

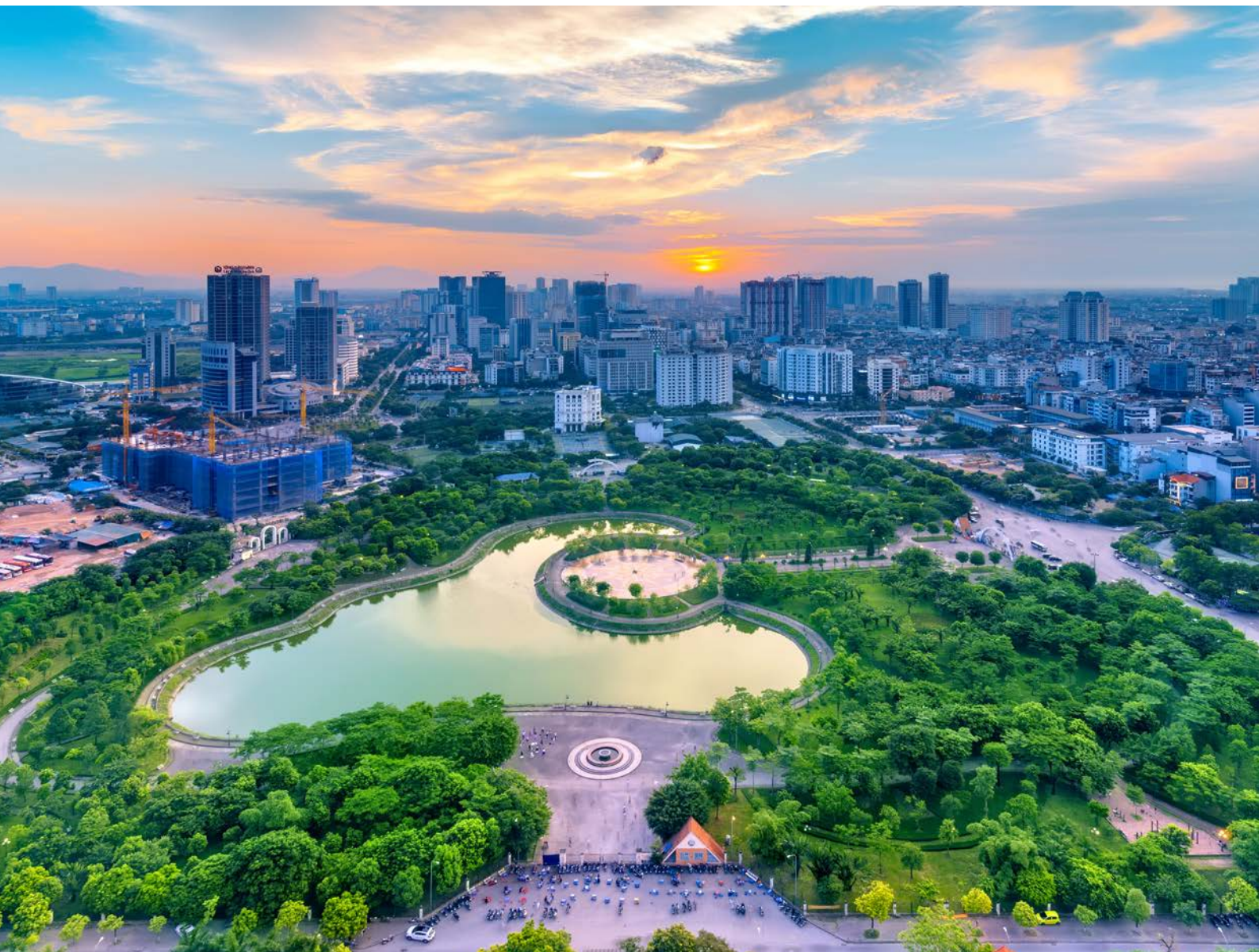


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Green Cities, Infrastructure and Energy

 **SỞ QUY HOẠCH - KIẾN TRÚC**
THÀNH PHỐ HỒ CHÍ MINH

GREEN CITIES, INFRASTRUCTURE AND ENERGY PROGRAMME (GCIEP)



Ho Chi Minh City transit-oriented development technical guidelines for planning & implementation

March 2026

Disclaimer

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Using Ho Chi Minh City’s transit-oriented development technical guidelines

The following table directs users to the sections of this document most likely to be relevant to them. However, users are encouraged to view additional sections to gain a robust understanding of the range of considerations for implementing transit-oriented development in Ho Chi Minh City.

Indicative user group	Most relevant sections	Primary topics and user notes
Policymakers and senior government officials	Parts 1 and 2	To understand the strategic context of transit-oriented developments (TODs) in Ho Chi Minh City (HCMC).
	Part 6	For institutional responsibilities and a capacity-building roadmap.
	Part 7	For the governance and reporting framework. Use the key performance indicator framework to set performance expectations and hold agencies accountable.
Planning and technical officers (Department of Planning and Architecture, Department of Construction, Management Authority for Urban Railways)	Parts 3 and 4	Working systematically through Parts 3 and 4 will provide the step-by-step methodology for corridor-level and station-level planning. Use the three values assessment framework ¹ , typology classification and influence zone structure as the technical backbone.
	Annexes 10 and 11	Assessment templates to be used as standard tools.
Financial and investment officers (Department of Finance, HCMC Urban Development Management Board)	Part 5	Provides the land value capture (LVC) framework, instrument design and procurement guidance. The ten strategic LVC principles should be used as policy guardrails. The joint development/public-private partnership structuring guidance and risk allocation frameworks provide the operational reference for project structuring.
Private developers, investors, and financial institutions	Parts 2 and 5	Parts 2 and 5 together provide the predictable reference needed for commercial planning.
	Part 3	The TOD typology framework in Part 3 indicates expected development intensity and functional mix by station type.
	Part 5	The procurement and incentive framework set out the rules of engagement between the client and developers.
Consultants and design professionals	Part 4	Part 4 is the primary working reference for station-level planning and design.
	Annex 8	Provides a gender equality, disability and social inclusion (GEDSI) checklist and climate compliance checklist.
	Annex 9	Provides urban design assessment criteria that should be applied as standard quality assurance tools.
Communities and civil society	Part 2	Provides an accessible overview of what TOD means for HCMC.
	Parts 4 and 7	Part 4 (Section 4.5) and the monitoring framework in Part 7 establish the basis for meaningful participation and accountability.

¹ World Bank Group. Transforming the Urban Space Through Transit-Oriented Development: The 3V Approach. <https://www.worldbank.org/en/topic/transport/publication/transforming-the-urban-space-through-transit-oriented-development-the-3v-approach>

Executive summary

Overview and purpose of the technical guidelines

Ho Chi Minh City (HCMC) stands at a pivotal juncture in its urban development trajectory. The city aims to build a multi-centred urban structure, strengthen regional connectivity, reduce congestion in its central areas and achieve a public transport modal share of 35–40% by 2040. This is then set to rise to 50–60% by 2060, as set out in the Ho Chi Minh City Master Plan Revision 2040 Vision to 2060 (Decision No. 1125/QĐ-TTg dated June 12, 2025 of the Prime Minister). The city has committed to a 10% reduction in emissions by 2030 – or 30% with international support – as it transitions towards a low-carbon, sustainable economy.

Transit-oriented development (TOD) is therefore positioned as one of the city's most important development pathways and a critical lever for meeting its urban, transport and climate ambitions. The city has been granted special mechanisms through a series of landmark resolutions, such as Resolution 98², Resolution 260³, Resolution 188⁴ of the National Assembly, and most recently Resolution 38⁵ of the HCMC People's Council. These resolutions provide a greater foundation for executing mass rapid transit (MRT) projects using the TOD model as a key solution. In this context, the TOD technical guidelines have been developed as part of the cooperation commitments between the UK Foreign, Commonwealth & Development Office (FCDO) and HCMC, under the Memorandum of Understanding (MoU) officially signed on 23 September 2025. This MoU forms part of the Strategic Partnership between Vietnam and the United Kingdom, aimed at strengthening collaboration across key areas including urban development, construction and infrastructure, transport, the application of advanced technologies, as well as promoting exchanges, delegation visits and exploring bilateral investment opportunities – with TOD identified as one of the core priorities.

The technical guidelines serve three core purposes:

- 1. Provide step-by-step implementation guidance** for TOD in HCMC, aligned with the city's existing legal documents and resolutions, and demonstrated through practical case studies and local applications.
- 2. Strengthen institutional capacity and shared understanding** by establishing a common technical and procedural knowledge base for implementing agencies, enabling consistent coordination across planning, project formation, construction, transport, land use and financing issues.
- 3. Enable stakeholder participation and investment readiness** by providing private partners, investors and financial institutions with a predictable reference for the implementation process, estimating benefits, preparing commercial plans, assessing feasibility and risks, data availability and requirements and structuring collaboration with the city.

The intended users span the full spectrum of stakeholders: government⁶, private partners and developers, financial institutions and investors, planning and design consulting firms, and communities and civil society. For other cities in Vietnam, government agencies with equivalent functions can refer to this guideline; however, it is important to note the differences in the assignment of related functions and responsibilities, as well as specific regulations and mechanisms unique to Ho Chi Minh City.

These guidelines occupy a strategic position between high-level legal instruments (national laws, resolutions and regulations) and detailed-level technical standards. They act as a connecting bridge by providing further guidance to implement articles of laws and regulations in association with existing technical standards; by offering suggestions and alternatives to overcome mismatches or obstacles between legal documents and standards; and by addressing various scenarios specific to HCMC.

² Resolution No. 98/2023/QH15 dated 24 June, 2023 of the National Assembly on pilot implementation of particular policies for development of Ho Chi Minh City

³ Resolution No. 260/2025/QH15 dated 11 December, 2025 of the National Assembly on amendments to Resolution No. 98/2023/QH15 dated 24 June, 2023 of the National Assembly on piloting a number of specific mechanisms and policies for the development of Ho Chi Minh City

⁴ Resolution No. 188/2025/QH15 dated 19 February, 2025 of the National Assembly on pilot implementation of certain special mechanisms and policies for the development of the urban railway network in Hanoi and Ho Chi Minh City

⁵ Resolution No. 38/2025/NQ-HĐND dated 28 August, 2025 of the HCMC People's Council on regulations governing the formulation, appraisal, approval, and adjustment of planning for transit-oriented development areas in Ho Chi Minh City

⁶ Including: Department of Planning and Architecture, Department of Construction, Management Authority for Urban Railways, HCMC Urban Development Management Board, Department of Finance, Department of Agriculture and Environment, City/Ward/Commune People's Committees and relevant authorities.

Scope of the document: These TOD technical guidelines should be treated as a live document, which is to be continuously improved based on HCMC's experiences in implementing TODs. TOD approaches and contracting models are continually evolving. The continuous updates and adjustments to these guidelines are therefore intended to ensure timely adaptation to experiences gained during real-world implementation of TODs in HCMC, while also ensuring that lessons learnt from practical projects are systematically captured and synthesised. Through this process, the guidance framework can be progressively strengthened and made increasingly relevant and practical for future initiatives. The implementation process typically comprises a minimum of four stages:

- **Phase 1:** Assessment and initial guideline
- **Phase 2:** Enabling and detailed planning with stakeholder engagement
- **Phase 3:** Refining financing and initial implementation through pilot projects
- **Phase 4:** Full implementation and continuous monitoring

This version of the HCMC TOD technical guidelines is intended to align with **Phases 1 and 2**, which mainly cover TOD implementation at the corridor and station levels. However, it does not cover details at the site level. It is assumed that for HCMC, the details at the site level will be undertaken during the detailed design process. Furthermore, this document is prepared based on the prevailing context in HCMC, international experience and the expertise of the Green Cities, Infrastructure and Energy Programme (GCIEP) Alliance. It reflects HCMC's legal and regulatory framework at the time of preparation. Any updates to these guidelines arising from changes in Vietnam's and/or HCMC's legal framework or from implementation experience shall be the responsibility of the city and relevant agencies. GCIEP and its Alliance partners are not responsible for revisions or updates to the originally published guidelines.

Structure of the document: These guidelines are organised in seven parts. Part 1. Introduction, context and objectives; Part 2. Concept, key principles and TOD implementation process; Part 3. Network and corridor-level planning; Part 4. Transit oriented development area, station-level planning and design; Part 5. Financial strategies framework and land value capture; Part 6. Institutional responsibilities and capacity-building; and Part 7. Transit oriented development monitoring and evaluation, together with supporting Annexes.

Part 1. Introduction, context and objectives

Part 1 (Sections 1.1–1.5) establishes the rationale, purpose, legal positioning, scope and structure of the entire document. It is the essential starting point for all users of the document.

Why the guidelines are needed: HCMC's ambitious targets demand major investments in urban rail and other public transport infrastructure. However, the path forward presents significant challenges, particularly in mobilising sufficient investment resources, improving institutional frameworks, simplifying administrative procedures, accelerating land acquisition and strengthening the integration between public transport and land use planning. A structured approach, as described in these guidelines, will help to address these challenges while enabling the city to accelerate delivery of its urban metro system.

Legal and policy positioning: The guidelines are designed to help government agencies implement TOD in accordance with the existing legal frameworks. They act as a connection between high-level legal documents and detailed-level technical standards by: providing further guidance to implement articles of laws and regulations; offering suggestions to overcome mismatches between legal documents and standards that may prevent a successful TOD implementation; and providing suggestions for dealing with various scenarios in the local context of HCMC.

Part 2. Concept, key principles and transit-oriented development implementation process

Part 2 (Sections 2.1–2.5) presents the common foundation for the entire document. Every user should read and understand this part before proceeding to the technical and thematic parts.

TOD definition: Under Resolution 38 and Clauses 1 and 2 of Article 3 of Resolution 188, TOD in HCMC is defined as a planning and investment approach for urban renewal, upgrading, redevelopment and development that takes urban railway connection points as focal points for population concentration, commercial and service activities and office development within walking distance of public transport. The boundary of a TOD area includes the station, depot and surrounding area, determined up to the boundaries of land plots located within a radius of 1,000m from the notional centre of the station or depot.

Nine interconnected TOD characteristics: TOD in HCMC comprises: (1) MRT-led multimodal integration; (2) high accessibility within a walkable station catchment; (3) a pedestrian-first public realm supported by safe cycling; (4) high-density development around stations; (5) mixed-use, complete neighbourhoods; (6) efficient land use through redevelopment and urban renewal; (7) equitable and inclusive development; (8) sustainability and emissions reduction; and (9) climate-adaptive urban form and resilient infrastructure.

Three-tier influence zone hierarchy: TOD spatial application is structured around three concentric zones:

Zone	Distance	Main characteristics
Core zone	0–300m	Highest development intensity; strong mixed-use concentration; active ground floors and station plazas; priority pedestrian environment; minimal or zero private parking.
Primary zone	300–600m	Medium to high density mixed-use development; residential, commercial and community facilities; high-quality walking and cycling networks; managed parking standards.
Extended/influence zone	600–1,000m	Medium to lower density development; local centres, schools and open spaces; feeder bus loops and cycling connections.

These zones are used to apply graduated floor area ratio (FAR), height and land use mix controls; to prioritise public realm and pedestrian investment; to guide feeder transport and last-mile infrastructure; and to structure TOD area planning and zoning controls.

TOD implementation process: Part 2 maps the implementation process and phases at two levels (– network/corridor and station/area) identifying seven steps at corridor level (objectives/key performance indicators [KPIs], rail alignment, TOD potential assessment, boundary identification, typology classification, development positioning and prioritisation/phasing) and five steps at the station level (objectives refinement, layer-based guidance, plan preparation, TOD plan appraisal/approval and project delivery). For each step, Part 2 identifies the responsible HCMC agency, cooperating agencies, key outputs and governance checkpoints.

Integration of transport, land use and urban design: Part 2 sets out the guiding principles for integration, including: increasing density along mass transit corridors; promoting mixed land use; improving pedestrian access; reducing the need for car/motorcycle travel; tackling the environmental impact of travel; improving accessibility; and using supporting quantitative tools (transport assessment, land use transport interaction modelling, cost–benefit analysis and wider economic benefit analysis).

Part 3. Transit-oriented development network and corridor-level planning

Part 3 (Sections 3.1–3.8) provides a structured methodology to plan TOD at network and corridor levels, ensuring that station areas are treated as an integrated system of nodes and corridors rather than isolated projects. In HCMC’s polycentric urban model, the key task is to identify which urban rail corridors and station clusters should be prioritised as TOD corridors, how they connect the central urban area with emerging sub-regions, and how they can support the reorganisation of urban growth towards TOD model.

The methodology at the corridor level is organised into seven sequential steps:

Step 1: TOD objectives and KPIs (Section 3.2).

Establish city-level KPIs (OT01–OT13) and systematically cascade them to corridor and station levels.

Step 2: Rail alignment and station location planning (Section 3.3).

Ensure that MRT corridor alignment maximises access to people and jobs, integrates effectively with the urban fabric, enables efficient interchange and operations, and supports feasible, cost-effective delivery of TOD outcomes. The process follows a four-step sequence: review strategic plans, preliminary corridor alignment, detailed station location planning, and finalisation with accessibility and operational performance analysis. Five corridor alignment targets (NP01–NP05) and six station location targets (ST01–ST06) are specified.

Step 3: TOD potential assessment using the three values (3V) assessment framework (Section 3.4).

Evaluate TOD potential using three values: node value (connectivity and accessibility), place value (quality and attractiveness of the area), and market value (real estate demand and commercial feasibility). The output is a 3V assessment scorecard and a preliminary land value capture (LVC) revenue envelope by station/corridor segment.

Step 4: Establish initial TOD boundary (Section 3.5).

Define an initial TOD influence area, typically using a notional 1,000m radius as a starting reference, then refine it based on geographic constraints, land ownership, land availability, existing plans, land acquisition needs and potential joint development opportunities. Initial TOD boundaries provide a technical basis to inform detailed planning, development controls, infrastructure phasing and land management.

Step 5: Assign TOD typologies (Section 3.6).

Classify station areas into six consistent typologies:

- City core centre: The primary metropolitan core with the highest density and intensity (e.g. Ben Thanh, Opera House).



- Sub-centres / economic centre: Secondary employment and activity hubs supporting medium to high density mixed-use.
- Suburb centre: Community-focused, residential-led TOD with medium density.
- Renewal development: Urban regeneration and brownfield redevelopment.
- Station node enhancement: Built-up areas with limited redevelopment capacity, focusing on access improvements.
- Special-functional hubs: Major single-purpose or anchor destinations (e.g. airports, high-speed rail stations, stadiums).

Corridor-level TOD typologies are derived from the distribution of station typologies along each line, categorised as metropolitan core intensification corridor, polycentric economic linkage corridor, residential expansion and community corridor, and others.

Step 6: Define development positioning (Section 3.7). Establish the preferred development positioning for each corridor segment and station area, including intensity and scale (indicative FAR and height), land use focus (jobs-led, housing-led, mixed-use or function-led), public realm priorities, delivery pathway and the recommended mix of LVC instruments. Five positioning targets (DP01–DP05) are specified.

Step 7: TOD prioritisation and phasing strategies (Section 3.8). Convert the corridor strategy into an implementable investment and sequencing plan, phased as: short term (early wins: access and interchange upgrades, public realm and safety enhancements); medium term (priority growth: mixed-use redevelopment packages, enabling infrastructure, priority plots); and long term (major transformation: renewal, land readjustment/pooling, and major joint development programmes). The output includes a prioritised corridor plan, an initial cost–benefit analysis and an integrated investment plan.

Part 4. Transit-oriented development area, station-level planning and design

Part 4 (Sections 4.1–4.6) translates the network/corridor strategies into implementable station area plans. It is applied primarily during the preparation of station area TOD plans at 1:2,000 for corridor planning and 1:500 for station level detailed planning scales and informs concept design, pre-feasibility/feasibility studies and investment packaging.

Part 4 addresses five integrated thematic domains:

Land Use Zoning in TOD areas (Section 4.2). This section outlines principles for land use planning within TOD areas. It emphasises creating sustainable, high density, mixed-use communities around transit hubs to encourage walking, cycling and public transport use while reducing reliance on private vehicles. The section details objectives, zoning principles and step-by-step processes (including site assessment, stakeholder engagement, performance targets and tailored zoning) for promoting equitable, resilient and economically vibrant neighbourhoods. It also provides guidance on managing temporary land uses, controlling overcrowding, ensuring affordable housing, integrating LVC mechanisms and establishing flexible, participatory land acquisition and implementation frameworks to support long-term TOD success.

Mobility, access and intermodal integration (Section 4.3). This section focuses on the integration and prioritisation of multimodal transport within TOD station areas, ensuring that all users benefit from seamless, safe and convenient access for all travellers. Requirements include pedestrian-priority environments, continuous cycling networks, managed private vehicle use, and integrated first- and last-mile connectivity tailored to each TOD context. These principles support equitable access, improved mobility and broader sustainable urban development goals.

Urban design and public realm (Section 4.4). This section establishes a comprehensive set of urban design requirements to guide the development of TOD station areas, ensuring they are functional, attractive and inclusive. The section specifies 21 requirements, e.g. spatial organisation, building form, land use mix, public realm quality, street and plaza design, pedestrian connectivity, microclimate⁷, heritage integration and sustainability, etc. Collectively, these requirements aim to foster vibrant, accessible and resilient station precincts that support sustainable urban growth and the needs of diverse communities.

Gender equality, disability and social inclusion (GEDSI) requirements, housing, and social and economic inclusion (Section 4.5). GEDSI is not limited to physical accessibility requirements. It represents a comprehensive approach to ensuring that all population groups – women, persons with disabilities, low-income groups, migrant workers, older persons, children and other vulnerable populations – can access, use, benefit from and positively experience TODs. Key requirements include inclusive spatial planning and service access; accessible and safe station environments; continuous and safe first- to last-mile travel chains; and socio-economic measures to prevent displacement and gentrification.

Climate resilience and environmental sustainability (Section 4.6). Responding to HCMC's acute vulnerability to flooding and land subsidence, the guidelines establish three core principles: TOD as a resilient "haven" with mandatory data-driven risk assessments; integration of "sponge city" and climate-adaptive design transitioning from "grey" engineering to "blue-green" solutions; and TOD as a driver for net-zero emissions and geological stability through compact urban form, modal shift, and strict controls on groundwater extraction and non-impediment of watercourses.

Part 5. Financial strategies framework and land value capture

Part 5 (Sections 5.1–5.2) addresses the financial architecture underpinning TOD delivery. It is a defining feature of these guidelines, establishing a coherent LVC framework and providing guidance on developer incentives and procurement processes.

Twelve strategic LVC principles (Section 5.1.2). The LVC framework is built upon ten strategic principles designed for the HCMC context. At its core, the framework prioritises the creation of strategic public value and aligns LVC with broader socio-economic objectives, establishing social equity and value capture identified as central goals. It operates on the philosophy that value must first be created before it can be captured. The LVC framework acknowledges real-world complexities by recognising that land value uplift is often uneven and uncertain, stressing the need for institutional feasibility, legal certainty and a viable market to ensure private sector participation.

Three-step framework for LVC instrument adoption (Section 5.1.3). A structured methodology guides instrument selection through: identifying the TOD infrastructure scenario and land ownership context; selecting applicable instruments; and defining application rules, coordination mechanisms and sequencing to avoid overlap.

⁷ The climatic characteristics of a small area



Five primary LVC instruments (Sections 5.1.3–5.1.4):

- FAR-based LVC: Capturing value from granted additional development intensity above base FAR. Applied to incremental gross floor area beyond the base allocation.
- Infrastructure impact fees: Ensuring developer contributions to area-wide TOD infrastructure costs. Applied after TOD planning approval and upon or after infrastructure completion.
- Land use change fees: Capturing value from TOD-enabled land use conversions. Assessed and collected upon approval of the land use change, independent of construction commencement.
- Land sale and auction mechanisms: Capturing upfront value from public land enabled by TOD planning approval and land disposition. The sale/ auction price reflects the permitted land use and gross floor area/FAR at the time of sale.
- Joint development (JD): Structured through joint venture companies, business cooperation contracts,

land/asset lease arrangements, or public-private partnership (PPP) contracts (Build – Operate – Transfer (BOT), Build – Lease – Transfer (BLT), Build – Own – Operate (BOO), operation and maintenance (O&M)). Integrated JD-PPP models are applied where JD revenues can enhance PPP bankability, reduce viability gap funding or support availability payments.

Developer incentives and procurement (Section 5.2). This section outlines a framework for engaging developers that balances attracting investment with ensuring public value. To create a stable and fair environment, developer incentives are designed to be transparent, rule-based and predictable. The procurement process, in turn, is strategically focused on long-term success rather than short-term cost, prioritising high-quality TOD and enduring value while ensuring the public sector maintains ultimate control over project outcomes. To select the most capable partners, evaluation criteria are comprehensive, assessing a developer’s technical capacity, financial strength and delivery capability, alongside the quality

of their TOD design, their approach to risk-sharing and their strategies for lifecycle cost efficiency and long-term asset management.

Part 6. Institutional responsibilities and capacity-building

Part 6 (Sections 6.1–6.3) clarifies the institutional setup for TOD implementation and presents a phased capacity-building roadmap.

Roles and responsibilities of agencies and organisations in the planning and implementation of TOD in Ho Chi Minh City (Section 6.1). Based on the existing city departmental mandate of HCMC, the main responsibilities in TOD are as follows:

- The Department of Planning and Architecture assumes overall supervision and leads TOD planning.
- The HCMC Urban Development Management Board is responsible for TOD project formation and implementation.
- The Management Authority for Urban Railways oversees rail infrastructure integration and transport data.
- The Department of Construction manages construction activities and compliance with approved plans.
- The Department of Finance is responsible for financial management, LVC design and capital supervision.
- The Department of Agriculture and Environment is responsible for management of land use including land acquisition, resettlements, land prices and other related resources in TOD areas (e.g., water, geographical data/asset).
- Ward/commune People's Committees manage local areas and public space operations.
- Developers and investors participate in both planning and project implementation.

Detailed institutional and responsibility matrices are provided for both TOD corridor-level and station-level planning, clearly specifying responsible agencies, cooperating agencies and appraisal/approval authorities for each step, including specific institutional arrangements across relevant sectors such as transport, land/spatial, financial/social, safety/environmental and policy review functions.

Capacity-building roadmap for management authorities (Section 6.2). The roadmap transitions governance in three stages:

Phase 1. Short term (capacity preparation):

- Establish dedicated TOD taskforces/divisions within the Department of Planning and Architecture, HCMC Urban Development Management Board, Management Authority for Urban Railways, Department of Finance, Department of Construction and related agencies.
- Adopt and operationalise the technical guidelines as mandatory working references.
- Conduct structured training programmes on integrated Rail + Property (R+P) planning, corridor-level and station-level TOD design, and LVC/PPP fundamentals.
- Consolidate baseline data and initiate a shared TOD data platform.

Phase 2. Medium term (pilot implementation and institutional testing):

- Implement pilot corridor-level TOD planning as training-by-practice exercises.
- Develop practical capacity in LVC application through pilot testing.
- Build in-house skills in financial feasibility analysis, PPP structuring and joint development models.
- Institutionalise inter-agency coordination.
- Prepare the legal and organisational basis for specialised entities (TOD Council, TOD Office).

Phase 3. Long term (full integration and city-wide up-scaling):

- Establish and operationalise the TOD Council and TOD Office with clearly defined mandates.
- Operationalise the R+P model.
- Institutionalise integrated TOD data governance city-wide.
- Establish ongoing certification and training programmes for TOD professionals.

The approach follows a “learning by doing” philosophy, recognising that current institutional capacity is limited and that restructuring in the short term is neither feasible nor advisable. The focus is on applying the guidelines as operational tools, testing mechanisms through pilot projects, and gradually building towards specialised institutional capacity.

TOD implementation roadmap and phasing (Section 6.3). A phased implementation strategy for HCMC ensures coordinated planning, institutional readiness and catalytic investments, linking the capacity roadmap to specific corridor and station delivery timelines.

Part 7. Transit-oriented development implementation monitoring and evaluation

Part 7 (Sections 7.1–7.5) details the monitoring and evaluation framework, digital data infrastructure, TOD area management, guidelines usability and reporting governance.

Monitoring and evaluation framework (Section 7.1).

The framework operates across three stages of the TOD delivery cycle:

1. Plan preparation, appraisal and approval: Define desired TOD outcomes, TOD Principles and KPIs, set success criteria and baselines, and fix the evaluation setup.
2. Project delivery (design and construction): Define implementation outputs, set time-bound delivery targets, monitor progress and compliance and apply corrective actions.
3. Post-operation monitoring and periodic evaluation (every 5 years): Measure outcomes versus baseline, assess success versus targets/benchmarks, identify performance gaps and feed results back into planning.

A TOD checklist ensures that proposed projects comply with adopted TOD principles and regulatory standards; align with approved phasing strategies and performance targets; contribute to mobility, land use, public realm, climate resilience, social inclusion and financial sustainability objectives; and deliver measurable outcomes. The checklist covers five key dimensions: (1) transportation, mobility and active travel; (2) land use and built form; (3) urban design and public realm quality; (4) climate, environment and resilience; and (5) social inclusion (GEDSI) and LVC.

Integrated data architecture and governance (Section 7.2). Four pillars of digital infrastructure support the monitoring and evaluation system:

- Geographic information system-based TOD data platform: Providing a unified spatial foundation for TOD boundaries, land use controls, development parameters and LVC-linked parcel tracking. Target: 100% TOD stations with standardised spatial data profiles; all LVC-related parcels digitally tagged and tracked.
- TOD data dashboard: Converting spatial and administrative data into measurable performance indicators with interactive dashboards, analytical heatmaps and automated alert mechanisms. Target: standardised station scorecards; quarterly KPI updates; early-warning system for performance deviations.

- Building information modelling (BIM) and common data environment integration: Ensuring digital continuity across the full lifecycle from planning through construction to operation, with digital twin pilot stations.
- Open data and APIs: Establishing secure, standardised inter-agency data-sharing with harmonised KPI definitions, metadata schemas, geocoding standards and public transparency modules. Target: 100 % TOD KPIs standardised; operational inter-agency data exchange.

Usability and application of the guidelines (Section 7.4).

Clear application guidance is provided for: network and corridor level; land readiness, acquisition, readjustment and disposition; TOD area and station level; integration with investment study stages; private sector-initiated MRT and TOD proposals; and a stage-gate compliance framework specifying nine documented compliance checkpoints from corridor structuring confirmation through to operational performance review.

Reporting cycle and governance (Section 7.5). A multi-level reporting structure is defined:

- Station/TOD area level: Quarterly KPI updates and milestone compliance reports.
- Corridor level: Annual performance reports covering development intensity, land readiness, LVC revenue realisation, ridership and public benefit delivery.
- City level: An annual TOD implementation report summarising corridor performance, modal share trends, fiscal sustainability, affordable housing delivery and climate resilience metrics.

A strategic TOD review should be conducted every 3-5 years to recalibrate typology parameters, incentive-obligation settings, LVC mechanisms, tender standards and institutional arrangements. Corrective measures for compliance gaps or performance deviations include design revisions, phasing adjustments, land policy recalibration, tender condition enforcement, financial restructuring or institutional review. Annual summary results shall be publicly disclosed, including LVC revenue allocation, tender compliance outcomes, affordable housing delivery metrics and sustainability performance.

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Acronyms

API	Application Programming Interface
BCC	Business cooperation contract
BIM	Building information modelling
BLT	Build – Lease – Transfer
BOO	Build – Own – Operate
BOT	Build – Operate – Transfer
BRT	Bus rapid transit
BT	Build – Transfer
CAPEX	Capital expenditure
CBD	Central business district
CDE	Common data environment
CoST	Infrastructure Transparency Initiative
DOC	Department of Construction
DOAE	Department of Agriculture and Environment
DOF	Department of Finance
DOIT	Department of Industry and Trade
DPA	Department of Planning and Architecture
FAR	Floor area ratio
FEED	Front End Engineering Design
FRA	Flood Risk Assessment
FS	Feasibility study
GEDSI	Gender Equality, Disability and Social Inclusion
GFA	Gross floor area
GIS	Geographic information system
HCMC	Ho Chi Minh City
HURC	Ho Chi Minh City Urban Railway Company
IIF	Infrastructure improvement fee
InSAR	Interferometric Synthetic Aperture Radar
JD	Joint development
JVC	Joint venture company
KPI	Key performance indicator
LOS	Level of service
LVC	Land value capture
MAUR	HCMC Management Authority for Urban Railways
MRB	Hanoi Metropolitan Railway Management Board
MRT	Mass rapid transit

M&E	Monitoring and Evaluation
NMT	Non-motorised transport
ODA	Official Development Assistance
O&M	Operation and Maintenance
OPEX	Operating expenditure
PC	People's Committee
PUDO	Pick-Up/Drop-Off
PPP	Public-private partnership
Pre FS	Pre feasibility study
QCVN	National Technical Regulation
R+P	Rail + Property
SOE	State-owned enterprise
SPV	Special purpose vehicle
TDR	Transfer of development rights
TIA	Traffic impact assessment
TOD	Transit oriented development
UDMB	HCMC Urban Development Management Board
UHI	Urban Heat Island
UAP	Universal Affordability Preference

PART

1



**Part 1. Introduction,
context and objectives**



1.1. Why this transit-oriented development guideline is needed

Ho Chi Minh City (HCMC) aims to build a multi-centred urban structure, promote transit-oriented development (TOD), strengthen regional connectivity and reduce congestion in the central areas. The city is targeting a 10% reduction in emissions by 2030, moving toward a low-carbon, sustainable economy. This could be a 30% reduction if efforts are supported by international assistance⁸.

The city aims to significantly increase the public transport modal share to 35–40% by 2040 and then to 50–60% by 2060⁹. Achieving these ambitious targets will demand major investments in urban rail and other public

transport infrastructure. The issues mentioned above are illustrated in Figure 1. However, the path forward presents significant challenges, particularly in mobilising sufficient investment resources, improving institutional frameworks, simplifying administrative procedures, accelerating land acquisition procedures and strengthening the integration between public transport and land use planning toward sustainable and resilient urban and transport development. TOD is therefore positioned as a critical lever for HCMC, enabling it to meet its urban, transport and climate ambitions and making it one of the city's most important development pathways. Note that the TOD concept can be applied to any public transportation node, so these guidelines can form the basis for planning TOD in any context.

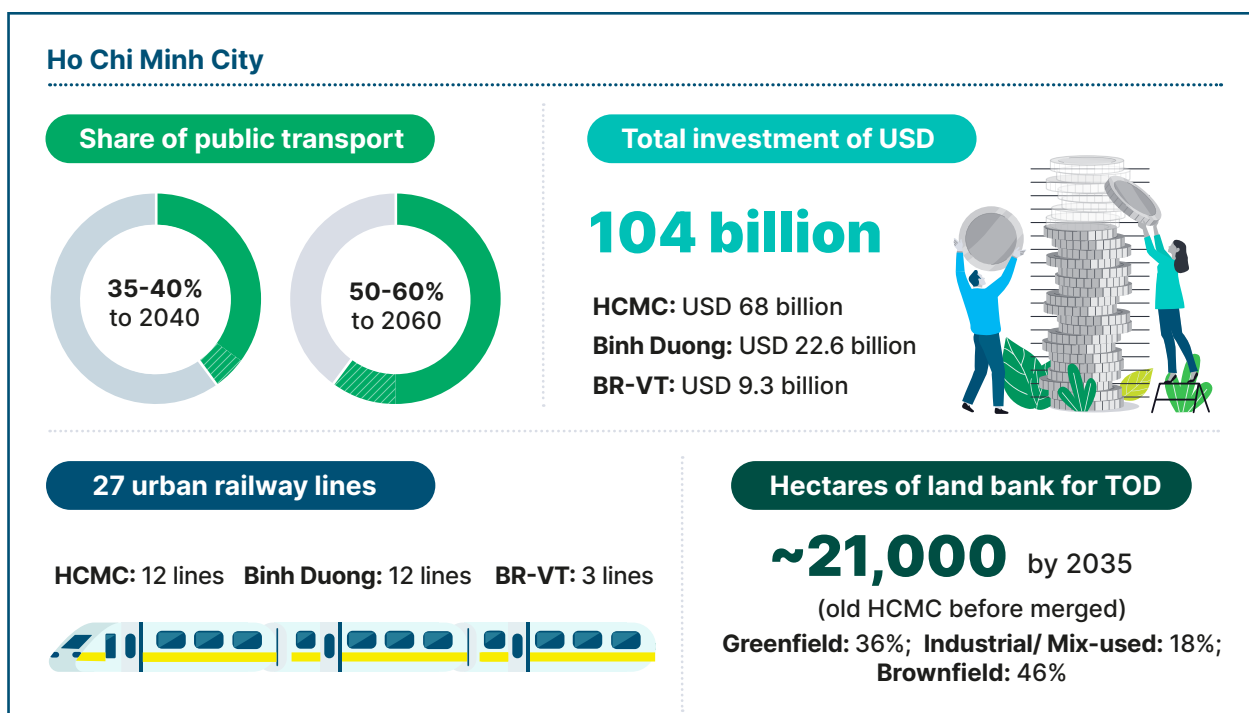


Figure 1: Development targets of Ho Chi Minh City to 2060¹⁰

Continued by numerous efforts from the central government including Resolution No 06¹¹ of the Politburo, the city has been granted special mechanisms, especially through Resolution 98, Resolution 188 of the National Assembly and Resolution 318¹² of the Government on issuing the Implementation Plan for Resolution 188. These

allow the city a greater foundation in executing mass rapid transit (MRT) projects, including capital mobilisation, investment procedures, policymaking, technical and economic indicators, to accelerate the progress of MRT projects with TOD model is a key solution. The latest city effort is with the approval of Resolution 38.

⁸ Decision No. 3273/QĐ-UBND, dated September 8, 2021 of the Ho Chi Minh City People's Committee on the Action Plan for Climate Change Adaptation for the period 2021–2030, with a vision to 2050 in Ho Chi Minh City.
⁹ Decision No. 1125/QĐ-TTg dated June 12, 2025 of the Prime Minister regarding the Approval of the Project for Amendments to the General Planning for Ho Chi Minh City by 2040, with a Vision by 2060 (prior to the official merger of Binh Duong Province and Ba Ria – Vung Tau Province into Ho Chi Minh City).
¹⁰ GCIEP compiles and analyses the following sources: Ho Chi Minh City Master Plan to 2040, Vision to 2060 (Decision No. 1125/QĐ-TTg dated June 12, 2025); Binh Duong Province Master Plan for the period 2021–2030, Vision to 2050 (Decision No. 790/QĐ-TTg dated August 3, 2024); Ba Ria – Vung Tau Province Master Plan for the period 2021–2030, Vision to 2050 (Decision No. 1629/QĐ-TTg dated December 16, 2023); and the Ho Chi Minh City Urban Railway System Report.
¹¹ Resolution No. 06-NQ/TW dated January 24, 2022 of the Politburo on the planning, construction, management and sustainable development of Vietnam's urban areas by 2030, with a vision towards 2045
¹² Resolution No. 318/NQ-CP dated 9 October, 2025 of the Government on issuing the Implementation Plan for Resolution No. 188/2025/QH15 dated 19 February, 2025 of the National Assembly on pilot implementation of certain special mechanisms and policies for the development of the urban railway network in Hanoi and Ho Chi Minh City

An urgent requirement for the TOD implementation is the establishment of technical guidelines that systematically bring a TOD policy framework and a related technical standard framework into an integrated working environment. The technical guidelines aim to bring benefit to all involved stakeholders in the TOD implementation process, including policymakers, governmental agencies, private developers, financial institutions, investors, firms, communities and civil society. It covers various phases ranging from preparation to construction and operation.

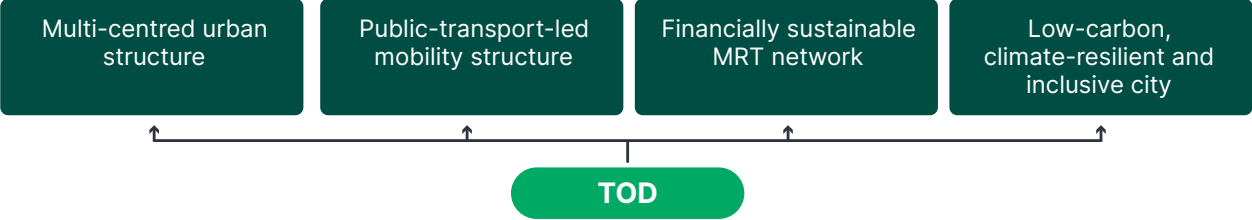


Figure 2: Transit-oriented development supports the overall planning objectives of the Ho Chi Minh City Masterplan and the city's transition

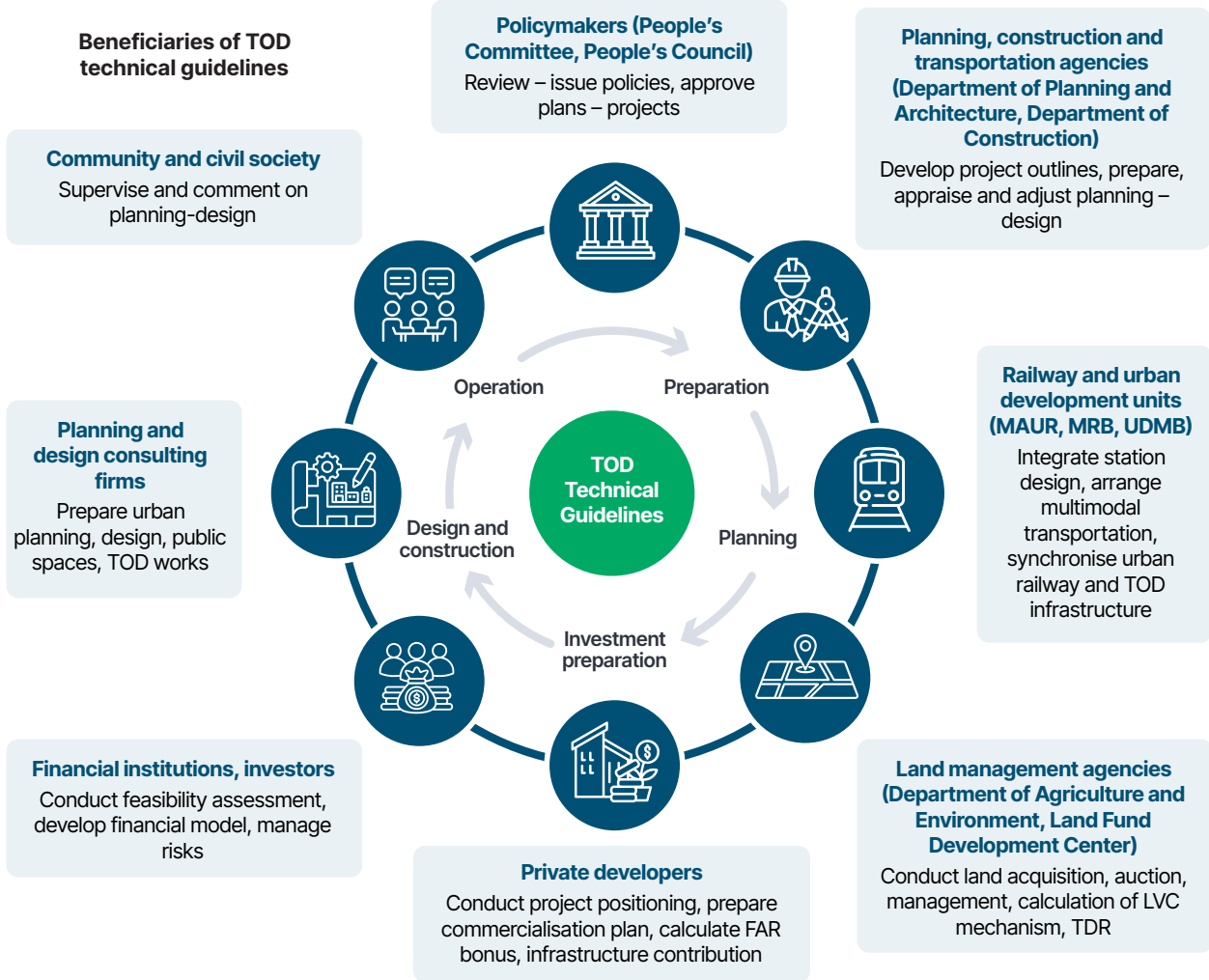


Figure 3: Beneficiaries of transit-oriented development technical guidelines

The beneficiaries of the technical guidelines include government agencies, the private sector, and other stakeholders.

For **government agencies**, the guidelines provide step-by-step guidance to further implement regulations and principles provided in the city's existing resolutions as well as related national regulations, specifically:

- Supporting planning, construction and transportation agencies (such as Department of Planning and Architectures, Department of Construction) a clear understanding of the overall implementation process as well as details of how to define TOD objectives, TOD visions, TOD planning and development at corridor and station levels, TOD project formations and related issues.
- Supporting the Management Authority for Urban Railways (MAUR), HCMC Urban Development Management Board (UDMB)) in integrating station design, multimodal transportation, synchronising urban railway and TOD infrastructure as well as TOD project formation.
- Supporting the Department of Agriculture and Environment (DOAE), Land Fund Development Centre) on how to conduct land acquisition, land auction, and the management and use of various LVC in the local practice.

For **private sector partners and other stakeholders**, the guidelines provide an important basis for their participation in the TOD development process, specifically.

- Private partners can use the guidelines to understand the city's approach and its considerations for estimating benefits, preparing commercial plans, conducting projects and negotiating with the city for their involvement in a TOD.
- Financial institutions and/or investors may use the guidelines as the basis for assessing investment, loan feasibility and/or developing financial/risk models serving their purposes.
- As the guidelines were specifically focused on the TOD corridor and station levels, it provides an important foundation for detailed implementation of TOD work, such as urban planning, public space design and detailed TOD design at the city level. This is therefore useful for related parties, such as planning and design consulting firms.
- Lastly, communities and civil societies will benefit from the guidelines as it provides a referred framework to help them to be aware of their roles, involvement and responsibilities in contributing to the TOD. To operationalise these objectives, the guidelines introduce a set of TOD typologies that classify station areas based on their role in the city structure, land use patterns and economic functions, allowing consistent, predictable planning and zoning decisions.

1.2. Purpose of the transit-oriented development guidelines

The purposes of the guidelines are to:

- **Provide step-by-step implementation guidance for TOD in HCMC**, aligned with the city's existing legal documents and resolutions, and demonstrated through practical case studies and local applications.
- **Strengthen institutional capacity and shared understanding** by establishing a common technical and procedural knowledge base for implementing agencies, enabling consistent coordination across planning, construction, transport, land, railway and financing-related entities.
- **Enable stakeholder participation and investment readiness** by providing private partners, investors, and financial institutions with a predictable reference for estimating benefits, preparing commercial plans, assessing feasibility and risks and structuring collaboration with the city.

1.3. Position of the guidelines in the city's legal framework and policies

These guidelines are designed to help government agencies implement TOD in accordance within existing legal frameworks. While primarily structured from a city governance perspective, the guidelines also incorporate viewpoints from key stakeholders such as consultants, private partners and communities.

Consistent with this approach, these guidelines act as a connection between high-level legal documents (laws, regulations) and detailed-level legal documents (technical standards). The combination is emphasised through the following aspects:

- Further guidance to implement articles of laws and regulations in association with the existing technical standards.
- Provide suggestions/alternatives to overcome mismatches/obstacles between legal documents/standards that may prevent a successful TOD implementation in the city.
- Provide suggestions/alternatives to deal with various scenarios in HCMC.

The role of the technical guidelines is demonstrated in Figure 4.



Figure 4: The role of transit-oriented development (TOD) technical guidelines in Ho Chi Minh City

1.4. Scope of the technical guidelines

International best practices show that TOD technical guidelines should be treated as live documents, which are continuously improved throughout the implementation process. This iterative approach serves two critical functions: first, it provides the flexibility needed to adapt to real-world challenges and opportunities as they arise, acknowledging that development is an experiential process. Second, it ensures that the lessons learned from each project are captured to create a more robust and practical framework for guiding future initiatives. A typical situation comprises at least four phases, including:

- Phase 1: Assessment and initial guideline development.
- Phase 2: Enabling and detailed planning with stakeholder engagement.
- Phase 3: Refining financing and initial implementation through pilot projects.
- Phase 4: Full implementation and continuous monitoring.

This first edition of the HCMC TOD technical guidelines is intended to align with **Phases 1 and 2**. It is also important to note that this mainly covers TOD implementation at the corridor and station levels (Figure 5). However, it does not cover details at the site level. It is assumed that for HCMC, the details at the site level will be undertaken by TOD consultants during the detailed design process. Furthermore, this document is prepared based on the prevailing context in HCMC, international experience and the expertise of the Green Cities, Infrastructure and Energy Programme (GCIEP) Alliance. It reflects HCMC’s legal and regulatory framework at the time of preparation. Any updates arising from changes in Vietnam’s and/or HCMC’s legal framework or from implementation experience shall be the responsibility of the city and relevant agencies. GCIEP and its Alliance partners are not responsible for revisions or updates to the originally published guidelines.

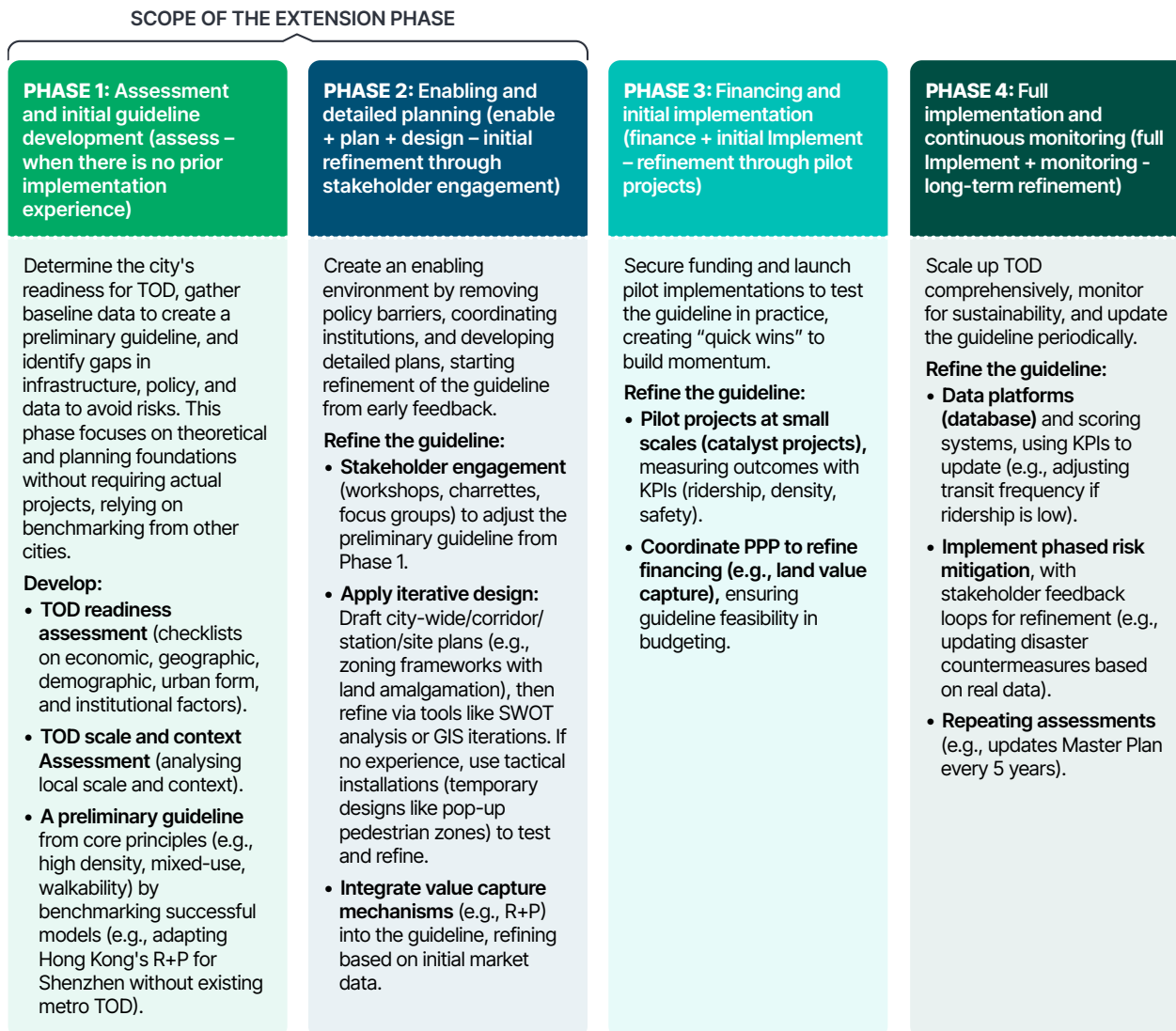


Figure 5: Scope of this transit-oriented development technical guidelines

1.5. Structure of the technical guidelines

The guidelines are designed in a consistent structure which establishes essential connections between the legal policies, TOD objectives and visions, TOD typologies, integration between transport and urban aspects, implementation process, capacity-building and sustainability. The structure of the guidelines is as follows:

- **Part 1** introduces the necessity of TOD guidelines for HCMC to meet its urban development goals, highlighting the integration of legal frameworks and technical standards.
- **Part 2** defines TOD within the HCMC context, outlines its main principles, and describes the implementation process, including different phases and the responsibilities of stakeholders.

- **Part 3** concentrates on planning at the network and corridor levels, establishing objectives, reviewing rail alignments, evaluating development potential and defining station types and phasing strategies.
- **Part 4** deals with station-level planning and design, covering land use zoning, mobility, urban design, housing, gender equality, disability and social inclusion (GEDSI) and climate resilience.
- **Part 5** examines financial strategies and LVC mechanisms, such as joint development and public-private partnership models and offers guidance on how to apply them.
- **Part 6** outlines the institutional responsibilities, capacity-building and the roadmap for implementing TOD.
- **Part 7** covers the monitoring and evaluation of TOD, including performance targets and data management.



PART

2

Part 2. Concept, key principles and transit-oriented development implementation process

Part 2 explains the overall transit-oriented development (TOD) concept for Ho Chi Minh City (HCMC), clarifying what to do in TOD planning and design, and the responsibilities of agencies and stakeholders. It first defines TOD in the HCMC legal and policy context, aligned with Resolution 38, to ensure consistent interpretation and application. It then introduces the TOD layer structure, including influence zones and catchment hierarchy (three layers), as a practical spatial logic for setting priorities, development intensity and access standards around stations. Building on this, Part 2 articulates the city's TOD vision, objectives and KPIs to translate strategic intent into measurable outcomes. Finally, it presents the TOD implementation process and phases (key tasks and expected outputs) and maps the responsible stakeholders for each phase, establishing a clear governance and accountability structure for delivery.

2.1. Definition of transit-oriented development in Ho Chi Minh City

Under Clauses 1, 2 of Article 3 of Resolution 188 and Clauses 1, 2 of Article 3 of Resolution 38 of the National Assembly.

Box 1: TOD definition in HCMC

TOD in HCMC is defined as a planning and investment approach for urban renewal, upgrading, redevelopment and development that takes urban railway connection points as focal points for population concentration, commercial and service activities and office development within walking distance of public transport.

This approach aims to improve land use efficiency and public facility efficiency, enhance public health, reduce reliance on private motorised vehicles, lower pollutant emissions and integrate the preservation and promotion of cultural values.

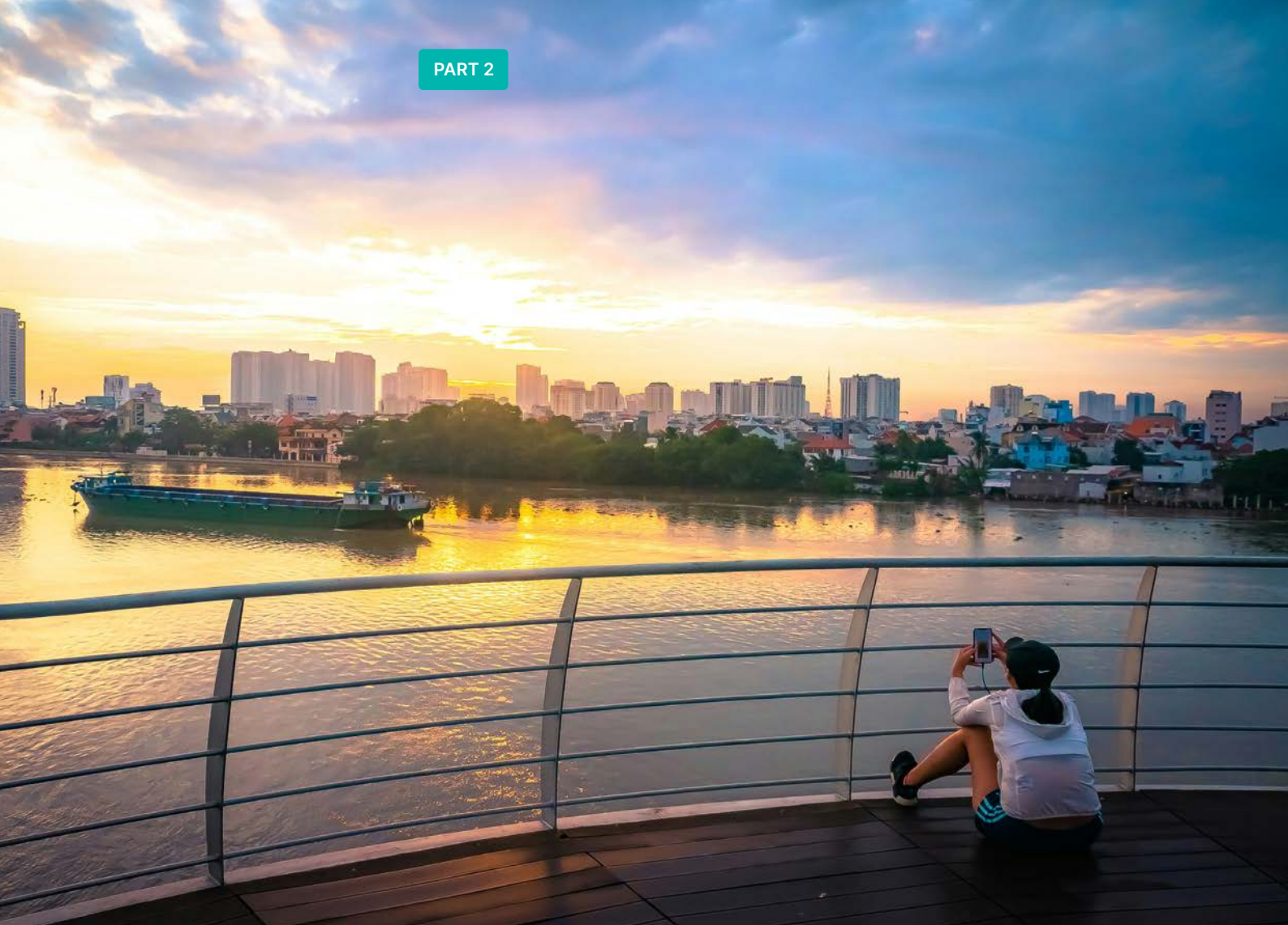
TOD area planning refers to a specialised planning approach that prioritises public transport travel in areas around urban railway stations or depots, to develop urban railway lines in combination with urban renewal, upgrading, redevelopment and urban development.

The boundary of a TOD area includes the station, depot and surrounding area, determined up to the boundaries of land plots located within a radius of 1,000m from the notional centre of the station or depot. The notional centre of a station or depot is the geometric centre of the land area occupied by the station or depot structure, as identified in the approved design dossier for the route option and the location of the structure along the route, as approved by the authority.

TOD is characterised by:

- **Mass rapid transit (MRT)-led, multimodal integration:** MRT functions as the primary mobility backbone, with strong interchange to buses, feeder services and active modes / non-motorised transport (NMT) to create seamless door-to-door trips.
- **High accessibility within a walkable station catchment:** Daily destinations and transport hubs are placed within walking distance of stations, prioritising public transport and NMT and reducing reliance on private vehicles.
- **Pedestrian-first public realm, supported by safe cycling:** Street design prioritises safe, continuous footpaths, safe crossings and protected cycling routes, improving comfort, safety and first/last-mile connectivity.
- **High density development around stations:** Compact, higher-intensity development optimises land use vertically and horizontally, supports high public transport ridership and limits outward expansion.
- **Mixed-use, complete neighbourhoods:** A balanced mix of housing, jobs, retail, services and recreation near stations reduces trip lengths, improves convenience and strengthens local economic activity.
- **Efficient land use through redevelopment and urban renewal:** Focus on brownfield sites, underutilised parcels and renewal areas to accommodate growth within the existing urban footprint and improve public facility utilisation.
- **Equitable and inclusive development:** Intentionally promotes social equity by integrating a diverse mix of housing options to support low-income and mixed socio-economic groups. This is achieved through universal design for full accessibility, the provision of affordable housing and ensuring that essential services and economic opportunities are accessible to all residents, preventing displacement and fostering socially integrated communities.
- **Sustainability and emissions reduction:** Accelerating a systemic shift from private vehicles to concentrating growth around high-capacity, low-emission transport. This reduces per-capita energy demand, reduces local air pollutants and delivers sustained greenhouse gas reductions.
- **Climate-adaptive urban form and resilient infrastructure:** Station areas are designed to withstand climate shocks and long-term stressors through incorporating heat mitigation, flood-sensitive design and environmental quality improvements to strengthen resilience for people and transport assets.

These characteristics are translated into spatial requirements through the TOD influence zones and typologies outlined in **Section 2.2**.



2.2. Transit-oriented development zone definition

TOD spatial application in HCMC is structured around a **three-tier influence zone hierarchy** (Table 1) that is widely adopted (e.g. American Public Transportation Association), providing a consistent basis for applying development intensity, land use controls and transport integration requirements.

Influence zones are used to apply **graduated (density gradient) FAR, height and land use mix controls**; prioritise **public realm and pedestrian investment**; guide **feeder transport and last-mile infrastructure**; and structure TOD area planning and zoning controls in Part 3.

Table 1: Transit-oriented development (TOD) zone description and main characteristics

No	TOD zone	Description	Main characteristics
1	Core zone (0–300m)	The immediate station environment has the highest level of accessibility.	<ul style="list-style-type: none"> • Highest development intensity • Strong mixed-use concentration • Active ground floors and station plazas • Priority pedestrian environment • Minimal or zero private parking.
2	Primary zone (300–600m)	The main walkable TOD district surrounding the station.	<ul style="list-style-type: none"> • Medium to high density mixed-use development • Residential, commercial and community facilities • High-quality walking and cycling networks • Managed parking standards.
3	Extended / influence zone (600–1,000m)	The wider station influence area supports feeder connectivity and neighbourhood functions.	<ul style="list-style-type: none"> • Medium to lower density development (some special cases with high density can be considered with care) • Local centres, schools and open spaces • Feeder bus loops and cycling connections.

2.3. Transit-oriented development implementation process, phases and stakeholders

TOD planning and project delivery are structured into phases that correspond to the planning levels prescribed under the Law on Urban and Rural Planning 2014¹³. These include: the network/corridor level, aligned with the master (general) plan and other relevant city-wide construction/planning documents; and the station and TOD area-level, aligned with the 1:2,000 zoning plan and the 1:500 detailed plan.

2.3.1. Network and corridor levels

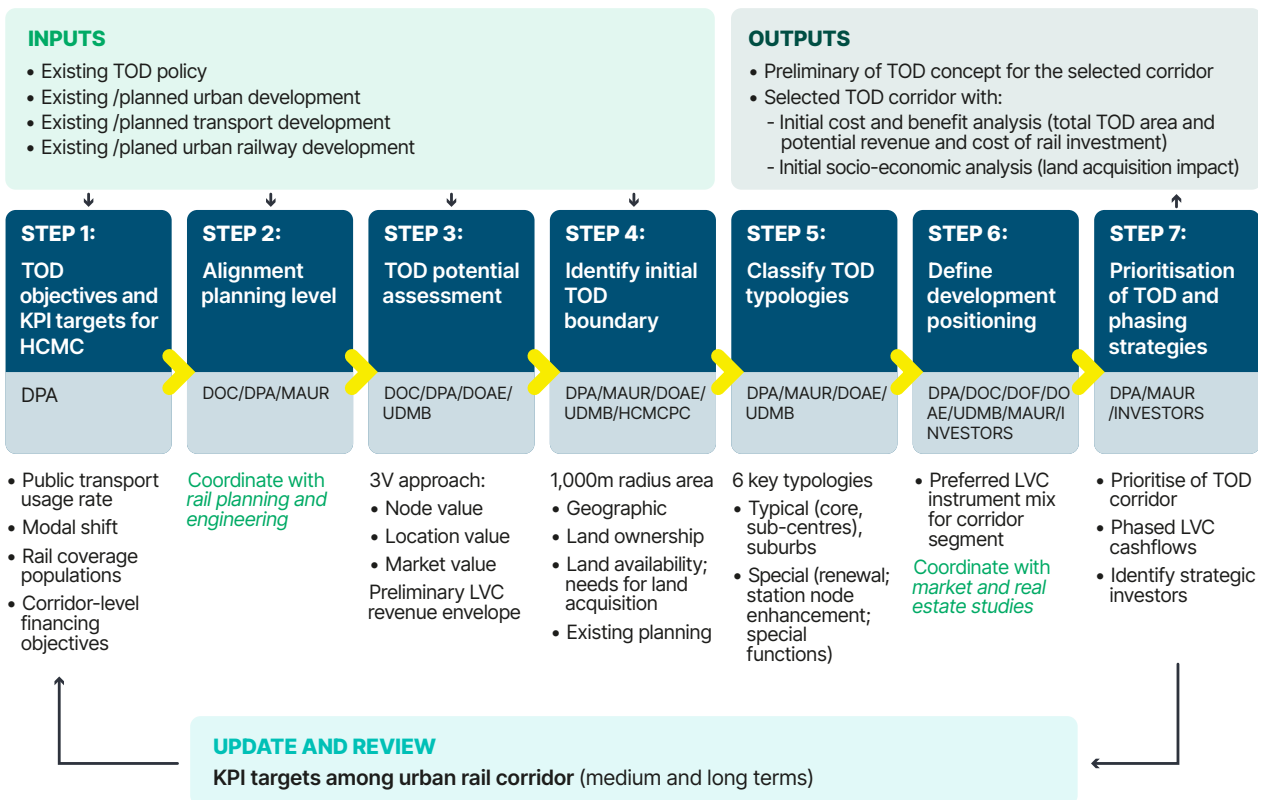


Figure 6: The implementation process of transit-oriented development at the network and corridor levels

Step 1: TOD objectives and KPIs for HCMC. This step sets the city-wide TOD direction by defining measurable objectives and KPIs (e.g. public transport usage rate, modal shift, rail coverage of population) and establishing corridor-level financing objectives to guide subsequent planning and investment decisions. The main output is an agreed KPI and targets framework with initial corridor-level financial goals that can be used consistently across agencies and projects.

Lead responsibility: Department of Planning and Architecture (DPA), coordinating with relevant departments for data validation and alignment.

Step 2: Railway alignment planning. This step ensures TOD planning is fully aligned with the

urban railway plan and engineering requirements by coordinating corridor alignment, station location planning and interfaces with surrounding urban development and transport networks. The goal is to avoid misalignment between land use intentions and rail system feasibility, safeguarding constructability and operational performance from the outset. The key output is an agreed corridor alignment and station location planning basis, with documented coordination outcomes and planning assumptions.

Lead responsibility: Department of Construction (DOC) and DPA, in close coordination with MAUR.

Step 3: TOD potential assessment. This step evaluates TOD potential using the three values (3V) framework to identify where TOD can perform best

¹³ Law 47/2024/QH15 dated 26 November, 2024 of the National Assembly: Law on Urban and Rural Planning

and to estimate a preliminary land value capture (LVC) revenue envelope upon possible LVC strategies. The 3V framework includes: node value (transport accessibility and connectivity); place/location value (land use structure, urban form, service intensity); and market value (real estate demand and commercial feasibility). The objective is to create an evidence-based ranking of corridor segments and station areas to inform prioritisation and investment packaging. The main outputs are 3V assessment results, a TOD potential map/scorecard, and a preliminary LVC revenue envelope by station/corridor segment.

Lead responsibility: DPA and DOC, with technical inputs from the DOAE and UDMB.

Step 4: Identify initial TOD boundary. This step defines an initial TOD influence area, typically using a 1,000m radius as a starting reference. It is then refined based on geographic constraints, land ownership, land availability, existing plans, land acquisition needs and potential joint development (and LVC) opportunities. The objective is to establish a practical, legal boundary for planning and early project formation. The output is an initial TOD boundary map and boundary rationale.

Lead responsibility: DPA, with MAUR, DOAE, UDMB and approval from HCMC People's Committee.

Step 5: Classify TOD typologies. This step classifies station areas into consistent TOD typologies to enable planning and investment strategies, using six key typologies: typical (core, sub-centres, suburb) and special (renewal, station node enhancement, special functions). The goal is to translate corridor-level potential into differentiated development logics, density/intensity expectations and infrastructure priorities. The output is a station typology classification list and map, with brief strategic implications for each typology.

Lead responsibility: DPA, with MAUR, DOAE and UDMB.

Step 6: Define development positioning. This step establishes the preferred development positioning for each corridor segment and station area, including the recommended mix of LVC instruments and coordination with market and real estate studies to ensure commercial realism. The objective is to shape development and finance strategies that link land use intensity, project pipeline and value capture mechanisms. Outputs include development positioning statements for each TOD area, a preferred LVC instrument and initial investor interest requirements.

Lead responsibility: DPA and DOC, with Department of Finance (DOF), DOAE, UDMB, MAUR and engagement with investors.

Step 7: Prioritisation of TOD and phasing strategies. This step prioritises TOD corridors and station areas for implementation and defines a phased strategy that links infrastructure delivery to phased LVC cashflows and investor packaging, including identification of strategic investors and early quick-win opportunities. The objective is to convert the corridor concept into an actionable plan with financing and implementation plans. Key outputs are a preliminary TOD concept for the selected corridor, a prioritised corridor plan, initial cost-benefit analysis (TOD area, potential revenues and rail investment costs), and an initial socio-economic/land acquisition methods with associated impact screening.

Lead responsibility: DPA (overall), coordinated with DOC, DOF and DOAE.

Details of each step at the network and corridor levels are presented in Part 3.



2.3.2. Transit-oriented development area and station level

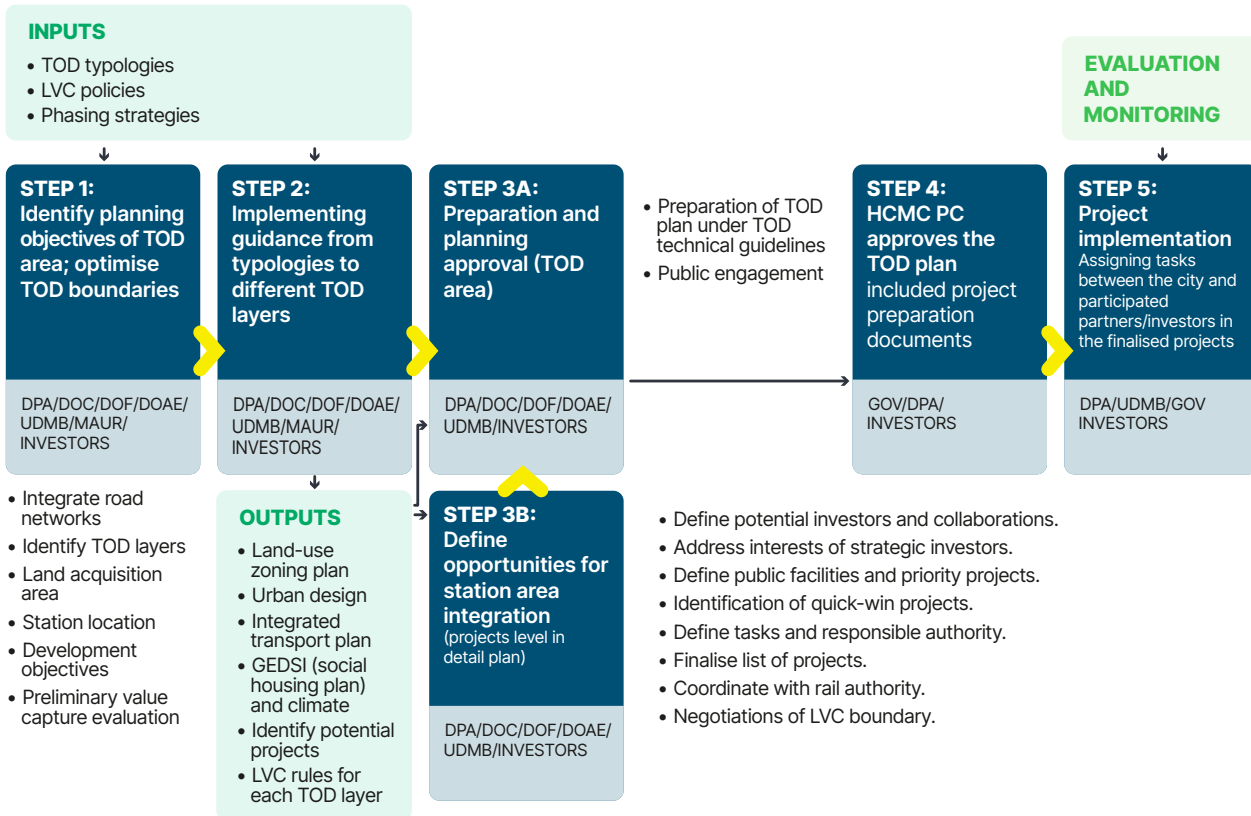


Figure 7: The implementation process of transit-oriented development (TOD) at the TOD area and station levels

Step 1: Identify planning objectives and optimise TOD boundaries. This step refines the TOD area planning objectives and optimises boundaries by integrating the road and active mobility network, defining TOD layers, confirming station location interfaces, identifying land acquisition areas and conducting a preliminary value capture evaluation. The objective is to ensure the TOD area boundary is implementable and supports the intended access, urban form and investment logic at the station level. Outputs include a refined TOD boundary and layers plan, updated development objectives, a land acquisition and connectivity note, and a preliminary value capture screening for the area.

Lead responsibility: DPA, with DOC, DOF, DOAE, UDMB, MAUR and investor participation where relevant.

Step 2: Translate typologies into layer-based implementing guidance: This step converts the assigned typology into concrete planning technical guidance for each TOD layer, covering land use zoning, urban design requirements, integrated transport planning, GEDSI/social housing planning, climate considerations, potential project identification and layer-specific LVC rules. The objective is to

ensure consistent and policy-compliant design and zoning decisions while embedding inclusion, climate resilience and financing mechanisms into the plan. Outputs include layer-based planning and design guidance, a preliminary list of potential projects and a draft LVC rule set by each TOD layer.

Lead responsibility: DPA and DOC, with DOF, DOAE, UDMB, MAUR and investors as applicable.

Step 3A: Preparation and planning approval documentation for the TOD area: This step prepares the TOD plan and approval dossier under the technical guidelines, conducts public engagement, defines potential investors and collaboration models, identifies quick-win projects and assigns tasks and responsible authorities. The objective is to finalise a plan that is both approvable and implementable, with clear project packaging and governance arrangements. Outputs include the full TOD planning dossier, public engagement record, finalised project list and task assignment matrix, and documented coordination and negotiation outcomes with MAUR and key stakeholders.

Lead responsibility: DPA and DOC, with DOF, DOAE, UDMB and investors.



Step 3B: Define opportunities for station area integration and project packaging (detail plan – project level). This step translates the approved TOD area concept into a project-level package under the detailed plan by identifying TOD opportunities and defining implementable projects with clear ownership, sequencing and delivery mechanisms. The objective is to develop a project pipeline that addresses strategic investor interests to prioritise quick-win projects. Key outputs include a refined and prioritised list of projects with preliminary scopes, delivery models and potential investors/collaboration structures; a task-and-responsibility matrix assigning lead agencies and coordination roles; a coordination record with the rail authority to confirm station interfaces and construction/operational constraints; and an agreed approach to LVC boundary definition, including negotiation outcomes and documentation of LVC catchment assumptions to support subsequent approvals and implementation.

Lead responsibility: DPA and UDMB (project packaging and coordination), with DOC/DOF/DOAE support as relevant, close coordination with MAUR and engagement with strategic investors for partnership structuring and LVC boundary negotiations.

Step 4: Formal approval by HCMC People's Committee. This step secures formal approval of the TOD plan, including project preparation components, making the plan legally effective and enabling implementation and mobilisation of resources. The

objective is to complete the statutory decision-making process and provide a binding basis for subsequent investment, land acquisition procedures and coordination mechanisms. Outputs include the approved TOD plan and official approval decision package, including implementation directives where applicable.

Lead responsibility: HCMC People's Committee, supported by DPA and coordinated with involved stakeholders and investors.

Step 5: Project implementation, evaluation and monitoring. This step executes the approved project package by assigning and managing responsibilities between the City and participating partners/investors, implementing agreed LVC mechanisms and establishing evaluation and monitoring to track delivery against TOD objectives and KPIs. The objective is to ensure coordinated delivery, risk management and continuous improvement through feedback from implementation performance and outcomes. Outputs include implementation agreements and task assignments, project delivery schedules, LVC implementation arrangements and a monitoring and evaluation framework with periodic reporting.

Lead responsibility: DPA and UDMB (implementation coordination), with HCMC Government entities and investors/partners responsible for delivery according to the finalised project and governance arrangements.

Box 2: Ho Chi Minh City transit-oriented development planning: Project streams in Step 3 Formulation and Step 4 appraisal/approval.

The overall transit-oriented development (TOD) implementation follows two streams: a TOD planning line and a TOD project line. The planning line typically starts earlier, integrating urban railway planning with urban development from the alignment planning stage, while the project line starts later, after TOD typologies are defined. From the development positioning step onwards, both lines should be developed in parallel and kept fully aligned, as illustrated in the Figure 8. In the HCMC context, these two streams correspond to statutory TOD planning preparation/approval and TOD project preparation (project proposal, investor selection and project development).

Therefore, the technical guideline actions in Steps 3 and 4 are to be linked as shown as follows.

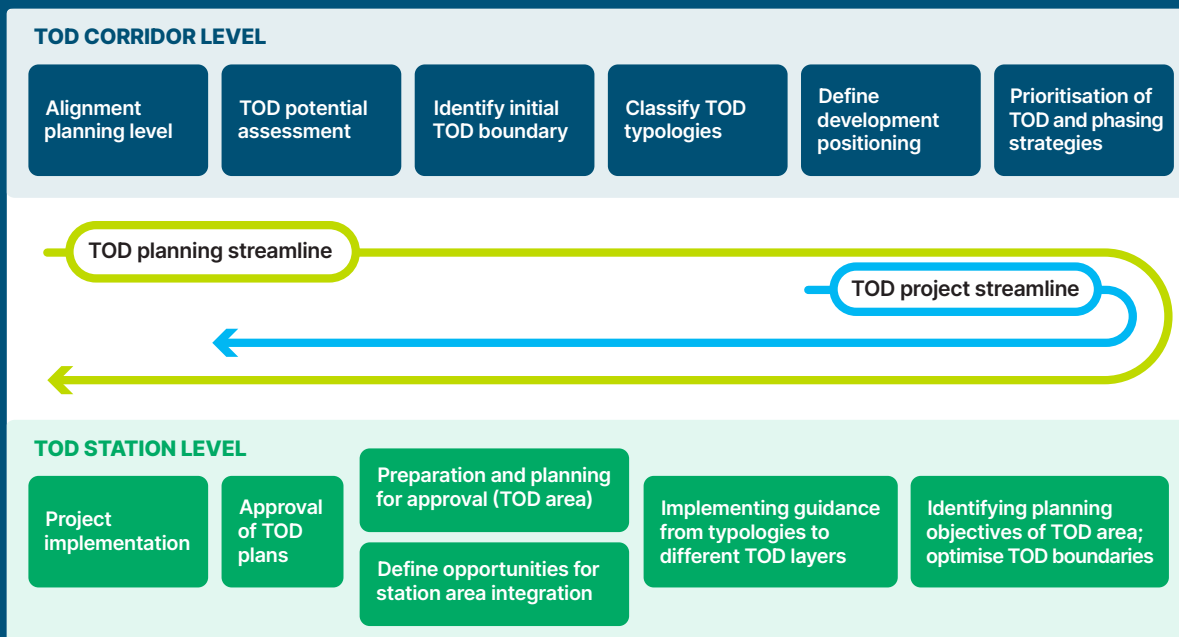


Figure 8: Major streamlines in the transit-oriented development implementation process

TOD planning and project formulation

For TOD planning, the HCMC People's Committee decides the method to select consulting organisations responsible for formulating TOD planning objectives and preparing TOD plans. This is either through contractor selection methods in accordance with bidding laws or TOD planning ideas competitions in accordance with relevant laws and bidding regulations. During plan formulation, the HCMC Urban Development Management Board (UDMB) circulates the planning records to relevant authorities, organisations and experts for review and written feedback; the requested parties provide written comments within 15 days after receiving adequate records as regulated. UDMB then consolidates, acquires, explains and finalises the planning dossier before submitting it for appraisal and approval. Then the contents of the acquisition and explanation reports are disclosed publicly and transparently.

In parallel to the project track, based on the list of priority projects for attracting strategic investors, an investor or a competent state authority may propose an investment project (Article 7.6 of Resolution 98 and Resolution 260). The HCMC People's Committee issues detailed regulations on the project information disclosure template, including preliminary requirements on investor capacity and experience and the registration dossier to implement the project. Strategic investor selection for business investment projects follows two cases: if there is one strategic investor, the DOF issues the Investment Registration Certificate; if there are two or more, within seven days from receipt of a valid dossier from the first strategic investor, DOF reports to the HCMC People's Committee to promulgate scoring criteria and establish a Strategic Investor Evaluation Council to ensure transparency and fairness. For projects implemented under the Public-Private Partnership (PPP) method, strategic investors may be appointed or selected in special cases in accordance with PPP laws and procedures. Note: urban railway projects and TOD urban railway projects may proceed directly to preparation, appraisal, and investment decision stages without requiring investment policy formulation/appraisal/approval procedures or other investment policy decision procedures stipulated by relevant laws.

TOD plan appraisal/approval and parallel project readiness

For TOD planning, the HCMC People's Committee decides on the establishment of Appraisal Councils, including representatives of state management authorities, relevant experts and reviewers. The Council President chairs appraisal meetings and issues written conclusions by majority, while Council members review the dossiers, provide feedback on planning objectives and plans, and assume responsibility for their assessments in the Council meetings. Within no more than 30 days, the HCMC DOC prepares the appraisal report, consolidating the Council's opinions and concluding the conditions for submission for approval.

Meanwhile, to maintain TOD implementation, committed projects that require it should proceed with pre-feasibility studies in parallel with plan appraisal and approval, ensuring the project pipeline is ready to move into subsequent appraisal and investment decision stages immediately after the TOD plan is approved.

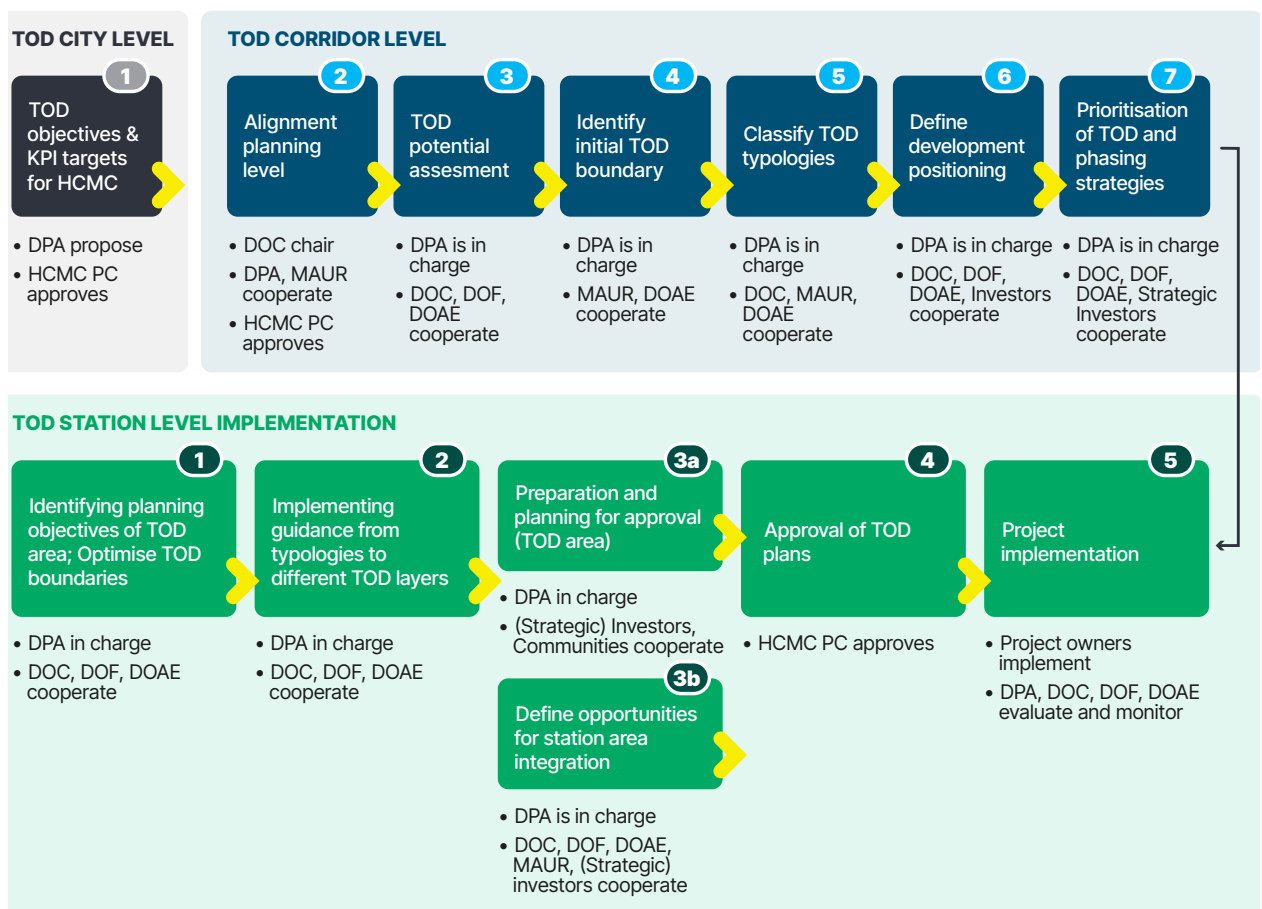


Figure 9: Main responsibilities of related stakeholder during the transit-oriented development implementation process

According to the proposed institutional setup:

- The institutional arrangement is designed to fit HCMC's current governance structure. If mandates or responsibilities of relevant agencies change, the arrangement should be updated accordingly in Figure 9 and the foregoing text.
- The HCMC People's Committee has a central role in setting city-wide TOD objectives and performance targets. DPA leads TOD planning, but delivery depends on structured coordination with key agencies, particularly DOC, DOF, DOAE and MAUR, across planning approval, infrastructure, land and financing processes.
- Although the UDMB currently sits under DPA, its functions should be clearly differentiated. DPA should remain accountable for TOD planning and development controls, while UDMB should be accountable for TOD project packaging and delivery, including the design and implementation of LVC instruments.

Details of each of the steps at the TOD area and station level will be specifically presented in Part 4 (TOD area, station level planning and design).

2.4. Integration of transport, land use and urban design in transit-oriented development

2.4.1. Objective of the integration

- The objective of the integration in the context of the city is to bring together land development with transport network design and considers interactions in all settings to improve housing supply in the right locations, decrease reliance on private vehicles, and ensure an optimal distribution of transport services in TOD areas, including facilities for public transport, bicycle and walking to connect origins and destinations.

2.4.2. Why integration is needed

- Land use pattern affects travel demand through the number of trips made and travel distance. Addressing land use patterns and aligning mass transit with major travel demand flows can reduce demands on road and public transport systems, lower user costs of travel, reduce energy consumption, improve air quality and expand accessibility.
- Well-established economic theory indicates that over time, firms will tend to locate closer to areas that deliver the greatest economic benefits to them. These benefits can be in the form of the most efficient land use for the firm. In addition, locating in areas with superior accessibility reduces transaction costs through ease of contact with suppliers and customers, while increasing access to a skilled labour force. The appearance of the firms and their businesses in TOD areas is one of the key motivations to increase land values in TOD areas, especially in TOD areas that are connected with each other by a city-wide mass transit network.
- People, over time, will adjust to where they live due to many factors, including access to employment, education, essential services and recreation. Addressing these factors will encourage people to live in TOD areas, thus speeding up TOD.

2.4.3. Approach to integrate land use and transport

- Use transportation investments and design (transport facilities and services) to shape urban development.
- Regulate land use development to be consistent with transportation investments.
- Integrate transport and land use through the lens of accessibility. Accessibility (the ability to reach desired destinations or activities) is the two-way link

between transportation and land use. Accessibility is a combination of mobility and land use patterns that can be improved through transportation investment that improves mobility and more compact land use patterns that locate origins and destinations closer together.

2.4.4. General principles for the integration

- **Increasing density along with mass transit corridors:** This involves increasing density standards and possible land use change along major routes, restricting development from taking place at a specified distance from major transit arteries.
- **Promoting mixed land use:** Mixed land use refers to the deliberate development of a defined geographical area in which multiple types of buildings and land functions coexist. Rather than segregating residential, commercial, institutional, industrial and recreational uses into distinct zones, mixed-use developments integrate these functions.
- **Improving pedestrian access:** This includes convenient pedestrian connections to transit and between buildings, as well as outward-oriented buildings which serve as destinations for pedestrians, creating walkable streets.
- **Enabling mechanisms for above- and below-ground pedestrian connections:** This means allowing overpasses, elevated walkways and underground corridors to be delivered beyond the development's land boundary through Public-Private Partnership (PPP) or similar agreements, with clear benefits and obligations for participating developers to support a well-connected, multi-level pedestrian network.
- **Reducing the need to travel by car/motorcycle:** This refers to increasing the convenience of public transport and reducing the length of trips by locating services and shopping at transit hubs and reducing the friction to connect with last-mile services. Promoting multi-purpose or linked trips by promoting more sustainable patterns of development and more sustainable communities that reduce the physical separation of key land uses.
- **Tackling the environmental impact of travel:** By improving sustainable transport choices, and by making it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking and cycling.
- **Improving the accessibility of the location:** The extent to which a site is, or is capable of becoming, accessible by non-car/motorcycle modes, particularly for large developments that involve major generators of travel demand.

- **Other measures which may assist in influencing travel behaviour from private modes to public modes:** This allows for reductions in car/motorcycle usage through-traffic management and parking management.
- **The use of supporting tools:** Quantifying transport and land use impacts through modelling works which are based on big data, especially through tools that allow transport assessment, land use transport interaction, cost-benefit analysis and wider economic benefit.

Box 3: Case study: KLCC–Bukit Bintang Elevated Walkway in the capital, Kuala Lumpur, Malaysia

The KLCC–Bukit Bintang elevated walkway is a major privately funded addition to Kuala Lumpur's pedestrian network, delivering safe and continuous walking connections across the city centre. The fully air-conditioned corridor runs for about 1.2 kilometres. It links Pavilion Kuala Lumpur to the Kuala Lumpur Convention Centre and onward into Suria KLCC, with multiple access points along major streets such as Jalan Pinang and Jalan Perak. The system comprises an above-ground elevated link bridge between Pavilion, Impiana KLCC Hotel and the Convention Centre, and an underground tunnel at the KLCC end that connects the Convention Centre concourse directly into Suria KLCC. The entire project was funded by Petronas for RM 100 million and delivered by KLCC Holdings and City Hall. It is a good example of how private-sector investment can deliver pedestrian infrastructure that operates at a corridor scale, extending far beyond any single development site.

By providing a sheltered, secure and comfortable route between key commercial destinations and nearby rail stations, the walkway strengthens corridor-level pedestrian integration rather than serving only one building or station. It eliminates the need to cross busy junctions, improves safety in an area once associated with pickpocketing, and encourages walking between the KLCC LRT station, Raja Chulan Monorail and major retail anchors. This demonstrates how targeted investment in a strategic pedestrian link can create a people-friendly urban spine that supports local businesses, enhances last-mile access to transit and promotes walking as a viable mode of everyday travel.

2.4.5. Key consideration of the integration at the corridor level and station level

Integration at the corridor level should involve the following:

- Planning, designing, developing and managing transport infrastructure and its environments as integrated facilities, with provision for public transport modes.
- Recognising the relationship between the corridor and the adjoining communities, land uses, built form, amenity and environment.
- Planning for integration of development controls and traffic management.
- Considering the impact of traffic on the safety of pedestrians and cyclists, parking, local businesses and activities and environmental assets.
- Locating services, shopping and leisure near transit hubs so that commuters can perform errands and socialise as part of their commute.

Integration at the station level should involve the following:

- Local urban form with opportunities for more sustainable development.
- Integration between local land use and transport to maximise accessibility.
- Planning for choice in transport modes.
- Ensuring access to public transport.
- Precincts for environmental protection and enhancement.
- Pedestrian-friendly and safe environments, and centres containing mutually supporting activities.
- Transport corridors and facilities that enhance, rather than detract from, the local environment.
- Provide for new overground or underground pedestrian connections that enhance direct access to the station and support a multi-level pedestrian network.

Box 4: Case study: Corridor- and station-level integration at Kowloon Station, Hong Kong

The developments above Kowloon Station and West Kowloon Station together form one of Hong Kong's most significant examples of corridor-scale and station-level integration. On the Kowloon Station deck, the Union Square development spans more than 13 hectares and contains 16 residential towers supported by a hotel, office and a major retail podium directly connected to the station below. The scale and mix of uses create a continuous urban environment that links the rail corridor with surrounding neighbourhoods and the West Kowloon Cultural District, while the stepped building heights help the development transition smoothly toward the waterfront and existing communities.

At the station level, the design places the highest-intensity activities, such as a landmark office tower and the commercial towers built above West Kowloon Station, immediately above or adjacent to the transit nodes. This ensures short, protected walking routes from the rail concourses to key destinations through an elevated walkway network and podium-level public spaces. The arrangement enables commuters to move seamlessly between homes, workplaces, shops and leisure facilities without relying on road transport, reinforcing a pedestrian-focused environment.

Across the two sites, the inclusion of substantial open space, landscaped podiums and direct links to the cultural district strengthens the area's role as a vibrant station precinct. By concentrating thousands of homes, major workplaces and region-scale amenities directly above two major rail hubs, the developments illustrate how coordinated planning at both corridor and station scales can produce a connected, sustainable and people-centred urban district.

Box 5: Case study: Corridor- and station-level integration at Jurong Lake District, Singapore

Jurong Lake District is planned as a large, 410-hectare, mixed-use district, designed around walking and public transport rather than individual sites. The district stitches together homes, offices, leisure spaces, parks and community facilities into a "ten-minute" neighbourhood structure, supported by a comprehensive network of walkways including the J-Walk system. This broad-area approach reflects corridor-level integration, where planning focuses on linking multiple centres, land uses and communities through safe, continuous pedestrian routes and well-connected public spaces.

At the station scale, Jurong Lake District still incorporates strong transit-oriented development features by creating seamless elevated and underground pedestrian connections between the existing Jurong East mass rapid transit station and the future Jurong Lake District mass rapid transit station, removing the need to cross traffic over a 700-metre stretch. These sheltered links provide direct, convenient access to public transport while supporting walking, cycling, and everyday life within the district. Together, the corridor-wide network and station-level connections establish Jurong Lake District as a highly walkable, people-focused environment, but its defining characteristic remains its corridor-scale integration, rather than a single over-station development.



2.4.6. Guiding principles for integrating land use and transport in transit-oriented development planning

Transport planning shall respond to high density, TOD-generated travel demand.

In a TOD area, travel demand is generated directly by land use planning decisions, including land use type, GFA and FAR, population and employment density, the degree of functional mix, and the spatial distribution of development across TOD layers. Transport planning solutions shall therefore be tested and refined through an iterative process to identify an optimal, multimodal package of measures.

The iterative assessment shall include the following steps:

- **First, trip generation and attraction** shall be forecast from the proposed land use plan based on GFA, land use mix and land use type.
- **Second, forecast demand** shall be allocated across transport modes in line with TOD objectives, maximising public transport and walking and cycling while limiting private vehicles. Considering the TOD mobility improvements that increase mode share for walking, cycling and public transport, combined with a traffic management plan to support the flow of vehicles, enables densification without an increase in congestion.
- **Third, travel demand** shall be assigned to the multimodal network, including the road network, public transport, walking and cycling networks and transfer facilities, with assignment reflecting key corridors and directional patterns.
- **Fourth, transport network performance** shall be evaluated, including road network performance using level of service, with 'level of service C or better' recommended for roads according to Vietnam Technical Standards 13592:2022 within the TOD area, while also assessing pedestrian safety and accessibility, station access, operational safety and transfer capacity.

Where the assessment indicates that performance requirements are not met, the plan shall be adjusted in a defined order of priority, including: (i) land use parameter adjustments; (ii) mode share reallocation; (iii) operational and traffic management measures; and (iv) network and corridor capacity improvements.

Examples of the process can be found in the case studies below. It should be noted that the process can be applicable both to ground and underground planning in TOD areas. A notable note for the underground urban design case is its interaction with surface urban planning and the related development phases. A case study showing the integration between transport and underground development

can be found below.

Priority order for plan adjustment through four measure groups

- **Firstly, adjust the land use plan:** Land use adjustments shall be implemented first, as they directly shape the scale and temporal structure of demand. This group shall be aligned with: preferable and non-preferable land use types (LU01), development quotas and caps (LU02), public and green space provision (LU03), target intensity and FAR (LU04), land use and space mix (LU05), and height transition rules (LU06). These measures shall be used to favour transit-supportive uses, apply caps on population, floor area or peak-generating activities where required, calibrate FAR to the station role and multimodal capacity, strengthen mixed-use to reduce peak-hour pressure and increase walking and cycling, allocate public and green spaces to support transfers and disperse pedestrian flows, and manage height transitions to maintain walkable environments and overall accessibility in the core area.
- **Secondly, strengthen public transport and active mobility to increase use:** Where mode share targets are not achievable with the current supply, priority shall be given to improving public transport and NMT networks and facilities. This group shall be aligned with: pedestrian priority (TM04), bus provision (TM05), cycle access (TM07), accessible station design (TM08), and integrated multimodal connections (TM09). Measures shall ensure convenient access to frequent bus routes across the TOD area, reduce stop spacing where appropriate, provide bus interchange points close to the station, deliver continuous and barrier-free walking routes with safe at-grade crossings across the whole TOD area and direct paths to station entrances, provide connected cycling routes and secure bicycle parking to expand the station catchment, ensure step-free access and clear wayfinding within the station environment, and maximise multimodal connections in both physical layout and service coordination over time. This also includes enabling overground and underground pedestrian links to stations through appropriate PPP mechanisms, with clear responsibilities and benefits defined for participating developers.
- **Thirdly, optimise operations through-traffic management and demand management:** Operational measures shall be applied to increase the carrying capacity of the street to help more people get to their destination without relying on road width expansion. This group shall be aligned with developing a fine-grain street network

(TM01), the complete streets concept (TM02), traffic management and calming (TM03), parking and kerbside management (TM06), and integrated multimodal connections with safe circulation (TM09). Measures shall allocate more road space to pedestrians, cyclists and public transport, reduce speeds and discourage through-traffic in the TOD core, manage parking supply and pricing and enforce kerbside rules to protect access and safety, provide appropriate taxi pick-up and drop-off areas, and maximise station area circulation to separate movements and reduce conflicts between pedestrians, motorcycles, buses and taxis. Where appropriate, these measures shall be complemented by traffic re-routing, signal timing maximising and public transport priority treatments.

- **Finally, expand and complete the road network and corridor capacity:** Road network expansion shall be considered after the above measures, and only where connectivity gaps or unavoidable bottlenecks remain. This group shall be aligned with fine-grain street network (TM01) and complete streets and pavement design (TM02). Measures shall prioritise missing links and short-block, well-connected street patterns which more efficiently distribute traffic while considering the location of pedestrianised streets, shared-use streets and plazas. Any corridor upgrade shall follow complete streets principles to accommodate multiple modes safely and comfortably, rather than maximising private vehicle throughput.

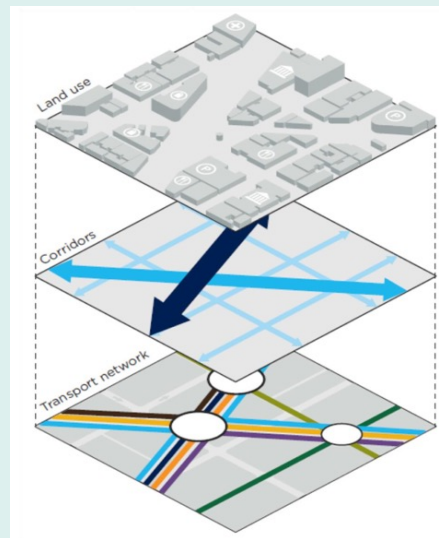
Box 6: Case study: New South Wales Long Term Transport Master Plan describes a four-step process to integrate transport and land use¹⁴

Step 1: Integrating transport with land use planning.

Step 2: Identifying corridors of demand.

Step 3: Defining the performance required from the transport network.

Step 4: Moving towards a connected and integrated system.



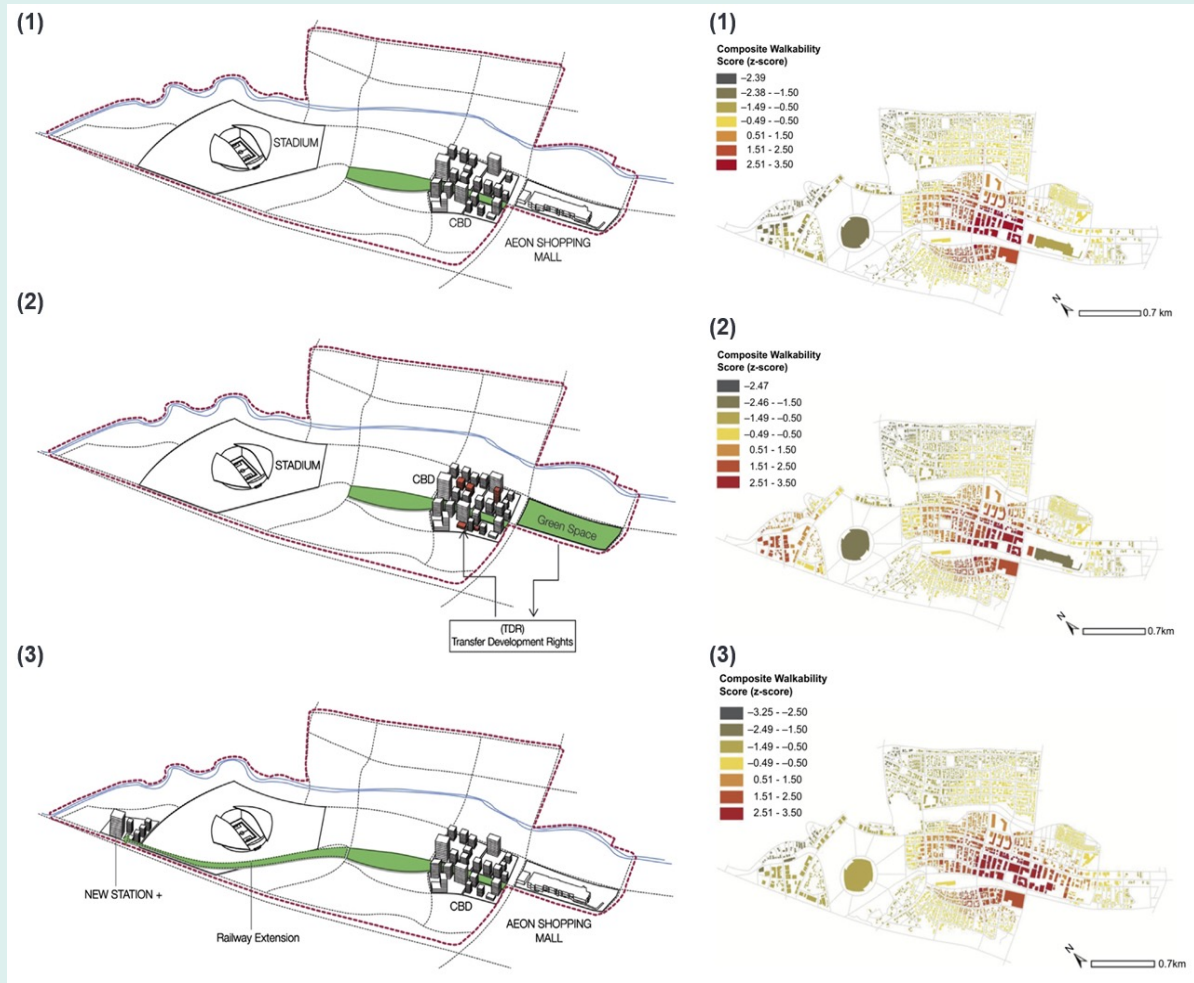
¹⁴ Transport for New South Wales, Australia

Box 7: Case study: Integration of land use, urban design and transport in the Urawa-Misono project, Japan¹⁵

Step 1: Setting three urban design alternatives.

Step 2: Transport assessment.

Step 3: Integrated transport system that considered small-, medium-, and large-scale mobility solutions.



¹⁵ Binder, R. B., Tobey, M. B., Jittrapirom, P., Steidl, P. J., Yamagata, Y., & Yang, P. P. (2020). Integrating mobility in urban design. In *Urban Systems Design* (pp. 125-162). Elsevier

Box 8: Case study: Integration of transport and underground development in Tianjin, China

- It is composed of various units and clearly presents the dominant function of each unit, main land use, green rate, total construction area, location and size of public green space, public supporting facilities and requirements of various planning regulatory standards in the form of guidelines.
- It is proposed to mainly utilise the shallow and middle layers of the underground space in the central city to construct underground nodes relying on primary subway stations and public centres for commercial and parking purposes.
- The underground spaces are to be connected as much as possible to form a system of underground space by adhering to the principle of agglomeration and integrated development.
- The comprehensive disaster prevention and safety requirements are strengthened, and the design scheme must meet the Regulations on the Development and Utilisation of Urban Underground Space, Regulations of Tianjin on the Underground Space Planning and Management, and other regulatory requirements.

Stage characteristics of underground space development in Tianjin, China¹⁶

	Initial stage	Scale stage	Networked stage	Underground city stage
Function type	Underground parking, air defense	Underground business, entertainment, etc.	Underground rail traffic	Integrated pipe gallery, modern underground drainage system
Development characteristics	Single building, single function	Focus on key projects and take comprehensive utilisation as a symbol	An underground network taking the subway system as the skeleton and the comprehensive development of subway stations as nodes	An urban lifeline system composed of systematic underground transportation, municipal and logistics lines
Layout form	Scattered	Base extension	Network extension	Three-dimensional city
Comprehensive evaluation	Basic level	Basic and key level	Network level	Systematic underground functional level

¹⁶ Shi, W., Xiao, Y., Zhao, G., & Liu, W. (2015). The utilization of underground space planning in Tianjin (China) central city (2013-2020). Think Deep: Planning, development and use of underground space in cities, ISOCARP, 88-110.



PART

3

Part 3. Transit-oriented development network- level and corridor-level planning

3.1. Purpose and application

3.1.1. Purpose

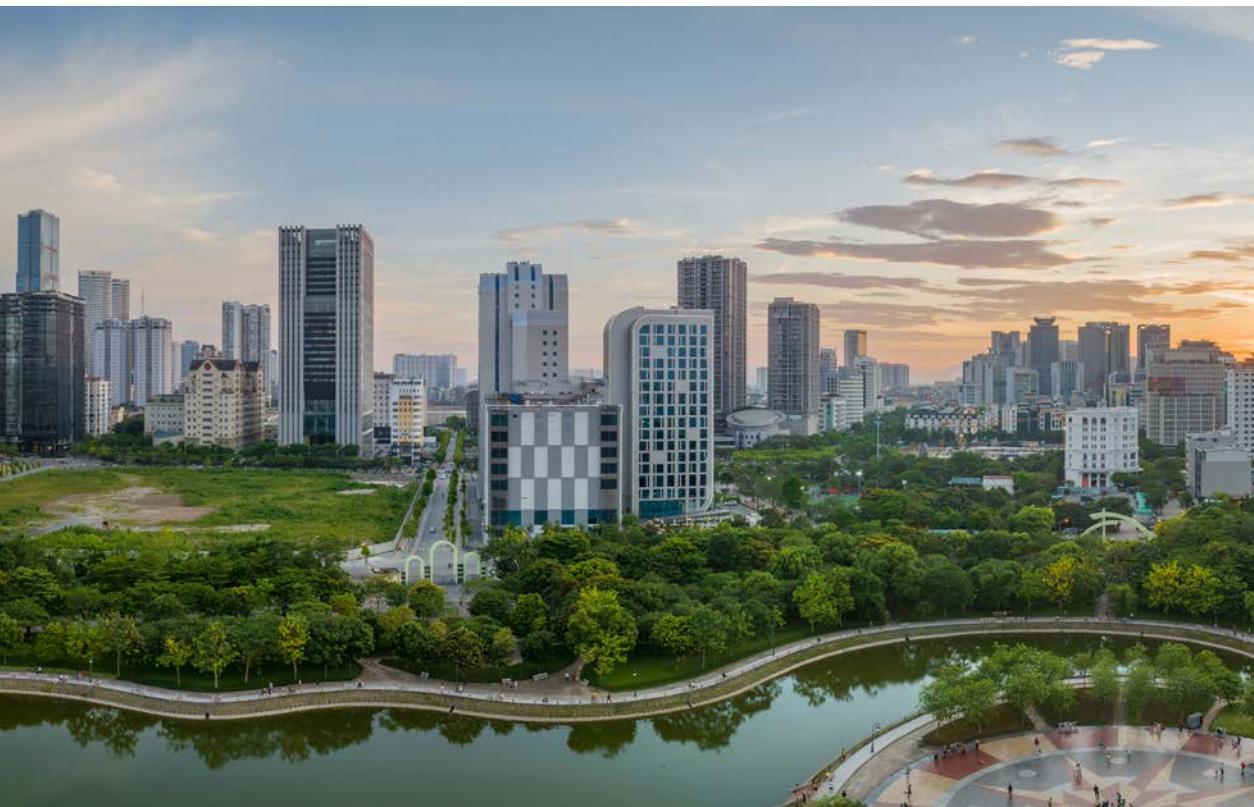
Part 3 provides a structured method to plan transit-oriented development (TOD) at network and corridor levels, ensuring that station areas are not treated as isolated projects but as an integrated system of nodes and corridors. In Ho Chi Minh City (HCMC), the city is planned in a polycentric urban model. The key tasks are to identify which rail corridors and station clusters should be prioritised as TOD corridors, how they connect the central urban area with the city's emerging sub-regions, and how they can support the reorganisation of urban growth toward a more compact, transit-oriented and strategically distributed urban structure, rather than treating station areas as isolated projects. In particular, the purpose of this part is to:

- Translate city-wide TOD policy into corridor-specific objectives, targets and key performance indicators (KPIs).
- Guide decisions on rail alignment, station spacing/ locations and multimodal integration.
- Identify and compare station area TOD potential using a consistent assessment approach.
- Define prioritisation and phasing to focus public and private resources on stations and segments with the highest feasibility and impact.

3.1.2. Application

This part applies to the preparation of the City Master Plan, particularly in examining urban structure, land use organisation, transport structure and the distribution of major development corridors, where TOD network- and corridor-level planning should be integrated. This includes defining the TOD network, clarifying the role of each corridor, establishing the hierarchy of stations, indicating land use intensities and assessing the relationship between rail investment and urban growth directions. In addition, it also applies to the preparation of zoning plans (1:2,000) and detailed plans (1:500), as well as to the early planning, pre-feasibility and feasibility stages of urban rail development, so that corridor objectives, station roles, land use assumptions and TOD potential are defined from the outset and carried consistently into subsequent station level planning and investment packaging.

The intended users can be government agencies and consultants, but these guidelines are also intended to inform rail project sponsors, infrastructure and property investors, development corporations and other stakeholders involved in long-term investment planning and the socialised mobilisation of resources for TOD implementation.



3.2. Transit-oriented development objectives and key performance indicators for Ho Chi Minh City

The city needs to establish a clear, measurable set of **network/corridor TOD objectives and KPIs** to guide corridor selection, station typologies, planning controls and investment decisions.

Key targets:

- **Ridership uplift (OT01):** Increase in corridor/station ridership versus baseline.
- **Mode share (OT02):** Share of transport mode along corridor.
- **1,000m coverage (OT03):** Percentage of population/jobs within 1,000m from stations.
- **Station area growth share (OT04):** Percentage of new housing/jobs delivered in station areas.
- **Mixed-use balance (OT05):** Mixed-use parcels in station areas.
- **Jobs-housing balance (OT06):** Jobs-to-housing ratio in station area.
- **FAR delivered versus indicative (OT07):** FAR delivered versus indicative by station typology.
- **Public space provision (OT08):** Public realm area per capita within station areas.
- **Affordable housing delivery (OT09):** Affordable units and/or percentage of new supply in station areas.
- **Social facilities access (OT10):** Percentage of residents within a 15-minute walk to schools/parks in station areas.
- **Universal and inclusive design (OT11):** Compliance with inclusive design.

- **Flood resilience (OT12):** Reduced flood exposure and/or compliance with flood resilience measures.
- **Emissions reduction contribution (OT13):** Estimated CO₂ reduction from corridor-driven mode shift.

Key outputs: A network/corridor TOD objective, targets and KPI framework that includes: baseline values; target values by corridor and station typology (where relevant); definitions and calculation methods for each target; and reporting responsibilities and update cycles for monitoring and implementation.

To define clear TOD objectives and a practical KPI framework for HCMC, a structured three-step process can be implemented (Figure 10):

- **Step 1: Assessing readiness.** The Department of Planning and Architecture (DPA), as the lead authority, first assess the city's readiness for TOD-based KPI setting. This includes reviewing the current urban development context, such as existing plans, economic conditions and targets, market readiness and potential and the transport system – especially the public transport network.
- **Step 2: Enabling environment.** The second step is to identify and address barriers in the legal and institutional framework that may hinder TOD implementation. Removing these obstacles helps create the conditions for smoother, more effective and more coordinated TOD delivery.
- **Step 3: KPI identification and development direction.** Based on the findings from Steps 1 and 2, the overall TOD direction and select appropriate KPIs can be defined. The city may choose from the proposed KPI options depending on local conditions and the final KPI set should be approved by the People's Committee.

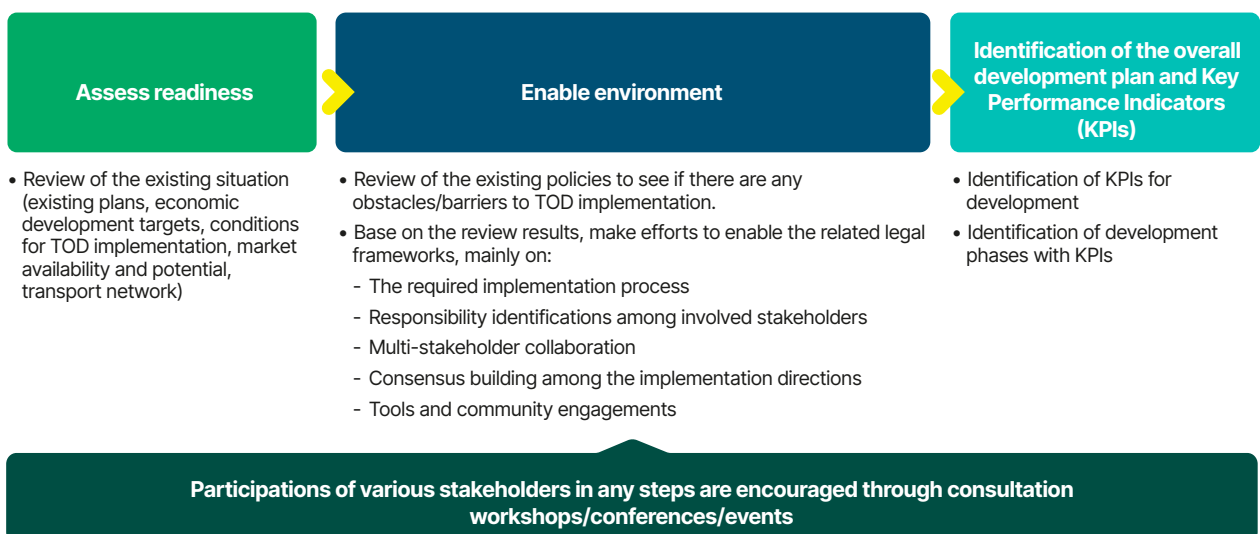


Figure 10: The standard process to set KPIs for the city's transit-oriented development

HCMC's TOD objectives are broadly defined in Resolution 38, which positions TOD as an integrated planning and urban development approach centred on urban rail stations to concentrate housing, jobs and services within walking distance of public transport, while improving land use efficiency, public facilities, community health, environmental performance and cultural preservation. Thus, these TOD directions can be operationalised through a focused KPI framework.

At the urban development and land use level, the city may apply OT03, OT05, OT09, and OT10 to track concentration of population/jobs/services and improvements in land use and social outcomes in TOD areas. At the mobility and environmental level, OT02 and OT13 can be used to monitor mode shift toward urban rail and the associated emissions reduction. This structure helps translate policy directions into clear, monitorable implementation targets.

The city TOD objectives should be systematically transformed into implementation processes, which are commonly developed at city, corridor and station levels. The KPI assignment process at the city-wide level basically comprises eight steps, which are designed to make sure the following key principles:

- Being consistent with the city's comprehensive development plan.
- Good integration between transport and land use, in which transport takes the lead in the planning process.

Details of the steps are presented in Figure 11, including the following:

1. Review the city development objectives and set the related TOD objectives.
2. Review and set strategic principles for the integration of transport and land use.
3. Mapping land use and key developments based on existing situations and/or approved plans.
4. Identify transit demand corridors, their roles and related development priorities.
5. Roughly delineate the influence zone of transit corridors for KPI considerations.
6. Determine development context for corridors.
7. Identify KPIs for each of the transit corridors.
8. Draft city-wide TOD plan with policies/regulations, integration with the city's comprehensive development plan and the corridor/zoning codes.



Figure 11: The process for assigning KPIs at the city level



KPI assignment to TOD corridors and stations is conducted after city-level KPIs are defined, with the purpose of translating them into corridor- and station-specific targets for planning and implementation. This step also helps review the feasibility of the KPI framework. The initial assignment should be done during the TOD corridor planning stage, after identifying the TOD typology of each station and should be treated as an iterative process that can be updated as conditions change.

The assigning process follows the approach of TOD planning at the corridor level that involves several

steps, as illustrated in the Figure 12, including:

- Review the urban rail network and identify the roles of stations within the network.
- Assess the TOD potential of the considered stations.
- Identify suitable TOD typology (using the six basic types in the guidelines) for stations.
- Assign the suitable KPIs to the considered corridors and their stations.

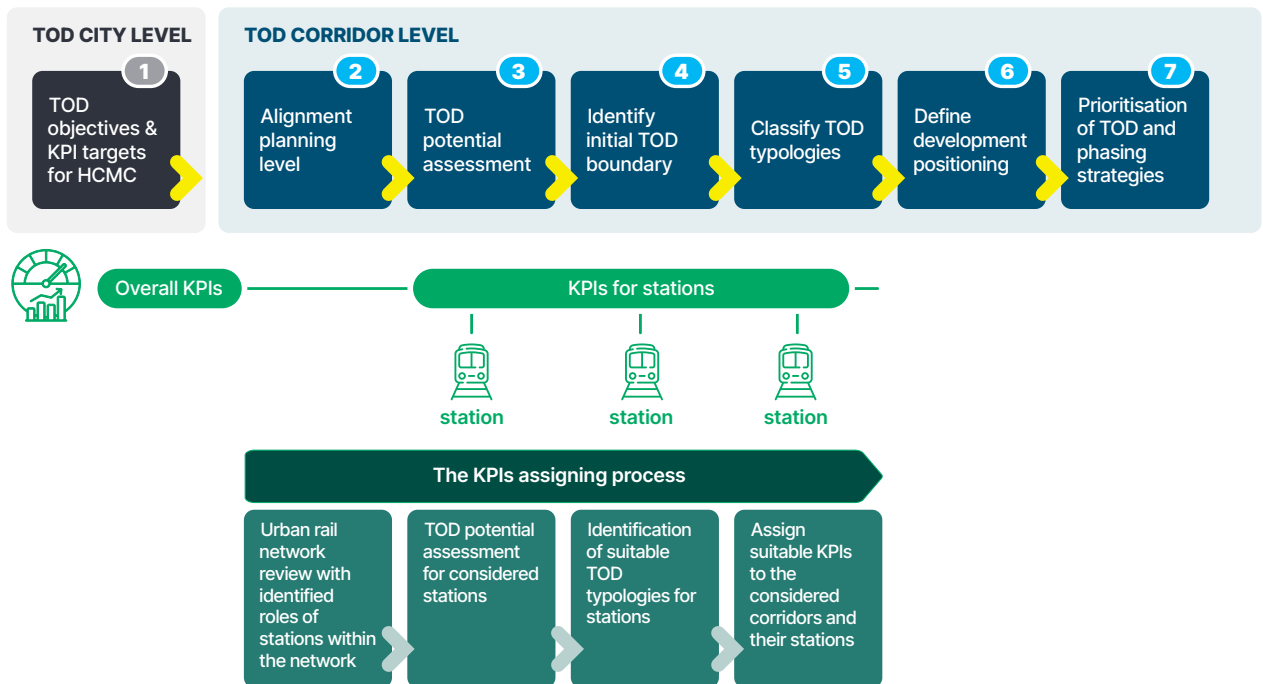


Figure 12: KPI assigning process at the transit-oriented development (TOD) corridor level

3.3. Rail alignment and station location planning

3.3.1. Objectives, strategic principles and targets

Objectives

The goal of this step is to avoid misalignment between land use intentions and rail system feasibility, safeguarding constructability and operational performance from the outset. The key output is an agreed corridor alignment and station location planning basis, with documented coordination outcomes and planning assumptions. This may consist of new lines to the urban rail network (if any), modification of line alignments (if any) and identification of the station location along the investigated rail corridors.

Strategic principles

The rail alignment and station location planning ensure that the mass rapid transit (MRT) corridor maximises access to people and jobs, integrates effectively with the urban fabric, enables efficient interchange and operations, and supports feasible, cost-effective delivery of TOD outcomes aligned with city development priorities.

Railway alignment planning

Strategic principles in network planning

- **Extensive mass transit network:** Develop a well-integrated public transport network that supports polycentric urban development and provides excellent city-wide accessibility. A quality city-wide mass transit network will support the economic growth of HCMC.
- **Passenger-oriented metro:** Deliver metro lines that have high ridership and good financial performance. High ridership is required to warrant the high capital expenditure (CAPEX) and will enable continued expansion of the network.
- **Comprehensive bus network:** Deliver an operationally efficient bus network that is integrated with the metro, extends city-wide connectivity and improves local accessibility.

Key targets for evaluating corridor alignment

- **People and jobs accessibility (NP01):** Prioritise alignments that maximise access to existing and planned population and employment catchments, with a focus on walkable access to stations and integration where needed.
- **Interchange and network connectivity (NP02):** Strengthen connectivity with other public transport lines and modes (metro/bus rapid transit /bus corridors, regional rail, high-speed rail, airports), enabling convenient transfers and network legibility.
- **Land use compatibility and development opportunity (NP03):** Favour alignments that unlock development and regeneration opportunities

(brownfields, underutilised/conflict use of land, renewal areas) and support planned growth areas, while managing displacement risks with short- and long-term transformation strategies.

- **Urban integration and place-making (NP04):** Ensure the alignment supports integration with the urban fabric (street network permeability, block structure, pedestrian continuity), avoids creating barriers and enables a high-quality station area public realm.
- **Constructability and cost-effectiveness (NP05):** Consider civil constraints and cost drivers (e.g. underground/viaduct, utilities relocation, right-of-way complexity), balancing capital cost with long-term corridor benefits and deliverability.

Output: Alignment evaluation summary linking corridor objectives and station typologies to accessibility and urban outcomes, including documentation of the inclusion of any new lines in the urban rail network and any modifications to line alignments.

Key targets for station location planning:

- **Catchment coverage and gaps (ST01):** Optimise spacing to provide continuous coverage of walkable catchments and reduce gaps in access along the corridor.
- **Operations and travel time (ST02):** Avoid overly short spacing that increases dwell/acceleration penalties and reduces corridor speed and reliability, especially on longer corridors where end-to-end travel time competitiveness is critical.
- **Interchange and feeder network logic (ST03):** Use spacing that allows a coherent feeder hierarchy (bus/tram/shuttle and park-and-ride where appropriate) and supports strong interchange stations at strategic nodes.
- **Urban structure and land use alignment (ST04):** Align station locations and spacing with urban centres, activity hubs, redevelopment/renewal areas and major trip generators (universities, hospitals, central business district/sub-centres), rather than purely geometric spacing.
- **Investment cost (ST05):** Recognise that stations are major cost items. Additional stations increase CAPEX and operating expenditure (OPEX) and may add complexity (including interchanges, vertical circulation and land acquisition).
- **Station area deliverability (ST06):** Consider land availability, parcel structure and implementation feasibility (including renewal complexity, resettlement and utility constraints).

Output: Station spacing rationale and a map showing how spacing supports corridor KPIs (access coverage, ridership potential, travel time and development positioning), including the identification and/or refinement of station locations along the investigated rail corridors.

3.3.2. Process to consider railway alignment and station location planning

The process of railway alignment and station location planning should be standardised to establish a systematic consideration and to make sure the process is fully integrated with the city development plans. In principle, the railway alignment should be considered first before the identification of station locations. Details of the steps are presented in Table 2.

Table 2: Steps to consider railway alignment and station location planning

Step	Description	Perspective
1	<p>Strategic planning considerations:</p> <ul style="list-style-type: none"> • Review documents related to transit oriented development (TOD) objectives and KPIs that have been identified in the previous tasks (see Section 3.2). These documents include reviews of the existing situation, policies, enabling legal framework and the identified KPIs. • Implement targeted reviews of the existing urban railway network development plans and TOD plans to identify general functions of railway lines and related TOD directions (if any). • Update network-level changes (if any, due to changes in city development plans) with updated ridership estimations, land value capture potentials, land reservations and sustainability targets into the general identification of railway line functions and related TOD directions. 	Network level
2	<p>Targeted railway line considerations:</p> <ul style="list-style-type: none"> • Implement preliminary corridor alignment planning for the target railway lines. Based on the list of targets (i.e., NP01 to NP05, Section 3.3.1), make a trade-off to identify the most reasonable alignments. Implementation: <ul style="list-style-type: none"> – Define the trade-off approach that may comprise numerous considerations: Engineering feasibility and cost (high-level estimation); TOD potentials (preliminary judgement); and ridership. These are all subject to objective achievements and inter-agency approval. – Preliminary identification of station locations. This can be based on the existing plans or a new quick screening process for any required updates. – Alternative analyses with three sub-steps, including (i) selection of trade-off targets; (ii) data collection; and (iii) alternative analyses. 	Corridor level
3	<p>Station location planning considerations:</p> <ul style="list-style-type: none"> • After obtaining the results of preliminary corridor alignment planning, implement detailed station location planning for the target railway lines. Based on the list of targets (i.e. ST01 to ST06, Section 3.3.1) make a trade-off – identifying the most reasonable station locations. Implementation: <ul style="list-style-type: none"> – Define the trade-off approach that may comprise numerous considerations: Investment cost; catchment coverage, land use and urban characteristics, interchanges, connectivity... These are all subject to objective performance and inter-agency approval. – Alternative analyses with three sub-steps, including (i) selection of trade-off targets; (ii) data collection; and (iii) alternative analyses. 	Corridor level
4	<p>Finalise railway network planning and station location planning through:</p> <ul style="list-style-type: none"> • Setting integrated railway network planning and station location planning for the final consideration. Mainly obtains the results of the previous steps. • Analyses for securing high ridership and performance of the railway network. • Final modifications (if any) regarding railway network planning and station location. 	Network and corridor level

3.3.3. Railway network planning to secure high ridership and performance

To support corridor and network planning, it is important to design for high ridership early and avoid pitfalls seen in underperforming rail projects (e.g. weak station catchments, poor feeder integration, misaligned corridors). Table 3 summarises the typical factors that drive or reduce metro ridership.

Table 3: The typical causes of high and low metro ridership

What drives high metro ridership	What causes low metro ridership
<ul style="list-style-type: none"> • High congestion (e.g. Metro-Manila, Mexico City and São Paulo) • High density mixed-use development around stations (e.g. Hong Kong and Tokyo) • Metro station locations located in proximity to major trip attractors/producers (e.g. MRT-3 in Manila, Seoul Line 2) • Good walking accessibility to/from metro stations (e.g. Shanghai) • Easy interchange onto quality feeder public transport services (e.g. Hong Kong, Singapore) • Park-and-ride facilities in suburbs (e.g. San Francisco) • Travel demand management measures (e.g. congestion charging in London and road pricing in Singapore) • Easy interchange with last-mile service (e.g. taxi in London, bicycle-hire in Taipei) 	<ul style="list-style-type: none"> • Highly convenient car use (e.g. Dubai pre-2014, Dallas, Houston) • Metro stations are poorly connected to major land use (e.g. Delhi metro first phase, Chennai) • Metro stations are poorly connected to feeder bus network and last-mile services (Mumbai¹⁷, Ahmedabad, Jakarta, before the Jak Lingko programme) • Metro lines that do not align with major passenger flows (e.g. Toronto Line 4 Sheppard) • Metro is too expensive compared to other modes (e.g. Santiago) • Metro operator is not incentivised to improve operation (Manila, New York, Buenos Aires)

The planning choices made today regarding line alignment, system design and station location will significantly influence the scale of mode shift attainable, metro ridership and the success of accompanying TODs.



¹⁷ Castello, C. (2025). Metro Is Falling Short. Mumbai Needs Multi-Modal Transit. The Secretariat. <https://theseecretariat.in/article/metro-is-falling-short-mumbai-needs-multi-modal-transit>

Box 9: Case study: Hong Kong

Hong Kong's high-density urban environment has made it one of the world's leading public-transport cities. Public transport accounts for 90% of all trips. Due to limited land resources, compact and transit-oriented development along railway corridors has become the norm in Hong Kong. Currently, **45% of the population and 77% of jobs are located within 500m of a railway station**. Mature transit-oriented development (TOD) practices have significantly boosted railway ridership. As a result, Hong Kong's mass rapid transit (MRTC) is one of the few profitable metro systems in the world.

However, Hong Kong's TOD success did not stem from a complete set of policies or implementation tools at the beginning. The first line opened in 1979, before TOD concepts had emerged. At that time, MTR Corporation, the rail operator, focused on offsetting construction costs by developing properties above the depot (on land they directly owned). Over the following 40 years, a systematic approach to advancing TOD gradually took shape, including:

1) Strategic planning that provides clear objectives and macro-level cost-benefit assessment, integrating land and infrastructure development

- As the urban rail network began to take form, the government turned its attention to guiding the relationship between railway infrastructure and land development. The 1988 Metropolitan Plan introduced board density guidelines. Based on proximity to railway stations, it defined density bands, directly linking infrastructure capacity with land-use density (Figure 13).
- In addition, the Metropolitan plan provided strategic-level cost-benefit evaluation methods integrating land development with infrastructure investment, aligning development costs and land revenues with infrastructure investment and returns (Figure 13).



4. Orders of Costs				
(a) Land Resumptions – Urban Renewal	HK\$ Billion	50.9	44.5	101.1
(b) Land Formation – New Development	HK\$ Billion	28.6	23.3	25.1
(c) Principal Transport Links				
– Road	HK\$ Billion	14.6	14.6	14.2
– Rail	HK\$ Billion	27.8	27.8	26.4
Annual Vehicle Operating Costs	HK\$ Billion	59.8	60.3	62.3
5. Orders of Public Sector Revenues				
(a) Land Sales & Modification Premia	HK\$ Billion	281.4	305.7	252.2
(b) Annual Revenues to Public Transport Operators	HK\$ Billion	4.4	4.2	4.3

Figure 13: (a) board density guidelines; (b) strategic-level cost-benefit evaluation by Metropolitan Plan 1988¹⁸

2) The Airport Core Programme initiated integrated and synchronised planning of rail infrastructure and urban development

In 1990, Hong Kong launched the Airport Core Programme¹⁹ to relocate the old Kai Tak Airport to Lantau Island, 35km from the city. The programme included the new airport and a series of major concurrent projects. This included the New Town, highways and railways, cross-harbour bridges, tunnels and land reclamation. All works were targeted for completion in 1998.

The coordinated planning and construction under the Airport Core Programme, combined with the stability of reclaimed land (avoiding the uncertainties of traditional land resumption), created an unprecedented opportunity for comprehensive TOD implementation.

MTR Corporation played a critical role as a bridge between the government and the market (Figure 14):

- The government invited MTR Corporation to submit proposals combining railway development with property development. The company participated in early-stage urban planning, identified the TOD property boundary and development parameters, and the government determined the agreement on railway construction, operation and development rights based on the construction cost and potential property revenue from the proposed development.

¹⁸ Hong Kong Metropolitan Plan 1988

¹⁹ Government of the Hong Kong Special Administrative Region (1998), *The Airport Core Programme (ACP)* is a large-scale strategic infrastructure investment programme of the Hong Kong Government, implemented in the early 1990s to relocate Kai Tak Airport (located within the urban area) and construct a new airport at Chek Lap Kok, near Lantau Island, while simultaneously developing the full set of supporting transport and related infrastructure

- MTR Corporation does not directly develop or sell properties. Instead, it invites developers to bid, specifying development parameters, station-property interfacing requirements and management obligations. Developers must also submit design and operational proposals, pay land premiums and commitment on profit-sharing arrangements with MTR Corporation. Some rental properties are retained by MTR Corporation to secure long-term corporate income.



Figure 14: (a) Integrated Rail-Property Development Model in Hong Kong²⁰, the Hong Kong Polytechnic University, Hong Kong; (b) Tung Chung Line and Airport Express²¹

The Airport Express and Tung Chung Line (Figure 14) not only demonstrated the success of the rail-plus-property model but also followed a “rail first, development later” strategy. When the line opened in 1998, it had six stations to provide fast airport-city connectivity. Additional stations were added over the 32km line as needed. For example, after the opening of Hong Kong Disneyland and the expansion of Tung Chung New Town. The line is planned to expand to 11 stations by 2030.

3) Integrated planning of the Northern Metropolis and its railway system

In recent years, Hong Kong has actively aligned its development with the Greater Bay Area. The government proposed the Northern Metropolis to deepen integration with Shenzhen's high-tech development. Covering 300km² in the Northern District and Yuen Long, the plan will expand land supply, new industries and employment and population growth through new development and infrastructure.

Planning assessments by the government evaluated internal transport demand within the Northern Metropolis, connectivity between the two metropolitan areas and cross-boundary links with Shenzhen. New railway network plans guide the structural development of the region.

The Northern Link planned to serve as the backbone connecting existing new towns (Yuen Long – Northern District), passing through several new development areas and innovation clusters and linking with Shenzhen's boundary checkpoints. The government is planning three major development areas with differentiated positioning along the Northern Link (Figure 15):

- The existing Kwu Tung North New Development Area (residential and commercial)
- San Tin Technopole and the Lok Ma Chau Loop Innovation Park
- The Ngau Tam Mei University Town and associated new development areas and medical facilities.

²⁰ Tang and Chiang (2004), Study of the Integrated Rail-Property Development Model in Hong Kong, the Hong Kong Polytechnic University, Hong Kong

²¹ Wikimedia Commons

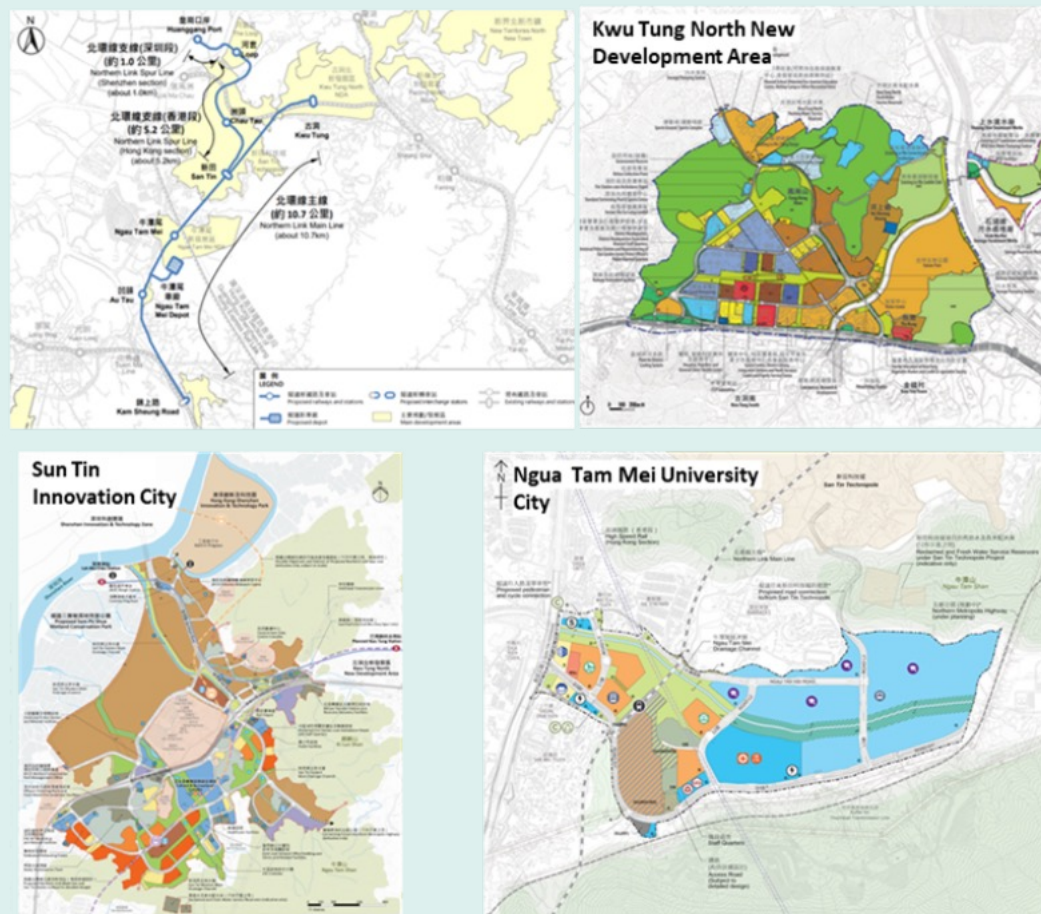


Figure 15: Northern Link Alignment and three major new development areas²²

These areas fully incorporate TOD principles at the planning level, including higher development density around stations and car free zone adjoining the station to enable a seamless walkable environment to the station. The Northern Link corridor is expected to provide around 70,000 additional housing units, forming a railway-driven development axis for the Northern Metropolis and ensuring that railways capture demand generated by new growth areas.

The Northern Link is supported by diversified financial arrangements. Land resumption for the rail infrastructure includes the depot site and associated topside development opportunities.

In addition, the Government and the MTR Corporation agreed to adopt the same R+P model. Funding support to bridge the project's funding gap will take the form of a fixed lump sum of HK\$ 39.05 billion. This will be deducted from the full market value land premium of approximately 26 hectares of property development sites (residential and commercial) granted by the government.

In essence, Hong Kong places significant emphasis on aligning infrastructure investment with urban development. TOD along railway corridors begins at the strategic planning level, where land-use density is directly tied to railway infrastructure capacity. MTR Corporation acts as an effective bridge between the government and the market, ensuring implementation balances public interest and commercial viability.

The prioritisation of railway projects incorporates both market considerations and TOD potential. In recent years, the government has taken a more proactive role in district-based TOD planning. Through tailored financial arrangements with MTR and the continued application of the rail-plus-property model, Hong Kong has effectively addressed funding gaps in rail infrastructure while driving coordinated urban growth.

²² Approved railway scheme for the Northern Link Spur Line; Kwu Tung North NDA Revised Recommended Outline Development Plan; Sun Tin Technopole Recommended Outline Development Plan; Ngau Tam Mei New Development Area Recommended Outline Development Plan

Strategy and actions:

Take an adaptive approach when planning each MRT line to identify the most suitable design through a robust study. For each metro line, alternative alignments and technology should be considered, and the performance of each alternative assessed against strategic objectives such as likelihood to secure high ridership, ability to enhance strategic connectivity, ability to unlock TOD, has reasonable CAPEX, reasonable OPEX and minimal barriers for deliverability. This approach moves away from being led by prescriptive solutions, towards a method that encourages innovation, responds to new opportunities and builds on success. This approach allows alignment to respond to new opportunities that might arise to better combine metro development with urban redevelopment.

Alternative analysis should present and consider trade-offs. For example, locating a metro line above an expressway might be easier to deliver with a lower CAPEX, but it may limit opportunities to open up TOD and limit opportunities to connect with feeder services. Such trade-offs should be considered and assessed as part of the alternatives analysis.

Box 10: Case study: Crossrail, London, United Kingdom

The Crossrail railway line, now called the Elizabeth line, was planned by first identifying the strategic need and key objectives for success. After which, a set of alternative alignments and technologies was assessed to determine how each performed against those objectives. The alignment that performed best to suit the objectives was selected, financed and constructed.

1. Metro proposals should be developed using comprehensive data and a robust transport demand model that sufficiently captures behavioural response. Extensive surveys are required to sufficiently understand transport demand and behavioural responses related to the shift away from motorbikes/mopeds. The transport model should consider potential land use change: city extensions and brownfield redevelopment. The model should also appropriately capture the barriers to using public transit. It should avoid the tendency for transport models to over-estimate mode shift to new public transport lines due to not representing the full range of barriers for public transport use, such as last-mile connectivity.

Many metro lines underperform against their forecast ridership, largely due to insufficiently capturing the full barriers for public transport use when forecasting demand.

- In Ecuador, the Quito metro ridership is 50% of the forecast.²³
- In India, the Delhi metro is 50% of the forecast.²⁴ While in Bengaluru and Hyderabad, ridership is 15% of the forecast.²⁵
- Though not a metro, the Jakarta-Bandung high-speed line has ridership that is a third of the forecast.

2. While considering a city-wide strategy for connectivity, the metro should be planned and prioritised line by line such that the addition of each new line yields high ridership and enables network effects to build incrementally to the whole. This supports early success and high ridership from the beginning which will enable the continued rollout of additional lines.

Route alignment, station positions and line capacity/speed should be optimised to meet key objectives that include high ridership. As such, route alignment should reflect the major travel flows that are observed today and are anticipated in the future. Such demand analysis should be based on robust data collection and fair transport modelling.

Lines should intersect to create a city-wide network. In a small network, lines typically intersect within the central business district, often avoiding locations where three or more lines meet to avoid overloading a single station. However, in some cases, such a station might be advantageous.

For regional routes, consider express services, enabled by passing lines at quieter stations, for example, Seoul Line 9.

Hong Kong completed its core plan of three metro lines in phases between 1978 and 1989, after which the additional seven lines were individually developed, tied to development and policy.

²³ Independent Evaluation Group (2024). *Implementation Completion Report: Review EC Quito Metro Line One (P144489)*. <https://documents1.worldbank.org/curated/en/099120524174559204/pdf/P144489-0e08c087-7e1e-4208-9d42-518d79eb7ada.pdf>

²⁴ The Infravision Foundation (2023). *Urban Mobility in India – Why Metro is not the only solution!* <https://explore.theinfravisionfoundation.org/our-metro-rail-systems-must-be-sustainable-financially/>

²⁵ PRS Legislative Research (2022). *Implementation of Metro Rail Projects – An Appraisal*. <https://prsindia.org/policy/report-summaries/implementation-of-metro-rail-projects-an-appraisal>



Figure 16: Hong Kong's metro lines²⁶

3. Successful metro networks typically rely on integration with an extensive and high-performing bus network composed of urban and intercity services. An extensive city-wide bus network strategy acts as a feeder to the metro, supports city-wide accessibility and enhances local accessibility. TOD areas should support bus routes that deliver a high level of service, high ridership and are operationally efficient. Metro stations should be developed as integrated multimodal terminals enabling easy interchange with onward bus services, while the rehabilitation of streets related to TOD areas can support bus priority measures. Table 4 shows the bus mode share in cities with large metro networks.

Station locations should be sited to maximise the opportunity for onward public transport connections (feeder services), easy walking access to/from the station and the ability to unlock TOD. This typically involves locating the station next to, or above, a bisecting road that is served by major bus routes or locating the station where a large bus station can be situated alongside.

Table 4: Bus mode share in cities with large metro networks

	Metro mode share	Bus mode share
Hong Kong*	36%	43%
Singapore*	38%	27%
Seoul* ²⁷	40%	25%
Bangkok [^]	15%	31%

* Reflects mode share of motorised trips

[^] Reflects mode share of all trips

²⁶ Hong Kong MTR map

²⁷ World Bank (2021). *Smart Cities and Intelligent, Sustainable Transportation Systems: The Case of Seoul, South Korea*. <https://thedocs.worldbank.org/en/doc/fe16467f3f9165aadf561473d0cd7c91-0400012022/original/Final-LU-TP-Seoul-Smart-Green-Case-Study-ENG.pdf>

Box 11: Case study: Singapore and Ukraine

Case study: Jak Lingo programme, Jakarta, Singapore

In Singapore, half of all mass rapid transit (MRT) passengers use the bus to access MRT stations.²⁸ The city of Jakarta pursued the Jak Lingo programme from 2018 to 2022 to better integrate ride sharing, microbuses and bus rapid transit with MRT lines. This included integrating routes, operations and fare integration.²⁹ Feeder public transport operators now contribute 22% of the total ridership of MRT in Jakarta.³⁰

The metro and bus network should be planned considering metropolitan accessibility analysis, in particular, multi-point accessibility modelling (also known as regional accessibility). Metropolitan accessibility refers to how easily people can reach destinations across the whole city. Metropolitan accessibility is different to local accessibility – local accessibility is commonly discussed in terms of the ‘15-minute city’, which highlights the importance of locating services and amenities close to where people live with good NMT provision. Metropolitan accessibility focuses on the efficient arrangement of rapid transit and extensive feeder services. Good metropolitan accessibility fosters a dynamic economy that supports innovation, as fast communication between many businesses and the ability for residents to choose from a wide number of jobs. This enables economic agglomeration effects. Examples of cities with strong economic agglomeration effects include the clustering of high-tech jobs in Shenzhen and financial jobs in Singapore.

Case study: Kyiv, Ukraine

The number of jobs across the whole city that the average resident can access within a 60-minute travel time has been identified as the key indicator to measure metropolitan (or regional) accessibility.³¹ Metropolitan accessibility modelling, also known as regional or multi-point accessibility modelling, should be used to inform and improve the design of each MRT line and the whole mass transit network. Analysis can be performed using GTFS³² and software like Conveyal Analysis³³, Basemap TRACC³⁴ and GOAT.³⁵

Route alignment should significantly improve city-wide accessibility, and where suitable, cross physical barriers (like rivers, rail lines) to unlock new agglomeration benefits.

In Kyiv, Ukraine, the average resident can access 25% of all jobs in the city within 60 minutes of travel time (Figures 17 and 18).

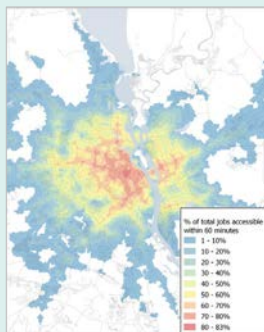


Figure 17: Example of multi-point accessibility analysis in Kyiv to measure the percentage of jobs accessible within 60 minutes³⁶.

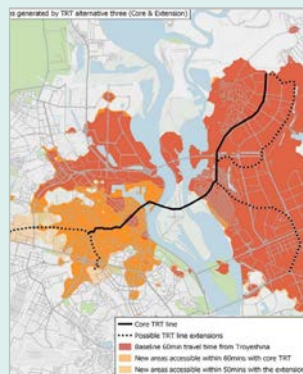


Figure 18: Example of using single-point accessibility analysis in Kyiv to plan a new mass transit line.

²⁸ Wibowo S. and Olszewski P. (2005). Modelling walking accessibility to public transport terminals: Case study of Singapore mass rapid transit. *Journal of the Eastern Asia Society for Transportation Studies*, Vol. 6, pp. 147–156. <https://doi.org/10.11175/easts.6.147>

²⁹ International Climate Initiative (2026). *Reducing emissions through integration and optimization of public transport in Indonesia*. <https://www.international-climate-initiative.com/en/project/reducing-emissions-through-integration-and-optimization-of-public-transport-in-indonesia-15-i-253-idn-a-optimizing-public-transport-jakarta/>

³⁰ Antaranews, (2024). Jakarta MRT targets passenger traffic of 33.6 mln in 2024. <https://en.antaranews.com/news/304152/jakarta-mrt-targets-passenger-traffic-of-336-mln-in-2024>

³¹ Bertaud, A. (2014) Cities as labor markets. Marron Institute of Urban Management. https://marroninstitute.nyu.edu/uploads/content/Cities_as_Labor_Markets.pdf

³² GTFS is a standardised data model for describing a public transport network and its services: <https://gtfs.org/>

³³ <https://conveyal.com/learn>

³⁴ <https://basemaptracc.com/>

³⁵ <https://www.open-accessibility.org/>

³⁶ Oh, Jung Eun; Nunez, Antonio Benigno. (2016) Sustainable urban transport for Kyiv : towards a sustainable and competitive city built upon the legacy system and innovations (English). Washington, D.C. : World Bank Group. <http://documents.worldbank.org/curated/en/640531472066198963>



In the context of HCMC, rail alignment and station location planning should be based on the development strategies set out in the city master plan, including the strategy for polycentric urban development and the land use strategy that promotes the concentration of population, commercial activities and office functions within walking distance of urban rail, while reducing dependence on private vehicles. In practical terms, this means that alignments should be prioritised in areas that can best serve the city's existing and future growth centres, particularly the old central area of HCMC, the new centres formed after the administrative merger, and the corridors connecting these centres, while also reflecting HCMC's distinctive travel pattern, which remains heavily dependent on motorcycles and still faces significant first- and last-mile connectivity constraints.

As HCMC's metro network is still at an early stage of development and has not yet achieved full network connectivity, ridership in the initial phase may be lower than expected. Experience in HCMC also shows that the effectiveness of public transport will remain limited if feeder services, pedestrian connections and NMT infrastructure are not implemented in an integrated manner alongside the main trunk lines.

Therefore, future decisions on rail alignment and station location in HCMC should be assessed not only in terms of technical feasibility and capital cost, but also with explicit consideration of integration with the feeder bus network, walkability, interchange quality, land acquisition and land assembly challenges, the complexity of resettlement, and the ability of each corridor to capture the actual demand generated by the city's evolving urban structure.

3.4. Assess transit-oriented development potential using the three values framework

Assessing TOD potential is considered an essential step in TOD projects worldwide. To this end, cities establish a unified TOD potential assessment framework. Depending on the scope of review, different dimensions may be included. However, in principle, all frameworks reference the three values (3V) framework proposed by the World Bank.³⁷ The 3V framework evaluates the station area based on three values:

- **Node value:** measured by the level of connectivity/ accessibility and the importance of the station in the public transport network.
- **Place value:** assessed by the quality and attractiveness of the area as a place to live, work and carry out activities.
- **Market potential value:** considered by the economic potential and property value in the area.

The indicators, measurement methods and required data for the 3V framework are presented in Table 5. Note that it is not vital to have all indicators calculated. The calculation is dependent on the availability of data and can be updated continuously.

³⁷ Transit-Oriented Development Implementation Resources and Tools: Second Edition <http://documents.worldbank.org/curated/en/261041545071842767>.

Table 5: The 3V assessment framework and targets, as guided by the World Bank

Assessment criteria	Target	Measurement	Method of determination
Node value	V01 – Degree centrality	Number of public transport lines transferring at the station.	Calculated at the network level using network analysis software.
	V02 – Closeness centrality	Average distance (number of links) from one station to all other stations in the network.	Calculated at the network level using network analysis software. Measured as the inverse of the average shortest distance from one station to all others.
	V03 – Betweenness centrality	Extent to which a station lies on the connecting paths between central stations.	Calculated at the network level using network analysis software. Based on the number of shortest paths through the station.
	V04 – Daily ridership	Number of passengers boarding/alighting at the station per day (excluding through passengers).	Based on daily passenger ridership data.
	V05 – Intermodal diversity	Number of public transport modes connected to the station.	Identified by counting the different transport modes within walking distance of the station.
Place value	V06 – Density of street intersections	Number of street intersections/km ² within an 800m radius of the station.	Calculated using geographic information system (GIS) data (ArcGIS/QGIS) within 1,000m.
	V07 – Local pedestrian accessibility	Percentage of the area within 1,000m that can be accessed within a 10-minute walk.	Measured using Open Trip Planner and OpenStreetMap.
	V08 – Diversity of uses	Number of land use types in the area.	Typically, calculated based on the existing GIS land use data provided by the city.
	V09 – Density of social infrastructure	Number of cultural, educational and healthcare facilities within 1,000m of the station.	Identified based on the number of social infrastructure facilities within 1,000m.
Market value: demand	V10 – Human density	Number of residents and jobs/km ² within 1,000m of the station.	Based on population and employment data from the census or transport models.
	V11 – Jobs/residents ratio	Ratio of jobs to residents within 1,000m.	Based on population and employment data from the census or transport models.
	V12 – Human density growth potential	Projected population and employment growth rate over 10–20 years.	Based on population and employment data from the census or transport models.
	V13 – Average income	Average per capita income within 1,000m.	Based on population data from census.
	V14 – Share of managerial-level residents	Share of managerial-level residents in total population within 1,000m.	Based on population data from the census.
	V15 – Number of accessible jobs by transit	Number of jobs reachable within 30 minutes by public transport.	Measured using Open Trip Planner Analyst with population and employment data.
Market value: supply	V16 – Real estate opportunities	Land and floor area available for development within 500m–1km of the station.	Compared using GIS data on building density and FAR.
	V17 – Dynamics of real estate development	An additional floor area constructed around the station during the past decade.	Based on data from planning agencies or real estate management authorities.

Calculating the full set of indicators in the HCMC context requires a substantial amount of available data, particularly data needed to assess place value and market potential value. However, key indicators, based on currently available data, should be calculated as a minimum requirement to provide a solid starting point for the assessment process

3.5. Establish transit-oriented development boundary and application

3.5.1. Purpose and role of transit-oriented development boundaries

TOD boundaries provide the spatial basics for applying TOD policies, planning controls, infrastructure coordination and implementation mechanisms in HCMC. They translate TOD objectives into spatially targeted, actionable planning outcomes.

TOD boundaries serve complementary roles across planning scales:

- **Corridor level:** A technical and strategic tool to support analysis, prioritisation and coordination of land use, transport investment and development opportunities along MRT corridors.
- **Station/TOD area level:** A technical basis for applying development intensity, land use mix, urban design requirements, transport integration measures, value capture and implementation tools in line with statutory planning processes.

TOD boundaries are intended to guide planning decisions and support implementation, rather than operate as rigid or standalone regulatory instruments.

3.5.2. Principles for identifying transit-oriented development boundary

The following key principles are recommended during the TOD boundary identification process:

- **Take accessibility as the core principle:** The TOD boundary must ensure walking/cycling time/distance to the station, considering both existing infrastructure and planned developments.

- **The scope of TOD may vary depending on the role and transport capacity of the station:** Stations with large transport capacity (major hubs, primary interchange stations) can apply a broader influence boundary. This must be accompanied by enhanced first- and last-mile connections (feeder buses, first- and last-mile services, interchanges).
- **Adjust according to terrain and physical conditions:** The TOD boundary should reflect actual barriers and site-specific conditions (rivers/canals, major roads, hard-to-access areas) that cannot be improved through planning solutions.
- **Link the boundary to each area's development potential and collaboration opportunities:** Prioritise including areas with land reserves, restructuring potential, room for density increases and development collaboration opportunities to maximise TOD value. For newly developing TOD areas, infill sites within existing urban fabric or redevelopment zones, there are also priority conditions for selecting land parcels within the TOD planning boundary, including agreements and exchanges with landowners regarding development potential.
- **The boundary determination criteria should be flexible and adjustable throughout the planning and project establishment process:** The TOD boundary should serve as an orienting framework with basic principles (core being accessibility and land potential to maximise benefits), which can be adjusted during detailed planning. Measurement indicators and determinations should generally be simple, avoiding overly rigid and detailed analytical data to reduce implementation risks and inconsistencies.

3.5.3. Important notes for establishing the methodology to identify a transit-oriented development boundary

There are important principles and notes when establishing the methodology to identify a TOD boundary. These principles and notes are presented in Table 6.



Table 6: Considered aspects when establishing the methodology to identify transit-oriented development (TOD) boundary

Aspects	Key principles	Implementation notes
Accordance with the existing TOD-related regulations	<ul style="list-style-type: none"> • Making sure the methodology is in line with the existing regulations. • Principles for identifying the TOD boundary should be clarified with respect to the planning level and phases. 	<ul style="list-style-type: none"> • The maximum boundary threshold (e.g. 1,000m) should be treated as the starting point for refining the boundary to achieve the most suitable/reasonable boundary. • The final boundary should be carefully considered with development opportunities and implementation feasibility. • In general, the higher level of planning, the simpler the methodology for identifying the TOD boundary.
Availability of data for required analyses	<ul style="list-style-type: none"> • The TOD boundary identification process requires sufficient data to provide a reliable basis. • Avoid too much reliance on data types that are difficult to collect and/or data that has no legal basis. • Maintaining transparency in data accessibility and usage. 	<ul style="list-style-type: none"> • A need to standardise data types and related management responsibilities.
Required time for identifying boundary	<ul style="list-style-type: none"> • Strictly follow related regulations. • Treat the boundary identification as a quick and adjustable task to avoid a lengthy consideration. 	<ul style="list-style-type: none"> • There are possibilities that the identification takes a long time due to the data collection and cleaning process. • A need for professional agencies/experts to implement this task.
The complexity of the methodology	<ul style="list-style-type: none"> • The methodology should be technically feasible and implemented by various agencies/stakeholders. • Allow a systematic update when data is available. 	<ul style="list-style-type: none"> • This requires knowledge of GIS and cross-sector data. • Criteria and technical parameters should be explainable and reasonable to ensure objectivity.
Transport accessibility and connections	<ul style="list-style-type: none"> • Highest priorities for transport accessibility in association with practical conditions. • Measurement of accessibility should rely on the isochrone approach integrated with both the existing situation and approved plans. 	<ul style="list-style-type: none"> • All practical barriers and/or obstacles and/or limited capacities should be considered during the accessibility evaluation process. • Pay attention to the real accessibility levels of the prioritised modes, including public transport, bicycles and pedestrians.
Land use (existing and planned)	<ul style="list-style-type: none"> • Making sure that TOD boundary identification is strongly associated with organising development space, stratifying intensity levels and providing land use orientation, which must be linked to the land context (new development, redevelopment or infill within the urban area). • Development layering (or stratification/tiering of development) serves as the foundation for establishing functional planning schemes and land use indicators/density standards oriented toward TOD for each respective layer/class. • Priority should be given to land parcels with high potential and high feasibility to shorten implementation timelines – not solely based on technical indicators, but also considering the landowners' ability to consolidate plots (land consolidation/merger) or collaborate/cooperate. 	<ul style="list-style-type: none"> • Provide sufficient consideration towards the location characteristics. • Acknowledging the insufficient land use details so that suitable solutions to overcome the insufficiency can be well prepared (through consultancy services). • Land use change should not be treated solely through technical consideration. In some cases, it requires collaboration and/or negotiation with landowners. • Solutions to deal with land parcels that partly belong to the initial boundary threshold (i.e. 1,000m) should be clarified.
Land value capture (LVC)	<ul style="list-style-type: none"> • Making sure that TOD boundary identification strongly supports the potential for land value captures (bearing in mind that value must be created before it can be captured). • Enabling the preliminary identification of potential LVC tools. 	<ul style="list-style-type: none"> • Pay attention to the overall consideration that covers all possible LVC tools to maximise the captured values • Avoiding a narrowed consideration that is adhered to with easy-to-implement tools but capturing limited values.

3.5.4. Criteria for transit-oriented development boundary identification

To ensure the process is evidence-based and implementation-ready, boundary identification should be assessed against the following criteria:

- **Street network and performance (IB01):** A boundary must reflect true walk/cycle accessibility on the ground.
- **Physical constraints (IB02):** Adjust for barriers such as canals, highways, rail yards and major intersections.
- **Node value (IB03):** Scale the boundary to station connectivity, ridership and interchange role.
- **Land availability and ownership (IB04):** Include realistic developable areas and map public/private land.
- **Urban development status (IB05):** Reflect stability versus redevelopment potential and project readiness.
- **Population and jobs (IB06):** Capture meaningful existing/planned demand to support ridership and services.
- **Place value (IB07):** Target areas where place quality and improvements can be concentrated.
- **Market value (IB08):** Avoid over-extending into low-feasibility areas.
- **Culture and heritage (IB09):** Protect heritage assets and leverage place identity.

3.5.5. Transit-oriented development boundary identification process

The delineation of TOD boundaries follows a structured process, integrated with corridor-level and station-level TOD planning, shown in Table 7.

Table 7: Transit-oriented development boundary identification process

Step	Description	Approval
1	<p>The process starts with considerations at the network and corridor level, including the following ordered tasks:</p> <ul style="list-style-type: none"> • Clarification of planning objectives: Confirm the role of the station within the corridor and the intended TOD outcomes, informed by city-wide objectives and corridor-level strategies. • TOD potential assessment: Assess accessibility, urban context, land development potential, infrastructure capacity and market readiness to understand the station's ability to support TOD outcomes. 	N/A
2	<p>Initial boundary identification should be implemented under the following tasks:</p> <ul style="list-style-type: none"> • Using the regulated boundary threshold (i.e. 1,000m) as the starting point for the consideration to identify the initial TOD boundary. The consideration is conducted using the recommended criteria presented in Section 3.5.4. It should be noted that it is not necessary to use all the criteria to come up with the initial TOD boundary. Although it is preferred to consider as many criteria as possible, quick and feasible criteria are sufficient at this stage. An example is provided in the box below. • Define an initial station area boundary with full acknowledgement of principles and notes provided in Sections 3.5.2 and 3.5.3. • Approval of the initial station area boundary (for stations with a TOD plan). • Notes on required TOD boundary modifications (if any) during the process of: <ul style="list-style-type: none"> – Further boundary refinement based on local conditions (if any): adjust the initial boundary to reflect physical barriers, natural systems, existing and planned development patterns, land parcel structure and function ecosystem and connectivity to the wider transport network. – Integration with TOD typologies and influence zones: Apply the assigned TOD typology and the three-tier influence zone hierarchy (Core, Primary and Extended Zones) to establish graduated spatial requirements within the boundary. – Defining development position and prioritisation of TOD and phasing strategies. 	Approval of initial boundary identification
3	<p>Official approval of TOD boundary at the same time as approval of the TOD planning (zoning and/or detailed plans) is associated with the following ordered tasks:</p> <ul style="list-style-type: none"> • Review notes on required TOD boundary modifications (if any). • Confirmation through planning processes: Finalise the TOD boundary through relevant planning and approval processes, ensuring consistency with statutory plans and implementation mechanisms, with full acknowledgement of principles and notes provided in Sections 3.5.2 and 3.5.3. • Approval of TOD boundary at stations. 	Official approval of the TOD boundary at stations

The box below provides an example of identifying an initial TOD boundary.

Box 12: Example on the identification of initial transit-oriented development (TOD) boundary

Determining the TOD boundary within a 1,000m radius must be directly linked to intervention opportunities and implementation mechanisms, rather than being merely a technical boundary. In essence, the boundary should clearly delineate four “opportunity layers”:

1. Areas where land can be reclaimed or compulsorily acquired to reduce costs and unlock land funds.
2. Areas for redevelopment based on voluntary/agreed mechanisms (which can transition to compulsory acquisition once a consensus threshold is reached, e.g. 75%).
3. Areas for infill/improvement redevelopment, prioritising voluntary cooperative redevelopment.
4. Areas for urban refurbishment/building renovation and urban design on public land.

Accordingly, the planning boundary should initially encompass a preliminary coverage of layers 1 to 4 using a 1,000m radius approach (or approximately 500m for smaller/outer suburban stations with low density). After the plan is approved, clearly delineate zones 1 and 2 to define areas eligible for pre-acquisition or advance acquisition, thereby creating incentives for agreements and stabilising land prices. Zones 3 and 4, meanwhile, are better suited to a post-acquisition approach and implementation through agreement-based solutions.

Finally, assess the demand and opportunities for redevelopment/redevelopment by status layers before overlaying them, ensuring the boundary aligns consistently with solution-oriented directions.

Other notes:

- Avoid “overlying” data layers from the outset. Instead, analyse and separate layers sequentially based on the 10-minute walking access radius around the station, then synthesise to determine the TOD boundary, specifically:
 - Layer 1. Evaluate actual accessibility and identify “bottlenecks” requiring intervention (reorganising traffic, adding pedestrian/public transport connections, underpasses/overpasses, widening/completing access roads, enhancing mode-transfer facilities).
 - Layer 2. Review land use structure and building conditions to identify areas unsuitable for station-area exploitation (overly large plots, lack of activities generating public transport demand, old/deteriorated buildings as redevelopment opportunities), while excluding difficult/impossible intervention areas and focusing on zones amenable to high-density orientation.
 - Layer 3. Assess the adequacy of infrastructure/utilities and the “urban ecosystem” in the core area for concentrated employment/housing and travel demand through the station, thereby identifying gaps to be addressed.
 - Layer 4. Identify land opportunities and service ecosystems that can be prioritised for early implementation, maximising value from redevelopment/functional conversion (land value uplift, floor area expansion), while emphasising supportive relationships between the core and primary zones.
- The TOD boundary should be selected appropriately according to the development context of each area. For redevelopment/infill/beautification areas, the boundary should align with urban blocks or plots/terrain to reflect the existing urban structure, whereas for greenfield/new development areas, it should primarily follow land/terrain features. Large blocks/plots should be subdivided as appropriate to identify redevelopment opportunities across access distance layers (e.g. 300–600–1,000m): high-density concentrated development in the core layer ~300m; phased redevelopment combined with improvement prioritised in the primary layer ~600m (especially for housing and services); and the outer layer ~1,000m linked to land swap/resettlement opportunities, public facilities or job-creating projects.
- Finally, synthesise and refine the boundary based on actual implementation opportunities and infrastructure requirements. After establishing the layers, overlay them and adjust the boundary according to real opportunities and priority intervention needs, including supplementing/renovating station buildings, selecting key development projects, organising traffic, strengthening mode shifts, and ensuring effective access to the station.

It should be noted that although the boundary of the TOD area can be adjusted during the preparation of the TOD planning process, this boundary still needs to be officially approved by the competent authority at certain key points in order to establish the legal basis for implementation.

It is suggested that the TOD boundary should be approved at two specific points in time:

- The first approval is the approval of the initial TOD boundary at the corridor level (Step 4 in the framework of 7 planning steps at the corridor level). Once approved, this initial boundary will serve as the basis for carrying out further planning studies at subsequent levels.
- The second approval is the approval of the official TOD boundary, which is approved concurrently with the zoning plan and/or the detailed planning plan.

Once the official boundary is approved, it will be understood to replace the previous initial boundary. Any subsequent adjustments after the official boundary have been approved should follow the relevant legal procedures and processes for TOD planning adjustments.

3.5.6. Application of transit-oriented development boundaries in planning and implementation: Within defined transit-oriented development boundaries

Within defined TOD boundaries, the three TOD layers can be further considered as follows:

- The **core zone** should be prioritised for the highest level of access, integration and development intensity.
- The **primary zone** should support mixed-use intensification, walkability and local service provision.
- The **extended zone** should support feeder connectivity, neighbourhood functions and context-sensitive transition.

Implementation tools, including zoning controls, development conditions, infrastructure investment,

land value capture mechanisms and joint development approaches, should be applied in a manner consistent with this spatial hierarchy. Where land constraints or urban conditions limit the feasibility of full TOD implementation beyond the immediate station area, station-focused or transit joint development approaches may be applied as an interim or complementary strategy.

TOD boundaries may be refined during feasibility studies, detailed TOD area planning, redevelopment/land readjustment planning, and as access or infrastructure improvements are implemented, provided refinements remain consistent with TOD objectives, typologies and performance expectations. TOD boundaries do not replace statutory planning boundaries or land approval processes; they provide a technical basis to inform detailed planning, development controls, infrastructure phasing and land management. Where compulsory land acquisition is required, it should generally be focused within the core zone, while other areas should rely more on incentives, negotiated development, land readjustment and partnership-based implementation.

3.6. Assign transit-oriented development typologies to stations or station clusters

Purpose

TOD typologies define the **role, intensity and development expectations** of station areas, responding to differences in urban context, station function and land development potential.

While typologies are presented as discrete categories, they may overlap spatially in practice and should be applied based on the dominant planning objective and functional role of each station area.

TOD typology framework

Six TOD typologies have been developed based on HCMC's urban structure, metro corridor characteristics, development trends and land availability (Table 8).



Table 8: Transit-oriented development (TOD) typology framework

Transit-oriented development (TOD) types	Role	Characteristics	Examples in Ho Chi Minh City
1. Central city TOD: The primary metropolitan core, characterised by the highest density and intensity, with strong commercial, employment and civic functions.	Primary metropolitan centre with national and city-wide administrative, commercial and cultural functions. (including some new development centres).	<ul style="list-style-type: none"> • Highest development intensity. • High-rise mixed-use towers. • Station plazas, underground concourses, skywalks. • No private motor parking except for essential services. 	Ben Thanh, Opera House; Thu Thiem
2. Sub-centres (secondary) / Strategic economic hub/ Satellite TOD: Secondary employment and activity hubs, supporting medium to high density mixed-use development.	Secondary centres supporting Ho Chi Minh City's polycentric structure and major employment clusters. Some stations also serve as a major interregional connection hub.	<ul style="list-style-type: none"> • High-medium-rise to high-rise development. • Business activities, retail and services. • High-quality NMT and public transport integration. 	Thu Duc Centre, An Phu, Phu My Hung, urban centre of the North and West urban sub-regions
3. Third-level TOD, local centres/ suburbs/ station areas with major interregional connections: Residential-led TOD areas with medium to high density, supported by strong feeder connections, local services and community facilities.	Community-focused centres supporting residential districts.	<ul style="list-style-type: none"> • Medium to high density. • Local commerce and housing mix. • Strong local services (schools, clinics). • Walkable local centres. 	Rach Chiec precinct, Phu Huu, development areas around train stations, which are the intersection of two or more metro lines, or a metro line with major public transport routes, waterways or major interregional air, rail or road routes
4. Favourable redevelopment TOD - in existing urban areas with strong economic potential and high feasibility for redevelopment: Urban regeneration and brownfield mainly redevelopment areas, offering opportunities to restructure land use, improve urban form.	Existing urban areas which areas are highly feasible for block-based restructuring or redevelopment on an appropriate scale, including individual buildings.	<ul style="list-style-type: none"> • Infill development. • FAR incentives for permeability upgrades. • Potential for transfer of development rights (TDR) and consolidation. 	District 3, District 10 corridor nodes (before merging). Areas surrounding train stations where there could be a significant difference in economic value between their current state and that after reconstruction or redevelopment.
5. Enhancement node TOD: Built-up areas with limited redevelopment capacity, where priorities focus on access improvements, interchange quality and public realm upgrades.	Stations with limited developable land requiring targeted, non-redevelopment improvements – greater government involvement is needed to enhance value creation under TOD and encourage TOD-based redevelopment.	<ul style="list-style-type: none"> • Low to reasonably high development intensity. • Public realm, walkability and cycling enhancements. • Feeder bus and access improvements. 	The areas have been fairly well developed, and the economic value generated between the present and redevelopment may not be attractive enough to warrant redevelopment.
6. Specialised centre TOD: Major single-purpose or anchor destinations (such as airports, high-speed rail stations, logistics hubs, stadiums or other metropolitan facilities) where TOD outcomes are primarily function-driven.	Stations serving unique anchor functions like airports, logistics, universities or major tourism destinations.	<ul style="list-style-type: none"> • Custom built form parameters. • Large-scale circulation and event management, ensuring appropriate interaction with other functions in the area. • Specialised land uses. 	Long Thanh Airport, Suoi Tien, Hi-Tech Park

The TOD typologies presented above provide an indicative framework to guide the strategic positioning, planning parameters and development expectations of station areas in HCMC. These typologies reflect common urban conditions observed along the metro corridors and support consistent application of TOD principles across the city.

However, it is recognised that in practice some TOD locations may exhibit characteristics of more than one typology. As metro corridors evolve, overall city masterplan changes and detailed planning progress, **hybrid TOD typologies may emerge**, reflecting a combination of functions, land use patterns or development conditions.

Accordingly, proponents – including government agencies, developers or planning consultants – may propose a **modified or hybrid typology** where appropriate. Any such proposal should demonstrate that:

- The proposed typology remains consistent with the TOD vision, objectives and principles set out in these guidelines.
- The proposed development pattern supports the role and positioning of the station area within HCMC's overall urban structure.
- The proposal aligns with the HCMC master plan, transport plan and other relevant statutory plans, policies and regulations.
- The proposed typology supports integrated transport-land use outcomes, including walkability, multimodal connectivity, appropriate density, mixed-use and environmental performance.

Where hybrid typologies are proposed, the proponent should provide a clear justification and demonstrate how the proposed planning parameters, land use mix and design outcomes will contribute to achieving the city's TOD objectives.

The relevant planning authority (e.g. DPA, People's Committee or other designated authority) may review and approve such proposals as part of the TOD planning and development approval process.

How to define TOD typologies

The steps for identifying TOD typology are illustrated in Table 9, Figure 19 and detailed below.

Use the outputs from previous steps as the input package for each station area: a station profile (network role, urban context, market and development conditions); 3V assessment results (location/node potential, place value and market value); and the TOD boundary and influence zones (core, primary, extended zones).

• Step 1: Typology screening and initial comparison.

Screen each station area using a set of diagnostic questions, for example:

- Is the station primarily serving a major anchor function (e.g. airport, logistics hub, university, tourism destination, high-speed rail station)? If yes, retain Special-Functional Hub as a primary candidate.
- Is the area mainly a redevelopment or urban restructuring area requiring block reconfiguration and land consolidation? If yes, retain Renewal Development as a primary candidate.
- Is redevelopment capacity limited, with priorities focused on access, interchange, walkability, cycling and public realm upgrades? If yes, retain Station Node Enhancement as a primary candidate.

• Step 2: Compare remaining typologies using a scoring framework.

Evaluate each candidate typology using the same scoring scale (e.g. high/medium/low or 1–5) against six criteria: functional role fit, urban context fit, development potential, mobility/access integration, implementation readiness, and GEDSI/climate responsiveness. This ensures a consistent and evidence-based comparison across stations.

• Step 3: Rank typologies and assign the preferred typology.

Rank the candidate typologies based on weighted scoring and select the best-fit typology for each station area. The selected primary typology should provide the strategic basis for the station area's overall development framework and development control principles.

• Step 4: Confirm implementation feasibility.

Before finalising the typology assignment, verify that it is implementable (at least in phases), considering: land availability and land acquisition/clearance complexity, technical infrastructure constraints, stakeholder readiness and short-term versus long-term delivery feasibility.

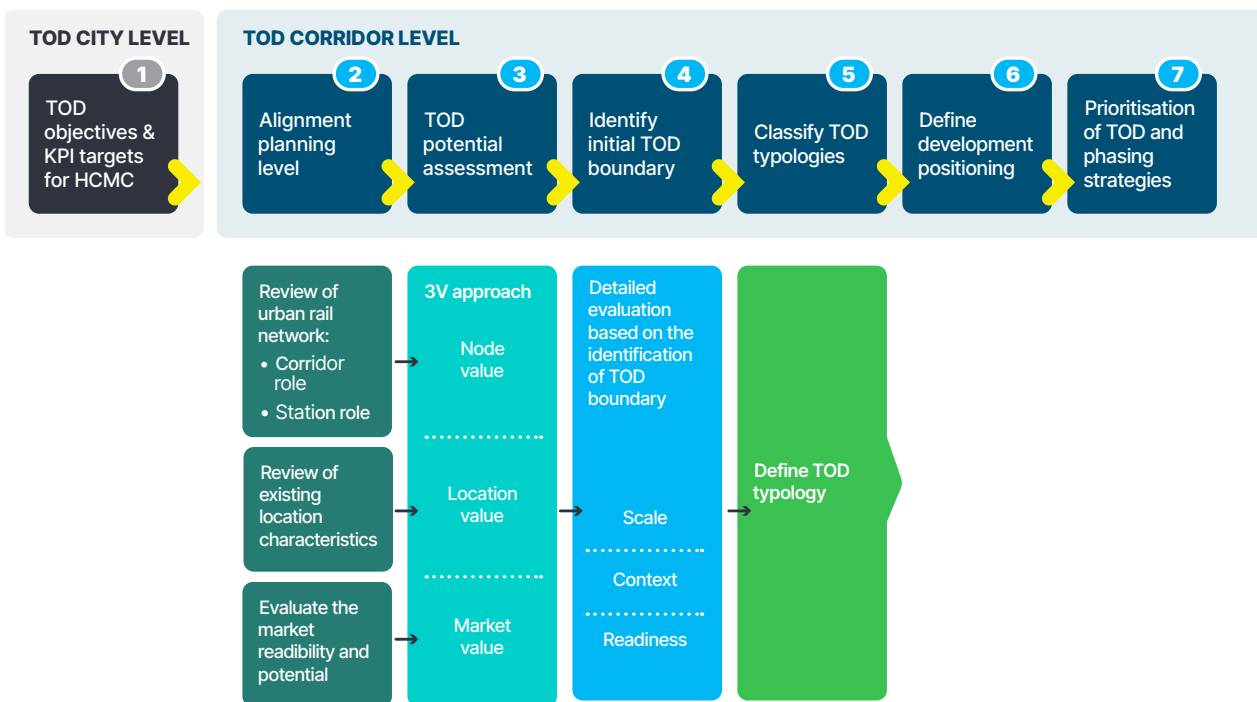


Figure 19: Required steps to define transit-oriented development typology for a station area

The most critical task is to get sufficient information (the results of the above steps) to clearly identify suitable characteristics. Key information to identify TOD typology for a station includes:

- The roles of the related corridor and the station in the traffic network.
- Main characteristics of the station location (urban, suburban, special function, core/renewal areas).
- Expectation of development levels (high/

medium/low density of population, jobs, business opportunities, activities, services).

Information to support setting of development intensity and scale, land use mix, public realm and connectivity, social infrastructure and housing provision, climate and environmental response.

In addition, based on the context of HCMC, Table 9 shows the recommended urban design indicator suitable for each typology.

Table 9: Typology–design mapping

Transit-oriented development (TOD) types	Built form and FAR	Land use mix	Public realm and streets	Parking controls	Climate and environmental requirements	Gender equality, disability and social inclusion (GEDSI) requirements
1. Central city TOD (Area around the central city station)	Highest intensity; high-rise; tower-podium; FAR 1.5–2 times the maximum FAR value allowed in the Vietnamese building code	Office/retail-led mixed-use; tourism/culture	Plazas; 8–10m sidewalks; underground links; strong shading	Zero/near-zero private parking	Heat mitigation; permeable surfaces; green roofs	Full universal design; gender-safe lighting
2. Sub-centre (secondary)/ Strategic economic hub/ Satellite TOD	High-medium intensity; FAR 1.5–1.8 times the maximum FAR value allowed in the Vietnamese building code	Employment, education, mixed-use	Shaded boulevards; pedestrian priority streets	Reduced parking maximums	Flood-adaptive design; tree canopy	Inclusive routes; safe crossings
3. Third-level TOD: local centres/ suburbs/ station areas with major interregional connections	Medium-high intensity; FAR 1.5–1.7 times the maximum FAR value allowed in the Vietnamese Building code	Housing, local commerce and community facilities	3–5m sidewalks; neighbourhood plazas	Shared parking; no surface lots	Trees, drainage infrastructure	Inclusive access; universal design
4. Favourable redevelopment TOD - in existing urban areas with strong economic potential and high feasibility for redevelopment	Targeted intensification: FAR 1.5– 2.0 times the maximum FAR value allowed in the Vietnamese building code and bonus incentives	Infill mixed-use	Permeability upgrades; through-block access	Managed parking	Cool pavements; pocket parks	Accessible connections
5. Enhancement station TOD - Built-up areas with limited redevelopment capacity, where priorities focus on access improvements, interchange quality and public realm upgrades	Flexible intensity	Local services and public realm	Targeted improvements around the station	Maintain existing parking levels with management	Basic greenery	Universal access
6. Specialised centre TOD	Custom parameters; event-capacity planning	Function-led (airport, logistics, tourism, university)	Large event plazas; capacity-based circulation	Event-based parking; regulated drop-off	Eco-adaptive design; heat mitigation	Crowd-safe design; universal access

Relationship between TOD boundaries, influence zones and typologies: TOD boundaries define the overall extent of the station area subject to TOD consideration.

- **Influence zones** define the distance-based gradient of development intensity and transport integration within the boundary.
- **Typologies** define the role, scale and functional emphasis of development at each station. Applied together, these elements help ensure requirements are proportionate to the station's role and responsive to local urban conditions.

In practice:

- Higher-order typologies (e.g. central city TOD) apply stronger intensity across core and primary zones.
- Lower-order typologies (e.g. Third-level TOD, Enhancement station TOD) apply moderate to high intensity while maintaining strong access and public realm requirements.

Both elements must be considered together when preparing TOD plans and development controls. For example, a central city TOD will typically apply the

highest development intensity across both the core and primary zones, while carefully managing transition within the extended zone. In contrast, Enhancement station TOD may focus primarily on improving access, safety, interchange quality and public realm within the core zone, with limited redevelopment intensity beyond.

Corridor typologies should be derived from the distribution and combination of station typologies along each line or line segment. A corridor is defined not by one station alone, but by the overall pattern of station roles, urban contexts, transformation opportunities and strategic functions along the corridor. Based on this, each corridor should be assigned a dominant TOD character, such as core intensification, polycentric economic linkage, suburban residential expansion, renewal-led transformation, special-functional connection or mixed transition. These corridor typologies should then be compared across the network to clarify their strategic roles, investment priorities and planning responses, ensuring consistency between station-level TOD planning and the wider metropolitan structure.

Table 10: Classification of transit-oriented development corridor typologies

Transit-oriented development (TOD) corridor typology	Role	Key characteristics
Metropolitan core intensification corridor	Corridor serving the main metropolitan core and its immediate expansion areas.	Dominated by city core centre and major sub-centre / economic centre stations; very high accessibility and interchange intensity; strong concentration of employment, commercial, civic and cultural functions.
Polycentric economic linkage corridor	Corridor linking major sub-centres, employment clusters and strategic growth poles.	Dominated by sub-centre / economic centre stations, sometimes combined with special-functional hubs; supports business, innovation, institutional and metropolitan-scale economic connectivity.
Residential expansion and community corridor	Corridor supporting suburban growth, housing concentration and community service access.	Dominated by suburban centre stations; mainly residential in character; dependent on strong feeder services, walkability, cycling and phased urban expansion.
Renewal and regeneration corridor	Corridor guiding redevelopment and urban restructuring in built-up areas.	Dominated by renewal development stations, sometimes mixed with station node enhancement stations; associated with brownfields, fragmented land, ageing urban fabric and the need for land consolidation and coordinated redevelopment.
Special-functional connector corridor	Corridor connecting major anchor destinations or special-purpose metropolitan functions.	Includes one or more special-functional hub stations; function-driven rather than purely density-driven; may connect airports, high-speed rail stations, logistics hubs, tourism destinations, universities or technology parks.
Consolidation and access improvement corridor	Corridor where TOD outcomes are mainly achieved through better accessibility and public realm rather than large-scale redevelopment.	Dominated by station node enhancement stations; limited redevelopment capacity; focuses on first/last-mile access, interchange quality, walkability and service integration.
Mixed transition corridor	Corridor with no single dominant TOD logic, but with changing station conditions along its length.	Contains a mix of station typologies; changes character across different urban contexts; often requires sub-corridor differentiation and phased responses.

Steps to define TOD corridor typologies

- **Step 1: Prepare the corridor input package.** Compile the relevant outputs from the previous steps for each corridor, including station typology assignments, station profiles, 3V assessment results, corridor network role, land use structure, development trends, major interchange nodes and key transformation opportunities. This provides the common evidence base for corridor-level classification.
- **Step 2: Review the pattern of station typologies along the corridor.** Examine how station typologies are distributed along the corridor, including which types are dominant, whether they appear in clusters or as isolated nodes, and whether the corridor shows a clear overall character or several transition sections. This step should focus on the pattern formed by stations collectively rather than on individual stations alone.
- **Step 3: Identify the dominant corridor development logic.** Based on the station pattern and corridor context, identify the main development logic of the corridor, such as core intensification, economic linkage, residential expansion, renewal-led transformation, special-functional connection, access improvement or mixed transition. This step helps translate station level observations into a corridor-wide strategic interpretation.
- **Step 4: Screen and compare candidate corridor typologies.** Use the identified development logic to shortlist and compare one or more candidate corridor typologies for each corridor. This assessment should consider the corridor's dominant urban role, station typology pattern, land use structure, transformation potential, mobility and interchange performance, implementation readiness, and climate or GEDSI responsiveness, in order to support a transparent and evidence-based typology selection.
- **Step 5: Assign the preferred corridor typology.** Rank the candidate corridor typologies and assign the best-fit typology to each corridor. Where needed, a secondary typology or sub-corridor segmentation may also be identified if the corridor contains two strong development logics or changes substantially along its length.
- **Step 6: Confirm implementation feasibility.** Before finalising the classification, confirm that the selected corridor typology is implementable, at least in phases, considering land availability, site clearance complexity, infrastructure constraints, institutional coordination requirements, funding capacity and sequencing of delivery. This ensures that the typology can guide actual planning and investment decisions.

3.7. Define the development positioning

Purpose

Convert the corridor strategy, TOD typologies and development positioning into an implementable investment pipeline and sequencing plan that aligns with corridor targets and delivery readiness.

Translate TOD typology into positioning targets, focusing on: Intensity and scale, indicative FAR and height direction; Land use focus: jobs-led, housing-led, mixed-use or function-led; Public realm and access priorities, interchange quality, NMT connectivity, station plaza/public space; Delivery pathway: redevelopment package, targeted upgrades or long-term restructuring.

Key targets for consideration

- **Transport infrastructure and services (DP01):** Define the required transit supply and access system to support the intended TOD function.
- **Density and intensity gradient (DP02):** Set the target density/FAR pattern, typically highest at the station core and stepping down toward surrounding areas.
- **Aboveground and underground development potential (DP03):** Identify feasible opportunities above grade and below grade and define controls to enable them.
- **Accessibility to open spaces (DP04):** Specify open space access and public realm priorities.
- **Financing models and investment opportunities (DP05):** Identify feasible public/private delivery and funding options aligned with the positioning and phasing.

Key outputs

- Priority list of stations or station clusters.
- Corridor phasing plan (short/medium/long term) with packaged actions and sequencing logic.
- Preparation of a TOD call for investment package (TOD typologies, assigned KPIs, land value capture (LVC)/financing mechanisms, financing policies and supporting policies) and related discussion records.
- List of stations with tentative projects and investment commitments.
- List of stations with development orientations only (i.e. without committed projects).

3.8. Prioritisation of transit-oriented development and phasing strategies

3.8.1. Transit-oriented development phasing strategies at corridor level

Purpose

Setting a realistic development timeline for a TOD corridor is essential to align rail delivery with station readiness and corridor development targets, and to provide a shared investment roadmap for all stakeholders. Key inputs are compiled throughout the corridor-level TOD planning process, including: (i) rail phasing and station opening schedules; (ii) station readiness conditions (land availability/clearance, access and interchange arrangements, utilities, and enabling infrastructure); (iii) station typology and 3V assessment results; (iv) market signals and transport/land use demand; (v) infrastructure capacity and constraints; (vi) land status, resettlement/relocation requirements, and acquisition feasibility; and (vii) the funding envelope and the committed project pipeline (with confirmed financing sources and investment agreements).

Convert the corridor strategy and development positioning into an implementable investment and sequencing plan, ensuring TOD delivery is aligned with rail implementation milestones, station readiness and corridor targets.

Key principles

- **Rail-TOD integration:** Sequence TOD delivery with rail phasing, station readiness and corridor targets through a single, integrated investment plan.
- **Early-phase focus:** Prioritise (i) quick-wins to improve access, safety, and interchange performance; (ii) projects with strong spill-over effects; and (iii) catalytic investments that crowd in private capital and secure early developer commitments.

Phased delivery packages aligned with readiness and corridor targets

- **Short term (early wins):** Prioritise measures that rapidly improve station function and user experience, including access and interchange upgrades, feeder service improvements, public realm and safety enhancements, and quick-build walking/cycling links.
- **Medium term (priority growth):** Package priority redevelopment and intensification opportunities, focusing on mixed-use redevelopment packages, enabling infrastructure, delivery of priority plots and key public facilities that support ridership and place outcomes.

- **Long-term (major transformation):** Plan and deliver complex, large-scale interventions such as renewal and urban restructuring, land readjustment/pooling and consolidation, and major joint development programmes that require longer lead times and coordinated delivery mechanisms.

Key targets:

- **Rail development phasing (PS01):** Sequence corridor/line delivery based on network role, constructability, budget constraints and operational readiness.
- **Urban development phasing (PS02):** Sequence TOD and urban development around stations based on station typologies, land and infrastructure readiness, market demand, infrastructure capacity and funding availability.

Implementation responsibility and process

Based on the institutional arrangements, DPA is the lead authority for this task, working closely with the UDMB and relevant stakeholders. The process should follow these steps:

- **Review corridor targets and transport demand,** including baseline and future scenarios.
- **Confirm rail delivery milestones (PS01),** including line/corridor phasing, station opening schedules and operational readiness constraints.
- **Form the TOD project pipeline (PS02),** by coordinating with stakeholders to identify candidate TOD projects by station typology, land/infrastructure readiness, market demand and implementation constraints.
- **Package, sequence and finalise the integrated investment plan** by assigning projects into phases based on readiness, funding availability and secured commitments (developers/project owners), and confirming the final phasing plan.

Key outputs

- **TOD corridor strategy report** covering phasing and priorities, LVC mechanisms and supporting policies.
- **Integrated investment and sequencing plan** linking urban rail network delivery with TOD implementation.
- **Committed project list,** including financing policies and investment agreements.

Details of the tasks are illustrated in Figure 20 below.

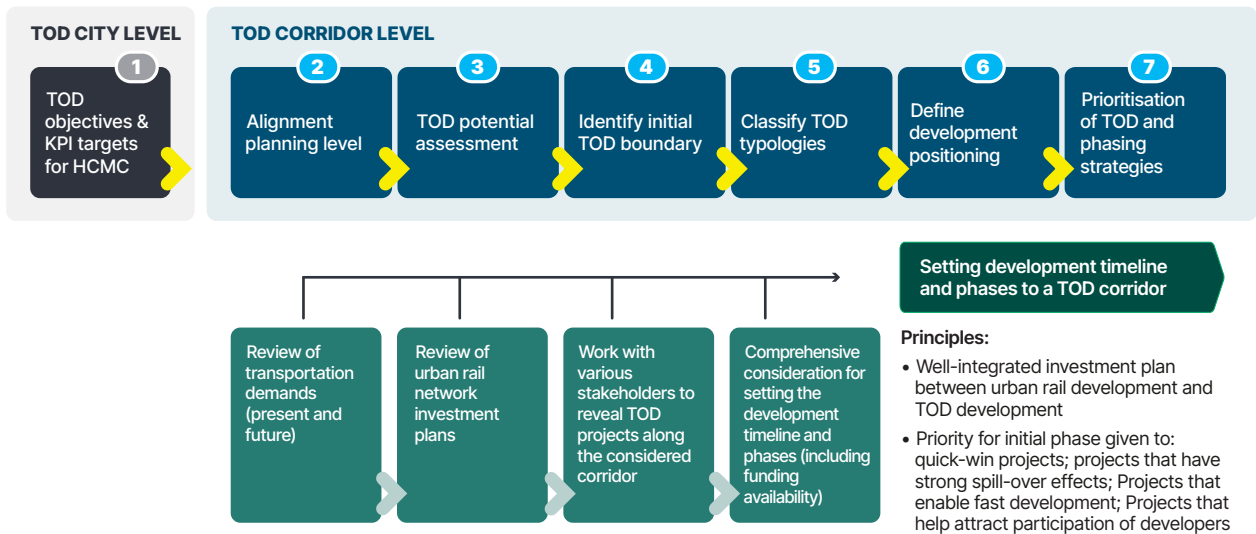


Figure 20: Process for setting development timeline and phases for a transit-oriented development corridor

3.8.2. Transit-oriented development project formation strategies and phasing

Purpose

A TOD plan is a plan for implementation; it must be translated into a portfolio of deliverable TOD projects with clear sequencing and timelines. Establishing a structured approach to project formation and phasing is therefore essential to align rail delivery with land use and access improvements, focus investment on high-impact and feasible interventions, and secure commitments from project owners and investors.

Types of TOD projects

In this guideline, TOD projects include investments in **infrastructure and/or real estate and/or public facilities** within TOD areas. Typical project types are:

- **Rail infrastructure:** Urban rail works, stations, station systems, station access and connectivity facilities.
- **Residential/commercial facilities:** Housing and commercial developments.
- **Social facilities:** Social housing, schools/hospitals/entertainment, parks/open space/shared spaces.
- **Technical facilities:** Road/transport infrastructure and utilities (power, lighting, ICT, drainage, water).
- **Mixed packages:** Combinations such as rail and real estate (often in the station core), rail and social/technical facilities, or real estate and social/technical facilities.

Corridor-level project formation and phasing

- **Translate corridor KPIs into project formation requirements:** UDMB, in coordination with DPA, defines corridor-level requirements that will guide project identification and sequencing. This includes: clear station roles along the corridor linked to TOD

typologies; phased transit ridership forecasts for each station; phased targets for population, jobs, commercial/business activity, and local services by station; required accessibility and connectivity performance at stations; and other KPI-related requirements by phase, such as congestion reduction, flood resilience and social housing targets.

- **Identify the initial investment phase project portfolio:** UDMB works with relevant governmental agencies, developers, investors and communities to identify projects suitable for the initial investment phase, applying selection criteria including (i) high ridership potential, (ii) high market potential around priority station locations, (iii) high likelihood of securing funding and addressing financing constraints, (iv) alignment with high density and/or mixed-use development objectives, and (v) high implementation feasibility (land readiness, permitting, constructability and stakeholder acceptance).
- **Confirm medium and long term portfolios to achieve corridor TOD objectives:** UDMB finalises the project pipeline for later phases to achieve full corridor outcomes, including redevelopment and intensification packages supported by enabling infrastructure; public facilities and place-making investments required to sustain ridership and quality-of-place outcomes; and complex, long-lead interventions such as urban restructuring, land readjustment/pooling, consolidation and major joint development programmes.
- **Key outputs:** The corridor-level process produces a corridor TOD project pipeline by phase (initial, medium, long term); corridor phasing requirements linked to KPIs and station roles/typologies; an indicative corridor investment and sequencing plan highlighting priority stations or station clusters and enabling actions, and a process diagram titled “TOD project formation and phasing at corridor level”.

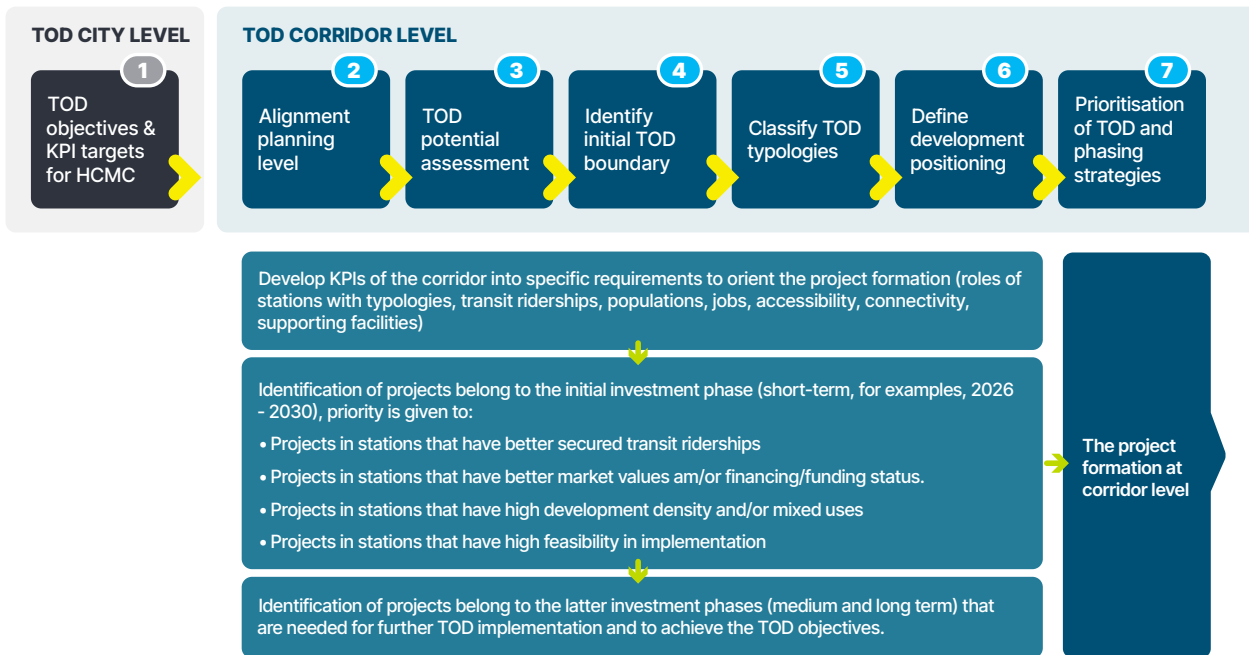


Figure 21: TOD project formation and phasing at the corridor level

Station level TOD project formation and phasing

- **Translate station KPIs into station-specific requirements:** Using corridor priorities and station typologies, UDMB and DPA translate station KPIs into station area requirements that guide project definition by phase, including facilities required to serve phased ridership demand, facilities required to ensure smooth access, interchange, and connectivity to/from the station, projections of population, jobs, and commercial activity and the supporting facilities needed to accommodate them, and other KPI-linked requirements by phase such as congestion reduction, flood resilience and social housing targets.
- **Form the initial station delivery package:** UDMB coordinates with stakeholders to define a coherent initial delivery package for the station area, prioritising rail and station infrastructure and associated station facilities, station access and connectivity projects (first/last-mile links, interchange, public realm, and safety improvements), core-layer technical infrastructure within the TOD area, projects with stronger funding and financing prospects, and catalytic projects that materially increase developer and investor interest.
- **Finalise medium and long-term station packages and delivery commitments:** UDMB finalises later-phase packages to achieve station TOD objectives, including mixed-use redevelopment and intensification projects aligned with market absorption and infrastructure capacity, required public facilities and open space to support place

outcomes and liveability, and delivery commitments and responsibilities, covering project owners, delivery mechanisms and indicative implementation schedules.

- **Key outputs:** The station level process produces a station TOD delivery package by phase (core projects, enabling infrastructure, and public facilities); a station phasing plan with indicative schedules and dependencies (rail milestones, land readiness, utilities); an implementation responsibility and commitment summary identifying project owners and delivery mechanisms; and a process diagram titled “TOD project formation and phasing at station level”.

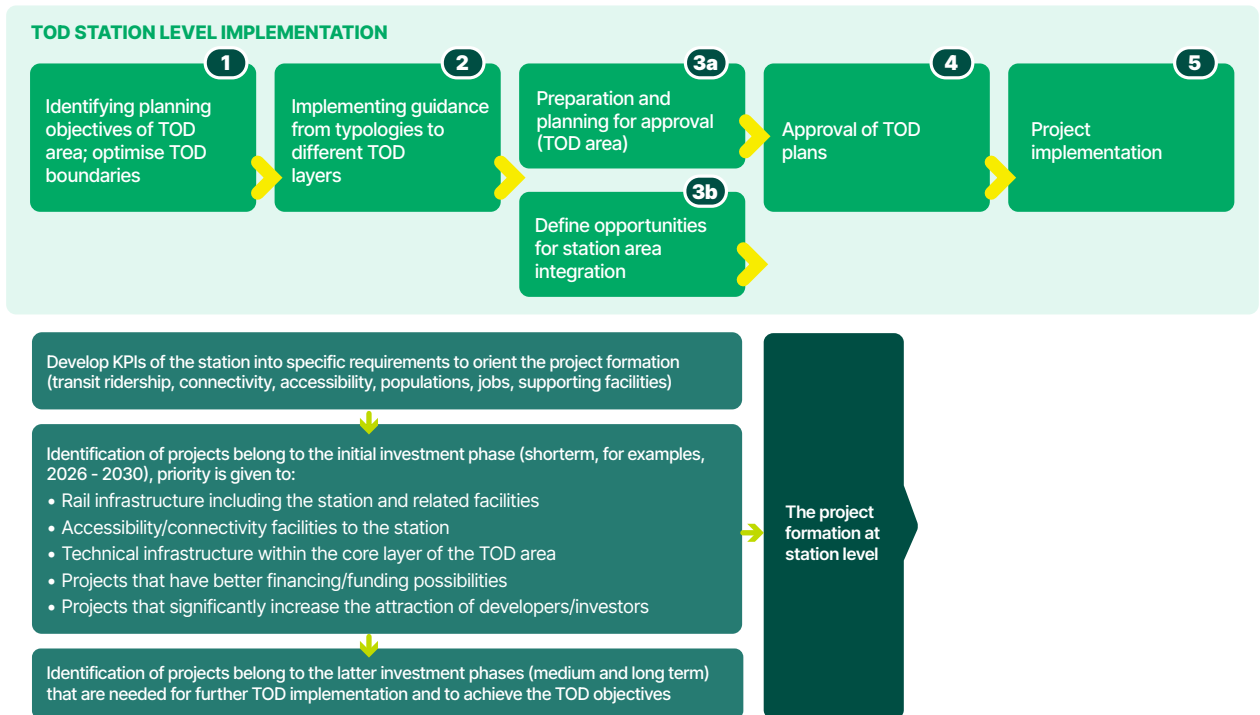


Figure 22: Transit-oriented development project formation and phasing at the station level

Box 13: Key lessons for effective phased transit-oriented development implementation planning

Avoid misalignment between planning and real estate objectives

Station locations, depot sites and corridor alignments are often set using transport or cost criteria that do not reflect the site conditions required to catalyse private development. Examples include stations placed away from strong interchange nodes or park-and-ride proposals that ignore land ownership feasibility. When early decisions are not project-oriented, they can undermine development potential and require costly later corrections. This risk increases when many actors with different objectives operate without a coherent delivery framework.

Align infrastructure investment with the maturity of the TOD area

Infrastructure is decisive for TOD success, such as utilities, access networks, public realm and social infrastructure that make station areas functional and attractive. However, TOD areas mature over time and rarely require all major infrastructure at once. A realistic approach phases improvements as the district grows. Global experience shows early public acceleration of investment is often necessary before private development responds; it signals commitment and reduces risk. Successful programmes frequently combine public and private finance in flexible ways, such as private upfront delivery with later public transfer, co-financing by landowners for off-site amenities or leveraging local government borrowing capacity for lower-cost capital.

Incorporate market pace and investment feedback loops

TOD outcomes depend heavily on market-driven housing and commercial absorption. Revenues, especially those linked to land value capture, often fund later infrastructure and affordable housing, creating a feedback loop between real estate performance and delivery capacity. Public transport announcements can also trigger speculation and unrealistic land price expectations. A small number of holdout owners can hold surrounding parcels, and shift shared infrastructure costs onto early-phase developers, increasing risk and potentially pushing projects toward high-end products that contradict inclusion goals. These dynamics must be explicitly assessed and reflected in phasing decisions.

Secure credible financing commitments for each phase

Funding conditions shape what can be delivered and when. Public budgets can be slow and inflexible; official development assistance comes with disbursement conditions; Public-Private Partnership and private finance require transparency and complex structuring. A common failure point is weak follow-through on financing commitments, resulting in delays and reduced quality. The initial seeding phase is particularly difficult because development potential is not yet proven; it often requires reliable public funding, targeted subsidies or dedicated redevelopment mechanisms to close early investment gaps and unlock private participation.

PART

4



**Part 4. Transit-oriented
development area-
level and station-level
planning and design**

4.1. Purpose and application

4.1.1. Purpose

Part 4 provides a practical methodology for conducting transit-oriented development (TOD) area-level and station-level planning and design, translating the network/corridor strategies (see Part 3) into implementable station-area plans. Its purpose is to:

- Define a clear legal and policy basis for station-area TOD planning.
- Apply integrated principles to coordinate land use, mobility, public realm, housing, GEDSI and climate-environment outcomes.
- Guide the preparation of planning and design concepts that are feasible, phased and investment ready.
- Generate consistent outputs that support approvals, project packaging and delivery.

4.1.2. Application

This Part is applied primarily during the preparation of station-area TOD plans, including zoning plans (1:2,000) and detailed plans (1:500) (may include urban design). It is also used to inform subsequent stages of the TOD project delivery, including concept design, pre-feasibility and feasibility studies and investment packaging.

4.2. Land use zoning

4.2.1. TOD objectives

The main objectives of land use planning in the TOD area are to promote sustainable growth by encouraging walking, cycling, and transit use and reducing reliance on private vehicles and to create a balanced mix of residential, commercial, office, civic, and open spaces that support high density near transit hubs, foster economic vitality, and enhance liveability. It creates a framework for checking whether a new plan/project could perform towards the goal with mixed use in space, highly efficient, and transit-oriented transformation align to urban renewal/restructuring policies.

4.2.2. TOD principles

Principle 1: Efficient land use and redevelopment:

Prioritise infill and redevelopment of underused parcels (brownfields, surface parking, low-value land) before expanding outward.

Principle 2: Concentrate demand, ensure multimodal connectivity, and prioritise pedestrians: This principle requires channelling the majority of new

housing, jobs, and services into areas surrounding stations to maximise ridership. To achieve this, it is essential to ensure seamless integration between urban rail and other modes such as buses, BRT, waterway transport, and pedestrian and cycling networks, while reducing dependence on private vehicles. TOD can only be effective when the station area is genuinely pedestrian-friendly and provides convenient last-mile connectivity.

Principle 3: Compact, high-intensity core: Create a high-intensity core within the first 400–600m of the station with the highest FAR, activity mix, and public realm investment. Step down height and density toward surrounding neighbourhoods.

Principle 4: Mixed-use to shorten daily trips: Plan for a balanced mix of housing, jobs, education, retail, and community services to prioritise NMT and public transport use. Encourage vertical mixed-use (active ground floors) and distribute social infrastructure to support all-day vitality.

Principle 5: Equitable, sustainable, and resilient urban development: This principle requires that planning ensures social inclusion, environmental sustainability, and enhances urban resilience.

- **On Social Equity/Inclusiveness:** As TOD carries the risk of increasing land prices and living costs, potentially leading to the displacement of low-income residents, appropriate control policies are essential. This specifically involves ensuring a proportion of social or affordable housing within TOD areas; maintaining equitable access to public spaces, social infrastructure, and public transport for all population groups; and mitigating the negative impacts of urban restructuring on existing communities.
- **On Environmental Sustainability and Climate Adaptation:** In the context of a city facing challenges such as flooding, the urban heat island effect, and infrastructure pressure, TOD areas must be designed with integrated green infrastructure, increased permeable surfaces, reduced greenhouse gas emissions, and enhanced resilience to climate change.

Integrating these factors provides the foundation for incorporating economic, social, and environmental criteria into the planning process, aiming to create communities that are adaptive, resilient, and develop sustainably.

4.2.3. Targets for land use

Preferable/non-preferable land use types (LU01):

Define land uses to encourage efficient use within TOD and those to restrict due to conflicts or low transit value.

Quota/cap to control overcrowding (LU02): Set (conditional) caps on population, floor area or specific uses to avoid overloading infrastructure. This includes both traffic infrastructure (level of services) and social infrastructure (schools and green space). It is with or without the condition of better design and infrastructure improvement.

Dedicated land for public, green space, heritage and social landmarks (LU03): Reserve land for parks, plazas, streets and public facilities to secure liveability and public realm quality.

Target intensity and floor area ratio (FAR) (LU04): Establish desired FAR ranges by zone/station to guide planned development intensity.

Land use/space mix (layer/block/building level) (LU05): Define mixed-use distribution across district layers, blocks and buildings.

Land transformation/acquisition strategies (LU06): Land for redevelopment/renewal/beautification for sub-zone and layer (involuntary, consent-75% and consensus land acquisition – link to value capture methods).

4.2.4. Land use planning steps

The guide also explains how to allocate and manage temporary land in the TOD zone to control overcrowding in brownfield area and manage development with specific land acquisition mode (involuntary, consent-75%, and consensus).

Table 11: Five steps to prepare a land use plan

Step	Description
1	Assessing site conditions (greenfield and brownfield)
2	Develop transforming objectives
3	Developing layer-specific zoning and sub-zone strategies
4	Integrating land value capture measures
5	Implementation and monitoring

Step 1: Assessing site conditions (greenfield vs brownfield)

Objectives

Assessment shall cover environmental audits, land ownership and acquisition needs, model transit access with walkability and density gradients and demand forecast (from the three values [3V] analysis).

Detailed guide

Analysis shall be done at both the corridor and TOD site levels. At the corridor level, it is necessary

to conduct strategic sites analysis, market needs, accessibility to major centres, transit system and opportunities for the TOD potential category area (a part of 3V analysis). The corridor analysis has similar tasks to cover four tasks at the site level, as presented below:

1. Conduct site inventories (site plan): Map underutilised parcels, vacant lots and barriers like wide streets or poor pedestrian connectivity.
2. Forecast future needs: Use scenario planning or relevant methods to project population growth, housing demand, job creation and future climate impacts (by consulting climate projections).
3. Identify opportunities and constraints: Consider local geography, cultural assets and equity issues, such as preventing displacement in low-income areas.
4. Alignment to bigger picture: Prioritise stations based on market readiness, community support and alignment with regional plans.

Step 2: Develop transforming objectives

Initial TOD objectives could be defined via TOD area typology or main function from the corridor level; however, after analysing the site with an insight picture on needs, opportunities and constraints, these objectives can be reviewed, refined and translated into clear objectives, targets and performance requirements to support the overall transformation strategy.

The objectives could be established by sharing analyses with local communities and potential developers and major institutions through collaborative goal setting, which aligns the TOD goal with broader objectives like sustainability, affordability and economic development. From this ground, the stakeholders could participate in setting performance targets (performance-based), such as:

- What level of transit ridership should reach, to reduce ‘vehicle miles travelled’?
- Minimum affordable/social housing percentages (e.g. 20–35%, up to 50% of new dwelling units).
- Quality-of-place standard with minimum or higher than minimum requirement of public space/ green/ shade cover, level of service (not beyond D level or E level according to Vietnam Technical Standard 13592:2022 and National Standard 07-4:2023/BXD in urban road planning and design).
- Appropriate combination of mixed-use to create vibrant, self-sustaining districts that generate all-day activity.
- The process of making such performance targets could be done via participatory processes, particularly in the redevelopment/renewal TOD.

Step 3: Developing layer-specific zoning and sub-zone strategies

Zoning strategies assume the whole TOD area applies a common strategy. However, complicated TOD areas (especially large-scale TOD in the brownfield) shall be guided with sub-zone transforming strategies (See Section 4.2.5)

Tailor zoning regulations shall regulate FAR, building heights and change of use permissions to each layer and align them with demand. While at the same time,

adapting site types to those specified in the urban design section. In a specific TOD zone, temporary land may be recommended (see Section 4.2.6 on temporary land).

Strategies emphasise mixed-use in the core layer, housing focus in the main layer, and infrastructure in the outer layer. The preferable and non-preferable types of land use are explained in Table 12. An example of land use organisation before and after TOD planning is shown in Figure 23.

Table 12: Preferable and non-preferable land use types by layer in a typical transit-oriented development area.³⁸

Layer	Preferable land uses	Non-preferable / prohibited land uses
Core layer	<ul style="list-style-type: none"> Vertical mixed-use (ground floor retail/office and upper residential/offices). Active commercial (shops, restaurants, cafes, grocery, services). High density multi-family residential. Civic/public (plazas, cultural facilities). Hotels, entertainment. 	<ul style="list-style-type: none"> Car-oriented (drive-throughs, gas stations, auto-repair/sales). Large single-use retail. Industrial/warehouses. Low-density single-family housing. Extensive surface parking.
Main layer	<ul style="list-style-type: none"> Mixed-use (vertical or horizontal). Multi-family housing (mid-rise apartments, town homes). Neighbourhood commercial/services. Community amenities (schools, parks, childcare). Light office/institutional. 	<ul style="list-style-type: none"> Heavy industrial/commercial. Auto-centric developments (drive-throughs, large parking fronts). Very low-density uses. High-traffic generators without transit orientation.
Outer layer	<ul style="list-style-type: none"> Medium-low density residential (town homes, small multi-family). Limited neighbourhood services (corner stores) Parks/open space. Institutional (schools). 	<ul style="list-style-type: none"> High intensity commercial/office. Industrial/storage-heavy. Auto-dependent large retail. Incompatible high-traffic uses.



Figure 23: Land use organisation before and after the TOD plan.³⁹

³⁸ This guide illustrates typical land use in large scale TOD in the new development area. In the renewal TOD area, this guide may focus on the core area only with respect to spatial needs in the larger scale of urban ecosystems of services.

³⁹ <https://www.fareast.mobi/en/feature/intodsep17/Good-Practices-Station-Area-Zoning-Mixed-Use-Density-Ji'an-TOD>

Land use/space mix (layer/block/building level)

Land use and spatial function can be mixed by layer, among and within block level, and in some cases mixed vertically within the building level (See Table 13).

Table 13: Land and function mix

Layer-based mix	Features by housing, job and services	Mixed between commercial and residential, some institutional and industrial in the outer layer only
Block-based mix	<p>Feature by diverse plots size and land functions</p> <p>Smaller blocks layout in the core helps higher mix and accessibility to services and station</p>	<p>Can be mixed within block or sub-block with commercial and residential, affordable and commercial housing</p> <p>Smaller blocks size (1 to 3ha in the core or 100m to 150m of each block edge, and 2 to 4ha in the main or 150m to 250m) helps better mix and accessibility to diverse services, to destinations as well as to the station from the periphery of the TOD zone.</p> <p>Large blocks (6-10ha and above) and large projects near station are advised to open public access through the block/project to shorten the distance to the station and increase public realm.</p>
Building-based mix	Features jobs near the station	Vertical mix: can be education, but small kindergarten for small child (under 2-3 years old) only



Figure 24: Example of land and function mix by block and within block in Ji'an, Jiangxi province, People's Republic of China (zoning map 2016–2030).⁴⁰

Note: Blocks mix allows multiple land use categories within the block level, e.g. red (retail commercial) mixes with orange (commercial offices), purple (public services and government offices) and yellow (residential land).

⁴⁰ <https://www.fareast.mobi/en/feature/jntodsep17/Good-Practices-Station-Area-Zoning-Mixed-Use-Density-Ji'an-TOD>

Job and housing mix

The job and housing mix may vary from the core layer to the whole zone. Specific regulation and implementation policies might be included to ensure the desired mix. However, in certain cases, there is no need to specify land use and spatial mix; instead, a blank zone is recommended to enable future flexible proposals upon market needs.

Table 14: Job and housing mix

	Land use regulation	Objective	Specific issues
1	Mandatory mixed-use ratios	<ul style="list-style-type: none"> Balancing residential and commercial mix. Ensuring an appropriate ratio of housing to non-housing function (commercial, office, service). 	<p>Target ratio (non-housing):</p> <ul style="list-style-type: none"> Core zone: 40–60 % non-housing Whole TOD: 30–40 % non-housing Flexible planning: Regulation can leave land use functions “blank” (undefined) in specific areas, which allows developers to propose a detailed spatial mix based on market demand, rather than deciding everything in advance.
2	Affordable/ social housing	<ul style="list-style-type: none"> Ensuring social mix Establishing quotas for social and affordable units within new housing developments. 	<p>Quotas by location (ratio to commercial housing).</p> <ul style="list-style-type: none"> 0–10% for central business district TOD. 20–50% for suburb TOD (applies to development in a brownfield area). Quotas should link to specific TOD layers and vary depending on certain corridor arrangements and the surrounding ecosystems. Short-stay shall be calculated as “new types of housing” where they are exempted from school infrastructure calculations (as they do not utilise schools).

Step 4: Integrating land value capture measures

Land value capture (LVC) measures shall be integrated with both development-based (upstream financing) and non-development-based (or other downstream financing) measures for certain target groups. LVC measures using development-based methods will capture the value increase during the land acquisition, land use change or building activities. In principle, development-based LVC measures shall ensure that developers and/or beneficiaries contribute fairly and transparently to the (rule of thumb) integration strategies:

- In the core layer: Tie mixed-use approvals to upstream LVC contributions to align the land acquisition and hard infrastructure development.
- In the main layer: Use LVC from the core layer to subsidise social housing (and other relevant objectives) in the special TOD areas.
- In the outer layer: Fund social infrastructure development through LVC from the core, main and other levels.

Note that for brownfields, offer LVC rebates for remediation; for green fields, impose upfront fees for infrastructure.

Step 5: Implementation and monitoring

Guides for implementation help developers to prepare projects aligning with the guides for land use and building transformation, including five tasks as follows:

- Draft zoning ordinance:** Codify layers (if exists), strategies (priority projects and use of tools or measures) and LVC tools applicable or preferable in the local plans with public review.
- Phased rollout:** Start with the core layer and catalytic projects (if exists), then expand outward with the build-transfer (BT) project or 75% consent projects and/or voluntary JD or redevelopment project on a suitable site type.
- Stakeholder engagement at planning and making phase:** Consultation with existing/future developers and communities; hold hearings to refine phasing development project, design of LVC, especially joint development projects, to consult both communities and developers to ensure affordability and suitability.
- Monitoring:** Track metrics (e.g. ridership transformation, housing and job ratio and housing affordability to commercial housing ratios); adjust adjacent zoning regulations and overcrowding control measures according to performance targets.
- Provide best practices** for guiding reference of successful TODs and sub-TOD areas.

Implementation strategies could vary by layer and TOD categories are shown as follows.

Table 15: Implementation guide strategies by transit-oriented development category

TOD typologies	Core layer	Main layer	Outer layer
1. Central city TOD (Area around the central city station)	Quota and bidding for additional FAR, overcrowding control link to trip generation (See further in Section 4.2.7).	Quota and bidding for additional FAR, overcrowding control from trip generation demand and accessibility to housing amenities.	Overcrowding control measures and alternative accessibility to amenities for housing.
2. Sub-centres (secondary) / Strategic economic hub/ Satellite TOD	Mixed-use, redevelopment and renewal guide.	Mixed-use, redevelopment and urban renewal guide.	Mixed-use, urban renewal guide.
3. Third-level TOD, local centres/suburbs/ station areas with major interregional connections	Laissez-faire: residential and mixed.	Laissez-faire: residential	N/A
4–5. Favourable redevelopment area TOD and Enhancement node TOD	Guide for Transit Joint Development (TJD) and renewal/beautification for voluntary transformation.	Guide for renewal and voluntary transformation.	N/A
6. Specialised centre TOD	By function.	By function.	Transition to the city environment – less regulatory.

4.2.5. Sub-zone transforming strategies

a. Criteria to determine sub-zones

Sub-zone(s) that need largely different transformation strategies should be identified and managed accordingly. The delimitation of boundaries is based on the following criteria (See Figure 25 and Table 16):

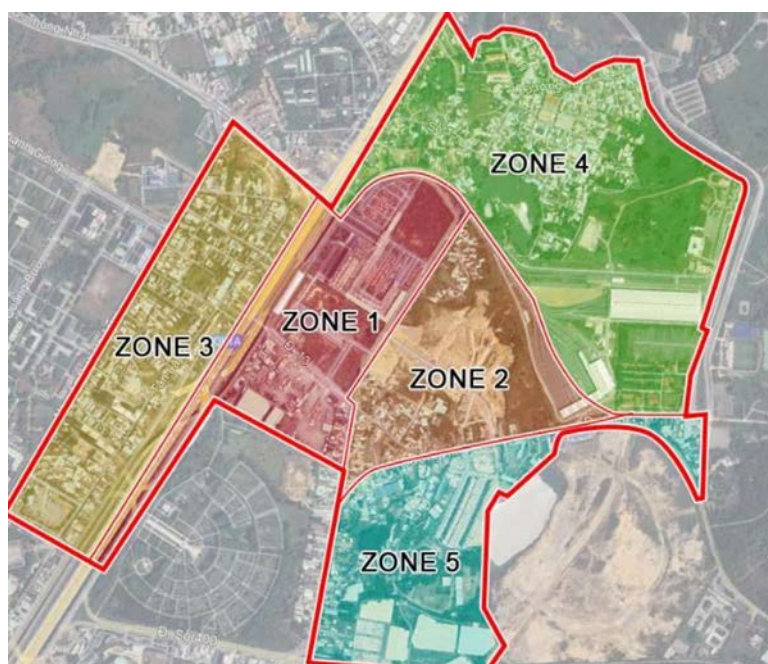


Figure 25: Illustration of sub-zone identification (Suoi Tien Area, Ho Chi Minh city)⁴¹

⁴¹ Suoi Tien area

Table 16: Sub-zone identification criteria

Criterion	Redevelopment zone focus	Renewal zone focus	Application in transit-oriented development layers
Contamination Extent	High/severe (e.g. groundwater impacts requiring excavation or treatment trains like bioremediation + oxidation). Boundaries enclose hotspots to prevent spread.	Low-moderate (e.g. surface soils manageable with caps or institutional controls like deed restrictions).	Core: Redevelopment for dense mixed-use if severe; renewal for lighter contamination to preserve industrial facades. Main/Extended: Renewal dominant to minimise costs in housing/infrastructure areas.
Building Conditions	Dilapidated or obsolete (e.g. structurally unsafe factories warranting demolition). Assess for asbestos or lead.	Viable for retrofitting (e.g. sturdy warehouses convertible to lofts or offices).	Core: Redevelopment for high-rises; renewal for adaptive mixed-use. Main: Renewal for mid-rise housing retrofits. Extended: Renewal for community facilities.
Proximity to Transit	Within 400m walkshed for high-density support; boundaries step down intensity outward.	Beyond core but still accessible (e.g. 400-800m) for medium/low intensity.	Core: Redevelopment boundaries tight around hubs. Main: Mixed, with renewal buffering. Extended: Renewal for lower impact uses.
Land Use Intensity and Demand	High FAR (e.g. 4-10+), supporting commercial/services or mixed-use; boundaries align with economic viability for new builds.	Moderate/low FAR (e.g. 1-5), for housing or infrastructure retrofits.	Core: Redevelopment to meet commercial demand. Main: Renewal for housing affordability. Extended: Renewal for scalable social amenities.
Economic and Market Factors	Strong potential for value uplift (via upstream financing); boundaries encompass large tracts for comprehensive projects.	Weaker markets or small parcels for incremental gains; focus on stigma reduction.	Core: Redevelopment for high-value commercial. Main/Extended: Renewal to leverage existing assets cost-effectively.
Environmental and Cultural Factors	Areas with ecological sensitivities (e.g. wetlands) or no heritage value; integrate green infrastructure.	Sites with historical/cultural assets for preservation; boundaries buffer sensitive areas.	All layers: Renewal for heritage buildings; redevelopment for blighted zones.

b. Sub-zone strategies

- 1. Redevelopment (only) sub-zones:** Replace inefficient layouts with denser housing typologies to meet demand with strategies to develop mid-rise multi-family units with ground floor local shops; include green buffers and prioritise inclusive design (e.g. accessible units, family sizes). In greenfield shall cluster developments with shared amenities and brownfield sites to demolish derelict sites for new builds, incorporating site history. The LVC shall capture uplift via upstream development charges via relevant tools (land acquisition and auction, land use levy, build-transfer or FAR bonus sale, combined land readjustment). Redevelopment is often recommended in the core layer and in some cases in the main layer. However, redevelopment in the brownfield area should follow the consensus rule, except in certain cases, where negotiation backed by an enforcement rule (75% consent).
- 2. Renewal (only) sub-zones:** Upgrade existing housing stock for affordability and modernity, minimising displacement with strategies to renovate apartments with energy-efficient additions and add communal spaces. The LVC

shall levy using a downstream approach, e.g. an infrastructure improvement fee (IIF) or contribution, using land readjustment/reorganisation or joint development that charges on upgraded units/sales of property to subsidise affordable housing funds or local infrastructure improvement costs.

- 3. Beautification (only) sub-zones:** Improve neighbourhood aesthetics to enhance the quality of life for residents. This includes adding pocket parks, bike lanes and community gardens, as well as upgrading streetscapes to make 'complete streets' with incentive programmes for homeowner facade improvements. In the greenfield, plan integrated green spaces from the outset, while in the brownfield, transform vacant lots into beautified commons. The LVC shall fund through Public-Private Partnerships (PPPs) with nearby redevelopments.
- 4. Conservation (only) zones:** Preserve cultural or environmental assets amid housing growth to restrict changes to historic homes/public structures. Allow modern additions like solar panels in buffer zones around parks or streams to prevent encroachment, and enable the cross-zone transfer of development rights tool if possible.

4.2.6. Temporary land use

a. Rationale

During periods of transition – such as awaiting full-scale development – vacant or underutilised land in these areas can lead to urban blight, reduced economic activity, and missed opportunities for community engagement.

Temporary land use allocations provide a flexible interim solution, allowing short-to-medium-term (typically 1-5 years) commercial activities like temporary parking lots, pop-up shops, or temporary structures for shopping malls and festivals. Responsible authorities can allow or enable relevant stakeholders to allocate such uses effectively, ensuring they enhance flexibility, support long-term TOD goals, and mitigate risks following the adaptive management principle to bridge the gap between current underutilisation and future development, promoting economic, social, and environmental benefits.



Figure 26: Illustration of the organisation of temporary land exploitation⁴²

b. Objectives

There are five objectives to maximise the value of land during transitional phases while aligning with broader urban development strategies, including:

- 1. Enhance urban vitality and community engagement:** activate vacant spaces to create lively, inclusive environments that attract residents, visitors, and businesses such as pop-up shops or festival structures can foster social interactions and cultural events, turning dormant areas into community hubs.
- 2. Generate interim revenue and economic opportunities:** provide short-term income streams for landowners or municipalities through leases or fees from activities like temporary parking or

commercial pop-ups, offsetting holding costs and stimulating local economies.

- 3. Test and iterate development ideas:** temporary uses can be considered as “prototypes” to gauge market demand, user preferences, and feasibility for permanent features such as piloting retail concepts in pop-up shops to inform future mixed-use developments.
- 4. Promote sustainability and resilience:** to encourage eco-friendly practices in temporary setups, such as green parking solutions or low-impact structures, to maintain environmental integrity and prepare the site for sustainable long-term development.
- 5. Bridge to permanent development:** to ensure temporary activities do not hinder future projects, allowing seamless transitions while maintaining site accessibility and appeal with certain term – such as 1, 2, or 5 to 10 years in certain areas and lot size, even longer in the suburb.

c. Principles

Temporary use can be individualised in each TOD area. Principles to ensure equitable, efficient, and flexibility to address the unique context of TOD areas with high foot traffic, transit integration, and mixed-use potential:

- Alignment with long-term TOD goals:** Temporary use must complement, not conflict with, planned developments (temporary parking e.g. bike shares or shuttle integrations) to avoid reinforcing car dependency.
- Sustainability and environmental stewardship:** Prioritise low-impact activities that minimise site disturbance, such as modular, reusable structures for festivals or shops, permeable surfaces in parking areas.
- Inclusivity and equity:** Ensure allocations benefit diverse groups, including low-income communities, small businesses, opportunities for local vendors, festivals accessible to all, with considerations for affordability and cultural relevance.
- Safety and compliance:** All temporary use must adhere to health, safety, and zoning regulations. This includes structural integrity for temporary buildings, traffic management for parking, and emergency access in high-density TOD zones.
- Transparency and stakeholder involvement:** Decisions should involve public input through consultations or feedback mechanisms to build trust and address community concerns, ensuring temporary uses enhance rather than disrupt neighbourhood dynamics.

⁴² Illustration of the organisation of temporary land exploitation

- **Economic viability:** Activities should be self-sustaining or revenue-positive, with clear cost-benefit analyses. For example, temporary commercial structures should have defined lease terms that balance profitability with flexibility.

d. Apply flexibility mechanisms

To improve adaptability in TOD areas where development timelines can shift due to market conditions, funding or regulatory changes. Temporary land use allocations should incorporate built-in flexibility that allows quick adjustments to evolving needs without compromising objectives when adopting the following rules:

- **Modular and reversible design:** Temporary structures (e.g. pop-up shops or festival tents) should be easily assembled, disassembled and relocated with prefabricated modules or shipping containers to minimise site alterations and facilitate rapid transitions.
- **Flexible leasing and permitting:** Implement short-term leases (e.g. 6–24 months) with renewal options based on performance metrics, low-risk activities for common use like parking or events.
- **Adaptive zoning and land use categories:** Designate TOD parcels with “interim use overlays” in zoning codes, allowing a range of commercial activities without full rezoning, alignment with emerging development plans.
- **Scalability and phased implementation:** Start with small-scale pilots and scale based on success, enabling expansion to larger festivals or multi-space parking if demand grows.
- **Contingency planning:** Include clauses for early termination or modification in response to unforeseen events, ensuring minimal disruption.

e. Temporary uses in green spaces

Green spaces might be spacious and available (e.g. parks, plazas, open areas) and can be designated with short-to-medium-term activities (1 day to 1 year) to organise pop-up events, markets, festivals, installations or community programming, while preserving ecological integrity, public access and long-term park functions. However, it should follow some rules to:

- Promote community vitality, social interaction and cultural events.
- Encourage physical activity, mental health benefits and inclusive access.
- Test programming ideas for potential permanent features.
- Enhance biodiversity and environmental services (e.g. stormwater management).
- Maintain open public access and avoid long-term privatisation.

4.2.7. Guide to control overcrowding and adapt to infrastructure capacity in the redevelopment/renewal area (brownfield)

a. Congestion control

Traffic impact assessment over the level of service in the job-dominant areas (commercial space with a high FAR)

Overcrowd control is necessary in the TOD area in the urban core (type 1) and congested or highly potential congested areas due to rapid densification in TOD cores (type 2, 3). Overcrowd is manifested as traffic congestion, degraded road level of service (LOS), and overwhelmed infrastructure in the urban core or other built-up areas.

The overcrowd control aims at balancing the additional trip generations (from additional building space through increased FAR or new Dwelling Units (DU) and the LOS of surrounding roads (in the core area) using Traffic Impact Assessment method (TIA).

TIA is supposed to establish urban planning frameworks, emphasising proactive assessment, density calibration, and mitigation strategies to prevent congestion while supporting transit viability using the assumption of building cap in the TOD area.

The TIA shall be done on appropriate timeframe to develop TOD upon designed phase (5 years, 10 years, or the term to develop of major infrastructure in the core of TOD area). TIA can also be done to check LOS to adopt the large-scale development project with the appropriate timeframe. Detailed guide for TIA follows the practice of transport engineers with localised adaptation to the development context, with the specific types of development to be assessed, timeframe, scope, location, and scale.

Quota in special layer/zone

The development quota/cap identifies reserved capacity for additional development in the target zone where (infrastructure) carrying capacity is limited. This cap shall be explored via the calculation of TIA in the designated area with given acceptable of LOS.

The quota will be used to manage development, organise auction for additional development or change of spatial function to higher impact one.

b. Housing and other controls

Schooling capacity and accessibility

Capacity and location of schools (kindergarten, primary, and secondary schools) should satisfy the minimum requirement of planning code, based on service distance or time accessibility. Reduction of the social infrastructure (not lower than 50% of the land allocating to the social infrastructure)

shall only reduce the land allocated for schools but not compromise the building space to absorb the schooling demand.

The land allocation for schools should not be reduced in the residential dominant TOD (housing dominates the building space or $\geq 50\%$ of building space). The accessibility to school should satisfy planning code.

Affordable and social housing control

The target for affordable or social and affordable housing ratio could be set at early phase from corridor plan or site plan (10% to 35% or 50%). Actual affordable housing development could only be materialised together with the adoption of concrete projects where hard infrastructure development is scheduled.

If social housing ratios are tied to every commercial project, then social housing development can be satisfied in every phase of development. However, it is not always possible to do so, so bidding for the social housing stock for suitable public land plots could be a solution to reach the key TOD target. Besides, the corridor housing strategy could also monitor and adjust the release the land for housing development projects.

Affordable housing stock should be measured by Dwelling Unit (DU) instead of social housing land in the high density mix use area to promote the flexibility in design to match diverse social needs, physical setting and market conditions. The percentage of affordable housing by dwelling unit ratio to commercial ones allows flexible design for different needs on housing (studio, one bedroom, and two or more bedrooms) in vertical building design that fit to TOD with specific income level and social mixture, job and housing ecosystems.

Housing Affordability and Livability Agenda (HALA) An illustration of Top Priority Strategies at Work

Using funds from an expanded housing levy (R.3), and a new Real Estate Excise Tax (R.2) Seattle's Office of Housing funds a non-profit developer to build a new 120 unit affordable housing building for low income individuals and families. Local rental operating subsidies (T.1) are used to make several units available to formerly homeless persons. The building's cost is kept low by changes to the code to maximise economical wood frame construction (MF.5) in the 7 story building, and improved efficiency and predictability in the permitting process (RP.1).

More land is devoted to multi-family housing near transit and services (MF.1), allowing new public/private partnership for multi-family housing on an underused publicly-owned site not previously used for housing (L.1). Part of an extra story (red) in the new building is dedicated to affordable housing through the new Mandatory Inclusionary Housing Program (R.1).

Moderate income homeownership opportunities are created. A community land trust owns the land, and buyers pay affordable prices.

An existing 40 year old apartment building is acquired through the Strategic Acquisition Program (P.1). Renovations are made, rents are restricted to affordable levels, and displacement is avoided.

A 70 year old duplex is replaced by a new privately developed 40 unit apartment building. Part of an extra story (red) is dedicated to affordable housing through the new Mandatory Inclusionary Housing Program (R.1). The builder participates in the expanded Multi-Family Tax Exemption program (R.4) adding even more affordable units in the new building.

Tenant Counselling is provided to renters of the former duplex, helping them access an enhanced Tenant Relocation program so they could find another apartment in the neighborhood. (T.3)

As part of a new comprehensive Preservation Strategy (P.1) a building owner uses a new low cost rehabilitation financing tool to make needed repairs to an aging multi-family building in exchange for an affordability covenant. Affordability of existing units is preserved.

Affordable rental units in an older 4-plex building are preserved, because the owner participates in a new Property Tax Exemption program for preservation (P.3).

A man with a misdemeanor conviction in the past, is finally able to rent a suitable apartment due to Improved Access to Housing for People With Criminal Records (T.1).

In a Single Family area, more variety and flexibility of types of housing are allowed within the scale of a traditional single family neighborhood, including DADUs (red), small duplexes and cottage housing. (SF.1a, SF.2). A moderate income family is able to buy a cottage home at a price they can afford.

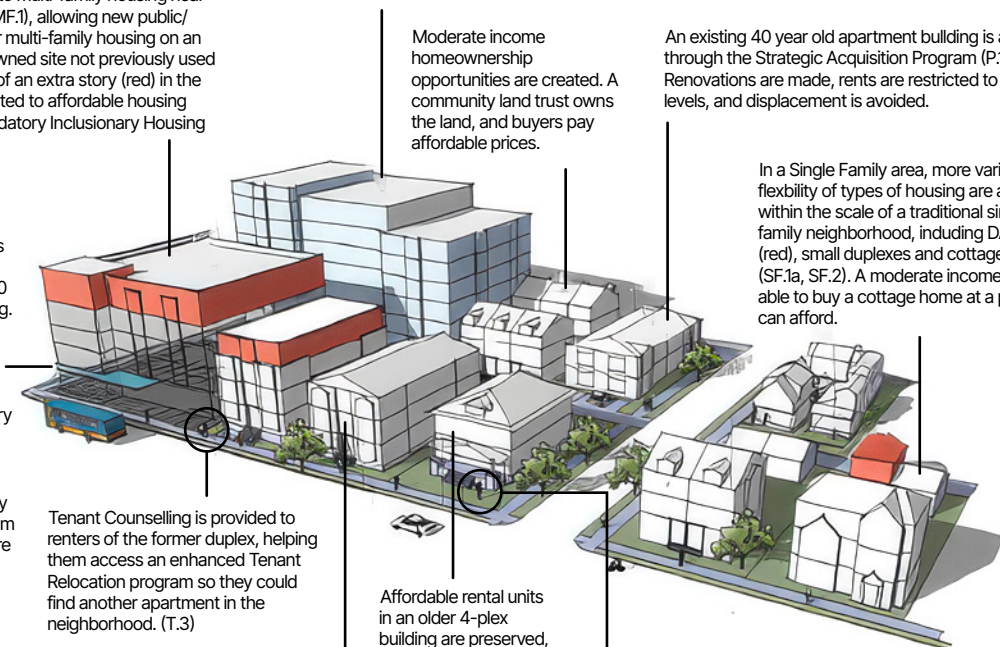


Figure 27: Mixed housing types⁴³

⁴³ City of Seattle. (2015). Seattle Housing Affordability and Livability Agenda: Final advisory committee recommendations to the mayor and city council. https://www.seattle.gov/documents/departments/hala/policy/hala_report_2015.pdf

4.2.8. Guide to implement land reorganisation and land acquisition

Development projects shall use appropriate strategy to acquire land (voluntary or non-voluntary or hybrid) depending on the nature of their development proposals. Also, each project will apply one or combined land value capture tools. The application of value-added capture tools depends on the current land status, planning status, land use levy payment situation, and project development investment model

a. Compulsory purchase

Compulsory purchase (Land Law 2024⁴⁴ – Article 79) is advised to apply to the specific areas (normally in the TOD core layer) where infrastructure or public space/facilities have been identified without alternative solutions, and when project owners are identified together with and detailed plan(s) were adopted (except for some cases can bypass adopted detailed plan).

Project owner(s) could be public entities to implement public investment projects (including preparing land

stock for land auction) or other authorised ones in the Built Transfer (BT) model where strategic investors have been designated.

Negotiation is still advised before compulsory purchases when acquiring land outside of transport & other hard infrastructure space.

b. Negotiation backed by compulsory purchase and land reorganisation

Negotiation with conditional compulsory purchase (when consent level reached 75% – following Resolution 254⁴⁵ of the National Assembly) is advised to apply (normally) in the area where redevelopment is specified as urgent solution and the responsible public authority decided to support this project with high priority. The adopted project reached consent level shall request City People’s Council to acquire the remaining land and hand over to the developer using compulsory purchase method (Land Law 2024 – Article 79).



Figure 28: Land readjustment in the normal area (illustration of land readjustment in Tra Vinh)⁴⁶

⁴⁴ Land Law No. 31/2024/QH15 dated 18 January, 2024 of the National Assembly
⁴⁵ Resolution No. 254/2025/QH15 dated 11 December, 2025 of the National Assembly on stipulating a number of mechanisms and policies to address difficulties and obstacles in the implementation of the Land Law
⁴⁶ Chen, M. and P. T. M. Hoa (2017). RETHINKING LAND READJUSTMENT FROM A GOVERNANCE-CENTERED PERSPECTIVE: THE CASE OF A LAND READJUSTMENT PILOT IN TRA VINH, VIETNAM. Responsible land governance: towards evidence-based approach. World Bank Conference on Land and Poverty.

c. Voluntary acquisition, reorganisation and land pooling and readjustment

Voluntary acquisition or consensus reorganisation are advised to apply to the whole TOD area, especially in the main and extended layers with renewal or beautification transformation strategy and land pooling and readjustment in the renewal areas.

d. Combined land acquisition strategies and split/phased project

Combined strategies can be adopted in one phase initiated by the same project owner. Project phasing

or splitting by land acquisition strategies could be adopted to support both the compulsory purchase in the core/ priority area to develop major infrastructure and consensus building during the later phase to improve local amenities/utilities.

Combined vertical and horizontal readjustment, land swap, PPP, and other Joint Development strategies are recommended to generate flexible solutions to address multiple objectives in the TOD area, including minimising relocation and compulsory purchase measures.

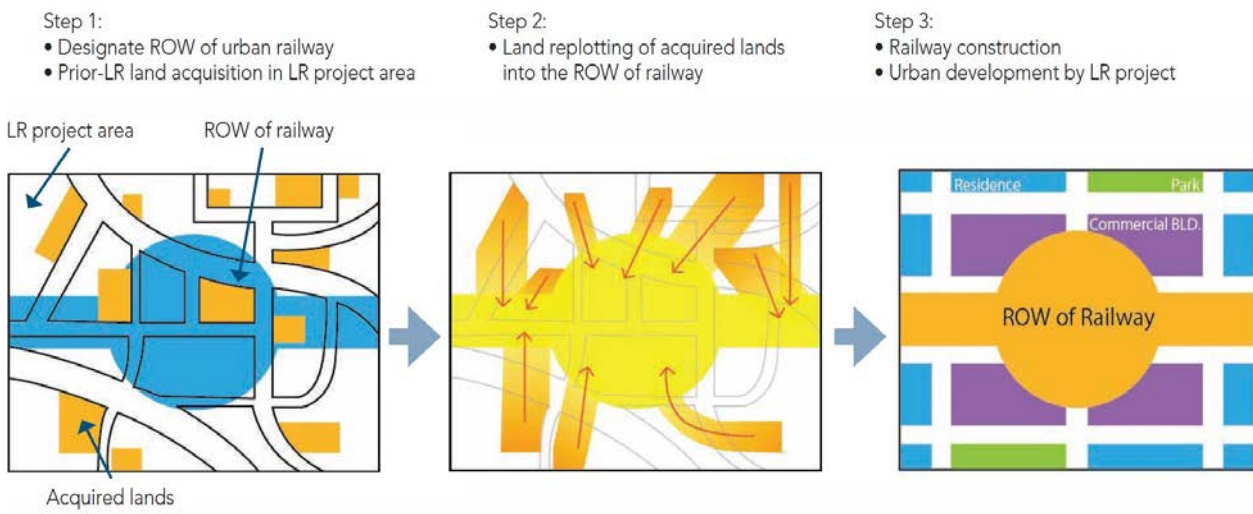


Figure 29: Land readjustment method in Japan – TOD core area⁴⁷

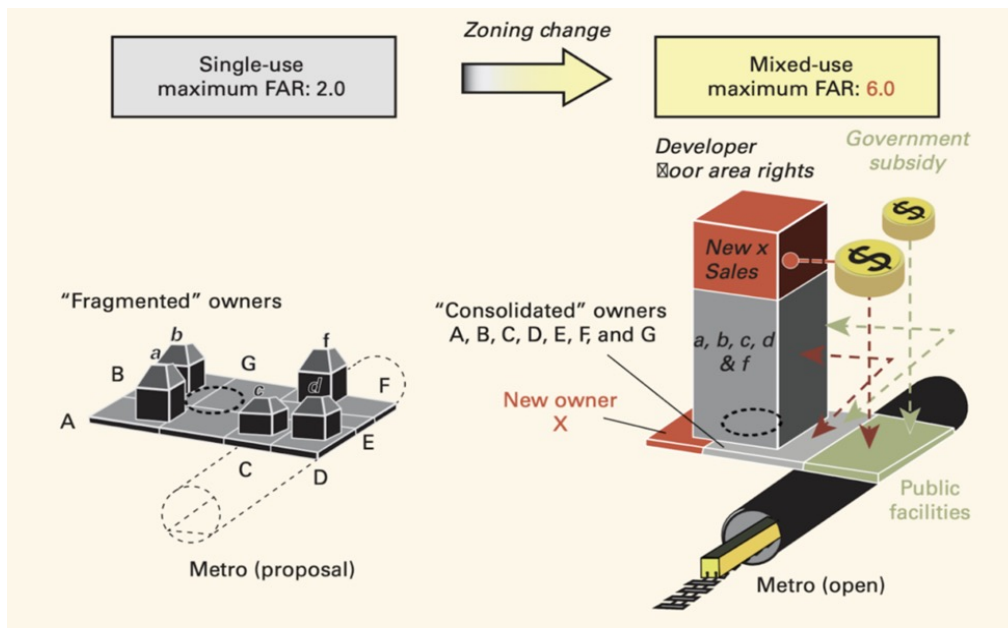


Figure 30: Combined land pooling scheme using vertical and horizontal readjustment to accommodate on-site relocation⁴⁸.

⁴⁷ Matsui, M., et al. (2019). Case study land readjustment in Japan.

⁴⁸ Suzuki and Others (2015)



e. Combined LVC tools

Combined land value capture tools are necessary to make the highest impact with flexible solutions to maximise public interest, relocation communities, and private developers.

4.2.9. Planning adoption

Adoption of the plan shall follow the general rule from planning task (or outline) for the TOD area to the plan, with or without detailed plan for strategic area to acquire land for building and in certain cases, together with projects to support fast-track implementation in the early phase. The boundary of the TOD area (including core area and catalytic/prioritised project) could be revised upon negotiation and modification during the plan making process.

The Appraisal process may go through (i) internal/inter-departmental appraisal, conducted by relevant departments (Planning, Construction, Natural Resources & Environment, Finance...) and (ii) City-level appraisal (carried out by the Council for the Appraisal of Planning Tasks, Urban and Rural Planning

of Ho Chi Minh City) that evaluates key targets and performance targets following the adopted planning task/outline with legal references of performance in the TOD area (see example in Table 17 with criteria).

The Approval of the plan follows the policy guideline/framework of the city, with some exceptions that TOD area may approve partial adjustments if needed in specific areas upon the strategic investors or areas dedicated for Joint Development and renewal area.

After approval: Immediately update into land use plans, general/detailed zoning plans, and publicly disclose with access to the digital document/map to speed up the stakeholder's participation and implementation.

Adjustment can be made with certain criteria follow the same process as new plan preparation but simplified for minor changes. After approval, related plans (land use, infrastructure) must be updated promptly.

Table 17: Example of key targets and criteria for transit-oriented development station-level plan adoption

Group of criteria	Key criteria (for appraisal)	Notes
Boundary and zoning (sub-zones) of the transit-oriented development (TOD) Area	Zone and sub-zone boundaries strategies.	Boundaries of station plaza (including access), sub-zones (if exist) must be approved for land acquisition or other transforming strategies if required.
Floor area ratio (FAR)	FAR by zone or block, with quota (in the overcrowding area).	Flexible adjustment to capture land value from TOD and capacity quota.
Building density	Density by zone.	Follow the design guide.
Building height	Planning code and related plans.	Urban design proposes height by block/layer/zone.
Social infrastructure criteria (green space, education, healthcare, sports, administration)	Reduce social infrastructure (50% land but not social infrastructure space). New demand fit to social infrastructure capacity.	Capacity and access to social infrastructure upon additional building space and new zone demand.
Social and affordable housing	Social housing by dwelling units for social / affordable housing in TOD areas that are integrated into mixed-use functions.	Dwelling units and space/land for social housing ratio (to overall housing supply) matches the corridor strategies and station-level, using a bidding model to maximise social/affordable housing.
Public/open/green space (parks, plazas, public green areas, open spaces)	Minimum public/open space and public green space by % or by sqm, link to emission reduction and climate adaptation.	Ground and over buildings, open/green space alternatives.
Land use functions and mix over space	Mixed-use (residential, commercial services, office, public services). Adjustments and updates of surrounding or relevant plans, temporary land.	Mixed-use can be disaggregated into different levels: building/block/layer.
Population and density	Increase population (e.g. 200–500 people/ha or more in the core zone). Ensure infrastructure load capacity.	Calculated based on public transport capacity, disaggregated by short-stay, permanent and night and day residents to match the technical and social infrastructure.
Technical infrastructure	Matching technical infrastructure to the increasing needs Changes in LOS in TOD and the surrounding (out of the TOD zone) upon additional spatial demand.	Mandatory impact assessment on infrastructure (EIA and TIA by area or by project over targeted term if required).
Transport and accessibility	Prioritise walking/cycling (walking zone) and integrate multimodal (metro, bus and public bike).	How zones and measures match the target active mobility transformation ratio according to objectives.
Environment and sustainability	Green spaces, emission reduction and climate adaptation. Heritage preservation, if applicable.	Mandatory environmental impact assessment.
LVC integration	LVC target, tools and measures integration to the land acquisition, infrastructure and building strategies.	Target of LVC capture, financing, business and development models.

4.3. Mobility, access and intermodal integration

4.3.1. TOD objective

The integration of transport provision with land use and urban design is central to TOD and successful urban rail development. This guidance presents three overarching objectives for mobility, access and intermodal integration that are consistent with the City’s strategy to achieve 50%⁴⁹ public transport mode share in the long-term:

- To ensure transport provision supports the development of TOD areas
- To ensure transport provision enables high ridership on every MRT line.
- To ensure transport provision encourages mode shift from car and motorcycle to sustainable modes.

To achieve these objectives, the needs of the travelling public must be kept in the focus. Designing transport provision to address the needs of the HCMC citizen will enable each TOD area to be more successful, will deliver high MRT ridership, and will encourage mode shift. In support walking, cycling and public transport access be to stations must be encouraged to minimise reliance on private vehicles.

The design and provision of transport in each TOD area should follow an approach of ‘**Vision and Validate**’ rather than ‘**Predict and Provide**’. As ‘Vision and Validate’ ensures that the transport infrastructure required to achieve the mode share target is implemented. Conversely the standard approach of ‘Predict and Provide’ attempts to ease congestion by providing wider roads and larger junctions, this only acts to lock in the high mode share for car and motorcycle use and leads to greater congestion over the medium- and long-term.

The vision is for TOD areas to achieve a high mode share of public transport and walking/cycling to support the City’s goal of 50% public transport mode share and successful urban rail development in the long-term.

Table 18 presents reasonable mode share targets for the TOD areas in the medium- and long-term. The ‘Vision and Validate’ approach requires the transport infrastructure within the TOD area to be designed to facilitate the target mode share. While TOD acts to increase the number of trips in the local area, wider roads and larger junctions are not required to facilitate the additional trips, instead upgraded public transport, walk and cycle facilities will support the greater number of trips, and enable more people, rather than more vehicles, to move through the streets.

Table 18: Target mode share for transit-oriented development areas in the medium- and long-term

	City-wide mode share, 2025 ⁵⁰	Target mode share for the TOD area of influence	
		Medium term, with seven Metro lines (2040)	Long term, with 12 Metro lines (2060)
Car and Taxi	8%	10%	10%
Motorcycle	65%	36%	20%
Metro	0.5%	15%	20%
Bus	1%	10%	20%
Walk	22%	25%	25%
Cycle	3.5%	4%	5%
Public transport as a share of motorised trips	2%	35%	57%

4.3.2. TOD principles

The following principles shape the guidance that relates to mobility, access and intermodal integration:

- **Principle 1: Walkability-first.** Develop a continuous at-grade pedestrian network that provides direct walking routes across the TOD area. Develop streets that are welcoming, inclusive and have cultural interest for quality place making. Create safe and comfortable streets that are accessible to all including those with mobility impairments.
- **Principle 2: Streets designed for sustainable travel.** Create blocks, streets and transport infrastructure that are designed to facilitate and achieve the target mode share for NMT and public transport. Kerbside access and parking proximity prioritise sustainable modes over car and motorcycles.
- **Principle 3: Integrated multi-modal interchange.** Provide a convenient, comfortable and universally accessible interchange between lines and onward connections and last-mile connectivity. Develop and support a prioritised public transport network that provides bus connectivity across the TOD area and provides bus connectivity with the wider city.
- **Principle 4: Functional and safe streets.** Maintain functional streets that enable deliveries, maintenance and emergency access. Access and space provided for the safe and efficient function of stations and multi-modal interchanges.

⁴⁹ Ho Chi Minh City Master Plan 2040, with a Vision to 2060 (Decision No. 1125/QĐ-TTg, signed on June 11, 2025).

⁵⁰ Study team’s estimate based on Ngoc, A.M., et al., (2021). A comparative study on travel mode share, emission and safety in five Vietnamese Cities, *International Journal of Intelligent Transportation Systems Research*. <https://doi.org/10.1007/S13177-021-00283-0>; Duong, B. (2025). HCMC’s first metro line serves 10 million passengers in six months. *The Saigon Times*. <https://english.thesaigontimes.vn/hcmc-s-first-metro-line-serves-10-million-passengers-in-six-months/>; VnExpress (2023). 20 years of ups and downs for Saigon’s buses. VnExpress. <https://e.vnexpress.net/news/business/economy/20-years-of-ups-and-downs-for-saigon-s-buses-4631693.html>

4.3.3. TOD implementation requirements

TM01 – Fine-grain street network: A fine-grain network is a grid of short blocks and frequent intersections that creates direct, flexible, and resilient walking/cycling routes. It reduces detours, spreads traffic across multiple streets, and supports allocating street space to transit and active modes while maintaining adequate access.

TM02 – Complete streets and sidewalk design: Complete Streets means streets are designed for all users (walk, cycle, public transport, and limited private vehicles), prioritising safe sidewalks, cycle facilities, transit lanes/stops, greenery, and active frontages. Sidewalk design should ensure comfort, shade, drainage, universal access, and clear separation of movement zones.

TM03 – Traffic management and traffic calming: A set of measures to reduce vehicle speed and through-traffic in TOD core areas to improve safety and place quality (e.g. low-speed zones, narrowed lanes, raised crossings, curb extensions, filtered permeability, signal timing that reduces speeding and rat-running).

TM04 – Pedestrian priority: Stations and surrounding development must be connected by continuous, safe, barrier-free pedestrian routes with universal accessibility. Priority is given to pedestrians through protected crossings, short crossing distances, minimal waiting time, and removal of obstacles, especially within Core and Primary Zones.

TM05 – Bus provision: Bus services should function as feeders and connectors to rail and key destinations, with appropriate stop locations, bay/layover space, route coverage, and service frequency. Design should enable easy interchange (short walking distance, sheltered waiting, clear information) without blocking pedestrian flows.

TM06 – Parking management and kerbside control: Parking is managed to support TOD objectives by discouraging excessive car use and protecting station access and safety. Tools include maximum parking caps, pricing, shared parking, time limits, resident permits, and strict kerbside rules (no stopping zones, loading windows, enforcement).

TM07 – Cycle access: Provide safe cycling access to stations via connected routes and crossings, plus secure, convenient bicycle parking (short-stay near entrances; long-stay protected/covered). Good cycling access expands the rail catchment and reduces pressure on car parking and drop-off areas.

TM08 – Accessible station design: Stations and approaches must meet universal accessibility: step-free access (ramps/lifts), tactile guidance, audible/visual information, accessible gates, appropriate gradients, and seamless links from surrounding sidewalks and crossings, ensuring independent use by all.

TM09 – Integrated multi-modal connections: The station should operate as a coordinated interchange hub, integrating rail with buses, walking, cycling, micromobility, taxis/ride-hailing, and (where relevant) water/other modes. Integration includes spatial layout, ticketing/info, wayfinding, timed connections, and conflict-free circulation.

TM10 – Freight management: Freight, deliveries and loading is managed to minimise the impact of freight upon congestion and to ensure streets are safe and comfortable for pedestrians. Permitted routes, timings and loading locations are prescribed. With measures to encourage freight consolidation and sustainable last mile delivery.

Details of the above requirements are presented as follows.

TM01 – Fine-grain street network

Guideline intent

To ensure the street arrangement supports a high mode share for walking, cycling, and public transport. During TOD planning, the street network structure and hierarchy are key inputs for shaping the spatial and land-use concept, and for determining the location and design of other transport infrastructure and services (e.g. station access routes, bus interchange, cycle facilities, parking and kerbside functions, servicing, and public realm).

Guideline description

Develop a fine grain street **network** using a block size of less than 150m (or 45+ blocks per sq.-km). A fine grain street arrangement is highly walkable as it provides direct, flexible and resilient route choices. The fine grain also enables sufficient vehicle capacity to be provided by streets where significant carriageway width is allocated to walk/cycle and public transport (Further corroborated by UD13 [Block Structure]).

Good walkability and public transport use, rely on small block sizes and a fine grain street layout, because a high density of streets enables pedestrians to take more direct routes between their origin and destination or to their nearest bus stop. If block sizes are too large, it is hard to later retrofit good walking and public transport provision. Therefore, the first step to developing a TOD area with high public transport and NMT mode share should be to plan a street layout with a fine grain and small block sizes that naturally support walking. [UD12 Permeable Blocks further enhances pedestrian connectivity].

A fine grain street network must be developed for new development sites and remedial measures should be implemented for brownfield sites. For brownfield sites this includes adding through streets and increasing permeability by selectively removing barriers or buildings.

International examples of different grains of street network. From a highly walkable fine grain in Osaka to low grain in Atlanta that relies on cars for mobility.



Figure 31: Grains of street networks in Osaka, San Francisco and Atlanta⁵¹

Plan a hierarchical network of inter-district, district, sub-district and residential roads that avoid dead ends, integrate with roads external to the TOD influence area and integrate with the existing arterial roads (urban expressway, urban arterial). The street hierarchy plan must define the intended function and design speed of each street category.

The street network within the TOD area should encourage through traffic to be handled by arterial roads, with district and residential roads reserved for traffic internal to the TOD area. Traffic to and from the TOD area should be directed towards arterial roads, keeping local TOD streets low-traffic and low-speed.

Inter-district, sub-district, and residential roads should have carriageway widths (building to building) no greater than 30m, with most being 20m wide or less, while ~16m wide is preferred for local

access streets [UD04 Building setbacks relates to carriageway width and the space available for sidewalks]. This supports the human scale for street users: psychological comfort, attractive streets, and safe and practical crossing of streets.

The street network should provide intuitive sight lines and enable direct pedestrian routes between major trip attractors/producers that feature minimal elevation changes to support universal access.

Pedestrianised streets, shared use streets and plazas which relate to high-footfall areas and key pedestrian demand lines should be developed. A freight delivery plan must be developed for such streets to avoid conflicts (see TM10 [Freight management]). All pedestrianised paths that are privately owned must have easement agreements to guarantee 24/7 access.



⁵¹ Boeing, G. (2017). Square-Mile Street Network Visualization. Geoffboeing.com. <https://geoffboeing.com/2017/01/square-mile-street-network-visualization/>

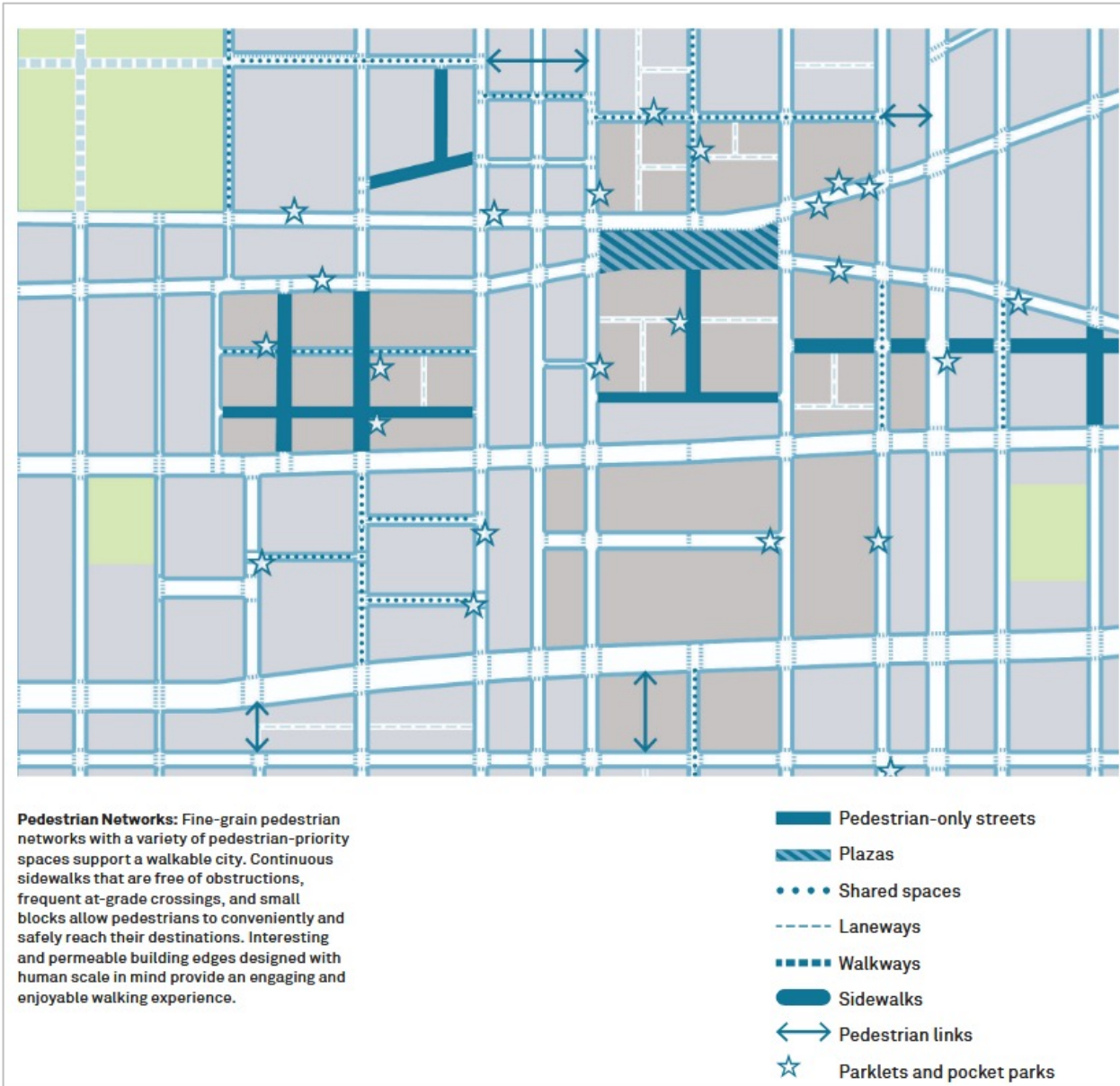


Figure 32: Example arrangement of pedestrianised paths, plazas and shared-use streets⁵²

TM02 – Complete streets and sidewalk design

Guideline intent

The Complete Streets concept increases the carrying capacity of the street by providing more space for walking, cycling and public transport. This enables urban densification without increasing congestion as the street carries more people rather than more vehicles. Wider sidewalks design is integral to the Complete Street concept: it provides sufficient space for pedestrian movements and space for active street use such as cafes, shops (active frontages) and street furniture.

Guideline description

Complete Streets must be implemented in new developments and should be phased-in for brownfield sites. The space provided for general traffic should only comprise between 25% and 45% of the whole building-to-building width. With most building-to-building width reserved for walking, cycling, public transport priority and active street use. This enables the carriageway to carry a large flow of people, rather than a medium flow of vehicles. Streets should be designed to be multi-functional, making them attractive, active places while supporting high pedestrian flows, and high public transport mode share.

⁵² Global Designing Cities Initiative (2016). *Global Street Design Guide*. p75. <https://globaldesigningcities.org/publication/global-street-design-guide/>

The presence of bus lanes on wide roads (e.g. 30m width) should be phased-in following alignment with a new city-wide strategy on public transport improvement and car/motorcycle Travel Demand Management.

Expressways and arterial roads are exempt from the Complete Streets guidance as they handle significant amounts of through traffic.

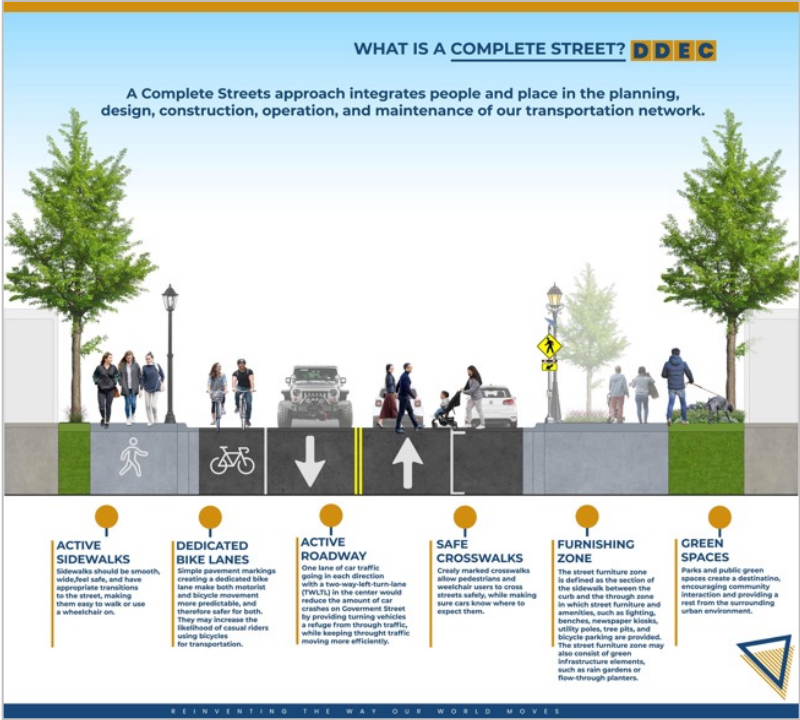


Figure 33: Example of the complete streets concept⁵³

The Figure 34, Figure 35, Figure 36 and Figure 37 present example road space allocations for different building-to-building road widths.

The 30m wide Complete Streets concept features a bus lane, cycle path and wide sidewalk, in this configuration, the two lanes for general traffic, which together comprise 25% of building-to-building width. If no bus lane is present, then general traffic benefits from four lanes, which comprises 45% of building-to-building width.

⁵³ City of Atlanta Beach (2021). Complete Streets: A Primer. <https://www.coab.us/m/newsflash/home/detail/1079>

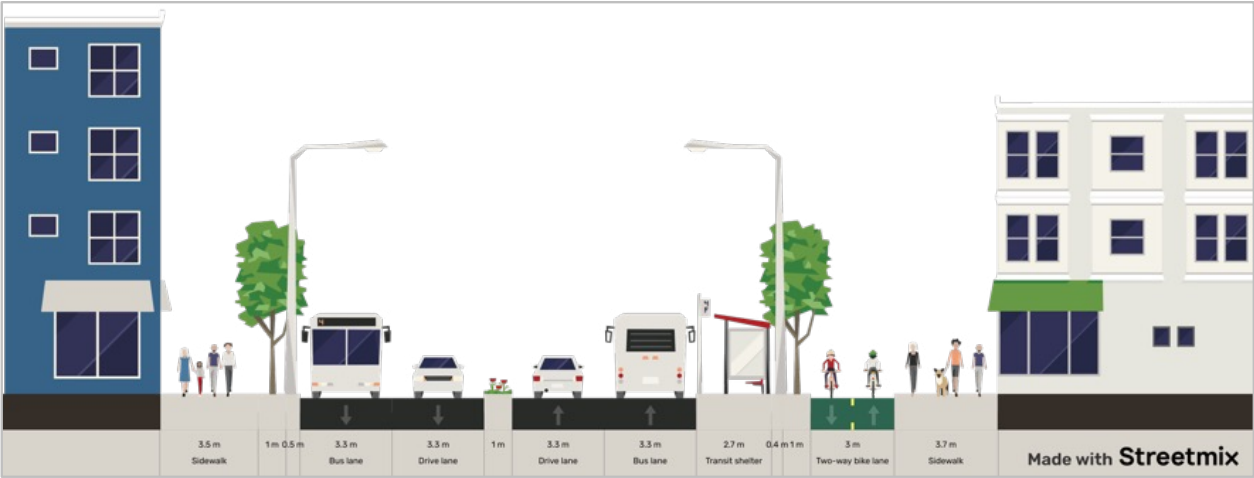


Figure 34: Illustrative carriageway width allocation: 30m building-to-building width, with bus lane and bus stop



Figure 35: Illustrative carriageway width allocation: 30m building-to-building width (no bus lane)

The concept for a 20m wide inter-district road features wide sidewalks, and cycle lanes and two lanes for general traffic, which together comprise 35% of building-to-building width.



Figure 36: Illustrative carriageway width allocation: 20m building-to-building width

The concept for a 16m residential road features wide sidewalks, space which could be used for parking, loading, street furniture or support active frontages such as café and two lanes for general traffic, which together comprise 45% of building-to-building width.



Figure 37: Illustrative carriageway width allocation: 16m building-to-building width

Table 19 shows how a 30m wide street can utilise the Complete Streets concept to support the movement of significantly more people with a lower flow of vehicles and hence less congestion.

Table 19: Comparison of the carrying capacity of a standard vs a complete street in Vietnam

Carrying capacity of a standard 30m wide street				
Mode	Number of vehicles per direction	Passenger car unit per direction	Number of passengers per direction	Mode share (trips)
Car	490	490	730	8%
Motorcycle	4,400	1,305	5,700	65%
Bus	2	5	90	1%
Walk and cycle	-	-	2,300	26%
Total	4,892	1,800	8,820	
Carrying capacity of a 30m wide complete street				
Mode	Number of vehicles per direction	Passenger car unit per direction	Number of passengers per direction	Mode share (trips)
Car	730	730	1,100	11%
Motorcycle	1,900	500	2,200	21%
Bus*	70	170	2,700	26%
Walk and cycle [^]	-	-	4,400	42%
Total	2,500	1,400	10,400	

* Bus includes metro passengers who are accessing the metro by bus

[^] Walk and cycle includes metro passengers who are accessing the metro on foot

Sidewalk design is a key component of the Complete Streets concept. Sidewalks of ample width must be provided on both sides of the road, with the width responding to the activity needs of the street. A minimum width of 3m should be provided on each side of the road for streets that are 16m wide or more. Wider sidewalks are provided on wider streets with a recommended average width of 3.5m on 20m wide streets and a recommended average width of 5m on 30m wide streets. The sidewalk could be wider on one side of the street to accommodate additional street furniture, street activity and active frontages such as cafes.

To reduce street clutter and ensure trading does not encroach into high flow footpath areas, the sidewalk should be split up into three zones: frontage zone, through zone for unobstructed pedestrian movements, and the furniture/greenspace zone for trees, seating and streetlights.



Figure 38: Example of providing an unobstructed pedestrian path alongside trees, street furniture and active frontage⁵⁴

Trees should be planted and maintained along both sides of the street to provide continuous shade, reduce surface temperatures and enhance natural cooling as part of a broader climate resilience strategy. Planting must consider the most appropriate horticultural standards and should be supported by a long-term, sustainable care and maintenance plan that includes watering schedules, pruning cycles, pest and

⁵⁴ Valley Transportation Authority. *Pedestrian Environment*. <https://www.vta.org/cdt/street-design-home-page/pedestrian-environment>

disease management, and replacement protocols to ensure canopy longevity and consistent environmental performance over time. The Global Street Care design guide recommends 1.5m width is provided for tree pits. Tree provision supported by [UD03 Landscape as Critical Urban Infrastructure], [UD05 Landscape Along Main Corridors] and [CR04 Heat Mitigation].

Box 14: Case study: Trees on the street of Barcelona

Barcelona Sant Antoni District. Trees grow on both sides of narrow streets, including streets that are only 16m wide



Figure 39: Tree lined street, Carrer del Parlament, Barcelona⁵⁵

The construction of the sidewalk must ensure an even, well paved surface that prevents puddles from forming. Dropped kerbs must be provided at all crossings for wheelchair access. For significant changes in elevation, shallow ramps should be provided for wheelchair access, in addition to direct steps. Regular seating should be located along street to support those with limited mobility (can refer more at GEDSI02 [Public Space & Walkability] and GEDSI04 [Ramps & Step-Free Access]).

Street lighting must be provided to light for the whole carriageway including the sidewalk and road. Typically, the spacing between light poles is set to be a maximum of 3 times the height of the pole.

The footpath should feature a utilities pipe to remove the need for electrical and communication poles, and equipment that presents on-street obstructions. The roadway should feature a gutter while a covered storm drain should be an integrated part of the footpath design. Shade and stormwater management supports (refer to UD20 [Sustainability])

TM03 – Traffic management and traffic calming

Guideline intent

Traffic management and traffic calming ensures vehicle access, including emergency access, is maintained for streets while lowering traffic flows, lowering junction loads and lowering traffic speeds on TOD streets, thereby encouraging sustainable travel choices and supporting liveability objectives.

Guideline description

A **Traffic Management Plan** must be developed for each TOD area to determine what routes traffic can take through the TOD area. A Traffic Management Plan typically includes the identification of one-way roads, no through roads and restricted turns at junctions to create low traffic streets, filtered permeability, reduced pressure at junctions and to direct traffic onto arterial roads and prevent rat-running through TOD cores.

The Traffic Management Plan expands the Street Hierarchy Network plan defined in TM01 [Fine-grain street network] (that specifies the intended function and design speed of each street) to determine how vehicles can circulate within the TOD area and access every trip locator. The Traffic Management Plan should be developed for the TOD area as a whole because that enables more options for the design of one-way roads and restricted turns. The Traffic Management Plan must be coordinated with land, parking and public transport service provision, as well as updated when urban redevelopment occurs. Local streets may be redesigned as access only (no through-routes for cars), while maintaining full connectivity for walking and cycling.

Measures such as restricted turns and no through routes must be communicated clearly through signage and digital platforms to avoid confusion and support compliance.

⁵⁵ [Google Street View link](#)

Box 15: Case study: Super Blocks in Barcelona

Barcelona Super Blocks use a Traffic Management Plan to reduce through traffic on local roads. Including modal filters and restricting turns at junctions to create low traffic streets that are friendly to pedestrians, cyclists and provide space for leisure or active frontages.



Figure 40: Modal filter and restricted turns on: Carrer del Comte Borrell. Part of Sant Antoni Superblock in Barcelona⁵⁶

Traffic calming measures and safe speed strategies should be implemented on roads within the TOD area to improve road safety, improve comfort for walkers and cyclists and to create a more pleasant environment for on-street activity.

Physical traffic calming measures should ensure actual speeds match posted limits. Physical measures include additional pedestrian crossings, raised zebra crossings, central medians and refuge islands, narrowing the road at junctions, speed humps, chicanes, landscaping and road markings.

Speed limits of 20-30kph are recommended for internal TOD streets, especially around station access points, schools and public spaces. With speed limits clearly communicated. Speed management should be combined with high-quality lighting, clear sight lines and safe junction design to improve safety for vulnerable road users. Traffic calming and low traffic measures support UD06 [Central Core Landscape and Public Realm Identity] and UD19 [Safety and security].

Box 16: Case study: Singapore Friendly Streets

Singapore Friendly Streets initiative is adding pedestrian friendly features to streets to slow down vehicles and to make streets safer and more convenient to cross.



Figure 41: Raised zebra crossing, Ang Mo Kio Street 31 and speed limit and road markings on Jurong East, Singapore⁵⁷

TM04 – Pedestrian priority

Guideline intent

To prioritise safe, direct, and comfortable pedestrian movement throughout the TOD area and particularly to the station entrances. Pedestrian routes should form a continuous, barrier-free, at-grade network that is universally accessible and minimises level changes. This approach ensures that walking is the most attractive mode for short trips within the TOD area and for first/last mile access to the metro.

Guideline description

A continuous and complete at-grade pedestrian network must be developed for the whole TOD area. Supported by permeable blocks (can refer to UD12 [Permeable blocks and seamless connectivity]) This should feature at-grade crossings and avoiding over/under bridges except on highways. Pedestrian crossings should be provided at all intersections and at

⁵⁶ <https://landezine-award.com/sant-antoni-superblock/>

⁵⁷ https://www.lta.gov.sg/content/ltagov/en/upcoming_projects/road_commuter_facilities/friendly-streets.html

least every 200m responding to the placement of bus stops and major trip attractors/producers. Pedestrian crossings may have a wider spacing of 250m on arterial roads (can refer to GEDSI02 [Public Space & Walkability] and GEDSI04 [Ramps & Step-Free Access]).

To prioritise the pedestrian, signalised crossings should use short phase times (60 second cycle time for a medium road or 90 second maximum cycle time for an all-red signal) with crossing refuge/islands provided on wide roads. Consider a city-wide policy to remove the ability to always right turn on a red signal, as this would better support pedestrians to feel safe and unrushed when they get a green man.

Pedestrian crossings should feature suitable tactile paving and high contrast warning surfaces in alignment with GEDSI07 [Tactile Paving, Warning and Guidance] and be designed to maximise pedestrian safety (can refer to UD19 [Safety and security]).

For existing highways, over/under bridges should be added to provide a crossing every 400m responding to the placement of bus stops and major trip attractors/producers. Shallow ramps and direct steps should be provided at over/under bridges.

The preference to use safe at-grade crossings instead of foot overbridges is supported by research conducted by the Centre for Liveable Cities⁵⁸. Their study of perceived walking time in Singapore found that pedestrians perceived foot overbridges to have a value of 4.2 minutes compared to 1 minute of time waiting at a traffic light. They concluded that “clearly the overpass is perceived as a huge impediment to walkability”.

“Bridges inhibit pedestrian movement and hence street life. Detached skywalk structures visually cut up or conceal building facades destroying shop-front value in the process. There should be some prudence in assessing the need to introduce elevated pedestrian walkways. Their use should not dilute the vibrancy of the pedestrian ground level domain. Fundamentally where street-level pedestrian use is suitable, it should not be replaced with elevated walkways.”

Southworth (2005)⁵⁹ argues that the installation of pedestrian overbridges increases the likelihood of accidents, “environments that support fast and efficient auto travel are not enjoyable, safe, or interesting for pedestrians and cyclists, not surprisingly there is much more likelihood of injury or death for pedestrians and motorists”. At-grade crossings are also more accessible to those with

mobility impairments, parents and children, and pedestrians carrying heavy items. While the efficient movement of vehicles should be incorporated into junction design on highways, for city centre roads junction design should enable safer speeds. Where possible safe at-grade crossings should be preferred instead of foot overbridges.

Box 17: Case study: At-grade crossings in Seoul

Despite having many wide roads, Seoul does not feature foot overbridges. Instead, at-grade crossings are features on its wide roads, including some as wide as 12 lanes.



Figure 42: Examples of an at-grade pedestrian crossings on a wide road in Seoul⁶⁰

TM05 – Bus provision

Guideline intent

To ensure that bus services function as an integrated extension of the Metro system, providing routes connect the whole TOD with the Metro station and extend to connections to areas of the city that are not served by Metro. The spatial planning of bus routes, stop locations, and interchange facilities within the TOD area should be coordinated with the street network [TM01], Traffic Management Plan

⁵⁸ Centre for Liveable Cities, 2017. Elevated Pedestrian Linkways – Benefits or Barriers? Available at: <https://www.clc.gov.sg/documents/books/research-workshop/2017/elevated-pedestrian-linkways.pdf>

⁵⁹ Southworth, M., 2005. Designing the Walkable City. Journal of Urban Planning and Development, Vol. 131, No. 4, pp. 246–257.

⁶⁰ Saemunan-ro / Songwol-gil, [Google street view link](#)/ Tongil-ro at Police Memorial Park, [Google street view link](#)

[TM03], kerbside management [TM06], and multi-modal interchange design [TM09] to ensure the TOD area is served by quality public transport services with a high level of service. Ensuring the bus services are accessible for those with mobility impairments supports (GEDSI03 – [Public Transport Connectivity]). Quality bus provision supports to increase public transport mode share.

Guideline description

A network of bus routes should be developed for the TOD area that provide long distance connections as well as comprehensive local accessibility. The bus routes, supported by the street network design [TM01], should be designed such that all buildings within the TOD area lie within 400m walk of bus stop. And that bus stop should be served by a frequent connection to a Metro station (15-minute frequency, or better).

Dedicated bus lanes and bus priority measures should be provided on transit spines that serve high-demand corridors to improve operational speed and maintain a high level of service. These can provide priority through TOD areas and improve travel times to Metro stations. The successful implementation of bus lanes requires an effective enforcement strategy to ensure motorcycles do not encroach the bus lane.

Bus stops should be located every 200m to 400m along a route depending on urban density. Bus stops should include a shelter, seating, lighting and passenger information. The platform height should be raised to improve access for people with mobility impairments. Bus stops must be clearly demarcated and kept unobstructed. Most bus stops should be designed as in-line stops on the running carriageway rather than in bus bays, as in-line stops maintain bus priority, reduce delay caused by re-entering traffic and because buses often fail to fully pull into a bus bay, thereby leaving a gap between the platform and the bus, which disabled users struggle to cross. [GEDSI03 Public Transport Connectivity] further specifies accessibility standards for bus stops.

Passenger information and wayfinding should be provided at bus stops which is coordinated with the wider TOD wayfinding system on criteria UD17 [Wayfinding System].

TM06 – Parking management and kerbside control

Guideline intent

To manage the supply, pricing and location of parking, as well as the allocation of kerbside space, to develop streets that are used for movement and active use, instead of streets where parking takes up valuable road space. To also manage parking provision within the TOD area to support the local

mode share targets.

Guideline description

A **parking management plan** must be developed for each TOD area. On-street parking should be removed or restricted on most inter-district, district and sub-district roads, especially those that form key transit and pedestrian corridors, to free space for wider sidewalks, bike lanes and bus lanes following the Complete streets and sidewalk design concept [TM02]. For residential streets, the quantity and location of parking should be reviewed considering the travel movements that the streets support (TM01 [Fine-grain street network, TM03 [Traffic management and traffic calming]) and the needs of local residents. For new developments minimal on-street parking can be designed in at the beginning. For brownfield sites the removal of on-street parking spaces may need to be phased to align with securing off-street spaces, nonetheless streets with key transit and pedestrian corridors should be prioritised. The removal of on-street parking supports active ground-floor frontage requirement.

Parking charges, or resident permits, should apply for the on-street spaces that remain, and a number of spaces demarked for disabled users in support of [GEDSI04 Ramps & Step Free Access].

Maximum (not minimum) parking standards must be set for new developments, with the overall number of spaces limited to align with the target mode share and align with target density/FAR. New buildings should unbundle the parking cost from rents/prices so users see the real cost of car ownership and use.

The provision of shared off-street parking facilities will support the removal of on-street spaces. Off-street facilities could be concentrated in a limited number of shared/centralised facilities rather than scattered small lots, to reduce traffic circulation and land take. These facilities could be located at TOD entrances to encourage walk and micromobility for the last mile. Dynamic parking pricing could be applied to manage demand, discourage long-stay commuter parking, and prioritise short-stay or shared parking where appropriate.

The approach to parking provision should vary by typology:

Table 20: Transit-oriented development typology and approach for parking design

TOD typology	Approach
1. Central city TOD	Near-zero parking; full reliance on public transport, walking and cycling.
2. Sub-centre (secondary): Strategic economic hub/satellite TOD	Moderate parking based on employment function.
3. Third-level TOD: Local centres/suburbs/station areas with major interregional connections	Initial minimum parking transitioning to reduced parking as public transport improves.
4. Favourable redevelopment TOD	Reduce parking, prioritise shared parking.
5. Enhancement station TOD	Focus on implementing maximum standards for new developments.
6. Specialised centre TOD	Event-based temporary capacity; crowd management.

A **kerbside management strategy** must be developed for each TOD area to minimise roadside friction, support the movement of public transport, improve road safety especially for pedestrians while maintaining access for deliveries, taxis and emergency vehicles. Active kerbside management also supports active ground-front frontage environment required by UD11 [Podium, Building Ground Floors and Direct Building Connecting].

Kerbside space within the TOD area should be allocated according to the following priority order: (i) No stopping near junctions; (ii) pedestrian safety at crossing points; (iii) bus stops and public transport operations; (iv) cycle and micromobility parking; (v) taxi and ride-hailing pick-up/drop-off; (vi) regulated loading and delivery; (vii) managed motorcycle parking; (viii) managed car parking.

No parking, bus stop or vending should be permitted within 20m of any junction on both the approach and departure sides. Junction protection zones should be clearly marked and consistently enforced. Bus stops should be kept unobstructed at all times. No parking, vending, or loading should be permitted within the length of the bus stop clearway.

Where demand for kerbside access is high, time-based controls could be applied to ensure different users can be accommodated across the day. For example, loading and delivery may be permitted during early morning and late evening hours (e.g. before 7am and after 9pm), with the same kerbside space reallocated to short-stay parking, taxi pick-up/drop-off, or pedestrian-priority uses during daytime hours.

Designated pick-up and drop-off points should be provided for taxis and ride-hailing services at locations that do not obstruct bus stops or pedestrian routes. Geofencing technology should be used to direct ride-hailing vehicles to designated pick-up/drop-off zones rather than allowing ad hoc kerbside stopping.

Spaces for street vending should be provided if appropriate for the street's purpose. Formal vending zones should be demarked that do not obstruct pedestrian thoroughways, bus stops, or station access routes.

TM07 – Cycle access

Guideline intent

To provide facilities for cycling, including a public bicycle sharing system to act as a first mile/last mode for the Metro stations (refer to UD18 [Last-Mile Infrastructure and Facilities (Pedestrian + Cycling + Shared Mobility)]), and to serve shorter trips within the TOD area.

Guideline description

Provide cycle parking at Metro stations and key trip attractors. Ideally provide short-stay cycle parking (open racks or stands) located within 30m of station entrances for quick access, and long-stay parking (covered, secure enclosures or lockers) provided for commuters. Cycle parking should be located at ground level and directly visible from pedestrian routes. New developments within the TOD area should be required to provide secure cycle parking at a rate proportionate to floor area and use.

A network safe cycling routes should be provided through the TOD area, providing direct access to Metro stations. Cycle routes should be physically separated from motor traffic on wider roads and designed to co-exist safely with pedestrian paths without compromising walkability required by TM04 [Pedestrian Priority], GEDSI02 [Public Space & Walkability] and maintaining disabled access as in GEDSI04 [Ramps & Step-Free Access].

The Public bicycle sharing system should be expanded such that docks are located at the Metro station, bus interchange points and throughout the TOD area, considering the location of major trip attractors. A high density of shared bikes is required for system success. With e-bikes preferred as more appropriate for the climate of HCMC. Payment should be integrated with the Metro fare system through a common smart card or digital payment platform (MaaS). Transfer discounts should be offered for trips combining cycle hire and Metro, following the model of Taipei's EasyCard integration where passengers receive a discount when transferring between YouBike and Metro.

Cycle route wayfinding with bike-share dock location signage should be integrated into the wider TOD wayfinding system (refer to UD17 [Wayfinding System]).

Box 18: Case study: Taiwan YouBike integration with the metro

While use of HCMC's public bicycle sharing system has declined since inauguration in 2022, the success of Taiwan's YouBike system⁶¹ demonstrates how a public bicycle sharing system that is well integrated with the Metro can achieve high cycle ridership, mode shift from motorcycle, and serve the first/last mile needs for a significant number of metro passengers⁶². In 2024, YouBike demand in Taipei had grown to 117,000 YouBike trips per day⁶³, while in Kaohsiung 40% of YouBike users had shifted modes from motorcycle⁶⁴.

TM08 – Accessible station design

Guideline intent

To ensure that the location, layout and design of metro stations optimise pedestrian access and integration with adjacent land-use. To locate the station to minimise barriers between platforms and the surrounding street network and to ensure universal accessibility.

Guideline description

The station location and design must be optimised for pedestrian access and align with the design standards for disabled access as required in GEDSI04 [Ramps & Step-Free Access]. The station could be located so that it bridges an intersection, or other barrier to enhance ease of access to/from the station and reducing the number of crossings that are required to access the station.

Where two lines meet, the platforms should be located as close to each other as possible, connected as a single station, ideally with no need to exit and re-enter turnstiles when changing lines. A walking distance of 200m or less from the middle of each platform is recommended. As metro lines are typically built sequentially (one by one), this requires consideration for the placement of the first set of platforms, to later accommodate the platforms for the second line.

Pedestrian access must be planned alongside the platform height and location, to ensure easy access to platforms and easy interchange between platforms with minimal floor changes. For elevated stations, it is recommended that the ticket hall/concourse located on level 2, with the metro line on level 3, and the intersecting line on level 4. For all stations, the number

of floor changes to move from platform to street should be minimised: ideally only two floor changes from platform to street level with adequate provision for disabled persons to move between station levels. The accessibility standards for elevators and escalators should follow the requirements in GEDSI05 [Elevators].

Box 19: Case study: Station design

Station bridging intersection or other barrier:



Figure 43: Quirino Station, Manila LRT1, Armenia Station: Sao Paulo line⁶⁵

Stacked platforms for easy interchange:



Figure 44: Hoeryong Station: Seoul Line 1 and Uijeongbu LRT⁶⁶

Ensuring direct station access is important for both elevated and underground Mass Rapid Transit (MRT) systems. For underground stations, ticket halls should be reached via a network of underground concourses and pedestrian passageways that safely span major intersections. Similarly, for elevated stations, sky bridges and elevated walkways should provide direct, weather-protected routes across roads and from adjacent buildings to the ticket hall, with lifts and escalators providing vertical access from the street.

There is an important distinction between overbridges/underpasses that access the ticket

⁶¹ EBRD Green Cities Policy Tool <https://www.ebrdgreencities.com/policy-tool/taipei-bike-sharing-system-%E2%80%92-youbike/>

⁶² YouBike Statistics 2026 <https://www.youbike.com.tw/region/taipei/operation/>

⁶³ Taipei City Government News 2024. *YouBike 2.0E+ Opens Green Commuting Era for Taipei and New Taipei* https://english.dot.gov.taipei/News_Content.aspx?n=3C4F5FC3FD2929A0&s=5CBA83FEEF83AC8E

⁶⁴ Hsin Yen Hsiao 2022. How did Kaohsiung become the YouBike capital of Taiwan? <https://english.cw.com.tw/article/article.action?id=3251>

⁶⁵ Left image source: Airbus, Maxar Technologies. Accessed online at: <https://maps.app.goo.gl/V4eBqk5HXwYpifjs8>; Right image source: Airbus, Maxar Technologies, Vexcel Imaging US, Inc. Accessed online at: <https://maps.app.goo.gl/2nZ6BoKqxE9JfET49>

⁶⁶ Left image source: Airbus, Maxar Technologies. Accessed online at: <https://maps.app.goo.gl/AEJ4FrJauv3fvPCB9>; Right image source: Map data from OpenStreetMap and its contributors. Data is available under Open Database License

hall of a metro station directly and overbridges/underpasses that solely cross over a road. TM04 [Pedestrian Priority] argues strongly against overbridges/underpasses that solely cross over a road, because an at-grade crossing is typically best for pedestrian priority, pedestrian safety and disabled access (refer to TM04 [Pedestrian Priority] and GEDSI04 [Ramps & Step-Free Access]). However, a metro station ticket hall is often located above or below ground, therefore a change in level is required in any case, in this situation overbridges/underpasses that directly access the ticket hall are of benefit.

The total number of exits should correspond to the station's typology and projected ridership, starting with a minimum of four and potentially increasing to ten or more at major transport hubs. Finally, stations must be designed for user comfort, featuring sufficient seating, waiting areas, and public toilets: accessibility standards as in GEDSI08 [Accessible toilets & Caregiver support].

the metro station and adjacent developments such as shopping malls, civic centre or condos.

Underpasses and overpasses may be integrated with shopping and other facilities, so long as sufficient width is maintained for an unobstructed pedestrian path. Overpassed/underpasses should be lit and protected from the weather and feature sufficient drainage, with enclosed routes airconditioned and accessible 24/7. Through block easement included in land use permissions: J-Walk Singapore presents a good example. The provision of elevated or underground connections to the station must not replace the provision of at-grade crossings to station entrances.

Effective signage and wayfinding is required to direct people through shared colonnades and how to correctly move around the station as in UD17 [Wayfinding System] which adheres to accessibility design standards as in GEDSI06 [Signage and Wayfinding].

Box 20: Case study: Intersection in Seoul

Underground passageways connect all sides of an intersection:



Figure 45: Seodaemun Station, Seoul Line 5⁶⁷

The station should be integrated with adjacent developments through shared concourses and colonnades in alignment with UD14 [Underground Development and Air Rights] and UD12 [Permeable Blocks and Seamless Connectivity]. Underpasses and skyways should provide direct connections between

Box 21: Case study: Concourse connecting station

Concourse connecting station to major developments:



Figure 46: Kashimada Station, Tokyo, Nambu Rail Line⁶⁸

The ticket hall at elevated Peya Lebar station is directly connected to the adjoining shopping malls via skyways.

Concourses connecting station to adjoining developments:



Figure 47: Paya Lebar Station, Singapore⁶⁹

⁶⁷ Map data from OpenStreetMap and its contributors. Data is available under Open Database License
⁶⁸ Left image source: 2026 Airbus, Maxar Technologies. Accessed online at: <https://maps.app.goo.gl/fBMEgYfBTv99sE6> ; Right image source: Map data from OpenStreetMap and its contributors. Data is available under Open Database License
⁶⁹ Left image source: Airbus, Maxar Technologies. Accessed online at: <https://maps.app.goo.gl/XjjWnxYk6pZZoAQ9> ; Right image source: Singapore Street Directory. Accessed online at: <https://www.streetdirectory.com/asiatravel/singaporemap/>

TM09 – Integrated multimodal connections

Guideline intent

To design the station and its immediate surroundings as a coordinated multi-modal interchange where transfers between metro, bus, cycling, shared mobility, taxi, ride-hailing, and walking are short, intuitive, comfortable, and universally accessible. The convenience of interchange is a decisive factor in to achieve mode shift from motorcycles to public transport. The convenient transfer to onward and last-mile modes at the station is critical to enhancing MRT ridership and sustainable mode share (refer to UD18 [Last-Mile Infrastructure and Facilities (Pedestrian + Cycling + Shared Mobility)]).

Guideline description

The station, station plaza and immediate streets should be designed to support a modal hierarchy of access, with priority given in the following descending order: Pedestrians, Cyclists, Public Transport, Shared mobility, Delivery, Private cars. The station plaza and interchange area should also be designed to accord with the public real identity of the core zone as in UD06 [Central Core Landscape and Public Realm Identify].

Dedicated kerbside space must be provided for Bus stops, BRT stops, and shuttle bays, Taxi and ride-hailing pick-up/drop-off, Delivery and logistics access, Emergency access.

Larger multi-modal interchanges should feature a bus terminal that adjoins the metro station. TOD may provide an opportunity to site an integrated bus terminal within transit malls. Bus terminals including layover and charging facilities would help to facilitate a more comprehensive bus network in the city.

All multi-modal connections should be designed to ensure universal accessibility design standards (refer to GEDSI03 [Public Transport Connectivity], GEDSI09 [Bus Stops & Interchange Points]).

Multi-modal wayfinding including passenger information and signage is required at the interchange to help passengers to quickly and safely change modes as in UD17 [Wayfinding System].



Figure 48: Examples of bus terminals that adjoin the metro station⁷⁰

A key objective for the development of a metro network and TOD in HCMC is to engender a mode shift from motorcycle to MRT. It is anticipated that motorcycle use would continue as a feeder mode in more suburban locations, therefore motorcycle parking should be provided at suburban stations with parking payment attached to metro ticket. Central business district (CBD) stations typically located underground do not feature motorcycle parking as last-mile is performed on foot, bus or shared transport.

Park and Ride provision for cars should also be provided for metro stations on the city edge or greenfield area.

TM10 – Freight management

Guideline intent

To manage the routing, timing, and method of freight deliveries within the TOD area so that goods movement supports pedestrian safety, public transport operations, and street liveability. Freight and deliveries are essential to the economic function of any urban area, but unmanaged delivery activity can generate kerbside conflict, pedestrian obstruction and congestion.

⁷⁰ Left image source: Kaarvens 2015. Accessed online at: <https://kaarvens.wordpress.com/2015/06/02/building-design-consultants/>; Right image: Airbus, Maxar Technologies, Vexcel Imaging US Inc. Accessed online at: <https://maps.app.goo.gl/YWc4fEFcZGVDuEz49>

Guideline description

A freight management plan must be developed for each TOD area, integrated with the traffic management plan in TM03 [Traffic management and traffic calming] and land use plan in LU01 [Preferable and non-preferable land use types]. The freight management plan should define permitted delivery routes, designated loading locations, delivery time windows, and permitted vehicle types for each street within the TOD area. The plan should be developed in consultation with local businesses and logistics operators to ensure operational viability and aligned with active-ground floor requirements as in UD11 [Podium, Building Ground Floors, and Direct Building Connecting] and underground servicing access required in UD14 [Underground Development and Air Rights].

Dedicated freight routes should be defined to direct delivery vehicles to and through the TOD area via arterial and district roads, minimising penetration into pedestrian-priority streets and Core Zone streets. Freight routes should avoid streets with bus priority lanes and primary pedestrian corridors in support of pedestrian safety (refer to UD19 [Safety and Security]). Where freight vehicles must access Core Zone destinations, they should be routed via designated access points.

Demarcated loading bays should be provided along commercial streets, located to avoid conflict with bus stops, pedestrian crossings, cycle routes, and junction sight lines. Loading bays should be time-restricted to prevent all-day occupation.

Delivery time windows should be applied on key pedestrian and transit corridors within the TOD area to separate freight movements from peak pedestrian and public transport activity. On pedestrianised streets and shared-use zones, deliveries should be restricted to early morning and late evening time windows.

New developments within the TOD area should be required to provide on-site loading and servicing facilities including vehicle access, turning space, and goods lifts so that deliveries can be made without kerbside loading on public streets.

Urban consolidation centres and micro-distribution hubs should be encouraged at the edge of, or within, TOD areas to reduce the number of individual delivery vehicle movements on local streets. Last-mile deliveries should progressively shift from conventional trucks and motorcycles to cargo bicycles.

4.4. Urban design and public realm for transit-oriented development planning

4.4.1. TOD urban design objective

The overall spatial structure of TOD areas should create safe, legible and attractive station environments

that prioritise walking, support interchanges, and encourage transit-oriented activities.

4.4.2. TOD urban design principles

Principle 1: Station-centred development and public transport priority

At the heart of Transit-Oriented Development is the principle of station-centred design, where the public transport station serves as the undisputed spatial core. All other urban elements — including public spaces, pedestrian routes, landscape corridors, and major functions — must be structured to orient toward the station, ensuring convenient, safe, and attractive pedestrian access. To achieve this, stations must be embedded within a continuous and connected pedestrian network, and adjacent buildings must be designed to positively contribute to the station's public realm and access routes. Consequently, the public spaces immediately surrounding the station must be meticulously planned to prioritise clear navigation, safety, and efficient pedestrian movement above all else.

Principle 2: TOD as a development coordination tool

TOD should be understood as a dynamic development coordination tool rather than a static zoning diagram. Its purpose is not simply to “build more around stations,” but to strategically optimise the relationship between public transport, land use, public space, and mobility behaviours. A clear spatial structure is essential to achieve this, guiding development to balance high density with sufficient public space, avoid conflicts in station access traffic, and ensure new projects are integrated and mutually supportive. By functioning as a strategic framework, this structure provides a unified logic that guides all subsequent detailed plans, investment projects, and architectural designs, ensuring coherence even when implemented in different phases or by various developers.

Principle 3: TOD as an integrated urban ecosystem

TOD areas should be conceived as integrated urban ecosystems where public transport provides the “backbone,” public space acts as the “binding agent,” and buildings deliver the “functional content.” The success of this ecosystem is not measured by the number of high-rise buildings, but by how effectively it enables residents to live, work, shop, and travel within a compact area without relying on private vehicles. In a complex urban environment like Ho Chi Minh City, achieving this ideal requires a careful balancing act. Planners must manage the relationship between new development and the existing urban fabric, align development with infrastructure capacity and the feasibility of phased investment, and reconcile public interests with private development incentives.



Figure 49: Illustration of station-centred development; public transport, bicycle and pedestrian priority, compact development and mixed-use integration⁷¹

4.4.3. Urban design targets

UD01 – Orientation of overall spatial organisation:

Define the overall layout and development direction to structure movement, views, and key activity anchors.

UD02 – Three-layer spatial structure: Organise the area into layers with clear roles, intensity, and design rules.

UD03 – Landscape as critical urban infrastructure: Use green/blue systems to deliver drainage, cooling, biodiversity, and comfort.

UD04 – Building setbacks: Set minimum setbacks to secure sidewalks, trees, utilities, safety, privacy, and daylight.

UD05 – Landscape along main corridors: Require continuous street trees, shade, and planting along primary streets to improve comfort and identity.

UD06 – Central core landscape and public realm Identity: Create a signature public realm in the core with consistent materials and character.

UD07 – Open space system and minimum open space ratios: Define a connected open-space network and minimum open-space provision per plot/area.

UD08 – Building coverage control: Limit building coverage to protect open space, ground permeability, access to sunlight, and microclimatic performance.

UD09 – Promote higher Floor Area Ratio (FAR): Encourage efficient use of land through appropriate FAR, while controlling building coverage, setbacks, and spacing between buildings, and ensuring consistency with infrastructure capacity.

UD10 – Building height, form, and microclimate: Control building height, step-backs, and massing to reduce overshadowing, ensure adequate ventilation, and provide a street environment with a human-scale proportion and favourable microclimatic conditions.

UD11 – Podium, building ground floors, and direct building connecting: Require podiums and ground floors to create active and vibrant frontages that are open, accessible, and well-integrated with the public realm through façade design, entrances, and services; integrate services and parking to support street activity, safety, and pedestrian attractiveness.

UD12 – Permeable blocks and seamless connectivity: Provide direct, barrier-free links between station, blocks, and key destinations, avoid superblocks.

⁷¹ New Carrollton Station in Maryland, USA. Dunsmore, J. (2024). Introducing the Gensler TOD Opportunity Index. Gensler Research Institute. <https://www.gensler.com/blog/gensler-transit-oriented-development-opportunity-index>.

UD13 – Block structure: Set block size and permeability standards for walkability, connectivity, and development flexibility.

UD14 – Underground development and air rights: Regulate basements/underground links and above-station development rights to optimise land use.

UD15 – Housing structure: Define housing types, tenure mix, affordability, and unit diversity to support inclusion and demand.

UD16 – Identity – heritage – urban aesthetics/ landmark buildings: Protect heritage and define landmark/identity elements to strengthen place character.

UD17 – Wayfinding system: Establish a clear signage and legibility system for easy station and district navigation.

UD18 – Last-mile infrastructure and facilities (pedestrian + cycling + shared mobility): Provide safe, continuous sidewalks and cycle routes, secure parking, and designated shared-mobility/Pick-Up-Drop-Off areas to complete station access

UD19 – Safety and security: To ensure the creation of a safe, visible and no traffic conflict environment within the TOD area, fostering a sense of security and comfort for all user groups.

UD20 – Sustainability: Apply measurable green design requirements (shade/trees, stormwater management, energy efficiency, low-carbon materials) to improve comfort, resilience, and emissions performance.



UD01 – Orientation of overall spatial organisation

The purpose of orienting the overall spatial organisation is to define the overall layout and principal development directions in order to structure movement, views, and key activity anchors.

Table 21: Orientation of overall spatial organisation by transit-oriented development type

Transit-oriented development typology	Spatial organisation orientation
(1) Central City TOD (Main urban centre with national and city-level administrative, commercial and cultural functions (including new development areas))	Extremely high-intensity activity centre; compact, multi-level spatial structure; absolute priority for pedestrians
(2a) Sub-Centre (secondary)/ Strategic economic hub/ Satellite TOD (Secondary centres support the city’s multipolar urban structure and large job clusters.)	District/regional centre with high density; balanced jobs–housing structure
(2b) Sub-Centre (secondary)/ Strategic economic hub/ Satellite + Inter-regional station TOD	Transportation–economic hub; enhanced transferring spaces and services
(3) Third level TOD local centres/suburbs/ station areas with major interregional connections;	Peripheral/local centre of moderate or high density, serving surrounding neighbourhoods and improving job opportunities; Some areas have interregional transport connections.
(4) Favourable redevelopment TOD in existing urban areas with strong economic potential and high feasibility for redevelopment.	Improvement of existing structure with controlled densification
(5) Station node enhancement in existing urban areas that are already quite uniformly developed has little potential for redevelopment, or in areas that are less economically attractive for redevelopment, thus requiring a greater role from the state.	Enhance development around the station gradually, prioritising improvements in accessibility, transport quality, and public spaces, allowing for the highest possible FAR to encourage redevelopment.
(6) Special-functional hubs	Spatial organisation tailored to specific functional requirements

TOD Type

Spatial Organisation Orientation



Figure 50: Yonge Street (Toronto, Canada) and the TOD along it⁷²



Figure 51: Example of TOD as Suburb/Community Centre Boro Park, Tysons, Virginia, USA⁷³



Figure 52: Example of TOD as Special-Functional Hub – The metro station connects to the stadium area (Denver, Colorado, USA)⁷⁴

UD02 – Three-layer spatial structure

The purpose of establishing a three-layer spatial structure is to organise the area into distinct layers with clear roles, intensity, and design rules.



Figure 53: TOD boundary⁷⁵

⁷² <https://forums.sailinganarchy.com/threads/random-picthread.223803/page-1990>
⁷³ <https://dc.urbanturf.com/articles/blog/145-luxury-condos-anchor-tysons-first-walkable-community/14492>
⁷⁴ <https://www.ca-city.com/tod-station-area-plans/2024/3/1/edmonton-metro-pp3nr-llmww>
⁷⁵ GCIEP research team

TOD areas are structured into three spatial layers with distinct roles, densities, and functions, decreasing with distance from the station. Boundaries between layers may be flexibly adjusted based on street networks, neighbourhood boundaries, functional zones, or natural features.

Layer 1: Core zone area (0–300m from the station)

This is the highest-activity zone, including the station, central plaza, main commercial streets, and high-density mixed-use developments. The core area shall prioritise pedestrians, restrict through traffic, and provide high-quality public spaces.

Layer 2: Primary zone high density mixed-use area (300–600m)

This zone directly supports the TOD core, with a balanced mix of housing, commercial, office, and urban services. Building massing and density should be softer than in the core but sufficiently high to sustain public transport efficiency.

Layer 3: Extended zone- transitional/influenced buffer area (600–1,000m)

This zone transitions toward surrounding residential areas, accommodating high-, medium-, and low-rise housing, public facilities, and green spaces, ensuring walkable and bicycle access to the station.



Figure 54: TOD along Rosslyn-Ballston corridor (Arlington County, Virginia, USA)⁷⁶

UD03 – Landscape as critical urban infrastructure

The purpose of treating landscape as critical urban infrastructure is to use green and blue systems to deliver drainage, cooling, biodiversity, and comfort.

Landscape in TOD areas is not merely decorative; it functions as critical urban infrastructure that directly shapes residents’ willingness to walk, the duration of stay within the TOD environment, the urban

identity and attractiveness of commercial and service activities, microclimate regulation, and the orientation and flow of movement.

In practice, high-density TOD can only operate effectively when high-quality landscape and public realm design compensates for development intensity by improving comfort, legibility, and place value. Landscape investment should therefore be treated as an investment in TOD performance rather than a secondary or optional cost.



Figure 55: Illustration of high density TOD area⁷⁷

UD04 – Building setbacks

The purpose of regulating building setbacks is to secure minimum setbacks for footways, trees, utilities, safety, privacy, and daylight.

Building setbacks are a critical buffer between private structures and the public realm. In TOD areas, they should not be empty space but instead be effectively utilised to enhance the pedestrian environment with greenery, weather-protective canopies, outdoor commercial activities, and public amenities. Setback regulations must be tailored to the context, corresponding to the street width, its position in the road hierarchy, and the intensity of pedestrian activity.

⁷⁶ https://en.wikipedia.org/wiki/Value_capture
⁷⁷ The central park next to a metro station, Transbay Transit Center, San Francisco, California. Fullmetal2887 (2018). https://commons.wikimedia.org/wiki/File:Salesforce_Park_and_bus_bridge,_seen_from_Salesforce_Tower.jpg; The streetscape and facades are vibrant and pedestrian-friendly. Seen in: Painter, A.A. and Suchicital, B.S., (2023). Fairfax County Approves Redevelopment of West Falls Church Metrorail Station Site. Walsh, Colucci, Lubeley & Walsh. <https://thelandlawyers.com/fairfax-county-approves-redevelopment-of-west-falls-church-metrorail-station-site/>

Table 22: Building type and minimum setback requirement

Building/area type	Minimum setback requirement
High-rise buildings (nine or more storeys)	A minimum setback of 6m is mandatory, consistent with national construction standards.
Low-rise buildings (in new or regenerated areas)	The combined width of the sidewalk and the building setback shall be at least 5m.
Outer transit-oriented development zones (layers 2 and 3)	A combined sidewalk and setback width of 6m is encouraged to enhance public space.
Specialised centres	Must adopt context-specific layouts while adhering to the general setback principles outlined above.

The thoughtful design and regulation of setbacks are fundamental to the success of a TOD, as they directly influence:

- **Sidewalk quality:** Creating ample space for a comfortable and safe pedestrian experience.
- **Ground floor activation:** Providing the necessary area for cafes, retail displays and other activities that create a vibrant street life.
- **Building–public space interaction:** Defining a clear yet inviting transition between private buildings and public areas.

In established urban areas, setback requirements for new projects serve as a key tool for incremental improvement. They allow planners to:

- **Gradually improve the street frontage** over time as properties are redeveloped.
- **Create new public space** without requiring large-scale land clearance or acquisition.
- **Mediate the relationship** between new, larger buildings and the scale of the existing neighbourhood.



Figure 56: Setback for connecting people and places⁷⁸



Figure 57: Vibrant building setback in Central Park Station, Stapleton, Colorado, USA⁷⁹

UD05 – Landscape along main corridors

The purpose of providing landscape along main corridors is to require continuous street trees, shade, and planting along primary streets in order to improve comfort and identity.

- Main corridors within TOD areas shall be designed as **multi-functional urban boulevards**, prioritising pedestrians, with shade trees, bicycle lanes, and active, good rhythm and easy to be recognised building frontages.
- Road cross-sections must balance traffic movement, greenery, commercial activity, and resting spaces. Sidewalk continuity should be maximised and minimally disrupted by vehicular access points.
- Materials, lighting, and planting should follow a coherent logic to establish a consistent street identity. Building façades should contribute to rhythm and legibility.
- These corridors often define the visual identity of TOD areas and therefore require priority in design investment and management control.

⁷⁸ Rios. Downtown Houston Public Realm Action Plan: Connecting People and Places in Downtown Houston. <https://www.rios.com/projects/downtown-houston-public-realm-action-plan/>

⁷⁹ Building Dialogue (2018). Placemaking Between Downtown and Suburbia. Colorado Real Estate Journal. <https://crej.com/news/placemaking-downtown-suburbia/>

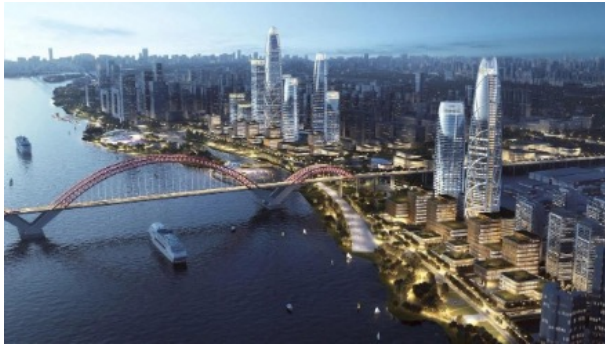


Figure 58: Master plan of the core of Lijiao, Guangzhou, China⁸⁰

UD06 – Central core landscape and public realm identity

The purpose of designing the central core landscape and public realm identity is to create a signature public realm in the core with consistent materials and character.

The central core most clearly expresses the image and identity of TOD. It should be organised to allow pedestrians to easily orient themselves and perceive centrality:

- Plazas, pedestrian streets and public buildings should form a continuous and legible ensemble.
- Visual corridors toward stations or landmark buildings must be protected and emphasised through spatial organisation and building height control.
- Urban activities should occur throughout the day and evening; ground floors along commercial and pedestrian streets must feature active frontages, continuous canopies and effective nighttime lighting.

Control of views, spatial proportions and activity intensity in this area is critical to TOD success.



Figure 59: Mixed-use centre – high density, diversity of architectures and functions⁸¹



Figure 60: Green mobility-friendly and mixed-use central street⁸²

UD07 – Open space system and minimum open space ratios

The purpose of establishing an open space system and minimum open space ratios is to define a connected open-space network and to set minimum open-space provision per plot or area.

a. Types of open spaces

- Central plaza: symbolic space associated with the station.
- Parks, gardens, water bodies: interspersed to improve microclimate.
- Movement-oriented landscapes: guiding pedestrians toward stations.

The TOD open space system should be organised as a **multi-level network**, from large symbolic spaces to smaller block-level spaces. Connectivity should be maximised to form a continuous network rather than isolated green plots.

“Green Fingers”, which incorporate green spaces and public transport infrastructure, play a vital role in bringing greenery and pedestrians from residential areas into the TOD core, enhancing spatial permeability.

b. Open space hierarchy includes:

- Core open spaces: central plazas and main pedestrian streets.
- Public and semi-public block-level spaces: courtyards and small plazas.
- Green Fingers: landscaped pedestrian connectors.
- Rooftop green spaces for public or semi-public use, compensating for limited ground-level green areas in high density zones.

⁸⁰ “Transforming cities into highly complex urban block systems”: SOM’s perspective on TOD projects.

⁸¹ 江戸村のとくぞう (2018). Tokyo Station. https://commons.wikimedia.org/wiki/File:Tokyo_Station-4.jpg

⁸² Urban Design Forum. Gallery of Urban Ideas: Mobility. <https://urbandesignforum.org/city-life-after-coronavirus-mobility/>.



Figure 61: Metro station square, Ronkonkoma, New York, USA⁸³



Figure 62: Urban public yard⁸⁴



Figure 63: Rooftop gardens in Downtown San Bernardino, California, USA, mixed-use TOD masterplan⁸⁵

c. Minimum open space ratios

Table 23: Transit-oriented development type and minimum open space

Transit-oriented development (TOD) typology	Minimum open space (%)
1. Central city TOD	≥ 20
2a. Sub-centre (secondary)/ strategic economic hub/ satellite TOD and 2b. sub-centre (secondary)/ strategic economic hub/ satellite and interregional station TOD	≥ 25
3. Third-level TOD – local centres/ suburbs/ station areas with major interregional connections	≥ 30
4–5. Favourable redevelopment and station node enhancement TOD	≥ 20–30
6. Station node enhancement	Function-specific

UD08 – Building coverage controls

The purpose of controlling building coverage is to limit coverage in order to protect open space, ground permeability, access to sunlight, and microclimatic performance.



Figure 64: Transit-oriented development for the Kālia (Ala Moana) station area in Honolulu, Hawaii⁸⁶

Higher FAR is encouraged in TOD areas, but building coverage must be controlled to ensure landscape quality, microclimate, and ventilation. Given that current Vietnamese building codes allow very high maximum coverage (up to 85%), the distance between high-rise buildings and the setback of the buildings must comply with Vietnamese construction regulations, and the gross building density within each street block must not exceed 50% (determined to the level of the sub-area road with an average distance between roads/the dimensions of the street block of about 150-250m in reality, the size of each block may increase or decrease due to specific solutions and conditions).

⁸³ Tritac, in Farauto, F. (2025). How Mixed-Use Developments Are Connecting with Their Neighborhoods, Not Replacing Them. Propmodo.

⁸⁴ <https://propmodo.com/how-mixed-use-developments-are-connecting-with-their-neighborhoods-not-replacing-them/>
Strathmore Square. Fivesquares Development, plan by Perkins Eastman DC. <https://www.cnu.org/publicsquare/2019/01/09/experience-new-buzzword-walkable-town-centers1>

⁸⁵ City Design Studio. Downtown San Bernardino Mixed-Use TOD Masterplan. <https://citydesign-studio.com/cds-work-e-street-mixed-use-tod-masterplan/>

⁸⁶ City and County of Honolulu. Ala Moana TOD Neighborhood. <https://www.honolulu.gov/tod/neighborhoods/ala-moana>

UD09 – Promote higher Floor Area Ratio (FAR)

The purpose of promoting a higher Floor Area Ratio (FAR) is to encourage efficient use of land through appropriate FAR, whilst controlling building coverage, setbacks, and spacing between buildings, and ensuring consistency with infrastructure capacity.



Figure 65: The high density development in the Bandar Malaysia TOD (built on the site of the former Sungai Besi Airport) in Kuala Lumpur (Malaysia)⁸⁷

With reduced building coverage and compliance with sectoral regulations, increased building height and FAR are encouraged as follows:

Table 24: TOD type and recommended FAR layer

TOD Type	Recommended FAR Layer 1	Recommended FAR Layer 2	Recommended FAR Layer 3
(1) Central City TOD	Recommend to allow to use 2.0 times the maximum FAR value allowed in the Vietnamese Building code	Recommend to allow to use 1.8 times the maximum FAR value allowed in the Vietnamese Building code	It is permitted to use 1.5 times the maximum FAR value allowed in the Vietnamese Building code
(2a) Sub-Centre (secondary)/ Strategic economic hub/ Satellite TOD & (2b) Sub-Centre (secondary)/ Strategic economic hub/ Satellite + Inter-regional station TOD	Recommend to allow to use 1.8 times the maximum FAR value allowed in the Vietnamese Building code	Recommend to allow to use 1.7 times the maximum FAR value allowed in the Vietnamese Building code	It is permitted to use 1.5 times the maximum FAR value allowed in the Vietnamese Building code
(3) Third level TOD local centres/suburbs/ station areas with major interregional connections	Recommend to allow to use 1.7 times the maximum FAR value allowed in the Vietnamese Building code	Recommend to allow to use 1.6 times the maximum FAR value allowed in the Vietnamese Building code	It is permitted to use 1.5 times the maximum FAR value allowed in the Vietnamese Building code
(4) & (5) Favourable redevelopment & Station node enhancement TOD	Recommend to allow to use 2.0 the maximum FAR value allowed in the Vietnamese Building code	Recommend to allow to use 1.8 times the maximum FAR value allowed in the Vietnamese Building code	It is permitted to use 1.5 times the maximum FAR value allowed in the Vietnamese Building code
(6) Station node enhancement	Apply the regulations corresponding to the TOD type above and in accordance with its specific function.	Apply the regulations corresponding to the TOD type above and in accordance with its specific function.	Apply the regulations corresponding to the TOD type above and in accordance with its specific function.

Notes:

- For landmark buildings, apply the current regulations in Vietnamese Building Codes: there is no limit on the FAR for landmark buildings.
- The recommended values in the table above that are not consistent with Ho Chi Minh City’s current regulations for TOD areas should only be applied when those regulations are adjusted and suitable to the table above. Alternatively, if Ho Chi Minh City’s regulations for TOD areas have not been adjusted, the FAR at Layers 1 and 2 should be increased (more than 1.5 times), and decreased at Layer 3 so that the overall land use coefficient within the entire TOD area remains consistent with the City’s regulations (not exceeding 1.5 times).

⁸⁷ <https://urbandesignlab.in/mrt-jakarta-transit-oriented-development-master-plan/>

UD10 – Building height, form, and microclimate

The purpose of regulating building height, form, and microclimate is to control height, step-backs, and massing in order to reduce overshadowing, ensure adequate ventilation, and provide a street environment with human-scale proportions and favourable microclimatic conditions.

a. General principles



Figure 66: TOD at Bandar Malaysia⁸⁸

Building height and massing within TOD areas shall be organised based on the principle of **encouraging height intensification toward the transit station**, in order to:

- Optimise accessibility and the efficiency of public transport use;
- Create a spatial landmark and focal point for the station area;
- Mitigate the negative impacts of high density on microclimate, ventilation, and pedestrian experience.

However, the principle of increasing height toward the station should be applied as a **guiding and flexible approach**, rather than a rigid rule, to allow effective utilisation of land value within TOD areas. In general, TOD areas should **encourage taller buildings in combination with reduced building coverage** for high-rise developments (≥9 storeys), compared to the maximum allowable height and coverage stipulated in the Vietnamese Construction Standards.

Landmark buildings are encouraged to be located around the public plaza in front of the station or in close proximity to the station.

b. Stepped massing principles

To reduce the adverse impacts of high-rise buildings, building massing should be organised through **stepped configurations**, including the following approaches:

- **Vertical stepping:** Lower- to mid-rise podiums interface directly with public spaces, while taller tower components are set back deeper within the site.

- **Facade stepping:** Building facades facing main streets or station plazas shall avoid forming continuous “high-rise walls”; building volumes should be articulated and broken down to create architectural rhythm.

- **Wind-oriented stepping:** Avoid continuous tall building blocks that obstruct prevailing wind directions; encourage wind corridors and open gaps between buildings.

The setback distance of towers above podium levels shall be sufficient to:

- Minimise downdraft (downwash) wind effects;
- Enhance natural ventilation.

c. Microclimate and wind control

Building height and massing design shall take into account microclimatic factors, particularly around station areas and major public spaces:

- Avoid locating tall buildings on the primary windward edge of station plazas unless appropriate wind speed mitigation measures are provided;
- Arrange lower building volumes along plaza edges, with taller buildings set back;
- Utilise green roofs, sky gardens, and balconies to reduce heat radiation;
- Encourage distributed tower layouts rather than a single massive block.

For buildings exceeding **40 storeys**, the following studies shall be required:

- Wind Impact Assessment;
- Pedestrian-level microclimate simulation.

d. Relationship between height, podium, and public space

The building podium functions as the interface between public space and the tower above:

- Podium height should be proportionate to street width and urban spatial scale;
- Podiums should be continuous and provide active frontages;
- Excessively tall or impermeable podiums that create a heavy pedestrian experience should be avoided.

The podium serves people — the tower serves density (FAR).

e. Special notes on application in Vietnamese urban contexts

Avoid rigid application of height limits; prioritise control of overall massing and spatial impacts. Pay

⁸⁸ <https://kienviet.net/2022/1/13/goc-nhin-cua-som-ve-cac-du-an-tod-tren-the-gioi>

particular attention to the relationship between new developments and surrounding existing residential areas within TODs, ensuring adequate setbacks and spacing.

UD11 – Podium, building ground floors, and direct building connecting

The purpose of designing the building's podium, ground floor, and direct connections is to create an active frontage that is lively, well-ventilated, and easily accessible through façade design, entrances, services, and the integration of amenities/parking. This supports street activity, enhances safety, and improves the appeal of walking.

a. Role and general principles



Figure 67: The direct connection to the pedestrian and active ground floor: “The Future of Fifth Avenue”. New York City Hall (USA).⁸⁹

The podium is the component that directly interfaces between buildings and public space, playing a decisive role in:

- The quality of the pedestrian environment
- The vibrancy of ground-floor activities
- The level of connectivity between the station, streets and buildings
- The urban experience at pedestrian eye level.

In TOD areas, the podium is not merely a technical base supporting towers, but a form of **urban spatial infrastructure** that should be designed with a strong **people-oriented approach** and a welcoming character.

b. Podium height and scale

A building's podium is designed to relate to the human scale of the street, while the tower above it is designed to meet overall density requirements (FAR). To achieve this, podiums should generally be two to six storeys high, with the final height determined by context, including street width, the area's role (e.g. station plaza vs. local street), and the intensity of urban activity. In key locations like primary commercial streets, podiums may be permitted to exceed this height, provided their massing is articulated with features like stepping to avoid creating an overbearing street-level appearance.

c. Direct connection to pedestrian spaces

Building podiums must be organised to be continuous, permeable and inherently pedestrian-friendly, forming a seamless connection with the public realm. To achieve this, ground floor frontages should open directly onto sidewalks, plazas and pedestrian streets, with primary building entrances that are clearly visible and oriented toward major pedestrian routes.

Conversely, elements that create barriers and disrupt movement must be minimised (such as blank walls, fences and vehicular ramps cutting across walkways). To further enhance permeability on larger sites, the inclusion of public through-block passages and semi-public spaces at the ground level is strongly encouraged.

d. Functional organisation within the podium

- Ground floor: Absolute priority shall be given to public and commercial uses, including retail, services, restaurants, cafes and community spaces. Parking shall not be located on the ground floor.
- Upper podium floors (levels 2–6) may accommodate offices, services, education and healthcare, cultural and entertainment uses and co-working spaces.
- Functions with high user turnover and daytime and evening activities are strongly encouraged.

e. Facade design and pedestrian experience

- Podium facades shall be designed at a pedestrian-friendly scale, with a small to medium frontage rhythm (5–10m) and balanced solid-to-void ratios that prioritise open and transparent frontages.
- Ground floors should incorporate continuous canopies, transparent glazing and high-quality nighttime lighting.
- Avoid long, monotonous podium blocks, heavy or dark materials that create a bulky appearance and signage that obscures building facades.

⁸⁹ KFP (2024). KPF Participates in “NYLON: Activating Public Spaces in New York City and London”.

f. Relationship with traffic and vehicular access

- Vehicular access points and underground parking entrances shall be located at the rear or side of buildings and avoid direct conflict with primary pedestrian corridors.
- Transfer points (taxis, buses, drop-off areas) shall be clearly organised and shall not encroach upon pedestrian spaces.

g. Podium and microclimate solutions

- Podiums should actively contribute to improving urban microclimate by providing shade for sidewalks and plazas and integrating canopies, loggias and balconies.
- Green podium roofs, podium rooftop gardens and through-building ventilation strategies are encouraged.

UD12 – Permeable blocks and seamless connectivity

The purpose of providing permeable blocks and seamless connectivity is to deliver direct, barrier-free links between the station, blocks, and key destinations, and to avoid the formation of superblocks.

Basements, ground floors and upper levels of buildings shall be **directly, continuously and legibly connected** to transit stations and the surrounding public space network, to shorten access distances, enhance convenience and safety and encourage the use of public transport.

a. Key principles

- **Multi-level connectivity:** Basement levels should connect to station concourses, underground pedestrian passages and underground commercial spaces (where applicable). Ground floors should open directly onto station plazas, sidewalks and primary pedestrian routes. Upper levels (Levels 2–3) may be connected via pedestrian bridges in high density areas, but shall not replace at-grade connections.
- **Pedestrian priority:** Minimise conflicts with vehicular traffic and avoid locating vehicular ramps, fences or large steps that interrupt pedestrian routes.
- **Continuity and legibility:** Connectivity routes shall be clear, direct and free of detours or discontinuities and provide clear wayfinding, adequate lighting and good visual orientation toward station entrances.
- **Universal access:** Ensure barrier-free access (elevators, ramps, escalators) for persons with disabilities, the elderly and people carrying luggage.
- **Safety and comfort:** Provide sufficient lighting, avoid blind spots and ensure natural surveillance through surrounding active uses.

b. Management and incentives:

- Clearly regulate the maximum allowable distance from buildings to station entrances and required locations and number of connectivity points.
- Incentivise projects through FAR or floor area bonuses when they provide direct connections to transit stations, open connectivity spaces for public use and improve the pedestrian network within the TOD area.

UD13 – Block structure

The purpose of regulating block structure is to set standards for block size and permeability in order to enhance walkability, connectivity, and development flexibility.

The block structure within TOD areas shall be organised based on **small, fine-grain blocks, frequent mid-block connections** and **mixed-use development**, in order to enhance walkability, improve access to transit stations and create continuous urban vitality. This supports TM01 [*Fine-grain street network*], which recommends a block size of less than 150m (or 45 or more blocks perkm²).



Figure 68: Fine-grain blocks⁹⁰



Figure 69: Fine-grain blocks, easy to walk through⁹¹

⁹⁰ Fernandez, J. (2017). *Transit Oriented Development at Central Park Station to Include Sprouts*. Front Porch.

⁹¹ Wisp Architects (2013). *Urban Block*.



Figure 70: Fine-grain blocks, easy to walk through⁹²

Key principles:

- **Small, fine-grain blocks:** Large, enclosed blocks should be avoided, and block subdivision is encouraged to increase intersection density, shorten walking distances and expand route choices for accessing transit stations.
- **Frequent mid-block connections:** Pedestrian mid-block connections shall be provided within large blocks, particularly within a 300–600m radius from transit stations. Mid-block connections shall be safe, continuous and easily recognisable; directly connected to primary pedestrian routes, plazas and public spaces; and activated by ground floor uses and supported by adequate lighting.
- **Integration with planning and implementation:** Block structure principles shall be clearly reflected in detailed TOD plans, urban design schemes and architectural management regulations. The application of FAR or density bonus mechanisms is encouraged for projects that effectively subdivide blocks, provide publicly accessible mid-block pedestrian connections and increase functional mix and improve station accessibility.
- **Mixed-use development:** The integration of diverse land uses both horizontally (within the same block) and vertically (within the same building). Priority is given to locating retail and commercial services on the ground floor, with other functions on the upper floors.

For existing areas, redevelopment should be applied flexibly and in phases. Priority must be given to creating mid-block connections, especially on large land parcels or in redevelopment areas, to avoid creating impermeable blocks, long block frontages and enclosed projects that disrupt the pedestrian network.

UD14 – Underground development and air rights

The purpose of regulating underground development and air rights is to govern basements, underground links, and above-station development rights in order to optimise land use.

The utilisation of **underground space and air rights associated with transit stations** shall be permitted and encouraged to enhance land use efficiency within TOD areas, subject to the following requirements:

a. Underground development

- Underground spaces may be used for station concourses, pedestrian connections, commercial uses, parking and technical infrastructure.
- Underground development shall be directly connected to stations and adjacent buildings and designed as an extension of public space. (Underground parking provision shall comply with the maximum parking standards required under TM06 [Parking and kerbside management]).
- Requirements for accessibility, fire safety, ventilation, drainage and flood prevention shall be strictly complied with.
- Universal access for all users shall be ensured.

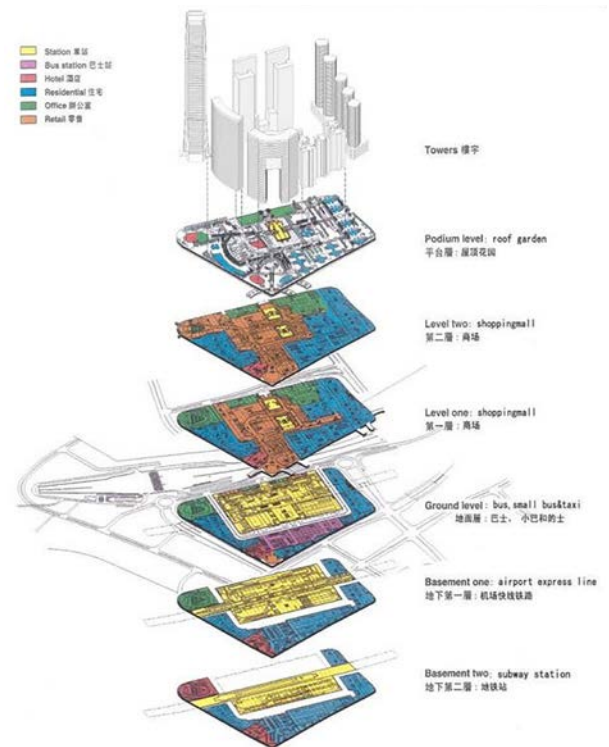


Figure 71: Isometric drawing of the Kowloon Station, Hong Kong⁹³

⁹² Studio Ome Eleven (2022). The Urban Green. Landezine. <https://landezine.com/the-urban-green/>

⁹³ Cong Sun in Al-Kodmany, K., et al., 2022. Reconfiguring Vertical Urbanism: The Example of Tall Buildings and Transit-Oriented Development (TB-TOD) in Hong Kong. Buildings, 12(2), 197.

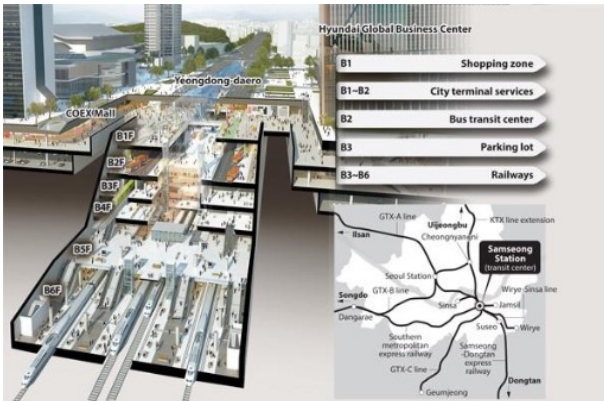


Figure 72: Samseong Station, Seoul⁹⁴

b. Air rights development

- Development above or adjacent to transit infrastructure may be permitted, provided that:
 - Transit operations and structural safety are not compromised.
 - Public space quality and station accessibility are maintained or enhanced.
- Building massing shall be lightweight and non-obstructive to station plazas and primary pedestrian spaces.
- Preferred uses include commercial, office, mixed-use and publicly accessible spaces.



Figure 73: Chastwood station in Sydney. Trains run through the integrated station, shopping and apartment complex⁹⁵

c. Connectivity:

- Underground and elevated structures must connect directly to the station lobby, pedestrian network and public spaces through clear, safe and convenient access points. This aims to ensure a continuous, uninterrupted pedestrian experience along the underground-surface-elevated axis.
- Mechanisms for TDR, leasing or auction may be applied, with revenues prioritised for reinvestment in public transport and station-area public spaces.

d. Planning control and value capture:

- To develop underground and aboveground spaces, it is necessary to clarify the legal relationship between land use rights and multi-level spaces in detailed TOD plans and design regulations, while strengthening coordination mechanisms between transportation, planning-land agencies and operating units. Particular attention should be paid to geological conditions, flood risks and management and operational capacity. Implementation should follow a phased approach: prioritising underground connections to stations first, then gradually expanding commercial and aboveground development in stages.

UD15 – Housing structure

The purpose of defining the housing structure is to determine housing types, tenure mix, affordability, and unit diversity in order to support inclusion and meet demand.

a. Objectives and general principles

The housing structure within TOD areas shall be organised to ensure **diversity in housing types and price levels**, with the following objectives:

- To meet the needs of different population groups.
- To ensure housing accessibility for the majority of residents.
- To enhance public transport efficiency through the provision of an appropriate residential density.
- To avoid mono-functional TOD areas or socio-spatial segregation.

Housing that is affordable to the majority of residents shall constitute the dominant share within TOD areas.

b. Diversity of housing types

Within TOD areas, a wide range of housing types shall be encouraged, including:

- Apartment units (small, medium and large).
- Rental housing.

⁹⁴ Korea JoongAng Daily (2016). Vast underground transit complex planned for Gangnam.

⁹⁵ Sardaka (2017). Chatswood railway station and Metro Residences tower 1.

- Social housing.
- Housing for low- and middle-income households.
- Housing for professionals and workers employed within TOD areas.

Housing types shall be:

- Appropriately distributed within the same project or within a walkable catchment area.
- Designed to avoid rigid income-based zoning, thereby promoting social mix and inclusion.

c. Housing price structure and allocation principles

The housing price structure shall follow a **multi-tiered and multi-level approach**, whereby:

- Affordable housing and social housing account for the largest proportion.
- High-end and luxury housing play a complementary role in ensuring project financial feasibility.

The **1–3–6 ratio** is recommended as a guiding framework, comprising:

- **1 part:** luxury housing.
- **3 parts:** high-end housing.
- **6 parts:** affordable housing and social housing.

This ratio is indicative and may be **flexibly adjusted** based on:

- TOD location.
- Market demand.
- Residents' affordability levels.
- The city's socio-economic development objectives.

d. Integration of affordable housing within TOD projects

Affordable housing shall be:

- Integrated within the same TOD project or block
- Provided with comparable access to:
 - Public transport infrastructure.
 - Public spaces.
 - Urban amenities.

The placement of affordable housing should avoid:

- Locations with poor accessibility.
- Areas lacking adequate infrastructure and services.
- Segregated areas disconnected from the TOD network.

e. Linkages with urban design and architecture

The housing mix shall be supported by appropriate design solutions, including:

- A range of unit sizes to accommodate:
 - Single-person households and small families.

- Multi-generational households.

- Flexible layouts that allow:

- Functional adaptation over time.
- Live-work arrangements in suitable locations.

- Assurance of minimum standards for architectural quality and living environment, regardless of housing price level.

f. Policy instruments and development incentives

To ensure a balanced housing mix in TOD areas, the following instruments shall be applied:

- Requirements for a minimum proportion of affordable housing within TOD projects.
- Incentive mechanisms, including:
 - FAR bonuses.
 - Conditional height increases.
 - Reductions or exemptions of financial obligations.

for projects that:

- Exceed the minimum affordable housing requirement.
- Provide long-term rental housing.
- Serve workers who regularly use public transport.

g. Notes on application in the Vietnamese urban context

- A guideline-based approach should be prioritised, combined with market assessments and actual housing demand.
- The housing mix shall be aligned with:
 - Urban scale.
 - Investment capacity.
 - Management and operational capabilities.

UD16 – Identity – heritage – urban aesthetics / landmark buildings

The purpose of safeguarding identity, heritage, and urban aesthetics, and of defining landmark buildings, is to protect heritage and identify landmark and identity elements that strengthen the character of the area.

Urban identity determines the distinctiveness and attractiveness of TOD. Heritage conservation and adaptive reuse should be viewed as opportunities for value creation rather than barriers to development.

Landmark buildings must be carefully positioned, scaled and architecturally articulated to create identity while respecting the surrounding context. There should be a balance between old and new, cultural depth and development momentum and avoiding confrontational or imposed design approaches.

a. Heritage conservation and adaptive reuse



Figure 74: King's Cross Station, London⁹⁶

a.1. Objectives and general principles

Heritage conservation and adaptive reuse within TOD areas shall be approached by **integrating heritage assets as active and living components of the public realm**, rather than isolating them or applying purely passive preservation. Heritage is not only an object to be protected, but also a **spatial, cultural and economic resource** that contributes to urban identity and enhances the attractiveness of TOD areas.

Conservation shall be combined with value enhancement through adaptive reuse, ensuring that heritage assets continue to be used, accessed, and experienced by the community.

a.2. Heritage classification and levels of intervention

Different types of heritage assets within TOD areas shall be clearly identified to determine appropriate intervention approaches, including:

- Strict conservation with minimal intervention to building form and materials.
- Rehabilitation and structural strengthening with compatible functional adaptation.
- Priority adaptive reuse with a high degree of flexibility, particularly for industrial heritage and obsolete infrastructure.

The level of intervention shall be clearly defined in planning documents and design submissions, avoiding a one-size-fits-all approach for all heritage assets.

a.3. Integration of heritage into public space

Heritage assets shall be **opened to public access** and directly connected to the urban public space network:

- Heritage sites should function as:
 - Focal points within plazas, pedestrian corridors and public spaces.

- Urban landmarks within TOD areas.
- Accessibility shall be enhanced through:
 - Pedestrian, bicycle and public transport connections.
 - Minimisation of fences and enclosed or inaccessible spaces.
- Landscape design and surrounding public spaces shall:
 - Highlight architectural values.
 - Preserve important view corridors and spatial breathing space.

a.4. Principles of adaptive reuse

Adaptive reuse of heritage assets shall comply with the following principles:

- **Preservation of core elements**, including primary structure, facades, spatial proportions and characteristic materials.
- **Allowance for new functions**, such as cultural, commercial, service, creative, educational and tourism uses.
- **Minimal and reversible interventions** where feasible.
- **Clear distinction between old and new**, avoiding false historicism or imitation of historical forms.

Adaptively reused heritage buildings shall meet modern standards for safety, accessibility and operation without compromising their heritage values.

a.5. Relationship between heritage and new development

New development surrounding heritage assets shall be strictly controlled to:

- Avoid overpowering, obscuring or distorting heritage values.
- Respect:
 - Building height.
 - Massing.
 - Setbacks
 - Key visual corridors.

Architectural dialogue between old and new is encouraged, rather than confrontation or imposed imitation. Selective reinterpretation of certain architectural elements (such as colour, proportions or details) may be appropriate, while direct replication of historic forms should be avoided.

Within TOD areas, heritage assets may serve as:

- Anchors of public space.
- Transitional elements between different layers of urban development.

⁹⁶ Network Rail (2011). *Revealed: Designs for London's newest public square at King's Cross.*

a.6. Integration with planning tools and development incentives

Heritage conservation and adaptive reuse shall be supported through:

- Clear identification of conservation areas and influence zones in detailed TOD plans.
- Specific regulations within detailed TOD plans regarding:
 - Surrounding building heights.
 - Setbacks.
 - Permitted forms of intervention.
- Incentive mechanisms, including:
 - FAR bonuses or TDR.
 - Financial incentives for heritage reuse projects.
 - Technical and management support.

a.7. Notes on application in the Vietnamese urban context

- Avoid approaches that either “freeze” heritage through rigid preservation or sacrifice heritage in the name of development;
- Prioritise adaptive reuse of industrial heritage and obsolete infrastructure associated with public transport systems;
- Ensure close coordination among:
 - Planning authorities.
 - Cultural and heritage agencies.
 - Transport authorities.
 - Urban investment and development entities.

b. Landmark buildings

b.1. Role and objectives

Landmark buildings within TOD areas play a critical role in:

- Establishing spatial identity and urban character for station areas.
- Supporting wayfinding for pedestrians and public transport users.
- Marking key urban spaces such as station plazas, primary corridors and major intersections.
- Enhancing the quality of public spaces and the overall urban image.

Landmark buildings are **not necessarily the tallest buildings**, but rather buildings that are **highly legible, spatially meaningful and capable of shaping memorable urban experiences**.

b.2. Principles for location

Landmark buildings should be located at:

- Station plazas or central public spaces.
- Termination points or gateways of primary

pedestrian axes.

- Key intersections within TOD areas.
- Transitional zones between different urban layers (station core, mixed-use areas, residential neighbourhoods).

The placement of landmarks should avoid:

- Scattered or disconnected locations lacking spatial coherence.
- Developments driven solely by commercial value without contributing to the overall urban structure.

b.3. Scale, height and relationship to TOD context

The scale and height of landmark buildings shall be appropriate to the TOD context, considering:

- Proximity to the transit station.
- The size of station plazas and the width of adjacent streets.
- The density and height of surrounding buildings.

Landmark buildings may exceed the prevailing height of surrounding development, provided that they:

- Do not overpower public spaces.
- Do not obstruct heritage assets, key view corridors or station visibility.

A landmark should stand out within a harmonious urban composition, not through visual dominance.

b.4. Massing, architecture and legibility

Landmark buildings shall exhibit:

- Clear and recognisable massing visible from multiple directions.
- Balanced architectural proportions without excessive complexity.
- High-quality facade design with depth, rhythm and visual interest.

The following approaches are encouraged:

- Contemporary architectural expression reflecting the spirit of the time.
- Selective incorporation of local climatic, cultural and material characteristics.
- Clear differentiation between landmark buildings and surrounding ordinary developments.

The following should be avoided:

- Forced replication of symbolic or iconic forms.
- Overly expressive or context-insensitive designs.
- False historicism or imitation of heritage architecture.

b.5. Relationship with public space and ground floor activation

Landmark buildings shall:

- Be directly integrated with public spaces such as plazas and pedestrian streets.
- Provide active, publicly accessible ground floors.
- Function as catalysts that activate surrounding public spaces rather than as inward-looking or closed buildings.

Ground floors of landmark buildings should prioritise:

- Public, cultural and service-oriented uses.
- Easy and intuitive pedestrian access.
- Vibrant urban experiences throughout the day and into the evening.

b.6. Functional use

The functions of landmark buildings should align with their urban role and may include:

- Cultural and civic facilities.
- Commercial and service centres.
- Office or mixed-use developments.
- Creative, educational and tourism-related uses.

Landmark buildings should avoid being programmed exclusively for:

- A limited user group.
- Closed or inward-focused functions with minimal community interaction.

b.7. Integration with planning and design control tools

Landmark buildings shall be:

- Clearly identified in detailed TOD plans and urban design frameworks
- Subject to specific controls regarding:
 - Location.
 - Maximum height.
 - Massing and relationship with public spaces.
 - Architectural quality requirements.

The following measures are encouraged:

- Architectural design competitions.
- Urban design review panels.
- Conditional FAR or height bonuses linked to the quality of public space provision.

b.8. Notes on application in the Vietnamese urban context

- Avoid misuse of the landmark concept to legitimise excessive building height
- Emphasise the role of landmarks in:

- Pedestrian orientation and wayfinding.
- Station identity and TOD core recognition.
- Integrating new development with the existing urban context.

UD17 – Wayfinding system

The purpose of establishing a wayfinding system is to provide a clear signage and legibility system that supports easy navigation within the station and surrounding district.

a. Role of the TOD wayfinding system

The wayfinding system is an essential component of TOD urban design, enabling users (particularly pedestrians, cyclists and public transport passengers) to easily recognise, understand and navigate high density, mixed-use urban environments.

In TOD areas, wayfinding is not merely a collection of standalone signs, but a **multi-layered orientation network** that integrates spatial form, architecture, landscape, information graphics and digital technologies. An effective wayfinding system enhances station accessibility, reduces wayfinding time, increases perceived safety and improves the overall public space experience.

b. General principles



Figure 75: Metro map of Greater Washington⁹⁷



Figure 76: Broomfield's Off-Street Sign Family. The Broomfield Wayfinding project, Colorado, USA⁹⁸

⁹⁷ Johnson, M. (2010). Orange and Blue lines to close downtown next weekend. Greater Greater Washington.

⁹⁸ Broomfield Wayfinding Plan.

The design of the TOD wayfinding system shall adhere to the following principles:

- **Coordination and consistency:** Design language, colours, symbols and information structure shall be consistent throughout the TOD area.
- **Clarity and legibility:** Information shall be concise, prioritising visuals and universal symbols, with minimal reliance on lengthy text.
- **Clear hierarchy:** Wayfinding shall be organised by spatial levels, from district scale to primary routes and specific destinations.
- **Pedestrian priority:** The system shall primarily serve pedestrians, followed by cyclists and other low-speed, non-motorised users.
- **Universal accessibility:** The system shall be usable by persons with disabilities, the elderly and children.

c. Multi-level wayfinding system structure

The TOD wayfinding system shall be organised into three main levels:

1. District level

Provides overall orientation information for the entire TOD area, including:

- TOD area maps and functional sub-districts
- Locations of stations, central plazas, primary corridors and landmark buildings
- Estimated walking distances and travel times to key destinations.

2. Route level

Supports orientation along pedestrian corridors, commercial streets and connecting pathways:

- Directional signs for walking and cycling routes to stations and major destinations
- Information on step-free and barrier-free access routes
- Wayfinding elements integrated into pavement, sidewalks or landscape features.

3. Node level

Provides detailed information at transport nodes, station entrances, plazas and major buildings:

- Signs for station entrances/exits and intermodal connections
- Floor plans, building massing diagrams and public space layouts
- Information on public transport transfers, bicycle parking and bus stops.

d. Signage, maps and identity elements

Wayfinding signage in TOD areas shall:

- Be located in visible and easily accessible positions without obstructing movement flows

- Use appropriate size, colour and contrast relative to viewing distance
- Combine text and symbols, prioritising internationally recognised icons
- Ensure legibility under both daytime and nighttime conditions.

Area maps shall clearly illustrate the relationship between stations, public spaces, pedestrian routes and functional zones and shall display estimated walking times to support users' travel decisions.

e. Wayfinding for pedestrians, cyclists and public transport users

Within TOD areas, wayfinding information shall clearly distinguish among user groups:

- **Pedestrians:** Priority routes, green walking paths, plazas and the shortest connections to station.
- **Cyclists:** Bicycle lanes, parking facilities and safe connections to stations.
- **Public transport passengers:** Route information, schedules, transfer points and intermodal connections.

All information shall be integrated within a unified system while remaining clearly differentiated to avoid confusion among user groups.

f. Integration of digital technology and smart systems

Depending on the scale and characteristics of the TOD area, wayfinding systems may be enhanced through digital solutions, including:

- QR codes or NFC linking to digital maps and real-time information
- Electronic information boards at transfer points and plazas
- Mobile applications integrating wayfinding, public transport information and urban services.

Digital solutions shall complement – not replace – physical wayfinding elements.

g. Integration of wayfinding with building form and public space

Wayfinding in TOD areas shall be integrated from the early stages of urban and architectural design through:

- Building form and podium design that create natural visual orientation toward stations and plazas;
- Use of materials, colours and architectural details to emphasise primary axes;
- Utilisation of landmark buildings and open spaces as urban orientation references.

Private development projects within TOD areas –

particularly in core zones and along primary corridors – shall be required to integrate wayfinding elements into building and public space design as a mandatory condition.

h. Management, operation and updating of the wayfinding system

The TOD wayfinding system shall be centrally managed by the urban authority or TOD management entity to:

- Ensure consistency in information and visual identity
- Provide timely updates when changes occur in land use, public transport routes or public spaces
- Maintain system quality, durability and safety.

The wayfinding system is not a one-time design element but a **living system** that requires continuous operation, maintenance and adjustment in line with the evolution of the TOD area.

UD18 – Last-mile infrastructure and facilities (pedestrian + cycling + shared mobility)

The purpose of providing last-mile infrastructure and facilities is to deliver safe, continuous footways and cycle routes, secure parking, and designated shared-mobility and pick-up/drop-off areas in order to complete station access.

a. Role of last-mile infrastructure in TOD

Last-mile infrastructure and facilities are a **decisive factor in the actual accessibility and operational effectiveness of TOD**. Regardless of a station's favourable location or high development density, TOD can only realise its full potential when last-mile design ensures **safe, continuous, convenient and inclusive access** through soft mobility modes such as walking, cycling and small-scale shared services.

In TOD urban design, last-mile infrastructure shall not be regarded as a supplementary element but rather as a core component of the public space and transport system, directly connecting residential areas, functional zones, and open spaces to transit stations and public transport interchanges.

b. Key objectives:

- Ensure that all major destinations within TOD areas can be accessed safely within a reasonable walking and cycling distance
- Reduce reliance on private motor vehicles for short trips
- Enhance the efficiency of public transport stations and surrounding public spaces.

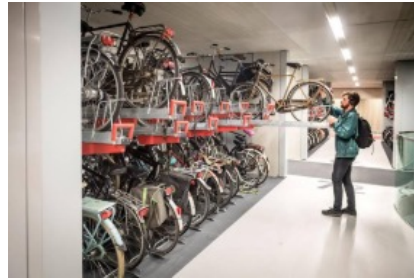


Figure 77: Parking for bicycles⁹⁹



Figure 78: Transit-oriented development urban structure with parking and amenities for vehicles of the first-mile/last-mile¹⁰⁰

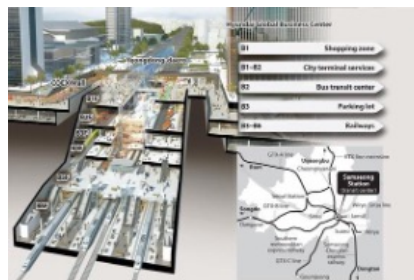


Figure 79: Parking lot at the underground B3¹⁰¹

c. Pedestrian network

c.1. Design principles

- The pedestrian network shall be continuous and uninterrupted, providing direct connections from public transport stations to key functional areas (residential, employment, commercial, public services and open spaces).
- Walking routes shall prioritise directness and legibility, minimising detours, physical barriers and unsafe crossings.
- Design shall follow a **universal safety approach**, accommodating children, older persons and persons with disabilities.

⁹⁹ Momentum Mag. [The World's Best Bicycle Parking Garages](#).

¹⁰⁰ Korea JoongAng Daily (2016). [Vast underground transit complex planned for Gangnam](#).

¹⁰¹ Painter, A.A. and Suchitlal, B.S., (2023). [Fairfax County Approves Redevelopment of West Falls Church Metrorail Station Site](#). Walsh, Colucci, Lubeley & Walsh.

c.2. Basic technical requirements

- Pavements shall be appropriately dimensioned to match usage intensity; primary corridors shall be wide enough to accommodate peak-hour pedestrian flows.
- Walking surfaces shall be level, slip-resistant and well-drained.
- Adequate provision shall be made for planting strips, lighting, seating, shading, litter bins and wayfinding signage.
- Intersections shall be designed for safety, including traffic calming measures, pedestrian priority and improved visibility.

d. Cycling network

d.1. Design principles

- Cycling shall be a **primary last-mile mode** within the medium-distance catchment of TOD stations.
- The cycling network shall be continuous, safe and easily recognisable and connected to the wider urban cycling network.

d.2. Spatial organisation

- Dedicated cycle lanes or controlled shared lanes shall be provided, with priority given to physical separation from high-speed motor traffic.
- Continuity at intersections shall be ensured, avoiding fragmented or discontinuous cycle routes.
- Cycle routes should be integrated with green spaces and water features where possible to enhance user experience.

e. Spaces and facilities for cycling and shared mobility

Spaces and facilities for bicycles are an essential component of TOD, extending the effective catchment of stations without increasing dependence on private cars.

Design guidelines shall include:

- Provision of safe, conveniently located and weather-protected bicycle parking at stations, station plazas and buildings with high usage intensity.
- Integration of spaces for shared mobility services (public bicycles, personal electric vehicles and other small vehicles (micromobility) options) at interchange points and major public spaces.
- Clear and convenient relationships between pedestrian routes, cycle routes and station entrances, avoiding indirect or interrupted connections.

These facilities shall be designed as an integral part of the public realm, rather than as isolated or landscape-degrading elements.

f. Multimodal connections between soft mobility and public transport

Last-mile infrastructure in TOD shall support **seamless transitions between transport modes**, from walking and cycling to high-capacity public transport.

Design shall:

- Minimise transfer distances and transition times between modes.
- Reduce conflicts between pedestrians, cyclists and motor vehicles at interfaces and crossings.
- Clearly organise small-scale pick-up and drop-off areas (kiss-and-ride, drop-off) appropriate to the specific TOD type.

In TOD areas with major interchange functions, last-mile connectivity shall be considered simultaneously with station design and surrounding public spaces to ensure coherence and operational efficiency.

g. Integration of last-mile infrastructure with public space and urban form

Last-mile infrastructure is not merely a transport engineering system, but a key element shaping the **urban experience within TOD areas**. Accordingly, last-mile design shall be closely integrated with:

- Open spaces, plazas, pedestrian streets and primary activity corridors
- Ground floor frontages, podiums and commercial and service activities
- Microclimate strategies, including shading, greenery and natural ventilation, to improve user comfort.

Investment in and maintenance of last-mile infrastructure shall be treated as a **mandatory requirement** for development projects within TOD areas, particularly in station cores and along primary access corridors.

h. Implementation and management principles

During TOD implementation, last-mile infrastructure shall:

- Be incorporated as mandatory criteria within planning and urban design schemes.
- Be linked to private development obligations through development conditions or FAR bonus mechanisms.
- Be monitored and adjusted flexibly in response to actual usage demand and evolving urban mobility patterns.

Last-mile infrastructure and facilities are therefore not merely supportive measures for public transport, but a **direct indicator of TOD quality and overall success**.



UD19 – Safety and security

The purpose of safety and security design is to ensure the creation of a safe, visible, and traffic-conflict-free environment within the TOD area, fostering a sense of security and comfort for all user groups.

a. Objectives

To ensure the creation of a **safe, visible and no traffic conflict environment** within the TOD area, fostering a sense of security and comfort for all user groups.

b. Design principles

- Priority shall be given to spatial design solutions (natural surveillance, active ground-floor uses, lighting) before applying hard security measures.
- The TOD area shall ensure:
 - Continuous natural surveillance;
 - Elimination of blind spots;
 - Controlled motor vehicle speeds;
 - Clear access and emergency egress routes.

c. Spatial organisation and natural surveillance

- Dead-end paths or visually obstructed spaces shall not be permitted along primary pedestrian routes.
- Ground floors of buildings along station plazas and main pedestrian axes shall provide open façades and active uses.
- Solid perimeter walls or blank parking frontages shall not be permitted along primary streets.
- Public spaces shall be framed by buildings with active uses, avoiding inactive or leftover spaces.

d. Lighting and night-time safety

- Lighting systems shall be continuous and free of localised dark spots.
- Enhanced lighting shall be provided at intersections, station entrances/exits, parking areas, and plazas.

- Excessive light–dark contrast that may create a sense of insecurity shall be avoided.

e. Traffic safety within the TOD core and main layers (0–600m radius from station)

- Pedestrians and cyclists shall be prioritised.
- Motor vehicle speeds shall be maintained at a low level.
- Traffic-calming measures shall be installed at key intersections.
- Clear separation shall be provided between pedestrian, bicycle, bus, and private vehicle flows.
- Pedestrian overpasses shall be minimised; controlled at-grade crossings shall be prioritised.

f. Access control and security

- Station entrances and plazas shall maintain open visibility and shall not be visually obstructed.
- Surveillance cameras and protective elements may be installed at high-density gathering points.
- Hard security measures shall not replace safe spatial design.

g. Fire safety and emergency egress

- Ensure that emergency exits are clearly signed and easily identifiable within buildings and underground areas.
- Areas with high occupancy must have the capacity to enable safe evacuation in emergency situations.

h. Inclusive design

- Station access routes shall be step-free and equipped with appropriate ramps.
- Signage shall be clear and legible.
- Seating and weather protection shall be provided in waiting areas.

UD20 – Sustainability

The purpose of sustainability requirements is to apply measurable green design measures — including shade and trees, stormwater management, energy efficiency, and low-carbon materials – in order to improve comfort, resilience, and emissions performance.

Buildings within TOD areas shall integrate sustainability measures from the early design stage in order to **reduce environmental impacts, enhance climate change resilience and improve urban spatial quality.**

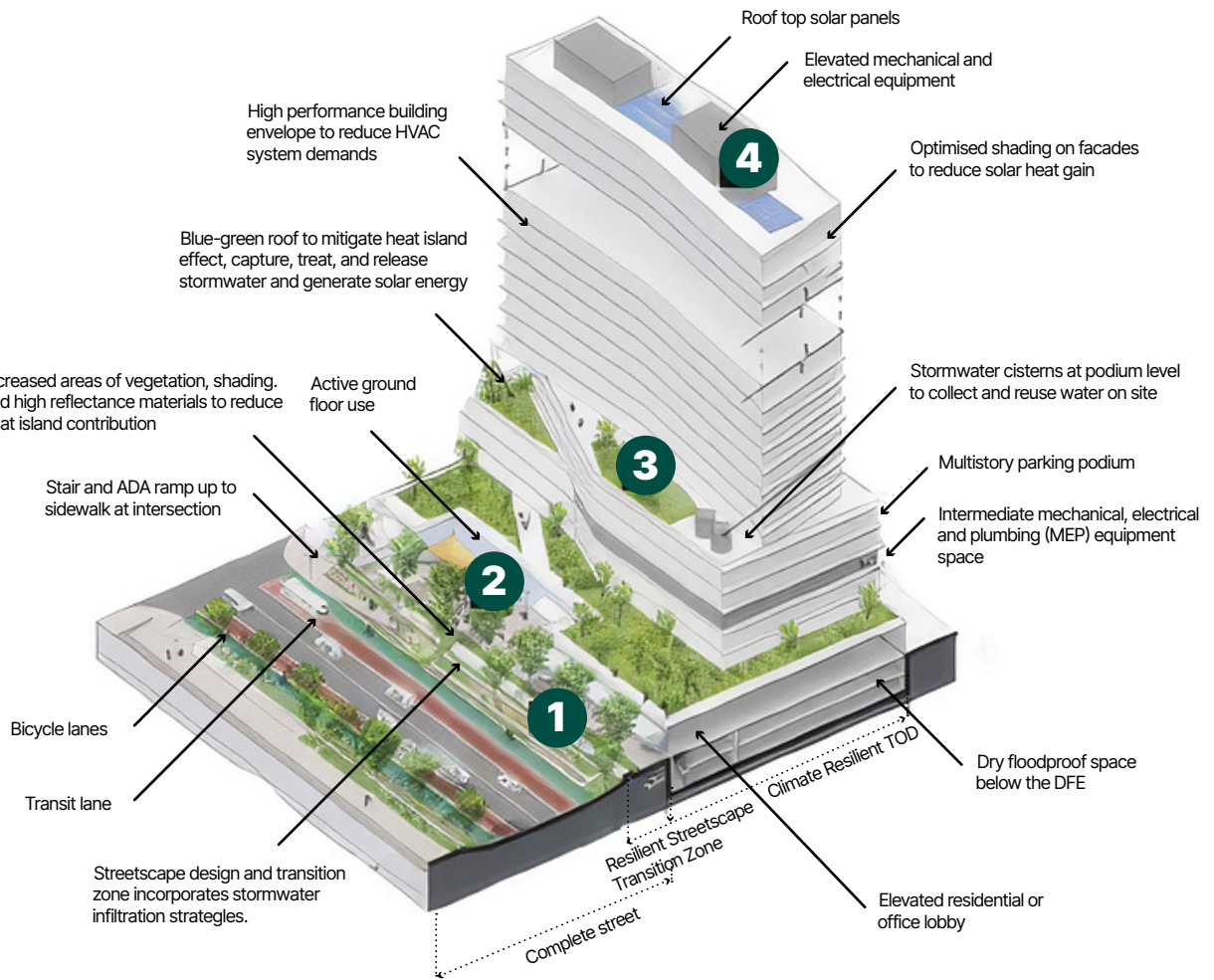


Figure 80: Elements of building design contributing to sustainable developments. Design guidelines framework for Honolulu, Hawaii¹⁰²

a. Green roofs and on-building green spaces

The application of green roofs is encouraged and shall be gradually required for podium structures, roof levels, stepped terraces, public buildings and mixed-use developments.

Green roofs shall be accessible for public or semi-public use where conditions permit, integrate resting areas, vegetation or community gardens and be designed in accordance with structural capacity, drainage systems and long-term maintenance requirements.

b. Permeable materials and stormwater management

The use of **permeable materials** is prioritised for:

- Sidewalks.
- Plazas.
- Internal pedestrian pathways.
- Outdoor parking areas.

Sustainable urban drainage systems and low impact development solutions shall be applied, including:

- Bioswales.
- Infiltration trenches.

¹⁰² Local Form Studio. *Climate-Resilient Urban Development Guidelines: Honolulu, HI.*

- Retention ponds and rainwater storage tanks.

The collection and reuse of rainwater for irrigation and non-potable uses are encouraged.

c. Flood mitigation and climate adaptation measures

Buildings shall be designed to:

- Avoid increasing flood risks for surrounding areas
- Adapt to scenarios of heavy rainfall and tidal flooding.

Measures may include:

- Appropriate elevation of ground levels.
- Temporary water storage spaces at ground floor or technical basement levels.
- Backup drainage routes and backflow prevention systems.
- Use of flood-resilient materials and construction techniques.
- Integration of nature-based solutions such as bioswales, rain gardens, green roofs and permeable paving, to enhance infiltration, reduce runoff and improve microclimate conditions.
- Protection of critical building systems.
- Clear maintenance and emergency response plans.

d. Urban heat island reduction

The following measures shall be applied:

- Use of light-coloured, high-albedo materials for roofs and facades.
- Provision of shade trees along pedestrian routes and open spaces.

Increase the proportion of:

- Green coverage.
- Water features.
- Naturally ventilated spaces.

Design solutions are encouraged, including:

- Shaded facades.
- Balconies and loggias.
- Continuous weather protection for pedestrians.

e. Notes on application in the Vietnamese urban context

- Avoid superficial or symbolic “greenwashing” approaches
- Prioritise solutions that are:
 - Operationally simple.
 - Suitable for tropical monsoon climates.
 - Durable and maintainable over the long term.

Special emphasis should be placed on **flood mitigation and heat reduction**, which represent major challenges in Vietnamese cities.



4.5. Gender equality, disability and social inclusion requirements, housing and social and economic inclusion

4.5.1. Introduction

In the context of urban development oriented toward public transport, i.e. transit-oriented development, GEDSI is not limited to requirements for physical accessibility. Rather, it represents a comprehensive approach to ensuring that all population groups can access, use, benefit from and meaningfully participate in TOD in a manner that is safe, convenient, equitable and dignified.

When designing TOD through a GEDSI lens, it is essential to consider who the system is designed for and whose everyday needs it must serve.



Figure 81: Key GEDSI groups in transit-oriented development.¹⁰³

Integrating GEDSI into TOD is not only consistent with the mandatory requirements of the National Technical Regulation QCVN 10:2024/BXD on accessible buildings but also extends the focus from “access to buildings” to “everyday mobility experience and urban life” across the entire TOD area. Integrating GEDSI also contributes to the implementation of the assistance programme for persons with disabilities for the 2021–2030 period under Decision 1190¹⁰⁴ of the Prime Minister,

in compliance with the 2010 Law on Persons with Disabilities¹⁰⁵ and the 2006 Law on Gender Equality¹⁰⁶.

International practice (including Singapore¹⁰⁷ and the United Kingdom¹⁰⁸) demonstrates that rigorous application of technical standards does more than ensure barrier-free accessibility. It can proactively expand opportunities for disadvantaged groups; shape the design, operation and governance of TOD around real-life needs; and reflect not only peak-hour commuting patterns, but also travel related to care work, daily living and access to social services.

4.5.2. Objectives

These guidelines aim to:

- Support managers, implementing agencies and relevant stakeholders in systematically integrating GEDSI throughout the entire lifecycle of TOD projects in HCMC, from planning and design to construction, operation, learning and monitoring.
- Ensure that TOD projects not only “leave no one behind” but also actively create additional opportunities for groups that are often more disadvantaged, including women, persons with disabilities, low-income groups, migrant workers, older persons, children and other vulnerable populations. This reflects Vietnam’s commitment to sustainable and equitable development, in line with international standards.

4.5.3. Scope of application

- These GEDSI integration guidelines apply to TOD at both the corridor level and station/catchment-area level in HCMC.
- They apply to TOD project types, including:
 - Metro lines, bus rapid transit systems and mass public transport corridors.
 - Urban development and urban redevelopment projects implemented in accordance with TOD principles.

¹⁰³ Illustrated by AI

¹⁰⁴ Decision No. 1190/QĐ-TTg dated 5 August 2020 of the Prime Minister on approving Support Program for persons with disabilities in 2021 – 2030

¹⁰⁵ Law No. 51/2010/QH12 dated 17 June 2010 of the National Assembly: Law on persons with disabilities

¹⁰⁶ Law No. 73/2006/QH11 dated November 29, 2006 of the National Assembly: Law on Gender Equality

¹⁰⁷ Land Transport Authority. *An Inclusive Public Transport System*.

¹⁰⁸ Transport for London. *Equity in Motion: Governance, monitoring and reporting frameworks*.

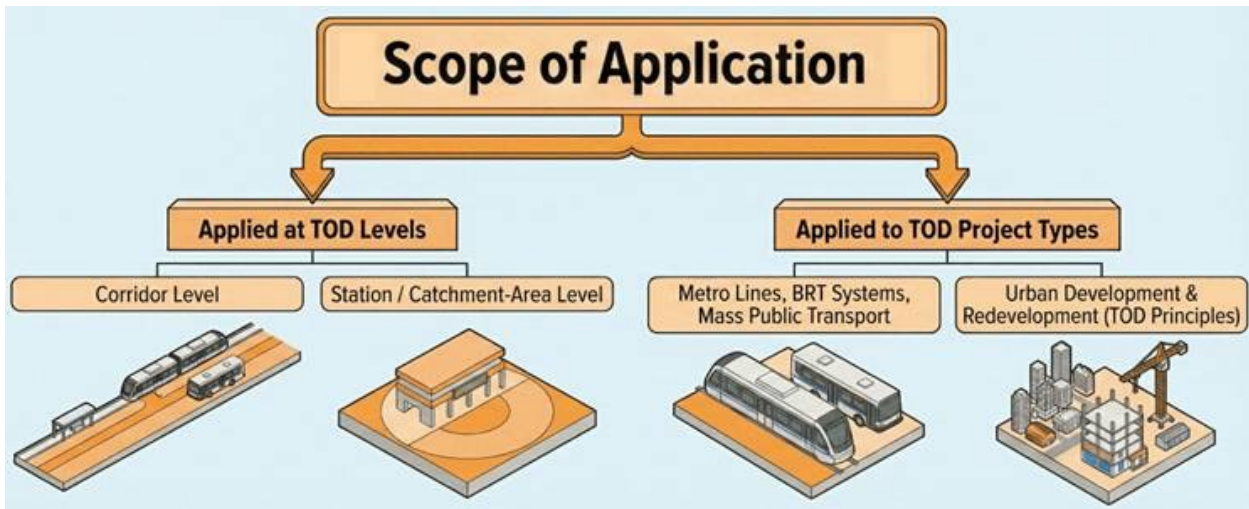


Figure 82: Scope of GEDSI integration in transit-oriented development (TOD).¹⁰⁹

4.5.4. Legal and policy basis

Table 25: List of legal documents

Legal document	Content and requirements
Circular No. 06/2024/TT-BXD dated 1 August, 2024 of the Ministry of Construction	Promulgates the National Technical Regulation on Accessible Buildings (QCVN 10:2024/BXD), setting mandatory requirements to ensure safe access for persons with disabilities and limited mobility (elderly, pregnant women, caregivers, etc.).
Resolution No. 38/2025/NQ-HĐND dated 28 August, 2025 of the HCMC People's Council	Regulates the formulation and adjustment of transit-oriented development (TOD) area planning in Ho Chi Minh City; sets general principles for ensuring accessibility for different social groups and requires community consultation.
Resolution No. 260/2025/QH15 dated 11 December, 2025 of the National Assembly	Clause 9, Article 4, emphasises balancing lawful rights and interests to build social consensus. Point (i), Clause 2, Article 6 allows for planning adjustments to strengthen social infrastructure and public facilities to serve community interests.
Decision No. 1190/QĐ-TTg dated 5 August 2020 of the Prime Minister	Approves the National Programme to Support Persons with Disabilities (2021–2030), establishing national orientations to ensure rights to access, participate and integrate in key areas like buildings, transport and public infrastructure.

4.5.5. Core principles

The planning, implementation and operation of TOD shall comply with the following core principles:

Principle 1: Universal design. Stations, access routes, public spaces and service facilities within TOD areas shall be designed to enable independent use by all people, without the need for special assistance, in compliance with at least National Technical Regulation on Accessible Buildings QCVN 10:2024/BXD and equivalent international standards.

Principle 2: Safety by design. Safety is understood not only as accident prevention, but also as perceived safety, free from sexual harassment and bullying, particularly for women, children and older persons. Design shall minimise blind spots and ensure adequate lighting, clear sightlines, active frontages and human presence throughout the entire travel chain.

Principle 3: Care-sensitive TOD (gender and care economy sensitivity). TOD shall be designed based on the reality that women and caregivers undertake more short trips, make multiple stops and travel outside peak hours. This requires continuous walkable infrastructure, resting points and weather protection; accessible toilets, childcare facilities and lactation rooms; and essential services located within walking distance.

Principle 4: Meaningful participation. GEDSI groups shall be engaged early and substantively across key stages of TOD planning, design and monitoring, through mechanisms such as safety walks, wheelchair audits and focused group consultations.

Principle 5: Data and evidence-based approach. Sex, age, disability and income-disaggregated data shall be collected and used to assess needs, risks and the impacts of TOD.

¹⁰⁹ Illustrated by AI

Effective application of these principles enables accessible, safe and inclusive TOD environments in practice, as shown in the examples below:



Figure 83: Accessible station design in New York Metro¹¹⁰



Figure 84: Barrier-free design in Japan¹¹¹



Figure 85: Accessible elevator design Sweden¹¹²



Figure 86: Accessible toilet design in Australia¹¹³

¹¹⁰ Marc A. Hermann/MTS New York City Transit. In, Russell, J.S., (2020). [Alex Elegudin's Daunting Task: Making the Subway Accessible. AIA New York.](#)
¹¹¹ Kume Sekkei. [Design story. Steps toward Diversity and Inclusion: Barrier-free Design Practice.](#)
¹¹² Visit Sweden. [Accessible travel.](#)
¹¹³ Carroll, S. (2025). [Practical design ideas for accessible bathrooms across Australia. MyHomeware.](#)

4.5.6. Key GEDSI criteria and standards in transit-oriented development

Table 26: Key GEDSI criteria and standards in transit-oriented development

Dimension	Focus area	Key requirements
A. Planning and urban spatial structure	Inclusive spatial planning and service access	<ul style="list-style-type: none"> Barrier-free public spaces and access routes for persons with disabilities, persons with limited mobility and older persons. Essential services (healthcare, education, childcare, eldercare, markets, basic services) within reasonable walking distance of stations. Social and affordable housing within TOD boundaries to mitigate social polarisation and displacement.
B. Station design and public spaces	Accessible, safe and dignified station environments	<ul style="list-style-type: none"> Compliance with QCVN 10:2024/BXD accessibility standards. Independent, safe and dignified use for all groups. Integration of Safety by Design (technical and perceived safety). Gender- and care-sensitive facilities for users with children, older persons and caregivers.
C. First-mile, last-mile and interchange facilities	Continuous and safe travel chains	<ul style="list-style-type: none"> Continuous, legible and accessible travel chains for persons with disabilities and limited mobility. Safety by Design along routes (lighting, visibility, reduced blind spots, safe waiting areas). Resting points, weather protection, stroller-friendly design and support for trip chaining. Convenient connections to services along corridors.
D. Socio-economic dimensions	Social equity and inclusive development	<ul style="list-style-type: none"> Measures to prevent displacement and gentrification. Protection of low-income residents, renters and vulnerable groups. Promotion of inclusive employment in construction and operation for women, persons with disabilities and disadvantaged groups.
E. Processes, governance and implementation	Institutional mechanisms for GEDSI integration	<ul style="list-style-type: none"> Meaningful consultation with GEDSI groups at key TOD stages. Accessible grievance and feedback mechanisms. Integration of GEDSI in Terms of Reference, bidding and operation and maintenance contracts. Monitoring indicators, evaluation frameworks and incentive–accountability mechanisms.

4.5.7. GEDSI inclusion targets in transit-oriented development implementation

GEDSI01 – Housing and essential services:

Affordable/social housing and essential services within 800–1,000m walk.

GEDSI02 – Public space and walkability: Continuous step-free walk network; accessible crossings (QCVN 10:2024/BXD).

GEDSI03 – Public transport connectivity: Accessible stops/interchanges with seating, wheelchair space, tactile, clear signs.

GEDSI04 – Ramps and step-free access: Ramps meet minimum slope/width/landing and safety standards.

GEDSI05 – Elevators: Accessible size/doors, Braille¹¹⁴/contrast controls, audible announcements.

GEDSI06 – Signage and wayfinding: Clear visual/audible/Braille guidance to accessible routes/services.

GEDSI07 – Tactile paving, warning and guidance: Tactile/high contrast guidance on routes and platform edges.

GEDSI08 – Toilets and caregiver support: Accessible toilets and baby-changing (if provided), and a low emergency call bell.

GEDSI09 – Bus stops and interchanges: Step-free access, tactile/contrast, seating, wheelchair space, accessibility signage

GOV01 – Contractual binding: Include flood resilience and GEDSI KPIs directly in PPP and operations and maintenance (O&M) contracts and tender documents.

¹¹⁴ A tactile writing system used by blind or visually impaired people

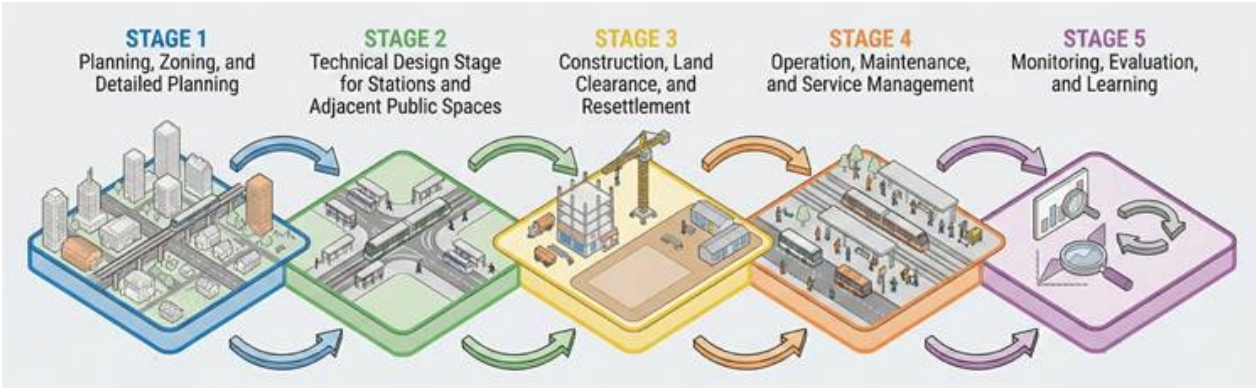


Figure 87: Guideline overview for applying GEDSI across transit-oriented development stages¹¹⁵

Stage 1: Planning, zoning and detailed planning

1. GEDSI objectives (required outcomes)

- Translate required technical standards and the principle of “leaving no one behind” into mandatory targets within planning documents and management regulations.
- Ensure that TOD does not reduce access to housing, public services or public spaces for vulnerable groups compared to pre-project conditions.

2. GEDSI criteria required in planning documents

GEDSI01 – Housing and essential services

- A minimum proportion of social housing and/or affordable housing within TOD boundaries (to be applied in line with the city’s housing programmes, housing development plans and land fund mechanisms).
- Provision of essential services within an 800–1,000m walking radius, including childcare/kindergartens, schools, health stations, eldercare facilities, markets, public spaces and transport interchange points.

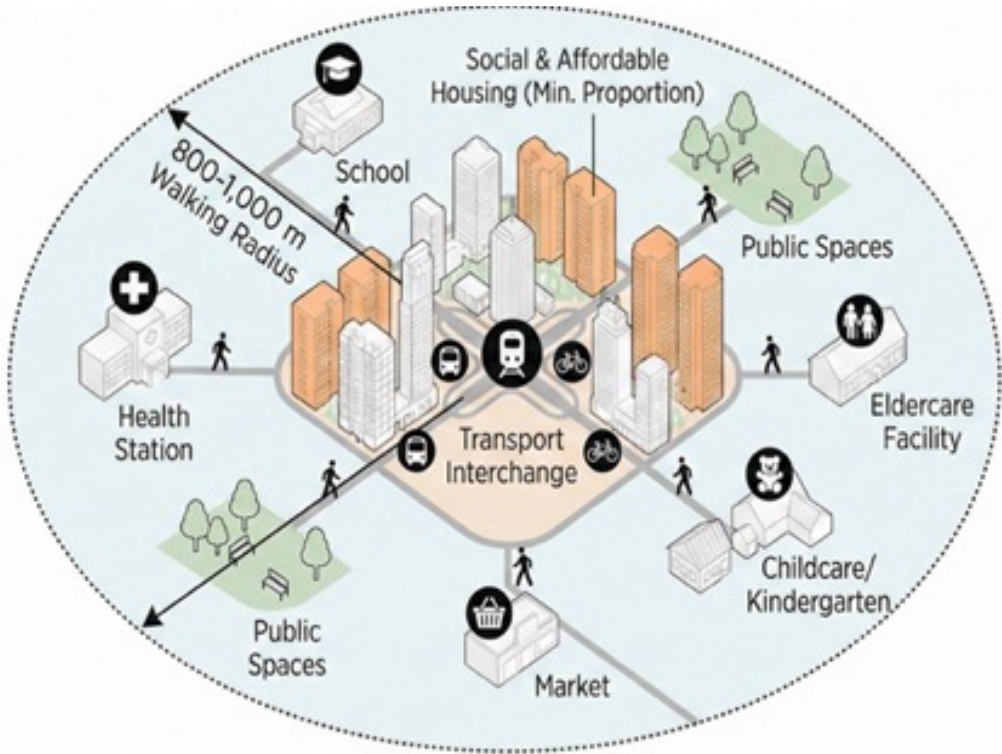


Figure 88: Housing and essential services¹¹⁶

¹¹⁵ Illustrated by AI
¹¹⁶ Illustrated by AI

GEDSI02 – Public space and walkability

- A continuous pedestrian network, prioritising step-free access; where level changes occur, ramps shall be provided in accordance with National Technical Regulation on Accessible Buildings QCVN 10:2024/BXD requirements (slope $\leq 1/12$; width $\geq 1,200\text{mm}$; non-slip surface; handrails and resting landings as required).
- Intersections, underpasses and overpasses shall include accessible warnings and guidance for persons with visual impairments and other vulnerable groups (tactile paving, contrasting markings, audible signals and/or Braille).

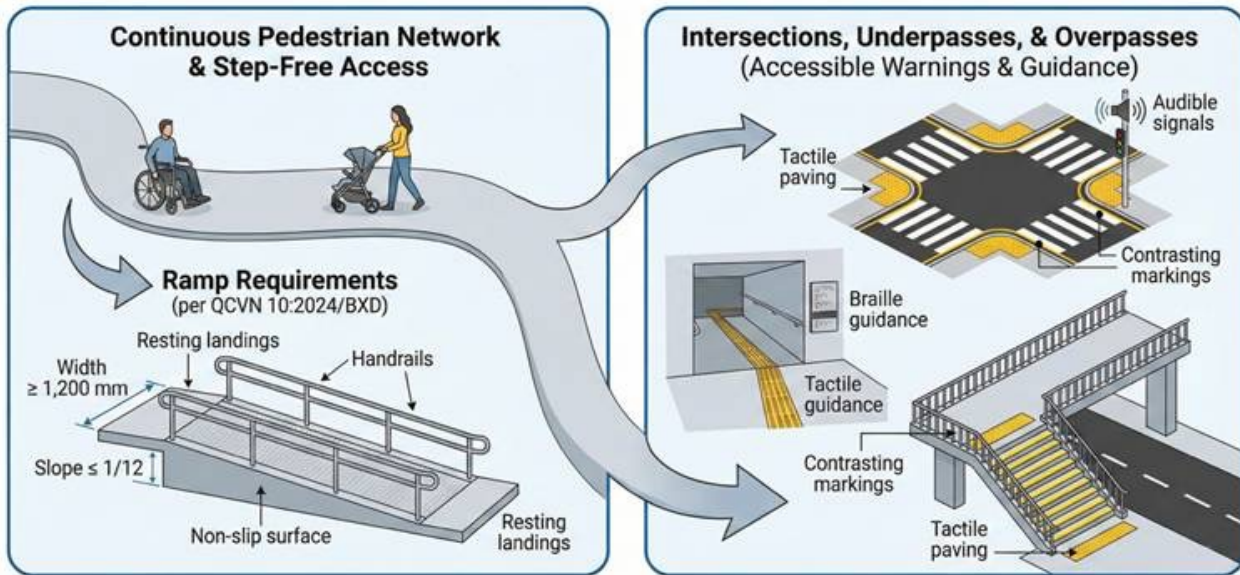


Figure 89: Ensuring safe, continuous and accessible movement for all users.¹¹⁷

GEDSI03 – Public transport connectivity

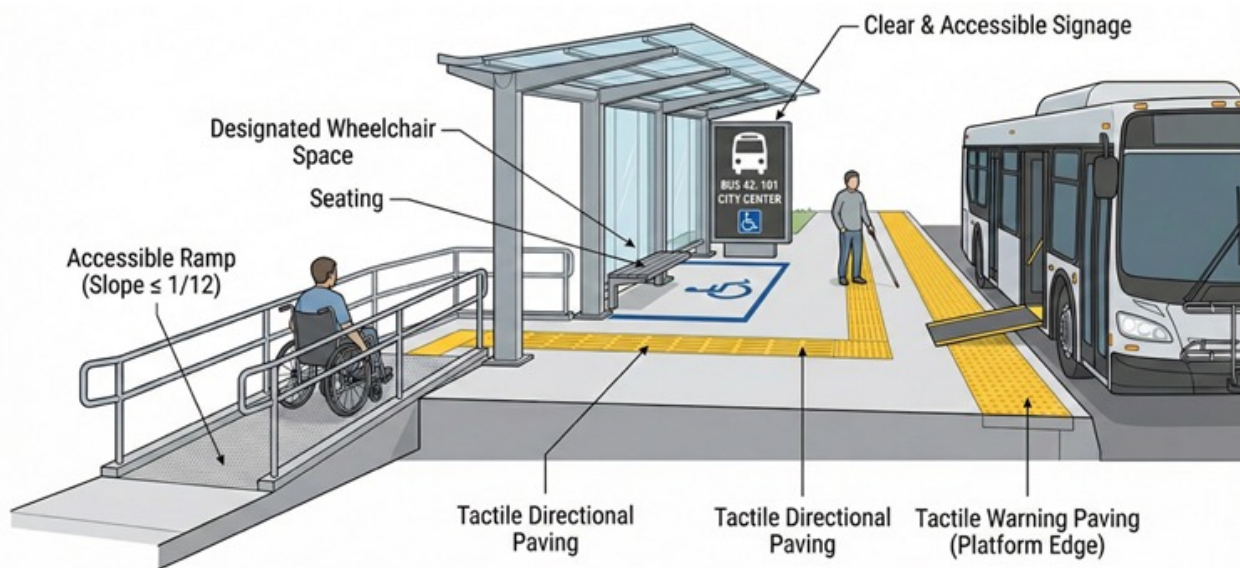


Figure 90: Public transport connectivity¹¹⁸

¹¹⁷ Illustrated by AI

¹¹⁸ Illustrated by AI

3. Implementation and control mechanisms

- Inclusion of a GEDSI-TOD targets table in the planning report (covering land use targets, social infrastructure, transport infrastructure and public spaces).
- Management regulations attached to the approved plan shall clearly specify mandatory accessibility components (ramps, handrails, tactile paving, signage, etc.), with National Technical Regulation on Accessible Buildings QCVN 10:2024/BXD cited as the minimum technical basis.
- Targeted consultations, with a minimum of two activities per station:
 - Safety walks (with women, students, night-shift workers).
 - Wheelchair and stroller audits (with persons with disabilities, older persons, pregnant women and caregivers of young children), recognised as “persons with temporary mobility difficulties” under National Technical Regulation on Accessible Buildings QCVN 10:2024/BXD definitions.

4. Mandatory outputs

- GEDSI-TOD target table included in the planning dossier.
- Consultation records and hotspot maps (e.g. insufficient lighting, dangerous crossings, harassment-prone areas, accessibility barriers).
- Draft TOD spatial management regulations explicitly referencing accessibility requirements.

Stage 2: Technical design stage for stations and adjacent public spaces

1. GEDSI objectives

- Translate GEDSI criteria into measurable technical requirements reflected in drawings, cost estimates, components, equipment and contracts.
- Ensure a continuous accessible journey, from sidewalks/bus stops → station concourse → fare gates → platforms → trains.

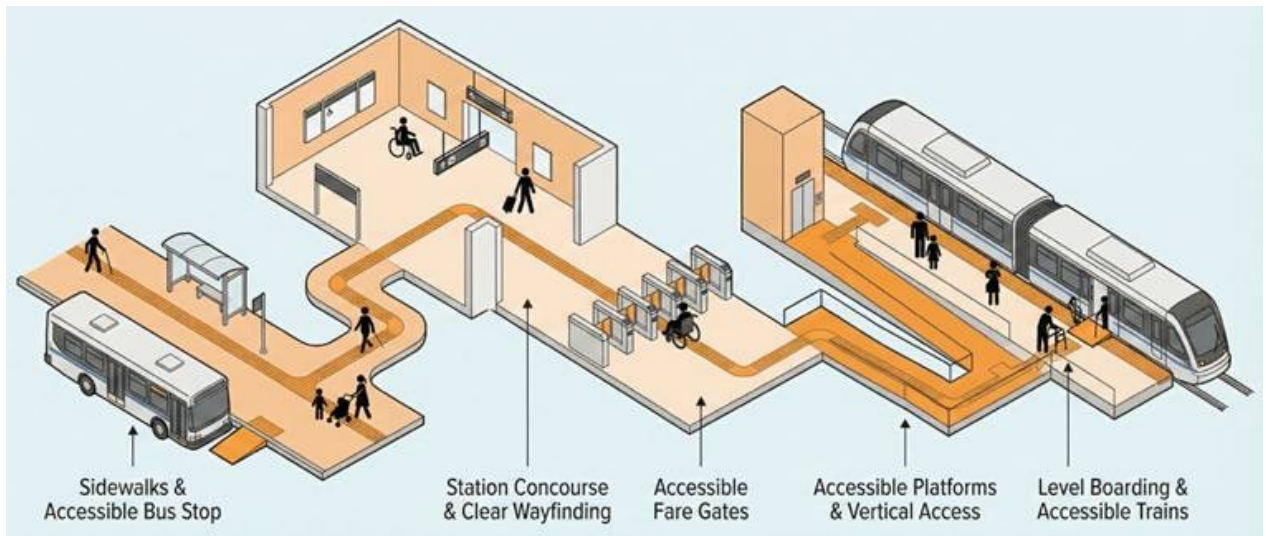


Figure 91: Continuous accessible public transportation journey¹¹⁹

2. GEDSI technical requirements

(Applicable to stations, entrances, underpass/overpass connections and service facilities within TOD)

GEDSI04 – Ramps and step-free access

- Ramp slope not exceeding 1/12; width ≥ 1,200mm; maximum length of 9,000mm without a landing; landings ≥ 1,400mm; wheelchair turning space of 1,400 × 1,400mm at top and bottom; firm, non-slip surface.
- Continuous handrails/guardrails on both sides; handrail height 900mm, with optional dual height (700mm); handrails extended at least 300mm beyond ramp ends.

¹¹⁹ Illustrated by AI

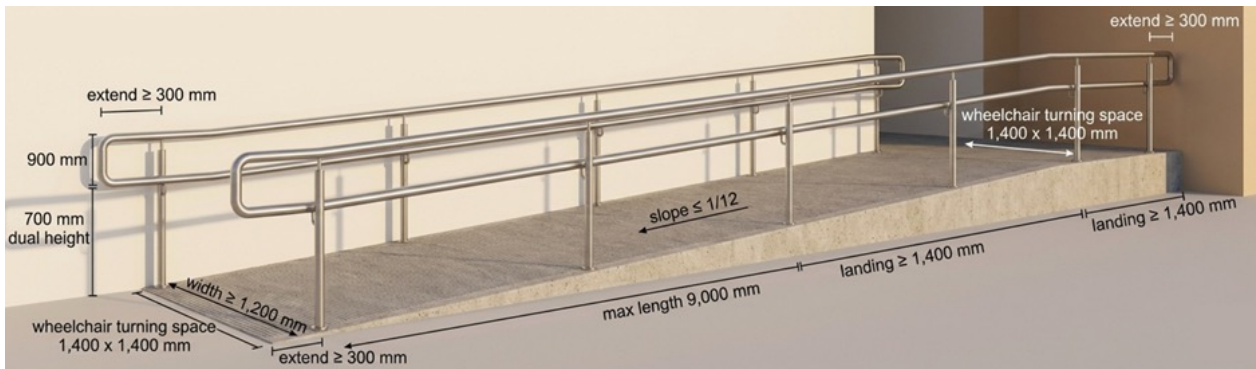


Figure 92: Ramps and step-free access¹²⁰

GEDSI05 – Elevators

- Elevator door width ≥ 900 mm; cabin size $\geq 1,100 \times 1,400$ mm; waiting area in front of doors $\geq 1,400 \times 1,400$ mm; door opening/closing time > 20 seconds; control buttons with colour contrast and Braille; audible announcements.



Figure 93: Accessible elevator design¹²¹

GEDSI06 – Signage and wayfinding

- At station entrances: signage, audible announcements and guidance directing users to elevators and services for persons with limited mobility.
- At intersections, underpasses and overpasses: clear signage supplemented with audible signals and/or Braille to assist persons with visual impairments when crossing.

¹²⁰ Illustrated by AI

¹²¹ Illustrated by AI



Figure 94: Signage, audible announcements and guidance at entrances¹²²



Figure 95: Signage, audible announcements, Braille at under/overpasses¹²³



Figure 96: Signage, audible announcements, Braille at intersections¹²⁴

GEDSI07 – Tactile Paving, Warning and Guidance

- Warning features including tactile paving and/or high contrast markings.
- Directional tactile paving installed in front of ticket counters, information boards (with Braille/audio), toilets, waiting areas and building entrances.
- Specialised tactile warning tiles are provided at metro platform edges for persons with visual impairments.



Figure 97: High contrast tactile paving¹²⁵



Figure 98: Directional paving with Braille/Audio¹²⁶



Figure 99: Tactile warning tiles on platform edges¹²⁷

GEDSI08 – Toilets and caregiver support

- Public buildings shall provide at least one accessible toilet and no less than 5% of total toilets; note: accessible toilets are for use by all users.
- Where baby-changing facilities are provided, they shall be appropriately located so as not to interfere with other functions. Emergency call bells at a height of ≤ 400mm.



Figure 100: Clear/universally recognised accessibility sign¹²⁸



Figure 101: Conveniently placed baby-changing facility¹²⁹



Figure 102: Emergency call bells below 400mm¹³⁰

GEDSI09 – Bus stops and interchanges

- Where level changes occur, ramps shall be provided; tactile paving and/or contrasting markings shall be installed; seating and wheelchair spaces shall be provided; and clear signage shall be displayed.

¹²² Illustrated by AI
¹²³ Illustrated by AI
¹²⁴ Illustrated by AI
¹²⁵ Illustrated by AI
¹²⁶ Illustrated by AI
¹²⁷ Illustrated by AI
¹²⁸ Illustrated by AI
¹²⁹ Illustrated by AI
¹³⁰ Illustrated by AI



Figure 103: Ramp to accommodate level change¹³¹



Figure 104: Seating and wheelchair spaces¹³²



Figure 105: Clear/universally recognised accessibility sign¹³³

GOV01 – Contractual binding

3. Integration into Terms of Reference, bidding documents, construction documents, include but not limited to PPP contract, O&M contract, etc.

Table 27: List of documents and responsibilities, scope, compliance

Phase/document	Role and responsibilities	Scope and compliance
A. Terms of Reference for planning and design	Consultant Integrate accessibility and inclusive-use requirements in accordance with QCVN 10:2024/BXD and Circular No. 06/2024/TT-BXD into all design deliverables.	Scope: Stations; roads and sidewalks; pedestrian under/overpasses; bus stops; public amenities; and other transit-oriented development components. Compliance: Requirements embedded in design outputs; legal compliance with QCVN and Circular.
B. Bidding documents (HSMT)	Contractor Design, supply, construct and install works and equipment in full compliance with accessibility standards.	Scope: Step-free access; ramps; elevators; tactile paving; accessible toilets; bus stops; and other related components. Compliance: Mandatory technical requirement; condition of bid validity; basis for acceptance, commissioning and payment.
C. Operations and maintenance contracts	Operator/service provider Maintain accessibility and inclusive-use conditions throughout the operation period. Disclose conformity certificates and quality documentation.	Scope: Elevators; accessible toilets; bus stops; wayfinding systems; and accessibility facilities. Compliance: KPIs linked to incentives/penalties; elevator uptime; response time for accessibility-related incidents; facility usability.
D. Construction and implementation	Construction contractor Execute the TOD components in a manner that ensures GEDSI integration as per the design; ensure technical implementation capacity with GEDSI awareness; and establish a code of conduct and a safe, non-discriminatory working environment at construction sites.	Scope: All construction activities related to TOD infrastructure components (stations, access points, ancillary facilities, etc.). Compliance: Apply the Code of Conduct on harassment/GBV; provide training for construction teams to understand GEDSI standards; apply quality-control checklists (barrier-free accessibility, safe lighting, clear and easy-to-understand signage). Ensure appropriate labour conditions (sanitation facilities, personal protective equipment (PPE), and appropriate work shifts).

Stage 3: Construction, land clearance and resettlement

1. GEDSI objectives

- Ensure that vulnerable groups do not face higher risks during construction and land clearance.
- Reduce social conflicts and minimise livelihood disruption caused by TOD implementation.

2. Mandatory GEDSI criteria during construction

(To be incorporated directly into the construction plan)

- Temporary pedestrian access for persons with limited mobility: flat, non-slip surfaces; where level changes occur, ramps shall be provided in accordance with QCVN parameters (slope $\leq 1/12$; width $\geq 1,200\text{mm}$, etc.).
- Highly visible warnings at construction sites and barriers: prioritising tactile or high contrast warning surfaces (consistent with the principle of “detectable warning features”).

¹³¹ Illustrated by AI

¹³² Illustrated by AI

¹³³ Illustrated by AI

- At hazardous crossings and interfaces: consider additional tactile warning tiles and/or contrasting markings.

3. Fair resettlement

(The “social inclusion” component of GEDSI)

- Prepare a list of vulnerable households and groups, including single-parent households, persons with disabilities, older persons, renters and informal workers.
- Conduct separate, targeted consultations by group (not a single general meeting treated as sufficient).
- Prioritise resettlement close to original locations; provide rental support and administrative assistance for people lacking formal documentation, to prevent displacement from TOD areas.

4. Safe grievance and feedback mechanisms (during construction)

- Establish at least three channels: hotline, QR code and on-site reception point, with easy-to-understand information (including icons).
- Define clear response timelines and responsibilities for each focal point.

Stage 4: Operation, maintenance and service management

(Ensuring TOD is usable in daily life)

1. GEDSI objectives

- Ensure TOD operates in a safe, user-friendly and non-discriminatory manner for all groups, particularly those facing accessibility challenges.
- Maintain continuous accessibility for persons with disabilities, older persons, pregnant women, caregivers with young children and groups with temporary mobility difficulties.
- Enhance perceived safety, respect and user dignity throughout the travel experience.

2. Mandatory operational criteria

A. Frontline staff training

- Station staff, ticketing staff and security personnel shall be trained, for example, to:
 - Assist wheelchair users and persons with visual or hearing impairments.
 - Support pregnant women and caregivers with strollers (groups with temporary mobility limitations).
- Staff shall clearly understand procedures for supporting users with accessibility needs, including:
 - Elevator breakdowns or disrupted access routes.
 - Incidents involving accessible toilets.
 - Situations where users require urgent assistance but cannot access facilities independently.

B. Maintenance of “accessibility backbone” components

- Ramps and handrails shall remain continuous and non-slip, consistent with ramp safety requirements.
- Elevators shall ensure safe operation and appropriate door opening/closing times for users with accessibility needs; downtime shall be minimised.
- Accessible toilets shall ensure functional emergency call bells and clear visual/audible signage.
- Tactile paving (guidance, warning, platform-edge tiles) shall remain intact and correctly aligned.

C. Feeder bus stops and passenger collection points

- Seating, wheelchair spaces and signage shall be maintained; encroachment shall be addressed promptly.

3. GEDSI operational KPIs

(To be embedded in O&M contracts)

- Elevator uptime.
- Number of accessibility-related complaints and response time.
- Condition of accessible toilets and emergency call systems.
- Satisfaction levels of vulnerable groups (periodic surveys, disaggregated by group where possible).

Stage 5: Monitoring, evaluation and learning

(Progressively improving quality)

1. GEDSI objectives

- Go beyond minimum compliance by maintaining and continuously improving accessibility and inclusion.
- Reflect real user experiences of GEDSI groups, especially women, persons with disabilities, older persons and caregivers.
- Generate evidence and lessons to inform design, operation and policy adjustments in subsequent TOD projects.

2. Minimum GEDSI–TOD indicators

(May be required for reporting by the Department of Construction)

- Infrastructure accessibility: percentage of stations with continuous accessible journeys; percentage of compliant bus stops; percentage of accessible toilets functioning properly.
- Safety and user experience: number of safety hotspots; number of accessibility-related complaints; user satisfaction levels.
- Social equity: monitoring risks of displacement (rental price changes, resettlement outcomes, access to public services).

3. Disclosure and update mechanisms

- Annual “Inclusive Mobility” reports for key TOD corridors or stations.
- Periodic updates of the GEDSI–TOD guidelines (every 3–5 years), reflecting changes in legislation, QCVN 10:2024/BXD standards and operational lessons learned.

4.6. Climate resilience and environmental sustainability

4.6.1. Introduction

HCMC is highly vulnerable to the impacts of climate change, particularly the “dual threat” of extreme flooding (from heavy rain, high tides and sea-level rise) and rapid land subsidence. Within the TOD framework, integrating climate and resilience objectives is a mandatory requirement to ensure the sustainability, safety and long-term effectiveness of the urban railway network and its surrounding communities. This section establishes the technical guidelines required to transition TOD projects from traditional “grey” infrastructure toward proactive, adaptive “blue-green” urban ecosystems.

4.6.2. Objective

- **Adaptation (building a resilient city):** Ensure HCMC TOD areas function as “safe havens” that remain operational during extreme weather events and mitigate long-term risks such as land subsidence and sea-level rise.
- **Mitigation (towards a net-zero city)¹³⁴:** Promote a green urban development model that enables deep greenhouse gas emissions reductions through a radical modal shift to public transport and the enforcement of energy-efficient, low-carbon built environments.

4.6.3. Scope of application

These climate resilience and environmental sustainability guidelines apply comprehensively across:

- **Applied at TOD levels:** Corridor level (macro-planning) and station/catchment-area level (micro-design).
- **Applied to TOD project types:** Metro lines, bus rapid transit systems, mass public transport corridors and urban development/redevelopment projects implemented within TOD influence zones.

4.6.4. Legal and policy basis

- **Law on Urban and Rural Planning (Law No. 47/2024/QH15 dated 26 November, 2024 of the National Assembly):** Requires planning to meet requirements for green, smart, sustainable development, climate change adaptation and hazard prevention.
- **Law on Environmental Protection 2020 (Law No. 72/2020/QH14 dated 17 November, 2020 of the National Assembly):** Mandates an environmental impact assessment (EIA) for TOD projects, including a specific section on “Assessment of Climate Change Impacts”.
- **Circular No. 01/2021/TT-BXD dated 19 May, 2021 of the Ministry of Construction on promulgating QCVN 01:2021/BXD National Technical Regulations on construction planning:** (2025 version that is under revision, so please keep track with the issued one that will replace the version 2021). The Draft 2025 version (published on the portal of the Ministry of Construction for comment) mandates that urban planning prioritise climate resilience, flood control and sustainable land use through interconnected green spaces and flexible public space quotas. Furthermore, it explicitly drives the national net-zero 2050 goal by requiring modernised electric vehicle infrastructure, smart water management systems and TOD to create resilient and eco-friendly cities.
- **Resolution No. 38/2025/NQ-HĐND dated 28 August, 2025 of the HCMC People’s Council on regulations governing the formulation, appraisal, approval, and adjustment of planning for transit-oriented development areas in Ho Chi Minh City:** Mandates TOD planning to ensure “high climate resilience” and provides a direct technical tool allowing 2m² of rooftop green space to be counted as 1m² of required land-based public park area.
- **Decision No. 1125/QĐ-TTg dated 11 June, 2025 of the Prime Minister on approval of the project for amendments to general planning for Ho Chi Minh City by 2040, with a vision by 2060:** Defines the structural framework for “ecological urban development” and “water retention areas” to adapt to flooding.
- **Decision No. 3924/QĐ-UBND dated 20 October, 2020 of the Ho Chi Minh City People’s Committee on the Plan for implementing the Paris Agreement on climate change within Ho Chi Minh City:** Requires strict controls on groundwater extraction in vulnerable areas to mitigate land subsidence.

¹³⁴ The National Mandate: Vietnam has officially committed to achieving net-zero greenhouse gas emissions by 2050, requiring a massive, economy-wide transition away from fossil fuels, particularly in the urban transportation and construction sectors. TOD acts as a primary vehicle to reach this goal by fundamentally changing how people move and live. By clustering high-density, mixed-use neighbourhoods around electrified mass transit, TOD drastically reduces the need for private cars, slashing daily vehicle miles travelled and their associated tailpipe emissions.

4.6.5. Climate resilience and environmental sustainability principles

Principle 1: TOD as a resilient “safe haven”: Critical infrastructure must be strictly protected based on mandatory data-driven risk assessments combining flood scenarios and land subsidence tracking. TOD operations must guarantee continuity of mobility and safety when broader city infrastructure is compromised.

Principle 2: Integration of “sponge city” and climate-adaptive design: Transition from rigid “grey” engineering to adaptive “blue-green” solutions (retain, slow, drain). Manage stormwater at the source using permeable pavements, retention basins and green roofs to mitigate flooding and the urban heat island effect.

Principle 3: Driver for net-zero and geological stability: Enforce spatial geometry (compactness, mixed-use) and public transit modal shift to reduce emissions. To halt vertical land subsidence, strict prohibitions on groundwater extraction must be enforced alongside the rigorous monitoring of construction de-watering.

4.6.6. Climate-Responsive Urban Design and Microclimate Considerations

TOD precincts should integrate climate-responsive urban design principles to improve environmental quality, pedestrian comfort and public realm performance.

In high-density urban environments, building form, street orientation, open space design and landscape configuration can significantly influence thermal comfort, natural ventilation and the usability of public spaces. These considerations are particularly important in Ho Chi Minh City due to increasing urban heat island effects, high humidity and projected climate change impacts.

TOD planning and design should therefore consider:

- Building orientation and massing to optimise natural ventilation and reduce heat gain;
- Street and block layouts that support urban airflow and wind permeability;
- Shaded pedestrian and cycling networks through tree canopy, awnings, arcades and landscape design;
- Green infrastructure and permeable surfaces to improve cooling and stormwater management;
- Reduction of heat absorption through appropriate material selection and surface treatment;
- Integration of water-sensitive urban design and flood-responsive public realm solutions;
- Public space and station design that improves outdoor thermal comfort and walkability.

For major TOD precincts, strategic station areas and high-density development zones, microclimate assessment should be undertaken during the master planning and concept planning stages.

Assessment may include:

- Pedestrian thermal comfort analysis;
- Solar access and shading studies;
- Wind environment and ventilation analysis;
- Urban heat island assessment;
- Surface temperature analysis;
- Tree canopy and landscape cooling performance.

Assessment methodologies may include computational fluid dynamics (CFD), solar modelling, thermal comfort assessment or equivalent environmental analysis tools appropriate to the scale and complexity of the TOD precinct.

The results of the assessment should inform station-area planning, building massing, public realm design, active mobility networks, landscape strategies and open space configuration.

4.6.7. Low-Carbon TOD Precinct Planning

TOD in Ho Chi Minh City should support the city's transition toward a low-carbon and climate-resilient urban development model.

The integration of transport, land use and urban development within TOD precincts provides significant opportunities to reduce transport emissions, improve energy efficiency and support more sustainable urban growth patterns.

Major TOD precincts and station-area master plans should therefore consider the preparation of an indicative low-carbon precinct strategy addressing:

- Reduction of private vehicle dependency through high-quality public transport and active mobility integration;
- Passive urban design measures to reduce operational energy demand;
- Building orientation and urban form optimisation;
- Renewable energy integration opportunities;
- District-scale energy and cooling opportunities where appropriate;
- Electric vehicle and future mobility infrastructure integration;
- Reduction of embodied carbon through material and construction considerations;
- Circular resource and water management principles;
- Nature-based cooling and green infrastructure systems;
- Integration of low-carbon infrastructure and energy-efficient systems into station precincts.

The low-carbon strategy should align with Ho Chi Minh City climate objectives, Vietnam's Net Zero 2050 commitments and other relevant city and national sustainability frameworks.

Climate resilience, environmental sustainability and low-carbon planning should not be considered as standalone technical exercises, but as integrated components of TOD planning, urban design, infrastructure delivery and station-area development.

The integration of climate-responsive urban design, microclimate performance and low-carbon development principles can significantly improve the long-term liveability, accessibility, environmental performance and economic resilience of TOD precincts in Ho Chi Minh City.

4.6.8. Transit-oriented development implementation requirements

- **CR01 – Mandatory risk assessment:** Conduct flood risk assessments (FRA) using the latest Vietnam's Ministry of Natural Resources and Environment (MONRE) climate scenarios overlaid with InSAR¹³⁵-derived land subsidence data to identify high-risk zones, inform minimum elevation standards and guide land-use restrictions.
- **CR02 – Flood resilient elevation:** General ground elevation must be \geq Calculated Flood Level +0.3m (residential) + 0.5m (industrial)¹³⁶. Critical infrastructure (station entrances, substations) must incorporate a safety freeboard of +0.5m to +1.0m above the annual exceedance probability flood events, using climate-adjusted return periods that incorporate projected rainfall intensification, sea-level rise + local + subsidence rates or utilise automatic flood barriers.
- **CR03 – “Sponge City” infrastructure:** Developments must integrate Blue-Green Infrastructure (retention basins, permeable surfaces) to manage stormwater at the source and reduce runoff. A minimum certain percentage of the non-traffic public realm (plazas, walkways) must utilise permeable surfaces to facilitate groundwater recharge.

- **CR04 – Heat mitigation and green incentives:** Urban form must maximise green coverage to reduce the urban heat island effect. This includes street trees, green roofs, vertical greenery and shaded pedestrian. Apply the Green Roof Conversion Rate and prioritise a “Cooling Hierarchy” (passive design → green infrastructure → active cooling).
- **CR05 – Subsidence mitigation:** Strictly enforce bans on groundwater extraction and monitor de-watering during underground construction.

4.6.9. Transit-oriented development implementation requirements (by project lifecycle stages)

Stage 1: Planning, zoning and detailed planning

Climate objectives: Establish a data-driven baseline ensuring risk-aware urban form. Ensure that TOD does not place future populations or critical transit assets in high-risk flood or subsidence zones.

Apply CR01 mandatory actions and criteria:

- Conduct a mandatory **climate and vulnerability risk assessment** (CRVA) and FRA utilising the latest Ministry of Agriculture and Environment climate change scenarios.
- Overlay flood risk maps with **InSAR-derived land subsidence data** to identify “hotspots” where vertical ground movement exceeds 1cm/year. Determine the design flood frequency (P=1-2% for special urban areas according to **QCVN 01:2021/BXD**).
- Allocate specific land reserves for regulatory lakes/basins directly into plans to store excess rainwater during combined high tide and heavy rain events.

Mandatory outputs:

- Composite flood risk and subsidence zoning map included in the planning dossier.
- Draft TOD spatial management regulations explicitly referencing flood resilience and “Sponge city” spatial allocations.

¹³⁵ InSAR (Interferometric Synthetic Aperture Radar) is an advanced remote sensing technique that uses data from radar satellites to measure changes in elevation and deformation of the Earth's surface with high accuracy (at the millimeter to centimeter scale) (see also: <https://nguoidothi.net.vn/sut-lun-phai-la-du-lieu-dau-vao-cua-quy-hoach-do-thi-49995.html>).

¹³⁶ Should keep track and update the latest required data from QCVN 01:2021/BXD when the 2025 update is issued.

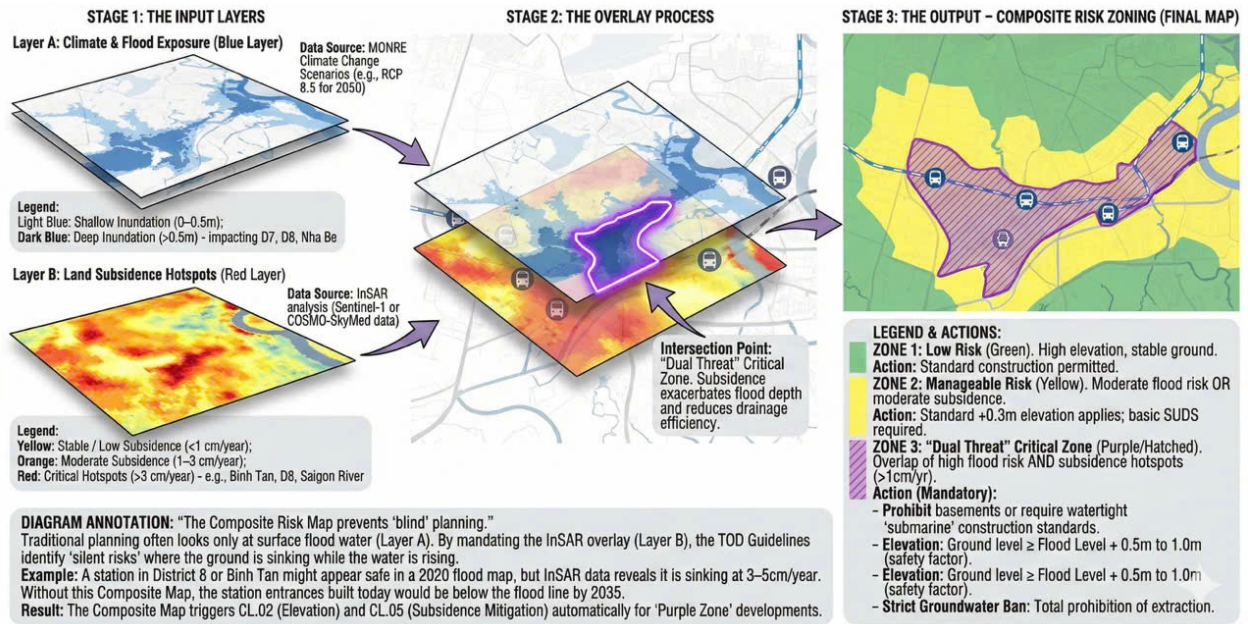


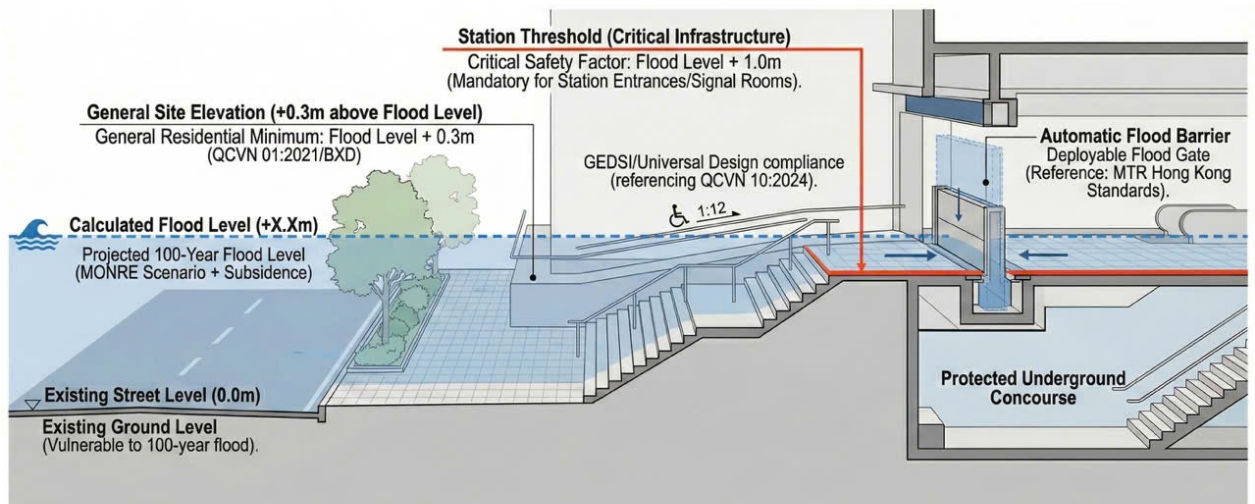
Figure 106: Illustration of a map overlay diagram, showing flood risk zones and InSAR subsidence hotspots to create a composite risk map

Stage 2: Technical Design Stage for Stations and Adjacent Public Spaces

Climate Objectives: Translate resilience criteria into physical, measurable engineering requirements reflected in drawings, cost estimates and equipment. Ensure a safe-to-fail and climate-adaptive public realm.

Mandatory actions and criteria:

CR02 application: Ensure all general ground elevations are designed to ≥ flood level + 0.3m (civil) or +0.5m (industrial). Design critical station assets (entrances, signal rooms) with a +0.5m to +1.0m elevation safety factor or integrate deployable automatic flood gates.

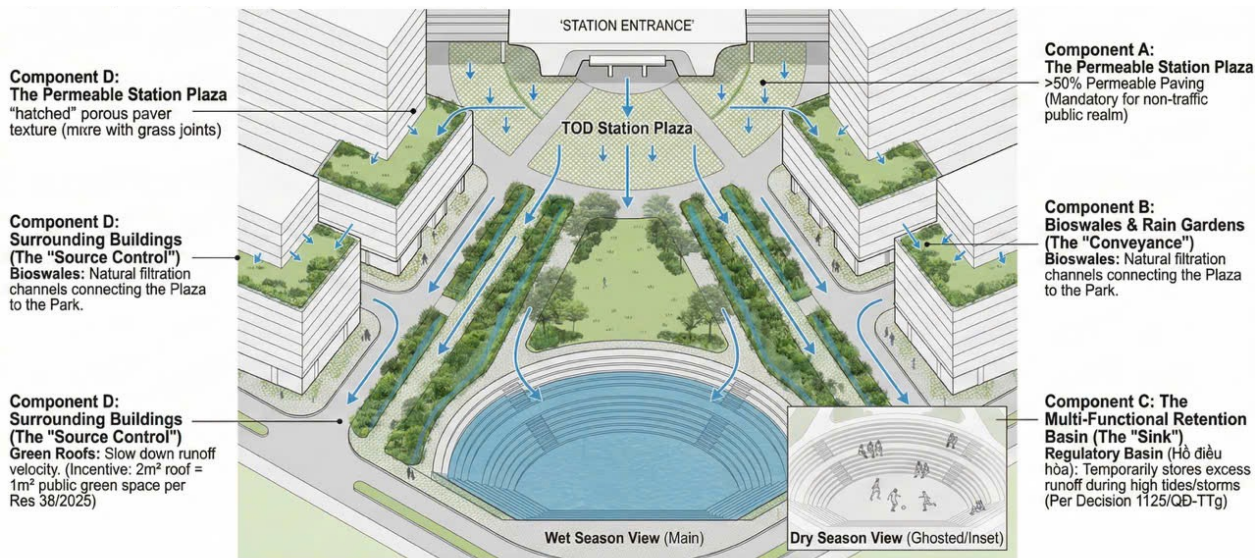


Defending the Critical Line: While general TOD land (Residential/Commercial) must be elevated 0.3m above the flood level, Critical Infrastructure (Metro Stations) requires a higher safety factor. This diagram illustrates the +1.0m Freeboard requirement.

- **Passive Defense:** The physical entrance is elevated via steps and ramps.
- **Active Defense:** Automatic flood gates provide a second layer of defense against extreme climate events, ensuring the metro tunnel remains dry even if the street is inundated.

Figure 107: Illustration showing street level vs. station entrance level with +1.0m freeboard/flood gate.

CR03 application: Implement “sponge city”¹³⁷ engineering in architectural drawings, ensuring the minimum required ratio of permeable surface is achieved for non-traffic public plazas and access routes.

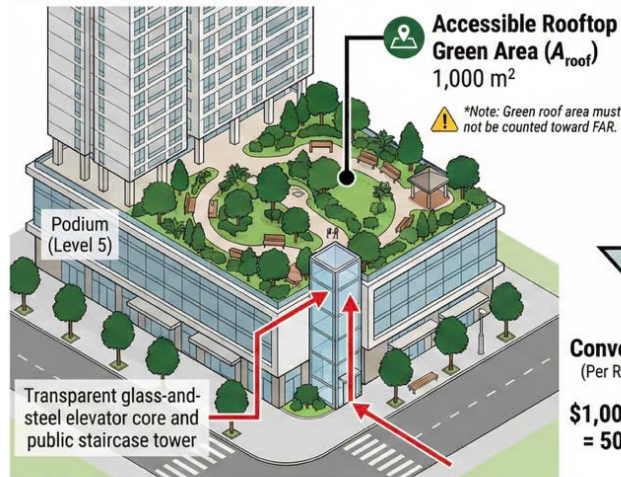


From Grey to Blue-Green: The Sponge City Concept. This diagram illustrates the mandatory transition from rapid concrete drainage to ‘Source Control.’
 1. **Retain:** Green roofs and permeable plazas (>50%) capture rain where it falls. 2. **Slow:** Runoff is directed through bioswales rather than pipes, filtering pollutants. 3. **Drain/Store:** Excess water during high tides collects in multi-functional retention basins (parks designed to flood safety), preventing water from backing up into the station or surrounding streets.

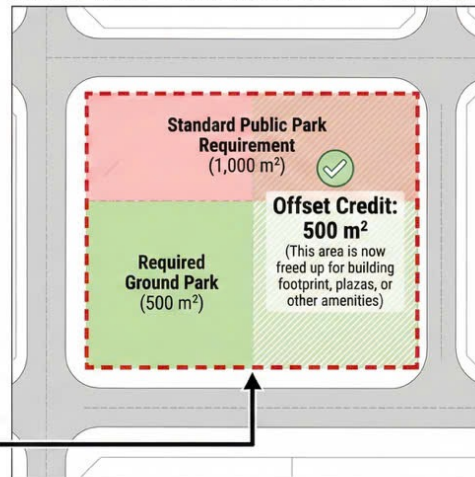
Figure 108: Illustration of a “sponge city” layout showing permeable plazas and retention basins integrated into the public park.

• **CR04 application:** Integrate the cooling hierarchy using high-albedo (cool) materials and continuous covered walkways to protect NMT users from extreme heat and rain. Apply the 2:1 green roof incentive in building designs.

PART A: THE PROPOSED DESIGN (THE INPUT)



PART C: THE REGULATORY CREDIT (THE OUTPUT)



Incentivizing the Fifth Facade: To combat the Urban Heat Island effect and manage stormwater (Sponge City), HCMC incentivizes developers to green their rooftops.

- **The Rule:** Under Resolution 38/2025 (Article 5.2), every 2m² of accessible rooftop garden counts as 1m² of the mandatory land-based public green space.
- **The Condition:** The rooftop must be safe and accessible to residents/public (not just technical space).
- **The Benefit:** Developers gain flexibility in ground-floor site planning, while the city gains a cooler, more absorbent urban canopy.

Figure 109: Illustrated diagram showing a building podium with a green roof and the corresponding “credit” applied to the ground-level requirement

¹³⁷ World Economic Forum (2025). ‘Sponge cities’ can help protect against flooding. Here’s how. <https://www.weforum.org/stories/2025/08/flood-climate-change-sponge-cities/>; University of the Built Environment. What on earth are sponge cities? <https://www.ube.ac.uk/whats-happening/articles/sponge-cities/>

- Technical design drawings demonstrating elevation compliance, permeable surface ratios and green coverage.
- EIA report containing a specific “assessment of climate change impacts”.

Stage 3: Construction.

Climate objectives: Prevent the exacerbation of environmental and geological risks during the construction phase.

Mandatory actions and criteria:

- **CR05 application:** Strictly enforce the ban on groundwater extraction within the TOD construction zone, mandating the use of municipal water supply for construction activities.
- Implement rigorous monitoring of de-watering activities during the excavation of underground basements, tunnelling and station concourses to prevent localised land sinking in adjacent areas.

Mandatory outputs:

- Execution and continuous monitoring reports of the approved environmental management plan.
- Geotechnical and subsidence monitoring logs during underground construction.

Stage 4: Operation, maintenance and service management

Climate objectives: Ensure the TOD ecosystem operates

with high resilience during extreme weather events and that green-blue infrastructure is properly maintained.

Mandatory actions and criteria:

- Bind climate resilience targets into PPP/O&M contracts, specifically mandating the long-term maintenance responsibilities for blue-green infrastructure (bioswales, retention basins, permeable pavements).
- Establish and regularly test disaster response plans and safe emergency evacuation routes for underground and protected systems during the annual exceedance probability flood events.

Mandatory outputs:

- O&M contracts containing explicit flood resilience performance requirements and penalties for non-compliance.

Stage 5: Monitoring, evaluation and learning

Climate objectives: Continuously track environmental performance to verify net-zero contributions and adapt resilience standards to changing climate realities.

Mandatory actions and criteria:

Implement the “Green TOD Indicator Set” to measure post-construction performance. Track metrics such as the percentage of permeable surfaces achieved, reductions in ‘vehicle kilometres travelled’ and actual greenhouse gas emissions reductions (tCO₂ per passenger-km).

Table 28: Suggested Ho Chi Minh City green transit-oriented development indicator set (for city managers)

Focus area	Key performance indicator (KPI)	Feasible target/standard	Verification method and data source
1. Flood resilience (safe haven)	Critical asset elevation compliance	100% compliance: Station entrances and critical sub-systems must be +0.5m to +1.0m above the annual exceedance probability flood events, using climate-adjusted return periods that incorporate projected rainfall intensification, sea-level rise and local land-subsidence rates.	Stage-gate development checklist/construction permit review.
	Sustainable urban drainage systems/ sponge city coverage	> 50% of the non-traffic public realm (plazas, walkways) uses permeable surfaces.	GIS-based transit-oriented development (TOD) platform / architectural design dossiers.
	Flood exposure reduction	Measurable reduction in flood exposure (OT12) and achievement of zero net increase in surface runoff post-development.	Localised hydrological models/TOD data dashboard.
2. Subsidence mitigation	Groundwater extraction ban compliance	100% prohibition of groundwater extraction within the TOD boundary during both construction and operation.	Environmental management plan audits/site inspections.
	Subsidence hotspot avoidance	Avoid placing high-risk/heavy structures in zones with vertical ground movement >1cm/year without structural mitigation.	Overlay of MONRE flood climate scenarios with InSAR-derived land Subsidence Maps in GIS.



Focus area	Key performance indicator (KPI)	Feasible target/standard	Verification method and data source
3. Urban heat and microclimate	Shaded pedestrian network	>40% of the primary pedestrian network in the core zone is shaded (via tree canopy or covered walkways).	Spatial analysis/street design blueprints.
	Green roof adoption	Uptake rate of the 2:1 Green Roof conversion incentive (2m ² accessible green roof = 1m ² required public park).	Urban planning appraisals and Department of Construction records.
	Tree canopy and green coverage	Achieve mandated minimum public green space (4–7m ² /person per QCVN 01:2021/BXD) and maintain >25% tree canopy coverage.	Annual GIS spatial mapping/satellite photography.
4. Net-zero and mobility	Vehicle kilometres travelled	Measurable reduction in Vehicle kilometres travelled by private motorised vehicles within the TOD influence zones.	Transport demand models / Automated traffic counts.
	Transit mode share	Increase public transport and active mobility (walk/cycle) mode share toward the 40–50% target.	Annual mobility surveys/smart ticketing data.
	Greenhouse gas emissions	Reduction in transport-related carbon emissions per passenger-kilometre (tCO ₂ /passenger-km) (OT13).	City-level emissions inventories/periodic M&E (monitoring and evaluation) reports.
	Green building compliance	100% of new large-scale developments meet established green building and energy efficiency standards (e.g. LOTUS, LEED).	Project handover certifications/building code compliance checks.

Some specific indicators in the **feasible target/standard** column are suggested based on various sources of guidance, such as the World Bank TOD implementation resources and tools, ITDP TOD Standard, Singapore ABC Water design guidelines, and they can be adjusted according to the needs and direction of the city.

Apply **adaptive management**: Conduct periodic reviews of the flood risk and subsidence maps every 5 years to dynamically adjust local elevation standards based on actual sea-level rise and ground movement data.

Mandatory outputs:

- Periodic M&E reports generated from the GIS-based TOD Data Platform.
- Updated resilience baselines fed back for future TOD phases.

PART

5



**Part 5. Financial
strategies framework
and land value capture**

5.1. Land value capture and financing mechanisms

5.1.1. Introduction and objectives

Transit-oriented development (TOD) in Ho Chi Minh City (HCMC) is focused on the metro network and associated public transport corridors as a core strategy to promote compact urban growth, improve accessibility and enhance land use efficiency. Investment in metro- and TOD-related planning decisions, such as station-area zoning, density adjustments and allocation of development rights, is accompanied by substantial public investment in transport infrastructure and public spaces. These actions generate significant land value uplift in and around TOD areas, creating an opportunity to mobilise additional and sustainable financing through land value capture (LVC).

Effective implementation of LVC requires both a clear policy framework and well-defined operational instruments. The LVC framework establishes the principles, rules and objectives for capturing land value uplift, while LVC mechanisms are the specific instruments through which value is captured in practice. In HCMC, these mechanisms primarily include FAR-based LVC instruments, IIF, land use change fees, land sale and auction mechanisms, joint development (JD) and public-private partnership (PPP)-linked value sharing.

The key objectives of this section are to establish a coherent LVC framework and to provide clear and practical guidance on the **design, selection and application of LVC mechanisms in the context of HCMC**. In particular:

- Section 5.1.2. defines **what** strategic and operational **principles** guide TOD-related LVC in HCMC and **why** they are necessary.
- Section 5.1.3. provides a three-step framework guiding **how** LVC instruments are selected and adopted, ensuring alignment between policy priorities and market-driven development approaches.
- Section 5.1.4. supports the decision-making and application process by clarifying **when** and in **which** conditions instruments apply across different scenarios, development phases, metro levels and TOD policy objectives, as well as **who** is responsible for implementation.

This technical guideline adopts an integrated and phased approach to the application of LVC instruments in support of TOD, coordinated across stations and corridors. It reflects international best practices while being tailored to HCMC's legal framework, institutional capacity, market conditions and private sector readiness.

5.1.2. Land value capture principles designed for Ho Chi Minh City

In HCMC, LVC associated with TOD should be designed and applied with careful consideration of local conditions and long-term perspectives. The city is undertaking large-scale metro investment while facing significant funding constraints, and TOD implementation is at an early and uneven stage across corridors and station areas. Market conditions vary substantially, and TOD is expected to support a broad set of strategic social and economic development objectives beyond transport financing alone. In addition, institutional capacity, legal frameworks and implementation arrangements continue to evolve. Against this backdrop, this guideline adopts a set of overarching principles to inform the design and implementation of LVC instruments in HCMC.

The principles are structured into “strategic principles” and “operational principles”. The strategic principles articulate the overall policy intent and direction and are not intended to prescribe the selection of specific LVC instruments. In contrast, the operational principles provide practical guidance on the design, governance and implementation of LVC tools.

Definition of strategic principles: Strategic principles establish what HCMC seeks to achieve through TOD-related LVC. They set overall direction, values and policy intent.

Definition of operational principles: Operational principles define how LVC mechanisms are designed, governed and applied. They guide design choices, sequencing, governance and execution.

Principles of LVC instrument design and implementation



Figure 110: Principles of land value capture instrument design and implementation

5.1.2.1. Strategic principles for TOD-related LVC in HCMC

Principle 1: Strategic public value creation and sustainable LVC financing

- Land value uplift resulting from metro investments, TOD zoning, infrastructure upgrades and public realm improvements is fundamentally created by public decisions. Value must be created before it can be captured. LVC mechanisms should ensure that a fair and transparent share of this uplift is captured for public benefit.
- Captured value must be earmarked primarily for transport infrastructure and TOD-supporting amenities, rather than absorbed into general budgets for other purposes.
- LVC should complement but not replace other financing instruments and should be integrated with
 - State budget allocations
 - ODA and concessional finance
 - PPP investment
 - User-based revenues (fees, fares, parking, tolls).
- Over-dependence on LVC may expose projects to real estate cycles and market volatility.

Principle 2: TOD as a multi-objective urban development instrument

- LVC is a means, not an end. In practice, TOD is designed to simultaneously achieve:
 - Efficient use of public transport investment
 - Compact, mixed-use urban form
 - Reduced congestion, emissions and travel time

- Inclusive access to jobs, services and housing
- Land use efficiency
- Long-term economic productivity.

- When TOD policy is driven primarily by the pursuit of maximising LVC, it risks skewing land use decisions towards short-term fiscal gains (such as prioritising the highest FAR or predominantly commercial uses) and discourages private sector participation in rail and TOD projects, rather than supporting optimal urban and transport outcomes.

Principle 3: Alignment of LVC with TOD and socio-economic development objectives

- TOD is a comprehensive urban development approach intended to achieve multiple interrelated objectives, including:
 - Maximisation of public transport ridership and network efficiency
 - Compact, mixed-use and walkable forms of urban transport
 - Reduction of private vehicle dependency, congestion and emissions
 - Improved access to employment, services and public amenities
 - Enhancement of long-term urban productivity and resilience.
- LVC should be structured to reinforce these objectives, not override them. Land use intensity, functional mix and development phasing within TOD areas should be determined primarily by transport performance, urban design and social needs, with LVC set in line with these considerations.

Principle 4: Prioritising value creation before value capture

- Value creation in TOD areas depends on clear, coordinated planning and regulatory frameworks, including:
 - TOD zoning and FAR regimes
 - Predictable approval processes
 - Coordinated actions among transport, planning, finance and land agencies.
- Value creation should emphasise long-term uplift rather than short-term gains by investing in:
 - Transport reliability and service quality (reliable transit builds a stable user base and supports sustained economic activity around stations)
 - Urban liveability and environmental resilience (public realm upgrades, such as shaded walkways and wider sidewalks create pedestrian-oriented environments, while energy-efficient buildings reduce operating costs and improve long-term asset value)
 - Social infrastructure and inclusive growth (barrier-free accessibility features increase usability for more demographic groups, expanding the transit user base).

Principle 5: Social equity and affordability as core TOD objectives

- LVC instruments should be designed not only to recover metro infrastructure costs, but also to deliver defined social benefits. A portion of LVC revenues may be allocated for:
 - Affordable and social housing
 - Public realm improvements (parks, sidewalks, public spaces)
 - Community facilities (schools, clinics, childcare)
 - Last-mile access for non-motorised and low-income users.
- A uniform LVC approach often leads to inequitable outcomes. Best practice applies different mechanisms based on:
 - Location (core areas vs extended TODs)
 - Market strength and absorption capacity
 - Existing socio-economic conditions
 - Development type (luxury commercial vs affordable housing).
- Examples include:
 - Lower or deferred charges for affordable housing
 - Higher capture rates for premium commercial or high-end residential developments
 - Exemptions or reduced rates for small-scale or incremental redevelopment.

- Where LVC is linked to increased development rights (e.g. bonus FAR, rezoning, density uplifts), sound LVC frameworks require clear social trade-offs, such as:
 - Mandatory inclusionary housing quotas
 - In-lieu payments dedicated to affordable housing funds
 - On-site provision of community or social infrastructure. These requirements must be:
 - » Predictable and rule-based.
 - » Proportionate to the value uplift.
 - » Legally clear and enforceable.

Box 22: Case study: New York City

Drawing on the New York Universal Affordability Preference (UAP) as an example, the mechanism demonstrates how obligations related to on-site social and community infrastructure can be framed through clear, rule-based provisions. The UAP is a zoning tool that permits developers in medium- and high-density residential districts to increase allowable floor area in exchange for delivering permanently affordable housing. Its obligation-incentive structure is explicitly defined through a straightforward 1:1 floor area exchange, whereby each square meter of affordable housing provided entitles the developer to an equivalent square meter of additional building floor area.

- LVC mechanisms can unintentionally accelerate land price escalation and displacement. Effective LVC implementation requires:
 - Phased implementation of charges to allow adaptation
 - Land banking or public land assembly for affordable housing
 - Tenant protection measures in TOD areas
 - Support for small local businesses during redevelopment.

Principle 6: Recognition of uneven and uncertain land value uplift

- Land value uplift generated by transit investments is inherently uneven across stations, corridors and development phases and is subject to market cycles, regulatory conditions and implementation risks. Best practice demonstrates that effective LVC systems avoid uniform charges or blanket density assumptions across TOD corridors. Instead, LVC mechanisms should be differentiated based on station typology, accessibility, existing land use intensity, market strength and timing of infrastructure delivery. Early-stage or extended TOD areas typically experience delayed or



uncertain value uplift and require phased, flexible or deferred LVC approaches, while mature or core city stations may sustain higher capture rates without compromising development viability.

- LVC instruments should be structured to align value capture with realised, rather than speculative, value uplift. This includes linking charges to actual development approvals, floor area delivered or transaction events, and incorporating adjustment mechanisms that respond to market downturns or implementation delays. International best practice further supports the use of pilot projects, staged implementation and periodic recalibration of LVC parameters to reflect observed market performance.

5.1.2.2. Operational principles for TOD-related LVC in HCMC

Principle 7: Maintaining market viability and private sector participation

- Over-extraction of LVC can undermine private sector participation and project feasibility. From a developer and investor perspective, TOD projects must remain financially viable. If LVC mechanisms are designed to capture too high a share of incremental value, they risk:

- Reducing project financial feasibility.
- Discouraging competitive bidding and private investment.
- Increasing development risk premiums and final housing prices.
- A shift towards speculative land hoarding rather than development.
- Delaying or fragmenting TOD area development.
- Cities such as Hong Kong, Tokyo and London design LVC so that public and private sectors share value creation, rather than government attempting to capture the maximum theoretical surplus.

Principle 8: Phased, beneficiary-based and review-based LVC

- International experience shows that LVC is typically applied first to developments that are clear beneficiaries of transit improvements and most able to pay. Examples include:
 - Hong Kong (Mass Transit Railway [rail + property model]): LVC initially focuses on commercial and high density mixed-use developments integrated with stations, where value uplift is most visible and bankable.

- Tokyo and Japanese private railways: value capture is concentrated on station commercial assets, office, retail and residential intensification directly linked to rail investment.
- London (Crossrail Community Infrastructure Levy and Section 106 of the Town and Country Planning Act 1990 which provides that where a development places pressure on local infrastructure, the developer may be required to make contributions to mitigate those impacts): early LVC emphasised large commercial developments in central locations before expanding coverage.
- In the initial phase, LVC should focus on clearly identifiable beneficiaries of metro and TOD investments, particularly large-scale commercial and mixed-use developments exceeding defined thresholds within station influence areas. Early LVC instruments should prioritise clarity, predictability and administrative simplicity, thereby minimising negative public response and facilitating stakeholder consensus.
- LVC instruments, rates and spatial application should be subject to periodic review at defined milestones, reflecting:
 - The maturity of TOD.
 - Actual implementation performance.
 - Market response and investment behaviour.
 - Lessons learned from pilot corridors and station areas.
- Based on such reviews, the LVC framework may be progressively refined and expanded, including adjustments to instrument types, beneficiary coverage and contribution structures. Any changes must be evidence-based, transparently communicated and aligned with TOD performance, affordability and socio-economic objectives.

Principle 9: Balanced use of one-off and recurring LVC instruments

- While one-off LVC instruments (e.g. land auctions, FAR premiums, development charges), can generate significant short-term revenues, stable and recurring LVC instruments (e.g. public land leasing or JD through a joint venture arrangement) are essential to fund the ongoing operation, maintenance, renewal and upgrading of transit and urban infrastructure in TOD corridors. Robust LVC policies adopt a balanced LVC portfolio that combines one-time capture of development-related value uplift with recurring revenue streams.
- Recurring value capture may be achieved through instruments such as participation in land and property value appreciation around stations, long-term land leases and revenue-sharing from JD of station precincts, depots and publicly-owned land. PPP-based TOD models where public authorities

retain land ownership or development rights while partnering with private developers enable ongoing income streams through ground rents, lease payments, profit-sharing or availability-based payments linked to asset performance. These mechanisms align public and private incentives over the lifecycle of TOD assets and reduce reliance on one-time transactions.

Principle 10: Institutional feasibility, legal certainty and implementation capacity

- Effective LVC depends on strong legal and institutional foundations. LVC instruments must be clearly defined in law and regulations to provide certainty on valuation, charging triggers and revenue use, thereby reducing discretion and investor risk. Administrative simplicity is equally critical; instruments that rely on standardised formulas and transparent procedures are more feasible to implement, easier to scale and less likely to delay approvals.
- Enforceability and auditability are essential to ensure compliance and public accountability. LVC obligations should be clearly linked to development approvals or land transactions, supported by enforceable payment mechanisms and regular reporting. Clear allocation of roles among planning, land, transport and finance agencies is fundamental to effective implementation, reducing institutional fragmentation and ensuring that LVC can be consistently applied and reinvested in support of TOD objectives.

Principle 11: Reinvestment of LVC to support TOD objectives

- LVC revenues should be transparently reinvested in TOD-related infrastructure, services and long-term asset renewal.
- Reinvestment is a core pillar of effective LVC, ensuring that value captured from public investment is reinvested within the same station areas or corridors where uplift occurs. At the same time, strategic cross-subsidisation may be applied to support early-stage, extended or lower-value TOD areas where upfront infrastructure is required to catalyse development and future value creation. Such cross-subsidisation should be governed by clear criteria and transparent decision-making to maintain fairness and accountability.
- Reinvestment should be phased over the lifecycle of TOD. In early phases, LVC revenues should prioritise enabling infrastructure, land assembly and basic public realm improvements. As TOD areas mature, reinvestment should increasingly support operations, maintenance, asset renewal, capacity upgrades and climate-resilient improvements that protect long-term service quality and urban performance.



- All LVC reinvestment should be managed through clear governance arrangements and dedicated, ring-fenced mechanisms, with defined roles for planning, transport, land and finance agencies. Transparent reporting, regular auditing and performance monitoring are required to demonstrate how revenues are collected, allocated and used, and to ensure alignment with TOD objectives, fiscal sustainability and social equity over time.

Box 23: Key considerations of reinvestment of LVC revenues:

- Authority to define clearly eligible uses of the funds based on specific TOD typologies and assets (e.g. funds to be earmarked only for station access/concourses, interchange facilities, lastmile connectivity, public realm, enabling works etc for specific TOD typologies)
- Prioritise reinvestment use based on expected outcome of asset deployment, e.g. ridership uplift, value creation, delivery readiness and economic impact.

Principle 12: Transparency, accountability and continuous improvement

- LVC implementation should be supported by clear governance, disclosure, monitoring and continuous policy refinement.
- Transparent LVC systems reduce disputes, improve compliance and enhance investor confidence. This includes publishing LVC formulas, rates, eligibility criteria and decision-making processes, as well as clearly earmarking how revenues are reinvested in transit, public realm and social infrastructure within TOD areas. Accountability is reinforced through regular reporting, independent audits and performance monitoring that links value capture outcomes to urban and transport objectives, rather than focusing solely on revenue generation.
- Continuous improvement is a critical component of effective LVC governance. Mechanisms should be established for periodic review and adjustment of LVC instruments to reflect market conditions, implementation experience and social impacts. Pilot projects phased rollout and structured feedback loops across agencies and stakeholders should be used to allow LVC frameworks to evolve without undermining predictability or legal certainty.

Table 29: Summary of principles for TOD-related LVC design and implementation in HCMC

	Strategic principles <i>(setting overall direction, values and policy intent)</i>	Requirements/characteristics
Principle 1	Strategic public value creation and sustainable LVC financing	LVC should support long-term public value creation, fiscal sustainability and strategic urban development
Principle 2	TOD as a multi-objective urban development instrument	TOD should balance transport performance, urban quality, economic growth and social outcomes, not revenue maximisation alone
Principle 3	Alignment of LVC with TOD and socio-economic development objectives	LVC should reinforce TOD planning, urban design and socio-economic priorities rather than override them
Principle 4	Prioritising value creation before value capture	Public and enabling investments should precede and underpin LVC mechanisms
Principle 5	Social equity and affordability as core TOD objectives	TOD-related LVC should promote inclusive access to housing, services and economic opportunities
Principle 6	Recognition of uneven and uncertain land value uplift	LVC policy should reflect spatial, temporal and market variability across HCMC's TOD corridors
	Operational principles <i>(design discipline, governance and implementation)</i>	Requirements/characteristics
Principle 7	Maintaining market viability and private sector participation	LVC instruments should preserve project feasibility, investment incentives and balanced risk allocation
Principle 8	Phased, beneficiary-based and review-based LVC	Apply first to developments that are clear beneficiaries of transit improvements and most able to pay
Principle 9	Balanced use of one-off and recurring LVC instruments	A calibrated mix of upfront and ongoing LVC tools should align revenues with TOD phases
Principle 10	Institutional feasibility, legal certainty and implementation capacity	LVC mechanisms should be legally robust, administratively feasible and matched to institutional capability
Principle 11	Reinvestment of LVC to support TOD objectives	LVC revenues should be transparently reinvested in TOD-related infrastructure, services and asset renewal
Principle 12	Transparency, accountability and continuous improvement	Implementation should be supported by clear governance, disclosure, monitoring and continuous refinement

5.1.3. Three-step framework for land value capture instrument adoption

A structured three-step framework has been developed to guide users through the LVC tool selection process, ensuring alignment between policy priorities and market-driven development approaches. This framework runs parallel to the corridor-level and station-level implementation processes outlined in Section 2.4.1. and 2.4.2., respectively. The Figure 111, Figure 112 and Figure 113 below also capture LVC considerations at both the corridor level and station level.

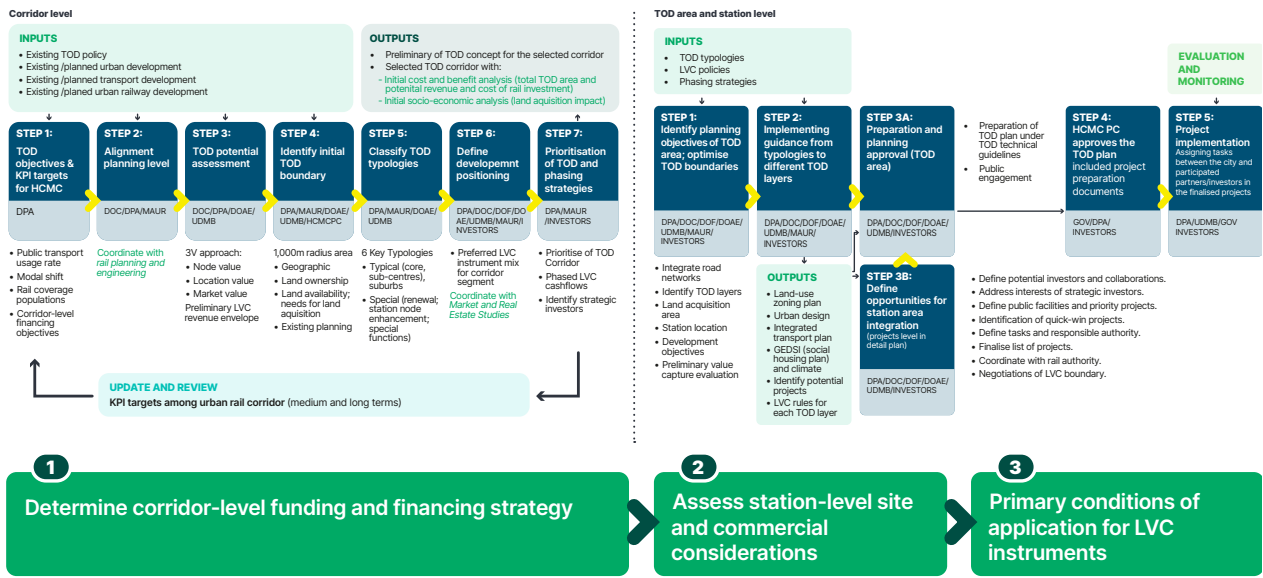


Figure 111: Mapping of corridor-level and station-level implementation processes to a three-step framework

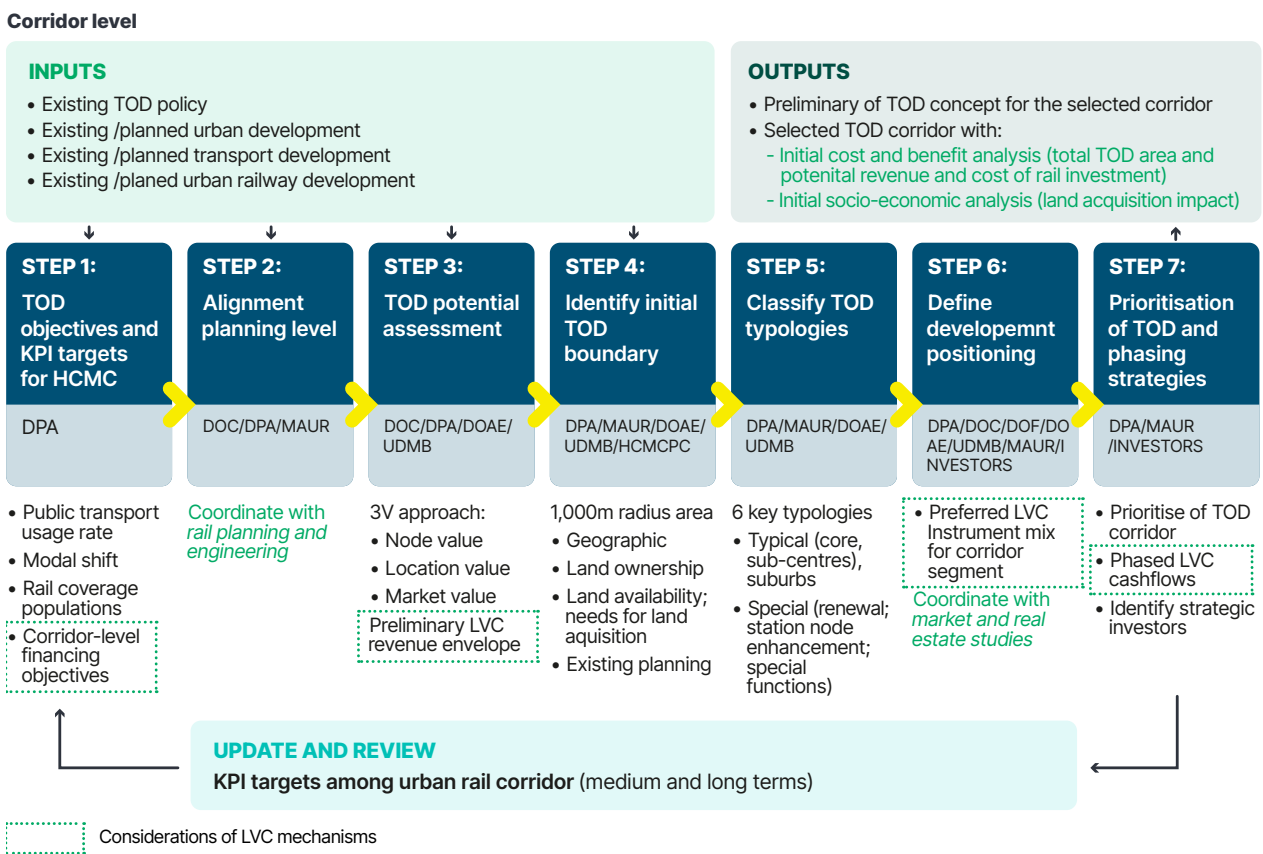


Figure 112: LVC considerations layered on the corridor-level implementation process

TOD area and station level

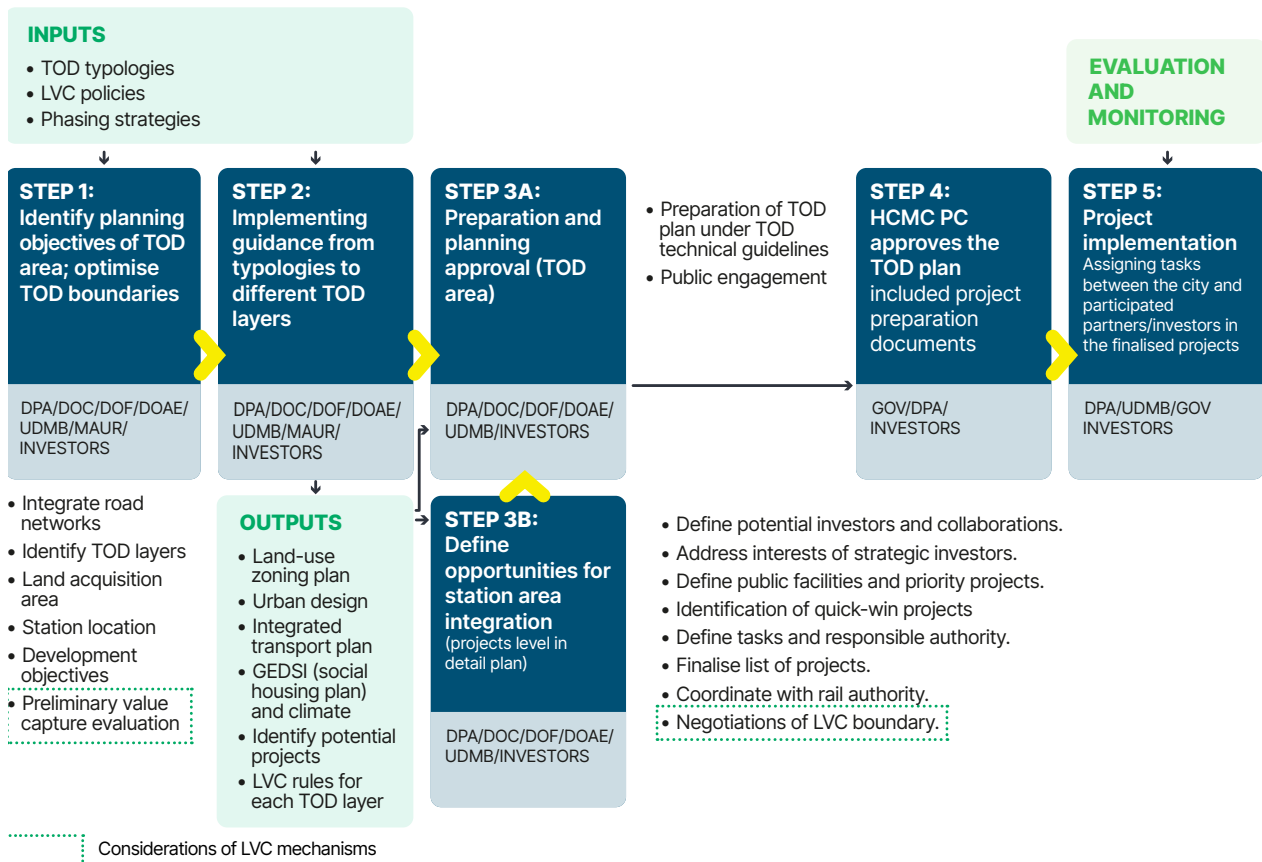


Figure 113: LVC considerations layered on the station-level implementation process

Step 1: Determine corridor-level funding and financing strategy

The financing approach for urban rail and TOD in HCMC is expected to evolve over time, reflecting changes in market maturity, investor confidence and policy priorities. The key considerations for government when assessing corridor-level funding and financing approaches are outlined below.

Table 30: Summary of key considerations to determine corridor-level funding and financing strategy

Key considerations	Description and rationale
Private market appetite	<ul style="list-style-type: none"> Assess the capacity and willingness of the private sector (such as developers and strategic investors) to participate in urban rail and TOD projects Market appetite determines the quantum, timing and certainty of private capital inflows, as well as the commercial structure. These will influence the extent of urban rail and TOD projects the private sector is willing to bear. This in turn influences the types and magnitude of LVC that can be extracted from the private sector, which ultimately determines how much of the LVC uplift realised can be used by the government to fund other aspects of urban rail and/or TOD of other areas or other stations
Fiscal capacity and budget constraints	<ul style="list-style-type: none"> Evaluate government's ability to provide upfront capital to fund urban rail and TOD infrastructure. This includes assessing available fiscal space, competing budget priorities and long-term operation and maintenance (O&M) commitments Understanding available fiscal resources enables government to define the scope of public investment and strategically allocate funds to maximise social and economic returns A clear assessment of fiscal capacity provides a strong basis for determining the extent of private sector participation needed. Where public investments are insufficient, private investment can bridge the financing gap and deliver the infrastructure
Legal and regulatory levers	<ul style="list-style-type: none"> Consider whether existing laws sufficiently enable the public sector to implement and monetise value uplift around the corridor. This includes examining whether legislation permits private sector financing of strategic assets such as rail infrastructure and under what conditions such participation is allowed. Review legal provisions governing the use of revenues generated from LVC uplift. This entails assessing if the LVC revenues are earmarked for specific purposes, such as technical infrastructure.

The funding and financing strategy for the **short term** is informed by the following observable conditions in Vietnam.

- Given that the urban rail component is primarily for public benefit, it is highly capital intensive, and it is unclear at this stage if fare revenues will be sufficient to make the project viable. Under current circumstances, it is assumed that private investors will deem the delivery of urban rail too risky, and therefore the government will have to fund and deliver urban rail.
- On the other hand, it is anticipated that private developers will have an appetite to pursue the more commercially oriented development within TOD zones (and depending on the deal agreed with the government, potentially assume responsibility for either technical infrastructure or social infrastructure).

Over the **medium to long term**, the funding and financing strategy¹³⁸ may evolve. As investor confidence grows, developers may expand their role to include contributions towards rail infrastructure financing. This phased approach is outlined in Table 31.

Table 31: Summary of stakeholders responsible for delivering different infrastructure types

Period	Option	Rail infrastructure	TOD – commercial development	TOD – social infrastructure	Technical infrastructure
Short term (2026–2030)	Option 1	Government	Private developer	Government	Private developer
	Option 2	Government	Private developer	Private developer	Government
Medium to long term (2031 onwards)	Option 1	Private developer	Private developer	Government	Government
	Option 2	Private developer	Private developer	Private developer	Government

¹³⁸ Funding refers to the sources of revenue used to repay or sustain infrastructure investments (e.g. fares, land value capture revenues, taxes, or government budget contributions), while financing refers to the mechanisms used to raise upfront capital for project delivery (e.g. loans, bonds, PPP financing, or equity investment).

Step 2: Assess station-level site and commercial considerations

Once the corridor-level funding and financing strategy is established, the station-level development parameters will have to be assessed to determine the applicability of different LVC tools. Table 32 sets out the key site and commercial considerations for assessment and the stakeholders involved.

Table 32: Summary of key station-level site and commercial considerations

Key site and commercial considerations	Description and rationale
Greenfield or brownfield project	<ul style="list-style-type: none"> Projects on greenfield, undeveloped land offer the highest degree of LVC uplift flexibility, enabling adjustments to land use and density. This makes instruments such as FAR sales, land use change fees and public land auctions more effective Brownfield sites are typically already occupied by existing buildings, land use rights holders or informal settlements. Given the already built-up nature, this means there is less room for additional built-up areas or additional FAR. In this situation, negotiated contributions (e.g. government negotiates with private developer to provide GFA of shared access road intersecting private property and public property) may be more feasible than full-scale land auctions
Government-private joint development	<ul style="list-style-type: none"> In JD, the private sector partner and the government may enter into a separate agreement under which the government realises benefits through alternative forms, like the provision of technical or social infrastructure by the private sector partner, rather than through LVC uplift revenues Where benefits to the government have already been realised through a JD agreement, additional LVC mechanisms may not be applicable (because the private partner is already contributing in-kind, and may reject any additional LVC it is asked to bear)
Land for commercial development is owned by the government	<ul style="list-style-type: none"> When the government controls key parcels of land around a station, it can directly capture and monetise value uplift Public land ownership increases the chances of applying LVC tools with higher certainty and upfront revenue potential: auctions, long-term leases or phased releases
Auctioning and tendering of public land	<ul style="list-style-type: none"> Lease terms (tenure, rent escalation, upfront premium) directly affect the magnitude and timing of LVC revenues. Long-term leases allow government to retain control of TOD in the long run, but reduce upfront receipts of LVC revenue compared to land sales
Requirement for additional FAR by private developers	<ul style="list-style-type: none"> Private developers often rely on density uplift to make projects financially viable and to achieve returns on their investment. If additional FAR or height allowances are required, additional FAR sale can be used as an LVC tool to capture the value uplift
Land use change requirements	<ul style="list-style-type: none"> The type of land use permitted at the site affects the depth of potential land value uplift. Commercial and mixed-use parcels typically yield higher value capture potential than purely residential or industrial uses If zoning restricts high-value uses, the potential for LVC is limited unless rezoning is undertaken in parallel
Fee payers contribute through other State-recognised means	<ul style="list-style-type: none"> If developers are contributing to the development of State infrastructure through other means, like contributing land for public works and common infrastructure, a waiver of the IIF may be considered

Step 3: Primary conditions of application for LVC instruments

In this final step, the LVC instruments are applied based on the key site and commercial considerations outlined in Step 2.

Table 33: Summary of land value capture instrument application

LVC instrument	Payee of LVC instrument	Timing of LVC instrument application	Conditions of application (and non-application where relevant)
Auction/ tendering of public land and public assets	Investors who auction or bid for public land owned or acquired by the state in a TOD area with a TOD plan approved by a competent authority	LVC revenue recognised upon auction of land to private developer	Cases for non-application: <ul style="list-style-type: none"> Land that is allocated by the State to investors to ensure social benefits, national security and defence, and resettlement Land within the TOD area where other LVC tools have already been applied (to avoid double-counting)
Additional FAR sale	Investors or landowners who have been granted land use rights certificates or have fulfilled obligations to pay land use fees or land rent, or to convert land use purposes	One-off payment collected before construction permit is granted under adjusted plan	Cases for application: <ul style="list-style-type: none"> Additional floor area requested by investor or landowner
Fee on land use change	<ul style="list-style-type: none"> Households and individuals Economic organisations and real estate enterprises TOD project investors 	Land use fees are paid when land use change is decided by the People’s Committee	Cases for non-application: <ul style="list-style-type: none"> Land used for universities, hospitals or social housing may be considered for exemption or reduction
Infrastructure improvement fee	Existing property owners with completed properties in TOD areas, future properties and constructions according to the TOD master plan, excluding exempted entities	Determine the timing and structure of fee collection (i.e. one-off payment upon infrastructure completion or annual payments)	<p>Cases for application:</p> <ul style="list-style-type: none"> Developments with change of land use purpose leading to significant increased burden on infrastructure and directly benefiting from TOD New construction projects causing increased infrastructure demand <p>Cases for non-application:</p> <ul style="list-style-type: none"> Non-commercial public social infrastructure projects Projects subject to land use fees without causing significant increased burden Projects in TOD areas that do not directly benefit from the urban rail and TOD infrastructure (e.g. not located on connecting routes, not using new infrastructure works, etc.) Projects in TOD areas without approved infrastructure improvement project
Joint development (JD)	<p>JD refers to arrangements between the public and private sectors and can take several forms:</p> <ul style="list-style-type: none"> Partnerships involving public assets, where land, development rights or real estate value constitute the primary value drivers Partnerships structured through PPP frameworks Cooperation agreements focused on shared benefits 	JD applies once the legal agreement (e.g. joint venture agreement, business cooperation contract, land lease agreement or, potentially, PPP contract) has been formalised. The timing of land value uplift revenue collection is determined by the provisions outlined in that agreement	Cases for application: <ul style="list-style-type: none"> There is public land or development rights that can participate in JD Total JD contribution is equivalent to or greater than the total monetised public contribution Investor meets requirements for financial capacity and experience

5.1.4. Practical application of land value capture instruments in Ho Chi Minh City

To ensure that LVC instruments are consistently, transparently and effectively implemented across TOD areas in HCMC, the objectives of this section are to:

- Provide clear guidance for instrument selection
- Standardise application procedures across agencies
- Ensure predictability for private sector participants
- Prevent overlap and double-counting of LVC
- Enable phased implementation.

Building on the three-step LVC adoption framework discussed in Section 5.1.3., the relevant subsections of this section are mapped in Figure 114 below.

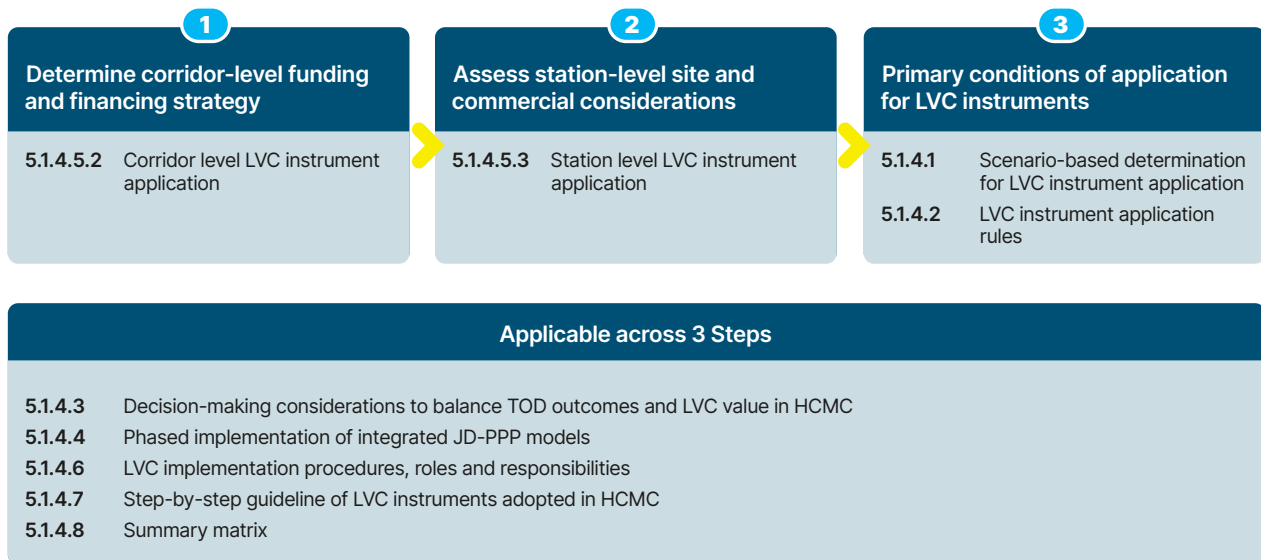


Figure 114: Mapping of practical application subsections to the three-step LVC framework

5.1.4.1. Scenario-based determination for LVC instrument application in HCMC

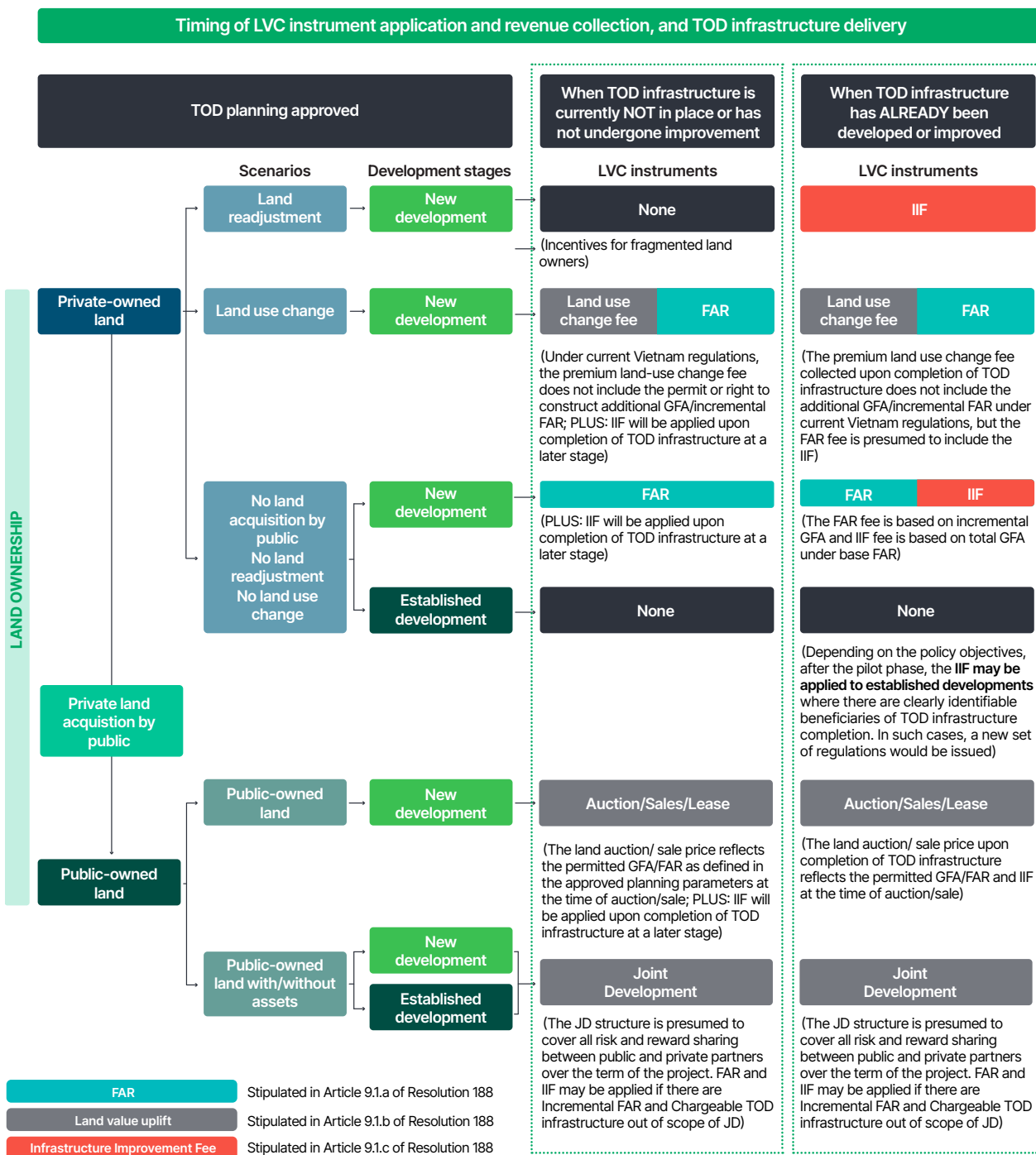


Figure 115: Scenario-based determination for LVC instrument application in HCMC

Figure 115 illustrates the scenario-based framework for selecting and applying LVC instruments in the context of TOD in HCMC. It clarifies which LVC instrument applies, when it applies and under what conditions, based on three core determinants:

- (i) The timing of TOD infrastructure delivery;
- (ii) Land ownership and development stage;
- (iii) The source of land value uplift.

The LVC framework of HCMC is built on the principle that each unit of land value uplift generated by public action should be captured once, through the most appropriate instrument, at the appropriate time.

Accordingly, the diagram avoids double-counting between FAR-based charges, IIF, land use change fees, land sales revenues and JD–PPP value sharing.

The FAR premium and IIF instruments are applicable only under defined trigger conditions.

1. TOD infrastructure timing as the primary decision gate

The LVC framework of HCMC explicitly considers the timing of three key TOD milestones: (i) TOD planning approval; (ii) TOD infrastructure not yet completed or under development; and (iii) TOD infrastructure completed because land value uplift is generated, distributed and realisable at different stages of the TOD lifecycle. In the HCMC context, failing to differentiate these milestones would lead to misalignment between value creation and value capture, legal and market distortions, and potential double-counting or under-recovery of public investment.

• Where TOD infrastructure is not yet developed

- LVC instruments are structured to capture value arising from planning decisions (e.g. FAR, land use change), and
- Defer infrastructure-related value capture (through IIF) until infrastructure is completed.

• Where TOD infrastructure is already developed or improved

- LVC instruments are structured to capture both planning-induced and infrastructure-induced value upfront, and
- Reflect TOD benefits in land pricing, FAR treatment or JD–PPP arrangements.

2. Land ownership and development stage differentiation

Within each TOD infrastructure scenario, LVC instruments are further differentiated by **land ownership and development stage**.

(a) Privately owned land

• New development with land use change: Land use change fee applies.

Where TOD infrastructure is completed, the premium land use change fee is presumed to internalise:

- Additional FAR, and
- IIF.

• New development without land acquisition, land readjustment or land use change: FAR-based LVC instrument applies.

- IIF is applied only after TOD infrastructure completion.

• Established development

- Generally no LVC instrument applies, except in future phases where:
 - Clear TOD beneficiaries can be identified, and
 - A dedicated regulatory framework is introduced.

(b) Publicly-owned land (including state-owned enterprises-managed land)

• New development via auction, sale or lease:

(Auction/sale/lease price applies). Where TOD infrastructure is completed, the premium price is presumed to include:

- Additional FAR, and
- IIF.

• New or established development through JD or PPP: JD/PPP applies as an integrated value capture mechanism.

• JD/PPP structures are presumed to internalise:

- Risk and reward sharing
- Long-term value uplift
- Infrastructure contribution over the project lifecycle.

3. Treatment of IIF and FAR-based LVC instruments

To ensure coherence and avoid overlap:

• FAR-based LVC instruments are applied only to incremental gross floor area (GFA) beyond base FAR.

• IIF is applied only in relation to TOD infrastructure delivery, typically:

- After TOD planning approval, and
- Upon or after infrastructure completion.

• Where land pricing mechanisms (land use change fee, auction/sale/lease) are applied after TOD infrastructure completion, they are presumed to internalise both FAR uplift and IIF value, and no separate charges apply.

5.1.4.2. LVC instrument application rules

The tables below are designed to support decision-making in HCMC. They show how each LVC instrument should be applied by scenario, how to avoid double-charging and how to select applicable LVC instruments for specific scenarios. Several example scenarios are also described below.

Table 34: Land value capture instruments and application triggers

Land value capture (LVC) instrument	Application triggers		
	Land ownership	Primary triggers	Secondary triggers
Floor area ratio (FAR)	Privately owned	<ul style="list-style-type: none"> • New development upon transit-oriented development (TOD) planning approval • No land acquisition by the public • No land readjustment • Land use change (can be either Yes or No) • Incremental FAR is out of scope of joint development (JD)–public–private partnership (PPP) 	<ul style="list-style-type: none"> • Function/land use (commercial/mixed use/residential) • New FAR greater than basic FAR • Size and scope of construction
Infrastructure improvement fee (IIF)	Privately owned	<ul style="list-style-type: none"> • Land readjustment • TOD infrastructure is completed 	<ul style="list-style-type: none"> • Function/land use (commercial/mixed use/residential) • Location (connection to TOD infrastructure) • Size and scope of construction
	Privately owned	<ul style="list-style-type: none"> • New development upon TOD planning approval • Land use change fee was collected before the delivery of the TOD infrastructure 	<ul style="list-style-type: none"> • TOD infrastructure is completed • Function/land use (commercial/mixed use/residential) • Location (connection to TOD infrastructure) • Size and scope of construction
	Privately owned	<ul style="list-style-type: none"> • New development upon TOD planning approval • FAR premium was collected before the delivery of the TOD infrastructure 	<ul style="list-style-type: none"> • TOD infrastructure is completed • Function/land use (commercial/mixed use/residential) • Location (connection to TOD infrastructure) • Size and scope of construction
	Publicly owned	<ul style="list-style-type: none"> • New development upon TOD planning approval • Auction/sales/lease of public land was conducted before the delivery of the TOD infrastructure • Chargeable TOD infrastructure is out of scope of the JD–public–private partnership 	<ul style="list-style-type: none"> • TOD infrastructure is completed • Function/land use (commercial/mixed use/residential) • Location (connection to TOD infrastructure) • Size and scope of construction
Auction/sale/lease	Publicly owned	<ul style="list-style-type: none"> • Align with TOD planning and city objectives • New development upon TOD planning approval 	
Land use change	Privately owned	<ul style="list-style-type: none"> • Align with TOD planning and city objectives • New development upon TOD planning approval 	
JD–PPP	Publicly owned	<ul style="list-style-type: none"> • Align with TOD planning and city objectives • New/established development 	<ul style="list-style-type: none"> • Total JD–PPP contribution equivalent to or greater than total monetised public contribution

Table 35: Application logic by land value capture (LVC) instrument

LVC instrument	Primary value source	When it should apply	When it should not apply
FAR-based LVC	Additional GFA created by planning decision	FAR uplift granted outside JD scope	FAR uplift already monetised via JD
IIF	Area-wide infrastructure benefit	External infrastructure not funded by JD	Infrastructure funded through JD or PPP
JD-PPP (integrated)	Public land + development rights	Stations, depots, air rights, public land	Private land uplift without land contribution
Land use change (rezoning)	Conversion of land function	TOD designation or zoning upgrade	If the rezoning value is already priced into the land auction
Land sale/auction	Market value of public land	Greenfield or cleared public land	After JD has already monetises same land

Table 36: Double-charging avoidance rules

Value source	Capture instrument	Explicitly do not use
FAR uplift in JD	JD commercial terms	FAR-based LVC
JD-funded infrastructure	JD-PPP	IIF
Rezoning priced into the auction	Land auction	FAR-based LVC
Private land uplift	FAR-based LVC / IIF	JD
Public land market value	JD or auction	IIF / FAR

SCENARIO-BASED APPLICATION EXAMPLES

Scenario 1: TOD on public land (station/depot/rail corridor land)

(Primary objectives: Strong TOD integration, high private sector participation and no double-charging)

Table 37: TOD on public land (station/depot/rail corridor land)

Instrument	Whether to apply	Rationale
JD-PPP	Yes	Monetises land and development rights directly
FAR-based LVC	No	FAR value already internalised in JD
IIF	No/conditional	Exempt or reduced if the JD funds infrastructure
Land use change	No	Reflected in JD valuation
Land sale/auction	No	JD replaces land sale

Scenario 2: TOD on private land adjacent to stations

(Primary objectives: Density incentive maintained, value captured without expropriation and TOD is market feasible)

Table 38: TOD on private land adjacent to stations

Instrument	Whether to apply	Rationale
JD-PPP	No	No public land contribution
FAR-based LVC	Yes	Captures publicly created density value
IIF	Conditional	Applies only to area-wide infrastructure
Land use change	Conditional	Trigger for TOD designation or zoning upgrade
Land sale/auction	No	Not applicable

Scenario 3: Mixed public–private land TOD

(Primary objectives: Fair treatment of landowners, no duplication, balanced LVC yield)

Table 39: Mixed public–private land TOD

Instrument	Whether to apply	Rationale
JD–PPP	Yes (public parcels only)	Monetise controllable public land
FAR-based LVC	Yes (private parcels only)	Avoid value leakage
IIF	Conditional	Apply only for external infrastructure
Land use change	Conditional	Apply if it supports both JD and FAR
Land sale/auction	No	JD preferred for integration

Scenario 4: Greenfield TOD / new urban area

(Primary objectives: Infrastructure funded upfront, market activation and clear price signals)

Table 40: Greenfield TOD/new urban area

Instrument	Whether to apply	Rationale
JD–PPP	Conditional	Apply if public land assembly exists
FAR-based LVC	Conditional	Moderate to attract investment
IIF	Yes	Fund trunk infrastructure
Land use change	Yes	Core value creation mechanism
Land sale/auction	Yes	Transparent value realisation

Scenario 5: Brownfield /redevelopment TOD

(Primary objectives: Redevelopment unlocked, TOD quality preserved and realistic LVC)

Table 41: Brownfield /redevelopment TOD

Instrument	Whether to apply	Rationale
JD–PPP	Conditional	Apply if public land exists or station integration is required
FAR-based LVC	Conditional	Adjusted for remediation risk
IIF	Conditional	Exempted or reduced to reflect constraints
Land use change	Yes	Key value driver
Land sale/auction	No	Risk deters auction pricing

5.1.4.3. Decision-making considerations to balance TOD outcomes and LVC value in HCMC

5.1.4.3.1. Policy objective priority and preferred instrument mix

Optimal TOD outcomes in HCMC are achieved when joint development monetises public land and development rights, FAR-based LVC captures density uplift on private land, IIF funds only external infrastructure, and land use change and auctions are applied selectively. Clear separation of value sources avoids double-charging while maximising long-term TOD and fiscal value.

The preferred instrument mix varies by policy objectives because different TOD outcomes, such as density, ridership and fiscal returns, require different balances between development control, incentives and value monetisation. This section guides the HCMC Authority through the end-to-end application of TOD/LVC instruments to ensure appropriate LVC instrument selection and optimisation of TOD outcomes and LVC value.

Table 42: Policy objective priority and preferred instrument mix

Policy objective priority	Preferred instrument mix
Maximise TOD density	JD + limited FAR fees
Maximise ridership	JD + FAR incentives
Maximise fiscal revenue	JD + selective FAR + IIF
Fast delivery	JD-dominant
Minimise legal risk	Clear JD– FAR– IIF separation

1. Policy objective priority: Maximise TOD density

Preferred instrument mix: JD + limited FAR fees

Rationale

When the primary objective is to intensify land use and accelerate compact development around transit, JD is the most effective anchor instrument, as it allows the public sector to directly shape land use, phasing and urban form on strategically located sites. Applying limited FAR-based fees rather than high premiums ensures that additional density remains financially viable and does not discourage development uptake. This mix prioritises physical densification and TOD form outcomes over revenue maximisation, while still capturing a modest share of uplift to encourage TOD-supportive investments.

2. Policy objective priority: Maximise ridership

Preferred instrument mix: JD + FAR incentives

Rationale

Maximising transit ridership requires aligning development outcomes with travel behaviour, not just density. JD enables the integration of trip-generating uses (residential, office, retail, mixed-use) directly connected to stations, ensuring high accessibility and seamless station area integration. FAR incentives, rather than FAR charges, are preferred to encourage higher-intensity, transit-oriented uses, better design quality and mode shift-supportive outcomes (e.g. reduced parking, active frontage). This combination uses LVC primarily as a behaviour-shaping and demand-inducing tool, rather than a fiscal instrument.

3. Policy objective priority: Maximise fiscal revenue

Preferred instrument mix: JD + selective FAR-based LVC + IIF

Rationale

Revenue maximisation requires capturing value across **multiple channels and beneficiary groups**. JD captures land value and long-term income on public land, selective FAR-based LVC monetises incremental development rights where market conditions permit, and the IIF recovers costs from a wider range of developments benefiting from TOD-supportive infrastructure. This mix balances

revenue maximisation, risk diversification and market responsiveness, making it suitable for mature TOD corridors and fiscally constrained public investment contexts.

4. Policy objective priority: Fast delivery

Preferred instrument mix: JD-dominant

Rationale

JD relies on site-specific agreements and project-based approvals, allowing earlier negotiation, clearer commercial structuring and faster implementation than area-wide LVC instruments. Minimising reliance on FAR-based charges and IIF reduces the need for complex valuation, rulemaking and enforcement processes, enabling quicker project delivery and early TOD activation.

5. Policy objective priority: Minimise legal risk

Preferred instrument mix: Clear JD– FAR –IIF separation

Rationale

Maintaining a clear functional and legal separation between JD, FAR-based LVC instruments and IIF reduces ambiguity in legal basis, beneficiary definition and payment obligations. This clarity helps avoid double-charging, legal overlap and challenges to enforceability, strengthening compliance with existing land planning regulations, and improving bankability and investor confidence.

5.1.4.3.2. Trade-offs between LVC application intensity and TOD outcomes

- **LVC application intensity** means how aggressively public value is monetised (fees, premiums, revenue share).
- **TOD outcomes** mean density, ridership, private participation, urban quality and speed of delivery.

Below are policy decision matrices that decision-makers in HCMC can use to balance **LVC application intensity vs TOD performance**. The matrices support calibrated, phase-appropriate decisions and are not one-size-fits-all rules.

1. LVC application intensity vs TOD performance

Matrix 1: LVC application intensity vs core TOD outcomes

Table 43: Land value capture (LVC) application intensity vs core TOD outcomes

LVC application intensity level	Typical instruments applied	TOD density and mix	Ridership and mode shift	Private sector interest	Project delivery speed	Fiscal outcome
Low	JD only on public land; limited FAR fee; IIF mostly exempted	Medium/ high (incentive-led)	Moderate (early uptake)	High	Fast	Low/medium
Moderate	JD + partial FAR-based LVC; selective IIF	High and balanced	High	High/medium	Medium	Medium/high
High	Full FAR premium + IIF + aggressive revenue-sharing	Constrained/ fragmented	Medium/low	Low	Slow	High (short-term risk), low (long-term risk)

Key messages

- Higher LVC extraction does not automatically lead to better TOD outcomes.
- Low LVC application intensity accelerates early TOD delivery by reducing market entry barriers.
- Moderate LVC application intensity delivers the best balance between density, ridership and fiscal returns.
- Excessive LVC undermines TOD density by forcing cost-cutting and phasing delays.
- JD-based monetisation of public land allows TOD density to increase without raising user costs.
- TOD success should be measured by long-term

ridership and urban performance, not short-term revenue.

Rules for the HCMC Authority

Do

- Prioritise TOD density, ridership and integration over short-term fiscal gain.
- Apply moderate LVC application intensity as the default for station area TOD.
- Use JD on public land as the primary value capture mechanism.
- Phase LVC charges to align with market absorption and project maturity.



- Evaluate TOD success based on long-term urban and transport outcomes.

Do not

- Assume higher LVC automatically improves public value.
- Front-load LVC charges in early TOD phases.
- Rely on transport fares or PPP payments alone to fund TOD.

- Undermine TOD density by overpricing development rights.

2. LVC application intensity vs urban and market quality

Matrix 2: LVC application intensity vs urban and market quality

Table 44: Land value capture (LVC) intensity vs urban and market quality

LVC application intensity level	Development quality	Land assembly feasibility	Housing affordability	Design integration	Market risk
Low	High (design flexibility)	High	Better	Strong TOD integration	Low
Moderate	High (optimised)	Medium/high	Balanced	Strong	Medium
High	Compromised (cost-cutting)	Low	Poor	Weak/isolated	High

Key messages

- Design quality and TOD integration decline when LVC application intensity is too high.
- Moderate LVC supports better master planning and mixed-use outcomes.
- High LVC increases pressure to maximise saleable area at the expense of public space.
- Housing affordability deteriorates when LVC charges are front-loaded and inflexible.
- Flexible JD terms can offset LVC impacts while maintaining urban quality.
- Market risk rises sharply when LVC is misaligned with development phasing.

Rules for the HCMC Authority

Do

- Protect TOD design quality, public space and walkability.

- Allow flexibility in JD terms to support integrated station design.
- Calibrate LVC to maintain housing affordability.
- Account for site-specific risks (underground works, interfaces).
- Encourage mixed-use development through density incentives.

Do not

- Force developers to compensate for high LVC through design compromise.
- Apply uniform LVC rates across heterogeneous TOD sites.
- Ignore land assembly and phasing constraints.
- Treat TOD as a purely real estate-driven project.

3. Context-sensitive policy application

Matrix 3: Context-sensitive policy application

Table 45: Policy choices by TOD context

TOD context	Recommended LVC application intensity	Rationale
Early-stage TOD corridors (new metro lines)	Low to moderate	Build market confidence, ridership and urban form first
Core central business district stations	Moderate	Strong land value but high integration requirements
Depot/terminal TOD	Moderate to high (via JD)	Public land allows controlled monetisation
Peripheral stations	Low	Avoid deterring investment and land assembly
Redevelopment/brownfield TOD	Moderate	Balance remediation risk with value capture



Key messages

- LVC application intensity must be context-sensitive, not uniform across the city.
- Early-stage metro corridors require lower LVC to establish demand and investor confidence.
- CBD stations can sustain moderate LVC but require strong integration controls.
- Depot and terminal TOD are best monetised through JD rather than fees.
- Peripheral stations should prioritise development activation over revenue extraction.
- Brownfield TOD requires calibrated LVC to account for remediation and delivery risk.

Rules for the HCMC Authority

Do

- Apply lower LVC in early-stage metro corridors.
- Use JD-led monetisation for depots, terminals and large public land parcels.
- Apply moderate LVC in CBD stations with strong market demand.
- Adjust LVC for brownfield and redevelopment TOD.
- Align LVC application intensity with realistic market absorption.

Do not

- Apply the same LVC application intensity city-wide.
- Over-extract value in peripheral or emerging TOD locations.
- Discourage first-mover investors through aggressive charges.
- Ignore cumulative burden from FAR fees, IIF and JD obligations.

4. Implementation risks

Matrix 4: Implementation risks (public sector view)

Table 46: Land value capture (LVC) intensity vs implementation risk (public sector view)

Risk dimension	Low LVC	Moderate LVC	High LVC
Legal challenge risk	Low	Medium	High
Renegotiation risk	Low	Medium	High
Investor withdrawal	Low	Medium	High
TOD under-delivery	Medium	Low	High
Public perception risk	Low	Medium	High

Key messages

- High LVC application intensity significantly increases legal and renegotiation risk.
- Over-extraction of value often results in delayed or cancelled TOD projects.
- Moderate LVC minimises disputes and improves contract stability.
- Clear non-overlap rules (JD–FAR–IIF) reduce implementation risk.
- Predictable, phased LVC improves investor confidence and compliance.
- Long-term public value is maximised when implementation risk is minimised.

Rules for the HCMC Authority

Do

- Clearly separate JD, FAR-based LVC and IIF scopes.
- Exempt or reduce IIF for infrastructure funded via JD.
- Apply FAR-based LVC only to FAR uplift outside the JD scope.
- Document non-overlap rules in approvals and contracts.
- Prioritise bankability and contract stability.

Do not

- Double-count value across JD, FAR fees and IIF.
- Introduce discretionary charges after project approval.
- Shift excessive risk to private partners without upside.
- Rely on renegotiation as a planning tool.

5.1.4.4. Phased implementation of integrated JD–PPP models in HCMC

A phased implementation approach to JD models is structurally necessary in HCMC due to a combination of market, institutional, fiscal and political constraints. Land value uplift generated by TOD infrastructure varies significantly across corridors and stations. At the same time, institutional capacity to structure and manage complex JD and integrated JD–PPP transactions remains limited, while market absorption constraints reduce the feasibility of large-scale, simultaneous TOD development.

In addition, public sensitivity around the monetisation of public land, together with statutory budget and debt constraints and the limited applicability of standalone PPP models under the PPP law¹³⁹, further reinforces the need for a cautious, sequenced implementation approach.

Phasing enables HCMC to progressively manage complexity, risk and value capture, while safeguarding housing affordability, market viability and project bankability. It allows simpler JD models to be piloted first, institutional capabilities to be strengthened over time, and more sophisticated integrated JD–PPP models to be deployed once legal clarity, market confidence and delivery track records are established.

To ensure effective phased implementation, HCMC should proactively prepare the legal, institutional and market conditions required to deploy specific JD and integrated JD–PPP models in a controlled and scalable manner, including:

Policy and legal clarification

- Clarify the legal treatment of public land contribution, air rights, FAR-based LVC instruments and revenue-sharing arrangements.
- Establish consistent valuation, approval and risk-sharing principles applicable across JD and integrated JD–PPP models.

Institutional setup

- Designate a dedicated TOD/JD lead agency with a clear mandate, authority and accountability.
- Establish a formal inter-agency coordination mechanism covering planning, land management, transport, finance and PPP oversight.

Pipeline preparation

- Systematically classify TOD sites by typology, including stations, depots, interchanges, corridors and precinct clusters.
- Prioritises sites based on value uplift potential, development readiness and delivery risk.
- Conduct early market sounding by JD and integrated JD–PPP model type to test investor appetite, pricing assumptions and risk allocation.

Through phased implementation, HCMC can build institutional maturity, de-risk market participation and maximise long-term LVC while ensuring alignment with fiscal discipline and public policy objectives.

¹³⁹ According to Vietnam's PPP Law, standalone PPP models—including user-paid models (such as BOT, BTO, and O&M) and government-paid models (such as BLT and BTL)—are generally not feasible for TOD projects unless they are integrated with public land or development rights. User-paid models face revenue shortfalls because farebox income alone is insufficient, while government-paid models impose significant fiscal pressure and are constrained by limitations on the government's ability to undertake long-term payment commitments.

Table 47: Phased implementation of JD and integrated models in HCMC

Phase	Recommended timeline	Objectives	Rationale	JD/ integrated models	Key actions
Pilot JD (land value-led models)	Year 2026– 2028	<ul style="list-style-type: none"> • Low-complexity, high-confidence pilots • Build institutional capability and market confidence 	<ul style="list-style-type: none"> • Capture TOD-induced land value uplift at the planning and early development stage before large-scale infrastructure benefits are fully realised • Transaction-based and site-specific, making them easier to design, negotiate and monitor under existing legal and institutional arrangements 	<ul style="list-style-type: none"> • JD model 1: Land contribution–equity joint venture company (JVC) • JD model 2: Revenue-sharing business cooperation contract (BCC) • JD model 3: Land/ asset lease with development obligations • JD model 4: Development rights sale/TDR 	<ul style="list-style-type: none"> • Select two or three pilot sites by the JD model type • Finalise land valuation and FAR-based LVC upfront • Use competitive selection and standardised JD contracts
Value-intensive station integration	Year 2029– 2032	<ul style="list-style-type: none"> • Integrate transport infrastructure delivery with station, depot and interchange-based land value realisation 	<ul style="list-style-type: none"> • Clear asset boundaries • Limited land valuation controversy • Strong bankability • Quick revenue realisation 	<ul style="list-style-type: none"> • Integrated model 1: Station PPP + station commercial JD • Integrated model 3: Depot PPP + phased TOD JD 	<ul style="list-style-type: none"> • Focus on existing metro lines (Line 1, Line 2) • Limit FAR uplift to modest, well-justified increments • Establish clear non-fare revenue ring-fencing rules
Value-intensive node development	Year 2033– 2035	<ul style="list-style-type: none"> • Capture higher land value at prime locations once governance is proven 	<ul style="list-style-type: none"> • High value capture potential • Strong TOD visibility • Requires mature planning and valuation systems 	<ul style="list-style-type: none"> • Integrated model 2: Station PPP + air rights JD • Integrated model 4: Interchange PPP + facility- linked JD • JD Model 5: Public facility- linked commercial development 	<ul style="list-style-type: none"> • Apply only to priority stations and interchanges • Require independent land and air rights valuation • Introduce development phasing and design review controls • Use competitive tendering for JD rights
Corridor-scale integration	Year 2036 onwards	<ul style="list-style-type: none"> • Achieve system level financial sustainability 	<ul style="list-style-type: none"> • Enables cross-subsidisation across stations • Suitable once the TOD market matures • Requires strong coordination capacity 	<ul style="list-style-type: none"> • Integrated model 6: Corridor-cased integrated JD–PPP • Supported by integrated model 5: TOD- supportive PPP + lease-based JD • JD model 6: Phased TOD precinct development JD 	<ul style="list-style-type: none"> • Establish a corridor-level special-purpose vehicle or TOD delivery unit • Pool LVC revenues (FAR, lease, commercial income) • Standardise FAR and IIF parameters corridor-wide • Use lease-based JD to preserve long-term public control

5.1.4.5. LVC instrument application by metro level in HCMC

5.1.4.5.1. Network level

(Entire metro system/multi-line)

Primary objectives

- Support system-wide transit investment
- Enable long-term financial sustainability
- Enable cross-subsidy and equity across the metro network
- Develop standardised, scalable instruments.

Table 48: Land value capture (LVC) instrument application at the network level

LVC instrument	Applicability	Role at the network level	Key conditions	Why appropriate
FAR-based LVC	Strategic and conditional ★ ★	Capture system-wide TOD density uplift	<ul style="list-style-type: none"> • Unified TOD FAR policy • Strong valuation system 	Scales TOD benefits across the city
IIF	Primary ★ ★ ★	Fund network-wide TOD and last-mile programmes	<ul style="list-style-type: none"> • Clear beneficiary logic if the fee supports network-wide TOD-supportive infrastructure 	Most defensible network-level LVC
JD	Limited (flagship assets) ★	Portfolio of major public TOD assets	<ul style="list-style-type: none"> • Centralised asset strategy 	JD is asset-specific, not scalable network-wide
Land sale/auction	Strategic and conditional ★ ★	Monetise public land bank for transit funding	<ul style="list-style-type: none"> • Used as a one-off capital injection aligned with network rollout 	One-off but powerful capital injection
Land use change fee	Baseline only ★	Enable city-wide TOD land conversion	<ul style="list-style-type: none"> • Not treated as transit funding 	Legal, but weak capture instrument

Key rules at the network level

- IIF is the primary LVC mechanism for financing network-wide TOD infrastructure.
- JD and auctions are capital injections, not recurring revenue.
- Land use change fee is not value capture from metro investment.

5.1.4.5.2. Corridor level

(Entire metro line, multiple stations, linear TOD catchment)

Primary objectives:

- Fund corridor-wide TOD infrastructure
- Balance development intensity and value capture across stations.
- Value uplift is distributed along the line.
- Infrastructure benefits multiple stations simultaneously.



Table 49: Land value capture (LVC) instrument application at the corridor level

LVC instrument	Applicability	Role at the corridor level	Key conditions	Why appropriate
FAR-based LVC	Primary ★ ★ ★	Capture incremental density enabled by the corridor TOD plan	<ul style="list-style-type: none"> Corridor TOD zoning approved TOD zoning enables density uplift across multiple stations Differentiated FAR by station tier 	Allows efficient allocation and compensation of resources among stations with varying potential.
IIF	Primary ★ ★ ★	Fund corridor-wide TOD works (access, interchanges)	<ul style="list-style-type: none"> Clear linkage to corridor benefits If infrastructure benefits multiple stations or the entire corridor Transparent fund allocation 	Most effective corridor-scale recovery tool
JD	Selective ★ ★	Apply only at major interchange stations or depots	<ul style="list-style-type: none"> Only for major interchange stations or depots with public land or assets 	JD is node-based, not linear
Land sale/ auction	Conditional ★ ★	Dispose of corridor TOD land after zoning	<ul style="list-style-type: none"> Must be linked to the corridor TOD plan with revenue earmarked for the line TOD parameters fixed 	Avoids later FAR disputes
Land use change fee	Supporting ★ ★	Enable functional conversion along the corridor	<ul style="list-style-type: none"> Land conversion is required to enable TOD Separated from the FAR capture 	Prepares land for TOD, but not a primary metro financing tool

Key rules at the corridor level

- IIF and FAR-based LVC are the primary LVC mechanisms for financing corridor-wide TOD infrastructure. JD plays a targeted, nodal role only. Do not rely on JD to fund an entire corridor.
- Do not apply IIF without a clearly defined corridor beneficiary area.

5.1.4.5.3. Site /station level

(Individual stations, depots, interchanges, air rights, station-adjacent plots)

Primary objectives

- Capture station-specific accessibility and density uplift
- Value uplift is highly localised
- Integrate development with station design and access
- The public sector controls physical assets.

Table 50: Land value capture (LVC) instrument application at the site/station level

LVC instrument	Applicability	Role at the site/station level	Key conditions	Why appropriate
FAR-based LVC	Primary ★ ★ ★	Capture incremental FAR/GFA granted under TOD zoning	<ul style="list-style-type: none"> • Base FAR is clearly defined • Incremental FAR/GFA is granted under TOD zoning beyond base FAR • Incremental FAR explicitly approved • Payment linked to permit issuance 	FAR uplift is the main value driver at station cores
IIF	Conditional ★ ★	Recover cost of station access, plazas, pedestrian links	<ul style="list-style-type: none"> • Clear beneficiary definition • If development directly benefits from station access, plazas, pedestrian links • Limited to TOD-supportive infrastructure 	Prevents station-area infrastructure from being fully budget-funded
JD	Primary ★ ★ ★	Monetise station buildings, air rights, depots	<ul style="list-style-type: none"> • Asset is public land, air rights, station buildings, depot • Integrated with station design 	Strong ridership and revenue linkage
Land sale/auction	Conditional ★	Dispose of public TOD parcels with fixed FAR	<ul style="list-style-type: none"> • Planning parameters (FAR, use) are fixed before the auction 	Auction already capitalises the base FAR
Land use change fee	Baseline only ★	Convert land use (e.g. industrial converted to TOD mixed-use)	<ul style="list-style-type: none"> • Does not include FAR uplift 	Covers land use purpose, not density

Key rules at the station level

- JD and FAR-based LVC are the primary LVC mechanisms for financing site/station TOD infrastructure.
- Private land is a capture base, not a JD base.
- Land use change fee does not capture the metro-induced density value.

Cross-level summary

Table 51: Cross-level summary

Instrument/scale	Core function	Site/station	Corridor	Network
FAR-based LVC	Monetise density uplift	Yes	Yes	Conditional
IIF	Recover TOD infrastructure costs	Conditional	Yes	Yes
JD	Monetise TOD assets	Yes	Conditional (node-based)	Limited
Land sale/auction	Capitalise fixed development rights	Conditional	Conditional	Conditional
Land use change fee	Enable land conversion only	Yes (baseline)	Yes (supporting)	Yes (baseline)

Key message

In the context of TOD in HCMC, LVC instruments should be applied according to the scale and level at which the value is created. FAR-based LVC and JD are most effective at the station level, where density and accessibility premiums are concentrated. IIF is best applied at the corridor and network levels to recover the cost of TOD-supportive investments that benefit multiple stations. Land auctions capture base development rights only when planning parameters are fixed in advance, while land use change fees serve as a baseline mechanism to enable TOD land conversion, but do not capture density or transit-induced uplift.

5.1.4.6. LVC implementation procedure, roles and responsibilities of key agencies in HCMC

5.1.4.6.1. Key agencies and core roles and responsibilities

The identification of appropriate agencies, and their key roles and responsibilities, helps:

- **Clarify legal authority and mandates.** LVC instruments involve planning, land, transport, finance and investment functions governed by different laws and delegated powers. Clearly identifying responsible agencies ensures actions such as FAR determination, land-related charges and LVC collection are undertaken by the legally competent authority, reducing compliance and mandate risks.
- **Enable effective inter-agency coordination.** TOD-linked LVC requires alignment between planning approval, infrastructure delivery and development control. Defined roles help synchronise agency actions across TOD planning, project implementation and LVC application, minimising delays and fragmentation.

- **Enhance transparency and market predictability.** Clear allocation of responsibilities provides certainty to developers, investors and lenders regarding LVC assessment, approval, collection and dispute resolution, thereby improving predictability, reducing discretion and strengthening investor confidence.
- **Strengthen accountability and governance of LVC revenues.** Identifying agencies responsible for LVC revenue collection, management and allocation ensures proper ring-fencing, auditability and compliance with public financial management requirements, reinforcing LVC as a structured financing mechanism rather than an ad-hoc charge.
- **Support integration of multiple LVC instruments.** HCMC is expected to apply a mix of JD-based, land sale, FAR-based and IIF-based LVC instruments. Clear agency roles enable coordinated instrument selection, prevent double-charging and support integration of LVC cashflows into broader TOD and infrastructure financing structures.
- **Reduce implementation risks in pilot and scale-up phases.** Early clarification of roles and responsibilities reduces approval delays, inconsistent application across wards and institutional friction during pilot implementation, facilitating a smoother transition to city-wide rollout.
- **Ensure technical guidelines are institutionally implementable.** Mapping key agencies to core functions ensures LVC technical guidelines align with HCMC's actual institutional workflows, making them practical for implementation by city departments, wards and project sponsors.

Table 52 summarises the key stakeholders involved in LVC implementation for TOD in HCMC and outlines their respective roles and responsibilities.

Table 52: Summary of key stakeholders involved in the land value capture (LVC) context of HCMC

Stakeholder	Role and involvement in the LVC context
City People's Council	<p>Core role: Policy authorisation and oversight</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Approve: <ul style="list-style-type: none"> – Pilot mechanisms under Resolution 188 – HCMC resolutions on LVC instrument fees applied at the city level (FAR fee, IIF, land use change charges and other LVC instruments stipulated by Resolution 188) – Budget allocations and use of LVC revenues (ring-fencing for TOD infrastructure) • Exercise oversight on: <ul style="list-style-type: none"> – Equity, transparency and social impacts – Use of proceeds and avoidance of over-charging – Conditions and safeguards for implementation

Stakeholder	Role and involvement in the LVC context
<p>HCMC People's Committee (PC)</p>	<p>Core role: Overall leadership, executive decision-maker, coordination and final approval</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Approve: <ul style="list-style-type: none"> – TOD planning – TOD policy frameworks and pilot programmes – List of TOD projects – Allocation of LVC revenues – Strategic direction and final approval – JD agreements, PPP contracts, and integrated JD-PPP structures – FAR uplift levels and IIF application scope • Issue: <ul style="list-style-type: none"> – TOD zoning decisions and TOD area boundaries – Executive decisions on LVC instrument selection per TOD area • Direct and coordinate: <ul style="list-style-type: none"> – Line departments and wards – State-owned enterprises acting as implementing arms • Resolve: <ul style="list-style-type: none"> – Inter-agency conflicts – Trade-offs between TOD outcomes and revenue maximisation
<p>Department of Finance (DOF)</p>	<p>Core role: Financial assessment and revenue management, LVC revenue and fiscal control</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Design: <ul style="list-style-type: none"> – FAR-based LVC and IIF rate proposal – FAR fee and IIF calculation methodologies • Review: <ul style="list-style-type: none"> – Financial viability of JD- PPP structures – Investor capacity for JD • Ensure: <ul style="list-style-type: none"> – No double-charging across instruments • Manage: <ul style="list-style-type: none"> – Collection, accounting and allocation of LVC revenues – Overall LVC and fiscal oversight • Propose: <ul style="list-style-type: none"> – Revenue recycling mechanisms for TOD reinvestment <p>Decision authority</p> <ul style="list-style-type: none"> • Financial acceptability of LVC terms • Confirmation of exemptions/reductions

Stakeholder	Role and involvement in the LVC context
Department of Planning and Architecture (DPA)	<p>Core role: Spatial and TOD planning, TOD design and FAR control, and TOD and FAR gatekeeper</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Identify and delineate: <ul style="list-style-type: none"> – TOD areas, influence zones and station catchments • Manage: <ul style="list-style-type: none"> – TOD designation and planning control – Baseline FAR and FAR uplift approval – Land use change and zoning amendments • Define: <ul style="list-style-type: none"> – Base FAR, maximum FAR and eligible FAR uplift – TOD planning parameters (density, mix, urban form) – TOD requirements for each JD project • Certify: <ul style="list-style-type: none"> – Planning compliance of JD– PPP proposals <p>Decision authority</p> <ul style="list-style-type: none"> • Whether FAR uplift exists and its magnitude • Whether FAR uplift is “covered” by JD (non-monetary contribution) or chargeable (subject to FAR-based LVC)
Department of Construction (DOC)	<p>Core role: Transport infrastructure planning and TOD integration, infrastructure and TOD functional lead</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Identify: <ul style="list-style-type: none"> – TOD-supportive transport infrastructure (stations, depots, interchanges) – External vs site-specific infrastructure • Define: <ul style="list-style-type: none"> – Infrastructure scope to be delivered via JD or PPP – Definition of station-area infrastructure scope • Confirm: <ul style="list-style-type: none"> – Whether infrastructure obligations justify: <ul style="list-style-type: none"> – FAR uplift – IIF exemption or reduction • Coordinate: <ul style="list-style-type: none"> – Timing between infrastructure delivery and real estate development <p>Decision authority</p> <ul style="list-style-type: none"> • Whether infrastructure is: <ul style="list-style-type: none"> – JD-funded (thus exempt from IIF) or – City-funded (thus justifying IIF) • TOD integration with metro/ bus rapid transit/stations • Performs post-audits of financial obligations when issuing construction permits

Stakeholder	Role and involvement in the LVC context
<p>Department of Agriculture and Environment (DOAE)</p>	<p>Core role: Land management, valuation and land use change</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Manage: <ul style="list-style-type: none"> – Public land inventory within TOD areas – Land allocation, lease or auction process • Determine: <ul style="list-style-type: none"> – Land use conversion eligibility and pricing – Land use change fees • Lead: <ul style="list-style-type: none"> – Land valuation for: <ul style="list-style-type: none"> – JD contributions – Land sale or auction – Ensure: <ul style="list-style-type: none"> – Compliance with land law and transparency <p>Decision authority</p> <ul style="list-style-type: none"> • Land price benchmarks • Valuation inputs for LVC calculations
<p>Management Authority for Urban Railways (MAUR)</p>	<p>Core role: TOD investment facilitation</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Lead: <ul style="list-style-type: none"> – JD- PPP project preparation – Oversight of the rail operations connected to the TOD – Identification of TOD opportunities on rail assets – JD- PPP project preparation and coordination • Appraise: <ul style="list-style-type: none"> – Investor proposals (JD, PPP, integrated models) • Coordinate: <ul style="list-style-type: none"> – Investor selection and negotiation – Investor eligibility and procurement method
<p>Ward People's Committees</p>	<p>Core role: Ground-level execution and stakeholder management, local implementation and enforcement</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Implement: <ul style="list-style-type: none"> – Approved TOD plans and LVC instruments • Manage: <ul style="list-style-type: none"> – Local permitting and construction supervision • Coordinate: <ul style="list-style-type: none"> – Community engagement and resettlement (if any) • Monitor: <ul style="list-style-type: none"> – Developer compliance with JD- PPP obligations <p>Decision authority</p> <ul style="list-style-type: none"> • Administrative approvals at the ward level • On-the-ground enforcement actions

Stakeholder	Role and involvement in the LVC context
<p>State-owned enterprises (SOEs)</p>	<p>Core role: Project execution and asset development, implementing and commercial arms of HCMC</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Act as: <ul style="list-style-type: none"> – JD counterpart on public land – PPP concessionaire or infrastructure developer • Deliver: <ul style="list-style-type: none"> – TOD-supportive infrastructure – Real estate development (where mandated) • Support: <ul style="list-style-type: none"> – Land assembly and project phasing • Operate: <ul style="list-style-type: none"> – Assets post-completion (where applicable) <p>Decision authority</p> <ul style="list-style-type: none"> • Operational decisions within approved mandates • Commercial execution under HCMC PC oversight
<p>Private developers</p>	<p>Core role: Finance and construct TOD developments</p> <p>Key responsibilities</p> <ul style="list-style-type: none"> • Potential participants in JD • Potential payees of LVC charges (additional FAR sale, IIF, land use change fees)
<p>Existing and new landowners</p>	<ul style="list-style-type: none"> • Own land within the TOD project area • Potential payees of IIF, as they are beneficiaries of the infrastructure upgrades

5.1.4.6.2. Implementation procedure (step-by-step)

Step	Lead agency	Support agency	Key tasks
STEP 1: TOD Identification and policy screening	DPA	DOC, MAUR	<ul style="list-style-type: none"> Identify station-area TOD opportunity Confirm TOD alignment with city master plans Define preliminary TOD boundary
STEP 2: Land status and value driver assessment	DAE	DOC, MAUR	<ul style="list-style-type: none"> Classify land as: (public land, private land, mixed public-private) Identify main value driver: <ul style="list-style-type: none"> FAR uplift Public land / air rights Infrastructure investment
STEP 3: Preliminary LVC instrument selection	DOF	DPA, DOC	<ul style="list-style-type: none"> Apply TOD-LVC decision rules: <ul style="list-style-type: none"> Public land: JD / JD-PPP, Sale / Auction Private land: FAR-based LVC External infrastructure: IIF Prepare initial LVC package
STEP 4: TOD planning and FAR decision	DPA	DOC, DOF	<ul style="list-style-type: none"> Approve: <ul style="list-style-type: none"> Baseline FAR FAR uplift (if any) TOD design controls Specify whether FAR uplift is inside JD scope or outside JD scope
STEP 5: Double-charging compliance check	DOF	DPA, DOC	<ul style="list-style-type: none"> Mandatory checks: <ul style="list-style-type: none"> FAR uplift in JD: FAR-based LVC would not be applied Infrastructure funded via JD/PPP: IIF would be reduced or exempted Rezoning priced into land auction: FAR-based LVC would not be applied
STEP 6: Project structuring and feasibility	MAUR	DOF, DOC	<ul style="list-style-type: none"> Structure: <ul style="list-style-type: none"> JD agreement (if applicable) PPP contract (if applicable) Conduct integrated feasibility: technical, financial, legal
STEP 7: Approval and procurement	PC-HCMC	DOF, DPA, DOC, DAE	<ul style="list-style-type: none"> Approve: TOD plan, LVC package, JD / PPP structure Launch procurement or land process: <ul style="list-style-type: none"> JD bidding PPP bidding Land auction (if applicable)
STEP 8: Implementation and monitoring	DOC, MAUR	DOF, DPA	<ul style="list-style-type: none"> Monitor: <ul style="list-style-type: none"> TOD design compliance JD/PPP financial performance LVC revenue realisation Adjust instruments only with formal approval

Figure 116: Implementation procedure

5.1.4.7. Step-by-step guidelines for LVC instruments adopted in HCMC

This section outlines the step-by-step guidelines for LVC instruments in HCMC, and seeks to address the following key questions:

- Who bears the obligation to pay for the LVC uplift?
- What purposes will this contribution be used for?
- How is the amount payable determined?
- When will the payment be made?

5.1.4.7.1. FAR-based LVC instrument

Concept: In the context of HCMC, a FAR-based LVC instrument is a TOD financing mechanism under which the city charges developers a fee or in-kind contribution for additional FAR. It is applied only to the incremental GFA granted beyond the base FAR defined in the planning approval in effect prior to TOD planning. The new FAR is determined by TOD plans or other subsequent public planning decisions, and the charge captures part of the land value uplift created by these public actions.

These step-by-step technical guidelines are structured to guide authorities and involved stakeholders through the full lifecycle of a FAR-based LVC instrument within TOD areas in HCMC, from policy design to on-the-ground implementation. The guidelines define a clear sequence of steps as shown below:

FAR-based LVC instrument’s step-by-step guidelines

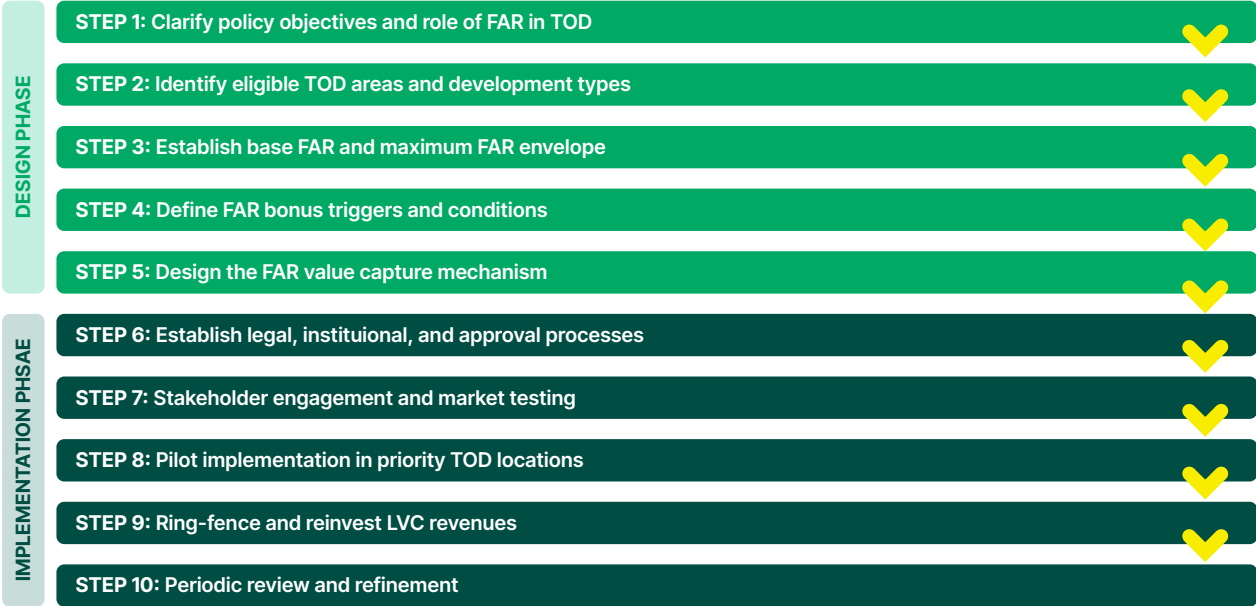


Figure 117: Steps in the lifecycle of a FAR -based land value capture instrument

Step 1: Clarify policy objectives and role of FAR in TOD development

Purpose: Establish FAR uplift as a supporting tool, not a driver of excessive density.

In the context of policy statements embedding FAR-based LVC within TOD and metro financing objectives in HCMC, the role of FAR-based LVC is defined as:

- Supporting compact, mixed-use and transit-supportive urban development
- Capturing a fair share of land value uplift generated by public investment in metro infrastructure
- Mobilising additional funding for metro- and TOD-related infrastructure and public services
- Reinforcing, rather than overriding, TOD planning, transport performance and urban quality objectives.

In HCMC, FAR-based LVC should be introduced as a targeted, conditional, transparent and performance-linked instrument, focusing initially on large commercial beneficiaries in high-access TOD locations, while aligning with statutory planning controls, social acceptance and long-term TOD objectives.

Step 2: Identify eligible TOD areas and development types

Purpose: Limit FAR-based LVC to clear, defensible beneficiaries.

2.1. Eligible areas

FAR-based LVC should apply only within designated TOD areas, typically within TOD areas as defined in approved TOD plans, including:

- Core station areas
- Secondary TOD influence zones
- Other areas explicitly approved by the People’s Committee (PC) of HCMC.

2.2. Eligible development types

The instrument should initially focus on developments that clearly benefit from metro accessibility, including:

- Large-scale commercial and mixed-use developments exceeding defined GFA thresholds
- Major redevelopment or intensification projects within TOD zones.

Small-scale developments and areas with high social sensitivity should be excluded or subject to stricter controls.¹⁴⁰

¹⁴⁰ Details regarding the application and non-application of FAR will be specified and regulated under HCMC regulations

Step 3: Establish base FAR and maximum FAR limit

Purpose: Create transparency and planning certainty.

3.1. Base FAR

Base FAR should be determined in accordance with:

- Approved master plans, TOD plans, zoning plans and detailed plans
- Existing statutory planning regulations.

Base FAR represents the as-of-right development intensity and should not be subject to LVC contributions.

3.2. Maximum FAR

A maximum FAR should be established for each TOD area or station typology, based on:

- Approved TOD planning
- Metro capacity and transport performance
- Infrastructure and utility capacity
- Urban design and environmental considerations.

The difference between base FAR and maximum FAR constitutes the potential FAR uplift and does not create an automatic entitlement.

Step 4: Define FAR bonus triggers and conditions

Purpose: Ensure FAR uplift is earned, not granted.

FAR bonuses should be granted only where developments meet clearly defined public benefit conditions, including but not limited to:

- Financial contributions to metro, station area or TOD-related infrastructure
- Provision of public spaces, pedestrian connections, intermodal facilities or last-mile infrastructure
- Delivery of social or community infrastructure aligned with TOD objectives.

All FAR bonuses should be:

- Conditional upon compliance with TOD design, access and mobility standards
- Subject to technical appraisal and formal approval by competent authorities.

The FAR-based fee is triggered upon the approval of additional FAR beyond base FAR and is payable when the additional development rights are formally granted through planning or development approval. Trigger events for a FAR premium fee may include:

- Approval of additional FAR
- Development rights allocation: award of additional FAR through auction or negotiation
- Construction permit issuance: FAR fee payable (fully or in instalments) prior to or at construction permit issuance.

Step 5: Design the value capture mechanism

Purpose: Convert FAR uplift into predictable public value.

5.1. Value capture approach

FAR-based LVC may be implemented through:

- One-off FAR premium fees calculated per additional square metre of granted floor area
- Negotiated development contributions linked to incremental GFA
- Hybrid approaches combining cash and in-kind contributions.

5.2. Valuation principles

FAR valuation should be:

- Market-informed and transparent
- Based on incremental land value attributable to FAR uplift and metro accessibility
- Periodically reviewed to reflect market conditions and TOD maturity.

Excessive or unpredictable charges that could deter investment should be avoided, particularly in the early implementation phases.

5.3. Structure of the FAR-based LVC instrument

HCMC should adopt a **tiered FAR contribution framework**, consisting of:

- **Base FAR:** Permitted without any LVC obligation
- **Bonus FAR:** Granted subject to LVC contributions
- **Maximum FAR:** Absolute upper limit, regardless of contribution.

Only the **incremental floor area** above base FAR and within the approved bonus range should be subject to LVC.

5.4. Contribution methods

HCMC may apply one or a combination of the following **three standardised contribution methods**, selected based on project scale and administrative feasibility.

Method A: Standard FAR premium fee (recommended for initial implementation)

Description: A one-off monetary fee charged per square metre of **additional GFA** granted through FAR uplift.

Calculation formula (simplified): FAR contribution = Additional GFA × Standard FAR rate

Where:

- Additional GFA = Total approved GFA – GFA under base FAR
- Standard FAR rate = Administratively set unit rate (VND/m²)

Setting the FAR rate:

- Derived from:
 - Average land prices in TOD areas
 - Typical commercial development margins
 - International and local benchmarks adjusted to HCMC conditions
 - Fair portion of value uplift that HCMC wants to capture.
- Differentiated by:
 - TOD zone (core vs secondary)
 - Development type (commercial, mixed-use).

Advantages:

- Easy to understand and administer
- High transparency
- Suitable for early TOD pilots.

Method B: Negotiated development contribution

Description: A project-specific contribution negotiated during planning approval, linked to the value of FAR uplift.

Eligible forms:

- Cash contributions
- In-kind delivery of:
 - Station access infrastructure
 - Pedestrian bridges, underpasses, plazas
 - Intermodal or last-mile facilities.

Application:

- Applied to large or complex developments exceeding predefined thresholds
- Supported by a feasibility assessment.

Safeguards:

- Negotiations shall follow standardised benchmarks to ensure consistency
- Final contributions must be documented and publicly disclosed.

Method C: Hybrid cash and in-kind contribution

Description: Combination of a reduced FAR premium fee with mandatory in-kind infrastructure provision.

Application:

- Recommended where direct TOD infrastructure delivery is more efficient than cash collection
- Particularly suitable for station-adjacent developments.

Numerical examples of the above calculation methods are provided in Annex 1 – Case examples of FAR calculations

Box 24: Implementation checklist (for city officers)

1. FAR increase justified by planning objectives
2. Value uplift assessed using standardised parameters
3. LVC obligation proportionate and TOD-supportive
4. No duplication with other LVC instruments
5. Implementation legally secured and enforceable

5.5. Valuation and pricing guidance

To ensure **ease of implementation**, HCMC shall adopt a **benchmark-based valuation approach** (e.g. a fee is formally set by the city's LVC resolution), rather than project-by-project land residual modelling.

Key principles:

- FAR rates are set administratively, not negotiated from scratch for each project.
- Rates are indicative of value uplift, not full value capture.
- Conservative pricing is preferred in early stages.

Technical steps:

- Define benchmark FAR rates (VND/m²) by TOD zone and land use.
- Review benchmarks every two to three years or upon major market shifts.
- Adjust rates prospectively only.

5.6. Payment timing and collection**Payment timing options:**

- Lump-sum payment at construction permit issuance, or
- Phased payments aligned with project milestones.

Collection rules:

- FAR contributions must be paid before FAR bonuses take effect.
- Non-payment shall result in reversion to base FAR.

Administrative responsibility

- Finance authority agency responsible for collection
- Planning authority agency confirms FAR compliance.

Step 6: Establish legal, institutional and approval processes

Purpose: Ensure legality and administrative feasibility.

6.1. Legal alignment

FAR-based LVC should be implemented in compliance with:

- Land law, planning law, construction law and related regulations
- Applicable resolutions, decisions and directives of the HCMC PC.

6.2. Institutional roles

Clear roles should be defined among:

- Planning authorities: FAR control, TOD planning and design compliance
- Transport authorities: TOD performance, station access and integration
- Finance authorities: LVC revenue assessment, collection and management.

FAR-based LVC approval should be integrated into existing development approval processes to ensure administrative efficiency.

Step 7: Stakeholder engagement and market testing

Purpose: Build consensus and minimise resistance.

Prior to formal application, HCMC competent authorities should:

- Engage with major developers, investors and ward authorities
- Conduct market testing to assess feasibility, pricing and investor response
- Incorporate feedback to refine FAR parameters and contribution levels.

Early and transparent engagement is essential to build consensus and minimise negative public response.

Step 8: Pilot implementation in priority TOD locations

Purpose: Manage risk and build institutional learning.

FAR-based LVC should be introduced through **pilot applications** in selected TOD locations with high readiness, including:

- Strong metro accessibility
- Clear development demand
- Adequate institutional capacity.

FAR-based LVC pilot programmes should be applied with:

- Clear monitoring of FAR uptake, revenue and urban outcomes
- Strong design control and enforcement.

Lessons learned on pricing, approvals and public response should be documented to inform future scaling and refinement.

Step 9: Ring-fence and reinvest LVC revenues

Purpose: Maintain public legitimacy.

Revenues generated from FAR-based LVC should be:

- Ring-fenced for metro- and TOD-related infrastructure and services
- Prioritised for station access, last-mile connectivity, public spaces and supporting urban infrastructure
- Managed transparently with public reporting.

Limited strategic cross-subsidisation may be permitted to support early-stage or lower-value TOD areas, subject to approval.

Step 10: Periodic review and refinement

Purpose: Ensure long-term effectiveness of a FAR-based LVC instrument.

Review FAR parameters, pricing and eligibility periodically based on:

- TOD maturity
- Market response
- Transport and urban performance.

Adjust instrument without retroactive changes to approved projects.

Continuous learning and adjustment should support the gradual expansion of FAR-based LVC across HCMC's metro network.

Table 53: Summary of steps for FAR-based land value capture (LVC) design and implementation

Step	Activities	Objectives	Key actions
1	Clarify policy objectives and role of FAR in TOD	Establish FAR uplift as a supporting tool, not a driver of excessive density	Ensure FAR-based LVC is applied as a targeted, conditional and discretionary instrument, aligned with statutory planning controls and HCMC's socio-economic development priorities
2	Identify eligible TOD areas and development types	Limit FAR-based LVC to clear, defensible beneficiaries	Apply only within designated TOD areas and initially focus on developments that clearly benefit from metro accessibility
3	Establish base FAR and maximum FAR envelope	Create transparency and planning certainty	Realise difference between base FAR and maximum FAR constitutes the potential FAR uplift envelope
4	Define FAR bonus triggers and conditions	Ensure FAR uplift is earned, not granted	Clearly define public benefit conditions and developments to grant FAR bonuses
5	Design the FAR value capture mechanism	Convert FAR uplift into predictable public value	Determine FAR value capture approach and FAR valuation method
6	Establish legal, institutional and approval processes	Ensure legality and administrative feasibility	Ensure compliance with existing regulations; clearly define roles among agencies and integrate FAR-based LVC approval processes
7	Stakeholder engagement and market testing	Build consensus and minimise resistance	Engage with key stakeholders, conduct market testing and incorporate feedback to refine FAR parameters and contribution levels
8	Pilot implementation in priority TOD locations	Manage risk and build institutional learning	Pilot applications in selected TOD locations and document lessons learned on pricing, approvals and public response to inform future scaling and refinement
9	Ring-fence and reinvest LVC revenues	Maintain public legitimacy	Protect revenues generated from FAR-based LVC for metro- and TOD-related infrastructure and services
10	Periodic review and refinement	Ensure long-term effectiveness of a FAR-based LVC instrument	Review FAR parameters, pricing and eligibility periodically based on TOD maturity, market response, transport and urban performance

5.1.4.7.2. IIF-based LVC instrument

Concept: In the context of HCMC, an IIF-based LVC instrument is a TOD financing mechanism under which the city levies an IIF on developments that benefit from publicly-funded, TOD-supportive infrastructure. The IIF functions as a cost-recovery and cost-sharing mechanism for public investment in TOD-supportive infrastructure.

These step-by-step technical guidelines are structured to guide authorities and involved stakeholders through the full lifecycle of an IIF-based LVC instrument within TOD areas in HCMC, from policy design to on-the-ground implementation. The guidelines define a clear sequence of steps as shown below.

IIF-based LVC instrument's step-by-step guidelines

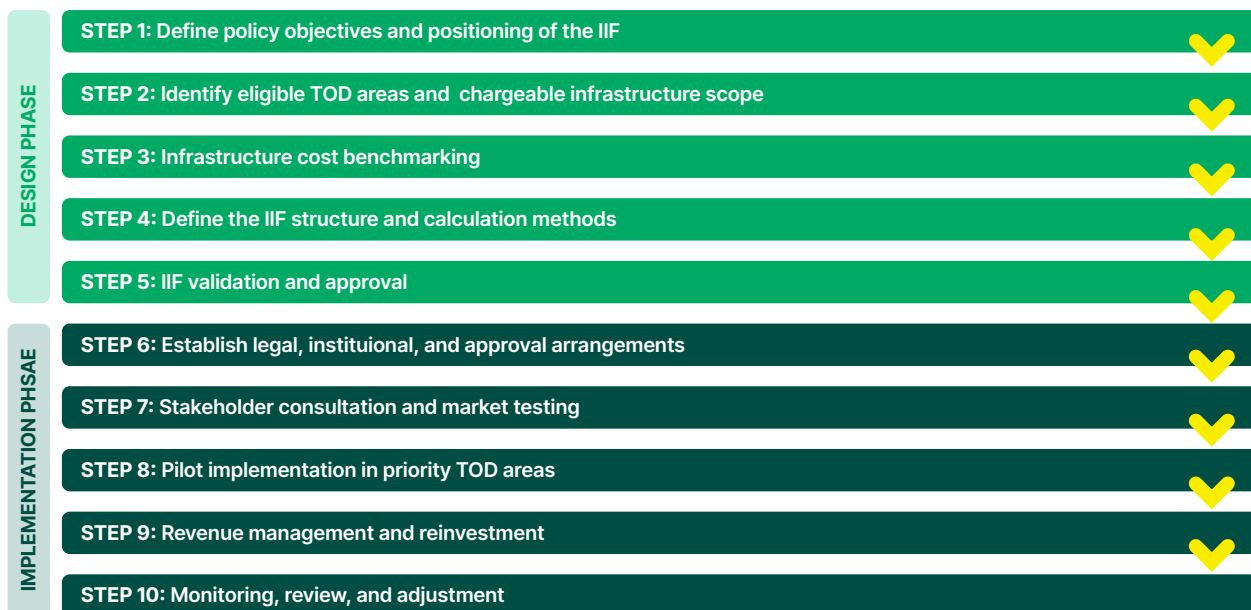


Figure 118: Steps in the lifecycle of an infrastructure improvement fee-based land value capture instrument

Step 1: Define policy objectives and positioning of the IIF

Purpose: Establish IIF as a cost-recovery and cost-sharing instrument, not a mechanism to capture full land value uplift or impose a new tax.

Public investment in metro systems and TOD-supportive infrastructure significantly improves accessibility and development potential in surrounding areas. The IIF is intended to ensure that developments benefiting from such public investments contribute fairly to the cost of local infrastructure upgrades required to support TOD intensity, while maintaining planning integrity, market feasibility and social acceptance.

The IIF should function as a targeted and clear beneficiary-based, transparent and cost-linked mechanism, complementary to FAR-based LVC and other value capture tools, and should not replace statutory taxes, fees or mandatory developer obligations.

IIF levels should be:

- Linked to estimated costs of TOD-supportive infrastructure improvements per station or per zone
- Differentiated by TOD zone and development type where appropriate
- Allocated proportionally to benefiting developments
- Acceptable to the market and implementable under HCMC conditions
- Set conservatively in early implementation phases and reviewed periodically.

Step 2: Identify eligible TOD areas and chargeable infrastructure scope

Purpose: Limit application to areas with demonstrable public TOD infrastructure investment impacts.

2.1. Eligible areas

The IIF should apply only within designated TOD areas, as defined in approved TOD plans and decisions of the HCMC PC.

2.2. Chargeable infrastructure categories

Charges should apply only to infrastructure that is directly required to support TOD intensity and provides area-wide or multi-project benefits. Chargeable infrastructure categories typically include:

- Station access roads and intersections
- Pedestrian and cycling networks within TOD areas
- Public spaces, plazas and streetscape improvements
- Drainage, lighting and utilities upgrades linked to TOD density.

Chargeable infrastructure categories generally exclude:

- Infrastructure delivered through FAR-based LVC
- New development through land sale and auction and land use change after the TOD-supportive infrastructure is delivered
- City-wide trunk infrastructure (water and electricity utilities, telecommunications, stormwater drainage, public amenities, airports, railways, tunnels, bridges, principal roads, major intersections)
- Infrastructure fully funded by other mechanisms.

2.3. Identify liable developments and trigger events

Purpose: Ensure fairness and administrative clarity.

The IIF should apply primarily to:

- New developments
- Major redevelopment or intensification projects
- Approved changes of land use that significantly increase development intensity or trip generation.

Trigger events for IIF liability may include:

- Issuance of construction permits when TOD-supportive infrastructure is ready
- Approval of land use changes or development plans
- The authority's notice on the completion and functionality of TOD-supportive infrastructure.

Small-scale developments, social housing and public-interest projects may be exempted or subject to reduced fees, subject to approval.

Step 3: Infrastructure cost benchmarking

Purpose: Establish a credible, standardised and defensible cost basis for calculating the IIF.

3.1. Define TOD infrastructure catchment

For each TOD station or cluster:

- Define the IIF catchment area
- Confirm boundaries through approved TOD plans.

3.2. Prepare the TOD infrastructure improvement list

For each catchment:

- List all required infrastructure items
- Identify scope, scale and indicative timing.

3.3. Estimate infrastructure costs

Costs shall be estimated using:

- Recent HCMC unit cost norms
- Comparable completed projects
- Pre-feasibility or concept estimates.

3.4. Identify chargeable development quantum

Within the same TOD catchment:

- Estimate total **new and additional GFA** expected over the plan period
- Exclude:
 - Existing lawful GFA
 - Exempted developments (e.g. social housing).

3.5. Calculate base IIF rate

Calculation formula: $\text{Base IIF rate (VND/m}^2\text{)} = \frac{\text{Total chargeable infrastructure cost}}{\text{Total chargeable GFA}}$

This rate represents full cost recovery for identified infrastructure.

3.6. Adjustment factors

To ensure feasibility and equity, the base IIF rate may be adjusted using standard multipliers.

3.6.1. TOD zone adjustment

Table 54: Transit-oriented development (TOD) zone adjustment

TOD zone	Adjustment factor (illustrative only)
TOD city core centre	1.0
TOD sub-centre	0.7

3.6.2. Land use adjustment

Table 55: Land use adjustment

Development type	Adjustment factor (illustrative only)
Commercial/mixed-use	1.0
Residential	0.5
Social/public housing	0.0–0.3

3.6.3. Phasing and market readiness adjustment

Table 56: Phasing and market readiness adjustment

TOD stage	Adjustment factor
Early-stage TOD	0.7–0.8 (illustrative only)
Mature TOD	1.0

3.6.4. Adjusted IIF rate formula

Adjusted IIF rate = Base IIF rate × Zone factor × Land use factor × Phasing factor

3.7. Fee caps and safeguards

To prevent excessive burden:

- IIF should not exceed a defined percentage of:
 - Average land value, or
 - Typical development cost per m².
- Annual or project-level caps may be applied.

Indicative safeguard: IIF ≤5–8% of total development cost per m² (*illustrative only*)

Project-level IIF calculation (application to individual projects): Project IIF = Chargeable GFA × Approved adjusted IIF rate

Step 4: Define the IIF structure and calculation method

Purpose: Translate validated infrastructure costs and policy parameters into a clear, consistent and operational formula for calculating the IIF.

Fee calculation methods: The IIF may be calculated

using one of the following standardised approaches:

Method A: Standard fee per m² of chargeable GFA

IIF payable = Chargeable GFA (m²) × Adjusted IIF rate (VND/m²)

Where:

- Chargeable GFA = Total GFA – Exempted GFA within base FAR only
- Adjusted IIF rate = VND/m², calculated by:
 - Base IIF rate
 - Zone factor
 - Land use factor
 - Phasing factor

Method B: Zone-based flat rate

IIF payable = Chargeable GFA (m²) × Zone-based IIF rate (VND/m²)

Where:

- Chargeable GFA = Total GFA – Exempted GFA within base FAR only
- Zone-based IIF rate = VND/m², predefined by:
 - TOD zone (core/transition/influence)
 - Land use type (residential, commercial, mixed-use)

For initial implementation in HCMC, simple, zone-based flat-fee structures are recommended to ensure ease of administration and transparency and to provide high predictability for developers.

Numerical examples are provided in Annex 2: Case examples of IIF calculations

Step 5: IIF validation and approval

Purpose: Formally confirm, authorise and legitimise the calculated IIF before it is imposed on a development.

Before adopting or revising IIF rates:

- Review cost assumptions with relevant HCMC agencies
- Test rates against sample project feasibility
- Obtain approval from the HCMC PC and People's Council.

Periodic review and update:

- Review infrastructure costs and GFA assumptions every three to five years or upon:
 - Major metro network expansion
 - Significant infrastructure cost escalation
 - Material changes in land market conditions
- Update IIF rates prospectively
- Maintain consistency with FAR-based LVC reviews.

Step 6: Establish legal, institutional and approval arrangements

Purpose: Ensure compliance and efficient implementation.

The implementation of IIF should comply with:

- Land law, planning law, construction law and related regulations
- Decisions and directives of the HCMC PC.

An inter-agency IIF implementation protocol is required. Clear roles should be established among:

- Planning authorities: Responsible for defining TOD areas and development eligibility
- Transport authorities: Responsible for identifying infrastructure needs and priorities
- Finance authorities: Responsible for fee assessment, collection and management.

The IIF should be integrated into existing development approval and permitting processes to ensure administrative efficiency and consistency.

Step 7: Stakeholder identification, consultation and market testing

Purpose: Reduce resistance and implementation risk.

Prior to formal application or adjustment of IIF rates, competent authorities should:

- Consult with developers, investors and ward authorities to profile these stakeholders into who pays for and who benefits from the IIF
- Assess impacts on development feasibility and investment appetite
- Refine fee structures and exemptions as necessary.

Transparent communication is essential to minimise disputes and maintain investor confidence.

Step 8: Pilot implementation in priority TOD areas

Purpose: Ensure the IIF is practical, proportionate and implementable, reducing risk and improving design before scaling up across HCMC's TOD areas.

The IIF should be introduced through pilot applications in selected TOD locations with:

- Clear infrastructure improvement needs
- Strong development demand and institutional readiness.

Pilot implementation should be monitored to assess:

- Fee collection performance
- Timeliness and effectiveness of infrastructure delivery
- Market and community response.

Lessons learned should inform future scaling and refinement.

Step 9: Revenue management and reinvestment

Purpose: Ensure that IIF revenues are transparently managed and effectively reinvested in TOD-supportive infrastructure and maintain public trust and effectiveness.

IIF revenues should be:

- Ring-fenced for TOD-related infrastructure improvements
- Prioritised for investment in the areas where fees are collected
- Managed transparently, with regular public reporting.

Limited strategic reallocation may be permitted to

support early-stage TOD areas, subject to approval.

Step 10: Monitoring, review and adjustment

Purpose: Ensure that the IIF remains effective, fair and aligned with TOD objectives over time.

The IIF framework should be:

- Periodically reviewed to ensure fee levels reflect changes in infrastructure costs, TOD maturity and market conditions
- Updated prospectively, without retroactive impact on approved developments
- Coordinated with reviews of other LVC instruments to avoid duplication or excessive burden.

Table 57: Summary of steps for IIF-based land value capture (LVC) design and implementation

Step	Activities	Objectives	Key actions
1	Define policy objectives and positioning of the IIF	Establish IIF as a cost-recovery and cost-sharing instrument	<ul style="list-style-type: none"> • Link to estimated costs of TOD-supportive infrastructure improvements per station or per zone • Differentiate by TOD zone and development type where appropriate • Allocate costs proportionally to benefiting developments
2	Identify eligible TOD areas and chargeable infrastructure scope	Limit application to areas with demonstrable public TOD infrastructure investment impacts	<ul style="list-style-type: none"> • Clearly define eligible areas and chargeable infrastructure categories • Identify liable developments and trigger events
3	Infrastructure cost benchmarking	Establish a credible, standardised and defensible cost basis for calculating the IIF	<ul style="list-style-type: none"> • Define the IIF catchment area • Prepare the TOD infrastructure improvement list • Estimate infrastructure costs • Identify chargeable development quantum • Estimate total new and additional GFA expected over the plan period • Calculate base IIF rate and adjusted factors
4	Define the IIF structure and calculation method	Translate validated infrastructure costs and policy parameters into a clear, consistent and operational formula for calculating the IIF	<ul style="list-style-type: none"> • Develop IIF calculation methods
5	IIF validation and approval	Formally confirm, authorise and legitimise the calculated IIF before it is imposed on a development	<ul style="list-style-type: none"> • Review cost assumptions • Test rates against sample project feasibility • Obtain approval from HCMC PC • Review and update infrastructure costs and GFA assumptions every three to five years • Update rates prospectively
6	Establish legal, institutional and approval arrangements	Ensure compliance and efficient implementation	<ul style="list-style-type: none"> • Comply with relevant and applicable regulations • Develop clear roles and implementation procedures for IIF implementation • Integrate IIF into existing development approval and permitting processes to ensure administrative efficiency and consistency

Step	Activities	Objectives	Key actions
7	Stakeholder identification, consultation and market testing	Reduce resistance and implementation risk	<ul style="list-style-type: none"> • Consult with developers, investors and ward authorities • Assess impacts on development feasibility and investment appetite • Refine fee structures and exemptions as necessary
8	Pilot implementation in priority TOD areas	Ensure the IIF is practical, proportionate and implementable, reducing risk and improving design before scaling up across HCMC's TOD areas	<ul style="list-style-type: none"> • Pilot applications in selected TOD locations with clear infrastructure improvement needs, strong development demand and institutional readiness • Monitor to assess fee collection performance, timeliness and effectiveness of infrastructure delivery, market and community response
9	Revenue management and reinvestment	Ensure that IIF revenues are transparently managed and effectively reinvested in TOD-supportive infrastructure and maintain public trust and effectiveness	<ul style="list-style-type: none"> • Ring-fence for TOD-related infrastructure improvements • Prioritise for investment in the areas where fees are collected
10	Monitoring, review and adjustment	Ensure that the IIF remains effective, fair and aligned with TOD objectives over time	<ul style="list-style-type: none"> • Periodically review fee levels to reflect changes in infrastructure costs, TOD maturity and market conditions • Update prospectively, without retroactive impact on approved developments

5.1.4.7.3. JD and PPP-based LVC instrument

In the Vietnamese legal framework, the term “joint development” is not explicitly defined. Instead, JD activities are implemented through existing legal and contractual vehicles, primarily including: (i) JVC; (ii) BCC; (iii) land lease or asset lease arrangements; and (iv) PPP contracts or agreements involving a special purpose vehicle (SPV).

Under PPP law, PPP projects in Vietnam are classified into **user-pay models** (such as build–operate–transfer, build–transfer–operate, build–own–operate, and operation and maintenance [O&M]) and **government-pay models** (such as build–lease–transfer and build–transfer–lease), depending on the source of revenue and payment mechanisms.

Within the context of TOD in HCMC, JD can be structured as a standalone commercial arrangement or embedded within a PPP structure, depending on the nature of the public assets involved, the scale and complexity of investment, and the allocation of risks and responsibilities between the public and private sectors.

To ensure effective LVC, appropriate risk allocation and financial sustainability of TOD-related

infrastructure, these technical guidelines adopt a structured approach to the selection of JD-based, PPP-based and integrated JD–PPP models, based on the following principles:

- **JD models** are applied where **land, development rights or real estate value** constitute the primary value drivers.
- **PPP models** are applied where **long-term service delivery, operation or asset availability obligations** exist, such as for metro stations, depots and interchanges.
- **Integrated JD–PPP models** are applied where **revenues from JD activities can be used to enhance PPP project bankability**, including:
 - Reducing public viability gap funding
 - Supporting availability payments
 - Enhancing private returns without increasing user fares.

These principles provide the foundation for selecting and structuring appropriate JD and PPP arrangements to support TOD implementation and LVC in HCMC.¹⁴¹

¹⁴¹ **Note:** This technical guideline does not seek to limit or exclude other potential JD models, including JD arrangements based on ad-hoc negotiation or non-commercial considerations that may contribute to improved TOD outcomes. Such models may be considered where they demonstrably support public objectives, including place-making, accessibility, social outcomes or integrated urban development. Accordingly, where such JD models are pursued, they should be applied selectively, supported by explicit legal bases, clearly articulated public interest objectives and robust documentation, and should not be treated as substitutes for standardised, market-based LVC instruments.

JD/PPP-based LVC instrument's step-by-step guidelines



Figure 119: Steps in the lifecycle of joint development and public-private partnership-based land value capture instruments

Step 1: Identify TOD assets and value capture opportunities

1.1. Identify TOD-related public assets

Relevant assets may include:

- Land parcels within TOD zones.
- Air rights above or adjacent to stations and depots.
- Station buildings, concourses and interchange areas.
- Park-and-ride facilities, commercial podiums and mixed-use developments.
- Supporting infrastructure (access roads, utilities, public spaces).

1.2. Assess value drivers

Determine the primary source of value:

- Land and development rights (e.g. density, use conversion, location premium).
- Real estate development potential (commercial, residential, mixed-use).
- Operational/service revenues (fare integration, retail leases, parking).
- Availability or service payments (government-funded assets).

This value driver assessment determines whether JD, PPP or an integrated JD-PPP model is appropriate.

Step 2: Select the appropriate delivery model (JD, PPP or integrated JD-PPP)

2.1. Joint development

Concept: JD- based LVC is a TOD financing and delivery mechanism whereby the public sector partners with private developers to integrate real estate development with metro and TOD-related infrastructure, capturing a share of the incremental land and development value generated by transit investment.

In HCMC, JD-based LVC aims to:

- Mobilise private capital to co-finance metro, station-area infrastructure, and public realm improvements;
- Accelerate TOD implementation while reducing fiscal pressure on the municipal budget.
- Align real estate development intensity, form, and phasing with metro ridership and accessibility objectives.
- Capture land value in-kind or in cash in a manner that is transparent, negotiated, and project-specific.

Apply JD-based LVC where:

- Land or development rights are the primary value drivers;
 - State-owned land is involved (station land, depot land, adjacent public parcels).
 - Air rights or subsurface rights above/below metro infrastructure are usable.
 - The State can legally grant additional development rights linked to transit assets.

- Revenues are generated mainly from real estate development.
- Long-term public service obligations are limited.
- Integrated station property development is technically feasible.

Exclusion Conditions:

JD-based LVC shall not be applied where:

- No public asset or development right is contributed.
- The project is purely private and subject only to regulatory controls.
- JD would materially undermine transport safety or operations.

Typical applications:

- Station-adjacent commercial and mixed-use developments.
- Air-rights development.
- Depot-related real estate.

Value Capture Mechanisms:

JD based LVC may capture value through one or a combination of the following:

- Upfront land premium or concession fee.
- Cost sharing for metro stations, entrances, pedestrian links, utilities, and public spaces.
- In-kind delivery of public infrastructure and amenities.
- Ongoing revenue sharing over the project lifecycle.
- Asset ownership retention (full or partial) by public entities.

The details of the JD models are provided in the Annex 5: Typical JD model

2.2. Public-private partnership

Concept: PPP in the TOD context of Ho Chi Minh City refers to a contractual arrangement under Vietnam's PPP Law in which a private investor finances, builds, operates, and/or maintains rail and non-rail TOD-supportive public infrastructure within or serving a designated TOD area, and is repaid through user fees, government payments, and/or viability support mechanisms.

Apply PPP models where:

- Long-term operation, maintenance, or availability obligations exist.
- Infrastructure assets are essential public services.

Typical applications:

- Stations, depots, interchanges.
- Multimodal terminals.
- O&M of TOD-supportive infrastructure.

The details of the PPP models are provided in the Annex 6: Typical PPP model

2.3. Integrated JD-PPP model

Concept: An Integrated JD-PPP in the TOD context of Ho Chi Minh City is a structured delivery model in which public land and/or development rights within a designated TOD area are contributed through a JD arrangement, while rail and non-rail TOD-supportive public infrastructure is delivered under a PPP contract, with the two components formally linked, coordinated, mutually reinforcing, and legally governed by Vietnamese legal frameworks.

Apply Integrated JD-PPP Models where:

- JD revenues can cross-subsidise PPP components.
- Standalone PPP bankability is weak.
- Value-for-money and fiscal sustainability can be improved.

Typical applications:

- Metro stations combined with commercial podiums.
- Interchange hubs with retail and office development.
- TOD precincts combining infrastructure and real estate.

The details of the integrated JD-PPP models are provided in the Annex 7: Typical integrated JD-PPP models.

Step 3: Select the appropriate legal and contractual vehicle

Based on the selected model, choose legally recognised instruments.

3.1. JD legal vehicles

- **JVC:** State contributes land/assets; private partner contributes capital and expertise.
- **BCC:** Revenue/profit-sharing without creating a new legal entity.
- **Land or asset lease arrangements:** State leases land or public assets under land law and public asset management law.

3.2. PPP legal vehicles

- **PPP contract with SPV**, consistent with PPP law:
 - Build-operate-transfer, build-own-operate, O&M (user-pay).
 - Build-lease-transfer and build-transfer-lease (government-pay).

3.3. Integrated JD-PPP structuring

- PPP contract governs infrastructure delivery and service obligations.
- JD arrangements embedded within or linked to the PPP (e.g. user charge, availability payment, revenue-sharing, cross-subsidy mechanisms).

3.4. Institutional and governance arrangements:

- A designated TOD or metro authority should act as the public counterpart for JD projects.
- Clear separation between:
 - Regulatory roles (planning, approvals) and
 - Commercial roles (asset owner, joint venture partner).

Step 4: Define public and private contributions

4.1. Public sector contributions

Public sector contributions may include:

- Land or land use rights.
- Development rights (FAR, land use conversion).
- Existing infrastructure or public assets.
- Planning approvals and regulatory support.
- Availability payments (for government-pay PPP).

4.2. Private sector contributions

Private sector contributions may include:

- Capital investment.
- Design, construction and technology.
- Commercial development and operation.
- Financing and risk assumption.

Step 5: Structure LVC mechanisms

5.1. JD-based LVC

Value capture may occur through:

- Upfront land premiums or lease payments.
- Profit-sharing from real estate development.
- Revenue-sharing from commercial operations.
- In-kind contributions (public facilities, public realm improvements).

5.2. PPP-based LVC

Value capture mechanisms include:

- Reduced availability payments due to JD revenue offsets.
- Revenue-sharing above agreed thresholds.
- Cross-subsidy of capital or O&M costs.

5.3. Integrated JD-PPP LVC

JD revenues may be used to:

- Improve PPP financial viability.
- Reduce fiscal burden on the city budget.
- Enhance value-for-money outcomes.

Coordination with FAR-based LVC and IIF:

- JD-based LVC should be coordinated with FAR-based charges and IIF to avoid double-charging.

- Where JD contributions are substantial, other LVC charges may be reduced, exempted or credited.
- JD projects should be assessed under an integrated TOD-LVC framework.

• FAR offset rule:

- FAR uplift granted within the JD agreement: FAR-based LVC is not applied separately, as the value of the additional FAR is already captured through the JD arrangement.
- FAR uplift outside the JD scope: FAR-based LVC applies only to the uncovered portion of the FAR uplift, ensuring no double-counting of value capture.

• IIF offset rule:

- Infrastructure funded through the JD arrangement: the IIF is exempted or reduced, as the relevant infrastructure costs are already internalised within the JD.
- Infrastructure not covered by the JD: the IIF may apply only to external, area-wide infrastructure that falls outside the scope of the JD, avoiding double-charging.

Step 6: Allocate risks appropriately

6.1. Market sounding

- Test developer appetite.
- Validate phasing and product mix.
- Adjust JD terms if necessary.

6.2. Key risks to allocate

- Land acquisition and site clearance.
- Planning and approval risks.
- Construction and cost overrun risks.
- Market and demand risks.
- O&M risks.
- Revenue and financing risks.

6.3. Risk allocation principles

- Allocate risks to the party best able to manage them.
- Market and development risks primarily borne by the private partner.
- Planning certainty and land tenure clarity ensured by the public sector.
- Construction and interface risks shared based on control and capability.
- Long-term operational risks allocated to the party best able to manage them.
- Avoid transferring sovereign or regulatory risks to private partners.
- Ensure bankability for private financing.

Step 7: Financial and bankability assessment

Conduct financial tests:

- Project financial modelling.
- Value-for-value principle: Total JD contribution \geq total monetised public contribution.
- Public contribution recovery over project lifecycle.
- Sensitivity tests (sales price, rent, absorption).
- Sensitivity analysis (demand, cost, interest rates).
- Assessment of JD revenue stability.
- PPP affordability and fiscal impact analysis.

For integrated JD–PPP models, demonstrate how JD revenues improve:

- Debt service coverage.
- Equity returns.
- Overall project bankability.

Step 8: Procurement and partner selection

8.1. Procurement method

- Competitive bidding is preferred.
- Pre-qualified shortlist.
- Direct appointment only where legally justified.

8.2. Evaluation criteria

- Technical capacity and TOD experience.
- Financial strength and funding capability.
- Financial offer and value capture proposals.
- TOD design quality.
- Delivery capability and risk management.
- Risk-sharing and lifecycle cost efficiency.
- Long-term asset management plan.

Step 9: Contract finalisation and implementation

Contracts should clearly define:

- Scope of JD and PPP components.
- Rights and obligations of each party.
- LVC mechanisms and revenue-sharing formulas.
- Performance standards and monitoring.
- Risk allocation and dispute resolution.
- Adjustment and renegotiation mechanisms.

Step 10: Monitoring, adjustment and post-implementation review

- Monitor design, construction and delivery.
- Monitor financial, operational and TOD outcomes.
- Periodically review LVC performance.

- Adjust mechanisms if land use plans or market conditions change
- All JD-based LVC revenues should be:
 - Transparently accounted for and
 - Preferably ring-fenced for metro- and TOD-related infrastructure
- Capture lessons learned for scaling across HCMC TOD corridors

5.1.4.7.4. Land use change-based LVC instrument

Concept: A land use change-based LVC instrument is a value capture mechanism whereby the state captures a portion of the incremental land value arising from approved land use change consistent with an adopted TOD plan, where such land use change is enabled or enhanced by planned or delivered TOD infrastructure.

For the avoidance of doubt:

- The land use change fee is governed by the land law of Vietnam and is calculated in accordance with prevailing statutory valuation methods.
- Payment of the land use change fee does not confer any permit, entitlement or right to construct additional GFA or FAR.¹⁴²
- Rights related to construction density, GFA or FAR remain subject to:
 - Approved detailed planning.
 - Construction permits and
 - Separate FAR-based or development rights LVC instruments, where applicable.

This mechanism applies only to land use function conversion (e.g. residential, commercial, mixed-use) within designated TOD influence areas.

Objectives: The land use change-based LVC instrument aims to:

- Capture part of the land value uplift attributable to TOD planning and infrastructure.
- Ensure equitable contribution from landowners benefiting from TOD-driven land use change.
- Generate early-stage revenue aligned with TOD planning approval, prior to construction.
- Maintain a clear legal separation between land use rights and development (FAR/GFA) rights.
- Provide a transparent and predictable framework for both public agencies and private investors.

Applicability: The land use change-based LVC instrument applies where all of the following conditions are met:

- The land parcel is located within a designated TOD station area, TOD corridor or TOD influence zone.

¹⁴² Under current Vietnam regulations, the land use change fee does not include a permit or right to construct additional GFA or FAR

- The proposed land use change is consistent with the approved TOD plan and relevant statutory plans.
- The land use change precedes or is independent from any application for increased FAR or GFA.

Land use change-based LVC instrument's step-by-step guidelines



Figure 120: Steps in the lifecycle of a land use change-based land value capture instrument

Step 1: Delineation of TOD land use change catchment areas

HCMC should formally designate TOD land use change catchment areas based on:

- TOD station areas.
- TOD corridors.
- TOD network-level influence zones.

Each catchment area should specify:

- Eligible land use functions for conversion.
- Planning objectives.
- Applicable LVC principles.

Step 2: Identification of eligible land use change

Relevant HCMC authorities should confirm whether a proposed land use change:

- Complies with the approved TOD plan.
- Aligns with the statutory land use master plan and zoning regulations.
- Does not involve any change to approved FAR, GFA or building height.

Only land use function changes are eligible at this stage.

Table 58: Common transit-oriented development (TOD) land use changes in HCMC

From	To	Typical TOD context
Agricultural	Residential/TOD mixed-use	New growth corridors
Industrial/warehouse	TOD mixed-use	Urban infill TOD/new growth TOD
Low-density residential	TOD mixed-use	Urban infill TOD
Special-purpose land	Commercial service	Core interchange TOD/depot/terminal TOD

Step 3: Determination of baseline land value

A baseline land value should be established based on:

- The existing approved land use function prior to TOD-related land use change.
- Pre-metro accessibility conditions.
- Pre-TOD infrastructure capacity.
- Statutory land price frameworks and valuation methods under the land law.

This baseline value serves as the reference for calculating the land use change fee.

Step 4: Determination of post-change land value

The post-change land value should be determined based on:

- The approved new land use function under the TOD plan.
- Standard land valuation methodologies under prevailing regulations.
- Excluding any assumptions related to increased FAR, GFA or construction intensity.

Step 5: Calculation of land use change fee and land use change-based LVC amount

The land use change fee should be calculated in accordance with:

- The land law.
- Applicable decrees and valuation guidelines.

Where permitted by pilot policy or local regulation, HCMC may apply a TOD-specific value uplift capture ratio (TOD-LVC rate), expressed as a percentage of the incremental land value arising from the land use change.

Formula: Land use change-based LVC amount = (Post-TOD land value – Pre-TOD baseline value) × TOD-LVC rate

Table 59: Indicative ranges of transit-oriented development (TOD)-land value capture (LVC) rate for HCMC

TOD typology	Capture rate
Core interchange (*)	10–20%
Urban infill	20–30%
New growth	30–40%
Depot/terminal	Negotiated

(*) Lower rates in Core interchange reflect high TOD sensitivity and system integration needs.

Step 6: Explicit separation from development rights

All approvals and notices should explicitly state that:

- Payment of the land use change fee:
 - Does not include development rights and
 - Does not pre-approve FAR, GFA or building parameters
- Any future FAR or GFA increase:
 - Shall be subject to separate planning approval and
 - Separate FAR-based LVC instruments, if applicable.

This separation should be reflected in:

- Approval documents
- Payment notices.
- Land administration records.

Step 7: Timing of fee assessment and collection

The land use change-based LVC should be:

- Assessed and collected upon approval of the land use change.
- Independent of construction commencement.

This allows:

- Early monetisation of TOD-related value uplift.
- Alignment with TOD planning milestones rather than construction timelines.

Step 8: Revenue allocation and use

Revenues from the TOD land use change-based LVC should be earmarked for:

- TOD-related infrastructure.
- Station-area public realm improvements.
- Social housing in TOD zones.
- Transit accessibility enhancements.
- TOD planning and implementation costs.

Step 9: Coordination with other LVC instruments

The land use change-based LVC mechanism should be coordinated with:

- FAR-based LVC instruments.
- JD arrangements.
- IIF, where applicable.

Double-counting of value capture should be avoided through:

- Sequencing rules.
- Clear delineation of value sources.

Step 10: Monitoring, review and adjustment

HCMC should periodically:

- Review land use change outcomes within TOD areas.
- Assess market response and fiscal performance.
- Adjust capture ratios or application scope as needed, particularly after the pilot phase.

5.1.4.7.5. Land sale or auction-based LVC instrument

Concept: The land sale or auction-based LVC instrument captures upfront value from public land enabled by TOD planning approval and land disposition. The land sale or auction price reflects the permitted land use and GFA/FAR as defined in the approved planning parameters at the time of sale or auction. It does not monetise future density or operational benefits. IIF, where applicable, is applied separately upon completion of TOD infrastructure. Where the land sale or auction is conducted after TOD infrastructure completion, the sale or auction price reflects the permitted GFA/FAR and applicable IIF obligations in effect at the time of sale.

Objectives: The land sale or auction-based LVC instrument aims to:

- Capture planning-led land value uplift created by TOD designation and metro investment.
- Mobilise upfront capital expenditure (CAPEX) for metro- and TOD-supportive infrastructure.
- Ensure transparent, market-based monetisation of public land assets.

Scope of application:

- **Eligible metro levels**
 - Station/depot level (primary).
 - Selected corridor nodes (conditional).
- **Eligible land**
 - State-managed land.
 - Station, depot, air rights, TOD public parcels.
 - Public land within TOD influence areas.
 - Relocated or consolidated public land unlocked by metro projects.
 - Private land excluded.

Key principles:

- **Planning first, sale later**
 - Land must be disposed of after TOD parameters are approved.
 - Auction price reflects permitted GFA/FAR at auction time only.
- **Timing determines value components**
 - Before TOD infrastructure: internalise GFA/FAR only.
 - After TOD infrastructure: internalise GFA/FAR + known IIF obligations.
- **No density ambiguity**
 - Auction price reflects:
 - » Approved land use.
 - » Permitted FAR and planning controls.
 - Additional density (if any) is handled separately.
- **One-off capital instrument**
 - Revenues classified as CAPEX only.
- **Transparency and auditability**
 - Open auction, clear valuation logic, earmarked use.

TOD-based land sale/auction LVC instrument’s step-by-step guidelines



Figure 121: Steps in the lifecycle of a land sale or auction-based land value capture instrument

Step 1: Confirm TOD planning parameters

- Confirm the site lies within an approved TOD plan
- Approve and lock:
 - Land use function.
 - Base FAR and permitted GFA.
 - Height and form controls.
- Determine which scenario applies:
 - **Scenario A** – Auction before TOD infrastructure completed or improved.
 - » Auction price reflects GFA/FAR only.
 - » IIF not yet triggered.
 - **Scenario B** – Auction after TOD infrastructure completed or improved
 - » Auction price reflects:
 - » GFA/FAR at time of auction.

- » Applicable IIF obligations in force.

Step 2: Asset control and legal eligibility

- Confirm state ownership of land.
- Complete land clearance, resettlement, land consolidation (if required).
- Register asset as “Eligible for TOD-based land auction”.

Step 3: Land use change (if required)

- Process land use change in line with approved TOD plan and statutory land administration procedures.
- Collect statutory land use change fee (baseline statutory obligation).

Step 4: Valuation and auction reserve price

- Establish reserve (floor) price for auction.
- Valuation basis must reflect timing scenario.
 - **Scenario A** – Before TOD infrastructure completed or improved. Reserve price reflects:
 - » Approved land use.
 - » Permitted GFA/FAR.
 - » Market TOD comparables.
 - **Scenario B** – After TOD infrastructure completed or improved. Reserve price reflects:
 - » Approved GFA/FAR.
 - » Improved accessibility.
 - » Known IIF obligations applicable at auction time.

Step 5: Auction design and conditions

- Select auction method (open, sealed bid, electronic)
- Define auction conditions, including:
 - Permitted land use and approved GFA/FAR.
 - Whether IIF is not yet applicable, or is applicable and reflected in price.
 - Development obligations.
 - Construction timeline.
 - Prohibition on claiming additional density without separate approval.
- Specify revenue use:
 - Earmarked for metro/TOD CAPEX.
- Prepare auction dossier and conditions.

Step 6: Auction execution

- Public disclosure of:
 - TOD parameters.
 - Reserve price.
 - GFA/FAR.
 - IIF status.
 - Auction rules.

- Conduct auction in compliance with the law on property auction.

- Award land to highest compliant bidder.

Step 7: Land allocation/lease contracting

- Sign land allocation/lease contract.
- Register land use rights and permitted GFA/FAR.
- State IIF obligations (if applicable).
- Explicitly prohibit claims to additional density.
- Issue and award land use rights certificate or lease contract.

Step 8: Revenue allocation and financial arrangement

- Record auction proceeds as capital revenue
- Allocate proceeds to:
 - Station construction.
 - TOD-supportive infrastructure.
 - Metro CAPEX.

Step 9: Coordination with other LVC instruments

Table 60: Land value capture (LVC) instrument and role

Instrument	Role
Land sale/auction	Monetises approved GFA/FAR at auction time
FAR-based LVC	Applies only if FAR is increased later
IIF	May apply upon TOD infrastructure completion
JD	Alternative instrument, not concurrent
Land use change fee	Baseline statutory obligation

Step 10: Post-auction monitoring

- Monitor compliance with:
 - Approved TOD parameters.
 - Development schedule.
- Enforce penalties for:
 - Unauthorised density increase.
 - Non-TOD compliance.
 - Use deviation.

5.1.4.8. Summary matrix for LVC instrument application in HCMC

Table 61: Summary matrix for land value capture (LVC) instrument application in HCMC

Phase	TOD policy objective priority	Metro level	Preferred LVC instrument mix	Core function of instruments	JD models	Key rationale	Key actions/ requirements
Phase 1: Pilot (2026–2028)	Maximise TOD density	Site/station	JD + limited FAR fees	JD: control form and density FAR: modest monetisation of incremental GFA	JD models 1–4 (*)	Density best achieved through development control, not heavy charging	Ensure that additional density remains financially viable
	Maximise ridership	Site/station	JD + FAR incentives	Incentives shape trip-generating uses	JD models 1–4 (*)	Ridership depends on land use mix, not revenue extraction	Use FAR bonuses, rather than fees
	Maximise fiscal revenue	Site	FAR premium + aggressive revenue-sharing	Land value-led	JD models 1–4 (*)	Revenue with lowest legal risk (for example, a city resolution on FAR)	Competitive selection
	Fast delivery	Site/station	JD-dominant	Transaction-based and fast execution	JD models 1–4 (*)	Minimal coordination burden	Standard contracts
	Minimise legal risk	Site/station	Clear JD–FAR–IIF separation	Transaction-based JD	JD models 1–4 (*)	Lowest legal ambiguity (for example, a city resolution on FAR and IIF)	One instrument for each scenario
Phase 2: Station integration (2029–2032)	Maximise TOD density	Station	JD + limited FAR fees	FAR supports density without deterring take up	Station PPP + commercial JD	Clear boundaries, quick realisation	FAR uplift modest and justified
	Maximise ridership	Station/depot	JD + FAR incentives	Integrated station functions	Station PPP + depot TOD JD	Strong ridership impact	Focus on Lines 1 and 2
	Maximise fiscal revenue	Station	JD + selective FAR	Monetise stabilised assets	Station PPP + commercial JD	Strong bankability	Ring-fence non-fare revenue
	Fast delivery	Station	JD-dominant	Avoid mid-stream changes	Station PPP + JD	Keeps construction on track	No new charges during works
	Minimise legal risk	Station	JD + FAR (codified)	FAR only where codified	Station PPP + JD	Avoid overlap	No retroactive charges

Phase	TOD policy objective priority	Metro level	Preferred LVC instrument mix	Core function of instruments	JD models	Key rationale	Key actions/ requirements
Phase 3: Node development (2033–2035)	Maximise TOD density	Priority stations/ interchanges	JD + selective FAR	FAR monetises stabilised density	Air rights JD; interchange PPP	Higher uplift only after governance maturity	Independent valuation; design controls
	Maximise ridership	Interchanges	JD + FAR incentives	Encourage interchange intensity	Air rights JD	High-visibility TOD	Phasing tied to operations
	Maximise fiscal revenue	Node	JD + FAR + IIF (limited)	Higher value capture	Integrated node JD–PPP	Mature valuation environment	Independent appraisal
	Fast delivery	Node	JD + limited FAR	Controlled complexity	Integrated JD	Speed with discipline	Limited renegotiation
	Minimise legal risk	Node	JD + selective FAR + IIF	Instruments separated by scale	Integrated JD–PPP	Mature institutions required	Independent valuation
Phase 4: Corridor and network integration (2036+)	Maximise TOD density	Corridor	Selective FAR	Corridor-wide density calibration	Corridor JD–PPP (supporting)	Density consistency across stations	Standardise FAR parameters
	Maximise ridership	Corridor	FAR incentives (selective)	Support corridor-wide travel demand	N/A	Ridership-led, not revenue-led	Avoid IIF that suppresses demand
	Maximise fiscal revenue	Corridor/ network	JD + FAR + IIF	Network cost recovery	Corridor JD–PPP	Enables cross-subsidisation	Pool revenues via SPV
	Fast delivery	Corridor	Limited application	Delivery already complete	N/A	Corridor tools are slower	Avoid new system-wide fees
	Minimise legal risk	Corridor/ network	FAR + IIF (codified)	Aggregated recovery	Corridor SPV or TOD delivery unit	Legal certainty at scale	Rule-based application

(*) JD Models 1–4: Details of each JD model are explained in Annex 5

The summary matrix below provides a structured framework to guide the selection and sequencing of LVC instruments in the context of TOD in HCMC. It integrates four critical dimensions that determine instrument suitability in practice: TOD policy objective priority, development phase, metro level/scale and legal/institutional readiness.

The matrix reflects a core principle of the technical guidelines: no single LVC instrument is optimal across all objectives, phases or metro levels. Instead, instrument choice must be calibrated to what the TOD programme is trying to achieve at a given point in time and at a specific scale (site, station, corridor or network).

It also emphasises sequencing and separation. Instruments that support density, ridership, delivery speed and legal certainty are prioritised in early phases, while more revenue-intensive and aggregated instruments are phased in later to support long-term fiscal sustainability. Clear separation of JD, FAR-based LVC and IIF by scale and trigger point is essential to minimise legal risk and avoid double-charging.

Overall, the summary matrix is intended as a tool to support decision-making, not a prescriptive formula. It helps agencies align TOD objectives with fit-for-purpose LVC instruments, manage trade-offs between urban outcomes and fiscal goals, and implement TOD LVC strategies in a realistic, phased and legally robust manner.

5.2. Developer incentives and procurement process

5.2.1. Purpose and scope

This section establishes a structured framework and guidelines for designing developer incentives and implementing procurement processes for TOD in HCMC. These aim to:

- Attract qualified private developers to TOD projects.
- Ensure that private investment decisions are aligned with metro system objectives, integrated land use planning and public space realm enhancement.
- Ensure transparent, competitive and value-for-money procurement.
- Ensure that TOD project procurement and delivery is structured optimally in terms of LVC to be applied, delivery model considerations (JD or PPP) and planning requirements.

The guidelines apply to TOD projects located within metro station influence zones (as defined in Section 2.2), including projects on state-owned land, land where land use conversion is possible and integrated station area redevelopment.

5.2.2. Developer incentives

Developer incentives refer to regulatory, financial and procedural arrangements offered to private developers in return for them fulfilling obligations and performance requirements. Developer incentives should be predefined and rule-based in accordance with applicable Vietnamese regulations.

5.2.2.1. Categories of developer incentives

In the context of HCMC, developer incentives for TOD projects must operate strictly within the existing Vietnamese legal and institutional framework. While the regulatory environment is gradually evolving to accommodate TOD, it is not yet specifically designed for bespoke TOD incentive regimes.

Accordingly, any developer incentive mechanism must:

- Be clearly grounded in statutory authority.
- Be predefined and rule-based, rather than discretionary or negotiated on a case-by-case basis.
- Comply with applicable land, planning, housing, investment and PPP legislation.
- Remain consistent with public finance, state asset management and state budget principles.

Under current regulations and institutional practice, developer incentives for TOD projects can be structured under three general categories.

1: Planning and development rights incentives

Planning and development rights incentives are generally the most powerful and practical form of TOD incentives under current Vietnamese regulations. These incentives do not involve direct fiscal transfers but instead grant enhanced development capacity within approved planning frameworks.

Typical instruments may include:

- Increased FAR or density within permissible planning adjustments.
- Height bonuses subject to urban design and infrastructure capacity.
- Mixed-use flexibility to support TOD intensity.
- Land use function conversion consistent with master plans.
- Integrated station–property JD rights.
- Phased development sequencing aligned with metro delivery.

These incentives must:

- Comply with the hierarchy of master planning approvals.
- Respect infrastructure capacity limits.
- Be transparently calculated and publicly disclosed.
- Avoid implicit underpricing of state land assets.

Given HCMC's current pilot TOD station approach, planning-based incentives are expected to be applied primarily at the station level.

2: Financial and economic incentives

Direct fiscal subsidies are generally limited and subject to strict budgetary controls. However, financial and economic incentives remain important in shaping developer participation.

Under current Vietnamese regulations, possible mechanisms include:

- FAR-based LVC discounts for early-phase TOD projects.
- Deferred payment schedules for LVC, IIF or land premiums.
- Land rent stabilisation during initial operation years.
- Revenue-sharing under JD models instead of upfront land payment (selected cases).
- Structured land use fee calculation in accordance with approved land pricing frameworks.
- Infrastructure contribution offsets where legally justified.
- Preferential treatment under applicable investment or PPP laws (where relevant).

The emphasis should be on economic viability without compromising fiscal discipline or creating hidden state liabilities.

3: Procedural and time-based incentives

Procedural and time-based incentives are often highly valued by developers and can significantly reduce project risk without requiring fiscal concessions.

They may include:

- Fast-track planning and design approval.
- A coordinated “one-stop” TOD approval mechanism.
- Early access to metro ridership forecasts and TOD design data.
- Streamlined inter-agency coordination.
- Defined approval timelines.
- Transparent sequencing between development obligations and incentive release.

In Vietnam’s regulatory environment, certainty and predictability can be as powerful as financial incentives. Reducing administrative uncertainty lowers financing costs and enhances bankability.

	Planning and development rights incentives	Financial and economic incentives	Procedural and time-based incentives
Auction/tendering of public land and public assets			
Land rent stabilisation during initial operation period		●	
Deferred payment schedule for land premiums		●	●
Additional FAR sale			
Increased FAR or density within permissible planning adjustments	●		
FAR-based LVC discounts for early-phase TOD projects		●	
Height bonuses subject to urban design and infrastructure capacity	●		
Fee on land use change			
Mixed-use flexibility to support TOD intensity	●		
Land-use function conversion consistent with master plans	●		
Structured land use calculation in accordance with approved land pricing frameworks		●	
Infrastructure Improvement Fee (IIF)			
Deferred payment schedule for IIF		●	●
Joint Development			
Revenue-sharing under JD models instead of upfront land payment		●	
Integrated station-property joint development rights	●		
Infrastructure contribution offsets where legally justified		●	
Preferential treatment under applicable investment of PPP laws		●	

Figure 122: Categories of developer incentives

Box 25: Case study: UAP in New York City

In New York City, the UAP offers a 1:1 floor area exchange, whereby each square foot of affordable housing constructed entitles the developer to one square foot of additional buildable floor area. In Toronto, the Section 37 program uses density in districts to create new infrastructure or improve existing infrastructure. For instance, the developer of 21 Dundas Square development was permitted to build beyond the maximum building height of 61m in exchange for a cash contribution of CAD\$ 1,000,000 that will be used for restoration of historic buildings and capital street improvements. Further details can be found in Annex 3: International case studies for land value capture (LVC) instruments.

5.2.2.2. Incentive eligibility rules

Incentives may be granted only if the developer commits to:

- TOD-compliant land use and density
- Direct pedestrian connectivity to the station
- Delivery of agreed public infrastructure or spaces
- Compliance with phasing and integration requirements.

Key principle: Incentives are earned through performance, not granted automatically.

5.2.2.3. Incentive–outcomes balancing

Each incentive must be explicitly linked to a counter obligation.

Table 62: Incentives and required developer outcomes

Incentive	Required developer outcomes
Bonus FAR	FAR-based LVC payment or in-kind TOD infrastructure
Flexible land use	Public access, active frontage, affordable components
Deferred payment	Performance security and milestone-based triggers
Fast-track approval	Standardised TOD design compliance

5.2.3. Procurement process for TOD projects

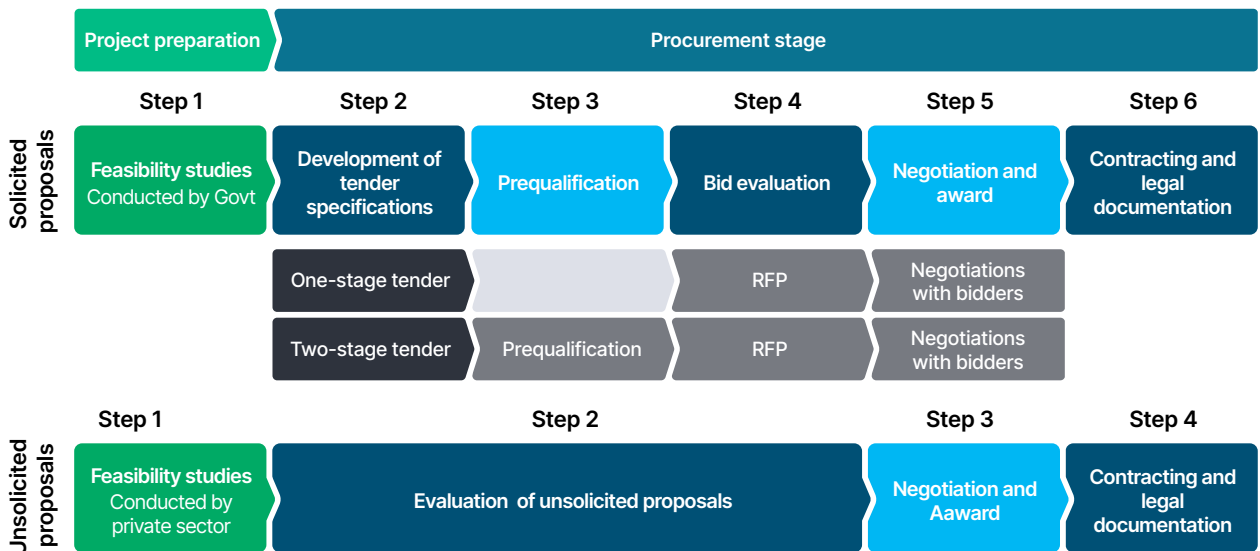


Figure 123: Overall procurement processes for solicited and unsolicited transit-oriented development projects

TOD procurement process

Figure 124: Steps of the transit-oriented development procurement process

5.2.3.1. Solicited proposals

Step 1: Project preparation

- Confirm TOD typology and boundaries.
- Define public objectives (ridership, public space, revenue).
- Identify applicable LVC instruments.
- Prepare preliminary TOD planning parameters.

At this initial stage, the government should establish the vision and objectives for the TOD, while delineating its typologies and defining its boundaries. To ensure alignment with market expectations and broader city goals, the government should conduct soft market soundings with developers and engage other key stakeholders, including transport authorities, urban planners and local communities. These consultations will help validate the concept and inform preliminary technical and financial feasibility assessments. This would include an evaluation of potential LVC revenues that the government can collect based on the application of a set of LVC tools. Legal and land acquisition considerations should also be clarified, including whether land is fully secured or if acquisition processes will fall under the developer's scope. The insights gathered during this stage will shape the terms of the bid.

Step 2: Development of tender specifications

- Define incentive package (planning, financial, procedural).
- Define developer obligations and performance metrics.
- Allocate risks (market, construction, integration, demand).
- Confirm legal basis for incentives.
- Select procurement method.
 - One-stage tender (standard TOD projects).
 - Two-stage tender (complex or large-scale TOD).

With the planning parameters and vision set, the government should establish incentives for the developers, which will be included as part of the tender package. This entails risk allocation between the government and the developer, and the government structuring a commercial framework that underpins developer participation in the TOD project and allocating key risks. In parallel, developer obligations and performance metrics should be clearly articulated to ensure accountability and alignment with public objectives.

The procurement method is dependent on the scale and type of the TOD project. A one-stage tender is suitable for standard TOD projects with a well-defined scope and technical specifications, and limited integration challenges. A two-stage tender is better suited for complex or large-scale TOD projects, where design, phasing and integration with transport and land use components require iterative refinement, and where shortlisting bidders before detailed submissions is necessary. The chosen procurement method must be clearly justified and formally documented, including the analysis supporting the decision, internal approvals obtained and a transparent audit trail for future reference.

Step 3: Prequalification (if applicable)

During this stage, the government issues a Request for Qualification to invite interested parties to demonstrate their technical expertise, financial capacity and relevant experience. Only those that meet the specified criteria will progress to the next phase, resulting in a shortlist of qualified bidders who will be invited to respond to the bidding package.

This process ensures that only bidders with the minimum required capabilities and financial strength are considered, reducing the need for extensive eliminations later in the procurement cycle.

Box 26: The pre-qualification criteria for bidders

The pre-qualification criteria should encompass key elements of TOD delivery, including but not limited to:

1. Demonstrated delivery experience in mixed-use and TOD developments.
2. Demonstrated technical and operational experience in mixed-use and TOD projects, including integration with transit infrastructure.
3. Proven financial capacity and demonstrated access to funding, with ability to achieve financial close.
4. Demonstrated planning, urban design and integration experience in mixed-use and TOD developments.

Step 4: Bid evaluation

During the bid evaluation stage, submissions should be assessed on both the technical and price requirements, using a two-envelope system where technical and financial proposals are assessed separately. Prior to opening the bids, the government should establish a weighted evaluation framework that clearly sets out the multi-dimensional evaluation criteria, their respective weightages and the scoring methodology. The evaluation criteria and their weightages should reflect the government's policy priorities. Throughout the evaluation, the government may conduct clarification rounds with bidders to resolve ambiguities or obtain additional information, provided that such clarifications do not permit bidders to modify core commercial terms.

Table 63: Bid evaluation criteria

Criteria	Typical weight (illustrative only)
TOD design and integration quality	30–40%
Financial contribution/LVC offer	25–35%
Implementation and phasing plan	15–20%
Developer capability	10–15%

Step 5: Negotiation and award

- Finalise incentive–obligation balance.
- Confirm LVC payments and in-kind works.
- Secure performance guarantees.
- Issue award decision.

In this stage, the government negotiates with the

preferred bidder to finalise the commercial and technical terms of the TOD project. The negotiations should focus on determining the balance between incentives provided by the government and the obligations expected of the developer, ensuring both parties have a clear, mutually agreed framework for delivery. This includes finalising the structure and schedule of LVC payments, like additional FAR payments or revenue sharing, as well as any in-kind contributions, including public infrastructure or station area improvements to be delivered by the developer. The government should also secure appropriate performance guarantees, which may include performance bonds, parent company guarantees or other instruments that safeguard timely and quality delivery of obligations. Once all terms have been agreed, the government issues the formal award decision, completing the negotiation phase and enabling the transition into contracting and legal documentation.

Step 6: Contracting and legal documentation

Key documents include:

- Development agreement/PPP contract.
- Planning approval with TOD conditions.
- Land allocation or lease decision.
- LVC and infrastructure delivery schedules.

Following the award decision, the government and the selected developer proceed to formalise all commercial, technical and legal commitments through a comprehensive set of binding documents. The core instrument is the development agreement or PPP contract, which sets out the rights, responsibilities and obligations of both parties across the full lifecycle of the TOD project. In parallel, the government issues the necessary planning approvals, incorporating TOD-specific conditions related to land use, density, integration with transit infrastructure and public realm improvements. Decisions on land allocation or lease arrangements are finalised and documented to ensure clarity on land rights and timing of access. The contracting package also includes detailed LVC payment schedules and infrastructure delivery timelines, specifying both monetary contributions and in-kind works, along with milestones, compliance requirements and remedies for non-performance.

5.2.3.2. Unsolicited proposals

Step 1: Project preparation

A project proponent may initiate a TOD project outside of a government-issued request for proposal. This proposed development should incorporate core TOD principles, such as integration of first- and last-mile modes, and be consistent with applicable TOD typologies as defined in the TOD planning framework. The project proponent should also undertake an initial feasibility assessment, which should include but is not limited to:

- The proposed delivery model.
- Indicative financial viability and funding sources.
- Key risks and proposed allocation between the implementing agency and the project proponent.

Step 2: Evaluation of unsolicited proposals

Once the implementing agency determines that the unsolicited proposal is aligned with the government's strategic priorities and demonstrates potential value-for-money, the government will publish the key project information and invite competitive counterproposals through an open and transparent process.

To ensure competitive tension, other qualified bidders are invited to submit competing proposals based on the same project scope and functional requirements. All proposals, both the original unsolicited proposal and any counterproposals, are evaluated against the same price and quality criteria. To recognise the original proponent's initiative, the project proponent may be granted a bid incentive during the evaluation phase.

Various mechanisms may be applied to incentivise private sector participation in unsolicited proposals. In addition to bid incentives applied during evaluation, such mechanisms may include a right-to-match arrangement, under which the original proponent is granted the right to match or better the financial proposal of the most superior comparative proposal. This approach has been applied in jurisdictions such as the Philippines, within a competitive challenge framework.

Step 3: Negotiation and award

Following evaluation, detailed negotiations should be undertaken with the preferred bidder to finalise the project scope, phasing and technical specification. The incentive structure, developer obligations, risk allocation and performance requirements will also be finalised at this stage. Negotiations should not materially alter the core project requirements or undermine the competitive process.

Step 4: Contracting and legal documentation

Upon the conclusion of negotiations, the parties should enter into formal legal agreements, which may include PPP and JD agreements. All contracts should specify the following:

- TOD performance and design requirements
- The incentives granted to the developer
- The conditions and performance criteria are attached to such incentives.

5.2.4. Monitoring, enforcement and adjustment

- Establish TOD performance indicators.
- Monitor delivery of public benefits.
- Enforce penalties for non-compliance.
- Allow periodic review of incentive frameworks at policy level (not per project).

Following procurement, the government should implement a structured monitoring and enforcement framework to ensure that the TOD project delivers its intended public outcomes. This begins with the establishment of clear TOD performance indicators, covering areas such as transit integration, public realm quality, affordable housing and sustainability outcomes, which form the basis for ongoing assessment. The government must then monitor the delivery of agreed public benefits, ensuring that commitments such as open spaces, station area improvements, pedestrian access or community facilities are completed in line with approved plans and timelines. Where performance shortfalls occur, the government should be empowered to enforce penalties for non-compliance, including financial penalties, withholding of approvals or invoking contractual remedies to safeguard the public interest. At the policy and system-wide level (not project-by-project), the government should also periodically review and refine its incentive framework, to ensure that LVC tools, planning incentives and regulatory levers remain effective and aligned with evolving market conditions and TOD objectives.

Box 27: Key Implementation Principles for Developer Incentives and the Procurement Process for TOD Development

1. Incentives must be transparent, rule-based, and predictable
2. Procurement must prioritise TOD quality and long-term value
3. Negotiation should occur within a structured framework
4. Public control over TOD outcomes must be maintained
5. Policies should be reviewed periodically as TOD markets mature

PART

6



**Part 6. Institutional
responsibilities and
capacity-building**

6.1. Institutional responsibilities and roles in planning and implementing TOD in Ho Chi Minh City

The implementation of transit-oriented development (TOD) is not merely a planning task; it is an integrated process encompassing planning, project formation, financial mobilisation, investment implementation and operational management. To strengthen the capacity of city agencies in planning and implementing TOD, it is first necessary to clearly define the core task groups and an institutional role allocation mechanism aligned with the current administrative structure.

Table 64: Main tasks in transit-oriented development (TOD) planning and implementation

Task group	Key tasks	Basic conditions
Planning tasks	<ul style="list-style-type: none"> Urban planning (zoning, land use indicators, FAR, urban design) Transport planning and multimodal integration Strategic planning at corridor and station levels Appraisal, approval and adjustment of plans Integration of planning with project pipeline development 	<ul style="list-style-type: none"> Capacity for integrated rail and property planning Ability to cascade key performance indicators (KPIs) from city level to corridor and station levels Mechanisms for developer participation in the planning process
TOD project formation and implementation tasks	<ul style="list-style-type: none"> Development of corridor-based TOD investment strategies Project formation conducted in parallel with planning Phased project pipeline preparation Capital mobilisation and financial structuring strategies Design and implementation of land value capture mechanisms 	<ul style="list-style-type: none"> Capacity for market assessment and financial feasibility analysis Coordination mechanisms between planning and public investment Legal framework for public-private partnerships, joint development and the rail + property model
Development and investment management tasks	<ul style="list-style-type: none"> Urban development management within TOD areas Public asset and land fund management Investment analysis and risk management Construction management and implementation supervision 	<ul style="list-style-type: none"> Mechanisms to ensure TOD compliance control KPI monitoring and performance tracking systems Clear decentralisation between city and district/ward levels
Foundational support tasks	<ul style="list-style-type: none"> Project finance and appraisal Data and technology systems (geographic information system, ridership data, land registry) Infrastructure engineering Stakeholder communication and consultation 	<ul style="list-style-type: none"> Integrated cross-sectoral data systems Data-sharing mechanisms among departments Capacity in stakeholder engagement and communication management

6.1.1. Role allocation under the current institutional structure of Ho Chi Minh City

Based on the existing organisational structure of Ho Chi Minh City (HCMC), responsibilities for TOD implementation are distributed across key city agencies according to their statutory mandates.

- DPA assumes overall supervision and provides leadership in TOD planning (Part or all of the responsibility may be delegated to the UDMB).
- UDMB is responsible for TOD project formation and implementation.
- MAUR oversees the integration of rail infrastructure and transport data.
- DOC manages construction activities and ensures

compliance with approved planning frameworks.

- DOF is responsible for financial management, including the design and oversight of LVC mechanisms and capital supervision.
- The DOAE is responsible for management of land use including land acquisition, resettlements, land prices and other related resources in TOD areas (e.g., water, geographical data/asset).
- At the local level, city or ward People’s Committees (PCs) manage local areas and the operation of public spaces.
- Developers and investors participate in both the planning process and project implementation, particularly in JD and investment activities.

The allocation of roles is guided by several fundamental principles. First, DPA serves as the overall coordinating authority for TOD implementation, leveraging its core strength in integrated spatial planning. Second, UDMB functions as the central entity for project formation, structuring and execution. Third, other departments continue to perform their established specialised functions, while strengthening their knowledge and technical capacity related to TOD. Finally, effective inter-agency coordination is a critical prerequisite for integrating rail infrastructure, real estate development and financial mechanisms into a coherent and implementable TOD framework.

6.1.2. Institutional and responsibilities matrix for transit-oriented development implementation at the corridor level

At the corridor level, the institutional structure focuses on integrating rail infrastructure development with TOD planning and project formation, while defining clear responsibilities among key agencies. DPA leads corridor-level TOD planning, defining the spatial structure, land use framework and development intensity. MAUR provides rail alignment, station locations, technical parameters and phasing inputs. DOC ensures compliance with construction regulations and development control. UDMB identifies and structures TOD projects along the corridor, preparing the project pipeline in parallel with planning. DOF contributes to preliminary financial structuring, including LVC mechanisms.

A key milestone at this level is the delineation and approval of the initial TOD boundary by the HCMC PC, establishing the spatial scope for integrated planning and subsequent station-level implementation.

Table 65: Institutional setup for transit-oriented development (TOD) implementation at corridor level

TASK			TOD PLANNING			TOD PROJECT		
STEP	Name	Key outputs	Responsible	Cooperate	Appraisal/Approve	Responsible	Cooperate	Appraisal/Approve
1	TOD Objectives & KPIs for HCMC							
	Establishing TOD objectives and KPIs: <ul style="list-style-type: none"> Public Transport Usage Rate & Modal shift TOD coverage population Flooding KPI Social housing KPI 	KPIs for TOD	DPA	n.a.	n.a.	n.a.	n.a.	n.a.
2	Alignment Planning Level							
	Considerations of: <ul style="list-style-type: none"> The urban rail network and TOD under the overall transport master plan The integration between urban rail development and TOD implementation 	<ul style="list-style-type: none"> Inclusion of new lines to the urban rail network (if any) Modification of line alignments (if any) Identification of the station location along the investigated rail corridors 	DOC	DPA, MAUR	n.a.	n.a.	n.a.	n.a.
3	TOD Potential Assessment							

	TOD potential evaluation using the 3V approach: Node value; Location value; Market value	TOD potential assessment report for the investigated corridors	DPA	DOC, DOAE, UDMB	n.a.	n.a.	n.a.	n.a.
4	Identify the Initial TOD Boundary							
	Identify initial TOD boundary (outer boundary) which is used for further consideration of the details of the TOD areas.	<ul style="list-style-type: none"> Report of existing land situation in the studied areas (Land use, FAR, Pop density, related approved projects, related existing plans). Report of the development possibilities that shows developable/ redevelopable lands (including public-owned land). List of stations that are not yet considered for TOD, only station accessibility improvement is required (if any). List of stations that are considered for TOD. Approval of the initial TOD boundary identification (for stations within the investigated corridors). 	DPA	MAUR, DOAE, UDMB	HCMC PC (approve)	n.a.	n.a.	n.a.
5	Classify TOD typologies							
	<ul style="list-style-type: none"> Based on land characteristics, TOD potential evaluation, development possibilities, identify suitable development typologies for stations. Based on typologies, assign development KPIs to stations 	<ul style="list-style-type: none"> List of stations with typologies (among 6 types and possibly their combinations) and assigned KPIs 	DPA	MAUR, DOAE, UDMB	n.a.	n.a.	n.a.	n.a.

6 Define the Development Positioning							
Based on the station typologies, and the upper-level masterplan, conduct an initial market positioning analysis to define the potential development positioning of TOD area along the corridor; Coordinate with Market and Real Estate Studies, and LVC mechanism.	<ul style="list-style-type: none"> Preparation of TOD call for investment (TOD typologies, Assigned KPIs, LVC/financing mechanism, financing policies and supporting policies) and relate discussions List of stations with tentative projects and investment commitments. List of stations with development orientations (i.e. without committed projects). 	DPA	DOC, DOF, DOAE, UDMB	n.a.	UDMB	DOC, DOF, DOAE, MAUR, Investors	n.a.
7 Prioritisation of TOD and Phasing Strategies							
Based on typologies, positioning, and the level of development difficulty, the city development conditions and available fundings, conduct: (1) A prioritisation assessment to identify prioritised TOD corridors and related phasing strategies. (2) An integrated development program (3) List of committed TOD projects.	<ul style="list-style-type: none"> Report of TOD development strategies along the investigated corridors with phasing and priorities, LVC mechanisms and supporting policies. Integrated investment plan between urban railway network and TOD implementation. List of committed projects with financing policies and investment agreements. 	DPA (TOD development strategies)	DOC, DOF, DOAE, UDMB	n.a.	UDMB (Investment plan; committed projects)	DOC, DOF, DOAE, MAUR, Investors	n.a.

6.1.3. Institutional and responsibilities matrix for transit-oriented development implementation at the station level

There is a direct linkage between corridor and station levels, with corridor-level outputs serving as key inputs for station-level planning and project preparation. The roles of DPA, UDMB and DOAE remain central, while DOF and investors play a more prominent role at this stage.

At the station level, coordination among DPA, UDMB, DOF and DOAE focuses on identifying, structuring and billing TOD projects, including public, private or mixed-funded schemes, and aligning planning with project preparation.

Key decisions include approval of the TOD plan by the City Planning Appraisal Council and approval of the pre-FS of TOD projects by the City Public Investment Programs and Projects Appraisal Council. Detailed stakeholder responsibilities are presented in Table 66.

Table 66: Institutional setup for transit-oriented development (TOD) implementation at station level

TASK			TOD PLANNING			TOD PROJECT		
STEP	Name	Key outputs	Responsible	Cooperate	Appraisal/ Approve	Responsible	Cooperate	Appraisal/ Approve
1	Identify planning objectives of TOD area; Optimise TOD Boundaries							
	Detail consideration to each of the TOD stations for TOD objectives and boundaries	<ul style="list-style-type: none"> Objectives of TOD areas at stations that are accepted for TOD development. Review in details of TOD boundary in association with further development of the committed projects. Modifications of TOD boundary, TOD station location (if any) 	DPA	DOC, DOF, DOAE	n.a.	UDMB (Investment plan; committed projects)	DOC, DOF, DOAE, MAUR, Investors	n.a.
2	Implementing Guidance from Typologies to different TOD layers							
	Preparation of technical regulation for TOD plans (i.e. land-use, urban-design, transport, GEDSI, Climate and Social issues).	<ul style="list-style-type: none"> Preparation of key technical parameters for TOD plan (for each type of TOD typologies, using TOD technical guidelines). Based on the key technical parameters, finalise the list of committed TOD projects. 	DPA	DOC, DOF, DOAE	n.a.	UDMB (Investment plan; committed projects)	DOC, DOF, DOAE, MAUR, Investors	n.a.
3	Preparation of TOD plan and TOD projects							
	<ul style="list-style-type: none"> 3A-Preparation and Planning Approval (TOD Area); 3B-Define Opportunities for Station Area Integration (Projects level in Detail Plan) 	<ul style="list-style-type: none"> Full development of TOD plan for station: (i) Areas that have projects will be at detail plan level (1/500); (ii) Areas that do not have projects will be at zoning plan level (1/2,000). Finalise the LVC plan in the TOD areas including those applied to the committed projects (if any). Preparation of pre-feasibility studies of the committed projects (only to those requiring Pre-FS) 	<ul style="list-style-type: none"> DPA (responsible for overall plan and areas with zoning plan level) Investors (responsible for detail plan at the project areas) 	DOC, DOF, DOAE	DPA (to the detail plans prepared by investors)	UDMB (Final LVC plan in the TOD areas)	DOC, DOF, DOAE, Investors	n.a.

4	Approval of TOD plan and Project plan							
	<ul style="list-style-type: none"> Approval of TOD plan by The City Planning Appraisal Council (established according to Decree No. 1544/QĐ-UBND). Approval of Pre-FS of TOD projects by The City Public Investment Programs and Projects Appraisal Council (established according to Decree No. 3063/QĐ-UBND) 	<ul style="list-style-type: none"> Approval Decision for TOD plan Approval Decision of Pre-FS for TOD projects 	The City Planning Appraisal Council	DPA, Investors	HCMC PC (approve)	The City Public Investment Programs and Projects Appraisal Council	Investors	HCMC PC (approve)
5	Project Implementation							
	Assigning tasks between the city and participated partners/investors in the finalised projects	<ul style="list-style-type: none"> Approval Decision of FS for TOD projects and their implementations Implementation supervision of TOD plan 	DPA	UDMB	n.a.	The City Public Investment Programs and Projects Appraisal Council	Investors	HCMC PC (approve)

6.1.4. Institutional setup for management of a transit-oriented development area

Project execution and area management are carried out by public institutions (organised as public service units or SOE) in coordination with private partners, with the public entity playing the leading coordination role. Given the cross-sectoral nature of TOD, an inter-agency steering body is recommended to resolve issues that exceed the mandate of individual departments.

In summary, city-level authorities focus on strategic integration and oversight, while ward/district-level entities and project organisations manage day-to-day implementation. Detailed institutional arrangements are presented in Table 67.

Table 67: Institutional arrangement for transit-oriented development (TOD) area management

Tasks			Coordination Agency	City-Level Government	Ward-Level Government	Public Institution / State-Owned Enterprise	Private sector	
I	Propose, approve, adjust and approve TOD policies		▲	◆				
II	Propose, approve and adjust TOD planning, TOD projects		▲	◆		■	■	
III	Implement approved TOD projects		▲	◆		■	■	
IV	Manage the operation of TOD area	Transport management and connectivity	Multimodal integration		◆		○	○
			People flow management			◆	○	○
			Construction phase oversight measures			◆	○	○
	Land and Spatial Management		Monitoring land use and mixed-use spaces			◆	○	○
			Integrated monitoring of scope and space across projects and project phases			◆	○	○
			Public space management			◆	○	○
	Financial and Social Management		Management of revenue and reinvestment		◆		○	○
			Promote social equity		◆		○	○
	Safety and Environmental Management		Security			◆	○	○
			Environment			◆	○	○
	Policy adjustment for the achievement of TOD goals		Data management		◆		○	○
			Review and revision		◆		○	○

Note: ▲ – Instruction, coordination and approval; ◆ – Proposal, implementation and management of TOD policies; ■ – Proposal, implementation and management of TOD projects; ○ – Implementation and management of TOD areas

6.2. Institutional roadmap for capacity improvement of governmental authorities

The implementation of TOD in HCMC requires institutional conditions that are currently only partially in place. The gap between required functions and existing capacities forms the basis for defining a structured capacity enhancement roadmap. The challenges to overcome include the following.

First, there is limited institutional experience in treating TOD as “planning for implementation”. Current planning practices remain largely spatial and regulatory, while TOD requires planning to be conducted in parallel with project formation, financial structuring and phased investment programming. The capacity to integrate rail infrastructure planning with urban and property development at both corridor and station levels remains constrained.

Second, inter-agency coordination mechanisms are not yet fully structured to manage integrated rail, land and finance decisions. Existing departments operate primarily within sectoral mandates, with limited experience in resolving cross-cutting investment, phasing and funding issues. Clear coordination frameworks among DPA, UDMB, MAUR, DOF and related agencies are therefore essential.

Third, financial structuring capacity, particularly in LVC, public–private partnerships (PPP), JD and the rail + property (R+P) model, is still limited. Most agencies have limited practical exposure to value capture tools,

integrated funding strategies or SOE participation in commercially structured TOD models.

Fourth, integrated data systems to support planning, key performance indicator (KPI) monitoring, market analysis and implementation supervision are not yet consolidated. Fragmented data management constrains evidence-based decision-making and performance tracking.

Fifth, management capacity at the district/ward level for TOD area operations remains focused on conventional urban administration, with limited experience in managing high density, mixed-use, transit-oriented environments.

In addition, agencies have limited experience in:

- Engaging developers and investors early in the planning process.
- Structuring TOD projects during plan preparation.
- Managing TOD areas with performance-based oversight.
- Integrating transport infrastructure development with real estate programming.
- Applying digital tools and data platforms for TOD governance.
- Participating directly through SOEs or hybrid institutional models in TOD business structures.

Therefore, the identification of a roadmap for capacity improvements among the involved city agencies is the key to assure successful TOD implementation.

PLANNING TASKS



HCMC is going to have a comprehensive plan for all

PROJECT IMPLEMENTATION TASKS



TOD projects are allowed to be prepared in parallel with TOD planning process

MANAGEMENT TASKS



TOD projects are allowed to be prepared in parallel with TOD planning process

OTHER TASKS



Figure 125: Tasks involved in implementing transit-oriented development

Thus, the *Capacity Development Guideline for TOD Planning and Implementation in HCMC* is designed to enable city agencies to progressively strengthen their competencies in integrated TOD planning, project structuring, financial engineering and area management, in alignment with the city’s long-term TOD objectives.

The roadmap transitions TOD governance in three stages:

- **Short-term: Capacity preparation** – build foundational knowledge and coordination mechanisms.
- **Medium-term: Pilot implementation and institutional testing** – test integrated planning, project structuring and financial tools in real conditions.
- **Long-term: Full integration and city-wide scaling** – establish specialised entities and scale TOD city-wide under an integrated rail, land and finance framework.

The roadmap follows a “**learning by doing**” approach, recognising that current institutional capacity in integrated planning and project implementation remains limited. Rather than restructuring the existing governance system in the short term, the approach focuses on:

- Assigning dedicated TOD taskforces/divisions within existing agencies.
- Applying TOD technical guidelines as operational tools.
- Testing institutional coordination and financial mechanisms through pilot projects.
- Gradually transitioning from regulatory planning to implementation-oriented planning.
- Preparing the foundation for specialised TOD entities in the long term.



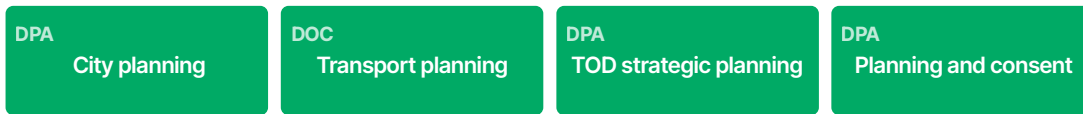
Table 68: Capacity development programme for transit-oriented development (TOD) planning and implementation in HCMC

TOD capacity development phase	Key actions	Key outputs/targets
Short-term: Capacity preparation	<ul style="list-style-type: none"> • Institutional setup and governance strengthening <ul style="list-style-type: none"> – Establish dedicated TOD taskforces/divisions within DPA, UDMB, MAUR, DOF, DOC and related agencies – Develop and formalise an inter-agency coordination framework led by DPA (clear mandates, workflows, escalation mechanisms) • Technical capacity development <ul style="list-style-type: none"> – Adopt and operationalise TOD technical guidelines as mandatory working references – Conduct structured training programmes on integrated R+P planning; corridor- and station-level TOD design; LVC and PPP fundamentals – Organise study visits, workshops and peer-learning sessions • Data and analytical capacity <ul style="list-style-type: none"> – Consolidate baseline data (land use, ridership, land values, infrastructure capacity) – Initiate development of a shared TOD data platform 	<ul style="list-style-type: none"> • Functional TOD taskforces operating in key agencies • Operational coordination protocol across departments • Core staff trained in integrated TOD planning and financial concepts • Baseline TOD data system established
Medium-term: Pilot implementation and institutional testing	<ul style="list-style-type: none"> • Integrated planning and project structuring capacity <ul style="list-style-type: none"> – Implement pilot corridor-level TOD planning linked to project pipelines as training-by-practice exercises – Conduct parallel station-level planning and project formation to institutionalise implementation-oriented planning • Financial and commercial structuring capacity <ul style="list-style-type: none"> – Develop practical capacity in LVC application through pilot testing – Build in-house skills in financial feasibility analysis, PPP structuring and JD models – Establish cross-sector financial-planning working groups • Inter-agency systems strengthening <ul style="list-style-type: none"> – Institutionalise coordination between planning, rail phasing and public investment programming – Develop KPI-based monitoring frameworks for TOD areas • Institutional design preparation <ul style="list-style-type: none"> – Prepare legal and organisational design for specialised entities (TOD council,¹⁴³ TOD office¹⁴⁴) – Develop standard operating procedures for integrated TOD implementation 	<ul style="list-style-type: none"> • Demonstrated ability to prepare implementation-oriented TOD plans • Operational pilot LVC mechanisms • Improved coordination efficiency among DPA, UDMB, MAUR and DOF • Institutional blueprint and legal basis prepared for specialised TOD entities
Long-term: Full integration and city-wide scaling	<ul style="list-style-type: none"> • Institutionalisation of specialised entities <ul style="list-style-type: none"> – Establish and operationalise TOD council and TOD office with clearly defined mandates – Professionalise TOD staffing with multidisciplinary expertise (planning, finance, engineering, data analytics) • Advanced financial and business model capacity <ul style="list-style-type: none"> – Operationalise the R+P model – Standardise financial structuring templates and value capture mechanisms – Strengthen SOE participation and hybrid public-private development models • City-wide systems and data governance <ul style="list-style-type: none"> – Institutionalise integrated TOD data governance across departments – Expand KPI monitoring city-wide (TOD and non-TOD areas) • Continuous professional development <ul style="list-style-type: none"> – Establish ongoing certification and training programmes for TOD professionals within city agencies – Integrate TOD modules into urban planning and public investment procedures 	<ul style="list-style-type: none"> • TOD fully embedded in statutory planning and investment systems • Operational R+P model in major corridors • Fully functional TOD council and TOD office • City-wide integrated TOD data and performance monitoring system. • Measurable improvements in ridership, LVC revenue and station-area density.

¹⁴³ The TOD Council can be understood as an interdepartmental entity, capable of addressing and resolving issues during the implementation of TOD. It has the function of providing technical advisory for the city's People's Committee decisions related to TOD.

¹⁴⁴ The TOD Office can be considered as a dedicated and permanent unit serving the TOD Council.

PLANNING TASKS



2026-2030: Learning by doing through TOD technical guidelines and pilot projects
 2031-Onward: Fully TOD integrated

PROJECT IMPLEMENTATION TASKS



2026-2030: Learning by doing through TOD technical guidelines and pilot projects
 2031-Onward: Rail + Property Model

MANAGEMENT TASKS



2026-2030: Learning by doing through TOD technical guidelines and pilot projects
 2031-Onward: The whole city with an integrated approach

OTHER TASKS



2026-2030: Learning by doing through TOD technical guidelines and pilot projects
 2031-Onward: The whole city with an integrated approach

2026-2030: Preparation of TOD Council and TOD office
 ↓
 2031-Onward: Full operation of TOD Council and TOD office

Figure 126: Transit-oriented development implementation roadmap

6.3. Transit-oriented development implementation roadmap and phasing

Purpose: To formulate a phased implementation strategy for TOD in HCMC that ensures coordinated planning, institutional readiness and catalytic investments.

The strategy categorises subtasks into quick-wins and those required across short-, medium- and long-term periods to enable systematic delivery of TOD through policy reform, institutional strengthening, infrastructure upgrades and catalytic redevelopment projects.

Quick wins (0–3 years)

Focus: Institutional setup, demonstrating pilot TOD projects, policy integration, early mobility improvements and regulatory streamlining.

Policy and institutional setup:

- Amend the master plan to incorporate TOD policy framework.

- Demarcate TOD overlay districts.
- Establish an inter-agency TOD body, referred to as the TOD Council, by decision of the Ho Chi Minh City People’s Committee, and assign it the lead role in organising the preparation, appraisal, and submission for approval of urban railway and TOD plans.
- Strengthen the capacity of the UDMB in preparing plans and implementing TOD projects.
- Identify and allocate staff resources for TOD planning and implementation.
- Undertake TOD capacity-building programmes and staff training.

Pilot TOD demonstration projects and regulatory measures:

- Identify priority pilot TOD projects along urban rail corridors expected to be constructed or to become operational in the coming years.
- Select station areas with different development conditions to serve as TOD demonstration sites.
- Prepare pilot station area plans and implementation

roadmaps for these demonstration locations.

- Test integrated planning procedures linking rail investment, land use planning, public space improvement and feeder transport organisation.
- Pilot LVC and developer participation mechanisms where legally and institutionally feasible.
- Monitor and document lessons learned from the pilot projects to support institutional learning and replication.
- Review, update and refine TOD technical guidelines, planning standards and implementation procedures based on pilot experience.
- Modify development control regulations to support TOD principles.
- Streamline approval processes for TOD projects.

Early mobility and public realm improvements:

- Improve multimodal integration at station facilities.
- Implement signage and wayfinding systems.
- Upgrade basic station accessibility infrastructure.

Short-term (3–5 years)

Focus: Integration into statutory plans, public realm upgrades and enabling financing tools.

Statutory planning integration:

- Update the master plan incorporating TOD principles.
- Prepare zoning plans (1/2,000) and detailed plans (1/500) aligned with TOD.
- Develop comprehensive station accessibility plans.

Public realm and mobility improvements:

- Complete sidewalk networks within a five-minute walking radius of stations.
- Implement traffic calming measures.
- Upgrade pedestrian infrastructure (footpaths, street furniture, designated waiting areas).
- Enhance station facilities and passenger amenities.
- Introduce bicycle rental/public bike-sharing systems near stations.
- Develop park-and-ride facilities at strategic locations.
- Ensure multimodal integration across transport modes.
- Implement area-wide parking management strategies.

Policy and financing reforms:

- Amend relevant state legislation to introduce TOD-supportive financing mechanisms.

Mid-term (5–10 years)

Focus: Infrastructure consolidation, land management and catalytic redevelopment.

Land and development mechanisms:

- Implement land pooling for greenfield TOD areas.
- Undertake redevelopment of government-owned vacant land into mixed-use developments.
- Formalise and integrate street vendors within TOD station areas.

Infrastructure and urban design:

- Upgrade infrastructure and utilities within TOD influence zones.
- Implement streetscape improvements to ensure complete first- and last-mile connectivity.
- Complete detailed station area plans for priority corridors.

Long-term (10+ years)

Focus: Large-scale redevelopment, JD and affordable housing integration.

Strategic development and land management:

- Undertake JD of stations with the private sector.
- Implement land banking strategies for urban TOD corridors.
- Redevelop underutilised sites near transit stations.

Inclusive housing and mixed-use development:

- Develop mixed-use, affordable housing projects on government-owned land near transit.
- Enable higher-density redevelopment in core TOD areas.

Expected outcomes

The phased strategy will deliver:

- A structured implementation and phasing strategy for TOD in HCMC.
- A preliminary list of catalytic and priority projects.
- Identification of additional studies required, including:
 - Streetscape improvement plans
 - Public realm redevelopment projects
 - Infrastructure and utility assessments
 - Financing and LVC studies.
- A comprehensive TOD plan with clarity on sequencing, institutional roles and investment priorities.

An aerial photograph of a city skyline with a large park in the foreground. The park features a large, irregularly shaped lake with a circular island in the center. The city buildings are visible in the background under a cloudy sky. A green vertical bar is on the right side of the image, containing the text 'PART 7'.

PART

7

Part 7. Transit-oriented development monitoring and evaluation

7.1. Develop monitoring and evaluation benchmarks

The objectives of the M&E framework are to:

- Provide clear direction to developers on expected transit-oriented development (TOD) outcomes and performance standards.
- Enable city agencies to track progress with the implementation of TOD policies and the approved phasing strategy.
- Assess TOD contributions to Ho Chi Minh City’s (HCMC’s) mobility, economic, environmental and social objectives.
- Support evidence-based adjustments to planning regulations, implementation tools and investment priorities.

The framework should combine quantitative indicators and qualitative performance measures and can be applied throughout the full TOD delivery cycle to support planning authorities in reviewing new development and redevelopment proposals within designated TOD zones and monitoring compliance and performance over time. M&E is implemented in three key stages:

- 1. Plan preparation, appraisal and approval (planning stage):** Verify alignment with TOD principles, regulatory standards, typology and phasing strategy, and baseline conditions; confirm targets and indicator sets for subsequent monitoring.
- 2. Project design and construction (delivery stage):** Track compliance with approved plans

and technical standards; monitor delivery of required infrastructure, public realm works and commitments tied to TOD outcomes.



- 3. Periodic condition assessment (operation/ outcome stage, e.g. every five years):** Evaluate actual outcomes against baseline and targets; identify gaps and unintended impacts; and inform plan updates, corrective actions and investment reprioritisation.

While the first two phases are normally related to TOD proposals/plans and/or TOD projects, the last stage is usually associated with evaluating the implementation status of the approved TOD plans. The framework can be applied at either the corridor level or the station level. The framework presented in this section is however limited to principles and basic steps. It can be further developed by the city agencies to better capture practical situations and needs.

7.1.1. Monitoring and evaluation framework for the transit-oriented development delivery cycle

The M&E framework for the TOD delivery cycle sets out how TOD performance is defined, tracked and reviewed from planning through implementation to post-operation assessment. It uses TOD principles and key performance indicators (KPIs) as a consistent backbone linking baseline, target and success criteria across all phases, so progress can be monitored, outcomes evaluated, gaps identified and adjustments made to regulations, phasing and investment priorities.

Table 69: Monitoring and evaluation framework steps

Phase	M&E framework steps
Plan preparation, appraisal and approval 	<ul style="list-style-type: none"> • Define desired TOD outcomes: What liability improvements should the plan deliver (e.g. mobility, social, environmental, economic)? • Define TOD principles and KPIs: Which measurable indicators best reflect those outcomes for this station/corridor/zone? • Set baseline and success criteria: What are the baseline conditions, benchmarks/standards and target levels by TOD phasing? • Fix the evaluation setup: What data sources, methods, visualisation and time frame will be used for future assessment?
Project delivery (design and construction) 	<ul style="list-style-type: none"> • Define implementation outputs: What must be delivered to comply with the approved TOD plan (e.g. infrastructure, public realm, accessibility, intermodal integration)? • Set time-bound delivery targets: What outputs must be completed by when (e.g. per package/ phase)? • Monitor progress and compliance: Are outputs being delivered to standard and on schedule (e.g. completion percentage, increases/decreases, milestone checks)? • Apply corrective actions during delivery: What design/implementation adjustments are needed to stay aligned with TOD principles and KPIs?

Phase	M&E framework steps
Post-operation monitoring and periodic evaluation (e.g. every five years)	<ul style="list-style-type: none"> • Measure outcomes vs baseline: Have TOD KPIs improved compared to pre-project conditions? • Assess success vs targets/benchmarks: Are outcomes meeting the defined measures of success and phasing targets? • Identify performance gaps, unintended impacts and improvement needs: Where are the shortfalls, what are the root causes, and are there any unintended consequences? In parallel, define the required improvement actions (e.g. kilometres of new/added sidewalks, number of safe crossing points, number of bus routes/service increases, number of bicycle parking/bike-share points and land reserved for public amenities). • Feed results back into planning: What updates are required to plans, regulations, standards, service operations and investment priorities?

* Note on data readiness: The effectiveness of the M&E framework depends on data availability and quality. Indicators and targets should reflect local data limitations; overestimating data collection capacity can undermine results. Where data are weak or unavailable, use proxy indicators to estimate performance against TOD outcomes

7.1.2. Establish transit-oriented development targets

Short-, medium- and long-term targets should be developed in alignment with the TOD phasing strategy. Targets should be measurable, time-bound and benchmarked against baseline conditions established prior to TOD implementation. Performance should be monitored across five integrated pillars. Detailed guidance, including specific target indicators for each KPI, is presented in Parts 3, 4 and 5. Table 70 summarises the core objectives and overall target directions. These should

be used to create an overall monitoring framework to oversee all TOD in association with transport network development in HCMC. City agencies are encouraged to further develop the framework not only to achieve a good balance between the targets and direction but also to provide sufficient flexibility to satisfy practical needs at various development stages. It should be noted that further development of the framework (if any) in the future must be based on a strong integration between transport, land use and urban design

Table 70: Summary of the core objectives and overall target directions

Performance	Core objectives	Target direction
Transportation network and mobility performance	<ul style="list-style-type: none"> • Expand and improve metro, bus rapid transit and bus networks to deliver high-quality public transport services • Increase mode share in TOD areas while reducing reliance on private motorbikes and cars • Strengthen first-/last-mile access through complete, continuous sidewalks, safe crossings and traffic calming, connected cycling networks and bicycle sharing coverage, and seamless intermodal integration, ensuring safety and universal accessibility for all users 	<ul style="list-style-type: none"> • Deliver measurable improvements over baseline conditions by expanding and strengthening public transport, increasing accessibility and mode share, reducing private vehicle dependence and transport-related emissions, and enhancing walkability, cycling infrastructure, safety, universal accessibility, public space provision and zoning compliance within TOD areas, creating inclusive, safe, standards-compliant environments aligned with TOD plan targets
Land use and built form performance	<ul style="list-style-type: none"> • Achieve density targets within station influence areas in line with approved plans • Promote mixed-use development to create vibrant, multifunctional urban areas • Increase employment concentration near transit and ensure adequate public space provision 	<ul style="list-style-type: none"> • Achieve compact, mixed-use, transit-supportive urban form by meeting or exceeding TOD plan targets for density, land use mix, catchment growth, zoning compliance, employment concentration and public space provision compared to baseline conditions

Performance	Core objectives	Target direction
Gender equality, disability and social inclusion (GEDSI) and social equity performance	<ul style="list-style-type: none"> • Ensure inclusive access to transit for all population groups • Deliver affordable housing near stations • Promote equitable access to economic opportunities within TOD areas 	<ul style="list-style-type: none"> • Enhance social inclusion, housing affordability, accessibility and quality of life within TOD areas by increasing affordable housing supply, improving universal access and mobility equity, achieving a balanced housing tenure mix and demonstrating measurable improvements vs baseline and plan targets
Climate, environment and resilience performance	<ul style="list-style-type: none"> • Reduce transport-related emissions • Improve flood resilience within TOD areas • Increase urban greenery and shading • Mitigate urban heat island effects 	<ul style="list-style-type: none"> • Reduce emissions and strengthen climate resilience in TOD areas by increasing green coverage, flood mitigation measures and heat island reduction strategies, achieving measurable improvements compared to baseline conditions and aligned with environmental targets
Financial sustainability and land value capture (LVC)	<ul style="list-style-type: none"> • Capture land value generated by transit investment effectively • Reinvest revenues into public transport and public realm improvements • Strengthen the financial sustainability of metro operations 	<ul style="list-style-type: none"> • Strengthen TOD and public transport financial sustainability by increasing LVC and development contribution revenues, improving non-fare revenue performance relative to operating costs and reinvesting a larger share of captured value into transit and public realm improvements vs baseline and financial targets

7.1.3. Preparing a transit-oriented development checklist

The checklist ensures that proposed projects:

- Comply with adopted TOD principles and applicable regulatory standards.
- Align with approved TOD phasing strategies and performance targets.
- Contribute to mobility, land use efficiency, public realm quality, climate resilience, social inclusion and financial sustainability objectives.
- Deliver measurable outcomes consistent with HCMC’s TOD M&E framework, enabling consistent assessment at each stage outlined above.

For each project and each specific implementation stage, the evaluation indicators, checklist and expected outputs may differ, and in many cases more detailed, project-specific indicators will be required.

These indicators should be developed to reflect the project’s unique context, scope and objectives. For every indicator, the framework specifies the measurement method, the scale of application, the most appropriate visualisation approach and the corresponding expected TOD target.

The checklist and scoring methodology should be introduced on a pilot basis for an initial six months and refined based on consolidated feedback from planning staff, applicants, developers, consultants and relevant agencies to improve clarity, feasibility, practicality, transparency and alignment with local development conditions, before being formally adopted as part of the TOD review process. Table 71 presents the consolidated checklist covering the key aspects to be considered for TOD. Detailed checklists for each aspect, at the network, corridor and station levels, are provided in Annex 10 and Annex 11.

Table 71: Checklist covering the key aspects to be considered for transit-oriented development (TOD)

Checklist item	Requirement	Compliance (Y/N)	Remarks
1. Transportation, mobility and active travel	Demonstrate measurable contribution to increased public transport mode share, reduced private vehicle dependence and provision of safe, continuous pedestrian and cycling connectivity to the station area		
2. Land use and built form	Meet approved density targets and deliver functional mixed-use development in compliance with the TOD zoning envelope (FAR, height, setbacks)		
3. Urban design and public realm quality	Provide high-quality public spaces, active ground-floor frontages, shaded pedestrian environments and a legible, transit-oriented urban form		

Checklist item	Requirement	Compliance (Y/N)	Remarks
4. Climate, environment and resilience	Integrate flood resilience, green infrastructure, stormwater management and urban heat mitigation measures consistent with TOD climate standards		
5. Gender equality, disability and social inclusion and land value capture (LVC)	Ensure affordable housing provision, universal accessibility, inclusive design compliance and fulfilment of required LVC and public contribution obligations		

7.1.4. Application of the transit-oriented development checklist and procedures across the delivery cycle

Stage 1: TOD planning stage (plan preparation, appraisal and approval)

1.1. Purpose

This procedure sets out how the TOD checklist and M&E framework are applied in the statutory approval process to assess proposals in designated TOD zones against TOD principles, standards and phasing targets. It applies to all applications within TOD zones identified in approved plans and provides a step-by-step process from consultation and submission through evaluation, revisions and final reporting.

1.2. Scope of application

The checklist and framework apply to all development and redevelopment applications within TOD zones identified in the approved master plan, development plan or local area plan, and guide applicants and the TOD review committee through a structured sequence from pilot feedback and pre-application consultation to submission, evaluation, negotiation, resubmission and final reporting for decision-making.

1.3. Integration procedure for planning and approval process:

Step 1: Pre-application consultation

The applicant should contact the Council/Authority responsible for TOD planning to discuss the proposed development concept.

The Council/Authority responsible for TOD planning should provide:

- The TOD development checklist.
- The TOD evaluation framework (including scoring criteria, where applicable).
- Applicable TOD principles, standards and technical requirements.

Step 2: Application submission

The applicant should prepare and submit the development application in accordance with TOD requirements, including documentation demonstrating compliance with relevant indicators and standards.

Step 3: Preliminary review and evaluation

A designated Council/Authority responsible for TOD planning member should conduct a preliminary technical review of the application. The proposal should be evaluated and, where applicable, scored using the TOD evaluation framework to assess compliance across mobility, land use, public realm, climate, GEDSI and financial criteria.

Step 4: Consultation and negotiation

The Council/Authority responsible for TOD planning member should present the evaluation results to the applicant.

Where deficiencies are identified, the committee may:

- Recommend design improvements.
- Negotiate modifications to enhance TOD compliance.
- Identify required mitigation or compensatory measures.

Step 5: Revised submission

The applicant should submit an amended development proposal addressing the comments and recommendations provided during the review stage.

Step 6: Final assessment and reporting

The Council/Authority responsible for TOD planning member should prepare a formal report summarising:

- Compliance status with TOD principles.
- Evaluation results and final score (if applicable).
- Recommended conditions of approval.
- Alignment with TOD phasing strategy and performance targets.

The report should be submitted to the competent authority for final decision

Stage 2: Project delivery stage (design and construction)

2.1. Purpose

The implementation stage checklist should be applied to ensure that TOD commitments set out in the approved planning and design documents are delivered on schedule, and that any non-compliance or deviations are identified and addressed in a timely manner during design and construction.

2.2. Scope of application

This procedure applies to all projects within approved TOD zones, in particular projects subject to TOD-related conditions stated in the approval decision and/or development permit.

2.3. Integration procedure for project delivery:

Step 1: Delivery kick-off meeting

The developer/implementing entity should meet with the HCMC TOD implementation authority to confirm:

- The approved list of TOD conditions and obligations to be delivered.
- The delivery checklist and the key milestone-based inspection schedule.
- Reporting arrangements, focal points and the issue resolution process.

Step 2: Submission of TOD delivery plan

The developer should submit a TOD delivery plan and implementation schedule for all TOD obligations, to serve as the basis for monitoring and inspections throughout the construction period.

Step 3: Periodic compliance check

The HCMC Council/Authority responsible for TOD planning should conduct periodic reviews and/or milestone-based inspections (e.g. pre-construction, mid-term, pre-commissioning/acceptance) to:

- Confirm that implementation remains consistent with the approved TOD conditions.
- Record any gaps and require corrective actions.

Step 4: Issue resolution and adjustment

Where deficiencies or deviations are identified, the HCMC TOD implementation authority should:

- Notify the developer of required corrective actions.
- Agree on deadlines and the mechanism for re-check/verification.
- Where necessary, propose adjustments to attached conditions in accordance with the competent authority and due process.

Step 5: Completion verification

Prior to commissioning/acceptance and handover, the developer should submit a consolidated report on the implementation of TOD commitments. The HCMC TOD implementation authority should verify completion status and confirm any outstanding requirements (if any).

Step 6: Delivery close-out report

The HCMC TOD implementation authority should prepare a close-out report summarising:

- The compliance status against TOD conditions.
- Items completed/not completed and recommended follow-up actions.
- The handover of the KPI/indicator list to be tracked during operations (post-operation M&E).

Stage 3: Operations stage: Post-project M&E

3.1. Purpose

The post-operation M&E process is designed to track actual performance against baselines and targets, identify gaps and prioritise improvement actions. Evaluations should be conducted periodically (e.g. every five years) or as required by the competent authority.

3.2. Scope of application

This procedure applies to TOD zones/projects that have entered operation and are eligible for periodic evaluation.

3.3. Post-operation M&E procedure:

Step 1: Establish evaluation cycle and responsibilities

The Council/Authority responsible for TOD planning should define:

- The list of areas/projects to be evaluated in the cycle.
- Participating agencies and their data provision responsibilities.
- The evaluation schedule and reporting outputs.

Step 2: Confirm baseline, targets and indicator set

The Council/Authority responsible for TOD planning should review and confirm the TOD principles and KPIs to be applied for the evaluation cycle, ensuring consistency with the original approved plan/conditions and current local context.

Step 3: Data collection and consolidation

Relevant agencies should compile and submit data to Council/Authority responsible for TOD planning using standardised templates. Where data gaps exist, limitations should be documented and proxy indicators applied (where needed) in accordance with the guidance.

Step 4: Evaluation workshop and findings review

A review session should be convened with relevant stakeholders (regulators, public transport operators, local authorities and the developer, where appropriate) to:

- Review evaluation findings.
- Identify performance gaps, unintended impacts and root causes.

Step 5: Improvement action plan

Based on the evaluation results, a prioritised action plan (short, medium and long term) should be prepared, assigning responsible entities, indicative resources and timelines.

Step 6: Formal reporting and policy/plan update

A formal report should be issued, with recommendations to:

- Adjust regulations/standards/review procedures where necessary.
- Update investment priorities and phasing.
- Integrate lessons learned into subsequent planning cycles and development reviews.

7.2. Integrated data architecture and governance for transit-oriented development planning and implementation

7.2.1. Geographic information system-based transit-oriented development data

Purpose: The GIS-based TOD data platform provides a unified and authoritative spatial foundation for defining TOD boundaries, land use controls and development parameters. It integrates parcel-level, transport and land value capture (LVC) data into a dynamic system that supports planning, monitoring and regulatory management. This serves as the digital backbone for transparent and evidence-based TOD governance.

Subtasks:

- **Develop core spatial data layers:** Establish base layers including station buffers (500m/1km), TOD typologies, administrative boundaries, cadastral parcels and road/footpath/cycle networks to form the spatial backbone of the system.
- **Define and regularly update TOD boundaries:** Delineate TOD areas and update them periodically to reflect planning decisions and implementation realities.
- **Attach planning parameters to land parcels:** Assign FAR, building heights, land use functions, population targets and transport indicators to each parcel for regulatory and monitoring purposes.
- **Implement live monitoring layers:** Regularly update land use, zoning, public space inventory, last-mile gaps and accessibility isochrones to track changes against approved plans.
- **Integrate and manage LVC-linked parcels:** Tag public land, auction plots and joint development (JD) sites; link each parcel to scheme type, obligations and revenue status.
- **Establish system governance features:** Enable role-based access, version control, audit trails, standardised station templates and reporting/export functions.

Key outcomes/targets:

- All TOD stations have standardised spatial data profiles.
- All LVC-related parcels are digitally tagged and tracked.
- Annual (minimum) update of TOD spatial datasets.

7.2.2. Transit-oriented development data dashboard

Purpose: The TOD data dashboard converts spatial and administrative data into measurable performance indicators at station, corridor and city levels. It enables continuous tracking against baseline and target values to support proactive decision-making and accountability.

This shifts TOD oversight from compliance-based reporting to results-based performance management.

Subtasks:

- **Design a structured KPI framework:** Define baseline, target and actual values at station, corridor and city levels across key TOD indicators.
- **Develop interactive performance dashboards:** Build corridor- and station-level dashboards with visual charts, comparative trends and performance summaries.
- **Create analytical map views:** Produce heatmaps for mobility flows, land value trends and climate risk layers to support prioritisation and risk screening.
- **Implement automated alert mechanisms:** Establish rule-based triggers to flag underperforming stations (e.g. low density, missing connectivity, delayed public space delivery).
- **Define operational and governance protocols:** Set update frequency (monthly/quarterly), assign KPI ownership by agency and apply data validation procedures.

Key outcomes/targets:

- Standardised station scorecards for all TOD stations
- Quarterly KPI updates as a minimum
- Early-warning system for performance deviations.

7.2.3. Building information modelling and common data environment integration

Purpose: Building information modelling (BIM) and common data environment (CDE) integration ensures digital continuity across the full lifecycle of TOD projects, from planning and design to construction and operation. Linking engineering models with the master GIS database eliminates data silos and supports coordinated asset and infrastructure management. This enhances efficiency, transparency and lifecycle-based project delivery.

Subtasks:

- **Link BIM models with GIS database:** Connect station and public realm BIM models to GIS objects (station ID, asset ID, parcel ID) within the TOD master database.
- **Establish a CDE:** Implement standardised naming conventions, version control, approval workflows and change logs across project stages.
- **Launch digital twin pilot projects:** Select pilot stations to test real-time monitoring of passenger flows, maintenance, energy performance and safety.
- **Adopt interoperability and exchange standards:** Apply agreed data formats and define digital handover requirements at project milestones.

Key outcomes/targets:

- All new TOD station projects integrated into the BIM-GIS system
- Operational CDE platform for major TOD projects
- Two to three digital twin pilot stations.

7.2.4. Open data and APIs

Purpose: The open data and API framework establishes a secure and standardised mechanism for inter-agency data-sharing in TOD implementation. It harmonises KPI definitions and datasets while enabling appropriate public transparency. This strengthens coordination, accountability and data-driven governance.

Subtasks:

- **Develop inter-agency APIs and data-sharing agreements:** Enable structured data exchange among the MAUR, DOC, DPA and DAE for permits, zoning, land, infrastructure and projects.
- **Standardise metadata and KPI definitions:** Adopt common KPI definitions, metadata schemas, geocoding standards and station ID conventions.
- **Publish transparency modules:** Release non-sensitive datasets and summary reports; explore integration with the tender portal for land tender disclosure.
- **Implement data security and governance framework:** Define tiered access levels (public/internal/restricted), anonymise mobility data where required and assign data stewards for each dataset.

Key outcomes/targets:

- All TOD KPIs standardised with metadata definitions
- Operational inter-agency data exchange via APIs
- Regular publication of open, non-sensitive TOD datasets.

For HCMC, the data management arrangement is structured to align closely with the roles and responsibilities of relevant stakeholders throughout the different stages of TOD planning and implementation. This ensures that data flows are embedded within institutional mandates and decision-making processes, rather than operating as a parallel technical system.

Overall, the DPA serves as the lead entity overseeing data governance and coordination across the TOD lifecycle. The DPA acts as the central integration point for spatial planning data, regulatory parameters and station area development frameworks. The DOC and the UDMB play critical coordinating roles: the DOC is primarily responsible for urban rail network development data and construction-related updates, and the UDMB for TOD project implementation, development contributions and site-level execution data. Together, these agencies ensure that planning, infrastructure delivery and project implementation data are consistently updated, validated and integrated within the unified TOD data system.

Detailed responsibilities for data contribution, validation, updating frequency and access control are summarised in Table 72.

Table 72: Institutional arrangements for TOD data management

CORRIDOR LEVEL			
Step	Data types	Units providing data	Units aggregating and managing data
Step 1: TOD objectives and KPIs for HCMC	<ul style="list-style-type: none"> • Demographic • Transport • Economic • GIS 	Related departments of HCMC	DPA
Step 2: Alignment planning level	<ul style="list-style-type: none"> • Transport • Land use • GIS 	DOC, HURC (Ho Chi Minh City Urban Railway Company), MAUR, DPA, UDMB	DOC shared with DPA
Step 3: TOD potential assessment	<ul style="list-style-type: none"> • Economic • Land value • Residential and employment • Transport • Survey data 	DOC, Department of Finance (DOF), DOAE, DOIT, UDMB, DPA	DPA
Step 4: Identify initial TOD boundary	<ul style="list-style-type: none"> • Land use • GIS • Transport 	DOC, MAUR, DOAE, UDMB	DPA

Step 5: Classify TOD typologies	<ul style="list-style-type: none"> • Land use • Demographic • Economic 	DPA, DOAE, DOF, DOIT (Department of Industry and Trade), UDMB	DPA
Step 6: Define the development positioning	<ul style="list-style-type: none"> • Transport • Land use • GIS • Economic • Project proposal information 	DOC, DOF, DOAE, DPA, UDMB	DPA shared with UDMB
Step 7: TOD and rail strategy development (develop TOD and rail strategies)	<ul style="list-style-type: none"> • Transport • Land use • GIS • Economic • Project proposal information 	DOC, DOF, DOAE, DPA, UDMB	DPA shared with DOC

STATION LEVEL

Step	Data types	Units providing data	Units aggregating and managing data
Step 1: Identify planning objectives of TOD area; optimise TOD boundaries	<ul style="list-style-type: none"> • Transport • Land use • GIS • Economic • Project proposal information 	DOC, DOF, DOAE, DPA, UDMB, MAUR, Investors	DPA shared with UDMB
Step 2: Implementing guidance from typologies to different TOD layers	<ul style="list-style-type: none"> • Transport • Land use • GIS • Economic • Project proposal information 	DOC, DOF, DOAE, DPA, UDMB, MAUR, Investors	DPA shared with UDMB
Step 3A: Preparation and planning approval (TOD area)	<ul style="list-style-type: none"> • Transport • Land use • GIS • Economic • Demographic • Project proposal information • Survey data 	DOC, DOF, DOAE, DPA, UDMB, MAUR, Investors	DPA shared with UDMB
Step 3B: Define opportunities for station area integration (projects level in detail plan)	<ul style="list-style-type: none"> • Transport • Land use • GIS • Economic • Demographic • Project proposal information • Survey data 	DOC, DOF, DOAE, DPA, UDMB, MAUR, Investors	UDMB shared with DPA
Step 4: Approval of TOD plan and project plan	<ul style="list-style-type: none"> • TOD plans • TOD project studies 	DPA, DOC, MAUR, UDMB, Investors	DPA shared with DOC, UDMB, Investors
Step 5: Project implementation	<ul style="list-style-type: none"> • Project information status/ progress 	UDMB, Investors	UDMB shared with DPA

7.2.5. Regulations on data digitisation and integration

Purpose: The aim of the regulations is to set a standard for involved stakeholders to follow with regard to digital data and compliance with data integration purposes throughout the TOD implementation process.

Subtasks:

- **Set the data requirements for the whole TOD implementation process:** Assign to the government agency responsible for managing the overall TOD implementation process. The requirements should:
 - Ensure sufficient, transparent, integrated, validated and responsible use of data
 - Ensure accuracy, availability and efficiency of GIS-based TOD data
 - Be compliant with the TOD data dashboard
 - Be available for building information modelling and CDE integration
 - Be consistent with the open data and API framework.
- **Regulate the data requirements of stakeholders participating in the TOD implementation process:** This should be in line with existing regulations on digitisation and integration processes in urban and rural planning, which include four fundamental steps:
 - Step 1: Data collection and digitalisation. A stakeholder may be required to:
 - » Prepare a data inventory by: (i) Obtaining documents from other stakeholders and/or related parties (if any); (ii) Reviewing existing documents and studies; (iii) Undertaking site visits and additional surveys (if any).
 - » Provide an official statement on full awareness of HCMC TOD data standards. A failure to provide a satisfactory statement may prevent the stakeholder from participating in the TOD

implementation process.

- Step 2: Data standardisation: The stakeholder must ensure their data strictly follow HCMC TOD data standards.
- Step 3: Establishment of the stakeholder's database: A careful review of the database is required to ensure data accuracy and availability.
- Step 4: Integrating and publishing the stakeholder database to the shared TOD data platform established by HCMC.

Key outcomes/targets:

- TOD data standards regulated by the city
- A clear and published process for stakeholders to participate in/contribute to the shared TOD data platform and satisfy the data requirements of related TOD activities.

7.3. Management of a TOD area

7.3.1. Key elements of the management and operation of a TOD area

According to institutional arrangements, the management of a TOD area requires close collaboration between city-level and ward-level entities. While city-level government entities (DOC, DPA, DOF, Department of Labour, War Invalids and Social Affairs, UDMB) are mainly responsible for multimodal integration, financial, social and data management, most day-to-day activities are the responsibility of ward/district-level government entities (HCMC People's Committee/Ward People's Committees) and/or public institutions and/or the private sector.

The elements in Table 73 are generally recognised as the main elements of TOD area management and operation.

Table 73: Elements of management and operation of transit-oriented development (TOD) areas

Elements		Description	Example of implementation
Traffic management and connectivity	Multimodal integration	Integrate connection activities among mass rapid transit (MRT) lines, buses, bicycles and pedestrian pathways at TOD stations; focus on optimising waiting times and seamless mode changes	<ul style="list-style-type: none"> • Set target average waiting time (e.g. less than five minutes) • Use an integrated ticketing system
	Passenger flow management	Develop flow segregation plans to ensure safety and convenience (including train schedule adjustments, especially during peak hours)	<ul style="list-style-type: none"> • Use real-time monitoring systems • Apply artificial intelligence (AI)-supported intelligent transport systems for passenger flow management • Automate control systems
	Management measures for projects under construction	Ensure construction activities do not impact daily railway operations, connectivity and TOD area functions	<ul style="list-style-type: none"> • Use temporary traffic infrastructure to maintain access • Implement safety barriers • Announce relevant regulations
Land use and space management	Monitor land use and mixed-use spaces	Ensure that all on-site activities comply with approved land use and spatial regulations within the TOD area	<ul style="list-style-type: none"> • Apply building information modelling-based management
	Implement integrated monitoring of scope and space across projects and project phases	Monitor the scope and space of ongoing projects to ensure seamless connectivity and unobstructed accessibility across the entire area; assess the potential spatial and operational impacts between projects and project phases if required	<ul style="list-style-type: none"> • Requirements for spatial connectivity and transition between areas • Announce relevant regulations
	Public space management	Oversee construction and maintenance activities for public spaces and facilities such as green areas, civic squares, pedestrian bridges and related public utilities	<ul style="list-style-type: none"> • Publish construction and maintenance agreements and operational records as part of the annual urban governance report
Financial and social management	Revenue management and reinvestment	Monitor and manage revenue sources within the TOD area according to regulations	<ul style="list-style-type: none"> • Closely monitor the reinvestment of revenue into infrastructure within the TOD area
	Promote social equity	Monitor and identify social equity issues, ensure compliant delivery of social infrastructure and improve access to public transportation for disadvantaged groups	<ul style="list-style-type: none"> • Detail social housing concerns and issues affecting disadvantaged groups through reports
Safety and environmental management	Security	Ensure safety and security in TOD areas, especially in areas with a high risk of safety and security hazards, fire incidents, explosions and terrorism	<ul style="list-style-type: none"> • Use closed circuit television (CCTV) surveillance system in combination with security staff and enforce penalties that are sufficiently deterrent
	Environment	Control environmental issues within the area (air, noise and water resources)	<ul style="list-style-type: none"> • Projects are required to comply with low-emission standards with sufficiently strict penalties to ensure compliance
Revise policy to achieve TOD objectives	Data management	Develop data and reporting systems aligned with operational dynamics and management objectives	<ul style="list-style-type: none"> • Build a unified and interconnected data system
	Review and adjustment	Review, analyse, report and make decisions on necessary adjustment to TOD regulation	<ul style="list-style-type: none"> • Conduct annual review or five-year review

7.3.2. Notes for management of transit-oriented development areas

Given its inherently multidisciplinary and cross-sectoral nature, the management and operation of a TOD area is highly complex and demands strong managerial capabilities from the implementing team. This work requires input elements, information and documents to form the foundation from which to execute management and operational tasks, as well as output information and documents representing the deliverables essential to the management and

operation. Figure 127 below presents the information and documents required. The management and operation of TOD areas may be influenced by various factors, ranging from objective factors related to unforeseen uncertainties to subjective factors related to the implementing entities. Some subjective factors can be identified through practical experience gleaned from TOD projects in other global cities. These can be grouped into three key dimensions: planning, project development and TOD-related policies and regulations.

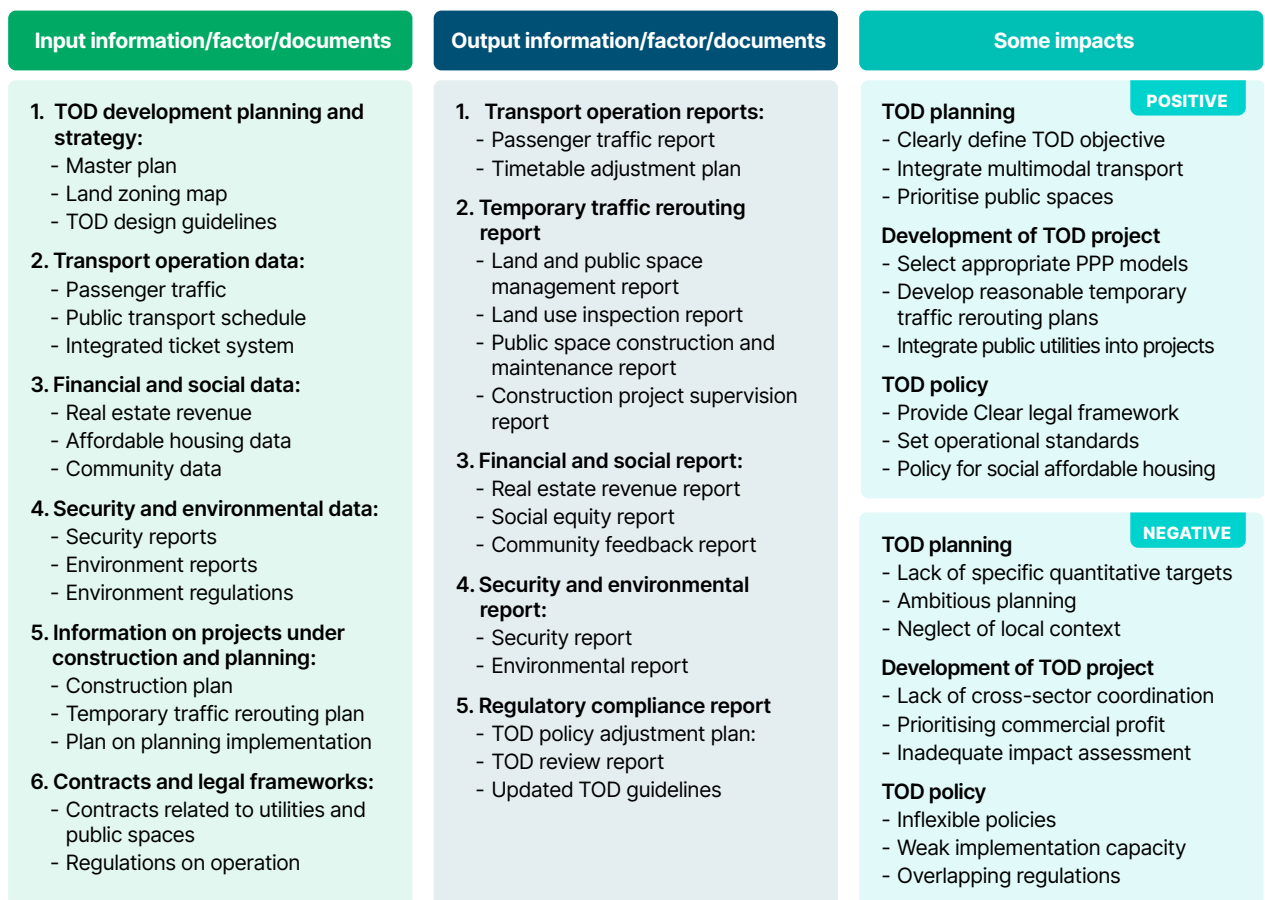


Figure 127: Information, factors and documents needed for the management and operation of transit-oriented development areas

7.3.3. Evaluating the effectiveness of transit-oriented development area implementation

TOD effectiveness can be evaluated by analysing the relationship between the capacity of public transport services and activities within the TOD area. In this approach, there are two types of TOD: the “under-supplied” TOD, where public transportation services do not meet travel demands (often seen at stations far from the city centre), and the “over-supplied” TOD, where public transport exceeds travel demand but is insufficient to attract more residents,

workers or activities to the area. Indicators of these TOD development statuses can be used to adjust management and operational issues in an appropriate and balanced manner.

These adjustment efforts, alongside improving the quality of commonly observed factors (population density, employment, amenities, land use diversity, urban spatial design, distance to public transit, accessibility to various city areas, travel demand management and quality of public transportation services), must also take specific local considerations into account. These include accessibility to social

housing, reverse effects (residents living in TOD areas preferring to relocate outside of them), environmental protection awareness and perceived value of transport modes beyond mobility (such as vehicles serving as tools for livelihoods) as well as population displacement, changes in living environments,

unique cultural tourism and economic development characteristics.

Examples of criteria for assessing the effectiveness of TOD implementation are presented below.

Table 74: Criteria for assessing the effectiveness of transit-oriented development (TOD) implementation

Assessment aspect	Assessment criteria	Description
Urban design	Architectural aesthetics	An appealing urban landscape should both preserve the city's traditions and integrate new physical elements into a coherent whole, in which areas, landmarks and pathways are easily recognisable and harmoniously connected within a master plan
	Public space	The arrangement of high-quality public spaces – including open areas, squares and parks – is intended to meet the surrounding community's needs for relaxation and recreation (e.g. playing and socialising)
	Pedestrian friendliness	A well-connected street network that links seamlessly with public transit stations, fully equipped with amenities and designed to accommodate the needs of pedestrians
Integrated urban transportation planning	Transportation connectivity	An established approach to facilitating inter-organisational coordination across the processes of design, planning, operation and management of public transportation systems, while ensuring alignment between land use planning and transportation planning
	Proactive urban planning	A regional or local planning approach characterised by a long-term vision and a forward-looking orientation, encompassing the definition of project objectives, the development of a land use vision, a thorough evaluation of transportation investment options within realistic budget constraints and the formulation of implementation strategies within the planning framework
Land use	Floor area ratio	High density urban development (or concentrated residential zones) is promoted to enhance urban vitality, shorten access distances to public transit stations and prevent uncontrolled urban sprawl
	Diversification of land use	The integration of diverse land uses to provide a variety of essential daily services that meet the community's wide-ranging needs, including retail stores, schools, restaurants, hospitals, banks, pharmacies, bookstores, health clubs and other amenities
Restricting the ownership and use of private motor vehicles	Vehicle ownership tax/fee policy	Tax and fee measures to restrict the ownership of private motor vehicles (e.g. purchase price, purchase conditions)
	Vehicle usage tax/fee policy	Tax and fee policies aimed at limiting the use of private motor vehicles (fuel, parking availability and fees, operating hours and designated operating zones)

Assessment aspect	Assessment criteria	Description
Transportation services	Multimodal connectivity	The ability to connect conveniently, quickly and seamlessly between different modes and types of transport
	Ticket/fare price	A ticket/fare mechanism that encourages the use of public transportation among diverse community groups, while enabling improvements in service quality
	Accessibility	Extensive coverage and high density of the public transportation system
	Service frequency	High service frequency, minimising waiting times
	Service reliability	On-schedule arrival and departure times
	Level of comfort	Vehicles and onboard spaces consistently maintained in good condition, with high standards upheld in operation, stopping, boarding and alighting procedures
Real estate market	Types of mixed land use	Regional or local real estate markets contribute to public transportation development by offering a diverse range of housing types that address the needs of most transit users (housing for high- and low-income groups, single people and families, younger and older residents, and both ownership and rental options)
	Housing that is affordable to the majority	The proportion of the housing stock allocated to the majority of public transit users

7.4. Usability and application of the technical guidelines

Building on the TOD M&E framework (Section 7.1.) and the digital data architecture and KPI framework (Section 7.2.), this section establishes how the technical guidelines should be applied across the full TOD lifecycle. The guidelines operate as a governance overlay to ensure that corridor structuring (Part 3), station area planning and design controls (Part 4), financial strategies and LVC mechanisms (Part 5) and institutional responsibilities (Part 6) are implemented consistently and verifiably.

All stages of application should be supported by the GIS-based TOD data platform, TOD dashboard and CDE established under Section 7.2. Decisions, approvals and stage-gate verifications should be digitally recorded to ensure traceability, auditability and performance management. Where delegated by competent authorities, the UDMB should operate as the TOD area implementation coordinator and reporting integrator to bridge planning approvals and on-ground delivery.

7.4.1. Application at network and corridor level

At the network and corridor level, MAUR in coordination with DPA and relevant authorities

should apply the typology framework and influence zone logic to guide alignment selection, station role allocation, corridor phasing and preliminary LVC identification. Corridor-level assumptions used in ridership forecasting, economic appraisal and financial modelling should be consistent with typology-based development capacity and land readiness considerations.

Corridor-level outputs – including typology assignments, indicative influence zones, development capacity assumptions, priority land readiness areas and preliminary LVC opportunity mapping – should be recorded within the TOD GIS system and referenced in pre-FS documentation and subsequent corridor endorsement processes.

7.4.2. Application during land readiness, acquisition, readjustment and land disposition

Land readiness, consolidation, acquisition, readjustment/pooling and land disposition processes are fundamental determinants of TOD feasibility and quality in HCMC. The guidelines should be applied during these processes to ensure alignment with assigned TOD typologies and influence zones (Parts 3 and 4) and with financial mechanisms and value-capture settings (Part 5).

Strategic parcels within core and primary influence zones should be identified early and digitally tagged within the GIS platform for land readiness actions, including transaction monitoring, consolidation planning and sequencing aligned to corridor phasing. Where appropriate, UDMB should support inter-agency coordination for land readiness and maintain a TOD area land action register linked to the TOD dashboard.

Where land acquisition or compensation is required, resettlement and parcel reconfiguration strategies should support planned development envelopes and public realm delivery, and should be aligned with social inclusion objectives (including affordable housing where applicable) and climate resilience requirements. Land actions should avoid fragmentation that undermines station area accessibility, block structure or integrated development outcomes.

Land readjustment or pooling schemes should align with influence zone boundaries and defined intensity ranges. Reparcelled plots should be linked within the digital parcel registry to FAR allocations, public infrastructure obligations and LVC tracking arrangements. UDMB should, where mandated, coordinate readjustment sequencing and confirm that public obligations are clearly assigned and monitorable.

When disposing of public land or issuing development tenders within TOD areas, responsible agencies (including DPA, DOC, DOF, DOAE) should apply TOD-linked development conditions. Tender conditions should explicitly reference assigned typology classifications and include, as applicable: FAR parameters; land use mix requirements; direct pedestrian connectivity standards; public realm and green infrastructure obligations; universal accessibility requirements; parking controls; and affordable housing provisions. UDMB should support tender condition integration by maintaining TOD conditions register and monitoring delivery commitments through the dashboard.

Where land disposition forms part of JD or public-private partnership (PPP) structures, FAR uplifts, IIF offsets and revenue-sharing arrangements should be coordinated to avoid double-charging and should be recorded within the digital parcel registry. Financial and contractual arrangements should remain consistent with Part 5 and be auditable through Section 7.4. reporting.

7.4.3. Application at transit-oriented development area and station level

At the TOD area and station level, DPA, DOC, District People's Committees, MAUR (where rail interfaces apply), UDMB (where designated) and private developers should apply the guidelines during preparation, review and approval of sub-zone (1:2,000) and detailed (1:500) plans, and during subsequent implementation. Development proposals should demonstrate consistency with

typology assignment and influence zone classification recorded in the GIS system.

Planning submissions should demonstrate compliance with Part 4 requirements and Part 3 design controls, including FAR limits and intensity gradients; land use mix and activation; public realm provision; multimodal integration; universal accessibility; climate resilience measures; and parking and access management. UDMB should, where mandated, act as the TOD area implementation coordinator to consolidate compliance documentation, coordinate inter-agency inputs and maintain implementation tracking against approved plans.

7.4.4. Integration with investment study stages

The guidelines should be embedded within the statutory investment preparation stages, including pre-FS and Front-End Engineering Design (FEED)/basic design, for both public-led and private-initiated proposals. TOD assumptions used in investment appraisal should be consistent with typology, land readiness and LVC settings.

At pre-FS stage, typology screening and preliminary LVC identification should be recorded within the digital system. At FS stage, typology confirmation, influence zone endorsement, land strategy alignment (readiness/acquisition/readjustment) and financial modelling integration should be completed. At FEED stage, design compliance and contractual lock-in of TOD obligations including public realm delivery, connectivity and LVC/JD commitments should be verified prior to construction approval. UDMB should support documentation consolidation and implementation readiness checks at TOD area level where required.

All stage-gate verifications should be digitally logged within the TOD dashboard and linked to parcel-level GIS records to enable auditability and downstream reporting.

7.4.5. Application to private sector-initiated mass rapid transit and transit-oriented development proposals

Where private sector entities propose MRT financing or integrated TOD development, the guidelines should be applied from concept stage to ensure that proposed station roles, typology alignment, influence zones, land strategies and financial structures are consistent with objectives and Part 5. Private proponents should demonstrate the transparent linkage between rail financing commitments and TOD value creation, including defined public benefit obligations.

Development rights should not exceed typology limits

recorded in the GIS system. JD or PPP obligations, incentive eligibility, tender conditions (where applicable) and phasing commitments should be digitally registered prior to FEED approval. UDMB should, where mandated, act as the primary interface for TOD area implementation coordination and compliance tracking between private proponents and agencies.

7.4.6. Stage-gate compliance framework

The following checkpoints should require documented TOD compliance verification within the TOD dashboard:

- Corridor structuring confirmation.
- Land consolidation and readiness strategy approval.
- Typology endorsement.
- Influence one confirmation.
- LVC mechanism approval.
- Tender parameter approval (where applicable).
- FEED design and implementation compliance.
- Construction permit issuance.
- Operational performance review.

UDMB should, where designated, consolidate evidence at station/TOD area levels and submit verified packages for corridor or city-level endorsement.

7.5. Reporting cycle and governance mechanisms

Reporting under this section should be generated from the GIS-based TOD and TOD established in 7.2. The reporting framework links financial performance and value capture, institutional accountability and spatial implementation outcomes to measurable KPIs, enabling transparent oversight and adaptive management.

7.5.1. Multi-level reporting structure

- **Project / station / TOD area level:** Developers and implementing agencies should submit milestone compliance reports and quarterly KPI updates via the dashboard. Where UDMB is designated, such reporting should be submitted to UDMB for initial validation, consolidation and issue management prior to escalation to corridor-level reporting. UDMB should maintain an implementation register covering land actions, tender condition compliance, public realm delivery and JD or PPP obligations.
- **Corridor level:** MAUR, in coordination with DPA, DOC, DOF, land authorities and District People's Committees, should prepare annual corridor

performance reports assessing development intensity, land readiness/readjustment progress, LVC revenue realisation, ridership and mobility performance, and delivery of public benefit obligations. UDMB inputs should be used to validate station/TOD area delivery status.

- **City level:** The People's Committee should publish a TOD implementation report summarising corridor performance, modal share trends, fiscal sustainability and LVC outcomes, affordable housing delivery (where applicable) and climate resilience metrics. The city-level report should inform budget prioritisation, statutory plan adjustments and strategic programme governance.

7.5.2. Reporting frequency and strategic review

Station/TOD area data should be updated as a minimum at quarterly intervals in accordance with dashboard protocols. Corridor and city-level reports should be issued annually. A TOD should be conducted every three to five years to recalibrate typology parameters, incentive-obligation settings, LVC mechanisms, tender standards and institutional arrangements. UDMB should contribute TOD area implementation lessons and performance evidence to TOD.

7.5.3. Escalation and corrective measures

Where compliance gaps or performance deviations are identified through the dashboard or review processes, corrective measures may include design revisions, phasing adjustments, land policy recalibration, tender condition enforcement, financial restructuring or institutional review. UDMB should, where designated, coordinate issue resolution at TOD area level, document corrective actions in the audit trail and escalate unresolved matters to corridor or governance bodies.

7.5.4. Transparency and continuous improvement

Annual summary results, including LVC revenue allocation, tender compliance outcomes (where applicable), affordable housing delivery metrics and sustainability performance, should be publicly disclosed to strengthen accountability and investor confidence. Monitoring outcomes should inform policy recalibration during TOD and support continuous improvement of the as a living framework.



Figure 128: Integrated transit-oriented development lifecycle framework

Conclusion

Purpose of these technical guidelines

These technical guidelines establish a comprehensive, practical and accountable framework for planning, financing, delivering and monitoring transit-oriented development (TOD) in Ho Chi Minh City. They translate the city's TOD vision, objectives and key performance indicators (KPIs) into a coherent set of requirements and processes that can be applied consistently across corridors, stations and project sites, and across both public-sector-led and private-sector-initiated delivery models.

The guidelines are structured to support implementation throughout the full lifecycle: network and corridor structuring (Part 3), TOD area and station-level planning and design (Part 4), financial strategies and land value capture (Part 5), institutional responsibilities and capacity building (Part 6), and monitoring and evaluation supported by digital data architecture (Part 7).

Delivering TOD as a system

The guidelines are intended to shift TOD from isolated station-area projects toward a system-based approach that delivers corridor-wide outcomes. This requires early integration of rail planning and land-use structuring, clear typology allocation and influence zone application, and coordinated phasing between mass rapid transit delivery and surrounding development.

By setting out consistent principles and implementation requirements across scales, the guidelines reduce discretionary interpretation, improve predictability for project proponents, and strengthen alignment between transport investment and long-term urban structure.

Integrating land policy and development controls to enable TOD

In Ho Chi Minh City, land readiness, land acquisition, land readjustment and land disposition processes are central determinants of TOD feasibility and quality. The guidelines therefore formalise the application of TOD principles during land consolidation, re-parcelisation and tendering processes, ensuring that land actions support intended built-form outcomes, public realm delivery, multimodal access and inclusive development objectives.

Tender conditions and development rights allocations should reflect assigned TOD typologies and influence zones, and incorporate clear obligations, such as public realm standards, connectivity requirements, parking controls, and affordable housing provisions (where applicable), so that TOD outcomes are secured from the outset.

Financial sustainability and value capture

A defining feature of these guidelines is the integration of financial strategies – particularly land value capture, joint development and public-private partnership mechanisms – within the TOD delivery framework. The guidelines provide guardrails to ensure that development incentives and uplifts remain proportional to infrastructure capacity and public benefit obligations, and that value capture instruments are applied transparently without double-counting.

By linking corridor and station typologies to structured land value capture approaches and procurement pathways, the guidelines support more bankable mass rapid transit and TOD programmes and strengthen the city's ability to mobilise private investment while safeguarding public interest outcomes.

Governance, accountability and digital enablement

Successful TOD implementation requires coordinated action across Department of Planning and Architecture, Department of Construction, Management Authority of Urban Railways, HCMC Urban Development Management Board, Department of Finance, Ward/Commune People's Committees, where mandated, the Urban Management and Development Board, together with clear interfaces with private sector proponents. Part 6 clarifies institutional responsibilities, while Part 7 establishes a monitoring and evaluation system supported by a GIS-based TOD data platform, KPI dashboard and common data environment.

These digital systems institutionalise accountability through parcel-level tracking, stage-gate compliance verification and multi-level reporting at station, corridor and city scales. This enables evidence-based decision-making and continuous improvement over time.

Adaptive management and next steps

The guidelines are intended to operate as a living framework. Performance monitoring and periodic strategic TOD reviews should be used to refine typology parameters, adjust incentive–obligation balances, strengthen procurement and delivery mechanisms, and update standards in response to implementation experience, market conditions and regulatory evolution.

To operationalise these guidelines effectively, the city should prioritise: formal endorsement and cross-agency adoption; capacity building to support consistent application; full implementation of the GIS and dashboard systems; and clear communication of TOD requirements and tender conditions to both public entities and private sector proponents.



Annexes and reference materials

Annex 1: Case example of floor area ratio (FAR) calculations

Baseline assumptions

- **Location:** Transit-oriented development (TOD) core zone, Ho Chi Minh City (HCMC)
- **Land area:** 5,000m²
- **Base FAR (as per approved zoning):** 4.0
- **Requested FAR (as per limit of TOD planning):** 6.0
- **Additional FAR:** +2.0
- **Permitted land use:** Mixed-use (commercial + office + residential)

Market and cost benchmarks

- **Market sale value (average):**
 - Residential/commercial blended: 55 million VND/m² GFA
- **Construction cost:**
 - High-rise, mixed-use: 18 million VND/m² GFA
- **Developer target profit margin:** ~20% of market sale value (market value)
- **Public infrastructure needs:**
 - Station plaza, access roads, pedestrian connections, utilities

Method 1: Standard FAR premium fee (formula-based)

Concept

A transparent, pre-set fee per m² of additional GFA, linked to land value uplift from increased FAR.

Step-by-step calculation

Step 1: Calculate additional GFA

Additional GFA = Site area × Additional FAR = 5,000m² × 2.0 = 10,000m²

Step 2: Estimate net land value uplift per m² GFA

A simplified administrative benchmark is often used internationally.

Net uplift per m² GFA ≈ Market value – Construction cost – Normal profit

Assume:

- Market value = 55 million VND/m²
- Construction cost = 18 million VND/m²
- Profit (~20%) ≈ 0.2 × 55 million VND/m² = 11 million VND/m²

Net uplift ≈ 55 million VND/m² – 18 million VND/m² – 11 million VND/m² = 26 million VND/m²

Step 3: Apply FAR premium capture rate

- TOD core zone capture rate: 30% (policy choice)
- FAR premium fee per m² = 26 million VND/m² × 0.3 = 7.8 million VND/m²

Step 4: Total FAR-based land value capture (LVC) payment

Total FAR LVC = 10,000m² × 7.8 million VND/m² = VND 78 billion

Pros and cons

- ✓ Simple and transparent
- ✓ Suitable for small to mid-sized TOD projects
- ✗ Less responsive to project-specific economics.

Method 2: Negotiated development contribution (value-based)

Concept

Used for mid to large strategic TOD projects where FAR uplift significantly changes project scale. Contribution is derived from incremental project value.

Step-by-step calculation

Step 1: Baseline scenario (FAR 4.0)

Baseline GFA = 5,000m² × 4.0 = 20,000m²

Gross development value (GDV)₀ = 20,000m² × 55 million VND/m² = VND 1,100 billion

Construction cost₀ = 20,000m² × 18 million VND/m² = VND 360 billion

Note: GDV is the total market value of a development upon completion, assuming it is fully built, leased and/or sold, before deducting development costs.

Step 2: Enhanced scenario (FAR 6.0)

Enhanced GFA = 5,000m² × 6.0 = 30,000 m²

GDV₁ = 30,000m² × 55 million VND/m² = VND 1,650 billion

Construction cost₁ = 30,000m² × 18 million VND/m² = VND 540 billion

Step 3: Incremental value from FAR increase

Incremental GDV = GDV₁ – GDV₀ = VND 1,650 billion – VND 1,100 billion = VND 550 billion

Incremental cost = Construction cost₁ – Construction cost₀ = VND 540 billion – VND 360 billion = VND 180 billion

Incremental gross surplus = VND 550 billion – VND 180 billion = VND 370 billion

Step 4: Public share (negotiated capture rate)

- Typical TOD negotiation range: 25–40%
- Assume 30%

Negotiated LVC = VND 370 billion × 0.3 = VND 111 billion

Pros and cons

- ✓ Captures true economic uplift
- ✓ Flexible for complex mixed-use TOD
- ✗ Requires strong valuation and negotiation capacity.

Method 3: Hybrid cash + in-kind contribution

Concept

Used where TOD infrastructure delivery is a priority, reducing fiscal burden on the city and improving integration quality.

Step-by-step calculation

Step 1: Determine total LVC obligation

From Method 2: Total LVC obligation = VND 111 billion

Step 2: Define in-kind TOD infrastructure package

Infrastructure item	Estimated cost (VND billion)
Station plaza and public space	25
Pedestrian underpass/bridge	18
Access road and utilities	22
Total in-kind	65

Step 3: Calculate residual cash contribution

Cash LVC = VND 111 billion – VND 65 billion = VND 46 billion

Step 4: Allocation and timing

- **In-kind works:** Delivered before occupancy permit
- **Cash component:**
 - 50% at construction permit
 - 50% at completion.

Pros and cons

- ✓ Strong TOD integration
- ✓ Reduces upfront public capital need
- ✓ Aligns developer incentives with station-area quality
- ✗ Complex valuation, negotiation and administration.

Comparison summary

Method	Predictability	TOD integration quality	Administration complexity	Suitable scale of TOD projects	Pros	Cons
Standard FAR premium	High	Medium	Low	Small to mid-sized	<ul style="list-style-type: none"> • Simple and transparent 	<ul style="list-style-type: none"> • Less responsive to project-specific economics
Negotiated contribution	Medium	High	High	Mid to large	<ul style="list-style-type: none"> • Captures true economic uplift • Flexible for complex mixed-use TOD 	<ul style="list-style-type: none"> • Requires strong valuation and negotiation capacity
Hybrid cash + in-kind contribution	Medium	Very high	Very high	Mid to large	<ul style="list-style-type: none"> • Strong TOD integration • Reduces upfront public capital need • Aligns developer incentives with station-area quality 	<ul style="list-style-type: none"> • Complex valuation, negotiation and administration

Annex 2: Case examples of IIF calculations

Option A – Standard Fee per m² of Chargeable GFA

Baseline assumptions

- Total planned additional GFA: 1,100,000m²
- Exempted GFA: 100,000m²
- Chargeable GFA: 1,000,000m²
- Total chargeable infrastructure cost: 1,000 VND billion

Step 1: Calculate base IIF rate

Base IIF rate (VND/m²) = Total chargeable infrastructure cost ÷ Total chargeable GFA

Base IIF rate = 1,000 VND billion ÷ 1,000,000m² = 1 million VND/m²

This rate represents full cost recovery for identified infrastructure.

Step 2: Adjustment factors

To ensure feasibility and equity, the base IIF rate may be adjusted using standard multipliers.

Transit-oriented development (TOD) zone adjustment	
TOD zone	Adjustment factor
Core TOD (≤300m)	1.0
Secondary TOD (300-1,000m)	0.7

Land use adjustment	
Development type	Adjustment factor
Commercial/mixed-use	1.0
Residential	0.5
Social/public Housing	0.0–0.3

Phasing and market readiness adjustment	
TOD stage	Adjustment factor
Early-stage TOD	0.7–0.8
Mature TOD	1.0

Adjusted IIF rate formula

Adjusted IIF rate = Base IIF rate × Zone factor × Land use factor × Phasing factor

Example adjusted rate

For residential development in a secondary TOD zone, early stage:

Adjusted IIF rate = 1,000,000 VND/m² × 0.7 × 0.5 × 0.8 = 280,000 VND/m²

Application to individual projects

Project IIF = Chargeable GFA × Approved adjusted IIF rate

Inputs:

- Chargeable GFA = 20,000m²
- Approved adjusted IIF rate = 280,000 VND/m²

Project IIF = 20,000m² × 280,000 VND/m² = 5.6 billion VND

Option B – Zone-Based Flat Rate IIF

Predefined IIF rates by TOD zone and land use type.

TOD zone structure (illustrative)		
TOD zone	Typical definition	Accessibility level
Zone 1	Core TOD (≤300m from metro station)	Very high
Zone 2	TOD influence area (300-600m)	High
Zone 3	TOD support area (600-1,000m)	Medium

IIF rates by zone and land use (example figures for illustration only)			
TOD zone	Residential (VND/m ²)	Commercial (VND/m ²)	Mixed-use (VND/m ²)
Zone 1	2,500,000	4,000,000	3,200,000
Zone 2	1,800,000	2,800,000	2,200,000
Zone 3	1,200,000	1,800,000	1,500,000

Calculation examples

Example 1: Residential project in Zone 1

Inputs:

- TOD zone: Zone 1
- Land use: Residential
- Base FAR: 5.0
- Site area: 2,000m²
- Exempted GFA: 0

Zone-based flat rate IIF formula

IIF payable = Chargeable GFA (m²) × Zone-based IIF rate (VND/m²)

Step 1: Calculate chargeable GFA

Chargeable GFA = Total GFA – Exempted GFA = Site area × Base FAR – Exempted GFA

$$= 2,000\text{m}^2 \times 5.0 - 0 = 10,000\text{m}^2$$

Step 2: Apply flat-rate IIF

Flat-rate IIF (Zone 1, Residential) = 2,500,000 VND/m²

Step 3: Calculate project IIF

Project IIF = Chargeable GFA (m²) × Flat-rate IIF (VND/m²)

Project IIF = 10,000m² × 2,500,000 VND/m² = 25 billion VND

Example 2: Multi-use development with split GFA

Inputs:

- TOD zone: Zone 1
- Chargeable GFA total: 20,000m²
 - Residential: 12,000m²
 - Commercial: 8,000m²

Step 1: Apply IIF rates separately

IIF residential = 12,000m² × 2,500,000 VND/m² = 30 billion VND

IIF commercial = 8,000m² × 4,000,000 VND/m² = 32 billion VND

Step 2: Aggregate IIF

Project IIF = IIF residential + IIF commercial

Project IIF = 30 billion VND + 32 billion VND = 62 billion VND

Annex 3: International case studies for land value capture (LVC) instruments

The following international case studies highlight different approaches to implementing land value capture (LVC) within transit-oriented development (TOD) environments, underscoring the roles of government and private developers in delivering urban infrastructure.

Case study 1: New York Universal Affordability Preference (UAP)	
Location	New York City, USA
Development model	<ul style="list-style-type: none"> • Government-funded rail infrastructure and technical infrastructure. • Developer-financed commercial development and social infrastructure.
LVC tool utilised	<p>Developer incentive: Additional FAR for in-kind contribution</p> <p>Adopted in 2024 as part of the “City of Yes” reforms, New York City’s UAP is an as-of-right zoning mechanism that allows developers in medium- and high density residential districts to build more floor area in return for providing permanently affordable housing. Its central feature is a 1:1 floor area exchange, whereby each square foot of affordable housing constructed entitles the developer to one square foot of additional buildable floor area. To qualify, projects must deliver units averaging 60% area median income, and larger developments must include deeper affordability, with at least 20% of income-restricted units at or below 40% area median income.</p>
Case study 2: Singapore government land sales	
Location	Singapore
Development model	<ul style="list-style-type: none"> • Government-funded rail infrastructure, technical infrastructure and social infrastructure. • Developer-financed commercial development.
LVC tool utilised	<p>Lease and sale of public land</p> <p>Singapore’s TOD model relies on a clear public–private division of roles in which the government fully funds and delivers core infrastructure, including rail, technical and social infrastructure, while private developers finance and implement the commercial development around and above these nodes. The government undertakes long-term corridor planning and safeguards land for the station and technical infrastructure. When the rail alignment and station location are confirmed, selected land parcels are placed into the government land sales (GLS) programme. Developers bid for the GLS parcels based on the tender price that already captures the uplift created by the public infrastructure investment. Through this mechanism, the state captures land value increments upfront via land premiums, while developers assume responsibility for funding and constructing the commercial, residential and mixed-use components that shape the TOD environment.</p>
Case study 3: United Kingdom business improvement district levy	
Location	United Kingdom
Development model	<ul style="list-style-type: none"> • Government-funded technical infrastructure, social infrastructure and rail infrastructure. • Developer-financed commercial development.
LVC tool utilised	<p>Infrastructure improvement fee</p> <p>In the United Kingdom, a business improvement district (BID) levy is charged on businesses operating within a zone of influence to fund improvements to infrastructure. Projects and services delivered through a BID levy are supplementary to those provided by local authorities, and may include extra safety, cleansing and environmental measures. Businesses subject to the levy participate in a ballot to approve the BID, which can operate for a maximum term of five years. At the end of the term, the BID automatically expires and a new ballot must be conducted for the levy to continue.</p>

Case study 4: India land conversion charge

Location	India
Development model	<ul style="list-style-type: none"> • Government-funded technical infrastructure, social infrastructure and rail infrastructure. • Developer-financed commercial development.
LVC tool utilised	<p>Fee on land use change</p> <p>In India, conversion charges are collected when there is a change in land use categories. The fee is typically a one-off payment, calculated as either a fixed rate per square metre or a percentage of the land's market value, with the specific calculation method varying across states.</p>

Case study 5: Toronto density bonus in exchange for community benefits

Location	Toronto, Canada
Development model	<ul style="list-style-type: none"> • Government-funded technical infrastructure, social infrastructure and rail infrastructure. • Developer-financed commercial development.
LVC tool utilised	<p>Developer incentives: Increased height for financial contribution</p> <p>In Toronto, the Section 37 programme uses density in districts to create new infrastructure or improve existing infrastructure, recovering the cost of development impacts on community facilities. For the 21 Dundas Square development, the developer proposed to build a 39-storey building (123m high) in an area that permits a maximum building height of 61m. In exchange for that increase in height being approved, the developer agreed to a community benefits agreement that included a cash contribution of CAD 1,000,000, consisting of CAD 600,000 towards the restoration of historic buildings and CAD 400,000 towards capital street improvements within the immediate area. The developer was also required to spend at least 1% of the gross construction costs to provide and maintain public artworks on publicly accessible portions of the site.</p>

Case study 6: Hong Kong rail + property (R+P) framework

Location	Hong Kong, China
Development model	<ul style="list-style-type: none"> • Government-funded technical infrastructure and social infrastructure. • Developer-financed rail infrastructure and commercial development.
LVC tool utilised	<p>Sale of development rights</p> <p>Under the rail + property (R+P) framework in Hong Kong, the government plans rail alignments and designates station sites, granting the MTR Corporation (MTRC) the rights to develop or manage adjacent land parcels. MTRC captures the land value uplift created by transit investment by selling or partnering on these development rights with private developers. Proceeds from the sale of development rights are then reinvested to help fund the construction and operation of rail infrastructure, creating a self-financing model that integrates transit delivery with private sector-led commercial development.</p>

Case study 7: United Kingdom strategic investor participation

Location	United Kingdom
Development model	<ul style="list-style-type: none"> • Government-funded technical infrastructure, social infrastructure and rail infrastructure. • Developer-financed commercial development.
Relevance to LVC	<p>Strategic investor participation¹⁴⁵</p> <p>At the corridor level, the Elizabeth Line was funded through a variety of funding sources, including:</p> <ul style="list-style-type: none"> • UK government funding, London city government funding and funding from Transport for London (TfL): The Greater London Authority (GLA) raised funding against the projected income generated through the business rate supplement (BRS) and the community infrastructure levy (CIL). The low levels of borrowing and strong AA+ credit rating of GLA and TfL enabled them to secure financing at lower interest rates compared to other project finance instruments. Through a series of bond issues, TfL raised GBP 3.5 billion of debt with an initial tenure of 15 years. • Statutory charges, such as the BRS: The BRS was levied on properties with a rateable value (estimated annual market rent) of over GBP 55,000 per annum, ensuring that larger businesses would bear a larger share of the cost. • Developer contributions through the CIL and Section 106 agreements: Set between GBP 20/m² and GBP 50/m² depending on the area of the city, the CIL was structured as an additional levy on commercial and private residential development, with the funds earmarked for the Elizabeth Line. The levy at each location is determined at the time of planning approval, but is only payable on completion of the development. • Contributions from private organisations, like the Canary Wharf Group (CWG), Heathrow Airport, City of London Corporation and Berkeley Homes: At the station level, CWG played a pivotal role as a strategic investor by co-financing the construction of the Canary Wharf Crossrail station. CWG contributed approximately GBP 150 million towards the station's cost of GBP 500 million. In return, the government granted rights for CWG to develop Crossrail Place, a mixed-use development above the station that includes retail, leisure and public spaces, exemplifying value capture through over-site development. This approach not only helped defray infrastructure costs but also enhanced the station's integration with the surrounding commercial and residential precinct.

¹⁴⁵ This may be analogous to the approach being considered by Truong Hai Group (THACO) for Metro Line No. 2 (Tham Luong – Ben Thanh and Ben Thanh – Thu Thiem sections) and the Thu Thiem – Long Thanh railway line. According to media reports published in July 2025, THACO has proposed to undertake feasibility studies for these projects, either under an EPC (Engineering, Procurement and Construction) general contracting model or through direct investment.

Annex 4: Applications of LVC Principles for HCMC

Principle 1: Strategic Public Value Creation and Sustainable LVC Financing

- Given the large scale of metro investment and fiscal constraints in HCMC, LVC is an important financial instrument to recover a portion of the public investment benefits generated by mass transit and TOD-related infrastructure and close funding gaps without over-reliance on debt or state budgets. However, LVC should be applied as a supporting mechanism to TOD Development, rather than as a primary objective in itself.

Principle 2: TOD as a Multi-Objective Urban Development Instrument

- HCMC is experiencing rapid urbanisation, with a large and growing population placing increasing pressure on land use, mobility, and urban services. In this context, TOD should first optimise ridership, accessibility, and modal shift. Excessive LVC extraction may discourage appropriate densities or uses that generate transit demand but lower immediate land value (e.g. affordable housing, public services).

Principle 3: Alignment of LVC with TOD and Socio-Economic Development Objectives

- Maximising land value capture in isolation should not be an appropriate policy goal. LVC mechanisms must be designed and implemented to support broader TOD objectives and the socio-economic development priorities of Ho Chi Minh City, while balancing fiscal objectives with transport efficiency, social inclusion, urban quality, and long-term economic development.
- LVC design should reinforce, not distort, TOD planning, urban design, and socio-economic priorities.

Principle 4: Prioritising Value Creation Before Value Capture

- In HCMC, Land Value Capture shall follow, not precede, effective value creation. Public investment, planning, and regulatory actions should first optimise accessibility, TOD quality, urban liveability, and economic productivity. LVC mechanisms shall be applied only when land value uplift has been demonstrably created and can be captured

without undermining development feasibility or TOD outcomes.

- Urban, transport, and social value shall be optimised before land value is captured. Land Value Capture shall reflect a fair and proportionate share of value created, consistent with TOD effectiveness and long-term socio-economic development objectives.
- Investment in enabling infrastructure, services, and urban quality shall precede and underpin LVC mechanisms.
- Several metro stations in HCMC will require years to mature, premature or excessive LVC charges may discourage investment, delay station-area development, and weaken metro ridership outcomes.

Principle 5: Social Equity and Affordability as Core TOD Objectives

- In the context of HCMC where public transport is expected to serve a broad socio-economic spectrum, LVC instruments in Ho Chi Minh City should be designed and applied to promote social inclusion, equitable access to urban opportunities, and housing affordability within TOD areas. The application of LVC shall avoid disproportionate cost burdens on lower-income households, informal users, and small local businesses, and shall not lead to displacement or exclusion from well-connected, transit-served locations. Safeguards, phasing mechanisms, and exemptions may be applied where necessary to protect vulnerable groups, support incremental redevelopment, and maintain socio-economic diversity, while ensuring that long-term public value and affordability objectives are preserved.
- LVC mechanisms shall be structured to ensure that a portion of the value created through public investment in transit and urban infrastructure is reinvested in affordable housing, inclusive public spaces and infrastructure, and social services within or adjacent to TOD areas. Where higher development intensity or commercial benefits are granted, corresponding social obligations such as inclusionary housing contributions, community facilities, or affordability-linked development conditions shall be clearly defined, transparent, and enforceable.

Principle 6: Recognition of Uneven and Uncertain Land Value Uplift

- In HCMC, where TOD corridors often traverse areas with highly diverse socio-economic conditions, fragmented land ownership, and evolving regulatory frameworks, this principle implies the need for corridor-level and station-area-specific LVC strategies rather than a single citywide model. Authorities should integrate LVC design with land assembly, infrastructure phasing, and planning certainty to ensure that value capture supports, rather than destabilises TOD delivery. Recognising uneven and uncertain value uplift is essential to safeguarding project bankability, maintaining investor confidence, and achieving sustainable, inclusive transit-oriented growth.

Principle 7: Maintaining Market Viability and Private Sector Participation

- Effective TOD delivery in HCMC depends on sustained participation from the private sector. However, such participation is currently constrained by high financing costs, legal uncertainty in land valuation and pricing mechanisms, and prolonged and unpredictable approval timelines. An aggressive LVC approach may reduce actual revenues by suppressing investment activity, especially from institutional and strategic investors, and PPP developers. Therefore, LVC instruments shall be designed to ensure project feasibility, investment incentives, value creation, and risk-sharing balance between the public and private sectors.
- Property markets in HCMC are cyclical so LVC must be phased and aligned with prevailing market conditions.

Principle 8: Phased, Beneficiary-Based and Review-Based Land Value Capture

- Land Value Capture (LVC) in Ho Chi Minh City shall be designed and implemented as a phased, beneficiary-based, and review-based mechanism that supports Transit-Oriented Development (TOD) objectives while ensuring policy stability, social acceptance, and implementation feasibility.
- HCMC should initially target clear and high-capacity beneficiaries. LVC instruments should be transparent but periodically reviewed and refined to reflect the maturity of TOD development and lessons learned from implementation, ensuring long-term effectiveness, fairness, and alignment with TOD objectives.
- Threshold-based design aligns with HCMC's high proportion of small landholdings and informal or semi-formal developments. This reduces political

risk and preserves social legitimacy during early TOD implementation.

- This approach ensures that LVC in Ho Chi Minh City evolves in a controlled, predictable, and institutionally manageable manner, supporting long-term metro delivery and urban transformation without undermining investor confidence or public trust.

Principle 9: Balanced Use of One-Off and Recurring LVC Instruments

- Given the capital-intensive nature of HCMC's metro investments and their long operational and financial lifecycle, LVC instruments in HCMC shall be structured as a balanced and diversified portfolio that combines one-off value capture mechanisms with stable, recurring revenue streams derived from long-term land value appreciation, joint development arrangements, and Public-Private Partnership (PPP) models. A mix of upfront and ongoing LVC mechanisms should be applied to align cash flow needs with TOD development phases. This balance is essential to support both the upfront financing of transit and TOD infrastructure and the ongoing fiscal requirements for operations, maintenance, asset renewal, and incremental upgrading.
- As TOD in HCMC matures, authorities shall shift from reliance on land-sale revenues toward models that retain public participation in long-term land value appreciation. Greater use of joint development and PPP-based LVC instruments shall be pursued to strengthen fiscal resilience, improve project bankability, and ensure sustained sharing of TOD benefits over time.

Principle 10: Institutional Feasibility, Legal Certainty, and Implementation Capacity

- LVC instruments in HCMC should be designed and implemented in line with existing institutional capacity, legal framework, and governance arrangements, recognising that technically sound LVC concepts will fail if they exceed the administrative, legal, or coordination capabilities of implementing agencies.
- LVC mechanisms should be supported by clearly defined mandates, valuation methods, and inter-agency coordination arrangements, and sustained implementation capacity.

Principle 11: Reinvestment of LVC to Support TOD Outcomes

- Reinvestment should be ring-fenced and primarily directed to metro and TOD-related infrastructure and services, including station access and interchange facilities, pedestrian and cycling networks, last-mile connectivity, public spaces, and supporting urban services such as utilities, drainage, and social infrastructure within TOD areas. Priority should be given to investments that improve accessibility, safety, functionality, and liveability, and that directly enhance the effectiveness and attractiveness of transit-oriented environments.

Principle 12: Transparency, Accountability, and Continuous Improvement

- LVC instruments in HCMC should be designed and implemented with a high degree of transparency, accountability, and adaptive learning, recognising that public trust and long-term effectiveness depend on clear rules and visible outcomes. LVC mechanisms should be rule-based, publicly disclosed, and consistently applied, with transparent methodologies for valuation, charging, revenue allocation, and clear reporting and feedback mechanisms to enable continuous improvement and ensure alignment with TOD objectives over time.

Annex 5: Typical joint development models

No	JD Model	Description	Legal vehicle	Typical Application	Value capture mechanism (for public)	Risk allocation (key areas)	Pros	Cons
1	Land Contribution – Equity JVC	The State contributes land or land-use rights as equity, while the private partner contributes capital, development expertise, and project delivery capacity to establish a JVC	<ul style="list-style-type: none"> Joint Venture Company under Enterprise Law Land contribution in accordance with Land Law and Public Asset Management Law 	<ul style="list-style-type: none"> Station-adjacent mixed-use developments Depot-related real estate projects TOD precinct anchor developments 	<ul style="list-style-type: none"> State receives equity shares and dividends Potential capital gains from increased land value 	<ul style="list-style-type: none"> Public: land valuation and planning approval risk Private: financing, construction, and market risk 	<ul style="list-style-type: none"> Strong alignment of incentives High upside for public sector Suitable for large, high-value TOD sites and strategic metro stations and depots 	<ul style="list-style-type: none"> Requires transparent land valuation Longer approval and governance processes
2	Revenue-Sharing BCC	The State and private partner cooperate under a BCC without creating a new legal entity. The private party develops and operates commercial assets and shares revenues or profits with the State	<ul style="list-style-type: none"> Business Cooperation Contract under Investment Law 	<ul style="list-style-type: none"> Station retail and commercial spaces Underground commercial corridors Parking and TOD-related services 	<ul style="list-style-type: none"> Fixed revenue share (%) Minimum guaranteed payment plus upside sharing 	<ul style="list-style-type: none"> Public: limited risk exposure Private: development, operation, and revenue risk 	<ul style="list-style-type: none"> Simple and fast to implement No equity governance complexity Suitable for pilot TOD projects 	<ul style="list-style-type: none"> Limited public upside compared to equity models Less suitable for large-scale developments
3	Land / Asset Lease with Development Obligations	The State leases land or public assets to a private investor for TOD-compatible development, with defined development obligations and performance standards	<ul style="list-style-type: none"> Land lease under Land Law Public asset lease under Public Asset Management Law 	<ul style="list-style-type: none"> Park-and-ride facilities with commercial components Ancillary developments around stations Interim TOD developments 	<ul style="list-style-type: none"> Upfront lease payment Periodic land rent Performance-linked rent escalation 	<ul style="list-style-type: none"> Public: land readiness and regulatory risk Private: financing, construction, and market risk 	<ul style="list-style-type: none"> Clear ownership separation Predictable public revenue High legal clarity Suitable for pilot TOD projects 	<ul style="list-style-type: none"> Limited upside capture Requires careful rent calibration
4	Development Rights Sale / TDR	The State grants or transfers development rights (e.g. FAR, land-use conversion, air rights) to a private developer in exchange for payments or in-kind contributions	<ul style="list-style-type: none"> Administrative decision linked to land-use planning Implemented through JD agreement or land lease adjustment 	<ul style="list-style-type: none"> High-demand station areas with strong real estate market Air-rights above stations Intensification within TOD core zones Mixed-use conversion projects 	<ul style="list-style-type: none"> One-off development rights payment In-kind infrastructure or public facilities 	<ul style="list-style-type: none"> Public: planning and policy risk Private: development and market risk 	<ul style="list-style-type: none"> Strong LVC efficiency Direct link between value uplift and payment Compatible with FAR-based LVC (no double counting if designed properly) 	<ul style="list-style-type: none"> Requires strong planning control Sensitive to market cycles

No	JD Model	Description	Legal vehicle	Typical Application	Value capture mechanism (for public)	Risk allocation (key areas)	Pros	Cons
5	Public Facility-Linked Commercial Development	Private partner develops public facilities (e.g. station concourse, pedestrian links) and is granted rights to develop and operate adjacent commercial space	<ul style="list-style-type: none"> • BCC or JVC • Embedded within station development agreements 	<ul style="list-style-type: none"> • Integrated station complexes • Interchange hubs • Underground commercial spaces 	<ul style="list-style-type: none"> • In-kind provision of public facilities • Commercial revenue retained or shared 	<ul style="list-style-type: none"> • Public: service standards and integration risk • Private: construction and revenue risk 	<ul style="list-style-type: none"> • Strong TOD integration • Reduces upfront public investment • Enhances passenger experience 	<ul style="list-style-type: none"> • Complex interface management • Requires strong design control
6	Phased TOD Precinct Development JD	A long-term JD arrangement where TOD land is developed in phases, aligned with metro commissioning and market absorption.	<ul style="list-style-type: none"> • BCC or JVC • Embedded within station development agreements 	<ul style="list-style-type: none"> • Integrated station complexes • Interchange hubs • Underground commercial spaces 	<ul style="list-style-type: none"> • In-kind provision of public facilities • Commercial revenue retained or shared 	<ul style="list-style-type: none"> • Public: service standards and integration risk • Private: construction and revenue risk 	<ul style="list-style-type: none"> • Strong TOD integration • Reduces upfront public investment • Enhances passenger experience 	<ul style="list-style-type: none"> • Complex interface management • Requires strong design control

Annex 6: Typical public–private partnership models*

	PPP Model	Description	Typical Applications	Risk Allocation (key Areas)	Pros	Cons
User-pays	BOT (Build-Operate-Transfer)	Private builds, operates & collects revenue; transfers asset to government at end	Tolls, metro lines with farebox revenue, parking facilities	Private: Construction, Demand/Revenue, Financing; Operation Public: Permits/land	Strong private incentive to optimise performance; reduced fiscal burden; innovation in operations	Revenue risk if demand lower than forecast (e.g. metro ridership); complex tariff regulation; longer payback periods
	BTO (Build-Transfer-Operate)	Private builds & transfers asset to Govt immediately; then operates with user fees	Rail systems, toll bridges, some utilities	Private: Construction, Financing, Operation, Revenue Public: Early Asset ownership	Government retains ownership while unlocking private management; clearer asset control for government	Requires clear interface at transfer point; government responsibility for asset risk earlier; complex life-cycle maintenance planning
	O&M (Operate & Maintain)	Private operates & maintains existing public asset; investment minimal	Bus depots, parking, terminals, ITS, smart systems	Private: Operation, Maintenance, Revenue Public: Construction	Enables performance focus without heavy private CAPEX; quick implementation	Limited private upside and risk transfer; performance contracts must be tight
Government-pays	BTL (Build-Transfer-Lease)	Private builds, transfers asset, then govt leases back for service delivery	Social infrastructure, non-revenue rail assets: <ul style="list-style-type: none"> • Metro depots in TOD corridors • Public plazas & pedestrian decks • TOD utilities & substations 	Private: Construction, Financing Public: Lease Payments, Demand, Usage	Government can spread cost over term; accelerates delivery; suitable for non-user fee assets	Government takes demand/usage risk; public budget commitments; contingent liabilities
	BLT (Build-Lease-Transfer)	Private builds and leases to govt during concession; then transfers free at end	Non-revenue assets like depots, stations, interchange facilities, ICT assets	Private: Construction, Financing Public: Lease payment, Shared based on O&M terms	Aligns private performance with service standard; predictable govt cost	Complexity in lease pricing; long-term fiscal exposure; asset hand-back condition issues

*Notes: Two models are excluded from the above table:

- The BT (**build–transfer**) model is a contractual arrangement in the Vietnam context under which private investors mobilise capital and construct public infrastructure. Upon completion, the asset is transferred to the State and the investor is compensated through various means including: (1) Land funds recovered in accordance with land law provisions, land funds managed by State agencies or organisations for implementing reciprocal projects; (2) State budget from public investment funds or from the state budget obtained after public auctions of land use rights and public assets, accounted as revenue and expenditure in the state budget; (3) No payment required. According to Vietnam’s revised PPP regulations, the BT model is considered a type of PPP contract. However, land-for-infrastructure agreements under the BT model should be viewed as a special case, an exception in the context of Vietnam, rather than a standard PPP model.
- The BOO (**build–own–operate**) model is introduced in the PPP law but it is generally not suitable for TOD in HCMC because permanent private ownership limits government control over land use, TOD planning, TOD-related assets and long-term urban form, which are essential for integrated TOD.

Annex 7: Typical Integrated JD-PPP Models

No	Integrated JD-PPP Model	Description	Structure	Typical Application	Purpose	Value capture mechanism (for public)	Risk allocation (key areas)	Pros	Cons
1	Integrated Station PPP + Station Commercial JD	PPP delivers station infrastructure while JD captures retail, advertising, and parking through JD arrangements, allowing non-fare revenue to support station delivery and O&M.	<ul style="list-style-type: none"> • PPP contract for station works • JD agreement for station retail, parking, advertising • Revenue-sharing between SPV and public authority 	<ul style="list-style-type: none"> • Metro station structures and platforms • Underground concourses • Station retail, parking, advertising panels 	<ul style="list-style-type: none"> • Offset availability payments/ or User charge shortfall and improve fiscal affordability of stations • Reduce fiscal burden for station construction • Activate stations as TOD anchors 	<ul style="list-style-type: none"> • Commercial lease revenues • Station retail profit sharing • Embedded FAR uplift for commercial GFA (no double charge) 	<ul style="list-style-type: none"> • Private: Construction & O&M, Commercial demand • Public: Ridership demand; Land/legal 	<ul style="list-style-type: none"> • Low land complexity • Fast to implement • Strong non-fare revenue 	<ul style="list-style-type: none"> • Limited scale of value capture • Revenues sensitive to footfall quality
2	Station PPP + Air Rights JD	PPP delivers core station infrastructure, while JD monetises air rights through development rights sale	<ul style="list-style-type: none"> • PPP for station construction and O&M • Long-term air-rights lease or development concession • Profit-sharing or fixed land rent 	<ul style="list-style-type: none"> • Elevated or underground stations • Over-station mixed-use developments • Integrated podiums and towers 	<ul style="list-style-type: none"> • Capture significant TOD land value • Reduce public capital contribution • Promote compact, high-density TOD 	<ul style="list-style-type: none"> • Air-rights lease payments • Development profit sharing • FAR premium embedded in JD 	<ul style="list-style-type: none"> • Private: Construction & real estate risk, Market risk • Public: Planning & land assembly 	<ul style="list-style-type: none"> • Very high value capture • Strong TOD integration 	<ul style="list-style-type: none"> • High transaction complexity • Sensitive land valuation issues
3	Depot PPP + Phased TOD JD	PPP delivers depot infrastructure, while JD develops depot-adjacent TOD land in phases	<ul style="list-style-type: none"> • PPP for depot construction and O&M • JD with phased land release • Long-term land lease and revenue sharing 	<ul style="list-style-type: none"> • Rail depots and maintenance facilities • Over-depot residential or mixed-use • Park-and-ride and logistics facilities 	<ul style="list-style-type: none"> • Monetise underutilised public land • Finance non-revenue rail assets • Enable long-term TOD expansion 	<ul style="list-style-type: none"> • Phased land lease premiums • Development profit sharing • Embedded FAR uplift 	<ul style="list-style-type: none"> • Private: Construction & O&M, Market risk (phased) • Public: Land/legal 	<ul style="list-style-type: none"> • Lower political sensitivity • Flexible phasing • Strong financial viability 	<ul style="list-style-type: none"> • Less visible TOD impact initially • Complex engineering interfaces
4	Interchange PPP + Facility-Linked JD	PPP delivers interchange infrastructure, while JD integrates retail and commercial facilities where development value is driven by interchange accessibility	<ul style="list-style-type: none"> • PPP for interchange infrastructure (BTL / BLT) • JD for commercial and service facilities • Shared revenue pool 	<ul style="list-style-type: none"> • Metro-BRT interchanges • Bus terminals and parking structures • Retail, offices, hotels, logistics facilities 	<ul style="list-style-type: none"> • Maximise value at high-connectivity nodes • Reduce public funding requirement • Improve multimodal integration 	<ul style="list-style-type: none"> • Facility lease revenues • Parking and advertising income • Embedded FAR uplift 	<ul style="list-style-type: none"> • Private: Construction & O&M, Commercial demand • Public: Transport demand 	<ul style="list-style-type: none"> • Diversified revenue base • Strong place-making potential • Supports network efficiency 	<ul style="list-style-type: none"> • Design and phasing complexity • Requires strong coordination

No	Integrated JD-PPP Model	Description	Structure	Typical Application	Purpose	Value capture mechanism (for public)	Risk allocation (key areas)	Pros	Cons
5	TOD-Supportive PPP + Lease-Based JD	PPP delivers TOD-supportive infrastructure (e.g. park-and-ride), while JD leases ancillary commercial space	<ul style="list-style-type: none"> • BTL / BLT for infrastructure (not revenue-generating) • Long-term land lease JD • Lease payments earmarked for PPP support 	<ul style="list-style-type: none"> • TOD access roads • Pedestrian and cycling networks • Utilities and public realm • Adjacent TOD parcels 	<ul style="list-style-type: none"> • Deliver enabling infrastructure • Preserve public land ownership • Generate long-term public revenue 	<ul style="list-style-type: none"> • Fixed or indexed land lease payments • Ground rent linked to FAR uplift • No direct user charges 	<ul style="list-style-type: none"> • Private: Construction & O&M, Market risk • Public: Lease revenue risk, Policy risk 	<ul style="list-style-type: none"> • Simple and transparent • Politically acceptable • Strong public control 	<ul style="list-style-type: none"> • Lower upside than profit-sharing JD • Slower revenue realisation
6	Corridor-Based Integrated JD-PPP	PPP delivers phased infrastructure across a corridor, while JD aggregates land value capture across multiple TOD sites	<ul style="list-style-type: none"> • Corridor-level PPP contract • Multiple JD sub-agreements • Central SPV managing pooled cashflows 	<ul style="list-style-type: none"> • Rail systems • Stations, depots, interchanges • Multiple TOD precincts 	<ul style="list-style-type: none"> • Achieve system-level financial viability • Coordinate corridor-scale TOD • Reduce reliance on public subsidies 	<ul style="list-style-type: none"> • Aggregated development profits • Land lease revenues • Corridor-wide FAR uplift 	<ul style="list-style-type: none"> • Private: Construction & O&M, Market risk • Public: Demand & policy risk 	<ul style="list-style-type: none"> • Maximises total land value capture • Strategic TOD coordination • Long-term sustainability 	<ul style="list-style-type: none"> • Very high complexity • Strong institutional capacity required

Annex 8: A GEDSI, Climate, and Sustainability Guidelines Compliance Checklist

Based on the above GEDSI, Climate and Sustainability Guidelines a Compliance Checklist is recommended to serve as a mandatory “gate” for project approval. This checklist operationalises the core principles of “Building a Resilient Future” and “Social Inclusion” as mandated by Government Regulations, including but not limited to Resolution 38 and QCVN 01:2021/BXD.

TOD Compliance Checklist: Climate and Social Integration

Category	Mandatory Requirement	Technical Specification / Legal Basis	Compliance (Y/N)
1. CLIMATE RISK	Flood Risk Assessment (FRA)	Conduct FRA using latest MONRE scenarios and InSAR maps to identify hotspots (>1cm/year subsidence).	
	Design Flood Frequency	Set to P=1-2% for special urban areas.	
2. ELEVATION	Minimum Ground Elevation	Controlled elevation \geq Flood Level + 0.3m (Residential) or +0.5m (Industrial).	
	Critical Asset Protection	Station entrances, substations, and signal rooms must be +0.5m to +1.0m above flood levels or use automatic barriers.	
3. SPONGE CITY	Permeable Surfaces	Use for at least 50% of non-traffic public realm (plazas, walkways).	
	Green Roof Incentive	Apply 2:1 conversion: 2m ² of accessible rooftop green = 1m ² of required land-based green space.	
	Water Retention	Allocate land for regulatory lakes/basins to store excess rainwater during high tide/heavy rain.	
4. SUBSIDENCE	Groundwater Restriction	Strictly enforce bans on groundwater extraction; monitor de-watering during underground construction.	
5. GEDSI ACCESS	Universal Design	Full compliance with QCVN 10:2024/BXD (Ramp slope \leq 1/12, elevator door width \geq 900mm).	
	Continuous Travel Chain	Ensure barrier-free path from sidewalk \rightarrow concourse \rightarrow fare gates \rightarrow platforms \rightarrow trains.	
	Safety by Design	Eliminate “blind spots” and provide adequate lighting for perceived safety (women/children/older persons).	
6. SOCIAL EQUITY	Essential Services	Provide healthcare, schools, and markets within an 800-1,000m walking radius.	
	Affordable Housing	Allocate a minimum proportion of social/affordable housing within TOD boundaries.	
	Vulnerable Resettlement	Prepare lists of renters/informal workers for fair resettlement near original locations.	
7. FINANCE/GOV.	Value Capture (LVC)	Use 100% of retained land value revenue to fund non-revenue resilient infrastructure (drainage/parks).	
	Contractual Binding	Include flood resilience and GEDSI KPIs directly in PPP/O&M contracts and tender documents.	

Implementation and Monitoring Requirements

- **Approval Gate:** The **HCMC Department of Construction (DOC)** must verify compliance with the “high climate resilience” principle before submission to the City People’s Committee.
- **The “Stage-Gate” Process:** This checklist should be applied at three specific milestones: **Pre-FS** (Risk Identification), **FS/FEED** (Technical Specifications), and **Tender** (Contractual Obligations).
- **Operational KPIs:** Operators must maintain an “Accessibility Backbone,” with **elevator uptime** and response times for accessibility incidents included as mandatory performance metrics.
- **Meaningful Participation:** Targeted consultations, including **safety walks** and **wheelchair/stroller audits**, must be conducted (minimum two activities per station).
- **Data Integration:** All risk data and approved plans must be updated into the **National Construction Planning Database** (Decree 178/2025).

Think of this checklist as the “**Resilience and Equity Seal of Approval.**” Without every seal in this list, from the elevation height to the social housing quota, the project cannot “cross the border” from a design concept into a legally approved construction plan. It ensures that the project isn’t just a high-density or compact urban development, but a safe and inclusive “haven” for the city’s future

Annex 9: Assessment Criteria for urban design

A. Access & connectivity

(Pedestrian priority – station accessibility – first/last mile)

- Does the design improve, prioritise, and optimise pedestrian access to the station?
 - Are pedestrian routes continuous and convenient?
 - Are the pedestrian walkways, which pass through diverse spaces and are always in use, safe?
 - Do pedestrian routes pass through block cores to ensure the shortest walking distances?
 - What percentage of pedestrian routes is covered or shaded?
- Are first-mile and last-mile support facilities sufficient and appropriate?
 - Are sustainable modes such as bicycles, feeder buses, and motorcycles connecting to the station adequately accommodated? Is there a contingency plan to increase capacity when demand rises?
 - Do inter-regional hub stations provide appropriate parking services?
 - Is there good connectivity with open spaces, activity corridors, streets, and service areas?
 - Are pedestrian and cycling routes shaded? What percentage of route length is shaded?
- For stations functioning as transport hubs or specialised centres, are appropriate solutions provided to accommodate transport connectivity requirements and the operational scale of such centres?
- Are activities at underground, ground, and elevated levels well connected to one another and to the spaces surrounding the station?

B. Density & urban form

(Intensity, FAR, building form, compact development)

- Do the building form and spatial layout comply with the principle of development intensification toward the public transport station, with high FAR in the TOD core and primary TOD zone?
- Does the FAR meet or exceed the maximum allowable FAR prescribed by the Vietnamese Construction Standards and meet the recommended FAR for the TOD area?

- If building height controls are applied, what is the rationale for such height limitations?
- Do distances between buildings comply with Vietnamese Construction Standards requirements, and is the gross (aggregated) building coverage ratio of urban blocks defined by sub-area-level roads or higher limited to less than 50%?
- Do building form regulations within the TOD area support multifunctional and flexible use of buildings?

C. Public realm & place quality

(Public space, ground floors, landmarks, legibility, vitality)

- Are public spaces legible, safe, and comfortable for transit users?
- Do major public spaces have at least one active edge/frontage facing streets rather than vehicular corridors?
- Is there a public square or public park around the station that functions as a central civic space and is integrated with the station?
 - Is the public open space system diverse and well connected?
 - Does the proportion of public open space meet recommended standards?
- Are building setbacks, ground-floor spaces, and podiums designed to support vibrant, multifunctional activities along major streets?
- Are podiums and ground floors pedestrian-friendly, avoiding conflicts with vehicular movement, and providing diverse activities directly connected to sidewalks at different times of the day?
- Are there landmark buildings?
- Are the TOD core, major streets, and landmarks visually recognisable and effective in attracting and guiding pedestrian flows toward the station?
- Do they support active use during both daytime and nighttime?
- Are elevated spaces used effectively and appropriately, contributing to the overall value and spatial quality of the TOD area?

D. Sustainability & climate responsiveness

(Environmental performance, resilience, long-term operation)

- Are buildings designed to meet sustainability criteria?
 - Green roofs and greenery integrated into buildings
 - Stormwater collection and management systems
 - Flood mitigation and climate change adaptation measures
 - Urban heat island mitigation strategies
- Are management and operation arrangements convenient and sustainable over the long term?
- Does the construction and use of underground spaces meet safety requirements and ensure good connectivity?

E. Inclusion & social mix

(Universal access, housing diversity, heritage integration)

- Is the wayfinding system visible, clear, and inclusive (for people with disabilities, the elderly, and children)? Is it convenient for pedestrians and public transport users?
 - Does housing within the TOD area ensure diversity and a balanced mix of housing types?
 - What is the proportion of each housing type?
- Where are social housing and affordable housing located, and do they ensure convenient access to public transport and social infrastructure?
- Are there heritage buildings within the area, and are they integrated into the activities and spatial structure of the TOD area, contributing to its overall value?
- Does the spatial planning and urban design of the TOD area allow for multiple development projects of different scales to be implemented at different times, including small-scale projects or standalone buildings?

Annex 10: TOD Corridor Assessment Template

This TOD Corridor Assessment Template shall be used by planning authorities, transport agencies, and project proponents to assess compliance with the TOD Guidelines at corridor screening, TOD plan preparation, and corridor-level development stages.

A. PROJECT OVERVIEW

A1. General Corridor Information

Item	Description / Status
Station Name	
Metro Line / Corridor	
Station Role (Interchange / Terminal / Local / Special Hub)	
Assigned TOD Typology	
Planning Stage	
Proponent	
Date of Assessment	
Reviewing Authority	

A2. TOD Typology and Influence Zones

A2.1. Assigned TOD Typology

- City Core Centre Sub-centre / Economic Centre
- Suburban Centre Renewal Development Area
- Station Node Enhancement Special Functional Hub

A2.2. Justification

Zone	Common Layers	Confirmed	Adjusted layers (if any)	Justification for adjustment
Core Zone	0-300m	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Primary Zone	300-600m	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Extended Zone	600-1,000m	<input type="checkbox"/> Yes <input type="checkbox"/> No		

A2.3. Land, Finance and Implementation Readiness

Item	Description / Status
Land ownership clarity	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Redevelopment sub-zone	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Renewal sub-zone	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Beautification sub-zone	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Public land – ready to acquire for development	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Compulsory purchase land acquisition area (involuntary)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
75% consent land acquisition enable area (involuntary) or pure voluntary acquisition – (consensus)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Need/opportunities for land reorganisation ¹⁴⁶ /readjustment	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
LVC / joint development, land swap & other LVC tools potential areas (TDR, IIF etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Phasing strategy defined	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Key delivery risks identified	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

B. STEP BY STEP TOD CORRIDOR PLANNING

Step 1. TOD Objectives & KPIs for HCMC

Establishing TOD objectives and KPIs:

- Public Transport Usage Rate & Modal shift
- TOD coverage population
- Flooding KPI
- Social housing KPI.

Key outputs

Network/corridor TOD objectives, targets and KPI framework including baseline and target values

¹⁴⁶ Land reorganisation is normally use as a fast-track simplified readjustment with small group/single of land holder(s)/owner(s) occupying large plot(s) that direct negotiation backed by enforcing power instead of lengthy negotiation using consensus or 75% consent.

1.1. Transport management

Requirement	Core Zone	Primary Zone	Extended Zone
OT01 – Ridership uplift: Increase in corridor/station ridership vs baseline	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT02 – Mode share: Share of transport mode along corridor	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT03 – 1,000m coverage: % of population/jobs within 1,000m from stations	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

1.2. Land Use

Requirement	Core Zone	Primary Zone	Extended Zone
OT04 – Station-area growth share: % of new housing/jobs delivered in station areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT05 – Mixed-use balance: Mixed-use parcels in station areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT06 – Jobs–housing balance: Jobs-to-housing ratio in station area	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT07 – FAR delivered vs indicative: FAR delivered vs indicative by station typology	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT08 – Public space provision: Public realm area per capita within station areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

1.3. GEDSI and Climate

Requirement	Core Zone	Primary Zone	Extended Zone
OT09 – Affordable housing delivery: Affordable units and/or % of new supply in station areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT10 – Social facilities access: % residents within a 15-minute walk to schools/parks in station areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT11 – Universal and inclusive design: Compliance with inclusive design	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT12 – Flood resilience: Reduced flood exposure and/or compliance with flood-resilience measures	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT13 – Emissions reduction contribution: Estimated CO ₂ reduction from corridor-driven mode shift.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT14 – Climate-responsive urban development: Integration of climate-responsive planning principles including urban cooling, green infrastructure, walkability under tropical climate conditions and heat mitigation strategies.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
OT15 – Low-carbon mobility and development contribution: Contribution toward reduced transport emissions, active mobility uptake and low-carbon urban development objectives.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Step 2. Alignment Planning Level

Considerations of:

- The urban rail network and TOD under the overall transport master plan
- The integration between urban rail development and TOD implementation

Key outputs

- Inclusion of new lines to the urban rail network (if any)
- Modification of line alignments (if any)
- Identification of the station location along the investigated rail corridors

2.1. Transport Management

Requirement	Core Zone	Primary Zone	Extended Zone
NP01 – People & jobs accessibility: Prioritise alignments that maximise access to existing and planned population and employment catchments, with a focus on walkable access to stations and integration where needed.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
NP02 – Interchange & network connectivity: Strengthen connectivity with other public transport lines and modes (metro/bus rapid transit /bus corridors, regional rail, high-speed rail, airports), enabling convenient transfers and network legibility	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
ST01 – Catchment coverage & gaps: Optimise spacing to provide continuous coverage of walkable catchments and reduce gaps in access along the corridor.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
ST02 – Operations & travel time: Avoid overly short spacing that increases dwell/acceleration penalties and reduces corridor speed and reliability, especially on longer corridors where end-to-end travel time competitiveness is critical.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
ST03 – Interchange & feeder network logic: Use spacing that allows a coherent feeder hierarchy (bus/tram/shuttle and park-and-ride where appropriate) and supports strong interchange stations at strategic nodes.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

2.2. Land Use

Requirement	Core Zone	Primary Zone	Extended Zone
NP03 – Land-use compatibility & development opportunity: Favour alignments that unlock development and regeneration opportunities (brownfields, underutilised/conflict use of land, renewal areas) and support planned growth areas, while managing displacement risks with short- and long-term transformation strategies	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
ST04 – Urban structure & land-use alignment: Align station locations and spacing with urban centres, activity hubs, redevelopment/renewal areas and major trip generators (universities, hospitals, central business district/sub-centres), rather than purely geometric spacing.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

2.3. Urban Design

Requirement	Core Zone	Primary Zone	Extended Zone
NP04 – Urban integration & place-making: Ensure the alignment supports integration with the urban fabric (street network permeability, block structure, pedestrian continuity), avoids creating barriers and enables a high-quality station area public realm.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

2.4. GEDSI and Climate

Requirement	Core Zone	Primary Zone	Extended Zone
NP05 – Constructability & cost-effectiveness: Consider civil constraints and cost drivers (e.g. underground/viaduct, utilities relocation, right-of-way complexity), balancing capital cost with long-term corridor benefits and deliverability.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
ST05 – Investment cost: Recognise that stations are major cost items. Additional stations increase CAPEX and operating expenditure (OPEX) and may add complexity (including interchanges, vertical circulation and land acquisition)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
ST06 – Station-area deliverability: Consider land availability, parcel structure and implementation feasibility (including renewal complexity, resettlement and utility constraints)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Step 3. TOD Potential Assessment

TOD potential evaluation using the 3V approach: Node value; Location value; Market value

Key outputs

TOD potential assessment report for the investigated corridors:

- 3V scores + station typology: Node/Place/Market scores per station and a TOD potential class (e.g. high/medium/low).
- Priority ranking: shortlist of stations for early rollout vs longer-term phases.
- Gaps and action focus: identify whether the constraint is Node, Place, or Market, and the key improvement direction.

3.1. Transport management

Requirement	Core Zone	Primary Zone	Extended Zone
V01 – Degree centrality: Number of public transport lines transferring at the station	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V02 – Closeness centrality: Average distance (number of links) from one station to all other stations in the network	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V03 – Betweenness centrality: Extent to which a station lies on the connecting paths between central stations	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V04 – Daily ridership: Number of passengers boarding/ alighting at the station per day (excluding through passengers)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V05 – Intermodal diversity: Number of public transport modes connected to the station	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Requirement	Core Zone	Primary Zone	Extended Zone
V06 – Density of street intersections: Number of street intersections/km ² within an 800m radius of the station	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V07 – Local pedestrian accessibility: Percentage of the area within 1,000m that can be accessed within a 10-minute walk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

3.2. Land Use

Requirement	Core Zone	Primary Zone	Extended Zone
V08 – Diversity of uses: Number of land-use types in the area	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V09 – Density of social infrastructure: Number of cultural, educational and healthcare facilities within 1,000m of the station.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V10 – Human density: Number of residents and jobs/km ² within 1,000m of the station.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V11 – Jobs/residents ratio: Ratio of jobs to residents within 1,000m.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V12 – Human density growth potential: Projected population and employment growth rate over 10–20 years.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V13 – Average income: Average per capita income within 1,000m	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V14 – Share of managerial-level residents: Share of managerial-level residents in total population within 1,000m.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V15 – Number of accessible jobs by transit: Number of jobs reachable within 30 minutes by public transport.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V16 – Real estate opportunities: Land and floor area available for development within 500m–1km of the station.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V17 – Dynamics of real estate development: An additional floor area constructed around the station during the past decade.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
V18 – Climate resilience and environmental performance potential: Opportunity for climate-responsive urban development including shaded walkability, green infrastructure integration, flood resilience and urban cooling performance.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Step 4. Identify the Initial TOD Boundary

Identify initial TOD boundary (outer boundary) which is used for further consideration of the details of the TOD areas.

Key outputs

- Report of existing land situation in the studied areas (Land use, FAR, Pop density, related approved projects, related existing plans).
- Report of the development possibilities that shows developable/redevelopable lands (including public-owned land).
- List of stations that are not yet considered for TOD, only station accessibility improvement is required (if any).
- List of stations that are considered for TOD.
- Approval of the initial TOD boundary identification (for stations within the investigated corridors).

4.1. Transport management

Requirement	Core Zone	Primary Zone	Extended Zone
IB01 – Street network and performance: A boundary must reflect true walk/cycle accessibility on the ground.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
IB02 – Physical constraints: Adjust for barriers such as canals, highways, rail yards and major intersections.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
IB03 – Node value: Scale the boundary to station connectivity, ridership and interchange role.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

4.2. Land Use

Requirement	Core Zone	Primary Zone	Extended Zone
IB04 – Land availability and ownership: Include realistic developable areas and map public/private land.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
IB05 – Urban development status: Reflect stability versus redevelopment potential and project readiness.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
IB06 – Population and jobs: Capture meaningful existing/planned demand to support ridership and services.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
IB07 – Place value: Target areas where place quality and improvements can be concentrated.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
IB08 – Market value: Avoid over-extending into low-feasibility areas.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

4.3. GEDSI and Climate

Requirement	Core Zone	Primary Zone	Extended Zone
IB09 – Culture and heritage: Protect heritage assets and leverage place identity.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Step 5. Classify TOD typologies

Based on land characteristics, TOD potential evaluation, development possibilities, identify suitable development typologies for stations.

Based on typologies, assign development KPIs to stations

Key outputs

- List of stations with typologies (among 6 types and possibly their combinations) and assigned KPIs

Step 6. Define the Development Positioning

Based on the station typologies, and the upper-level masterplan, conduct an initial market positioning analysis to define the potential development positioning of TOD area along the corridor; Coordinate with Market and Real Estate Studies, and LVC mechanism.

Key outputs

- Preparation of TOD call for investment (TOD typologies, Assigned KPIs, LVC/financing mechanisms, Financing policies and supporting policies) and relate discussions.
- List of stations with tentative projects and investment commitments.
- List of stations with development orientations (i.e. without committed projects).

6.1. Transport management

Requirement	Core Zone	Primary Zone	Extended Zone
DP01 – Transport infrastructure and services: Define the required transit supply and access system to support the intended TOD function.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

6.2. Land Use

Requirement	Core Zone	Primary Zone	Extended Zone
DP01 – Transport infrastructure and services: Define the required transit supply and access system to support the intended TOD function.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
DP02 – Density and intensity gradient: Set the target density/FAR pattern, typically highest at the station core and stepping down toward surrounding areas.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
DP03 – Aboveground and underground development potential: Identify feasible opportunities above grade and below grade and define controls to enable them.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
DP04 – Accessibility to open spaces: Specify open space access and public realm priorities	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
DP05 – Climate-responsive and low-carbon development positioning: Development positioning incorporates climate-responsive urban design, low-carbon mobility integration, environmental sustainability and resilient public realm objectives.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

6.3. Investment and financing model

Requirement	Core Zone	Primary Zone	Extended Zone
DP05 – Financing models & investment opportunities: Identify feasible public/private delivery and funding options aligned with the positioning and phasing.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Step 7. Prioritisation of TOD and Phasing Strategies

Based on typologies, positioning, and the level of development difficulty, the city development conditions and available fundings, conduct:

- A prioritisation assessment to identify prioritised TOD corridors and related phasing strategies.
- An integrated development program
- List of committed TOD projects.

Key outputs

- Report of TOD development strategies along the investigated corridors with phasing and priorities, LVC mechanisms and supporting policies.
- Integrated investment plan between urban railway network and TOD implementation.
- List of committed projects with financing policies and investment agreements.

7.1. Transport management

Requirement	Core Zone	Primary Zone	Extended Zone
PS01 – Railway development phasing: Sequence corridor/line delivery based on network role, constructability, budget constraints and operational readiness.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Requirement	Core Zone	Primary Zone	Extended Zone
PS02 – Urban development phasing: Sequence TOD and urban development around stations based on station typologies, land and infrastructure readiness, market demand, infrastructure capacity and funding availability.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

C. RESULTS AND NEXT STEPS

C1. Overall TOD Compliance Summary

Category	Rating
Typology alignment	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Influence zone application	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Land, Finance and Implementation Readiness	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Step 1. TOD Objectives & KPIs for HCMC	
Transport Management	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Land Use	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
GEDSI and Climate	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Step 2. Alignment Planning Level	
Transport Management	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Land Use	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Urban Design	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
GEDSI and Climate	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Step 3. TOD Potential Assessment	
Transport Management	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Land Use	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Step 4. Identify the Initial TOD Boundary	
Transport Management	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Land Use	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
GEDSI and Climate	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Step 5. Define the Development Positioning	
Transport Management	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Land Use	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Step 6. Prioritisation of TOD and Phasing Strategies	
Transport Management	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail

C2. Decision and Next Steps

Decision: Proceed Proceed with Conditions Revise and Resubmit Not Supported

Key Conditions / Actions Required:

- 1.
- 2.
- 3.

Reviewed by (Name / Agency / Date)

Annex 11: TOD Station Assessment Template

This TOD Station Assessment Template shall be used by planning authorities, transport agencies, and project proponents to assess compliance with the TOD Guidelines at corridor screening, TOD plan preparation, and station-level development stages.

A. PROJECT OVERVIEW

A1. General Station Information

Item	Description / Status
Station Name	
Metro Line / Corridor	
Station Role (Interchange / Terminal / Local / Special Hub)	
Assigned TOD Typology	
Planning Stage	
Proponent	
Date of Assessment	
Reviewing Authority	

A2. TOD Typology and Influence Zones

A2.1. Assigned TOD Typology

- City Core Centre
 Sub-centre / Economic Centre
 Suburban Centre
 Renewal Development Area
 Station Node Enhancement
 Special Functional Hub

A2.2. Justification

Zone	Common Layers	Confirmed	Adjusted layers (if any)	Justification for adjustment
Core Zone	0-300m	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Primary Zone	300-600m	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Extended Zone	600-1,000m	<input type="checkbox"/> Yes <input type="checkbox"/> No		

A2.3. Land, Finance and Implementation Readiness

Item	Description / Status
Land ownership clarity	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Redevelopment sub-zone	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Renewal sub-zone	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Beautification sub-zone	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Public land – ready to acquire for development	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Item	Description / Status
Compulsory purchase land acquisition area (involuntary)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
75% consent land acquisition enable area (involuntary) or pure voluntary acquisition – (consensus)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Need/opportunities for land reorganisation ¹⁴⁷ /readjustment	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
LVC / joint development, land swap & other LVC tools potential areas (TDR, Infrastructure Improvement Levy IIF, etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Phasing strategy defined	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
Key delivery risks identified	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

B. STEP BY STEP TOD STATION PLANNING

Step 1. Identify planning objectives of TOD area; Optimise TOD Boundaries

Detail consideration to each of the TOD stations for TOD objectives and boundaries.

Key outputs

- Objectives of TOD areas at stations that are accepted for TOD development.
- Review in details of TOD boundary in association with further development of the committed projects.
- Modifications of TOD boundary, TOD station location (if any)

Step 2. Implementing Guidance from Typologies to different TOD layers

- Preparation of technical regulation for TOD plans (i.e. land-use, urban-design, transport, GEDSI, Climate and Social issues).
- Technical parameters should also consider climate-responsive urban design, pedestrian thermal comfort, urban cooling, environmental sustainability and low-carbon development objectives appropriate to the TOD typology and station role.

Key outputs

- Preparation of key technical parameters for TOD plan (for each type of TOD typologies, using TOD technical guidelines).
- Based on the key technical parameters, finalise the list of committed TOD projects.

¹⁴⁷ Land reorganisation is normally use as a fast-track simplified readjustment with small group/single of land holder(s)/owner(s) occupying large plot(s) that direct negotiation backed by enforcing power instead of lengthy negotiation using consensus or 75% consent.

2.1. Transport Management

Requirement	Core Zone	Primary Zone	Extended Zone
<p>TM01 – Fine-grain street network: Short blocks and frequent intersections enable direct, resilient walking/cycling and reduce detours.</p> <p>- Fine street layout: block size <150m (>45 blocs per sq-km) [ITDP recommends 110m]</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM02 – Complete streets and sidewalk design: Design for all users with safe sidewalks/cycleways, transit priority, greenery, and accessible, comfortable pavements.</p> <p>- Lanes for general traffic to take up no more than 45% of carriageway width</p> <p>- Trees to provide cooling shade on 75% of streets wider than 16m, with proper care</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM03 – Traffic management and traffic calming: Reduce speeds and cut-through traffic in TOD cores using proven calming measures.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM04 – Pedestrian priority: Continuous, safe, barrier-free routes with protected crossings and minimal delays to/from stations.</p> <p>- Continuous and at-grade pedestrian network including at-grade wheelchair accessible crossings at all intersections and every 200m</p> <p>- Direct, shaded, barrier-free pedestrian routes to station entrances within 250m</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM05 – Bus provision: Provide feeder/connector bus services with well-located stops and easy, sheltered interchanges.</p> <p>- All buildings within the TOD area to be located within 400m of a frequent bus route</p> <p>- Bus stops located every 200 – 400m depending on density</p> <p>- Bus terminal, or on-street bus stops located within 100m of the platform, 200m max</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM06 – Parking management and kerbside control: Limit and price parking; enforce kerbside rules to protect access and safety.</p> <p>- Pick up location for taxis provided located within 100m of the platform, and 200m max</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM07 – Cycle access: Connected cycling routes plus secure bike parking to expand station catchment.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM08 – Accessible station design: Step-free access, tactile guidance, clear info, and seamless links to surrounding sidewalks/crossings.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM09 – Integrated multi-modal connections: Coordinate rail–bus–walk–cycle–micromobility–taxi through layout, wayfinding, and conflict-free circulation.</p> <p>- Mode share, average across all TOD sites, of 40% public transport and 30% walk/cycle</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>TM10 – Freight management: Freight, deliveries and loading is managed to minimise the impact of freight upon congestion and to ensure streets are safe and comfortable for pedestrians. Permitted routes, timings and loading locations are prescribed. With measures to encourage freight consolidation and sustainable last mile delivery</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

2.2. Land Use

Requirement	Core Zone	Primary Zone	Extended Zone
LU01 – Preferable / non-preferable land-use types: Define land uses to encourage within TOD and those to restrict due to conflicts or low transit value.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
LU02 – Quota/cap to control overcrowding: Set caps on population, floor area, or specific uses to match infrastructure capacity and avoid overloading services.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
LU03 – Dedicated land for public + green space + heritage + social landmarks: Reserve land for parks, plazas, streets, and public facilities to secure liveability and public realm quality.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
LU04 – Target intensity / FAR: Establish desired FAR ranges by zone/station role to guide planned development intensity.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
LU05 – Land-use / space mix (layer/block/building level): Define mixed-use distribution across district layers, blocks, and buildings.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
LU06 – Height transition achieved: Apply step-down height rules from core to surrounding areas to manage skyline, sunlight, and neighbourhood fit.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

2.3. Urban Design

Requirement	Core Zone	Primary Zone	Extended Zone
UD01 – Orientation of overall spatial organisation: Define the overall layout and development direction to structure movement, views, and key activity anchors.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD02 – Three-layer spatial structure: Organise the area into layers with clear roles, intensity, and design rules.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD03 – Landscape as critical urban infrastructure: Use green/blue systems to deliver drainage, cooling, biodiversity, and comfort.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD04 – Building setbacks: Set minimum setbacks to secure sidewalks, trees, utilities, safety, privacy, and daylight.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD05 – Landscape along main corridors: Require continuous street trees, shade, and planting along primary streets to improve comfort and identity.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD06 – Central core landscape and public realm identity: Create a signature public realm in the core with consistent materials and character.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD07 – Open space system and minimum open space ratios: Define a connected open-space network and minimum open-space provision per plot/area.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD08 – Building coverage control: Limit building coverage to protect open space, ground permeability, access to sunlight, and microclimatic performance.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Requirement	Core Zone	Primary Zone	Extended Zone
UD09 – Promote higher Floor Area Ratio (FAR): Encourage efficient use of land through appropriate FAR, while controlling building coverage, setbacks, and spacing between buildings, and ensuring consistency with infrastructure capacity.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD10 – Building height, form, and microclimate: Control building height, orientation, setbacks, podiums, step-backs and massing to reduce overshadowing, improve natural ventilation, support urban airflow and enhance pedestrian thermal comfort. Urban form should contribute toward shaded walkability, human-scale public realm and favourable microclimatic conditions. For major TOD precincts, interchange stations and high-density development areas, microclimate assessment and/or environmental simulation should be undertaken during the master planning and concept planning stages.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD11 – Podium, building ground floors, and direct building connecting: Require podiums and ground floors to create active and vibrant frontages that are open, accessible, and well-integrated with the public realm through façade design, entrances, and services; integrate services and parking to support street activity, safety, and pedestrian attractiveness.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD12 – Permeable blocks and seamless connectivity: Provide direct, barrier-free links between station, blocks, and key destinations, avoid superblocks	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD13 – Block structure: Set block size and permeability standards for walkability, connectivity, and development flexibility.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD14 – Underground development and air rights: Regulate basements/underground links and above-station development rights to optimise land use.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD15 – Housing structure: Define housing types, tenure mix, affordability, and unit diversity to support inclusion and demand.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD16 – Identity – heritage – urban aesthetics / landmark buildings: Protect heritage and define landmark/identity elements to strengthen place character.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD17 – Wayfinding system: Establish a clear signage and legibility system for easy station and district navigation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD18 – Last-mile infrastructure and facilities (pedestrian + cycling + shared mobility): Provide safe, continuous sidewalks and cycle routes, secure parking, and designated shared-mobility/Pick-up – Drop-off areas to complete station access.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD19 – Safety and security: To ensure the creation of a safe, visible and no traffic conflict environment within the TOD area, fostering a sense of security and comfort for all user groups.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
UD20 – Sustainability and low-carbon development: Apply measurable climate-responsive and low-carbon urban design requirements including shaded pedestrian environments, tree canopy, stormwater management, passive cooling, energy efficiency, low-carbon materials, green infrastructure and emissions reduction strategies to improve environmental performance, resilience, thermal comfort and long-term sustainability of TOD precincts. Major TOD precincts should consider preparation of an indicative low-carbon precinct strategy integrated with transport, land use and public realm planning.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

2.4. GEDSI, Climate and Other requirements

Requirement	Core Zone	Primary Zone	Extended Zone
<p>CR01 – Mandatory risk assessment: Require a FRA combining climate scenarios and land subsidence to map high-risk zones.</p> <ul style="list-style-type: none"> - FRA: Conduct FRA using latest MONRE scenarios and InSAR maps to identify hotspots (>1cm/year subsidence). - Design Flood Frequency: Set to P=1-2% for special urban areas. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>CR02 – Flood resilient elevation: Elevate/protect ground levels and critical station assets for 1-in-100-year floods plus safety margins</p> <ul style="list-style-type: none"> - Minimum Ground Elevation: Controlled elevation >= Flood Level + 0.3m (Residential) or +0.5m (Industrial). - Critical Asset Protection: Station entrances, substations, and signal rooms must be +0.5m to +1.0m above flood levels or use automatic barriers. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>CR03 – “Sponge city” infrastructure: Integrate blue–green measures (retention, permeable surfaces) to reduce runoff at source.</p> <ul style="list-style-type: none"> - Permeable Surfaces: Use for at least 50% of non-traffic public realm (plazas, walkways). - Green Roof Incentive: Apply 2:1 conversion: 2m² of accessible rooftop green = 1m² of required land-based green space. - Water Retention: Allocate land for regulatory lakes/basins to store excess rainwater during high tide/heavy rain. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>CR04 – Heat mitigation & green incentives: Urban form must maximise green coverage to reduce the urban heat island effect. This includes street trees, green roofs, vertical greenery and shaded pedestrian. Apply the Green Roof Conversion Rate and prioritise a “Cooling Hierarchy” (passive design → green infrastructure → active cooling)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>CR05 – Microclimate assessment and urban cooling: Major TOD precincts, interchange stations and high-density development areas should assess pedestrian thermal comfort, solar exposure, shading, urban ventilation and urban heat island impacts during the planning and design stages. The assessment should inform building massing, public realm design, landscape strategies and active mobility networks to improve outdoor comfort and climate resilience.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>CR06 – Subsidence mitigation: Strictly enforce bans on groundwater extraction and monitor de-watering during underground construction</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>GEDSI01 – Housing & essential services: Affordable/social housing and essential services within 800–1,000m walk.</p> <ul style="list-style-type: none"> - Essential Services: Provide healthcare, schools, and markets within an 800-1,000m walking radius. - Affordable Housing: Allocate a minimum proportion of social/affordable housing within TOD boundaries. - Vulnerable Resettlement: Prepare lists of renters/informal workers for fair resettlement near original locations. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
<p>GEDSI02 – Public space & walkability: Continuous step-free walk network; accessible crossings (QCVN 10:2024/BXD).</p> <ul style="list-style-type: none"> - Safety by Design: Eliminate “blind spots” and provide adequate lighting for perceived safety (women/children/older persons). - Continuous Travel Chain: Ensure barrier-free path from sidewalk → concourse → fare gates → platforms → trains. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Requirement	Core Zone	Primary Zone	Extended Zone
GEDSI03 – Public transport connectivity: Accessible stops/interchanges with seating, wheelchair space, tactile, clear signs.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
GEDSI04 – Ramps & step-free access: Ramps meet minimum slope/width/landing and safety standards.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
GEDSI05 – Elevators: Accessible size/doors; Braille/contrast controls; audible announcements.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
GEDSI06 – Signage & wayfinding: Clear visual/audible/Braille guidance to accessible routes/services.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
GEDSI07 – Tactile paving, warning and guidance: Tactile/high-contrast guidance on routes and platform edges.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
GEDSI08 – Toilets & caregiver support: Accessible toilets + baby-changing (if provided) + low emergency call bell.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
GEDSI09 – Bus stops & interchanges: Step-free access, tactile/contrast, seating, wheelchair space, accessibility signage.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional
GOV01 – Contractual binding: Include flood resilience and GEDSI KPIs directly in PPP/O&M contracts and tender documents.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Conditional

Step 3. Preparation of TOD plan and TOD projects

- 3A-Preparation and Planning Approval (TOD Area);
- 3B-Define Opportunities for Station Area Integration (Projects level in Detail Plan)

Key outputs

- Full development of TOD plan for station: (i) Areas that have projects will be at detail plan level (1/500); (ii) Areas that do not have projects will be at zoning plan level (1/2,000).
- Finalise the LVC plan in the TOD areas including those applied to the committed projects (if any).
- Preparation of pre-feasibility studies of the committed projects (only to those requiring Pre-FS)

Step 4. Approval of TOD plan and Project plan

- Approval of TOD plan by The City Planning Appraisal Council (established according to Decree No. 1544/QĐ-UBND).
- Approval of Pre-FS of TOD projects by The City Public Investment Programs and Projects Appraisal Council (established according to Decree No. 3063/QĐ-UBND)

Key outputs

- Approval Decision for TOD plan
- Approval Decision of Pre-FS for TOD projects

Step 5. Project Implementation

- Assigning tasks between the city and participated partners/investors in the finalised projects

Key outputs

- Approval Decision of FS for TOD projects and their implementations
- Implementation supervision of TOD plan

C. RESULT AND NEXT STEPS

C1. Overall TOD Compliance Summary – Focus on Step 2. Implementing Guidance from Typologies to different TOD layers

Category	Rating
Typology alignment	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Influence zone application	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Land, Finance and Implementation Readiness	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Step 2. Implementing Guidance from Typologies to different TOD layers	
Transport Management	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Land Use	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
Urban Design	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail
GEDSI, Climate and Other requirements	<input type="checkbox"/> Pass <input type="checkbox"/> Conditional <input type="checkbox"/> Fail

C2. Decision and Next Steps

Decision: Proceed Proceed with Conditions Revise and Resubmit Not Supported

Key Conditions / Actions Required:

- 1.
- 2.
- 3.

Reviewed by (Name / Agency / Date)

