

**Active Frontage Controls:
Architecture, Affordances and Atmospheres in Forrest Hill,
Melbourne**

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Abstract: Active frontages are promoted in planning policy as ‘best practice’. While acknowledging the importance of public-private interfaces for street-life vitality, this paper questions the widespread uncritical adoption of ‘active everywhere’ controls. For example, what is the effect of the requirement for street-level frontages to be clear glazed shop window or entry, especially in a time of disruptions to ‘bricks and mortar’ retail? The study includes a case study investigation of the Forrest Hill precinct, a former light-industrial area 3km south-east of Melbourne’s Central Activities District (CAD) which has undergone intensive high-density mixed-use re-development since 2004. By analysing observed behaviours in relation to built-form outcomes, and users’ sensory perceptions (captured in walk-along video/audio recordings), the case study contributes to an understanding of the impact of active frontage controls on the street-level public realm. The conceptual framework is informed by affordance theory, which offers a pathway for understanding the relationship between environment and occupants. Looking beyond affordances as opportunities for action, this study also explores sensory affordance, or atmosphere; specifically, the fine grain details and materiality that contribute to atmosphere and the perception of urban quality at pedestrian level. Using insights gained from the case study and desktop research, this paper seeks a more critical approach to urban codes for this important socio-spatial interface, i.e. a flexible framework that affords innovative strategies, and a broader range of assessment tools to be employed.

Key words: planning controls; active frontage; street-life vitality; affordances; atmospheres

Introduction

Urban research since the 1960s has recognised the value of promoting and sustaining vital street-life, and the relationship between the design of the street level public/private interface and street-life intensity. Active frontages, or edges, are interfaces which allow interaction at the boundary between the public realm of the street and the building interior. This interaction may be provided via a visual connection; as Alexander (1977, p.774) observed: ‘The sight of action is an incentive for action. When people can see into spaces from the street their world is enlarged and made richer, there is more understanding; and there is the possibility for communication, learning’. Jacobs (1961) also promoted the importance of the visual connection, coining the phrase ‘eyes on the street’ for passive surveillance as a means of supporting vitality by improving public safety. The ‘eyes on the street’ principle remains influential in contemporary urban planning and design, underpinning current active frontage policies that require extensive transparent glazing to street-level frontages.

Some urban scholars propose that physical connections are as important as visual linkages in activating frontages. Alexander (1977, p.774) noted that ‘a glass connection creates a relatively passive involvement’ and argued that an opening in a wall ‘creates a far more valuable and involving connection’, while Sennett (2011, p.326) observes that a porous street-wall creates a ‘living border’. Gehl (2010, p.93) concurs, identifying the activity that occurs with people entering and leaving buildings, and promoting short distances between entrances as a means for activating street-life. In addition to promoting façade transparency and permeability, early interface analyses also sought the elimination of blank frontages. Whyte (1988, p.226) argued that blank walls ‘have a message. They are a declaration of distrust of the city and its streets and the undesirables who might be on them’; he advocated replacing blank walls, particularly with retail at street-level. Whyte’s criticism was directed at a phenomenon he observed to be a ‘dominant feature’ of the contemporary city, i.e. institutions and shopping malls ‘turning their back’ on the public realm, with extensive lengths of blank wall a manifestation of the privatisation and internalisation of public life.

While recognising the important role active frontages play, this paper questions the widespread adoption of controls prescribing transparent retail shopfronts, especially in a time of disruptions to traditional ‘bricks and mortar’ retail (Araujo and de Atholia 2018). Further, although Whyte’s ‘anti-blank wall’ message is a legitimate reaction against the loss of interaction between the public and private realms, it has been reduced within contemporary active frontage policy to an aversion to permitting façade ‘blankness’ in any form. The questions arise: *do we need ‘active everywhere’?* (Six Degrees Urban 2014); and, conversely, *how much blankness is ‘too much’?*

Active frontage controls, affordances and atmospheres

Codes promoting active frontages as 'best practice' have been endorsed by urban designers and planners in many countries, including Australia. In Melbourne, the early adoption of active frontage policy was influenced by the work of Gehl, who is 'an international champion of active frontages' (Jones 2018, p.116). Following the 1989 economic and property crash, the State Government of Victoria (1994) and the City of Melbourne sought to rejuvenate the central city, 'to create a more liveable and vibrant city'. Building on earlier public-life studies, Gehl Architects (in collaboration with Melbourne City Council 1994) surveyed and examined the quantity and quality of public space activity in the central city area of Melbourne. The outcome of the 1994 *Places for People* study was a series of recommendations and benchmarks for strategies to improve street-life vitality. These included 'removing large areas of blank and uninviting walls,' and promoting 'ground-level building facades that provide interest through windows, displays and visible indoor activity,' on the premise that facades that were 'stimulating' would encourage people to walk through, and stay longer, in the city. A ground-floor frontage evaluation scale graded frontages from A Quality (active, open, 'soft', 15 – 20 doors per 100m, large variety of functions) through to E Quality (inactive, passive, closed, 'hard', 0 – 2 doors per 100m, no visible variation in function). The proposition was that A and B Quality frontages 'maintain a healthy street life', while E Quality frontages 'kill street-life' (ibid, p.332).

Melbourne City Council supported the recommendations of the 1994 report, adopting an active edges policy for the Central Activities District (CAD) with a requirement for 'shops and food service outlets to have a display window or entrance measuring at least 5 metres or 80 percent of the ground-floor façade (whichever is the larger)' (Gehl Architects 2004, p.20). Active frontage policies have been adopted by local government within the Melbourne Metropolitan area, and regional centres throughout Victoria. The active frontage controls vary; however, many follow the lead of Melbourne City's active edges policy by nominating an area of the street-level frontage to be 'entry or clear transparent display window'.

Considering the prevalence of current active frontage controls, this paper reflects on the effectiveness of these controls as a strategy for supporting street-level vitality in a contemporary city. The conceptual framework for these investigations is informed by affordance theory, which offers a pathway for understanding the relationship between environment and occupants. Gibson (1979/2015, p.119) coined the term affordance to explain what the environment affords – or offers – an agent, 'either for good or ill'. In brief, any behaviour requires perception of affordances, and these affordances are revealed as the consequence of a specific relationship between the agent and their individual environment. Early proponents of affordance theory focused on employing affordances as a strategy to improve the 'usability' of designed objects, arguing that 'good design' is implicit, directing an agent on how best to use an artefact with little or no further explanation required (Norman 1988). This study looks beyond this deterministic view of affordances. As Dovey observes, 'The task for urban design is one of *maximizing* rather than determining affordances' (2016, p.42, my emphasis).

While active frontage controls requiring expansive transparent shopfronts seek to afford vitality (through interaction between the public and private realms, albeit while privileging commercial retail transactions), and security (through passive surveillance), these controls may also *limit* affordances which enable a key prerequisite for vitality, i.e. diversity of users and use (Jacobs 1961). Questions that arise about the role of active frontage controls in limiting or eroding urban affordances include:

- Does security for some come at the expense of excluding, or eroding the affordances offered to, other members of society, contra to ideals of spatial justice (Loukaitou-Sideris and Ehrenfeucht 2009)?
- By requiring a formula-based uniformity of activity and built form, do active frontage controls encourage homogenisation? Homogenisation is linked to globalisation, the rise of the 'generic', and the associated negative impacts on place identity (Relph 1976, Dovey 1999, Bobic 2004).
- Does policy that seeks to eliminate all areas of 'blankness', or vacuums, in public space restrict sites affording spontaneous, responsive and transformative urbanity? (Dovey 2016).
- Do active frontage controls limit frontage adaptability, eroding affordances for new and innovative uses? Inflexibility (both of built form and use) is linked to environmental unsustainability; a sustainable city is resilient through adaptability to change (Bergeroet and van Tuijl 2016).

When seeking to maximize affordances, to support diversity of uses and users, it is apposite to consider both 'conventional' and 'unconventional' affordances. For this research, an unconventional affordance is one which does not accord with the original design intent or purpose. Cognitive behaviour theorists have also linked the making and discovery of unconventional affordances with the creative process (Withagen and Van der Kamp 2018); therefore, analysing 'unconventional' affordances may provide insights into alternative, and more creative, strategies for the design and governance of the street-level public/private interface.

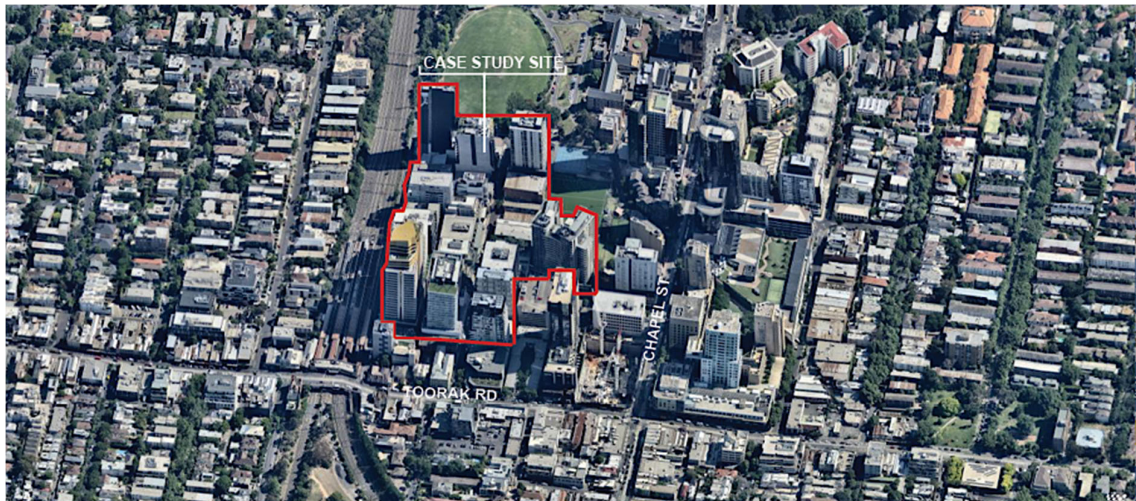
Further, the street-level interface cannot be assessed solely on physical affordances; also important is how it 'feels'. Montgomery (1998) identified sensory experience as one of three 'essential ingredients' of urban place quality (alongside physical space and activity). Therefore, affordance analysis involves looking beyond affordances as opportunities for action to also encompass sensory affordances, or 'atmospheres' – a term that has antecedents in the phenomenology of perception (Merleau-Ponty 1945). Characterisations of atmosphere vary; the Oxford Dictionary (2019) definition of a 'pervading tone or mood' is a useful starting point. Scholars who link atmosphere to spatial experience and architectural quality include Böhme (2017), Pallasmaa (2005) and Pritzker Prize winning architect, Zumthor (2006). All converge in identifying details and materiality as two key instruments they argue can be useful in the creation of atmospheres. This focus on building details and materials in relation to atmosphere accords with Gehl's promotion of 'close encounter' architecture, i.e. the importance of 'good materials and fine details' at pedestrian level, where there is the opportunity to 'look closely and touch' (Gehl et al. 2006).

In sum, the framework of analysis for this study builds on the idea that active frontage controls may limit or erode urban affordances, by investigating relationships between street-level frontage types and affordances (conventional, unconventional and sensory).

Forrest Hill Case Study

Forrest Hill, an 8-hectare former light-industrial area located 3km south-east of Melbourne's CAD, has undergone high-density mixed-use re-development since the 2003 closure of the two main factories operating within the precinct. Lacking the iconic redundant-industrial heritage buildings present within other inner-ring Melbourne suburbs, Forrest Hill provided a 'clean slate' for the type of urban intensification promoted in the State Government's *Plan Melbourne 2030 – planning for sustainable growth* (State of Victoria, 2002). In the past 15 years, more than thirty towers (ranging from 15 to 50 storeys) have been built, with more under construction or at planning permit application stage. Forrest Hill's population grew from 151 residents in 2006 to 4,625 residents in 2016, with an increase to 10,502 projected by 2026¹. The number of office and retail workers has been predicted to reach 4,400.²

Figure 1: Forrest Hill case study site



Source: Nearmap

¹ i.d.consultants, July 2016, accessed 14.02.19, < <https://forecast.id.com.au/stonnington/accessibility-forecast>>

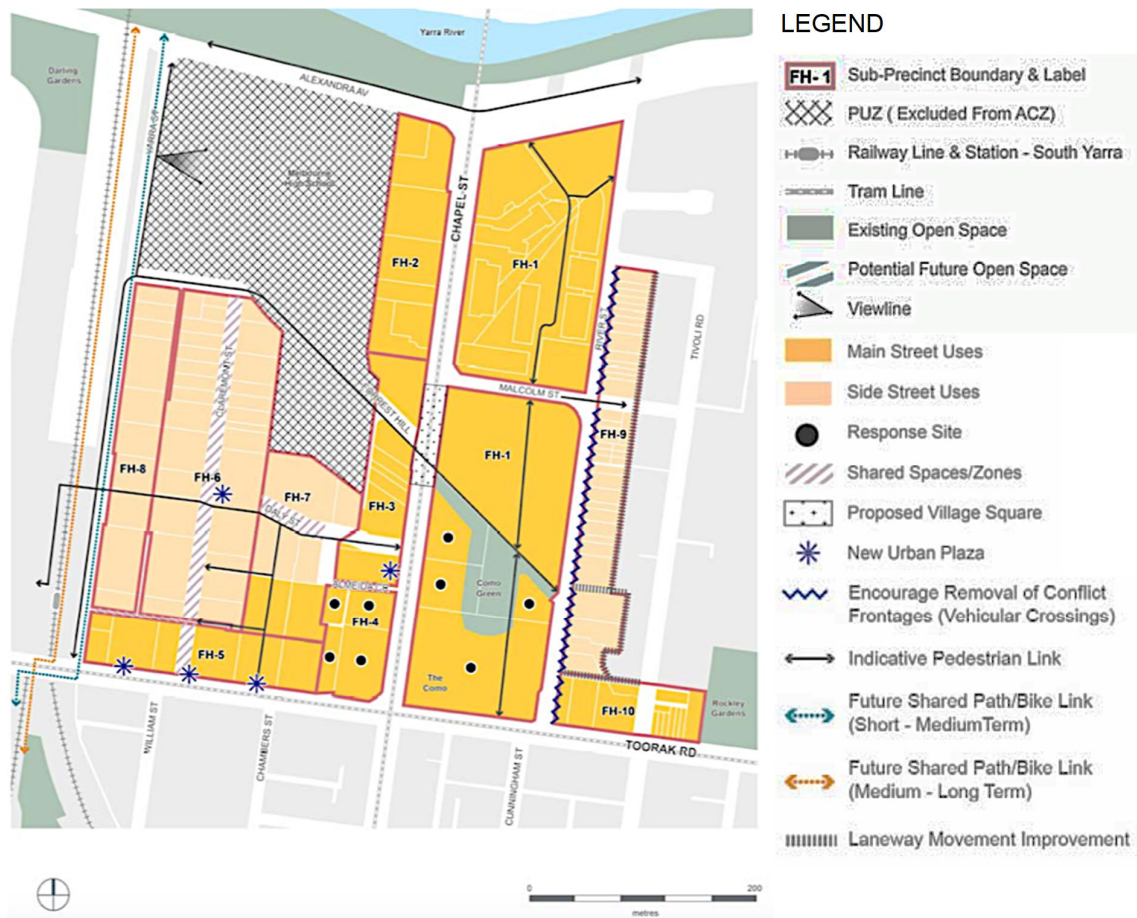
² Urbis Consultants and CKC forecast, cited in Hopkins (2011).

Forrest Hill was selected as a case study because it is an emergent precinct with areas of contiguous street-level frontages, required to generate the synergies needed to provide a representative sampling of street-life; it is located on public transport routes (train and tram) which support pedestrian density and social diversity; and it contains a network of secondary streets, rather than being focused along a main shopping strip. It also shares characteristics with other areas of recent mixed-use development, providing opportunities for insights into understanding dynamics in other localities.

The selected case study area, a 2.75 hectare precinct adjoining South Yarra Railway Station, includes Yarra and Claremont Streets (running south-north from Toorak Rd); however, it excludes Toorak Rd and Chapel St because a focus of this study is to understand the relevance of active frontage controls prescribing transparent shopfronts beyond the main retail strips. An east-west pedestrian route links Chapel St to Yarra St, via Daly St and Yarra Lane.

In 2003, Stonnington Council issued Design Guidelines for the redundant factory sites, encouraging 'pedestrian activity and vibrancy at street level', but with no specific active frontage controls (City of Stonnington 2003). The 2005 Forrest Hill Structure Plan required an active frontage that 'should be predominately clear glazed from footpath level to a height of at least 2 metres above footpath level. It should also have a pedestrian access at least every 15m' (City of Stonnington 2005). The Chapel Vision Structure Plan 2007-2031 (followed by the 'refreshed' Chapel ReVision Structure Plan 2013-2031) included public realm interface guidelines requiring that 'all ground floor street frontages should have a continuous active frontage incorporating clear glazing, even for properties that have multiple street frontages' (City of Stonnington 2007, 2014).

**Figure 2: Forrest Hill, Precinct 1, Chapel Street Activity Centre
(Case study area includes FH-6, FH-7, FH-7)**



Source: Schedule 1 to Clause 37.08 Activity Centre Zone, 5.5-1 Precinct Map (Stonnington 2017)

Figure 3: Views of case study area**3.1. Yarra St looking south**

Source: Author.

**3.2 Claremont St looking south*****Mapping, behaviour observation and sensory walk-alongs***

Mapping street-level morphological attributes and functional mix are key themes in urban design research; for this study, the mapping is used as a framework to investigate synergies between active frontage controls and affordances. The street-level morphological attributes mapped and analysed included building footprints and the contiguous public/quasi-public realm, functional mix and grain size, public/private interface types, and the quality of street frontage materials and detailing. The interface typology employed references the 5-part classification developed by Dovey and Wood (2015), i.e. impermeable/blank, direct/opaque, direct/transparent, pedestrian setback, and car setback. Dovey and Wood argue that, unlike Gehl's continuum from 'active' to 'blank', their classification recognises the ambiguities and complexities that 'mediate interaction between public and private space' (Dovey 2016, p.61). For this study, the Dovey/Wood typology has been adapted to reflect the focus on affordances in relation to active frontage controls, i.e. the direct/opaque and direct/transparent types have been replaced with transparent 'active' frontage³ and 'non-standard' frontage; individual pedestrian entry points are identified, instead of pedestrian setback; impermeable/blank and car setback are retained.

The second part of the fieldwork involved observation and mapping of street-level behaviours, to gain insights into the affordances offered by shopfronts with large areas of transparent glazing. Stationary observation points were selected at two locations, positioned to allow view-lines of pedestrian movements and behaviours on the footpath outside the shopfronts. 10-minute observations⁴ were conducted at both locations during the weekday morning peak hour, weekday lunchtimes and Saturday mornings, and across the seasons (excluding Winter). In addition to pedestrian flows, the following behaviours were also counted and mapped: people entering or exiting the premises, heads turning towards the shopfront windows, and any 'lingering' actions, i.e. people pausing and engaging in solo or shared stationary activities. 'Unconventional' affordances were also studied throughout the wider case study area, to investigate links between these affordances and frontage types. For example, building ledges affording informal seating, or blank walls affording leaning or other lingering activities. Unconventional affordances were directly observed, or identified through physical trace analysis, and photographed during 40 site visits. Following analysis of the recorded affordances, 6 broad categories of unconventional affordance were identified, and mapped in relation to the frontage types and quality.

Finally, to investigate sensory affordances/atmospheres, accompanied walk-alongs were conducted with 6 participants (3 with expertise in architecture or urban planning and 3 laypeople). Participants were equal in terms of gender, with some diversity in ethnicity and cultural background, and a range of ages was represented (29 to 69 years). Wearing a smart-phone on a lanyard, participants made an audio and

³ For this study, a transparent 'active' frontage has at least 80% of the frontage as clear glazing or entry, in compliance with active frontage guidelines. A frontage with less than 80% clear glazing was placed in the 'non-standard' frontage type.

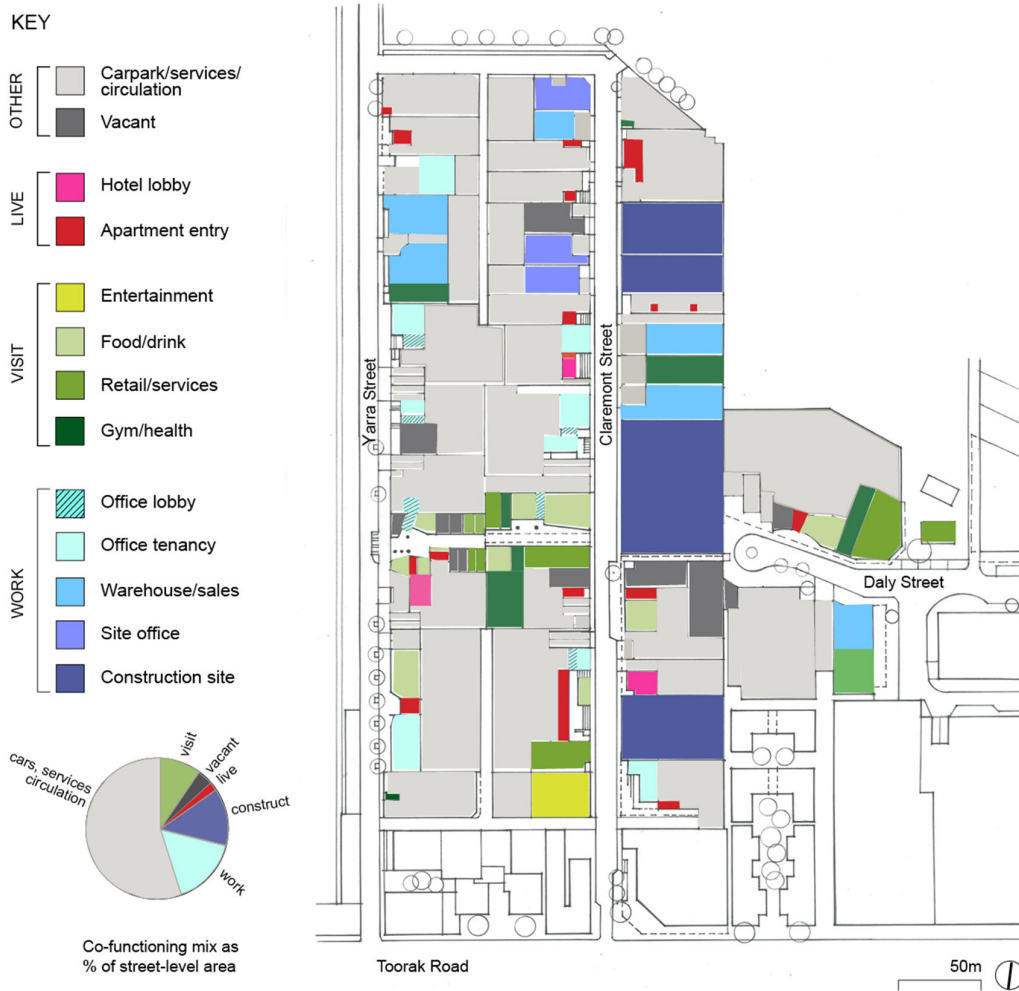
⁴ Gehl and Svarre (2013) advise counting pedestrian flows for 10-minute periods, which is also a manageable time for a sole researcher counting pedestrian types and flows in two directions. A total of 10 observation periods were conducted at each location. The quantity, and timing, of the observation periods provide a representative sampling of the data relating to relationships between frontage design and pedestrian behaviours.

visual recording during their journey along a set-route and were asked to capture any notable sensory connections they felt contributed to the 'atmosphere' and to the 'quality' of their experience of the street-level public realm⁵. The videos, and transcripts of the audio recordings, were analysed for observations providing insights about sensory and experiential responses to the street-level interface; for example: *'this architecture feels heavy and masculine'*. Responses were mapped onto the base plan of frontage types and quality for analysis of links between sensory affordances and frontage design.

Findings

Figure 4 shows street-level 'live', 'work' and 'visit' land-uses (Nes et al. 2012, cited in Dovey and Pafka 2017), mapped at the 'fine grain' scale of individual tenancies (not building lot) to provide a more nuanced understanding of co-functioning mix. While recognising that vertical mix also contributes, this research focuses on the street-level public realm; therefore, mapping and analysis were restricted to the 'horizontal'. Construction sites were classified 'work' (although temporary, they contribute to activity), and apartment/hotel lobbies as 'live' (there are no residences at ground level). The mapping reveals similar numbers of 'work' and 'visit' tenancies, with a small number of 'live', and, typically, a thin 'skin' of occupied frontage, with circulation, services and carparks behind; while the street-frontages may 'appear' active, they do not always have the floor area to support density of ground-floor occupation.

Figure 4: Street-level co-functioning mix

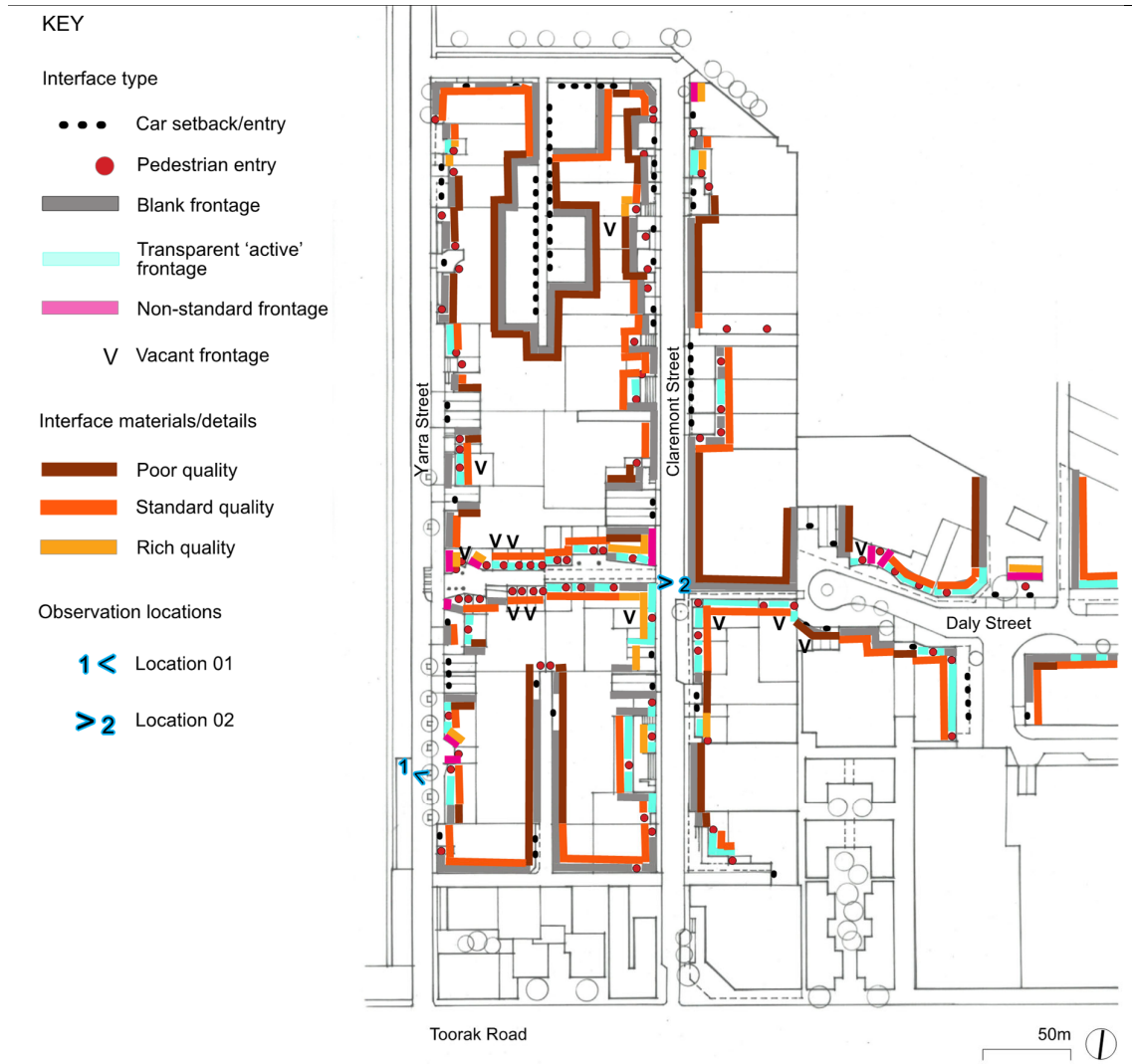


Source: Author.

⁵ The method was an adaptation of the 'go-along' or 'walk-along' method, where participants are accompanied by the researcher and provide commentary or answer questions (Kusenbach 2003; Degen & Rose 2012), and the variation where the researcher makes a video/audio recording (Pink 2014). For this research, the participants 'take charge' of their own recording, which may assist in reducing interviewer bias, providing a more authentic representation of their experience.

Figure 5 shows the frontage interface types, an evaluation of frontage 'quality' (based on a self-generated set of criteria), and the location of vacant tenancies; at the time of mapping (May 2019), 11 (approximately 20%) of the 56-leasable street-level tenancies were vacant, while around 30% of the approximately 286 lineal metres of transparent 'active' frontage was vacant. When frontage activation controls are applied, occupancy is considered a successful outcome, whereas vacancy is deemed to be a symptom of failure. Contributing factors other than frontage design impact on vacancy levels, including walkable access, 'footfall', economic factors and leasing arrangements. In addition, current construction works may be impacting on nearby businesses in Claremont St. Therefore, only limited conclusions can be drawn regarding the relationship between frontage design and empty shopfronts. However, the high level of retail tenancy vacancy within the case study precinct (20%, compared to 6.5% in Toorak Rd⁶) does give support to the hypothesis that frontage activation controls requiring glazed shopfronts do not guarantee successful outcomes, particularly in secondary streets away from main shopping strips.

Figure 5: Street-level interface morphology mapping



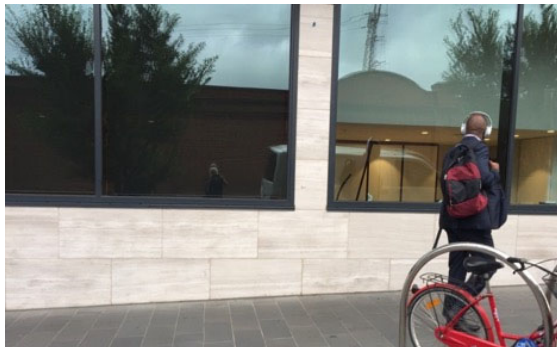
Source: Author.

⁶ 2018 data, *Walk the strip –volume 2*, accessed 27.06.19 <<https://www.fitzroys.com.au/walk-the-strip/volume-2>>

Having mapped street-level morphology and functional mix, the study looked to street-level behaviour patterns. During the observation periods, both locations studied had relatively high pedestrian densities during the morning peak. At Location 01 an average of 280 pedestrians were recorded in 10-minutes, i.e. 7 people per minute per metre of footpath on the 4m wide section of footpath outside the shopfronts, rising to 14 pp/min/m where the footpath narrows to 2m at the south end of the frontage⁷. Lower densities were observed at both locations during weekday lunchtimes, and on Saturdays.

Location 01 (2 Yarra St; office) has 3 'shopfront' windows – 2 obscured in part or full by blinds, and 1 looking onto a kitchenette. On weekday mornings, an average of 6% of passing pedestrians turned towards the windows; at lunch time the number increased to 14.3%. A possible explanation for this increase is that in the mornings people are hurrying to and from the train, whereas they have more time to be 'distracted' in their lunch break. Although some seemed interested in the kitchenette view (Figure 6.1), it was observed that many of those turning towards the obscured windows appeared to be using the reflective surface as a mirror, adjusting hair or clothing as they passed (Figure 6.2). Linger activities recorded were solo stationary activities (talking on mobile phone, smoking). These predominately occurred in front of obscured glazing (Figure 6.3), or the blank interface of services cupboards (Figure 6.4).

Figure 6: Observation Location 01



6.1. Head turning towards kitchenette window



6.2. Reflection in window obscured by blind



6.3. Linger activity outside obscured window



6.4. Linger activity outside services cupboards

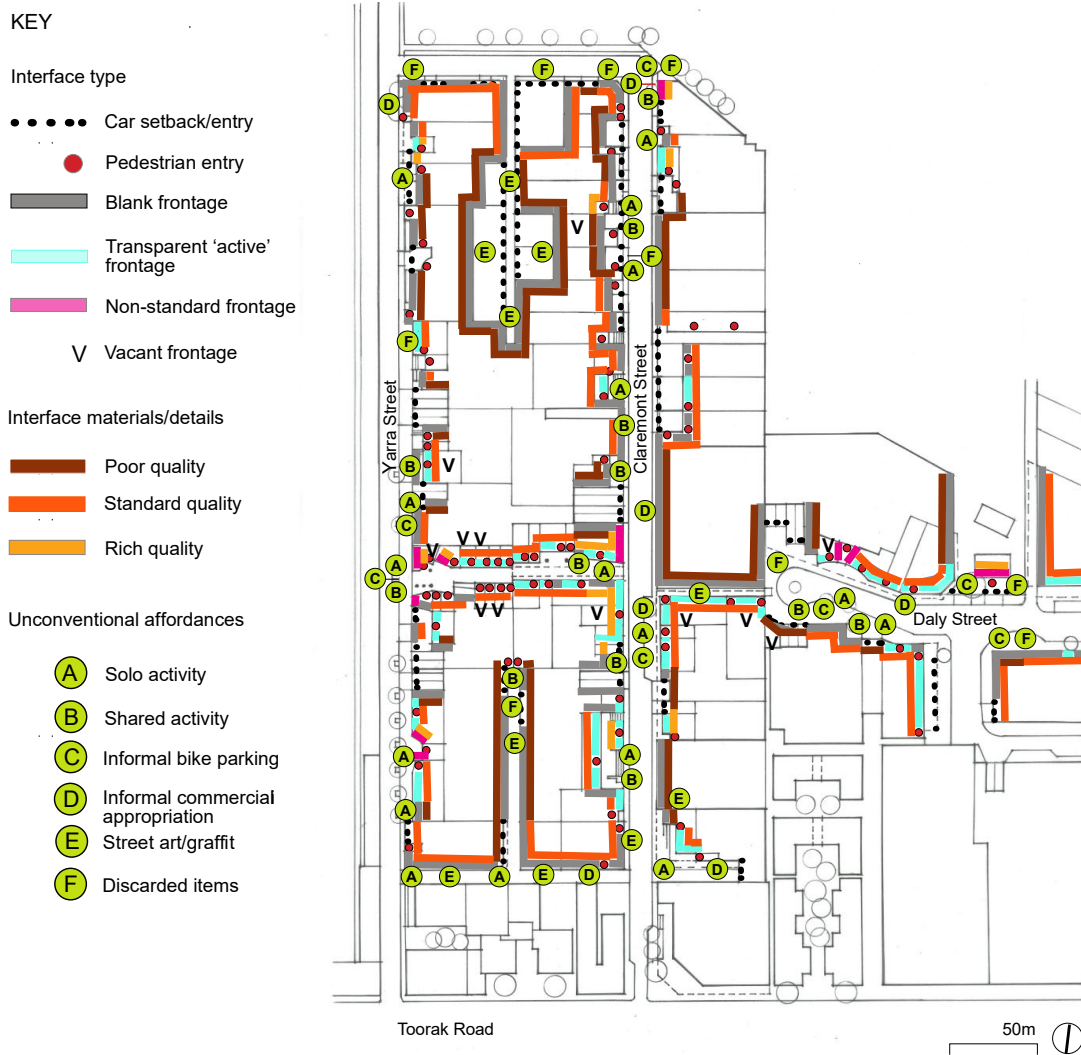
Source: Author.

At the second observation location (9 Claremont St), only one person was recorded turning towards the shopfronts. The lack of interest may be explained, in part, by the fact that the occupant (a development display and marketing suite) does not present a changing 'offer' for passers-by. Also, the blanked-out windows at Location 02 are covered with advertising material; therefore, the glass is less 'mirror like'. No lingering activities occurred during the observation period; however, at other times people paused outside the 'blanked out' windows to talk on their mobile phones. Overall, the behaviour observations at both locations indicated that the transparent 'active' frontages did not support lingering activities that contribute to street-life vitality.

⁷ A comfortable pedestrian density is deemed to be a maximum of 11 pp/min/m. For comparison, Swanston St in Melbourne's CAD has around 5pp/min/m at the morning peak hour. 2012 data, accessed 27.06.19
<<https://www.melbourne.vic.gov.au/SiteCollectionDocuments/walking-plan-2014-17.pdf>>

In addition to affordances offered by the frontages at the observation locations, 'unconventional' affordances were recorded and mapped throughout the case study area, i.e. affordances supporting solo and shared stationary activities, informal bike parking and commercial appropriation, street art/graffiti, and discarded items (Figure 8). Many of the observed unconventional affordances were triggered by an existing 'lack' in the built environment, rather than presenting innovative strategies. For example, steps, walls and the footpath afford informal lingering activities (e.g. sitting, eating and drinking) because there is no public seating in the case study area (apart from Daly Street). Affordances may be fleeting, and therefore those recorded provide a limited sample of what may be occurring. However, although limited in scope, this study does provide some useful insights, i.e. very few recorded unconventional affordances involving stationary activities were observed in locations associated with transparent 'active' frontages; most occurred next to blank walls or 'non-standard' frontages (Figure 7).

Figure 7: Mapping of unconventional affordances

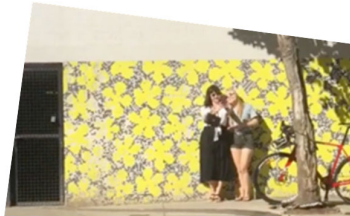


Source: Author

Figure 8: Unconventional affordance types



A. Solo Activity



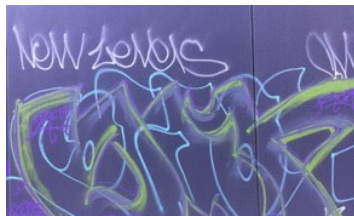
B. Shared Activity



C. Informal Bike Parking



D. Informal Commercial Appropriation



E. Street Art / Graffiti



F. Discarded Items

Source: Author

The final part of the study sought an understanding of relationships between frontage design and the perceived quality of the street-level environment, by investigating sensory affordances, or 'atmospheres'. The audio and video recordings made by the walk-along participants captured multi-sensory perceptions, including visual, auditory, olfactory, tactile, and spatial impressions. Overall, many participants observed that the atmosphere was 'ordinary', or 'dull and boring'. One participant, impacted by the 'massive scale' of the buildings, described the atmosphere as slightly 'intimidating'; most commented on a lack of landscaping, and the predominance of grey and black building materials. However, all participants understood that the current atmosphere in Claremont St is temporarily impacted by the noise and traffic generated by construction sites.

A sample of responses specifically relating to the street-level interfaces includes:

- Responses to blank frontages, carpark entries and services cupboards were negative, e.g. 'feels dead', 'ugly', 'disruptive', and 'bizarre' (Figure 9.1). Vacant tenancies felt 'sad'.
- Positive comments about transparent 'active' frontages were, somewhat predictably, limited to those occupied by cafes, e.g. 'lively atmosphere outside in the sun' (Figure 9.2). Responses to transparent 'active' frontages occupied by non-cafe uses included: 'feels dull and boring', 'gives nothing back to street' (real estate agencies and engineers' offices); and 'run of the mill', 'clutter', 'poor housekeeping' (boxes stacked against supermarket windows, Figure 9.3).
- Responses to 'non-standard' frontages included 'bit twee, but good acid yellow', 'charming', 'feels happy', 'place-making for the Instagram generation' (Figure 9.4). A screen over the glazed shopfront was appreciated by one participant who felt the timber and commented on the importance of 'having materials you can touch at ground level'.

In short, the participant responses demonstrated links between the design of the frontages and perceived 'atmospheres' in the street-level public realm.

Figure 9: Frontage types linked to participant responses.



9.1. Blank frontage: carpark entries and services



9.2. Transparent 'active' frontage: café



9.3. Transparent 'active' frontage: supermarket



9.4. 'Non-standard' frontage: tiled carpark wall

Source: Author.

The Forrest Hill case study has shown that active frontage controls promoting transparent glazed retail shopfronts are not *always* effective in affording physical and sensory vitality at street-level. The quantitative research conducted has been useful in understanding physical affordances in relation to the interface types. For example, the recorded level of vacancy associated with transparent 'active' frontages demonstrates that conventional glazed shopfronts may not afford the flexibility of frontage design required to support alternative ground floor uses. Further, the data shows that not all transparent 'active' frontages elicit interest from passers-by, and that observed lingering activities and 'unconventional' affordances predominately occurred next to blank or 'alternative/non-standard' frontages (less than 80% transparent glazing), rather than in relation to transparent 'active' frontages (80% transparent glazing). This is, in part, contrary to findings from public life studies conducted by Gehl Architects (2010, p.79) that have recorded the level of activity in front of 'active' façades as being seven times higher than in front of 'passive' façades.

Along with empirical data about behaviours associated with frontage types, the investigation of sensory affordances/atmospheres provides a supplementary, qualitative tool for understanding and analysing street-level interfaces. 'Sensorial urbanism' is an established field of research; however, to date, there has been limited investigation into user perceptions of street-level 'active' frontages, with existing research focussing on visual perception, using photo comparison ranking (Heffernan et al. 2014), rather than multi-sensory experience. This study adapts Pink's (2014) video-sensory ethnography method, where the researcher records and the participant 'does,' to enable a low-impact, 'low-tech', participant controlled tool for recording multi-sensory responses during the 'walk along'. This part of the research is still exploratory; however, this method opens up a pathway for gaining insights into user perceptions of sensory affordances associated with different frontage types and designs. While based on a small sample, the case study 'walk-alongs' indicate that perceived atmospheres in relation to transparent 'active' frontages (unless occupied by a busy café), typically 'felt dull and boring'. The sensory affordances were not only impacted by the lack of activity at these frontages; responses indicate that the flat glazed surfaces, monotonous colours, and quality of materiality, detailing and maintenance also contributed to the perceived non-vital atmosphere and place-identity of the precinct.

Discussion

This study provides an affordance-based analysis framework and methodology that could be applied to the investigation of street-level public/private interfaces in other urban areas. The framework and methodology build on existing research methods for studying frontages. Gehl's (1994, 2010) frontage evaluation grading scale rates transparent glazing as 'active' while non-transparent windows and any form of facade blankness are classified as 'blind or passive'. Bobic's (2004) 7-part interface typology (each with sub-types) focuses on transition spaces and entrances, with 26 additional interface detail types which include 'large street window' but do not specifically address variations in glazing area or transparency. Dovey and Wood's (2015) 5-part typology, based on the key variables of permeability, transparency, setback and car-dependency, provides a more nuanced understanding of street-level frontages than Gehl's continuum, and represents the complexities of interface spatial relationships in a more robust (and user-friendly) way than Bobic's somewhat complicated classification system. This paper concurs with the Dovey/Wood approach to interface types, but, in order to better understand the impacts of active frontage controls, 'fine tunes' the methodology by delineating *transparent 'active'* (80% transparent glazing) and *non-standard frontage* (including less than 80% glazing) types, which in the Dovey/Wood typology are conflated as '*direct-transparent*'. By adapting an existing method to better address the question pertinent to this research, this study adds to the current academic debate about this important socio-spatial interface.

For urban design, architecture and planning, the implication of this study is that alternative strategies to active frontage controls need to be considered. Successful cafés can activate their transparent facades, and afford 'lively' atmospheres; but cafés won't work at the base of every building, and transparent shopfronts may limit affording alternative uses and sensory experiences. And while very long blank and non-transparent interfaces may be 'deadening', pockets of 'blankness' can contribute to street-life, if part of a mix. This paper is not suggesting complete deregulation of the street-level interface, but rather seeks a more critical, and contextual, approach to the framing and application of urban codes, i.e. a flexible framework that affords innovative strategies and solutions to be trialled, and tested, and a broader range of assessment tools to be employed. This discussion concludes by presenting two projects that demonstrate alternative frontage strategies, varying from transparent shopfronts. It was beyond the scope of this study to undertake urban research to validate whether the potential affordances identified in these 'alternative/non-standard' frontage examples have, in fact, been 'actioned', and their impacts on enabling street-level vitality; this research, and the identification of other potential 'exemplars' of alternative frontage strategies, are tasks for further investigation.

George Corner, Melbourne

George Corner is a mixed-use project, sited between commercial and residential neighbourhoods in the Melbourne suburb of Fitzroy. Until commercial synergies could develop, it seemed unlikely that five street-level shopfront tenancies would be occupied. Therefore, three units were designed with flexible facades, incorporating modular planter boxes and screens affording security and 'filtered' privacy while allowing surveillance of the footpath (Figure 10). The removable planter/screens afford future adaptation from studio apartments to non-residential use.

Figure 10: George Corner, Fitzroy, Melbourne



10.1. Planter box/screen to street-level facade



10.2. View from interior

Source: MAArchitects with Neometro. Photos: Derek Stawell

Substrate Factory Ayase, Tokyo

The second project is located in a Semi-Industrial Zone in Tokyo's Kanagawa Prefecture, where zoning flexibility permits factories (apart from heavy industry) and residences to co-exist (Aki Hamada Architects 2017). The electronics factory has a multi-purpose showroom and workshop space at street-level that is made available to the local community. The frontage has two layers of sliding screens, providing varying degrees of permeability, privacy and weather protection, and blurring the boundary between inside/outside and public/private. Internal sliding shoji screens also allow different configurations of the street-level spaces (Figure 11). This project demonstrates three useful strategies: flexible zoning, which affords a variety of uses to co-exist, and more 'nimble' adaptation to new uses; adaptable internal planning to accommodate a variety of street-level uses; and a façade that affords interaction at the street-level interface.

Figure 11: Substrate Factory Ayase, Tokyo



11.1. Street façade fully open



11.2. Outer screen closed; glazed façade open

Source: Aki Hamada Architects. Photos: Kenta Hasegawa

<<https://www.archdaily.com/872046/substrate-factory-ayase-aki-hamada-architects>>

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