

# New Urban Territories: Spatial Assemblies for the 20-Minute City

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**Abstract:** Metropolitan planning frameworks in Australia have shifted from autonomous land-use and infrastructure planning to integrative development approaches that incorporate the social, spatial and environmental imperatives for resilient and liveable places. While the notion of 'place' is not new, its expression in our urban development strategies has evolved. Place-making has typically resided at the scale of a site or bounded activity precinct. We are now beginning to see 'place' emerge as a metropolitan concern, the scale and form of which is much more fluid. One such example is the notion of a '20-minute city' proposed as a key component for Victoria's pending metropolitan plan.

Through a design-led investigation, this paper explores the types of spatial assemblies and development approaches that could potentially achieve the 20-minute city in metropolitan Melbourne. It draws on a larger research investigation for the Australian Research Council called *Intensifying Places: Transit-Oriented Urban Design for Resilient Cities* and identifies new urban territories within metropolitan Melbourne for potential intensification. The proposed scale of each territory lies between 'metropolitan' and 'local' which enables a range of transit, built form and land-use strategies to be considered as part of a co-functioning urban system. Through these speculative urban landscapes, this paper will discuss the benefits and challenges associated with the 20-minute city concept.

## The convergence of “metropolitan” and “local”

As our cities begin to reconfigure around a new economic era, they are also confronting the challenges of unprecedented population growth and climate change. These compounding urban pressures present uncharted territory for the future development of our metropolitan centres. On the one hand, Australia’s planning policies aspire to build new *knowledge economies* and intensified *global cities* that can support higher levels of productivity commensurate with population projections (Aust. Dept. Infrastructure and Transport 2011). On the other hand, the notion of urban resilience relies on fostering rich local environments and a diversity of socio-economic amalgams that can sustain the upward mobility of a growing constituent of residents, while operating within ecological limits (McInroy & Longlands 2010). To meet the contemporary urban challenges we face these seemingly dichotomous city scales – the metropolitan and local – must be simultaneously re-invented and their priorities realigned.

The conflicting imperatives for sustainable urban transformation at a metropolitan and local level can be illustrated by the divergent measures of *liveability* that exist at the respective scales. Global benchmarks for liveability award a city’s productivity, prosperity and security (Woolcock 2009); values echoed by metropolitan aspirations for creating “great [places] to live, work, visit and do business” (MAC 2012). To be listed amongst ‘the world’s most liveable cities’ is an industrious badge of honour bearing a promise of global investment. However, the most liveable *global cities* are frequently the most unaffordable and unsustainable (Newton 2012), presenting significantly diminished levels of ‘liveability’ at a local level. When considered in this way, the term *liveability* is an ill-defined urban principle yet it underpins many of our contemporary development policies - its paradoxical meanings at a metropolitan and local scale tend to be used interchangeably.

While few would contest that both types of ‘liveability’ are needed, their continued misalignment demonstrates the conflicts that exist for achieving ‘real’ and sustainable urban change. If *liveability* is an aspiration for the overall quality and operation of our urban areas, then it goes to reason that the physical fabric and urban systems which make our cities liveable are also affected by the misalignment of macro and micro concerns: built form quality, diversity and distribution of housing, employment opportunities, transit infrastructure, mix of services and amenity, freight and logistics, and so on. When considered independently – as simplistic abstractions of the larger urban ecology – the conflicts between these multi-scalar urban systems are less apparent. It is when these systems are considered together, inter-related over time, that the macro–micro contradictions begin to emerge. The most obvious example is the unceasing expansion of our metropolitan areas to increase “affordable” dwelling supply; the environmental, social and economic costs of which (for both governments and individuals) have been widely documented (Tomlinson 2013; Lowe et al 2013, Trubka et al 2010).

Interestingly, most strategic development policies in Australia neither shy away from these contradictions, nor directly address them. Instead, we are seeing the convergence of metropolitan and local priorities being played out through an intermediate scale of “place-making”. In Victoria, for example, urban policy is beginning to abandon the development of an extensive network of activity centres – or individuated urban “places” – and is instead focusing on the notion of a *20-minute city* as a principal instrument for transforming Melbourne into a connected and liveable city (MAC 2012). The shift in conception of ‘place’ from discrete sites of development to broader spatial assemblies for urban living presents new opportunities for the way we envision and structure our cities. Drawing on the research undertaken in *Intensifying Places: Transit-Oriented Urban Design for Resilient Cities*<sup>1</sup>, this paper speculates on the form and nature of these potential assemblies and explores what would be required to realise the 20-minute city concept in Melbourne.

## What is the shape of a 20-minute city?

The discussion paper for Victoria’s pending metropolitan plan (MAC 2012) included two key principles for the spatial management of Melbourne’s growth: a jobs-focused polycentric city; and a 20-minute city. The former proposes to establish 3-6 nationally significant employment clusters outside of the central business district. The latter encourages “living locally” by providing all residents with “access to the services and facilities they need within a 20 minute journey from home”. It’s necessary to consider both principles in parallel to explore the potential form and nature of a future 20-minute city in Melbourne.

The 20-minute concept is premised on an individual’s *capacity* to access services and amenity. The 20-minute time-frame is measured from a resident’s front door to any number of locations that provide the facilities and services relevant to that individual’s basic needs. These locations are expected to differ from neighbour to neighbour and the 20-minute journey is not predicated by a particular mode of travel (walking, cycling, public transport, personal vehicles). Embedded in the concept are two

important shifts away from previous planning strategies:

1. *Accessibility is measured by time, not distance.*

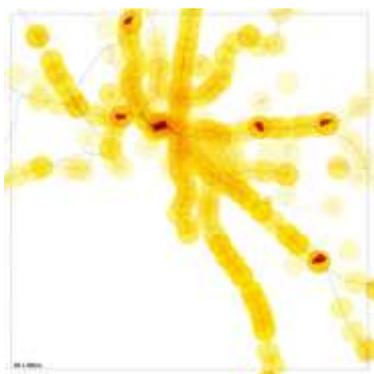
This enables the spatial configuration of our urban environments to be reconsidered. Access to services and amenity has typically been calculated by delimiting catchments around nodes of activity and transit (e.g. 400m–800m walkable radius). This bounded “village” model requires extensive replication to achieve adequate coverage across the metropolitan area. (Fig 1). By premising time over distance, the 20-minute concept places greater emphasis on connectivity than proximity. This simple shift in conception could erode the spatial limitations of existing intensification models and generate new urban assemblies for “living locally”. For example, rather than clustering services and amenity in central locations, complimentary facilities might be redistributed across several destinations and made accessible by effective multi-modal transit connections.

2. *The foci of local networks is inverted*

Rather than create an “artificial hierarchy” (MAC 2012) of local centres around which residential neighbourhoods are structured, the central element of a 20-minute city is the end user. The physical form and extent of local networks are determined by an individual’s movement patterns and points of interest (Fig 3). This introduces a ‘mass-customised’ approach to the development of our cities which is inherently diverse and adaptive. It recognises that the facilities required/desired by one individual will not necessarily be the same for the next; one particular failing of homogenous retail based activity planning is that people still travel (drive) ‘out of centre’ to shop in locations that coincide with other points of interests. The development of distinctive, differentiated urban environments may more effectively achieve sustainable urban change.

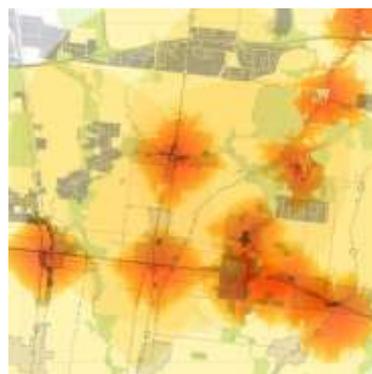
These two conceptual shifts are inter-related. Put simply, it is the difference between asking, “how far can you get?”, and, “where do you need to go?”. It could be argued that we already have a 20-minute city; in the middle suburbs most services and amenity can be accessed within a 20-minute drive (Fig 2). However in order to genuinely test the intent of “living locally” and aspiring to create more sustainable and liveable places, the 20-minute framework should aim to reduce car dependency and mitigate the health and economic impacts of vehicle congestion. It is therefore important to ensure that the new employment clusters are incorporated into future network configurations, that new types and mixes of activities and destinations are explored and that these networks prioritise public transport connectivity.

It is also important to distinguish between the outer and middle suburbs for the purposes of this study. Due to the existing disparity in amenity, service and transport provisions in each context, the shape of a 20-minute city in, say Lilydale, would be very different to that in East Malvern. The design considerations and speculative method of enquiry would also differ substantially.



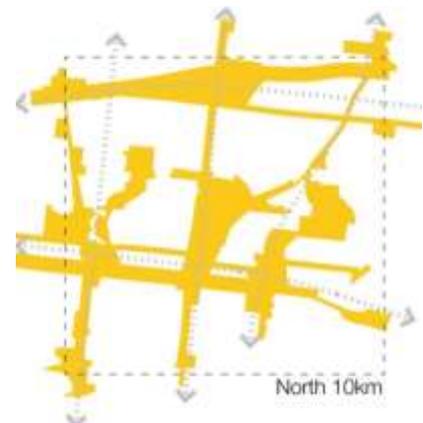
**Fig 1: Bounded urban village model – Metro Melbourne**

Extensive network of activity areas required to provide adequate coverage of amenity and services. Homogenous retail centres, combined with “single destination” transit routes provides limited choice and connectivity. Residents are likely to drive short distances to other areas of interest



**Fig 2: 20-minute network – how far can you get?**

Pedsheds around activity centres; drive radius behind



**Fig 3: 20-minute network – where do you want to go?**

Diagram of a user-defined 20-minute city based on existing transit networks. The city shape is no longer contiguous. Rather it is differentiated by variously scaled activity areas, employment zones, modes of travel, connection points etc.

The research undertaken in *Intensifying Places* focuses on the middle suburbs as a site for future

intensification. Through a design-led examination, the project identifies new opportunities for transformative and sustainable urban change at 100km, 10km and 1km urban scales (Dovey et al 2013). It is the 10km investigation that resonates with a future 20-minute city in Melbourne. At 10km, built form, transit and land use strategies come together as co-functioning parts of an integrated urban system. Conceiving of these components as inter-dependent elements of a dynamic network reveals new opportunities for envisioning and structuring our urban environments. We can also better understand the barriers for achieving liveable and resilient urban places; opportunities in one part of the 10km region are linked to problems and opportunities in another.

To realise the 20-minute city concept – for it to progress beyond a superficial aspiration and succeed as an effective urban framework – it will be necessary to develop and test its ideation in a similar way. The design speculations presented in this paper are not proposed as solutions to this complex challenge. Rather, they demonstrate how alternative development approaches and new intensification models might better respond to the particular physical and socio-economic relationships that have emerge through a 10km scale of analysis – they are potential layers in a more diversified approach to sustainable urban transitioning. The superimposition of each layer demonstrates the combinative potential of long-term and integrative design thinking. The design-led mode of enquiry is offered as method for examining and developing the ambitions of the 20-minute city vision.

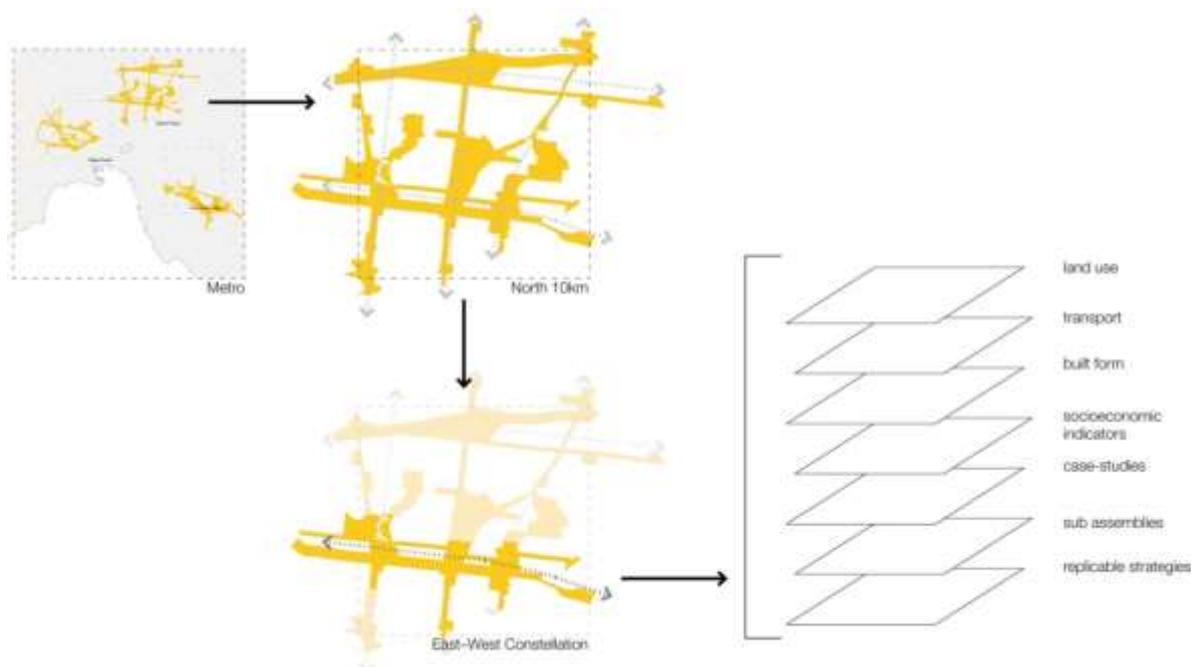
### **New urban territories: Intensifying Places at 10km**

The 10x10km investigation has enabled us to engage with a range of physical urban systems and socio-economic constructs that are less apparent at a metropolitan or neighbourhood scale. It has revealed possibilities for intensification which are typically over-looked by metropolitan planning strategies, as well as local development policies. The ‘gaps’ we’ve identified are particularly pertinent in Australian cities where state-led domains (e.g. public transport, roads, global economies, social housing development) tend to be steered independently of municipal concerns (e.g. local economies, services and amenity, site-specific urban development initiatives); and individual municipalities tend to pursue their own initiatives in isolation, with very few strategies crossing into neighbouring districts. While there is a willingness from all levels of government to deliver sustainable urban change, this lack of integration – across scales and across territories – has hindered intensification outcomes to date. One such outcome is the unnecessary repetition of services and amenity and the homogenous retail-based gentrification of middle suburban areas. Amongst other issues, this repetition creates competition between local centres and undermines the long-term success of individual renewal projects.

Through this 10km investigation, we were looking for potential synergies and alliances that might be possible with new development strategies and public transport connections. We have selected three parts of the city to focus on: one in the west, north and south-east of Melbourne. The choice of sites was informed both by a series of scoping studies undertaken early in the project and by discussion with industry partners. While each zone can be considered an ‘established’ urban environment, they represent different stages of development or maturity, having received varying degrees of strategic interest and investment over the years. Their role in Melbourne’s broader metropolitan context also differs in terms of population growth, employment, connectivity, social well-being and productivity. By understanding and engaging with their particular strengths, identities and physical contexts at a 10km scale, new opportunities for future intensification are revealed.

Recurring physical and spatial characteristics can also be observed in the three study areas. For example, each zone has a regional shopping mall disconnected from high volume public transport. Each comprises one or more university campuses and ageing industrial areas that are seeking to diversify in programmatic function and urban status. All three areas have underutilised open space reserves which could ‘work harder’ as environmental and social assets. Train and tram corridors are strewn with variously sized activity centres and retail strips. Grade separation of transit modes and the need to increase commuter demand to justify infrastructure upgrades is common to all three study areas. A recurring question through the research has been “what should come first?": enhance the transit network to support ensuing intensification; or intensify the built environment as a catalyst for demand-driven infrastructure investment?

This 10km study attempts to explore these types of difficult conundrums involved in the sustainable transitioning of our urban environments. It draws on the research undertaken at 100km and 1km and examines the particular intersection of land use, transit and built form issues captured by a 10km scale of thinking. Through a speculative mode of enquiry, a range of urban ‘constellations’ have been identified offering opportunities for real and effective change.



**Fig 4: Intensifying Places 10km investigation - design research method**

The design-led research endeavours to unpack the various layers of physical forms and urban systems within each constellation and explore the potential impacts on the built environment (Fig 4). Through this process, a number of recurring conditions have been recognised which point to possible models for future intensification in a 20-minute city. The speculative mode of research offers two simultaneous benefits:

- > *It is context-specific* – the proposed constellations of land use, built form and public transport respond to, and enrich, the unique urban qualities that define the 10km frame in each study zone. Unlike 100km, detailed interventions are exacted upon actual land parcels; transit lines are engendered with a material thickness; qualitative decision-making is informed by the physical grain and social tapestry in the region. Unlike 1km, we can read the combinatory effect of transforming several sites or urban areas via selective trajectories and connections in the region. This contextual knowledge, or aggregated feedback, provides valuable insights for achieving a more integrative and strategic approach to our urban environment.
- > *It is replicable* - The method and processes developed to examine each zone reveal common conditions, potentials and constraints to all three areas of the city. Their comparative examination demonstrates new priorities for intensification in metropolitan Melbourne. The research indicates that optimal development outcomes, land utilisation and transit connections can only be achieved with a diversity of built form models and regeneration approaches. Furthermore, it shows that addressing the fabric between strategic development sites/zones is as important as the individual intensification projects themselves; the “connective tissue” in an integrative renewal system will support higher capacity and better quality urban outcomes. The replicable application of the proposed intensification strategies suggests new arenas for supporting urban policy, development regulation, procurement processes and delivery mechanisms to facilitate a future 20-minute city in Melbourne.

### **Case Study – North Frame**

To discuss the design research in adequate detail within the length of this paper, we have focused on the specific issues, physical conditions and urban speculations for the North of Melbourne and extrapolate the findings more briefly for the West and South-East.

The northern frame centres on the City of Darebin, 12km from Melbourne CBD. It captures segments of the Cities of Moreland (west), Banyule (east) and Whittlesea (north). The defining features of this frame are the two substantial tracts of public green space flanking the length of its east and west boundaries. These natural environments provide considerable levels of amenity for the region and have huge potential to become the backbone of localised movement networks via new bicycle and pedestrian links to strategic centres (Fig 5 & 6). Largely ignored by abutting industrial and residential zones, immediate opportunities exist in strengthening the interfaces.

Built around a strong manufacturing history, the scale and age of the industrial fabric in the North is approaching redundancy, which presents a challenge for employment in the area. This part of city was once comprised by a 'blue collar' resident cohort and strong migrant population. The area now has an above average seniors population (for metropolitan Melbourne) which is being joined by a growing number of young families and professionals in search of housing that is amenable to their cost and location preferences. Health care and social assistance, retail and education now represent the largest shares of local productivity, with the professional, scientific and technical services sector rapidly emerging. There is increasing pressure for the north to gentrify as the economic logic of location, access, value and capacity now begins reconcile.



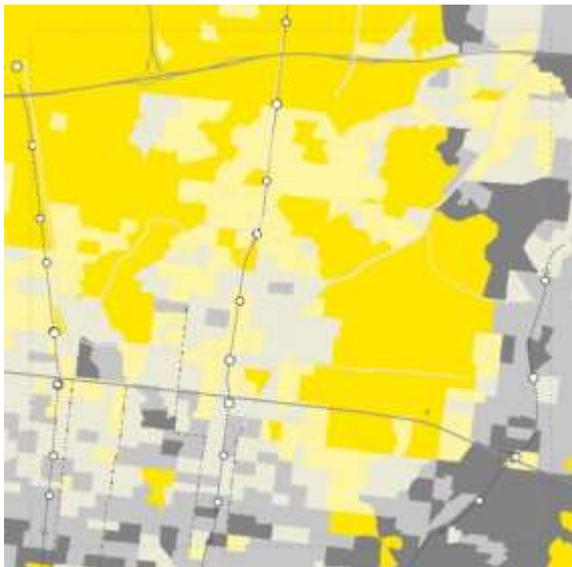
**Fig 5: Existing transport links**

Radial tram and train lines lack effective E-W connections. Local bus routes are generally long and indirect, servicing specific residential pockets. Services stop around 9.30pm after which time E-W travel on public transport is impossible in the middle of the frame. The Smartbus on Bell Street is inhibited by road congestion – during peak times it takes almost an hour to cross the frame.



**Fig 6: Employment & strategic development**

Major attractors within the 10km frame include La Trobe University, Northland Shopping Centre, the Austin Hospital, pockets of industry/business centres and strategic activity areas built around existing rail stations and commercial precincts. There is a disproportionate distribution of amenity and facilities in the south and north of the frame.



**Fig 7: SEIFA Advantage & Disadvantage**

As we move towards the northern extent of the frame, social equity declines; employment, education and median income levels decrease while car dependency increases. In part, these social patterns reflect a distorted distribution of public amenity, services and transport access in the region.

The north has a constellation of activity centres, a regional shopping mall and a university within 5 km of each other yet with minimal interconnection. Both shopping mall and university are almost

completely disconnected from the train and tram system which remain relatively radial in structure. The rail lines, interspersed with the natural topography and waterways, underpin the predominance of north-south transit in this region. East-west connections are desperately lacking. Two smart bus routes offer cross-connections through and beyond the region but, in reality, east-west travel is largely car-based. Local bus networks are underutilised, in part due to their long and indirect journeys. Unlike other areas of Melbourne, there are no radial freeways to/from the city that enable freight and other through-traffic to bypass local movement patterns. Already over-burdened roads are confronted with increasing conflicts between public, commercial and personal modes of transit, particularly on/over the Bell Street arterial.

There is a growing division between the north and south of the frame in terms of both social-economic advantage (Fig 7) and physical form (Fig 6). The south is largely defined by the commercial strips, factories and warehouses from previous eras of economic development, now nominated as sites for intensification. High density residential development is also occurring along tram corridors; typical outcomes are for 6+ storey apartments above a commercial podium. Market research suggests that this model of redevelopment will continue to be concentrated in the south of the frame (Charter Keck Cramer 2010). In contrast, the north of the frame is dominated by a uniform, low density residential fabric typical of post-war growth and expansion. The turn-over of building stock is predominantly via small-scale residential projects yielding 1-2 new dwellings – the extent of which is significant – representing 75% of all projects in Darebin (33% of dwelling supply) in 2004–2008 (Spatial Economics 2010) While these conventional infill models are ‘proven’ economically, they do not contribute to the improvement of transit and amenity required in this part of the frame.

### **Opportunities for the 20-minute city**

This section of the paper outlines some of the key opportunities that have emerged through the 10km scale of enquiry for achieving a 20-minute city. It explores their potential arrangement and effect within the specific context of the North, but is common to other parts of Melbourne. As the various land use, transit and built form strategies are conjoined and overlaid we begin to read the aggregate effect of these constellations in the broader urban environment. Through the evaluation of these speculative scenarios, we can formulate priorities for realising the 20-minute city and identify pathways for transitioning to more sustainable urban places.

### ***New Agora***

The University represents one of the largest employment centres in the north frame; its disconnection from transit and other activity networks is a significant issue. It has enormous land holdings but struggles to market its programs to students without cars. Surrounded by swathes of parking, the campus has separated itself from its neighbours and severed the main university buildings from the No.86 tram running along its Plenty Road frontage. High volume public transport infrastructure could produce significant capital gains on university land (as well as surrounding property), which to date remains grossly underutilised. Connecting the university’s health services and student population to other major attractors in the region would be a mutually beneficial venture, the gains from which could be syphoned to fund the infrastructure upgrades. In a recent submission to government, it was proposed to redevelop La Trobe as a new ‘university town’ forming the centre of a new *innovation cluster* with RMIT and the Austin Hospital. A high frequency bus-link from Reservoir station to Macleod station is intended to close the transit loop between the institutions. Surrounding activity areas, including Northland Shopping Centre, Preston and Greensborough, provide additional vertices in the broader urban network.

When considered in isolation, it would seem logical to centre urban development strategies on the University. However, when considered in the context of the 10km study area, it becomes apparent that the gravitational centre in the east of frame is not the University but the open space reserve adjacent to it. The catalyst for the new “agora” is the externalisation of the University but the agora is reinforced by an intensified industrial edge to the SE, residential edge to the NW and a commercial edge to the SW (Fig 8). It is at the 10km scale that the significance of the Darebin Creek is revealed. The agora is the interface between macro and micro urban systems; it is the binding element between the existing built fabric and new sites of innovation along the length of the open space corridor.

The Darebin Reserve has potential to become a primary arterial in the region, intersected along its length by a series of strategic development sites and future multi-modal transit networks. This generous open space amenity connects the region to city bicycle networks which are highly utilised for recreation and traveling to work. Additional connections to a diverse mix of destinations in the north may also encourage more localised bicycle trips.

Via this arterial, it may be possible to expand the innovation cluster's field of influence across Bundoora Park towards the Epping Wholesale Market, leveraging synergies between primary industries and the University's food science program, as well as presenting opportunities to diversify the industrial zones in between.

A new agora indicates locations for strategic transit connections, diverse housing typologies and suggests related innovation programmes for the renewal of ageing industrial zones (Fig 9). These types of considerations will be common to the development of innovation clusters in the South-East (Monash Uni) and West (Vicotira Uni).

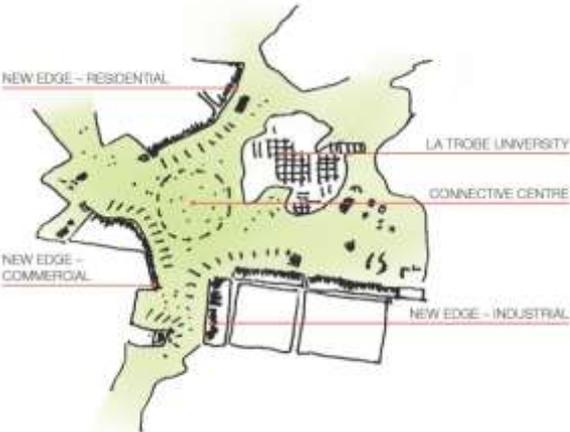


Fig 8: New Agora

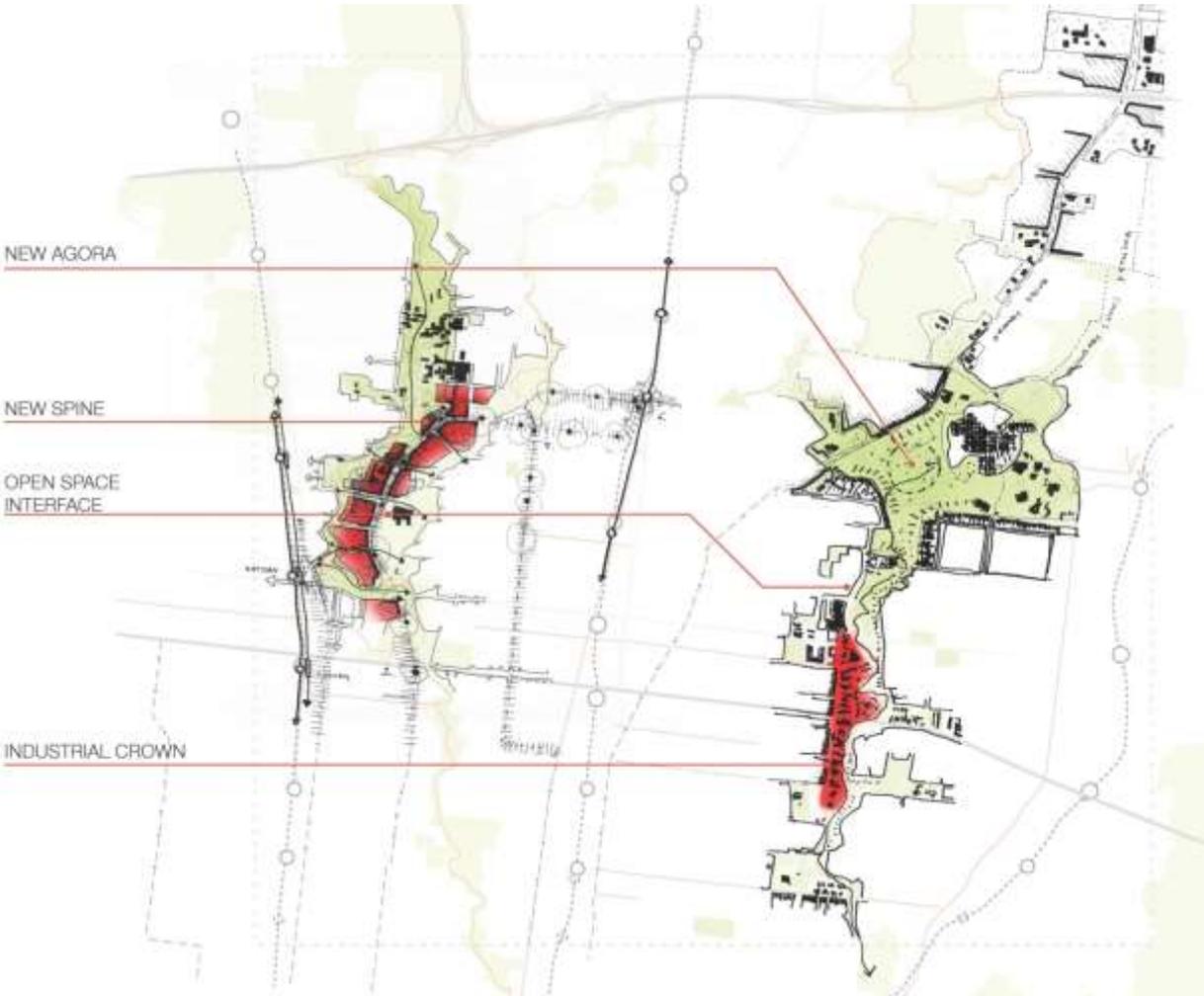


Fig 9: New and diverse urban interventions stitch existing urban landscapes and systems together to create new types of trajectories and movement patterns

**Crowns and spines**

The industrial zones distributed around the frame represent a significant challenge for the north. The pocket located between Bell Street and Northland is comprised by ageing factories and distribution centres that once accommodated Darebin's 'old' industries. The operational constraints presented by the location, scale and age of industry in this region have, in part, contributed to the decline of the sector. For example, limited access to freight and service routes, limited opportunity for growth and expansion (both in terms of building stock and land area) and lack of an effective cluster for the sector have led to the down-scaling (or closure) of industry activities (Spade Consultants 2012). Although manufacturing continues to decline, acquitting sites for other uses is inhibited by the costs of remediating the contaminated land and buildings. As a result, these significant land parcels remain underutilised. Although not as old, other industrial zones in the region are facing similar challenges.

The question is: what kinds of urban renewal models can reinvent these redundant building forms to achieve higher levels of utilisation while retaining skills and employment in the area?

Large industrial land parcels are effective redevelopment sites; their scale supports a range of intensified building types and their turn-over typically results in high-impact urban change. However, their existing scale and form can accommodate a range of uses not typically catered for in other activity precincts. Taking advantage of cheap leases creative industries and small business 'start-ups' have often catalysed industrial re-use initiatives. The proposed innovation cluster may also provide avenues for developing new technology zones, advanced manufacturing enterprises or satellite training facilities for the attendant institutions.

The 'industrial crown' (Fig 10) is proposed as a model for renewing the periphery of these ageing industrial zones while retaining its existing fabric behind. This would be a highly replicable model – there are many older industrial areas in Melbourne that back onto waterways and natural reserves. Good quality design and a rich mix of grains and uses would enhance public open space access while also optimising the advantages of the borrowed landscape for private occupants. The transition from front-to-back could provide interesting adjacencies of activities as well as distinctive urban design solutions. At Northland, the 'crown' might also carry across Murray Road to begin the process of "breaking up" the mall (Fig 9; also refer 1km case study of mall intensification: Murray et al 2012).

The Newlands industrial area to the west (Fig 9) plays a very different role for the sustainable transitioning of the 10km frame. The decline in industrial activity for the area also means there is less demand for localised freight routes. Taking advantage of the underutilised service road to extend public transit corridors creates a new 'connective spine' for intensified development. Another important purpose of the spine is to fill the gaps generated in urban networks by the large privately owned properties. Having created private roads for their own operations, few public thoroughways exist and the adjacent open space reserves have been severed. These 'island' barriers inhibit all modes of travel in the area, requiring substantial detours to circumnavigate (Fig 11).



Fig 10: Industrial crown

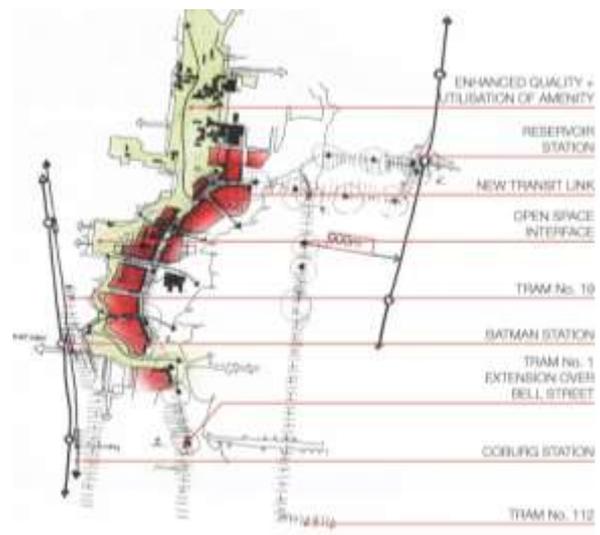


Fig 11: Industrial spine

### ***Ladders and flanks***

An on-going tension between local transit needs and those of metropolitan significance are thwarting the effectiveness of transport networks in the North. Bell Street is a metropolitan east-west arterial for vehicles and freight; it has also been earmarked as a potential public transit link between the airport and suburban centres in Melbourne's east. The lack of certainty around the long-term future of this major corridor is impeding 'real' improvements being achieved in the short-term. Increasing the speed, frequency and volume of public transit in the north would support higher levels of patronage/demand and provide new opportunities for intensified land use. This would likely involve grade separation of different transit modes, the cost and complexity of which has not been considered viable to date.

The most pressing need, however, is better east-west transit connections. The SmartBus route along Bell Street (903) takes 49 minutes to cross the frame in peak periods; compared with 30 minutes for the 902 route in the upper part of the frame (PTV 2013). The disparity in time can be attributed to higher levels of congestion on and around Bell Street, as well as the 'detour' required to stop at

Northland Shopping Centre. The only local bus that crosses the frame in a single trip (561) takes an hour in peak periods to (Macleod – Coburg). Other local buses generally service specific neighbourhoods or provide a singular connection between 2 activity nodes. Multi-purpose trips or travelling further afield requires at least one interchange. The number of connections and long journey times are major reasons why buses are non-preferred modes of travel - it's simply easier and more time-efficient for individuals to drive. In addition, local services stop running about 9.30pm – for the majority of study frame it impossible to cross east-west by public transport at all after this time.

In effect, it takes the better part of an hour to cross the region by public transport, representing an average speed of about 12km/hour between destinations. This is significantly less than a comfortable cycling speed (nom. 17km/hour); the prioritisation of bicycle networks as a primary cross-link strategy joined to the north-south open space reserves presents a strong opportunity. The 'big-little ladder' (Fig 12) is explored as an east-west specific solution. It proposes developing a kind of dual carriageway – although a block apart. One side of the ladder is a high capacity arterial, the other is a more localised trajectory. They offer separate routes for conflicting public, private and commercial transit needs. The rungs are strengthened through appropriate built form connections.

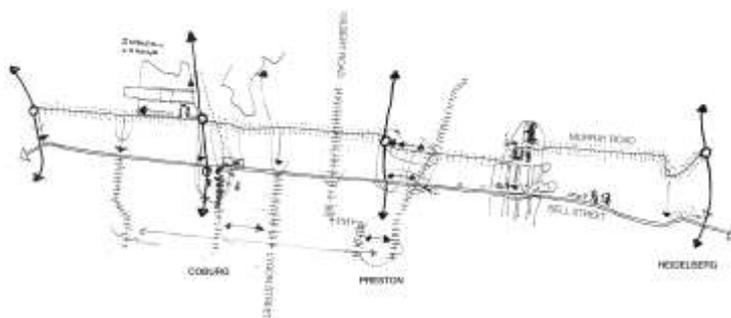


Fig 12: Big-little ladder

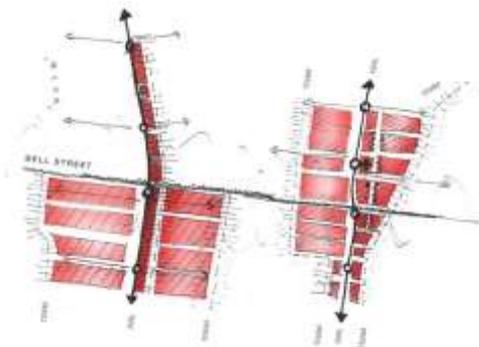


Fig 13: 'Flanked' corridors



Fig 14: Layering of strategies: when used in combination new solutions can be found. For example, built fabric connections may minimise the need to extend and intersect different modes of transport across major arterials.

The strategy had two unexpected outcomes: 1. while transit was emphasised in an east-west direction, the resultant development is likely to continue in a north-south direction as it bridges the new transit corridors; 2. through this dual carriage way 'ladder' and built form 'rungs', major arterials that currently present a physical barrier can be connected or crossed with minimal transit infrastructure investment (Fig 14). The linear intercepts created by 'old' highway arterials represent a recurring challenge for integrated and connected development in Melbourne (e.g. Bell Street in the north, Warrigal Road in the south-east and Ballarat Road in the west).

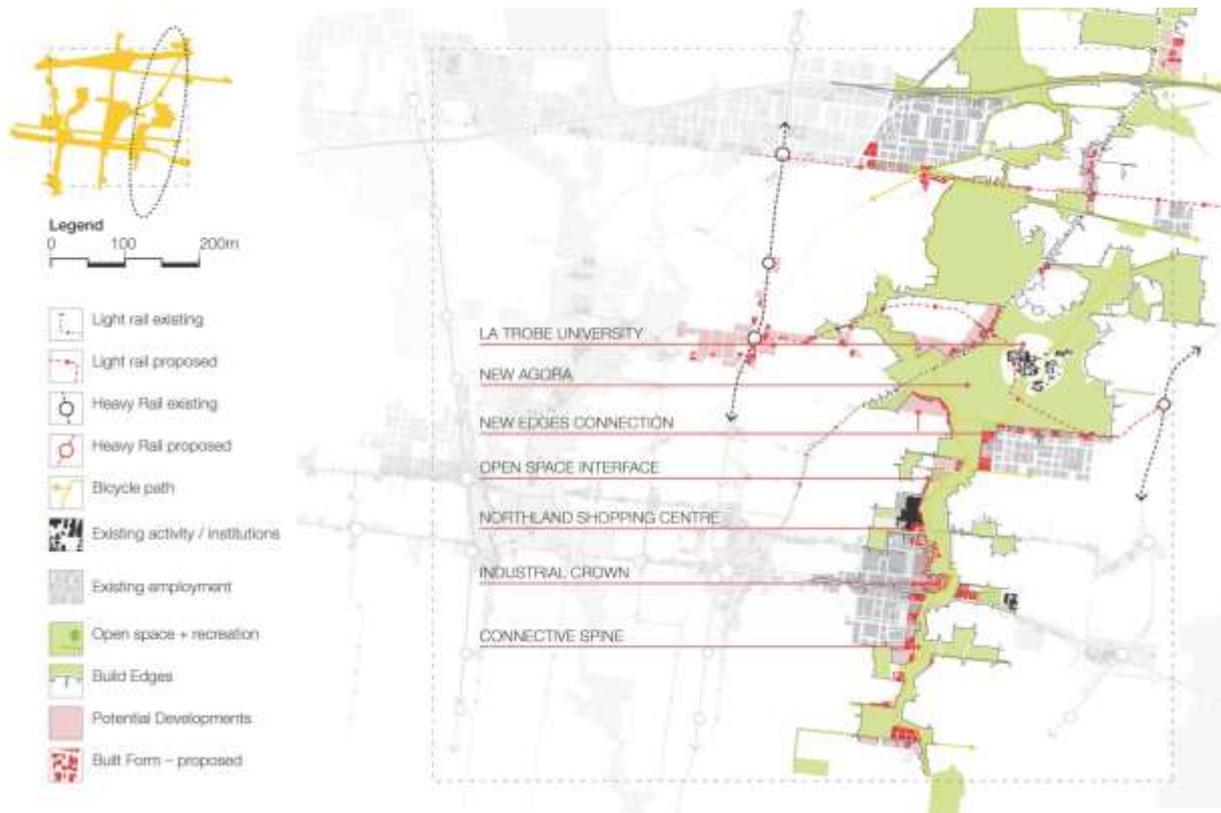
The predominance of north-south rail system presents another opportunity for future intensification in the frame. The adjacencies of tram and train lines create bounded tracts of land (nom. 200m-1km wide) that could encompass a new corridor model. Current frameworks (Adams 2009, City of Moreland 2012) promote intensification along tram corridors but limit higher density development to lots immediately fronting a 'high street'. The rear boundaries of these lots must conform to conventional ResCode requirements presenting difficult building design challenges and generating outcomes of varying quality to date.

Rather than conceive of a corridor as a central tram line, the 'flanked corridor' (Fig 13) operates on a broader fabric between two parallel lines – tram or train. By increasing the depth of nominated corridors, built form strategies could strengthen connections between different capacity and speeds of public transit, enhancing access to a range of destinations in a 20-minute city. If policy supports higher levels of public transit utilisation, and encourages intensive development along tramways, shouldn't this intensity increase if access to 2, or even 3 transit services are available? (Fig 14) The stretches of land between rail lines could accommodate a diversity of appropriate housing types and generate better quality built form outcomes when transitioning between corridor and residential zones.

#### ***Urban constellations – layering of strategies***

Each of the above strategies represents a discrete opportunity, or moment, within the broader urban landscape for enhancing the quality and operation of our built environments. It is through their combination and superimposition that we can observe an aggregate affect across the 10km frame. By selectively layering different built-form, transit and land use strategies to create 'constellations' of urban interventions, new urban qualities and potentialities are presented. The projective scenarios reveal the role of individual development nodes and trajectories within an urban network, while also demonstrating the significance of collective strategies and the connective fabric between prominent sites and transit lines.

The mode of inquiry is speculative and context-specific, enabling both macro and micro concerns to be registered within the various scenarios generated. By reprioritising, or re-arranging, the elements constituting the network, new constellations can be envisioned and alternative urban outcomes achieved. For the purposes of this paper, we have presented three simple (linear) constellations structured around predominant features in the north (Figs 15 – 17). With differing inputs at a macro or micro level, these assemblies could just as simply take on a different form (e.g. a loop from La Trobe to Reservoir to Preston to Northland, or a series of smaller networks based around minor rail stations and bikes linkages).



**Fig 15: Darebin – La Trobe Corridor**

This constellation expands and contracts around the open space reserve to the east, strengthening its connections and urban value within the 10km frame. Additional opportunities and a new urban logic are presented as the 'green' arterial extends beyond the University to the industrial centre at the frame's northern edge, highlighting potential sites for amenity, housing and EW transit interchanges.



**Fig 16: Batman – Reservoir Corridor**

This constellation explores the new potentials made available through the intersection and repurposing of the Newlands industrial 'spine'. Smaller 'ladders' and 'corridors' offer an alternative strategy for developing minor train stations in the north as secondary east-west interchanges supported by new, complimentary built form approaches. This offers a '2-speed' model of development that works with higher intensity activity and development nodes.



**Fig 17: Bell – Batman Corridor**

This constellation examines how an integrative EW connection might be achieved with built form solutions ‘strewn’ between new transit infrastructure along Bell Street and Murray Road. While the strategy is predominantly an EW trajectory, new opportunities and connections within the urban network resonate in a NS direction.



**Fig 18: Northern Assemblage**

Aggregate affect of integrative development approaches within each urban constellation

### **Potential lessons for a 20-minute city**

This research has identified how built form, land use and transit strategies can operate together; their aggregation affecting the urban environment in different ways. The 10km scale of inquiry has revealed a series of replicable models and alternative intensification approaches that could contribute to a 20-minute city in Melbourne. Further research is required to measure the outcomes of the proposed interventions in terms of both transit times and cost-benefit of the urban investment. However, to genuinely measure the cost and benefits of improved sustainability and liveability, we must also develop life cycle assessment standards that value social capital, design quality, environmental resilience and community well-being in parity with financial forecasting.

While the 20-minute concept has provided new ways of thinking about the city, there are some obvious issues with its conception. Not only do we need to measure access from a resident's front door, but to genuinely reduce car use, it will be necessary to also improve connections between destinations. This means a combination of existing activity area approaches and new network thinking. If multi-purpose trips are not possible in 20-minute segments, then car dependency is likely to continue. Additionally, unless public transport services are extended to run for longer periods of the day, then car use and congestion will also continue. There is no point in restructuring the location and scale of nodes in a dynamic network if the vectors fail to connect them.

It is apparent that a suite of intensification strategies will be required to genuinely enhance the liveability and connectivity of our cities at a local and global level. Through the combination and layering of different transit, built form and land use initiatives, new potentials for achieving the 20-minute city are revealed. For example, new connections within a 20-minute network may not only involve public transit infrastructure upgrades. The speculative scenarios outlined in this paper have emphasised the significance of built form strategies that can provide the 'connective tissue' between existing activity nodes and transit lines. When envisioned as a dynamic network of co-functioning elements, the most obvious development opportunities and the most prominent sites for intensification may not necessarily represent the highest priority for the overall urban constellation. Conversely as urban pressures and priorities shift, so too should the assemblage of elements within an urban network be able to adapt, affecting its shape and providing new opportunities for future transformations to take place.

Finally, this 10km investigation highlights the need to design and deliver urban intensification strategies that can transcend existing administrative boundaries. To achieve the aggregate benefits offered by this scale operation, higher levels of cooperation between different levels of government, as well as neighbouring jurisdictions, will be required. The realignment of macro and micro urban concerns – the imperatives of global and local liveability – will involve the collective development of ideas for envisioning and delivering our future cities.

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