

Article

Proximity, Choice and Well-Being for Sustainable Cities Through Co-Created CalmMobility

Katarzyna Turon 

Department of Road Transport, Faculty of Transport and Aviation Engineering, Silesian University of Technology, Krasińskiego 8, 40-019 Katowice, Poland; katarzyna.turon@polsl.pl

Abstract

Proximity-based urban models, including the widely discussed 15 min city, aim to bring everyday destinations within a short walk, cycle, or shared-mobility trip, with promising benefits for well-being, public health, local economies, and low-carbon mobility. While the appeal of proximity is widely shared, far less is known about how to deliver and govern such neighbourhoods so that these benefits are realised, durable, and embraced by residents across the full range of their mobility needs. Implementation, public acceptance, and governance therefore remain comparatively under-examined. This article contributes an enabling governance approach for proximity-based, accessible neighbourhoods, centred on co-creation and on a rich, attractive menu of mobility options. Through a cross-disciplinary synthesis organised by the CalmMobility paradigm, a governance-posture lens that emphasises co-creation, sequencing, and readiness, it integrates evidence on proximity, accessibility, active travel, shared mobility, well-being, and low-carbon outcomes. The article argues that proximity and shared mobility widen the range of convenient and attractive options for everyday trips, and that this supports health, quality of life, and lower emissions. It also argues that these benefits are more likely to last under calm, co-created governance, which builds good options first and respects the freedom of residents to choose among all modes, including the car. To put the paradigm to work, the study introduces the Governance Compass and applies it to Paris, Barcelona, and Melbourne. The Compass was applied through a qualitative document analysis carried out by one analyst. It is offered as an exploratory tool that aims to make the reasoning open to inspection, not as a validated measuring instrument. Results are reported as ordinal bands, from Absent to Exemplary, and a 0 to 100 index is kept only as an illustration. The three cases show different patterns. In Paris and in the early Barcelona work, the documents set ambitious proximity goals but say much less about how change is paced, how residents shape it, and how choice is preserved, and these dimensions fall in the lower bands. In Melbourne, whose programme is still a pilot, the pattern is the reverse. The process dimensions are stronger there, but proximity itself is less developed. These bands describe the documents examined, not a fixed ranking of the three cities. Positioned as a constructive complement to the proximity-city agenda rather than a critique of it, the article closes with a cross-disciplinary research agenda spanning planning, transport, public health, and policy.



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1. Introduction

The spatial reorganisation of urban environments around proximity-based models, above all the “15 min city” concept, has gained significant traction in contemporary sustainable urban planning. This shift is frequently embedded within the broader agenda of smart-city development, where proximity is recognised as a critical enabler of smart mobility, digital governance, and data-driven urban management [1,2]. The basic premise of proximity-based models is to ensure that essential daily destinations, including workplaces, educational institutions, healthcare facilities, and leisure spaces, remain accessible within a short walking, cycling, or shared-mobility trip. The theoretical and empirical literature consistently associates such spatial configurations with a range of benefits. These include better public-health outcomes through increased active travel, improved psychological well-being, the revitalisation of local economies, and substantial reductions in transport-related carbon emissions [3–6]. As a result, proximity has become a central goal in many municipal sustainability strategies and smart-city frameworks worldwide [1,7].

Despite the widespread theoretical endorsement of proximity-based planning, an important gap remains in the practical mechanisms needed to deliver and govern such neighbourhoods well. Far less is understood about how to ensure that the anticipated benefits are realised, durable, and embraced by residents across the full spectrum of their mobility needs. Recent schemes in cities around the world have often met strong public resistance. Communities often frame this friction as an unjust loss of mobility freedom or as a form of spatial inequality that disproportionately affects peri-urban residents and individuals with complex care responsibilities [8,9]. This recurring pattern of resistance may reflect a basic limitation in current approaches, since spatial proximity alone is insufficient to guarantee a successful socio-technical transition. The processes of implementation, public acceptance, and the underlying governance posture remain comparatively under-examined in the existing literature [10,11].

Current scholarship on proximity-based urbanism is mostly focused on space and technology. Researchers have extensively documented the correlations between compact urban forms and improved public-health metrics, alongside the technological enablers of proximity such as Mobility as a Service integration and smart-infrastructure networks [2]. However, this technical focus tends to hide the complex social and political realities of urban transformation. A critical research gap emerges at the intersection of policy design and implementation. Existing studies frequently treat policy adoption as a linear process and may underestimate the systemic friction caused by top-down implementation strategies. Little research systematically analyses municipal strategic documents to determine whether proximity rhetoric is matched by governance practices that prioritise infrastructural readiness over abrupt regulatory restrictions [7]. Work on citizen participation also remains mostly shallow. Although co-creation is frequently cited as a normative best practice in the smart-city literature, empirical evaluations of its depth are limited, and the literature often fails to distinguish between tokenistic consultation and genuine collaborative governance [12,13]. Finally, prevailing narratives occasionally adopt a polarising stance that stigmatises private vehicle use and unintentionally alienates groups for whom the car remains necessary. Current research provides insufficient guidance on designing inclusive mobility transitions that respect freedom of choice while incentivising sustainable modes through attractive alternatives instead of punitive measures [14].

The proximity agenda has produced a large and fast-moving literature, and recent work has begun to shift from measuring proximity to asking how it is delivered and governed. Systematic reviews now catalogue the performance metrics and readiness indicators used to assess 15 and 20 min cities and record how difficult it is to turn proximity targets into implementable programmes across different contexts [15]. Comparative work

has begun to classify worldwide practice and to map where accessibility and mobility fall short of proximity goals [16,17], while other studies ask how far technology advances accessibility and well-being rather than delivering them on its own [18]. A parallel strand of critical scholarship reads proximity through equity and mobility-justice lenses and warns that interventions can entrench exclusion, gentrification or car-dependent anxiety when they are imposed instead of co-produced [8,9,11].

What this recent work leaves open is a transparent way to characterise the governance posture behind a proximity strategy and to compare postures across cities. Existing studies measure spatial access, rank readiness or critique outcomes, but they do not translate governance posture, that is, how sequencing, co-creation, framing and well-being measurement are handled, into a comparable, codifiable instrument. The CalmMobility paradigm was proposed to address this space [19], and it has so far been applied descriptively across seven smart-mobility cases in four world regions [20]; what is still missing is a scored, comparable diagnostic of proximity governance. Table 1 summarises these strands and the gap that each leaves open.

Table 1. Recent strands of proximity and mobility-governance research and the gap addressed by the Proximity Governance Compass.

Research Strand	Representative Recent Work	Primary Focus	Gap Left Open	How the PGC Responds
Proximity metrics and readiness	Carvalho et al. 2025 [15]; Pozoukidou and Chatziyiannaki 2021 [7]	Measuring spatial access and readiness for 15- and 20 min cities	Proximity treated as a measurement problem; the governance of delivery stays under-examined	Scores the governance posture, not only spatial access
Comparative and worldwide practice	Teixeira et al. 2024 [16]; Profiroiu et al. 2025 [17]	Classifying worldwide practice and mapping accessibility and mobility gaps	Compares outcomes and metrics, not the governance posture behind them	Provides a codifiable, transferable governance diagnostic
Critical and mobility-justice debates	Caprotti et al. 2024 [9]; Frago and Morcuende 2024 [8]; Martens 2016 [11]	Critiquing exclusion, gentrification and car-dependent anxiety	Risks identified, but not the governance conditions that avert them	Links posture (sequencing, framing, co-creation) to acceptance
Smart-city technology and participation	Popescu and Nicolescu 2025 [18]; Cardullo and Kitchin 2019 [13]; Arnstein 1969 [12]	The role of technology and the depth of citizen participation	Technology and participation assessed apart from proximity delivery	Embeds co-creation and framing as governance dimensions
CalmMobility (conceptual and descriptive)	Turoń 2025 [19]; Turoń 2026 [20]	Defining the paradigm; describing seven cases across four world regions	Not yet operationalised into a scored, comparable instrument	Operationalises it as the PGC and scores three proximity cases

To address these interconnected gaps, this article contributes an enabling governance approach for proximity-based, accessible neighbourhoods, organised around the Calm-Mobility paradigm. CalmMobility shifts the analytical focus from coercive, top-down restrictions toward collaboration, fluidity, and the reduction of systemic friction in urban transitions. The paradigm is anchored in three foundational pillars, summarised in Figure 1.

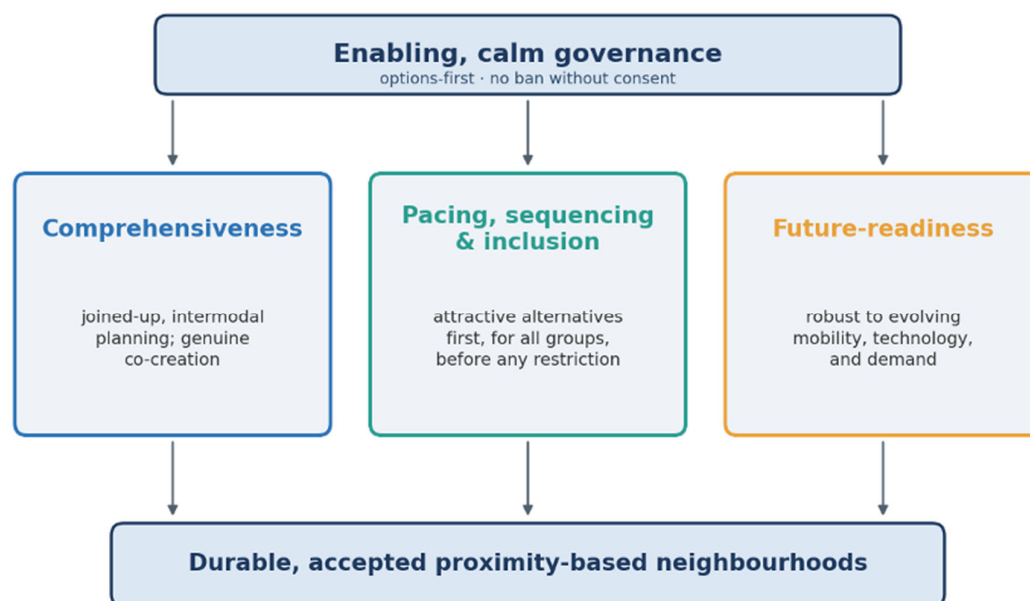


Figure 1. The three pillars of the CalmMobility paradigm and their role in enabling calm governance.

The first is comprehensiveness, which calls for joined-up, intermodal planning that treats land use, active travel, shared mobility, and the private car as parts of one system, and within which genuine co-creation gives residents a visible role in shaping the local menu of options. The second is pacing, sequencing, and inclusion, operating on the principle that attractive, high-quality alternatives are established, fully operational, and accessible to all groups before any restrictive measure is introduced. The third is future-readiness, which prepares neighbourhoods for evolving mobility technologies and demand so that present choices remain robust under uncertainty. Cutting across the three pillars is an overall commitment to calm. Under this options-first principle, the paradigm holds that restrictions should not be introduced without a credible substitute and a social mandate, so the private automobile is treated as one component within a broader, integrated ecosystem and not as a target for stigmatisation, and residents keep their freedom to choose among all modes.

Positioned as a constructive complement to the proximity-city agenda and not a critique of its foundational goals, this study employs a framework-based policy analysis. It systematically evaluates strategic mobility and urban-planning documents from three distinct international contexts, namely Paris (France), Barcelona (Spain), and Melbourne (Australia). These cases were selected because they represent globally recognised leaders in smart-city development and proximity-based urban planning, consistently ranking highly in international smart-city indices [21] while implementing ambitious proximity strategies with varying governance approaches [16]. By applying the CalmMobility lens to these documents, the analysis identifies specific gaps between proximity declarations and actual calm-governance practices. The article concludes by synthesising these findings into a cross-disciplinary research agenda spanning urban planning, transport engineering, public health, and policy studies, providing a structured roadmap for future empirical investigation of sustainable urban transitions.

2. Materials and Methods

This study employs a qualitative, framework-based policy analysis to evaluate the alignment between proximity-oriented urban planning and the principles of the CalmMobility paradigm. The deductive approach applies a structured analytical lens to real-world strategic documents. The methodology is intended to address the identified research gap

regarding the operationalisation of governance postures in smart and proximity-based cities, moving beyond theoretical declarations to assess actual policy design, participatory mechanisms, and the framing of mobility choices. The overall research workflow is summarised in Figure 2.

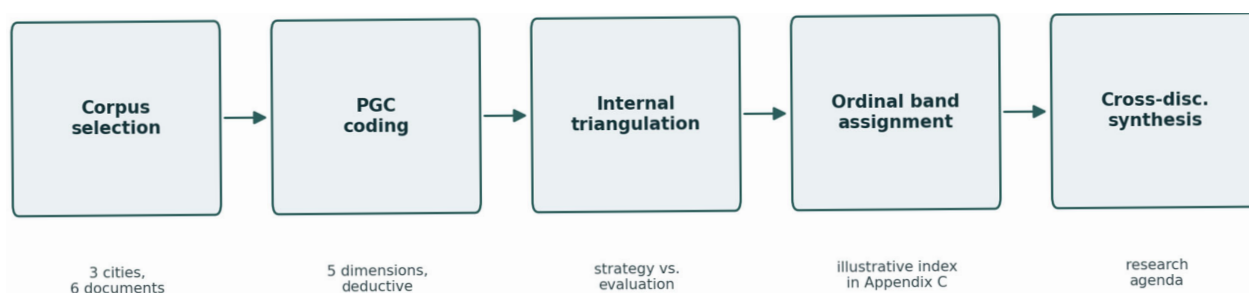


Figure 2. Research workflow, from corpus selection to cross-disciplinary synthesis.

The research uses a comparative case-study design covering three international cities, namely Paris (France), Barcelona (Spain), and Melbourne (Australia) [22]. These cases were selected on a “most different systems” logic, representing distinct governance cultures (centralised municipal mandate, neighbourhood-level activist planning, and state-level technocratic planning) while sharing a status as global leaders in smart-city development and proximity-based strategies [2,16].

Within this design, the three cities were chosen through purposive case selection rather than convenience, combining diverse-case and extreme-case logic so that the sample spans the range of governance postures of interest while holding broadly constant each city’s standing as an internationally recognised leader in proximity-based planning [23]. Paris and Barcelona represent prescriptive, restriction-led trajectories, whereas Melbourne represents an enabling, sequenced trajectory, and together, they bracket the contrast between spatial ambition and governance readiness that the Compass is built to detect. The study therefore pursues analytical generalisation, using the cases to probe and refine the framework, and not statistical generalisation to a wider population of cities [13]. The three cases also sit at different stages of implementation, an asymmetry that bears on the scores and is taken up in the limitations (Section 4.6). The selection criteria for each case are summarised in Table 2.

Table 2. Case-selection criteria for Paris, Barcelona and Melbourne.

City (Country)	Urban Form and Density	Governance Tier	Primary Proximity Strategy (Year)	Governance Posture Represented
Paris (France)	High-density European core	Centralised municipal mandate	Paris en Commun/15 min city (2020)	Prescriptive, restriction-led
Barcelona (Spain)	High-density European core	Neighbourhood-scale, activist-led	Superilla/superblocks (2019)	Prescriptive, restriction-led, with strong well-being measurement
Melbourne (Australia)	Low-density metropolitan	State-level technocratic planning	Plan Melbourne/20 min neighbourhood (2017)	Enabling, sequenced (pull-before-push)

To ensure analytical rigour and replicability, the study defines a specific policy corpus. For each city, two types of documents were selected. The first is the primary strategic framework outlining the proximity vision, and the second is the associated implementation,

evaluation, or participatory report. This dual-document approach allows for internal comparison of strategic intent against reported practice. The two documents per city were selected as the authoritative statement of the proximity vision and its principal implementation or evaluation record, following the inclusion and exclusion criteria set out in Appendix B; this deliberately compact corpus is a recognised limitation of an exploratory design (Section 4.6), and a broader corpus is a priority for confirmatory work. The analysed corpus consists of the following primary sources.

- Paris (France). Paris en Commun, a shared programme for a 15 min city [24], the foundational mayoral strategy outlining the spatial and mobility vision, and the Paris Climate Action Plan [25], the associated implementation document setting out the mobility, public-space and participation measures through which the vision is delivered.
- Barcelona (Spain). Superilla Barcelona, a new model for the city [26], the core strategic framework detailing the spatial reorganisation of nine-block clusters, and Health in the Streets, results report [27], the empirical evaluation of the first three superblock pilots, including environmental and social impact assessments.
- Melbourne (Australia). Plan Melbourne 2017–2050, metropolitan planning strategy [28], the state-level strategy formally defining the “20 min neighbourhood” concept, and 20-Minute Neighbourhoods, Creating a More Liveable Melbourne [29], the pilot-programme report setting out the findings and recommendations of the 20-Minute Neighbourhood Pilot Programme.

To systematically evaluate the corpus, the abstract principles of the CalmMobility paradigm [19] were operationalised into a structured diagnostic instrument, the Proximity Governance Compass (PGC). Unlike a static evaluation matrix, the Compass works as an orienting device that shows whether a city is moving toward enabling, choice-expanding governance or relying on restrictive, friction-generating mandates.

The operationalisation process followed established protocols for qualitative content analysis in urban-policy research, so that theoretical concepts are translated into observable, codifiable indicators [30,31]. The Compass was designed to look beyond simple keyword searches. It interrogates the underlying governance posture by examining how proximity is proposed to be achieved, and whether policies expand mobility choices through positive reinforcement or rely on punitive measures. The PGC comprises five core dimensions, which were iteratively refined based on the literature on mobility justice, participatory governance, and policy-implementation gaps [10,11,13]. The dimensions and their coding indicators are presented in Table 3. These five dimensions operationalise the paradigm’s three pillars. Proximity integration and co-creation express comprehensiveness, sequencing and readiness expresses pacing, sequencing, and inclusion, well-being measurement captures the durable, future-ready outcomes that future-readiness anticipates, and freedom of choice reflects the overarching, options-first commitment to calm.

Building on the qualitative coding, the Compass reports each dimension as an ordinal band and adds an illustrative 0 to 100 index underneath so that profiles can also be visualised and compared numerically. Each dimension is first classified into one of the five ordinal bands defined in Table 4 (Absent, Emerging, Partial, Strong, and Exemplary). These bands are the primary unit of interpretation throughout the paper. Cross-city comparisons are read at the level of bands, and the analysis draws substantive conclusions only from differences that correspond to a change in band. The illustrative 0 to 100 index that underlies the bands, the composite index, the governance alignment gap, and the weighting sensitivity analysis are defined and reported in Appendix C; they are not used as the basis for the comparison presented here.

Table 3. The Proximity Governance Compass (PGC).

Compass Dimension	Key Indicators for Document Coding	Expected Evidence in Policy Text
1. Proximity integration	Explicit mention of proximity concepts; integration of land-use and transport planning.	Strategic goals linking daily needs to short active or shared mobility trips.
2. Sequencing and readiness	Phasing of interventions; priority of pull over push measures.	Commitments to build infrastructure (e.g., mobility hubs, safe cycling networks) before restricting car access.
3. Co-creation and visibility	Depth of participation; mechanisms for feedback integration.	Documentation of co-design workshops and explicit statements on how public input modified the final plan.
4. Freedom of choice	Discursive framing of the private car; inclusivity of diverse mobility needs.	Language promoting choice and accessibility, acknowledging the car as a valid option within a broader ecosystem.
5. Well-being metrics	Definition of success beyond traditional transport KPIs.	Indicators related to public health, psychological well-being, noise reduction, or social equity.

Table 4. Proximity Governance Compass scoring scale.

Score Band	Level	General Meaning
0 to 20	Absent	No evidence in the documents, or explicit evidence contradicting the principle. Criterion: the dimension is not addressed in either document.
21 to 40	Emerging	The principle is mentioned but remains rhetorical, weakly developed, or contradicted by reported practice. Criterion: a principle is stated, but no mechanism, sequencing, or measurement supports it.
41 to 60	Partial	The principle is present and partly operationalised, but with notable gaps or only as a secondary concern. Criterion: some mechanisms or indicators are present but incomplete or inconsistent between strategy and evaluation.
61 to 80	Strong	The principle is clearly articulated and largely operationalised, with some documented implementation. Criterion: mechanisms are consistent and some outcomes are reported.
81 to 100	Exemplary	The principle is explicit, detailed, and operational, supported by documented implementation or, where the dimension concerns measurable outcomes, by empirical measurement. Criterion: the relevant mechanisms or framing are consistently evidenced across the corpus, with no substantial contradiction between strategy and reported practice.

Each dimension score is assigned on a five-level ordinal scale anchored to a 0 to 100 range, summarised in Table 4. The scale moves from an absent posture, where the documents show no evidence or evidence that contradicts the principle, to an exemplary posture, where the principle is explicit, operational, and backed by documented or measured outcomes. This five-level ordinal design follows established maturity-model and rubric-based assessment methods, in which qualitative judgements are anchored to explicit, ordered level descriptors rather than to precise scores; comparable five-level ordinal schemes are widely used to calibrate qualitative evidence and to assess governance and policy maturity [32–34].

The five bands rise in steps. Absent means the dimension is not addressed in either document. Emerging means the principle is stated as an aim, but nothing is in place to deliver it. Partial means some mechanisms or indicators exist, but they are incomplete, or the strategy and the evaluation do not agree. Strong means the mechanisms are consistent and some outcomes are reported. Exemplary means the dimension is fully worked through, and the evidence needed for that dimension is there. The full evidence descriptors for each band are given in Appendix B.

Because the five PGC dimensions capture different types of governance evidence, the highest band is demonstrated differently across dimensions. Outcome measurement is required for the well-being dimension, whereas sequencing, co-creation, and freedom of choice are assessed through documented implementation, traceable procedures, and consistent policy framing.

The placement of each document within a band follows three explicit decision rules. First, a dimension reaches a given level only when all the defining conditions of that level are met for the indicators listed in Table 3. Second, the exact value within a band is set by three factors, namely the number of Table 3 indicators present, the consistency between the strategic framework and its associated evaluation or participation report under internal triangulation, and whether outcomes are measured, not merely asserted. Third, where the strategic document and its evaluation report diverge, the score follows the reported practice, not the stated intention, since the paradigm concerns delivery and not declaration. Coding was carried out by a single analyst, and the study therefore does not report an inter-coder reliability statistic. Retaining the previously applied scoring anchors supports cross-study comparability, but it does not constitute external validation of the scale; future multi-coder and expert-panel applications should examine whether these anchors require recalibration. The PGC is positioned as an exploratory instrument designed to improve transparency and auditability, and not as a validated measurement. In place of a reliability coefficient, three features are meant to make the coding open to checking by others. First, the rubric in Table 4 and the descriptors in Table 5 fix the meaning of each band in advance. Second, the inclusion and exclusion criteria and the decision rules in the codebook (Appendix B) set out how evidence maps onto a band. Third, every band assignment is tied to a named passage of the source documents in the evidence table in Appendix A, so that any reader can trace it and argue with it. Independent, multi-coder application of this codebook, with a formal agreement measure such as Cohen's kappa, is the necessary next step in validating the instrument (Section 4.6), and not a claim made here.

To keep the scale transparent across cases, Table 5 records the concrete descriptors that distinguish a low score (Emerging or below) from a high score (Strong or Exemplary) within each of the five dimensions. These descriptors were the reference points used during coding.

The analysis was conducted through a structured, deductive thematic procedure. Each document in the corpus was systematically read and coded against the five dimensions of the PGC. Text segments were extracted and categorised according to the presence, absence, or nature of the specified indicators, and a score was then assigned to each dimension on the scale in Table 4. A critical step was the internal triangulation of documents within each city. For example, the strategic promises in the primary framework, such as Plan Melbourne, were compared against the community feedback and evaluation records, such as the pilot-programme guidelines, to identify discrepancies between rhetoric and practice. This approach aligns with established practice in urban-policy analysis, where framework-based coding is used to deconstruct complex governance narratives and identify implementation gaps [13]. The procedure allowed for the identification of patterns and

contradictions between rhetorical commitment to proximity and the practical application of calm, choice-expanding governance.

Table 5. Dimension-specific descriptors for low and high scores.

Dimension	Low Score (40 or Below)	High Score (80 or Above)
1. Proximity integration	Proximity appears only as a slogan, with no link to land-use or transport planning.	Proximity is the organising principle, coupling land use with active or shared mobility, with spatial metrics.
2. Sequencing and readiness	Restrictions are introduced at the same time as, or before, alternatives, with no readiness test.	Documented pull-before-push phasing in which alternatives and local improvements are implemented or piloted before restrictive measures are considered, with an explicit evaluation or review stage built into the process.
3. Co-creation and visibility	Participation is limited to cosmetic choices, core parameters are non-negotiable, and influence leaves no trace.	Documented co-design with explicit, traceable changes to the plan driven by resident input.
4. Freedom of choice	Polarising, anti-car framing positions the car as an obstacle to be removed.	Consistent non-punitive framing that avoids presenting car use as a target for elimination and instead seeks to reduce car dependency by expanding attractive local and multimodal alternatives, while recognising that different groups retain different mobility needs.
5. Well-being metrics	Well-being is treated only as an aspiration, with no measurement protocol.	Defined indicators and measured outcomes for health, air, noise, or cohesion, disaggregated where possible.

3. Results

The application of the Proximity Governance Compass to strategic documents from Paris, Barcelona, and Melbourne shows clear patterns in how proximity-based urbanism is governed. While all three cities show strong rhetorical commitment to proximity, significant variation emerges regarding sequencing, the depth of co-creation, the framing of mobility choices, and the integration of well-being metrics. The dimension scores, assigned with the scale in Table 4 and the descriptors in Table 5, are reported in Table 6 and presented below.

Table 6. Proximity Governance Compass dimension governance bands (Absent to Exemplary) for Paris, Barcelona, and Melbourne. The illustrative 0 to 100 index, composite, and governance alignment gap are reported in Appendix C.

Dimension	Paris	Barcelona	Melbourne
1. Proximity integration	Exemplary	Exemplary	Strong
2. Sequencing and readiness	Emerging	Emerging	Exemplary
3. Co-creation and visibility	Emerging	Emerging	Strong
4. Freedom of choice	Emerging	Emerging	Exemplary
5. Well-being metrics	Partial	Exemplary	Partial

Cities are reported by ordinal band (Absent to Exemplary), which is the primary basis for interpretation, and only differences in a full band are read as substantive. The illustrative 0 to 100 index, the composite, and the weighting sensitivity analysis are reported in Appendix C. The individual justification for every score is provided in Appendix A. The following subsections detail these findings across the five dimensions, using this internal comparison to identify gaps between strategic intent and reported practice.

3.1. Proximity Integration and Varying Spatial Specificity

All three cities explicitly integrate proximity concepts into their core spatial-planning frameworks, though with differing levels of operational precision. The Paris en Commun strategy positions the 15 min city (Ville du Quart d’Heure) as the central organising principle of the municipal mandate, explicitly coupling land-use zoning with active-mobility networks [24]. The document articulates a vision in which every resident can reach work, shopping, healthcare, culture, and leisure within a fifteen-minute walk or bike ride, establishing proximity as a non-negotiable spatial right [24].

The Superilla Barcelona framework similarly embeds proximity through the reorganisation of urban space into nine-block clusters, aiming to reclaim street space for pedestrians and cyclists while redistributing public space more equitably [26]. This ambition is consistent with earlier evidence on the importance of proximity environments for everyday mobility in Barcelona [35] and with the wider tradition of designing cities for people instead of vehicles [36]. The strategy shows high spatial specificity, detailing how superblocks are to be implemented across the Example district and beyond, with clear metrics for pedestrianisation and green-space creation.

Plan Melbourne 2017–2050 formally defines the 20 min neighbourhood as an 800 m walkable catchment that provides access to daily needs, employment, and services [28]. The integration appears less prescriptive than in the European cases and functions more as an aspirational principle within a broader metropolitan strategy than as a mandatory spatial reorganisation. The document emphasises communities where residents can meet most of their daily needs within a 20 min walk from home [28], while allowing greater flexibility in implementation across diverse suburban contexts. These differences are reflected in the high proximity-integration band for all three cities in Table 6, with Paris and Barcelona in the Exemplary band and Melbourne in the Strong band.

3.2. Sequencing and Readiness Across the Three Cities

The analysis points to a critical divergence in how cities approach the sequencing of interventions, with significant implications for public acceptance and systemic friction. Among the three cities, Melbourne comes closest to the pull-before-push principle and reaches the Exemplary sequencing band, illustrated in Figure 3.

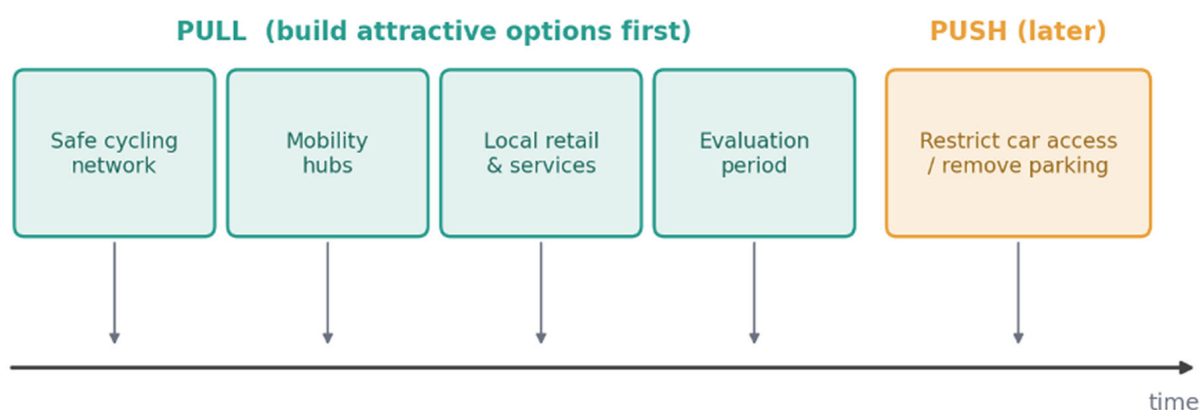


Figure 3. The pull-before-push sequencing principle.

The 20-Minute Neighbourhood Pilot Programme takes a place-based approach centred on community partnership and local amenity rather than on restrictive traffic measures; the programme report records “place-based planning is effective” and that “community partnerships are key to successful neighbourhood planning” among its headline findings [29], and the Sunshine West project applied this approach in practice [37]. In practice, the pilot delivered local amenity improvements such as pedestrian crossings and safety

measures, better street lighting, support for local shops and street trading, rather than imposing contested traffic restrictions [37]. By contrast, Paris and Barcelona exhibit patterns of simultaneous or inverted sequencing that the paradigm associates with systemic friction. The Paris en Commun strategy sets ambitious timelines for both alternative-infrastructure development and car-restriction implementation, with limited evidence of phased readiness testing [24]. It commits to creating about 180 km of additional protected cycle lanes by 2026 while simultaneously planning the progressive elimination of seventy per cent of on-street parking spaces [38], without clear mechanisms to verify that cycling infrastructure is fully operational and safe before parking is removed.

Barcelona shows a more complex trajectory. While the Superilla Barcelona framework acknowledges the need for progressive implementation [26], the empirical evaluation in the Health in the Streets report notes that, in practice, the participatory process was carried out after the main transformations had already taken place [27]. This temporal inversion, in which restrictive spatial changes precede both full infrastructure readiness and meaningful co-creation, runs counter to the CalmMobility sequencing principle and was documented alongside reported resident resistance, although the documents cannot establish a causal link. The contrast is captured by the Emerging sequencing band for Paris and Barcelona and the Exemplary band for Melbourne in Table 6.

3.3. Co-Creation and Visibility of Impact

The analysis finds a persistent gap between the normative ideal of co-creation and its practical execution across all three cases, though with varying severity. Among the three, Melbourne again reaches a higher band for genuine collaboration and visible impact. The pilot-programme documentation for Sunshine West records how resident priorities were carried into the neighbourhood's proposals [37]. The consultation record shows how resident priorities, such as pedestrian safety and street lighting, were carried into the neighbourhood's list of future opportunities [37], and the programme report notes that councils "reported that the overall relationship with the community had improved due to the partnership approach" [29], showing how input shaped both outcomes and process.

The Parisian and Barcelona models, by contrast, exhibit characteristics of tokenistic consultation that fall short of the collaborative-governance standard. Paris channels participation through a defined share of the budget rather than through co-design of the strategy itself. The climate plan commits "25% of the participatory climate budget" to citizen proposals [25], while the strategic parameters of the 15 min city are set by the municipality. The documents examined here evidence no resident influence over the core menu of mobility options or over the sequencing of interventions.

Barcelona shows the consequences of inadequate co-creation most starkly. While the superblock programme states that it aims to "promote citizen participation and co-responsibility" [27], the Health in the Streets evaluation acknowledges that the initial implementation in Poblenou proceeded with limited prior consultation, generating significant resistance from residents and local traders [27]. This governance gap manifested in tangible socio-spatial fragmentation, including the formation of the Affected by Superilla platform, where residents protested the lack of genuine collaborative governance and the perceived imposition of solutions without regard for their specific mobility dependencies [8]. Later implementations in Sant Antoni and Horta show attempts to improve participatory processes [39], yet the legacy of the initial top-down rollout continues to undermine public trust.

3.4. Freedom of Choice and Non-Punitive Framing

This dimension represents the most significant divergence between traditional proximity narratives and the CalmMobility paradigm, with major implications for public acceptance. The Compass requires policies to expand choices and to avoid the stigmatisation of the private vehicle. Melbourne aligns most closely with this principle. The Melbourne documents frame the concept as ‘living locally’, describing neighbourhoods where residents can access most daily needs locally “without needing a car” [29], rather than as places where car use is to be curtailed. The framing is one of removing the necessity of driving instead of restricting it, and neither document stigmatises the private vehicle or sets out measures to restrict it [28,29]. This non-punitive framing acknowledges the functional necessity of the car for certain groups, particularly those with care responsibilities, disabilities, or peri-urban residence, while focusing on positive reinforcement through expanded alternatives.

In sharp contrast, the discursive framing in Paris and early Barcelona documents frequently adopts a polarising stance that positions the private vehicle primarily as a pollutant and an obstacle to be removed. The Paris en Commun strategy frames car use as incompatible with the ecological transition and presents parking removal as reclaiming space from the tyranny of the automobile [24]. While such language may resonate with environmental advocates, it contradicts the CalmMobility principle of respecting diverse mobility needs and creates discursive conditions for resistance among residents who depend on cars for functional reasons.

The Superilla Barcelona framework similarly emphasises eliminating car traffic and ending the dominance of private vehicles [26], without positioning the car as one component within a broader, integrated ecosystem. While the more recent Health in the Streets report attempts to soften this framing by emphasising accessible and sovereign mobility for all [27], the legacy of early implementation, characterised by abrupt parking removal and traffic calming without adequate pre-tested alternatives, created a narrative of deprivation instead of choice expansion. This punitive framing works against the principle that sustainable transitions must respect freedom of choice while making alternatives genuinely attractive. The pattern is reflected in the Emerging freedom-of-choice band for Paris and Barcelona in Table 6, in contrast to Melbourne’s Exemplary band.

3.5. Well-Being Metrics and Empirical Measurement

All three cities recognise the link between proximity and well-being, but the operationalisation of this link varies considerably in sophistication and empirical rigour. Barcelona has the most advanced empirical tracking. The Health in the Streets report provides solid measured evidence of the superblocks’ impact, documenting, in the pacified Sant Antoni crossing, a statistically significant reduction in nitrogen dioxide of $14.6 \mu\text{g}/\text{m}^3$ (a 25 per cent decrease), a reduction in PM10 of $4.1 \mu\text{g}/\text{m}^3$ (17 per cent), and a fall in average daytime noise of 3.5 decibels (5.2 per cent) [27]. The evaluation combined environmental monitoring with a pre-post health survey in the Horta superblock (1200 respondents before the intervention, 835 of whom responded again afterwards), an observational study of physical activity, a walkability audit, focus groups, and ethnographic fieldwork, and it reports a perceived gain in “well-being, tranquility, quality of sleep, reduction of noise, reduction of pollution and increase in social interaction” [27]. The evaluation was conducted with the Partnership for Healthy Cities, an initiative of Bloomberg Philanthropies with the World Health Organisation and Vital Strategies, and has been profiled independently as a model of measured urban-health assessment [40]. This broad approach fits the rounded understanding of sustainable transitions and explains Barcelona’s leading well-being band in Table 6. Because the Health in the Streets findings combine environmental monitor-

ing with self-reported perceptions that are drawn from the same pilot areas but collected through different instruments, this band should be read as a rounded, multidimensional judgement, not a single, directly comparable measurement; the individual indicators are not aggregated into a numerical composite here.

Paris and Melbourne also reference well-being, but often as secondary outcomes to primary transport or environmental key performance indicators. Paris's strategic documents heavily emphasise carbon-emission-reduction targets, aiming for carbon neutrality by 2050, and mode-shift percentages, with psychological well-being treated more as an aspirational goal than a rigorously measured metric [24]. The documents examined report no longitudinal measurement of community well-being, and participation is reported in budgetary rather than health terms [25].

Melbourne's framework includes social-equity indicators and references to liveability, yet the pilot evaluations focus mainly on mode-shift percentages and accessibility metrics, with little attention to longer-term assessments of stress reduction, community trust, or psychological well-being [41]. The programme report states plainly that there is "no monitoring framework to track planning policy and the liveability of our neighbourhoods at a local level" and recommends that neighbourhood liveability be monitored in future [29], while the neighbourhood report records a baseline community health profile but no post-intervention measurement [37], representing a gap between rhetorical commitment to well-being and operational measurement.

3.6. Synthesis of Analytical Findings

The application of the Compass shows that, while proximity is universally adopted as a spatial goal, the governance posture required to sustain it is often absent or underdeveloped. Read across the dimensions, Melbourne is the only case whose governance bands broadly keep pace with its spatial ambition, which the illustrative alignment gap reported in Appendix C records as a small negative value. Barcelona provides excellent well-being metrics and strong spatial integration but struggles with the timing of co-creation and with punitive framing, giving a wide gap. Paris combines strong spatial integration and ambitious proximity targets with significant weaknesses in sequencing, non-punitive discourse, and meaningful co-creation, which leaves the largest distance between its proximity band and its process bands. The gap should be read with care, since a narrow gap can reflect either a strong governance posture or a more modest spatial ambition, as in Melbourne, where proximity integration falls in a lower band than in the two European cases. For this reason, the gap is best interpreted together with the full dimension profile in Table 6, not on its own.

These findings reinforce the value of the Compass as a corrective lens for future proximity planning. The analysis shows that technical spatial solutions alone are insufficient. Durable, accepted proximity-based neighbourhoods require governance postures that prioritise readiness before restriction, genuine collaboration over tokenistic consultation, choice expansion over punitive framing, and rounded well-being measurement over narrow transport indicators.

The band-level picture does not depend on how the dimensions are weighted relative to one another; a solidness check on the illustrative index is reported in Appendix C. What the profiles do show is a trade-off that matters for policy transfer. A municipality that prioritises measured well-being above procedural dimensions would find Barcelona's monitoring model the most instructive, whereas a municipality concerned primarily with sequencing, acceptance, and freedom of choice would look to Melbourne. This reinforces the value of reading the full dimension profile in Table 6, since a single summary figure can conceal exactly these trade-offs.

4. Discussion

The application of the Compass to Paris, Barcelona, and Melbourne exposes a basic paradox in current proximity-based urban planning. While cities show strong commitment to spatial reorganisation around accessibility, the governance postures required to sustain these transformations frequently lag behind technical ambition. This discussion interprets the findings through the lenses of policy-implementation theory, mobility justice [42,43], and participatory governance, before proposing a cross-disciplinary research agenda.

Read together, the evidence assembled here spans four fields that rarely speak directly to one another. Urban planning supplies the spatial logic of proximity and the design of walkable, mixed-use neighbourhoods. Transport research explains how active travel and shared mobility widen the range of attractive options, and how that range shapes the choices people make. Public health records the gains in well-being, physical activity and air quality that proximity can deliver, and the conditions under which those gains are shared fairly. Policy and governance studies account for implementation, public acceptance, and the participatory mechanisms that make change last. The Governance Compass holds these strands together, since each of its dimensions corresponds to a question that one of these fields is best placed to answer. Synthesising the evidence in this way suggests that the benefits proximity promises may be less a planning or engineering problem than a governance one that is most fully realised when spatial design, an attractive menu of options, measured health outcomes, and credible co-creation advance together. The link between proximity and durable, accepted benefits, together with resistance and erosion, is presented in Figure 4 as a conceptual model, that is, a set of hypothesised associations offered for future empirical testing rather than demonstrated causal effects.

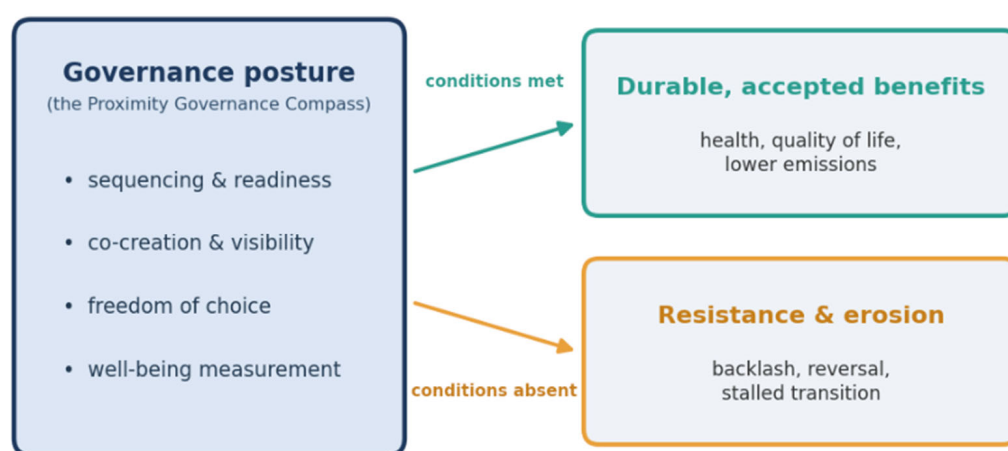


Figure 4. Conceptual model—hypothesised pathway from proximity to durable, accepted mobility.

Hypothesised links between proximity and durable, accepted benefits, shown as a conceptual model for future testing rather than as demonstrated causation. Governance conditions inferred from the framework as hypothesised enablers of durable proximity benefits, with the failure mode associated with the absence of each in the cases examined; the conditions are read as associations to be tested, not as causal claims. They are presented in the Table 7.

Table 7. Governance conditions hypothesised as enablers of calm, proximity-based mobility.

Governance Condition	Enabling Posture Associated with It	Failure Mode Hypothesised When Absent	Illustrative Case(s)
Proximity integration	Couple land use with active and shared mobility so daily needs sit within a short trip	Proximity stays a slogan, decoupled from transport provision	Paris, Barcelona (prescriptive); Melbourne (aspirational)
Sequencing and readiness	Build and evaluate attractive alternatives before any restriction (pull before push)	Restrictions arrive with or before alternatives, a pattern potentially associated with friction	Melbourne (pull-before-push); Paris, Barcelona (parallel or inverted)
Co-creation and visibility	Substantive co-design with traceable input and response	Tokenistic or after-the-fact consultation; influence leaves no trace	Melbourne (traceable change); Paris, Barcelona (limited or late)
Freedom of choice	Non-punitive framing that keeps the car as a valid option in a wider menu	Polarising, anti-car framing recasts necessity as moral failure	Melbourne (enabling); Paris, Barcelona (punitive)
Well-being measurement	Defined indicators and measured outcomes for health, air, noise, cohesion	Well-being asserted as aspiration but never measured	Barcelona (measured); Paris, Melbourne (partial)

4.1. The Implementation Gap Between Vision and Governance Practice

The persistent gap between proximity rhetoric and governance practice echoes the well-known observation by Pressman and Wildavsky [42] that policy implementation is where great expectations are dashed. In proximity-based urbanism, this manifests as a disconnect between the technical sophistication of spatial planning and the procedural quality of decision-making. Paris exemplifies the pattern most clearly, with its ambitious *Ville du Quart d’Heure* vision [24] undermined by governance practices that prioritise rapid implementation over participatory readiness and choice expansion.

This finding aligns with the analysis of sustainable-transport policy failures by Gössling and Cohen [10], who identified implementation taboos, the politically sensitive issues that planners avoid addressing directly. In proximity planning, the taboo appears to be the functional necessity of the private vehicle for certain populations. The polarising, anti-car rhetoric observed in the Parisian and Barcelona documents represents an attempt to circumvent this taboo through discursive framing instead of addressing it through genuine choice expansion. As Gössling and Cohen [10] argue, such avoidance strategies ultimately undermine policy legitimacy and public acceptance.

Melbourne’s stronger performance on the sequencing and freedom-of-choice dimensions points to an alternative approach. The city’s place-based, test-and-learn approach [37] reflects what Davoudi [43] terms evidence-based planning, an iterative and adaptive approach that builds political legitimacy through proven success instead of coercive mandates [44,45]. Research on congestion charging and low-traffic neighbourhoods shows that well-designed restrictions can themselves build acceptance once their benefits become visible, which suggests that the present cases call into question the sequencing and framing of restriction, not restriction as such. This finding supports the emerging literature on positive urbanism that emphasises enabling environments over restrictive regulation and resonates with the sustainable-mobility paradigm that prioritises accessibility and attractive alternatives over restraint [1,14]. Because these patterns are drawn from document analysis, they are best read as associations between governance posture and reported acceptance, not as demonstrated causal effects; establishing causation would require the longitudinal and comparative designs set out in Section 4.5.

4.2. Mobility Justice and the Freedom-of-Choice Deficit

The weak performance on freedom of choice in Paris and Barcelona raises critical questions about mobility justice. Martens [11] argues that transport justice requires not merely equal treatment but adequate accessibility for all, recognising that different populations have varying mobility needs and constraints. The stigmatising discourses observed in the European cases, which frame cars as a form of tyranny [24] or advocate their elimination [26], contradict this principle by recasting functional necessity as moral failure. The wider literature on automobile dependence shows how deeply such necessity can be embedded in urban form, which makes abrupt restriction particularly burdensome for some households [46]. Yet, mobility justice works in more than one direction. Reallocating road space and reducing car dominance can also advance the interests of non-drivers, children, older people, people with disabilities, and lower-income residents, who often bear a disproportionate share of traffic danger, noise, and air pollution. A CalmMobility reading therefore does not treat restriction as illegitimate; it holds that these same equity goals are more durably achieved when attractive alternatives and genuine co-creation precede restriction instead of following it.

This finding resonates with recent critiques of the 15 min city as potentially reinforcing spatial and social inequalities. Caprotti et al. [9] warn of paranoid urbanism, proximity policies that generate anxiety among peri-urban and car-dependent populations who perceive such initiatives as threatening their mobility rights. The formation of the Affected by Superilla platform in Barcelona [8] exemplifies this dynamic, with residents framing superblocks not as environmental improvements but as impositions that disregard their care responsibilities, work schedules, and accessibility needs.

Melbourne's non-punitive framing, which emphasises enabling local access rather than restricting car use [28,37], offers an alternative that aligns with the principle of choice expansion. This supports the argument that sustainable mobility transitions require a mobilities perspective that recognises the rights of all users instead of creating hierarchies of good and bad travellers [43,44]. The discursive shift from elimination to enablement appears critical for building broad-based public support.

4.3. Participatory Governance Beyond Tokenistic Consultation

The persistent gap between participatory rhetoric and collaborative practice across all three cases reflects what Cardullo and Kitchin [13] term the smart-citizen paradox, in which cities claim to prioritise citizen participation while simultaneously constraining the scope of meaningful input. In Paris and Barcelona, participatory mechanisms function mainly at the lower rungs of the Arnstein [12] ladder of citizen participation, limited to consultation and placation, short of genuine partnership or citizen control.

The Melbourne case shows that higher levels of participatory depth are achievable. The documentation of how resident priorities were carried into the pilot's proposals [37] represents what Fung [47] calls transparency of influence, making visible the connection between citizen input and policy outcomes. This practice addresses the critical gap identified by Levenda et al. [48] in smart-city governance, where participation that does not visibly shape outcomes can breed fatigue and cynicism.

Even Melbourne's relatively strong performance on co-creation leaves room for improvement. The persistence of technocratic decision-making structures, even in progressive cases, illustrates what Baiocchi and Ganuza [49] term the participation paradox, in which genuine power-sharing remains the exception, not the norm. This points to a possible case for institutional reforms that could embed co-creation as a standard governance requirement, not an optional best practice.

4.4. Well-Being Metrics and the Measurement Gap

Barcelona's strong work on well-being metrics shows that thorough impact assessment is feasible, and it points to the measurement gap in the other cases. The Health in the Streets report [27] provides a methodological template for rounded evaluation, integrating environmental monitoring (nitrogen dioxide and particulate levels) with self-reported social and well-being indicators. This approach aligns with the WHO health-impact-assessment framework [50] and with the emerging literature on healthy urban planning [51].

In contrast, the reliance of Paris and Melbourne on traditional transport indicators such as mode shift and emissions, instead of well-being indicators, reflects the concern raised by Maheshwari and colleagues [52] that prevailing mobility metrics may not measure what matters, letting what is easy to count crowd out what matters for human flourishing. This narrow focus may obscure the broader social and psychological benefits of proximity-based planning and could weaken political support by failing to capture the full value proposition.

The measurement gap also has equity implications. Without systematic tracking of well-being outcomes across different demographic groups, policies may inadvertently exacerbate inequalities even while achieving aggregate environmental targets. As Nieuwenhuisen [53] argues, urban-health assessments must be disaggregated by age, income, gender, and ethnicity so that proximity transitions do not become vehicles for green gentrification.

4.5. A Cross-Disciplinary Research Agenda

Building on these findings, the study proposes a cross-disciplinary research agenda that advances both the theoretical understanding and the practical implementation of CalmMobility principles. The agenda spans five fields whose contributions are summarised in Figure 5, and it treats proximity governance as a shared object of inquiry, not the property of any single discipline. The agenda is organised around six propositions that follow from the synthesis and are offered as testable hypotheses for future empirical work, not as established findings.

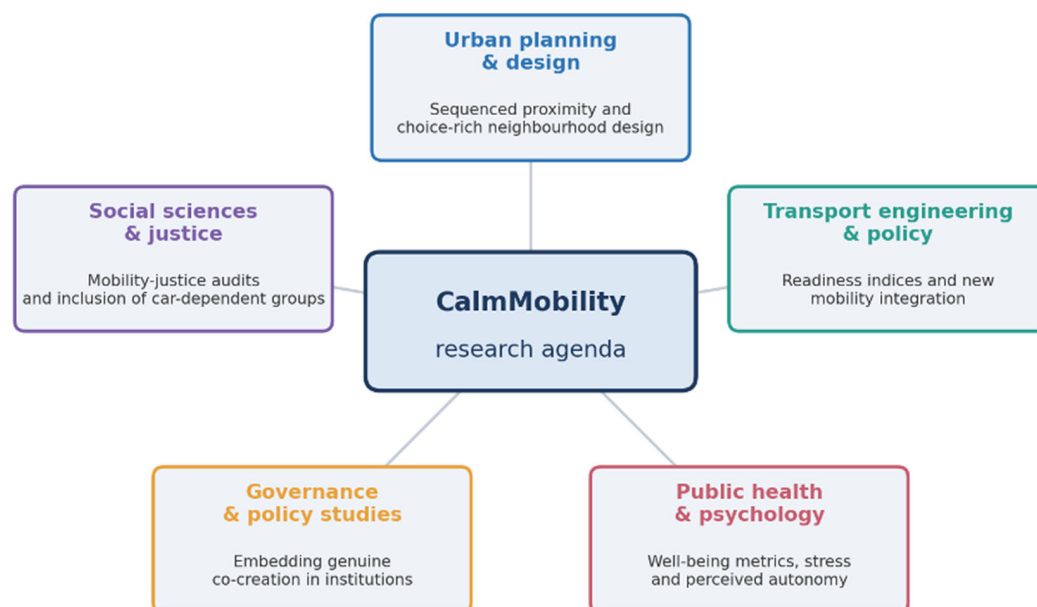


Figure 5. A cross-disciplinary research agenda organised around the CalmMobility paradigm.

- P1. Where restrictions precede credible, attractive alternatives, public acceptance may decline even where spatial quality is high.
- P2. Substantive, visible co-creation may raise the durability of proximity interventions more than the technical quality of the design alone.

- P3. Non-punitive framing that preserves freedom of choice is associated with less backlash relative to anti-car framing, holding spatial outcomes constant.
- P4. Proximity benefits for well-being and emissions are more likely to be realised durably where governance readiness keeps pace with spatial ambition.
- P5. Cities that measure well-being outcomes, and not only mode share and emissions, may sustain political support for proximity policies for longer.
- P6. The equity impact of proximity restrictions is likely to depend on whether alternatives are in place for peripheral and lower-income groups before restriction.

Within urban planning and design, the priority is to understand which spatial configurations enable genuine choice expansion without entrenching car dependency, especially in peri-urban and low-density contexts where attractive alternatives are harder to provide [41]. This implies developing design guidelines for what might be called sequenced proximity, in which infrastructure readiness is verified before any restrictive measure is introduced, so that the pull-before-push logic is embedded in the design process itself. Temporary and tactical urbanism deserve particular attention as low-cost ways of testing proximity interventions and gauging public response before they are made permanent [54].

In transport engineering and policy, a central task is to quantify the relationship between the quality of sequencing and the public acceptance of proximity policies through longitudinal case studies, since the present analysis can suggest that link but cannot measure it. A complementary line of work is the design of decision-support tools that allow municipalities to assess readiness indices before they implement car-restrictive measures, turning the sequencing principle into an operational checklist. The integration of emerging mobility technologies, including Mobility as a Service, micro-mobility, and autonomous vehicles, also warrants systematic study, because these technologies can either widen or narrow the menu of attractive options within a CalmMobility framework [2,55].

Public health and psychology bring the well-being dimension into sharper focus. Longitudinal studies are needed on the psychological impacts of proximity transitions, with particular attention to stress, autonomy, and the perceived freedom of choice that this article identifies as a candidate correlate of acceptance. Such work depends on standardised well-being metrics for proximity planning that capture both individual and community-level outcomes, so that the kind of measurement achieved in Barcelona can be replicated and compared across cities. The health-equity implications of punitive versus enabling framings of proximity are a further priority, since the same intervention may affect different groups very unequally [9].

Governance and policy studies are well placed to examine the institutional barriers to genuine co-creation in municipal structures and to identify the reform pathways that could embed it as a standard requirement and not an optional practice. Comparative work on the effectiveness of participatory budgeting, co-design workshops, and citizen assemblies would clarify which mechanisms genuinely shape proximity policies and which remain symbolic. The role of policy entrepreneurs and political leadership in enabling or constraining CalmMobility approaches also deserves closer attention, because the cases examined here suggest that leadership style may condition whether a city sequences and consults or imposes [56].

Finally, the social sciences and justice studies can foreground the experiences that document analysis cannot reach. This includes examining how car-dependent populations, such as care workers, people with disabilities, and peri-urban residents, experience proximity transitions in practice. It also includes analysing the discursive construction of sustainable mobility in policy documents and in the media, and how particular framings shape public acceptance, a theme that recurs throughout the present findings. Developing

frameworks for mobility-justice audits would allow the equity impacts of proximity policies to be identified before implementation, not after resistance has already formed [11,57].

4.6. Limitations and Future Research

This study has several limitations. First, the analysis focuses on document-based evidence, which captures stated intentions and reported outcomes but cannot capture the lived experiences of residents. Future research should incorporate qualitative methods such as interviews, ethnography, and participatory observation to understand how proximity policies are experienced on the ground. Second, the study examines only three cities, which limits generalisability. Comparative research across a broader range of contexts, including cities in the Global South, smaller municipalities, and different governance systems, is needed to test the transferability of the Compass. The three cases are also at different stages of implementation. The European programmes are advanced and have already met large-scale political contestation, whereas Melbourne's 20 min neighbourhood programme remains largely at the pilot stage; its own programme report covers only the first three of five steps, with evaluation and action still to follow [29]. Part of Melbourne's favourable governance profile may therefore reflect the fact that it has not yet faced the logistical and political pressures of city-wide roll-out, and whether its enabling, pull-before-push posture would survive full-scale implementation is a question that only a longitudinal study can settle. Third, the cross-sectional design captures a snapshot in time and not dynamic processes, so longitudinal studies tracking the evolution of proximity policies over several electoral cycles would provide deeper insight into the durability of different governance approaches. Finally, the compass-based analysis necessarily simplifies complex realities into codifiable categories, and the equal-weight scoring is a deliberate simplification, although the sensitivity analysis in Appendix C shows that the ordinal picture is robust to a range of alternative weightings. The coding was also performed by a single analyst, which introduces a risk of interpretive bias. This risk is only partly mitigated by the anchored rubric and by the audit trail in Appendix A, which ties every score to a specific passage of the source documents, and independent re-coding with a formal inter-coder reliability test remains a useful avenue for further validation. Because the Compass is a newly proposed instrument, a productive next stage is to develop it with a panel of experts and practitioners instead of a single analyst. A Delphi process would let the dimension weights, set equally here and shown in Appendix C to leave the ordinal picture unchanged, be elicited and refined from expert judgement, and it would allow the indicators to be calibrated and extended across multiple coders. This would turn the present single-analyst application into a panel-validated protocol while preserving the transparent, auditable structure introduced here. While the approach enables systematic comparison, it may obscure more detailed contextual factors, and mixed-methods approaches that combine the Compass with in-depth case studies would strengthen future work.

5. Conclusions

This study addressed the critical governance gap in proximity-based urban planning by introducing and applying the Governance Compass. Through a structured policy analysis of strategic documents from Paris, Barcelona, and Melbourne, supported by a transparent scoring model, the research evaluated how leading smart cities translate the spatial vision of the 15 min or 20 min city into operational governance practice. The findings show that, while spatial proximity is universally embraced as a planning objective, the procedural mechanisms required to achieve durable, socially accepted transitions frequently remain underdeveloped.

In this exploratory, document-based comparison, distinct governance profiles emerged. Melbourne reached the higher CalmMobility bands, particularly regarding phased sequencing, non-punitive framing, and visibility of participatory impact, and its governance bands broadly kept pace with its spatial ambition. The European cases showed significant divergences between spatial ambition and governance practice. Paris and early Barcelona implementations were weaker on sequencing and genuine co-creation, and employed more polarising car-related framing, patterns that were documented alongside reported public resistance but cannot be interpreted here as its cause. Barcelona's rigorous empirical tracking of well-being metrics nevertheless provides a valuable methodological benchmark for rounded impact assessment, pointing to an area where other cities must improve.

These results are consistent with a basic premise of the CalmMobility paradigm. Spatial reorganisation alone is unlikely to guarantee a successful socio-technical transition, since mobility is a social practice and not only an infrastructural provision [58]. Durable proximity appears to require a governance posture that prioritises the provision of attractive, high-quality alternatives before restrictive measures, and that respects the functional necessity of the private vehicle for diverse populations. For policymakers and planners, the Compass points to a shift from coercive, top-down mandates toward enabling, choice-expanding strategies. Genuine co-creation would need to move beyond tokenistic consultation so that resident feedback tangibly shapes the local menu of mobility options, hence building trust and reducing the friction associated with urban transformation.

These findings must be read with care. The analysis rests on one analyst reading six strategic and evaluation documents from three cities, and those cities are at different stages of implementation. The ordinal profiles and the illustrative indices in Appendix C are therefore best read as an exploratory diagnosis rather than a validated ranking. The links between governance posture and public acceptance are best read as associations rather than proven effects. Within these limits, the pattern is consistent: Melbourne reaches the Strong or Exemplary bands on sequencing, co-creation, and freedom of choice; Paris and early Barcelona fall in the Emerging band on those same dimensions; and Barcelona alone reaches the Exemplary band on measured well-being. Four priorities follow for future work. The first is an independent application of the codebook by several coders, with a formal agreement measure such as Cohen's kappa. The second is expert elicitation, Monte Carlo simulation and a Delphi process to calibrate the weights and to test how far differences in coder judgement would change the picture. The third is a larger and more varied corpus, including cities in the Global South and municipalities at an earlier stage of roll-out. The fourth is longitudinal, mixed-methods work that combines the Compass with interviews, mobility data and accessibility analysis, in order to test the six propositions above and to find out whether an enabling governance posture survives full-scale implementation.

Contribution to Knowledge

The analysis makes three distinct contributions to the literature on sustainable urban mobility and proximity planning. First, it operationalises the CalmMobility paradigm into the Governance Compass, a novel diagnostic instrument that translates abstract governance principles into five codifiable dimensions, complemented by a transparent scoring model that can be applied to policy evaluation and iteratively expanded. Second, it identifies and documents the governance gap in proximity planning, the persistent disconnect between spatial ambition and procedural quality, providing evidence that technical solutions alone are insufficient without corresponding governance innovation. Third, it bridges multiple disciplinary silos by integrating insights from transport planning, policy-implementation theory, mobility justice, and participatory governance, offering an integrated lens for under-

standing urban mobility transitions. Table 8 presents the findings on how the governance compass relates to adjacent proximity and mobility frameworks.

Table 8. How the Governance Compass relates to adjacent frameworks.

Framework or Concept	Primary Focus	What it Leaves Under-Addressed	How The Governance Compass Complements It
15 min/proximity city	Bringing daily needs within a short walk, cycle, or shared trip	Sequencing, public acceptance, and the governance of delivery	Adds the governance posture that turns spatial access into durable, accepted change
Transit-oriented development	Density and mixed use around transit nodes	Co-creation and the framing of car use	Adds co-creation and a non-punitive, options-first stance
Low-traffic neighbourhoods/superblocks	Reclaiming street space from through-traffic	Pacing and public consent before restriction	Adds pull-before-push sequencing and a social mandate
Mobility-as-a-Service (MaaS)	Integrating modes into one digital offer	Equity, spatial proximity, and political acceptance	Places the option menu inside a governance and equity frame
Traffic calming/Vision Zero	Safety and lower speeds	Breadth of well-being outcomes and participation	Broadens outcomes to well-being and embeds co-creation

Ultimately, the transition toward sustainable, accessible neighbourhoods depends not merely on reducing travel distances but on cultivating urban environments in which sustainable mobility becomes the most convenient and attractive choice through positive reinforcement. By integrating the principles of CalmMobility and using the Governance Compass, cities can work through the complexities of urban transformation so that proximity-based planning delivers on its promises of well-being, equity, and environmental sustainability without compromising the freedom and agency of residents.

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Appendix A. Evidence Supporting the Scores

Table A1 records the evidentiary basis for each of the fifteen band assignments reported in Table 6. Each entry gives the coding unit (the specific passage coded), a paraphrase, and a short verbatim quotation from the source with its location. Every band assignment is made from the six corpus documents only. Page numbers are given for the paginated corpus documents (Paris Climate Action Plan [25], Health in the Streets results report [27], Creating a More Liveable Melbourne [29]); for the remaining corpus documents, which are web-based programme statements, the relevant named section is identified instead. Coding was performed by a single analyst; independent multi-coder recoding with a formal agreement measure is the necessary next step in validating the instrument. For completeness, the

illustrative aggregate values are Paris 48.0, Barcelona 58.0, and Melbourne 75.0 for the composite index, and 58.8, 40.0, and −6.3 for the governance alignment gap.

Table A1. Evidence and level supporting each PGC score.

City	Dimension	Band (Illustrative Index)	Evidence: Coding Unit, Paraphrase, and Verbatim Source Quotation with Location
Paris	Proximity integration	Exemplary (95)	Ville du Quart d’Heure is set as the central municipal organising principle, coupling land use with active-mobility networks. Exemplary. Coding unit: the “ville du quart d’heure” section of the Paris en Commun programme [24] (accessed online; no pagination).
Paris	Sequencing and readiness	Emerging (35)	Coding unit: the mobility measures set out in the climate plan. Infrastructure rollout and parking removal proceed in parallel and at pace, with no readiness test or evaluation stage documented before restriction. Emerging. Verbatim: “More than 1000 km of cycling lanes in 2020” ([25], p. 4) and, in the same plan, the removal of on-street parking is presented as a concurrent measure rather than as a step conditional on alternatives being in place ([25], p. 4).
Paris	Co-creation and visibility	Emerging (30)	Coding unit: the participation mechanism described in the climate plan. Participation is channelled through a defined share of the budget rather than through co-design of the strategy; the corpus documents evidence no resident influence over the menu of mobility options or the sequencing of interventions. Emerging. Verbatim: “25% of the participatory climate budget” ([25], p. 7), that is, participation is bounded to a set share of spending while the strategic parameters are set by the municipality.
Paris	Freedom of choice	Emerging (25)	Coding unit: the framing of the private vehicle in the climate plan. The car is framed as a presence to be reduced and as the source of space to be reclaimed, rather than as one option within a broader ecosystem. Emerging. Verbatim: “The reduction of vehicles in the city will create an opportunity for Parisians to reclaim freed public spaces” ([25], p. 4).
Paris	Well-being metrics	Partial (55)	Coding unit: the outcome indicators and targets in the climate plan. Well-being is named as an aspiration and pursued through carbon and mode-shift targets, but no well-being indicator, baseline, or measurement protocol is defined. Partial. Verbatim: “improving their well-being while preserving the climate” ([25], p. 6), with the plan’s measurable commitments framed around the 2050 carbon-neutrality goal ([25], p. 1) rather than around measured well-being.
Barcelona	Proximity integration	Exemplary (90)	Coding unit: the description of the superblock model in the results report. The model is defined as a reorganisation of the city that reverses how public space is shared between vehicles and people. Verbatim: the model is “a way of organizing the City that is based on reversing the distribution of public space between vehicles and people, prioritizing the citizen” ([27], p. 11); its objectives are “to improve the habitability of public space, advance sustainable mobility, increase and improve urban green and diversity, and promote citizen participation and co-responsibility” ([27], p. 11). The strategic document states the ambition to scale the model city-wide: “We want Superblocks to become the model for a 100% Barcelona transformation of public space” ([26], section “Scaling up: Superblock Barcelona”).

Table A1. Cont.

City	Dimension	Band (Illustrative Index)	Evidence: Coding Unit, Paraphrase, and Verbatim Source Quotation with Location
Barcelona	Sequencing and readiness	Emerging (40)	Coding unit: the account of the Poblenou rollout. Interventions were applied first as rapid tactical measures, with evaluation and structural work following rather than preceding them. Verbatim: “Initially, basic mobility measures were applied, with temporary, reversible and rapid execution actions. . . In a second phase, a process of evaluation and proposals was promoted and structuring actions began” ([27], p. 12). The report also records that residents demand “greater intensity of traffic pacification” ([27], p. 71). The strategy itself describes the shift from local, delimited action to structural change: “While we previously took action at a local level, in delimited areas, now we want to broaden the vision and seek structural changes” ([26], section “Scaling up: Superblock Barcelona”).
Barcelona	Co-creation and visibility	Emerging (35)	Coding unit: the report’s own account of participation in the first superblock. Participation is stated as a programme objective, but the first rollout proceeded without it. Verbatim: the programme aims “to promote citizen participation and co-responsibility” ([27], p. 11), yet Poblenou “was a pilot superblock and at the beginning did not have a process of real participation, for which thing generated some suspicion” ([27], p. 12). Participation is likewise declared in the strategic document, which states the ambition for “a city project constructed through dialogue and with the participation of” residents ([26], section “A city project”), which stands in contrast to the reported practice in the first superblock.
Barcelona	Freedom of choice	Emerging (30)	Coding unit: the framing of the private vehicle in the model description and in the recommendations. The car is framed as the thing to be displaced and further restricted, rather than as one option among several. Verbatim: the model “reverses the distribution of public space between vehicles and people” ([27], p. 11); the recommendations call for “mechanisms to further limit private car access in the superblock, reduce speed and emphasize pedestrian priority” ([27], p. 74).
Barcelona	Well-being metrics	Exemplary (95)	Coding unit: the measurement design and the reported outcomes. Outcomes are measured, not asserted: a published conceptual framework and study protocol, a methodological guide, pre-post environmental monitoring, a pre-post health survey, a walkability audit, observation of physical activity, focus groups and ethnographic fieldwork. Verbatim: in Sant Antoni the evaluation found “a significant reduction in NO ₂ levels of 14.6 µg/m ³ . . . (25% decrease)” and for PM10 “a decrease. . . (4.1 µg/m ³ , 17%)” ([27], p. 40); “the average daytime noise decreased in the months after the intervention by 3.5 decibels, a decrease of 5.2%” ([27], p. 43); and overall “There is a perceived gain in well-being, tranquility, quality of sleep, reduction of noise, reduction of pollution and increase in social interaction” ([27], p. 71).
Melbourne	Proximity integration	Strong (70)	Coding unit: the definition of the 20 min neighbourhood in the state strategy and the programme report. Verbatim: “800 m has been adopted as the spatial accessibility measure of a walkable neighbourhood” ([29], p. 25); the concept is “all about ‘living locally’”, enabling residents to meet most daily needs within a 20 min return walk ([29], p. 1). Proximity is an explicit organising principle of Plan Melbourne, but is applied through pilots rather than city-wide reorganisation [28].

Table A1. Cont.

City	Dimension	Band (Illustrative Index)	Evidence: Coding Unit, Paraphrase, and Verbatim Source Quotation with Location
Melbourne	Sequencing and readiness	Exemplary (85)	Coding unit: the programme’s staging and headline findings. The programme documents an explicit pull-before-push, test-and-learn sequence: local accessibility and amenity improvements are developed through pilot activity before restrictive traffic measures are considered, and an evaluation stage is embedded in the programme design. Verbatim: among the headline findings, “place-based planning is effective” ([29], p. 32) and “community partnerships are key to successful neighbourhood planning” ([29], p. 33); the process runs from need and ideas through development to evaluation and action ([29], p. 5). This consistent and operational sequencing supports the Exemplary band under the criterion for this dimension, although the report covers only the first three of the five steps and city-wide effects remain outside the scope of the present document analysis.
Melbourne	Co-creation and visibility	Strong (80)	Coding unit: the programme’s account of community partnership and its effects. Verbatim: “community partnerships are key to successful neighbourhood planning” and the councils “reported that the overall relationship with the community had improved due to the partnership approach” ([29], p. 33); the programme sought to empower communities “to influence the direction of the work” ([29], p. 2).
Melbourne	Freedom of choice	Exemplary (90)	Coding unit: the framing of the private vehicle across both corpus documents. The documents frame the objective as enabling residents to meet daily needs locally “without needing a car” ([29], p. 1), rather than as prohibiting or eliminating car use. Across both corpus documents the emphasis remains on expanding convenient local and multimodal alternatives, and no punitive or stigmatising framing of car users is identified [28,29]. This consistent option-expanding posture supports the Exemplary band under the criterion for this dimension, which is assessed through consistent policy framing rather than through outcome measurement.
Melbourne	Well-being metrics	Partial (50)	Coding unit: the programme’s own statement on monitoring. Outcomes are asserted rather than measured. Verbatim: “Currently, there is no monitoring framework to track planning policy and the liveability of our neighbourhoods at a local level” ([29], p. 34), and Recommendation 5 asks that neighbourhood liveability be monitored in future ([29], p. 39).

Appendix B. Codebook

This appendix provides the full coding manual for the Proximity Governance Compass (PGC), developed following established guidance on codebook construction and team-based qualitative coding [59,60], so that an independent coder can reproduce the dimension scores. Coding is deductive. Each city’s strategic, evaluation, and participation documents are read in full and scored against the five dimensions, and where a strategy and its evaluation diverge, the score follows reported practice rather than stated intention.

Table A2. PGC dimensions, coding indicators, and inclusion/exclusion criteria.

Dimension	Definition and Key Indicators	Include When...	Exclude/Down-Weight When...
1. Proximity integration	Whether proximity is the organising spatial logic: explicit 15 or 20 min or proximity framing, land-use–transport integration, spatial metrics (catchments, distances).	Proximity is coupled to land use and active or shared mobility, with spatial metrics.	Proximity appears only as a slogan, with no link to land-use or transport planning.
2. Sequencing and readiness	Whether change is paced so alternatives precede restrictions: phasing, pull-before-push, pilots, readiness tests, go/adjust/stop gates, evaluation windows.	Pull-before-push phasing is documented; infrastructure is built and evaluated before any restriction.	Restrictions are introduced at the same time as, or before, alternatives, with no readiness test.
3. Co-creation and visibility	Depth and traceability of participation: co-design and deliberation, mechanisms for feedback integration, traceable changes to the plan.	Co-design is documented with explicit, traceable changes to the plan from resident input.	Participation is limited to cosmetic choices, core parameters are non-negotiable, and influence leaves no trace.
4. Freedom of choice	How the car and diverse needs are framed: choice and accessibility, the car as a valid option within a broader ecosystem, inclusivity.	Framing is non-punitive, keeps the car a valid option, and emphasises attractive alternatives and inclusivity.	Polarising, anti-car framing positions the car as an obstacle to be removed.
5. Well-being metrics	Whether success is defined and measured beyond transport KPIs: indicators for health, psychological well-being, noise, or social equity.	Defined indicators and measured outcomes for health, air, noise, or cohesion (disaggregated where possible).	Well-being is treated only as an aspiration, with no measurement protocol.

Scoring scale. Five ordinal bands are used: Absent (0 to 20), Emerging (21 to 40), Partial (41 to 60), Strong (61 to 80), and Exemplary (81 to 100). The general meaning of each band and the criterion that places a case in it are set out in Table 4, and the dimension-specific descriptors that distinguish a low from a high band are given in Table 5. Because the five dimensions capture different types of evidence, the highest band is demonstrated differently across them. Outcome measurement is required for the well-being dimension, whereas sequencing, co-creation, and freedom of choice are assessed through documented implementation, traceable procedures, and consistent policy framing.

Decision rules are as follow: (1) A dimension reaches a given level only when all defining conditions of that level are met for the indicators in Table A2. (2) The exact value within a band is set by three factors: the number of indicators present; the consistency between the strategic framework and its evaluation or participation report under triangulation; and whether outcomes are measured, not merely asserted. (3) Where the strategy and its evaluation diverge, the score follows reported practice, not stated intention. Coding was carried out by a single analyst against this manual, and consistency was supported by the explicit decision rules, the evidence trail in Appendix A, and an intra-coder consistency check in which the same analyst re-coded a sub-sample after an interval to confirm stable band placements. Because this check involves a single coder, it speaks only to the stability of the coding over time and not to inter-coder reliability, which would require an independent second coder (see Section 4.6).

Worked examples. Rather than reproduce a selection of examples here, the full audit trail for all fifteen band assignments is given in Table A1 in Appendix A, where each entry

records the coding unit, a paraphrase, and a verbatim quotation from the source with its location.

Appendix C

Appendix C.1. Illustrative Quantitative Analysis

This appendix collects the illustrative numerical layer of the Compass. The anchored index values were retained consistently with the earlier application of the CalmMobility framework to preserve comparability across studies; the present revision therefore changes the prominence and interpretation of the numerical results rather than retrospectively recalibrating the previously applied scoring anchors. Cities are reported by ordinal band in the main text; the 0 to 100 index, composite score, governance alignment gap, and the weighting sensitivity analysis are provided here for transparency and are not the basis for the substantive comparison.

$$PGC_c = \sum_{i=1}^5 w_i s_{i,c}, \quad \sum_{i=1}^5 w_i = 1 \quad (A1)$$

where $s_{i,c}$ is the illustrative 0 to 100 index for dimension i in city c , and w_i is the weight assigned to dimension i . Equal weights are used in the baseline ($w_i = 0.2$), so the composite is the mean of the five indices. The weights can be varied to reflect local policy priorities; the robustness of the ordinal picture to this choice is examined in the sensitivity analysis below.

$$G_C = s_{1,c} - \frac{1}{4} \sum_{i=2}^5 s_{i,C} \quad (A2)$$

A positive G_C indicates that the illustrative proximity-integration index exceeds the mean of the four governance-related indices, that is, spatial ambition runs ahead of the governance posture; a value close to zero or below indicates that governance keeps pace with, or exceeds, spatial ambition. The value is descriptive and is not interpreted as a validated measurement.

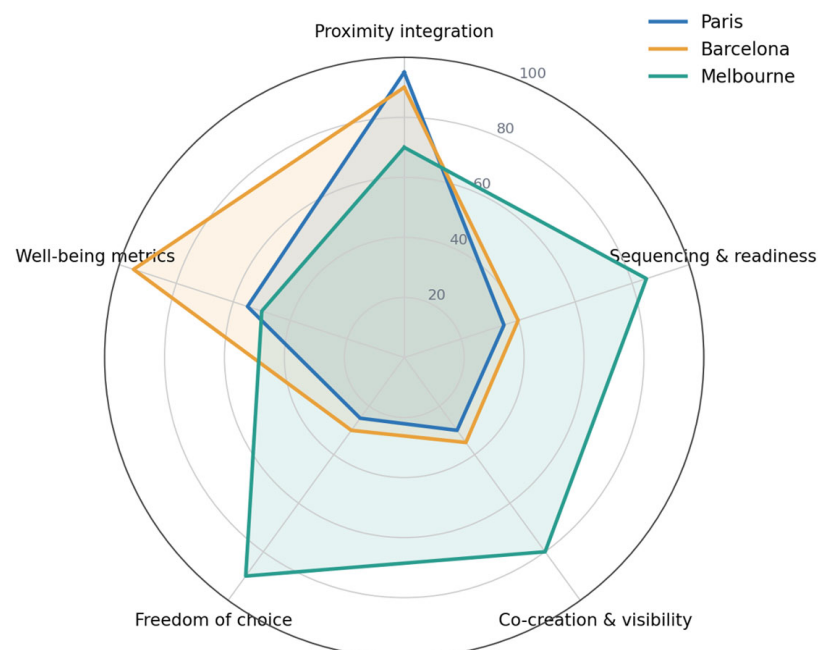


Figure A1. PGC profiles of Paris, Barcelona, and Melbourne across the five dimensions (illustrative 0 to 100 index).

Table A3. Illustrative 0 to 100 dimension scores, composite index, and governance alignment gap for Paris, Barcelona, and Melbourne. These values are illustrative; the substantive comparison in the main text rests on the ordinal bands.

Dimension	Paris	Barcelona	Melbourne
1. Proximity integration	95	90	70
2. Sequencing and readiness	35	40	85
3. Co-creation and visibility	30	35	80
4. Freedom of choice	25	30	90
5. Well-being metrics	55	95	50
Composite PGC index	48.0	58.0	75.0
Governance alignment gap (G)	58.8	40.0	−6.3

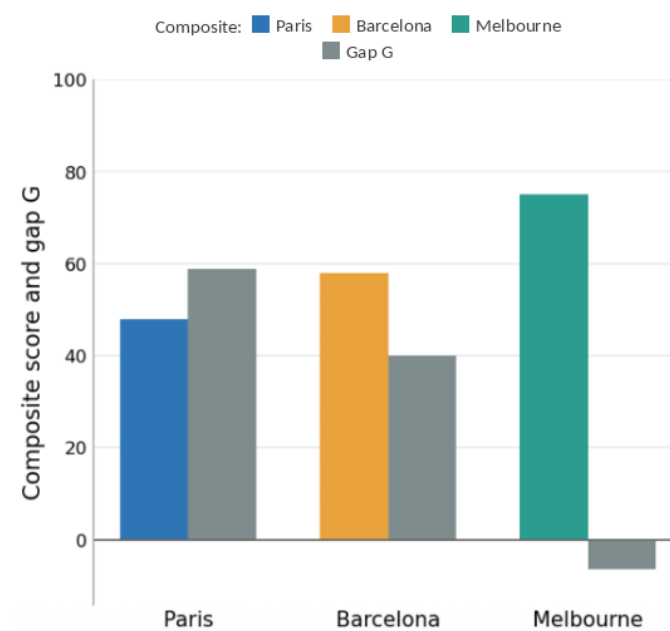


Figure A2. Composite PGC score and governance alignment gap (G) for Paris, Barcelona, and Melbourne (illustrative).

Appendix C.2. Sensitivity Analysis of the Weighting Scheme (Illustrative)

The composite index uses equal weights by default, which is a deliberate simplification. Reasonable stakeholders may legitimately attach different importance to the five dimensions, so the stability of the ordinal picture was tested by recomputing Equation (A1) under five illustrative weighting schemes that reflect distinct policy priorities. The schemes are reported in Table A4. The equal scheme is the baseline. The governance-led scheme downweights spatial proximity and emphasises the four process dimensions. The well-being-led scheme prioritises measured outcomes, the acceptance-led scheme emphasises co-creation and freedom of choice as the drivers of public acceptance, and the readiness-led scheme foregrounds sequencing.

Table A4. Weighting schemes used in the sensitivity analysis.

Scheme	Proximity	Sequencing	Co-Creation	Freedom	Well-Being
Equal (baseline)	0.20	0.20	0.20	0.20	0.20
Governance-led	0.10	0.25	0.25	0.25	0.15
Well-being-led	0.20	0.10	0.10	0.15	0.45
Acceptance-led	0.10	0.20	0.30	0.30	0.10
Readiness-led	0.15	0.40	0.15	0.15	0.15

The resulting composite scores and ranks are reported in Table A5 and plotted in Figure A3. Two patterns are stable across every scheme. Paris stays in the lowest position under all five weightings, and the relative ordering of the governance dimensions within each city does not change. Melbourne stays in the top position under four of the five schemes on the illustrative composite index, namely the equal, governance-led, acceptance-led, and readiness-led weightings. The single exception is the well-being-led scheme, under which Barcelona moves ahead of Melbourne, with composite scores that are close together on the illustrative index. This crossover is substantively meaningful and not an artefact, since it is driven by Barcelona's strong and empirically measured well-being performance.

Table A5. Composite scores and ranks under each weighting scheme (illustrative robustness check).

Scheme	Paris	Barcelona	Melbourne	Top-Ranked
Equal (baseline)	48.0 (3)	58.0 (2)	75.0 (1)	Melbourne
Governance-led	40.3 (3)	49.5 (2)	78.3 (1)	Melbourne
Well-being-led	54.0 (3)	72.8 (1)	66.5 (2)	Barcelona
Acceptance-led	38.5 (3)	46.0 (2)	80.0 (1)	Melbourne
Readiness-led	44.8 (3)	53.5 (2)	77.5 (1)	Melbourne



Figure A3. Composite PGC scores under five weighting schemes (illustrative).

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