets, transit links, green pockets	Shaded green public spaces and reduced vehicle conflict	Improve pedestrian access while retaining local commerce and identity	(Elserafi, 2025)
Al Mansoura–Olaya TOD	Dense mixed-use metro districts in Doha and Riyadh	Residents, workers, shoppers, and metro users	Metro access, mixed-use development, public space, pedestrian networks	Shaded walking routes and heat-sensitive station access	Separate pedestrian movement from traffic and strengthen first- and last-mile connectivity	(Mazzetto et al., 2026)

2.2. Workflow, actors, and study area

Figure 4 shows the workflow with its actor lanes. The student team carried the main analytical chain from preparation and field observation through pattern analysis, problem formulation, and design development to the final proposal. The academic team validated the pattern rubric and reviewed the work at the mid-term and final stages. The community lane records the honest status of engagement: everyday corridor use was observed directly, while needs confirmation and design review with residents, traders, drivers, and the neighbourhood are planned steps, shown in dashed lines. The institutional partner lane carries the intended handover. Figure 5 maps the stakeholders: who uses the proposed facility, who contributes to it, and who could manage it.

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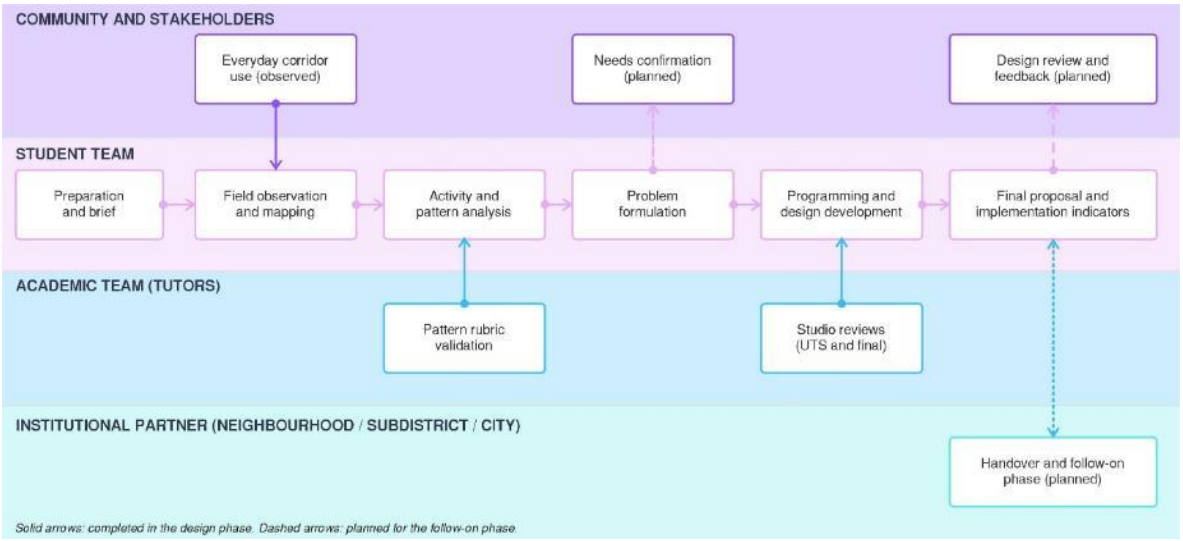

Figure 4. Community service and studio workflow with actor lanes. Solid arrows mark steps completed in the design phase; dashed arrows mark the planned engagement and handover steps of the follow-on phase.

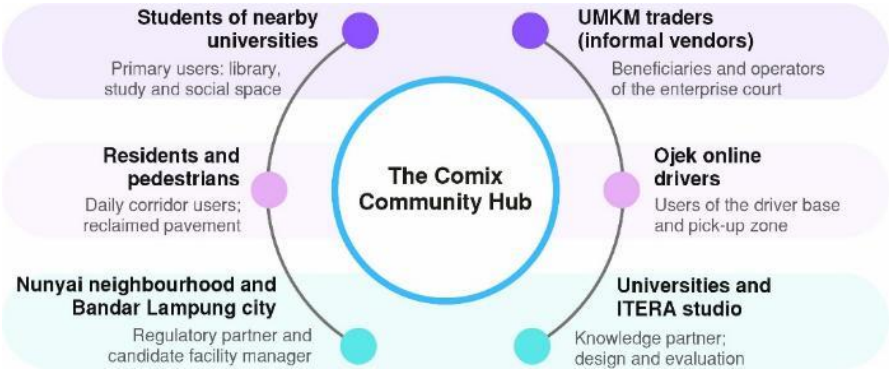

Figure 5. Stakeholder map of The Comix Community Hub: primary beneficiaries (students, traders, drivers, residents), the knowledge partner, the regulatory partner, and the candidate facility manager.

The study area covered all seven neighbourhoods of Rajabasa, with pattern mapping, activity storyboards and issue cards produced for each. From this survey, the team selected a 10,500 m² site fronting Jalan ZA Pagar Alam in the neighbourhood of Nunyai. The site sits on the primary corridor between the campus cluster and Rajabasa Terminal, is reachable on foot from the main boarding-house areas, and lies in a zone designated for settlement, education and small industry (Table 1).

2.3. Instruments and data

Observation followed a simple protocol (Table 3): each session recorded the location, day, and time band, weather, user group, activity, duration, and any conflict, using photographs and annotated maps. Sessions covered the morning, midday, afternoon, and evening bands on weekdays and weekends because the corridor changes character throughout the day. Figure 6 condenses this record into a behavioural storyboard from morning prayer and breakfast trade through campus hours to the evening return.

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Table 3. Field-observation protocol.

Field	Values used	Method	Notes
Location	Corridor segments; site; terminal; campus edges	Annotated base map	Segments keyed to the corridor mapping in Figure 2
Day and time band	Weekday and weekend; morning, midday, afternoon, evening	Repeat visits	Observations were conducted over four weeks across weekdays, weekends, and different time periods.
User group	Students; residents; traders; drivers; families; children	Direct observation	Categories match the stakeholder map (Figure 5)
Activity, duration, conflict	Trading, waiting, walking, gathering; conflicts with circulation	Photograph + note	Evidence base for Figures 3 and 6 and for Table 5

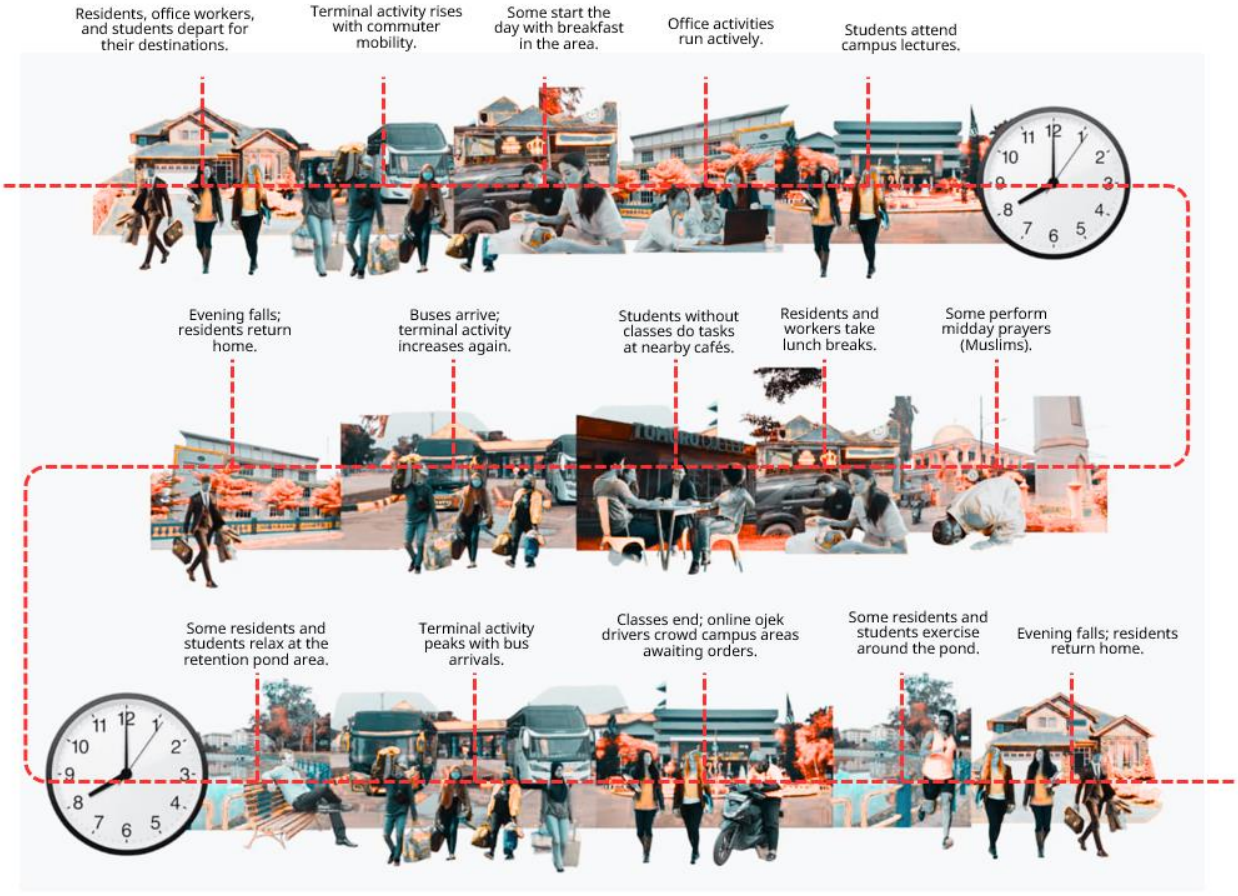

Figure 6. Behavioural storyboard of the corridor across one day.

Each neighbourhood was then scored against a pattern-based rubric organised under three categories, ecology, social and culture, with every indicator tied to a specific pattern from A Pattern Language (Dawes & Ostwald, 2017; Park, 2015), green structure to Accessible Green (60), pedestrian provision to Pedestrian Street (100), communal space

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to Common Land (67), and so on. Table 4 states how the 1–5 scale is read. The scores were assigned by the student team and validated by the academic tutors; they are expert assessments, not community evaluations, and the follow-on phase will test them against stakeholder judgement.

Table 4. Reading of the 1–5 pattern-assessment rubric.

Score	Interpretation
1	Patterns absent; severe spatial conflict
2	The pattern is weak; major intervention is required
3	Pattern partly present but inconsistent
4	Pattern generally functional; limited improvement required
5	The pattern is strongly present and supports community activity

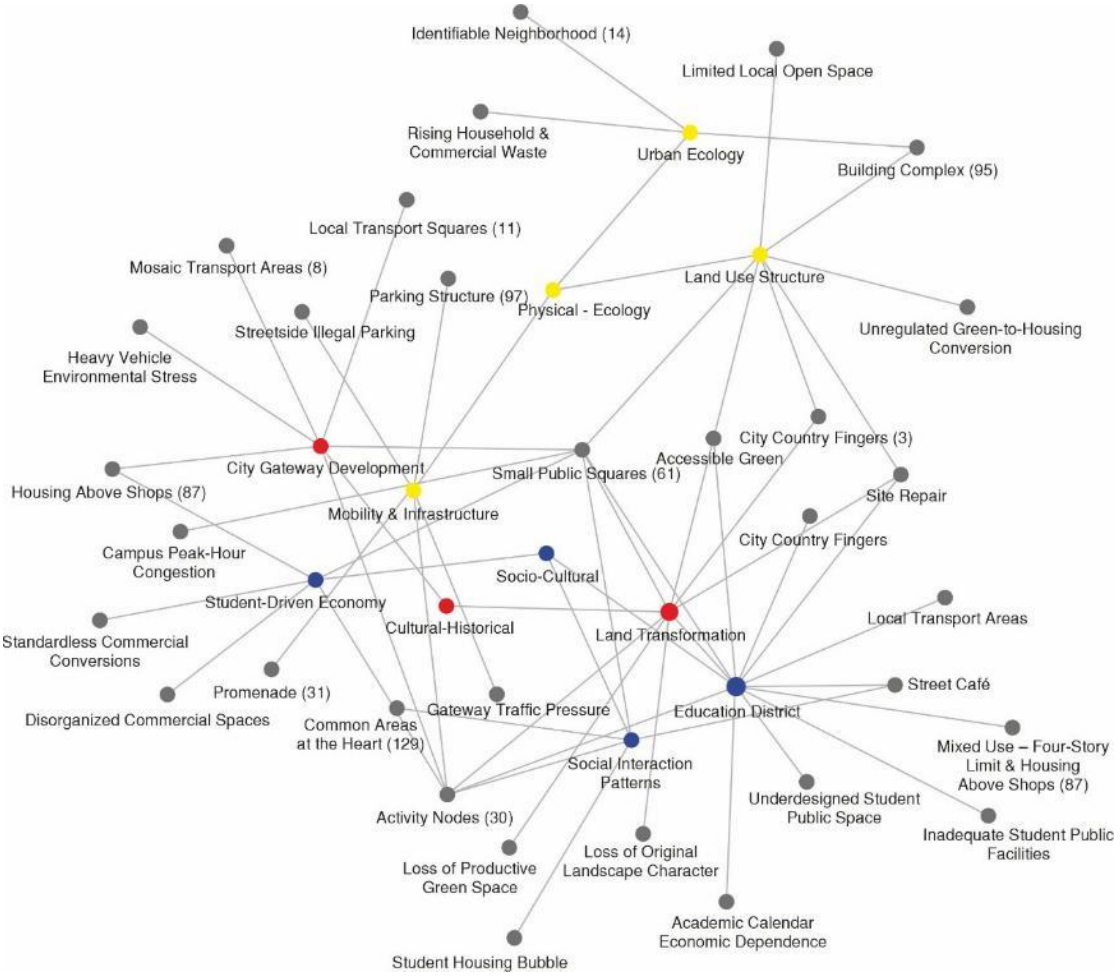

Figure 7. Relational network of field issues (grey), analytical themes (yellow, red, and blue), and pattern-language principles for Rajabasa subdistrict, generated from the studio knowledge base.

Finally, the issues, themes, and patterns identified across the district were assembled into a single relational network (Figure 7), following the network reading of pattern languages (Park, 2015). The network makes the analytical structure explicit: field issues such as streetside illegal parking, loss of productive green space or inadequate student public facilities connect through thematic nodes (mobility and infrastructure, urban ecology, land transformation, the student-driven economy) to the Alexander patterns that address them, such as Small Public Squares (61), Activity

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Nodes (30), Accessible Green (60) and Promenade (31). The design brief was read directly off this network: the patterns with the most issue connections became the organising devices of the building.

3. RESULTS AND DISCUSSION

3.1. Diagnosis and pattern synthesis

The rubric provided a consistent baseline: the corridor neighbourhoods scored low to moderate, typically 2–3 of 5, for green structure and connectivity, shaded and comfortable pedestrian space, communal space, and outdoor comfort. In the Nunyai stretch, the facilities are strung out along the road rather than clustered, so no point accumulates enough activity to become a destination. Table 5 carries the diagnosis into design: each problem is stated with its affected group and its evidence, matched to a pattern principle, answered by a specific element of the proposal, and given an indicator by which the follow-on phase can measure it. This matrix is the core result of the method because it makes every design decision traceable to field evidence.

Table 5. Issue–pattern–response matrix. Every element of the proposal traces to a field problem, an evidence source, a pattern principle, and a measurable indicator.

Field problem	Affected group	Evidence	Pattern principle (Dawes & Ostwald, 2017; Park, 2015)	Design response	Indicator
Pavement occupied by traders	Pedestrians; traders	Photo map (Fig. 3); corridor mapping (Fig. 2)	Small Public Squares (61); Food Stands (93); Market of Many Shops (46)	Ground-level Plaza and food court; sheltered UMKM court at the public edge	Clear pavement width; number of relocated stalls
Drivers waiting on road shoulders	Ojek drivers; pedestrians; traffic	Behavioural storyboard (Fig. 6)	Activity Nodes (30); Local Transport Areas (11)	Dedicated driver base with shaded seating and a pick-up edge visible from the road	Sheltered seats; drivers off the shoulder
Fragmented, inaccessible green space	All corridor users	Issue network (Fig. 7); rubric scores	Accessible Green (60); Green Streets (51); Tree Places (171)	Consolidated garden with jogging track; planted setbacks forming a connected green edge	Green-area ratio; shaded route length
No shaded place to stay; heat exposure	Students, all outdoor users	Site climate data (Table 1); observation	Public Outdoor Room (69); Arcades (119); Sitting Circle (185); Positive Outdoor Space (106)	Covered pedestrian spine and promenade; shaded plaza, terraces, and seating	Shaded area (m^2); dwell time; air temperature
No learning or communal space for the student majority	Students, community groups	Stakeholder map (Fig. 5); rubric scores	Network of Learning (18); University as a Community of Scholars (43); Street Cafe (88)	Public library and study floors; communal rooms; cafe and rooftop room	Seats provided; occupancy; user satisfaction

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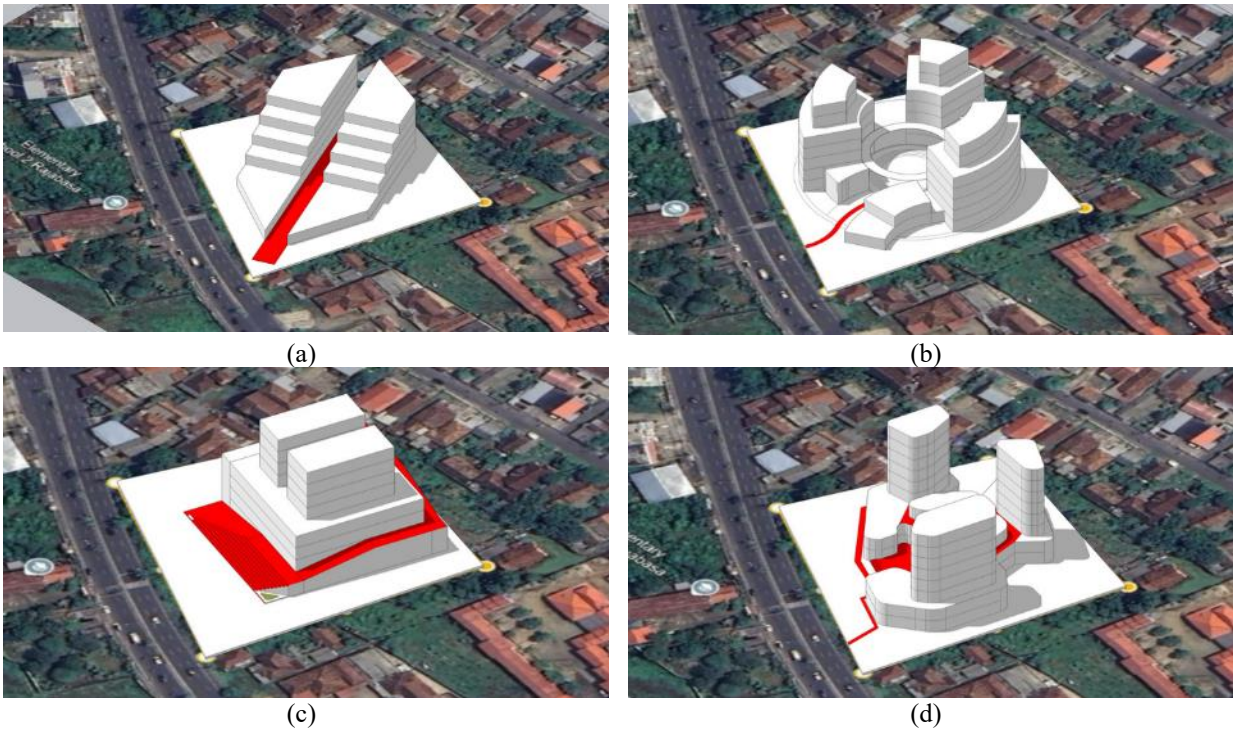
3.2. Design development and the final proposal

Two working verbs organised the concept: connecting and layering. Connecting, because the building must bring the library and the UMKM court together in one place, sit on a corridor of constant pedestrian flow, and bring different user groups together. Layering: a library needs quiet, while a market needs exposure, so the section must grade from open to calm. Four massing iterations tested these verbs on the site (Figure 8): a straight linear spine, a curved flow, a layered vertical spine, and a fragmented but connected network of volumes. Each was assessed against three pattern criteria: the entrance transition, the placement of activity pockets, and the intimacy gradient. The final scheme combines the curved pedestrian spine of iteration 2 with the split massing of iteration 4: two building volumes joined across a public route, which keeps the ground plane porous while the upper floors quieten.



(a) (b) (c) (d)

Figure 8. Massing iterations tested against pattern criteria (entrance transition, activity pockets, intimacy gradient): (a) linear spine, (b) curved flow, (c) layered vertical spine, (d) fragmented connected network. The final scheme combines (b) and (d).

Figure 9 shows the site plan. The two masses stand behind a 32 m buffer from Jalan ZA Pagar Alam, with the ojek base and pick-up edge placed where drivers can see the road, parking and drop-off kept to the site edge, and the garden, jogging track and planted courts filling the ground between and around the buildings. Quantitatively, the design keeps most of the site open: on 10,500 m², the footprint is 2,400 m² (site coverage of about 23%), the total floor area is 7,054 m² (floor-area ratio of 0.67), and the green base is about 4,300 m² (roughly 41%). Table 6 sets these values against the local planning controls, all of which are met; Table 7 summarises the spatial programme by level.

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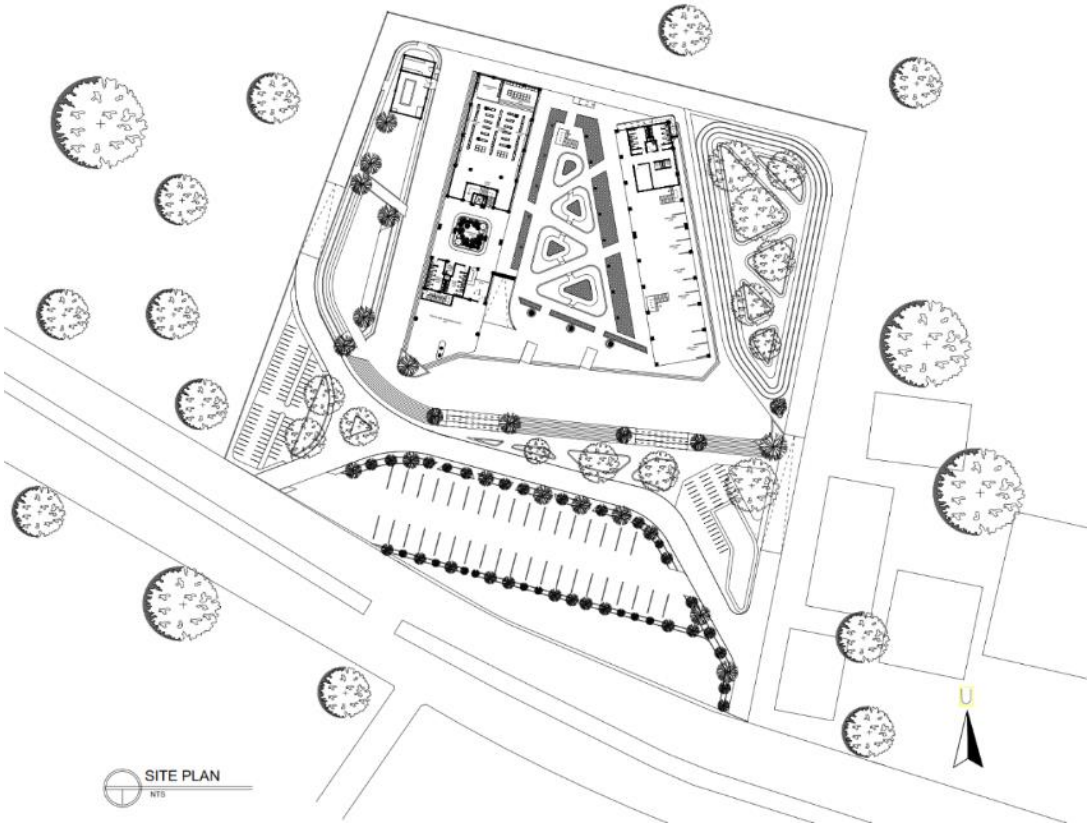

Figure 9. Site plan of the proposal. The pedestrian spine links Jalan ZA Pagar Alam through the plaza to the two building masses; the driver base sits at the visible pick-up edge; the garden and jogging track consolidate the green space.

Table 6. Planning compliance with Bandar Lampung City RTRW and Local Regulations / Mayoral Regulations.

Parameter	Permitted value	Proposed value	Status	Source
Building setback (GSB)	≥ 11 m (half road width + 1 m)	32 m buffer	Met	(Pemerintah Kota Bandar Lampung, 2014)
Site coverage (KDB)	≤ 70%	2,400 of 10,500 m² ≈ 23%	Met	(Pemerintah Kota Bandar Lampung, 2014)
Floor-area ratio (KLB)	Per zoning	7,054 of 10,500 m² = 0.67	Met	(Pemerintah Kota Bandar Lampung, 2014)
Green base (KDH)	≥ 30% (≈ 3,150 m²)	≈ 4,300 m² ≈ 41%	Met	(Pemerintah Kota Bandar Lampung, 2011, 2014)
Height	Contextual limit, ≤ six storeys	Five storeys, 20–25 m	Met	(Pemerintah Kota Bandar Lampung, 2021, 2024, 2025)

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Table 7. Spatial programme by level. Aggregate areas: footprint 2,400 m²; total floor area 7,054 m².

Level	Spaces	Primary users	Community benefit
Ground	Plaza, food court, fitness, transit drop-off, parking, ojek driver base, toilets, service, and loading	All groups; drivers; traders	Public arrival layer; trade and waiting taken off the pavement
Level 2	Gallery, retail units, souvenir (oleh-oleh) shops, UMKM tenants	UMKM traders; visitors	Sheltered, ordered micro-enterprise space
Level 3	Cafe, restaurant, library (lower), study, and communal areas	Students; residents	Social and learning layer: a reason to stay
Level 4	Library (upper), study areas, rooftop terrace	Students; readers	Quiet study for the student majority
Level 5	Management office, void, rooftop cafe, and communal room	Management; visitors	Operation base; elevated communal room

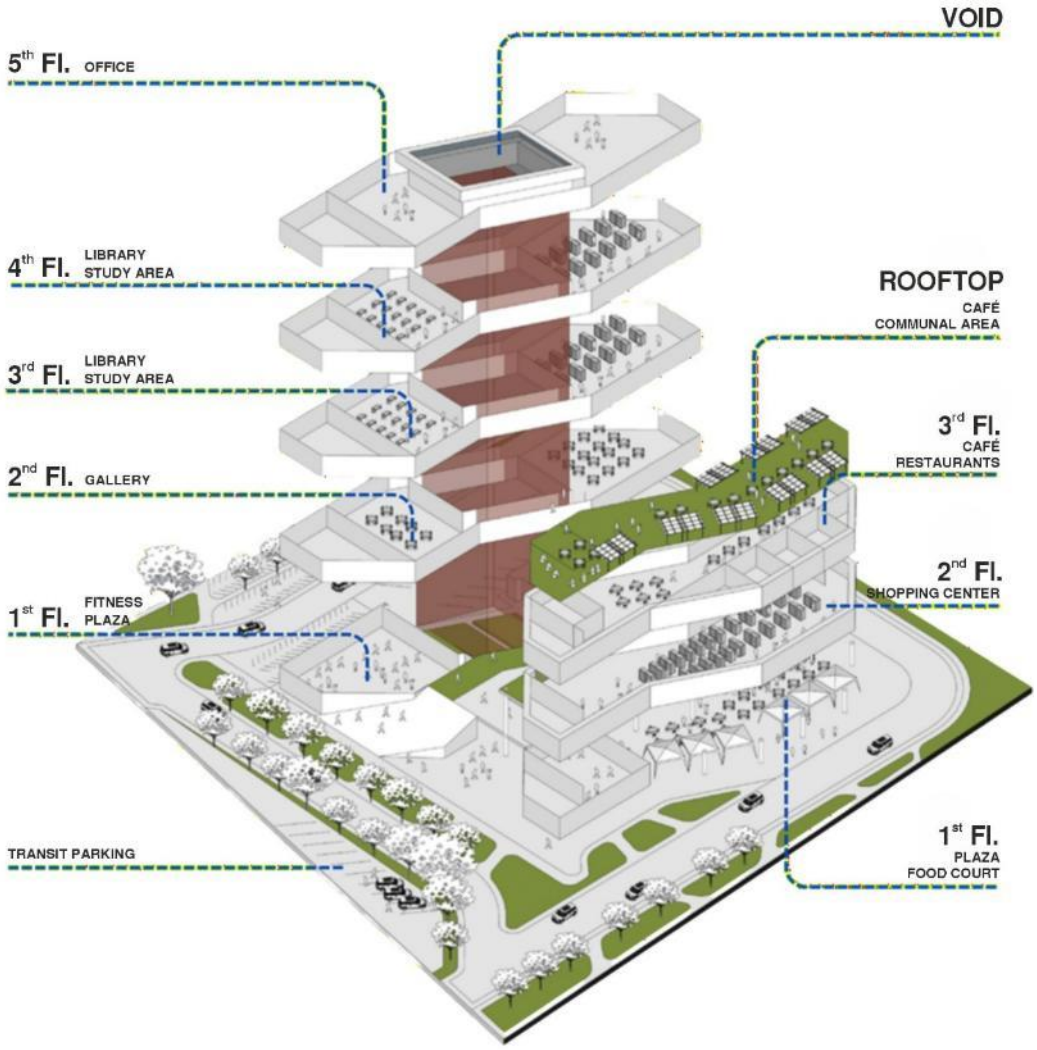

Figure 10. Exploded axonometric of the programme stack.

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Figure 10 presents the exploded axonometric of the programme stack. The drawing communicates the vertical organisation at a glance and shows why the section, more than the plan, carries the community argument: mobility and a public interface at the ground, enterprise above it, learning in the middle, and management with a communal rooftop at the top.

Figure 11 closes the design account with two user-centred views. The street perspective (a) shows the setback, the tree screen, and the covered public edge as a pedestrian approach from Jalan ZA Pagar Alam: this is the space of the reclaimed pavement, the driver pick-up, and the everyday passer-by. The library interior (b) shows the reading floor, where daylight enters through the central voids; this is the space of the student who currently has nowhere to stay between classes. Each view, therefore, answers a specific problem from Table 5 rather than serving as decoration.

(a)

(b)

Figure 11. User-centred perspectives. (a) Street and pedestrian interface on Jalan ZA Pagar Alam (b) Library reading floor.

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3.3. Expected community benefit

At the proposal stage, the benefits are stated in terms of expected performance, not achieved outcomes. The design is expected to clear the pavement by giving traders and drivers better-located, sheltered alternatives; to consolidate the district's fragmented greenery into a garden that people can actually reach and use; to give the corridor its first shaded public room, so that interaction can extend beyond the transactional; and to supply the library and study space that a student-majority population lacks. Beyond the building, the pattern documentation itself is a community asset: the corridor maps, storyboards, issue network, and rubric can be reused by the neighbourhood, by community groups, and by future studios to guide further improvements, whether this particular building is realised

3.4. Reflection and evaluation plan

The activity achieved its design-phase aims: a documented diagnosis, a traceable synthesis, and a compliant proposal. Its main limitation is equally clear. Participation so far has involved structured observation of corridor users; residents, traders, drivers, and the neighbourhood have not yet confirmed the needs assessment or reviewed the design. Until that happens, the title of community service rests on the method and the intent, not on demonstrated reciprocity, and the article deliberately avoids claiming any improvement in comfort, income, or footfall. The follow-on phase closes this gap in three steps: engagement, feedback-driven revision, and measurement.

The first step is a review workshop that brings the proposal to residents, traders, drivers, and the neighbourhood office. The team will log every comment against the design element it concerns and record each revision next to the comment that prompted it, so the published record shows the loop from feedback to change. Conversations of this kind also surface locational knowledge that observation alone cannot: whether the driver base really sits where drivers can watch the road, or whether traders would accept semi-open stalls facing the pedestrian spine.

Evaluation then proceeds at three levels, which keeps the claims of this article proportionate to its evidence. Outputs are already verifiable: the drawings, models, and pattern documents delivered, and the number and diversity of participants engaged. Outcomes depend on the planned engagement: formal acceptance of the revised proposal by the neighbourhood and city partners, and stakeholder-assessed suitability gathered through a short questionnaire covering relevance, function, access, safety, and expected comfort. Impacts can be measured only after implementation: clear pavement width and the number of traders and drivers relocated; vendor participation and reported revenue in the UMKM court; and outdoor comfort and use, captured through air temperature, shade coverage, footfall, dwell time, and user satisfaction.

4. CONCLUSION

This article set out to document a design-stage community-service activity as a complete chain: a community problem evidenced in the field, an analysis method the community can read, design decisions that trace to that evidence, a compliant design output, and a defined route to validation and measurement. Pattern language proved effective as the connective tissue. It let the team turn observed corridor behaviour into named spatial principles, assemble those principles into an issue network, and answer each diagnosed problem, contested pavements, fragmented greenery, an uncomfortable corridor, and tropical heat, with a specific element of The Comix Community Hub. The proposal keeps most of its 10,500 m² site open, meets every planning control, and stacks its programme so that public life, enterprise and learning reinforce one another. What the work does not yet demonstrate is reciprocity: the community has been observed but not yet consulted. The follow-on phase, with its review workshop, revision record, and indicator set, therefore completes the activity rather than extending it.

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