Transition to more sustainable, low carbon Australian cities requires a retrofit of their built environments

Three Provocations:

1. Australian cities: liveable *AND* sustainable?
2. Sustainable, low carbon living requires a sustainable low carbon built environment.
3. To limit urban sprawl and deliver low carbon sustainable urban development needs Brownfields *AND* Greyfields infill redevelopment -- at precinct scale.
Provocation #1: Liveability ≠ Sustainability

Source: Newton (2012)
In high income societies, sustainable low carbon living (resident behaviour) requires a sustainable low carbon built environment.

Determinants of domestic consumption of energy, water, housing space and carbon intensity of urban travel are overwhelmingly contextual and structural (dwelling, urban location, household) rather than individual and behavioural.

At the level of the individual, there is a massive attitude-action (intention-behaviour) gap in relation to urban resource consumption. “Green Hypocrites” in The Conversation.

It is critical that the planning and design of our built environment makes it possible for all residents to live healthier, more sustainable lives. → Australia’s current built environment fabric precludes this at present for most suburbs.
Capital City Metro Plans

Infill

Targets:

~ 50-70%

Our established (middle) suburbs underperforming as locations for accommodating additional population, new housing and jobs.

Objective = redirect population + housing investment inwards rather than outwards

URBAN CHALLENGES:

Provocation #3:

Limiting urban sprawl + shrinking ecological/carbon footprint + increasing urban resilience requires retrofitting Brownfield and Greyfield infill sites - at precinct scale.
Provocation #3:

30% housing stock in established inner / middle suburbs represent “Greyfield” built environments:

- physically, technologically and environmentally poor performing (but occupied) dwellings

- where > 80% total property value is vested in the land; indicating high redevelopment potential
Provocation #3:

COMPLICATION:

- Australian capital cities are **NOT** meeting their infill targets.
- Most infill housing redevelopment in the Greyfields is low yield, fragmented Knock–Down–Rebuild. Brownfields are attractive for apartments.
- Medium density precinct scale redevelopment significantly under-represented.

<table>
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<th>5-9</th>
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<td>1.3</td>
<td>0.5</td>
<td>0.7</td>
<td>2.8</td>
<td>4.1</td>
<td>5.9</td>
<td><strong>19.2</strong></td>
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<tr>
<td><strong>Greyfield</strong></td>
<td><strong>17.9</strong></td>
<td><strong>32.3</strong></td>
<td>6.3</td>
<td>2.3</td>
<td>3.2</td>
<td>2.3</td>
<td>1.3</td>
<td><strong>65.6</strong></td>
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<tr>
<td><strong>Totals (%)</strong></td>
<td>19.2</td>
<td>32.8</td>
<td>7.0</td>
<td>5.1</td>
<td>7.3</td>
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<td>5,833</td>
<td>8,309</td>
<td>9,374</td>
<td>23,487</td>
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Source: Newton & Glackin (2014; UP&R)
Most residential redevelopment can be expected to continue to occur **outside** current designated development zones.

Activity centres and transport corridors are both **necessary but not sufficient** instruments for meeting infill targets and delivering more compact cities. They are not acting as the ‘twin magnets’ planning policy has articulated.

Currently there is **no operational model** for medium density residential precinct redevelopment in the Greyfields.
TOWARDS A SOLUTION: *Why Precincts?*

**Precinct** regeneration offers the prospect for the *design* of more sustainable, resilient, low carbon neighbourhoods:
- Housing (variety)
- Energy (low carbon)
- Water (integrated, water sensitive)
- Waste (optimise recycling, reuse)
- Mobility and health (more walkable)
- Neighbour contact (community places, spaces)
Towards a model process for Greyfield residential precinct regeneration (Source: Newton et al 2011)

Significant innovation required to deliver a process for Greyfield Precinct Regeneration
Where: ENVISION Tool
What: Innovative precinct design and delivery

Design:
- Precinct scale redevelopment
- Different typologies / densities / functions
- Changed walkability
- Communal parking space
- Etc.

Implicit in precinct design is factoring in of greater sustainability in the form of re-engineered infrastructures (water, electricity)

Delivery:
- Modular housing solutions
- Rapid assembly on site
- Flexible, skilled labourforce
- More affordable dwelling units
**HOW:** Stakeholder engagement, new property finance and development models, ‘Regen’ precinct model and process

**Engagement Arenas:**

1. State government (planning department, related departments and appeals tribunals etc)
2. Property development industry (for profit; not-for-profit etc)
3. Local government (council officers; elected councillors etc)
4. Local community (entire municipality; specific neighbourhoods etc)
5. Envisioning future development – major projects; planning appeals
6. Envisioning future development – individual projects (pre-planning permit discussions)
7. Community engagement: long term development strategy for municipality
8. Community engagement: long term development planning for municipality
9. Brokering precinct regeneration projects
10. Envisioning and agreeing future development strategies for municipalities and urban sub-regions

Source: Newton and Glackin (2013; *Built Environment*)
Acknowledgements