Main Streets or Latent Corridors? Exploring the Significance of Weak Ties in Suburban Contexts

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Abstract. The ongoing debate on proximity-based planning has produced a wide range of methods for assessing access to everyday services. Yet, most of these approaches remain centred on what can be reached within a given time threshold, while giving less attention to the spatial structure that makes some streets more strategically relevant than others. This paper argues that, particularly in suburban areas, streets should be evaluated for their structural strategic value. Special attention should be given to corridors that connect weakly linked sub-systems, as they could support future proximity-oriented interventions. Building on recent research about weak ties in spatial systems and the Kemeny-based centrality measure (KBC), this paper proposes a simple diagnostic approach to bridgeness, developed within the framework of the DUT-funded EMC2 project. The aim is not to compare alternative bridgeness metrics, but to examine whether high-KBC segments in a suburban area already coincide with local functions, or instead reveal structurally important yet underused corridors. The approach is tested in Turano, a suburban area of Massa, Italy, located within the wider Versilia conurbation. Using a road-centreline representation and a verified inventory of amenities, the study investigates the relationship between bridging structure and the distribution of Points of Interest through the concepts of alignment and mismatch. The results offer an exploratory but operational framework for distinguishing between corridors that already act as local functional anchors and latent spatial assets whose potential is not yet reflected in the current distribution of services. The paper concludes that bridgeness can provide a useful additional layer for proximity-oriented planning, particularly when combined with reliable local data and with broader assessments of walkability, public-space quality, and functional needs.

Keywords: weak ties · Kemeny-based centrality · suburban proximity · POIs · EMC2 · decision support system

1 Introduction

The current discussion about the X-minute city has significantly broadened the tools available to urban planners. Accessibility measures, isochrones, network-based evaluations, and proximity scores are now commonly used to evaluate whether daily services

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can be reached with short travel times [1]. Recent research has shown that proximity is not an inherent characteristic of urban space. Instead, it is shaped by choices regarding scale, functions, datasets, thresholds, spatial representation, and assessment logic [2]. As a result, two studies can examine the same location and produce different "proximity landscapes" because of their modelling decisions. This issue is particularly relevant in suburban areas, where is crucial identifying where the spatial system might already have the potential for future change [3]. The EMC2 model, developed within the Driving Urban Transition framework, specifically addresses this by suggesting a pathway for transformation in metropolitan peripheries. It focuses on creating compact forms centred around pedestrian-friendly main streets, mixed uses, and stronger mobility connections [4]. From this perspective, suburban planning goes beyond merely checking for the presence or absence of services. It also needs to pinpoint where local structure, movement potential, and urban form may support or obstruct proximity-focused strategies. In this context, recent work in space syntax and network analysis has revived the concept of weak ties in spatial terms. In social network analysis, weak ties are important because they connect otherwise isolated communities and foster opportunities for sharing information [5]. In spatial systems, translating this idea must be done carefully, as spatial graphs do not support varying tie strengths like social networks do. Therefore, the focus shifts from "weakness" to the ability to bridge gaps: a spatial weak tie is defined not by the intensity of interaction but by its role in connecting loosely connected subsystems [3]. This thinking aligns with recent research on Kemeny-based centrality, which identifies a segment as crucial when its absence leads to a significant decline in navigability and inter-cluster connections [6]. This paper brings these two discussions together by focusing on the following question: do strategically important corridors in a suburban area align with the location of urban functions, or do they highlight underused spatial resources that could support future proximity-related actions within the EMC2 model? This question helps clarify if the current distribution of amenities matches the bridging logic of the suburban system, revealing where structural potential is already being used and where it is only partially tapped, thus examining if a bridge-sensitive configurational metric can help analyse local functional geography in suburban settings, moving beyond simple assessments of accessibility to identifying corridors that could be vital for future proximity-focused interventions. The study focuses on Turano, a locality in the municipality of Massa, in Tuscany, Italy. Turano does not represent an isolated neighbourhood but rather a portion of the Versilia conurbation system with the potential of X-minute city core within a system of interconnected local centres. In this context, a main street emerges from identifying a strong weak tie in the conurbated area, centred on Via Aurelia, supported by historical developments, relatively high local centrality, and considerable bridging capacity [7]. The area also shows a mix of challenges and potential: fragmented pedestrian and cycling infrastructure, lack of public spaces beyond parking lots, unsafe areas, and limited pedestrian activity despite encouraging layout features. Based on this, the paper creates a straightforward but useful diagnostic framework. High-KBC segments are identified as bridging corridors and then compared with local Points of Interest through a verified inventory, rather than relying solely on online data due to known issues with web-derived databases at the neighbourhood level. The core analytical distinction focuses on alignment, where strategic corridors correspond with

local functions, and mismatch, where high-KBC segments remain only partially active in functional terms. In the latter case, the corridor is viewed as latent: not because KBC is expected to predict land use, but because the relationship between spatial structure and functional presence seems incomplete. By connecting bridgeness to the actual layout of local functions, the paper provides a spatially grounded diagnostic approach to discussing suburban proximity than simple counts of services or threshold-based measures. The paper is structured as follows. Section 2 briefly discusses weak ties, bridgeness, and the importance of structure-function relationships in proximity planning. Section 3 presents the case study as a relevant example within the EMC2 framework. Section 4 outlines the data and analytical process. Section 5 discusses the findings through the concepts of alignment, mismatch, and latent corridors. Section 6 considers the contributions and limitations of the approach and concludes.

2 Weak Ties, Bridgeness, and Proximity-Oriented Planning

The translation of weak ties into spatial terms has been explored in recent work by Cutini [3]. The main takeaway is that we cannot interpret the original Granovetterian concept literally. Spatial adjacency is binary, not graded. Triadic closure does not function like it does in social networks. What we can transfer meaningfully is the logic of bridging. Some segments connect clusters, neighbourhood-like sub-systems, or weakly linked parts of the urban grid. This connection gives them an importance that goes beyond standard centrality measures. In earlier research, this spatial translation was developed by combining choice-like behaviour with bridge degree. This showed that some urban elements can act as structural-hole spanners, with these positions often aligning with literal bridges, city gates, bypasses, or other major connectors [3]. More recent work has formalized this logic through removal-based diagnostics. In this context, Kemeny-based centrality measures how much each segment contributes to the overall efficiency of diffusion processes by calculating the increase in navigational effort caused by the removal of a segment [6]. This is relevant for the current paper because proximity planning often focuses on accessibility outcomes while overlooking the internal structural role of streets. However, commercial and service activities do not distribute randomly, and instead depend heavily on location and respond to demand, accessibility, centrality, catchment logic, and the broader organization of movement in the street network [8–10]. Some functions thrive in dense, walkable areas, while others need larger catchments, corridor exposure, or economies of scale. The location of functions is partly shaped by structural opportunities in the urban grid. This does not mean that a configurational metric can predict land use in a certain way. Demand, ownership structure, regulation, business turnover, and local development histories all play key roles. However, spatial structure is not just a neutral backdrop [8]. A corridor linking otherwise distinct parts of a suburban area may be better equipped to support through-movement, visibility, and connections between neighbourhoods. Such corridors might already attract local businesses, or they may remain underused despite their structural importance. In either case, comparing these scenarios can be informative as it reveals whether structure and function reinforce each other and where spatial potential is only partially realized. From this viewpoint, bridgeness adds another layer to proximity-oriented planning. It does not

replace accessibility analysis, demand-side evidence, or the need to prioritize functions based on planning goals. Instead, it asks a different question: where does the suburban system already have structurally strategic corridors that could be especially important for future proximity-oriented actions? This insight not only helps identify where services are currently gathered but also indicates where the conditions for a stronger main-street logic might already be in place. In the EMC2 perspective, such corridors may represent the best opportunities for targeted reinforcement, selective densification, and improvements in public spaces or mobility that could support more effective suburban proximity conditions. They also guide public-private initiatives aimed at implementing and managing proximity-based neighbourhoods and local centres over the long term.

3 Case Study: Turano Within the Versilia Conurbation

The EMC2 project addresses suburban transition through an integrated reading of functions, urban forms, and implementation conditions. Within the DESTeC contribution, this perspective has been translated into a multiscalar workflow. Each local case is first positioned within the wider conurbation; it is then examined through diachronic, configurational, morpho-functional, and regulatory analyses; and it is finally interpreted in operational terms through four interrelated questions: where intervention potential is concentrated, which forms of transformation are spatially and functionally appropriate, how these transformations can be implemented within existing constraints, and who the relevant actors are in the process. Within this framework, Turano was selected as one of the local test areas for exploring the conditions under which a suburban environment may evolve towards a more viable proximity-based structure.

Turano is a suburban locality in the municipality of Massa, within the wider Versilia conurbation, and is considered here not as an isolated neighbourhood, but as a local node within a broader polycentric system. In the ongoing EMC2 work, the area emerged as particularly relevant because it lies along a corridor shaped by a strong weak-tie logic at the conurbation scale, centred on Via Aurelia and supported by historical patterns of linear densification, relatively high local centrality, and significant bridging capacity. This makes Turano especially suitable for the present paper: it is a case in which a potentially strategic suburban main-street structure is already detectable in configurational terms, while its urban performance remains only partially consolidated.

At the local scale, the area brings together many of the conditions that make suburban retrofitting both necessary and difficult: low-density settlement, dependence on motorised mobility, fragmented pedestrian and cycling continuity, limited public-space provision beyond parking areas, and insecure waiting conditions around bus stops. At the same time, it serves a socially meaningful population of about 2,359 inhabitants distributed across roughly 760 residential buildings, with around one quarter of residents aged over 65. This combination of structural relevance, functional incompleteness, and planning urgency makes Turano a particularly appropriate case through which to investigate whether bridge-sensitive corridors are already matched by local functions, or instead remain latent spatial assets (FIg. 1).

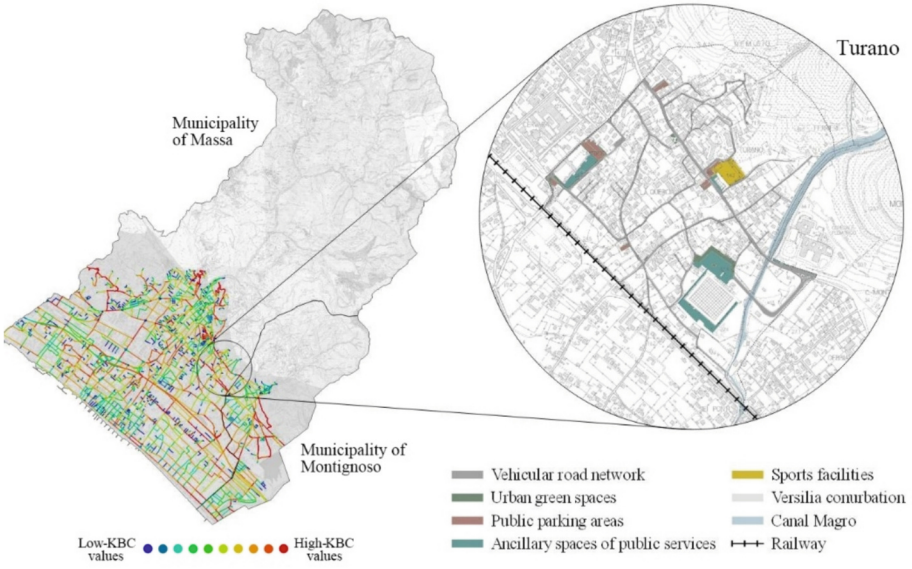

Fig. 1. Study area and local investigation boundary.

4 Data and Methods

4.1 Network Data and Spatial Representation

The analysis is based on a road-centre-line representation of the Turano street system, embedded within a substantially wider network extent. This choice is consistent with the broader configurational work developed within EMC2 and with recent studies on spatial weak ties, where segment-based network models are used to capture the relational structure of the urban grid and to identify corridors whose relevance derives not only from local prominence, but also from their role in connecting otherwise weakly coupled parts of the system.

Because KBC is highly sensitive to the structural embedding of each segment, the metric was not recalculated on a narrowly clipped local network. Instead, the pre-computed KBC values were derived from the wider Turano angular vehicular network and subsequently interpreted within the local study boundary. This approach reduces the risk of overestimating the importance of terminal or artificially clipped edges, and makes the local reading more robust with respect to boundary effects.

Within the Turano boundary, the network includes 482 segments. The analysis focuses on the upper tail of the local KBC distribution. The 90th percentile corresponds to a KBC value of 9,087.74, identifying 49 segments, namely the local top 10% higher-KBC set. These 49 segments do not form a single continuous line. Rather, they are organised into six disconnected clusters, which can be read more meaningfully as three main corridor systems: two interrupted stretches along Via delle Gorine, comprising 40 segments in total and about 929 m; three short clusters along Via Aurelia, comprising 7 segments and about 284 m; and a minor residual branch on Via del Papino, comprising 2 segments and about 22 m. This already indicates that bridgeness in Turano is not

diffusely distributed across the whole grid, but is concentrated in a limited number of structurally strategic alignments.

4.2 POI Data

The functional layer is based on a ground-truthed inventory of amenities produced through previous work on open-data reliability in suburban neighbourhoods [11–13]. This is a crucial methodological choice. Earlier analyses conducted on Turano and Bicchio showed that web-based datasets may underrepresent, overrepresent, or mislocate activities, with direct consequences for neighbourhood-scale proximity assessment. Using the field-verified layer in the present study therefore avoids reproducing these distortions, and ensures that the relation tested here is not between KBC and platform-dependent POIs, but between KBC and the most reliable available representation of actual local functions.

All functions are georeferenced and associated with a mesocategory, following the functional classification framework developed in recent work on proximity-oriented urban analysis. For the main purpose of this paper, however, POIs are initially treated as a single functional layer. This is consistent with the central aim of the study, namely to test the degree of alignment or mismatch between bridging structure and the current geography of local functions as a whole.

A more disaggregated reading by mesocategory remains possible and is considered here only as an interpretive extension, useful for discussing whether certain types of functions are more frequently associated with already activated corridors, while others are more common in latent ones. This allows the paper to retain a clear analytical focus, while still acknowledging that different amenity types may follow different spatial logics and planning priorities.

Within the study area, the inventory records 63 premises, of which 31 are vacant and 32 are occupied by commercial or service activities. Table 1 reports the aggregation of these activities into categories and mesocategories. The current distribution is already uneven: Via Aurelia alone contains 38 premises, equivalent to 60.3% of the total stock, including 18 occupied activities, or 56.3% of all active uses in the area. By contrast, Via delle Gorine contains only 3 premises, all of which are occupied. The rest of the local system is more fragmented, with smaller and more discontinuous concentrations along Via del Papino, Via San Remigio di Sotto, and a few minor streets.

Table 1. Local premises and activities by mesocategory.

Count	Meso-category	Categories
31	Vacant	vacant premises
5	Personal care	beauty salons, hairdressers, wellness centres
5	Private agencies	associations, event venues, waste/drainage services, law offices, psychotherapists
4	Animals and plants	florists, plant shops, agricultural supply stores

(*continued*)

Table 1. (*continued*)

Count	Meso-category	Categories
4	Food and beverages	bakeries and fresh pasta shops, greengrocers, beverage retailers
3	Bars and clubs	cafés, pastry shops, ice-cream
3	Vehicles	workshops, services, bicycle shops
2	Restaurant services	restaurants, pizzerias, trattorias
2	Furniture and home furnishings	home accessories and furniture stores
1	Clothing and accessories	clothing and sporting goods stores
1	Workshops and crafts	arts and crafts
1	Healthcare supplies and pharmacies	pharmacies and parapharmacies
1	Tobacco and tickets	tobacconists

4.3 KBC as Bridge-Sensitive Metric

Kemeny-based centrality is adopted here as the structural indicator because it is particularly well suited to the specific question addressed in the paper. Unlike conventional centrality measures that mainly capture gradients of accessibility or passage, KBC is explicitly sensitive to the contribution of each segment to the global coherence of the network. In operational terms, it identifies those streets whose removal would produce the greatest loss in stochastic navigability and inter-cluster coupling. This makes it especially appropriate when the aim is not simply to rank prominent streets, but to detect corridors that play a strategic bridging role within a suburban system. Since the paper is concerned with the relation between structural bridgeness and the geography of local functions, KBC provides a theoretically consistent and methodologically focused basis for the analysis.

Mathematically, let $G = (V, E)$ be the segment graph of the street network and let $P = D^{-1}A$ be the transition matrix of the natural random walk on that graph, where A is the adjacency matrix and D is the diagonal matrix of node strengths. The baseline network performance is summarised by the Kemeny constant K(G), which expresses the expected time needed for a random walker to reach a randomly chosen destination under the stationary distribution. For each segment $e = (i, j)$ in E, a perturbed graph G^(e) is constructed by removing the segment and compensating the operation with two self-loops at its endpoints: $G^(e) = (V, (E \setminus \{e\}) \cup \{(i, i), (j, j)\})$. The Kemeny-based centrality of segment e is then defined as $KBC(e) = K(G^(e)) - K(G)$. The larger the increase, the more that segment contributes to the overall efficiency and coupling of the network. In other words, segments with high KBC are those whose removal most strongly worsens the stochastic navigability of the system. In the present study, the field KBC_Simax from the network layer is used as the operative KBC value for ranking and extracting the upper percentile of structurally strategic segments.

4.4 Analytical Workflow

The analytical workflow consists of four main steps.

First, KBC is read on the local network, and the subset of structurally strategic segments is identified through the top 10% threshold described above. This threshold is not understood as a rigid ontological distinction between important and non-important streets. Rather, it is used as an operational cut-off that makes it possible to isolate the most clearly bridge-like segments, while still preserving a readable corridor structure.

Second, the ground-truthed premises are spatially related to the street network. Each georeferenced record is associated with its nearest segment, and a short-distance rule is then applied to determine whether it can be considered located on, or immediately adjacent to, a high-KBC corridor. The distance threshold is deliberately kept small and operational, at 12 m, because the purpose is not to model service catchments, but to identify corridor-level correspondence between structural importance and actual functional presence. The empirical distance distribution supports this choice, as it captures the great majority of clear frontage relations while excluding more ambiguous associations.

Third, the relation between premises and high-KBC segments is interpreted through the two diagnostic notions that structure the paper. Alignment refers to cases in which structurally strategic corridors already host a meaningful concentration of local functions. Mismatch refers instead to corridors that are structurally important in the KBC reading, but display weak functional activation in terms of premise presence. At this stage, the analysis also considers the mesocategories of the associated functions, not in order to produce a full typological model, but to observe whether existing and latent corridors appear to differ in the kinds of activities they currently support.

Fourth, mismatches are interpreted as latent corridors: underused structural assets whose bridging role is not yet mirrored by the present functional geography. The purpose is not to claim that such corridors should automatically become intervention sites, nor that structural prominence alone is sufficient to attract activities. Rather, the aim is to identify locations that deserve closer planning attention because they combine configurational relevance with incomplete functional activation. In this sense, the output of the workflow is not a predictive model of land-use success, but a decision-support layer for discussing where proximity-oriented actions may be more consequential within the broader EMC2 agenda (Fig. 2).

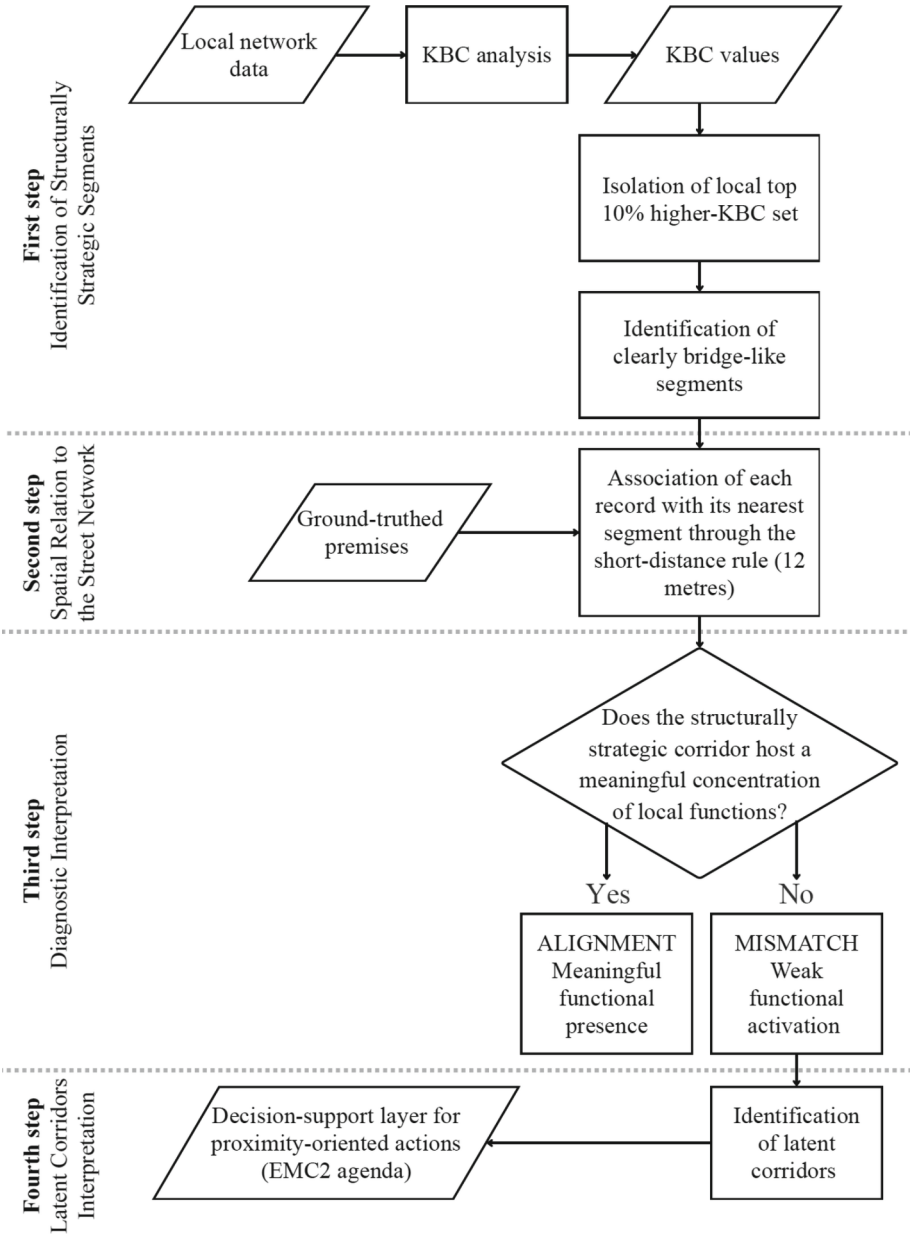

Fig. 2. Analytical workflow for relating high-KBC corridors to the ground-truthed distribution of POIs and distinguishing between existing and latent corridors.

5 Results

5.1 Bridging Structure of the Local System

The KBC analysis identifies a limited subset of segments that act as the main bridging corridors of the local system. These segments do not simply correspond to the most visible or geometrically prominent streets. Rather, they emerge because they connect otherwise differentiated parts of the network and because their removal would significantly reduce stochastic navigability across the local structure. In Turano, the high-KBC set produces a corridor pattern that strongly supports the broader project interpretation: the local main street derives from a weak tie within the Versilia system and is reinforced by a historically consolidated radial logic.

More specifically, the analysis shows that the two most evident high-KBC axes are Via Aurelia and Via delle Gorine. Via Aurelia appears as a short but highly intense bridge-like filament, expressed through three clusters of top-10% segments with markedly high values. Via delle Gorine, by contrast, appears as a longer corridor whose high-KBC structure is articulated in two disconnected top-10% stretches. These are separated by a central portion that falls below the 90th percentile, while still maintaining medium-to-high KBC values. Immediately below these two dominant axes, Via della Quercia emerges as another relevant corridor, although none of its segments enters the top-10% threshold.

Overall, the local top-10% structure includes 49 segments. These do not define a single dominant continuous street, but rather a small set of linked and hierarchised sub-corridors. This confirms that local bridgeness in Turano is selective and strongly concentrated, rather than broadly distributed across the settlement.

5.2 Current Geography of Local Functions

The ground-truthed premises layer reveals a local geography that is neither uniformly scattered nor fully corridor-based. Instead, it shows a mixed pattern, in which one axis, Via Aurelia, already concentrates the largest share of commercial and service functions, while the rest of the area remains much more fragmented. As noted above, Via Aurelia alone hosts 38 premises, including 18 active activities, and therefore already acts as the principal functional spine of the area.

Outside this axis, only small and discontinuous clusters are visible, especially around Via del Papino, Via San Remigio di Sotto, and a few isolated points along minor streets. Via delle Gorine, despite its clear bridging role in the KBC structure, currently hosts only 3 activities, all occupied, and therefore remains much more weakly activated in functional terms (Fig. 3).

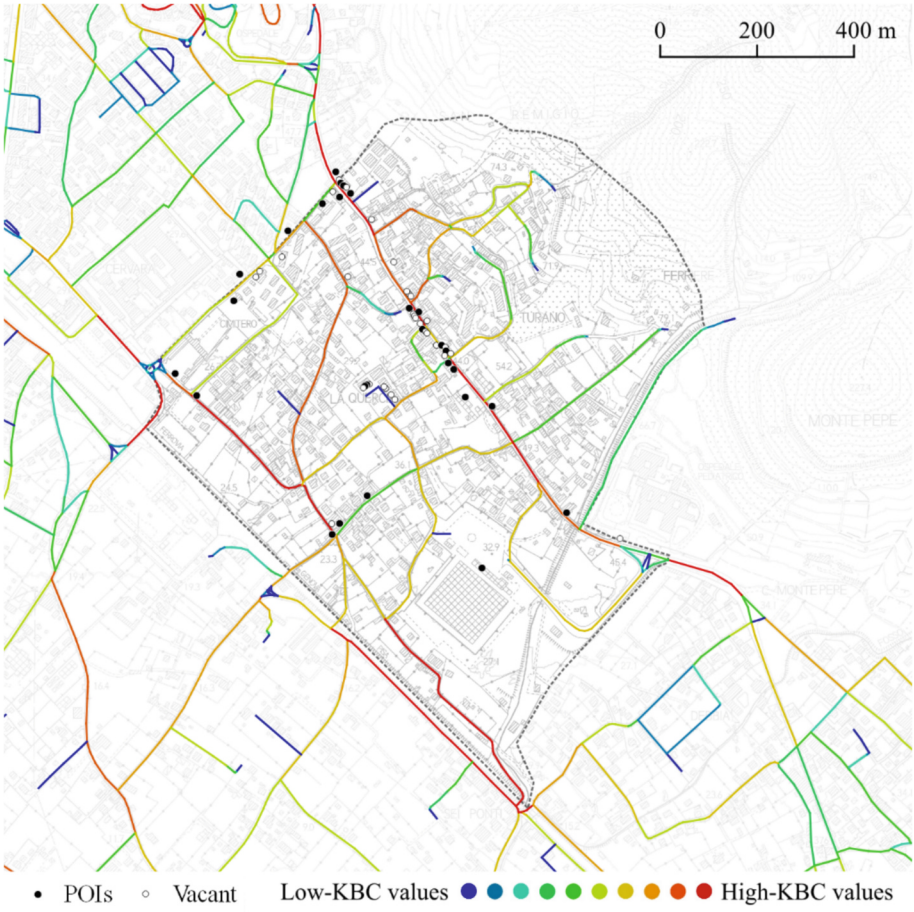

Fig. 3. KBC distribution with POIs.

5.3 Alignment and Mismatch: From Activated Corridors to Latent Assets

Going beyond visual inspection, the overlay allows a first quantitative reading of the relation between high-KBC segments and actual premises. Using nearest-segment association with a 12-m tolerance, 17 out of 63 premises are located on, or immediately adjacent to, the top 10% KBC segments. If only occupied activities are considered, the count falls to 8 out of 32. This means that the high-KBC structure captures a meaningful but still limited part of the present functional geography. In other words, the relation between bridgeness and current activity is real, but partial.

The most evident case of alignment is Via Aurelia. It is not only part of the local top-KBC structure, but also the street that already hosts the broadest and most diverse concentration of functions. In total, 14 premises fall on, or immediately beside, the Aurelia top-10% segments, of which 6 are occupied activities and 8 are vacant units. The

active uses directly associated with these top-KBC Aurelia segments include clothing and accessories, two personal-care activities, one vehicle-related activity, one pharmacy, one bakery, and one tobacco shop. Beyond the top-10% subset, the full Via Aurelia corridor hosts an even broader mix, including additional personal-care activities, tobacco and tickets, restaurant services, bars and clubs, animals and plants, furniture and home furnishings, vehicles, food and beverages, and private agencies. This confirms that Via Aurelia already operates as the most functionally activated local axis, and remains the strongest candidate to play the role of main street within the EMC2 framework.

The case of Via delle Gorine is more ambiguous, and therefore more interesting. At the street scale, it contains only 3 premises, all occupied. Of these, 2 fall directly on the top-10% KBC segments. Their typological profile is narrow, consisting of one bars-and-clubs activity and one animals-and-plants activity. A third nearby vacant unit, located on Via Bagaglione, is captured by the same high-KBC corridor. The Gorine corridor therefore shows only limited functional alignment, despite its strong structural role. Put differently, its bridging logic is much stronger than its present functional consolidation.

This is where mismatch becomes analytically useful. In Turano, mismatch does not mean that a corridor is empty or irrelevant. It means that a corridor combines high structural bridgeness with weak or narrow functional activation. Via delle Gorine is the clearest example. Its long, segmented high-KBC profile suggests a structurally strategic axis, capable of linking different parts of the local system; yet its current activity base remains extremely thin. This makes it a latent corridor in a strong sense: not a street that should automatically be transformed, but an axis whose structural importance is not yet mirrored by a comparable local-service or public-space role.

A second, weaker mismatch is visible in the minor high-KBC branch on Via del Papino, which enters the top-10% structure only marginally and currently captures no activities through the 12-m alignment rule. This residual branch is less significant than Via delle Gorine, but it confirms that high bridgeness does not automatically attract functional concentration.

Taken together, the overlay does not produce a binary answer, such as “weak ties host functions” or “they do not”. It produces a more nuanced urban reading. Via Aurelia appears as an already activated bridging corridor, where structure and functions are largely coherent. Via delle Gorine appears instead as a latent bridging corridor, where structural relevance is clear but current functional activation remains weak and narrowly specialised. This distinction is precisely what simple service-count approaches tend to miss.

6 Discussion and Conclusion

This paper set out to test a limited but important question: whether the structurally strategic corridors identified through KBC in a suburban test area already coincide with the actual geography of local functions, or whether they reveal underused assets. The answer is not framed as a claim of causality, but as a diagnostic proposition. Bridging structure alone does not generate services. However, comparing structure and function is meaningful because it helps distinguish between corridors that already work as local anchors and corridors whose structural relevance is not yet reflected in the current amenity pattern.

This contribution is useful for at least three reasons.

First, it adds a missing layer to proximity-oriented planning. Much of the current X-minute literature focuses on accessibility outputs. This is necessary, but not sufficient. A place can be assessed through thresholds, travel times, or service counts without asking whether its internal street structure contains corridors that are intrinsically more consequential than others for inter-neighbourhood linkage and local articulation. The present paper does not replace accessibility analysis. Rather, it complements it with a bridge-sensitive reading of the network.

Second, it keeps the discussion grounded in real urban conditions. The use of ground-truthed premises is not a secondary technical improvement; it is central to the validity of the argument. Earlier work on Turano and Bicchio already showed that open-data layers can produce misleading local interpretations. If the paper had relied on unreliable platform POIs, any observed alignment or mismatch could simply have reflected data noise. By using field-verified amenities, the present reading becomes more robust and more relevant for planning.

Third, the paper fits the EMC2 logic in a precise way. EMC2 does not ask only whether a suburban area currently satisfies a 15-min benchmark. It asks how suburban areas can transition towards more viable, connected, and liveable configurations organised around main streets and mixed uses. From this perspective, KBC-POI alignment is not an academic curiosity. It is one way of identifying where the local structure is already coherent with that ambition, and where it is not.

From this standpoint, the results support a differentiated planning interpretation. Via Aurelia remains the strongest candidate to act as the local main street sought by EMC2. It already combines strong bridging capacity, high visibility in the local functional geography, and the broadest diversity of current uses. It is therefore not merely a structurally strategic axis, but an already consolidated functional spine that could be reinforced through public-space improvements, better walkability, stronger cycling continuity, and selective infill or upgrading actions.

Via delle Gorine, by contrast, appears less as an already consolidated main street and more as a candidate for a secondary local centre. Its long high-KBC structure shows that it has significant intrinsic capacity to bind together the local system. Yet this capacity is currently only weakly mirrored in the geography of activities. Precisely for this reason, it seems particularly suitable for future densification and targeted activation within a broader logic of 15-min systems, where more than one local core may coexist and interact rather than depending on a single dominant centre.

The two axes should therefore not be interpreted as alternatives, but as complementary elements of a more articulated suburban strategy. In a mature EMC2 perspective, Via Aurelia would remain the principal structuring corridor, while Via delle Gorine could evolve into a supporting centre or hinge within the local system. The effectiveness of such a structure would depend less on simply adding activities and more on strategically integrating the two axes through reinforced pedestrian and cycling connections, safer and more continuous public-space interfaces, and a stronger spatial relation between everyday services and movement corridors. In this sense, the present analysis does not prescribe a finished project, but helps identify where the spatial preconditions for such a project are already present.

The paper also has clear limits. It does not claim that KBC predicts land-use success. It does not measure demand, profitability, ownership constraints, or regulatory feasibility. It does not distinguish in detail between all types of functions, although the extension towards category-specific affinity remains open. Nor does it solve the broader question of which functions should be prioritised in suburban proximity planning. On that point, the parallel DPI-related work remains essential, because different amenities follow different logics of frequency, threshold, substitutability, and capillarity. The present paper deliberately stops one step earlier. It asks where structural opportunities appear to exist, not which exact functions should necessarily occupy them.

A further limitation concerns the use of KBC itself. Recent work makes clear that KBC can be more exposed to boundary-induced artefacts than alternative removal-based measures. This is why the present analysis relies on a wider network extent and then interprets the values within the local boundary. Even with this precaution, the metric should still be treated as an exploratory planning-support layer rather than as a definitive ranking of urban importance.

Within these limits, the paper still offers a useful and original message for MLC. In suburban areas, streets should not be evaluated only by how many services they currently host or how quickly they connect to existing destinations. Some of them also deserve attention because they are structurally strategic. When such corridors are compared with the real geography of local functions, they reveal a distinction that matters for planning: already activated corridors versus latent corridors. This distinction can support more informed discussions about where to reinforce local services, improve pedestrian continuity, prioritise cycling links, upgrade bus-stop environments, or test more selective forms of densification. It does not settle those decisions, but it helps structure them.

Future work can develop this diagnostic in three directions. The first is empirical refinement, through the inclusion of category-specific analyses to test whether some amenity types display stronger affinities with high-KBC corridors than others. The second is analytical integration, by combining bridgeness with travel-time accessibility and with the more explicit functional prioritisation now being developed through DPI-related work. The third is operational extension, by linking latent corridors to ownership, regulatory, and implementation layers already present in the broader EMC2 workflow.

In conclusion, the main contribution of the paper is modest but clear. It shows that weak ties are useful for suburban planning not simply because they identify bridges in the abstract, but because, when compared with the actual distribution of local functions, they help reveal whether structurally strategic corridors are already working as local anchors or remain underused spatial assets. In Turano, this distinction leads to a particularly relevant planning implication: Via Aurelia emerges as the most plausible existing main street, while Via delle Gorine appears as a promising corridor for future activation and densification within a more integrated 15-min suburban system.

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