Summary brief 2:

Profiling climate justice issues in the west of Melbourne

Adopting a climate justice lens in community health and community service organisations (CHCSOs) requires a grasp of where climate change and social inequities are experienced – in place.

As the pandemic has shown, in areas with multilayered and persistent disadvantage, crisis conditions mean life and death for certain communities.[1] Brimbank, for example, is Melbourne's second-most disadvantaged LGA and has experienced the highest rates of COVID-19 deaths, disproportionately impacting people from migrant backgrounds.

Over the past decade, rapidly growing population and development intensification have also led to significant shifts in the socio-demographic profile of Melbourne's west, increasing health and climate impacts. Newly urbanised areas in Brimbank, Melton and Wyndham are at high risk from heat waves, intensified by a lack of vegetation cover and socioeconomic factors that undermine people's individual's capacities to stay safe.[2] In addition, a range of health risks, likely to be compounded by rising temperatures, flood and fire risks, and poorer air quality, are projected for the region **(Box 2.1).**

This brief develops a profile of the climate change risks and sociodemographic characteristics of the five LGAs – Brimbank, Hobsons Bay, Maribyrnong, Melton and Wyndham – to inform planning, decision-making and the design of collaborative interventions for CHCSOs in the region. Full details about the datasets used are available in **Appendix 1.**

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Box 2.1 Key statistics relevant to climate change implications for health in the west

- Climate change is increasing temperature extremes, increasing the likelihood of hospitalisation and mortality for people with chronic diseases such as diabetes. Areas with low socioeconomic status such as Brimbank and Maribyrnong have avoidable **death rates from diabetes at least 1.5 times higher than the Australian average.**[3]
- Peri-urban and growth areas such has Melton and Wyndham have **higher rates of key precursors to chronic disease**, including being overweight, tobacco usage, and having low rates of exercise,
- Population projections estimate that there will be a **more than 95 percent increase in the number of people aged over 70 by 2031**. In the west, this growth is forecast to be concentrated in Brimbank, Melton, and Wyndham. More than 90 percent of people in this age bracket have **two or more chronic conditions**, with significant implications for health service demands.
- Melbourne recorded **374 and 167 excess deaths** during heatwaves in 2009 and 2014 respectively. Heatwave induced **deaths are expected to more than double by 2050**.[4]
- Climate change is intensifying the allergenic effects of pollens and fungi, and their interaction with air pollution and events such as thunderstorms. Two of Victoria's air pollution 'hot spot' suburbs, Yarraville and Brooklyn, are located in the inner west and rank **seventh and eighth in Australia for air pollution concentrations**.[5] This LGA, Hobsons Bay, also reports respiratory death rates higher than the state and national average.
- Residential land has a relatively **high risk of flood and storm surge events** in the west of Melbourne compared with other land use types. The region has experienced a **flood or storm most years since 2009**.[6] The frequency of such events is projected to rise with climate change, exposing residents to hazards such as floodwater, debris, and damaged buildings and infrastructure resulting from flash flooding.

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Profiling sociodemographic change in the west of Melbourne

A growing working age population

Since 2009, the proportion of younger, working age residents in the west has increased. In 2019, the average age of residents 15 years and over was marginally lower in the west than the rest of Melbourne but with a higher working age population (26 percent versus 18 percent).[7]

This represents a significant shift from a decade earlier. In 2009, residents aged 14 to 24 years held the greatest share of the population (26 percent) and seniors the lowest (7 percent). By 2019, the 25 to 24-year age bracket held the greatest share, suggesting that the youngest cohort are not being replaced at the same rate. However, this distribution is not even across the 5 LGAs, with the proportion of residents aged 65 and over largely concentrated along the coast and areas in the inner west.

An ethnically and culturally diverse population

There is a notable difference in the ethic and cultural diversity of the west relative to other areas in Melbourne and Victoria **(Figure 2.1a)**. More than one third of households in the west are born overseas and largely clustered in Wyndham (Tarneit, Truganina and Point Cook), Maribyrnong (Maribyrnong, Footscray, Braybrook) and across Brimbank.[8] These rates remained consistent in 2009 and 2019.

Relative to metropolitan Melbourne, the west is also home to many Aboriginal and Torres Strait Islander people. Areas including Wyndham Vale, Melton, Melton West, and Rockbank- Mt Cottrell are home to the largest proportion of Aboriginal community members in the west **(Figure 2.1cb)**.

Uneven improvements in social inequities

The decade between 2009 and 2019 saw overall improvement in educational attainment and occupational status across the west, albeit in selected areas. For residents aged over 25, the proportion with a Bachelor's degree or higher doubled between 2009 to 2019. While the share of people in managerial or professional roles is overwhelmingly higher in inner city and eastern areas of Melbourne, the share of people in leadership roles in the west in the same period increased from 8 percent to 11 percent.

Income levels in the west, however, remain unevenly distributed. The proportion of people in the top 60-80 percent of the wage distribution increased from 14 percent to 20 percent between 2009 and 2019. On the flip side, the share of persons in the bottom 20-40 percent of the wage distribution also increased from 21 percent to 27 percent over the same data period. Middle and outer suburbs have significantly lower income levels than those along the coast **(Figure 2.1c)**,

Rising housing stress

Across the west, home ownership rates remained relatively consistent in 2009 and 2019. Some three-quarters of households are homeowners, with a marginal decrease in those with mortgages in the same time period (from 2.2 percent to 6.6 percent). Over the same timeframe the proportion of public housing tenants in the west fell from 10 percent to around 3 percent, bringing it closer to the share in the rest of Melbourne. Private rental tenure experienced a modest increase during this period, accounting for around 22 percent of all housing tenure in 2019. This may reflect an overall decline in the provision of public housing.

As **Figure 2.1d** highlights, however, the regional pockets outlined above resurface when considering housing affordability. Going beyond cost to income ratios, measures of poverty after housing costs highlight the trade-offs that low-income households face in being able to pay for housing and cover the basic costs of living.

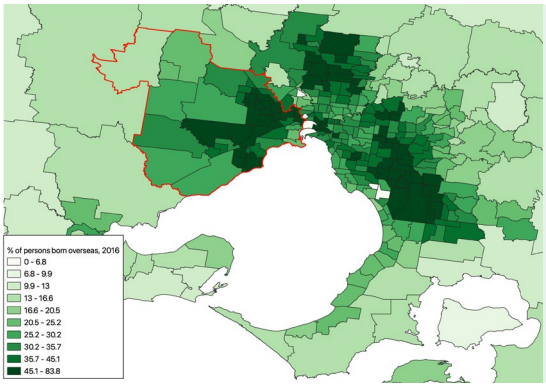

Figure 2.1a. Share of population who are born overseas, 2016. As indicated by the dark green areas, the greatest proportion of people born overseas is in Brimbank, as well as Wyndham (Tarneit, Truganina, Point Cook) and Maribyrnong (Maribyrnong, Footscray, Braybrook).

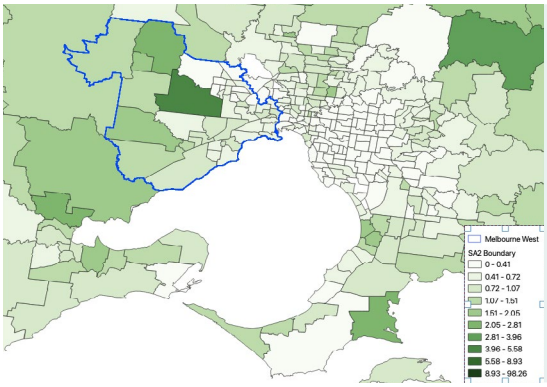

Figure 2.1b. Share of population who identify as Aboriginal or Torres Strait Islander, 2016. Melton and Rockbank-Mt Cottrell (darker green areas) have the greatest share of people who identify as Aboriginal or Torres Strait Islander.

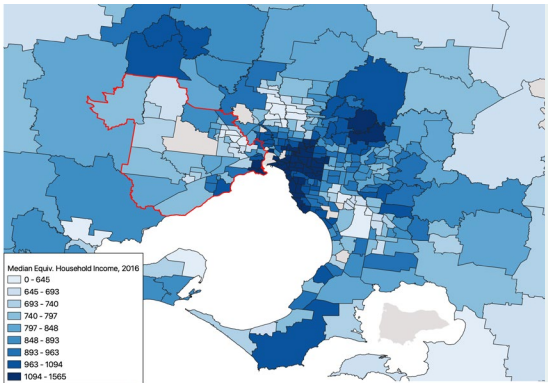

Figure 2.1c. Median equivalised household income by SA2, 2016. Lighter areas on the map signal greater income inequity is largely concentrated in the outer growth areas of Melton and northern pockets of Brimbank.

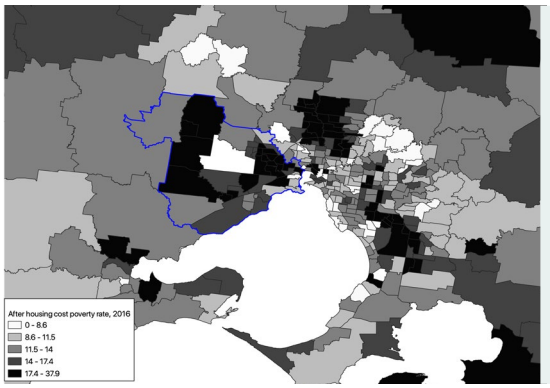

Figure 2.1d. Poverty after housing cost rate, 2016. Black areas on the map indicate areas where households are below the poverty line after paying their housing costs, including much of Brimbank and Melton, as well as Truganina, Altona North, Footscray and Maidstone.

Figure 2.1 Profiling the west of Melbourne. Source: Authors' own illustrations using data from the Australian Bureau of Statistics (2017): SA2-G03 Place of Usual Residence on Census Night by Age-Census 2016 **(Figures 2.1a and 2.1b)** and National Centre for Social and Economic Modelling, (2018): NATSEM - Social and Economic Indicators - Synthetic Estimates SA2 2016 **(Figures 2.1c and 2.1d)**.

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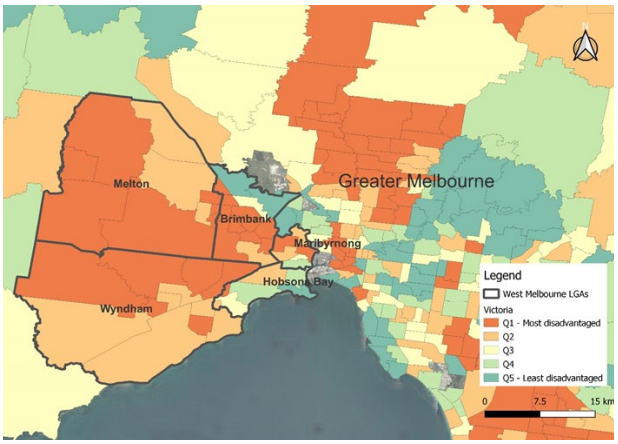

Figure 2.2a. Housing stress

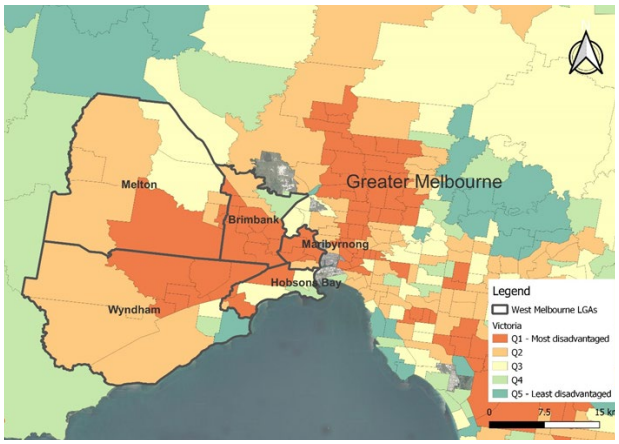

Figure 2.2b. Overcrowding

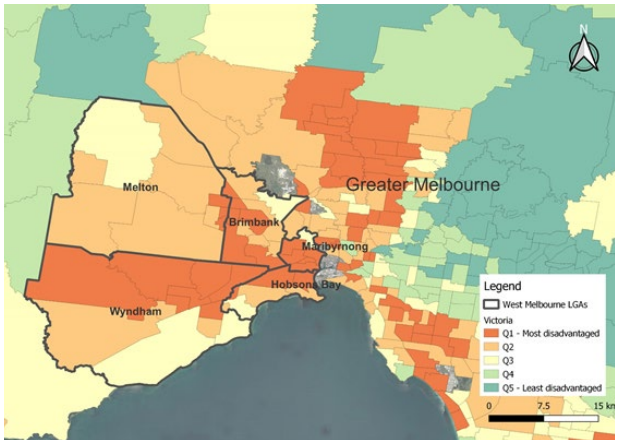

Figure 2.2c. Canopy cover

Figure 2.2 The intersections between housing stress (2.2a), overcrowding (2.2b) and canopy cover (2.2c) in the west of Melbourne. Note the overlapping areas of disadvantage (dark orange) in Brimbank and bordering areas in Wyndham and Maribyrnong. Additional layers at the SA2 level can be accessed at the ***Dropping off the Edge 2021 website***. Source: Authors' own illustrations using data from *Dropping off the Edge (2021)*

The convergence of social and climate risks

Contextualising some of the underlying drivers of risk and vulnerabilities illustrates that there are a number of issues that converge in this region. Jesuit Social Services' 2021 *Dropping off the Edge* report, which includes over 37 indicators of disadvantage on multiple fronts including environmental risk, shows that this region experiences significant challenges in terms of overcrowding and housing stress.

While environmental factors are often not front of mind when we consider disadvantage, it is clear from the data that there is a strong relationship between poorer quality natural environments (for example, where air pollution is high) and other indicators of disadvantage. There is, for example a strong relationship between heat stress (exacerbated by low levels of canopy cover) and experiences of housing stress and overcrowding in certain areas **(Figure 2.2)**.

For CHCSOs, and the communities themselves, this has critical implications, including:

- The ability to meet existing and future service needs as they are impacted by compounding and cascading events, such as heat waves and the rising cost-of living pressures
- The consequences for health and well-being outcomes and needs in a region that is rapidly growing and diversifying, and where demand for adequate infrastructure and services in outpacing provision.

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Low affordability and appropriateness of housing

Housing affordability and appropriateness of housing interact with climate change and health in many ways. For example, the prevalence of thermally inefficient homes with dark roofs, poor solar orientation, oversized project homes, and small backyards (limited private open space) contribute to more solar radiation being absorbed and less climate efficiency in new housing estates in the west.[9] In turn, there are increased threats to the health of residents from elevated overnight temperatures (strongly correlated with heat related deaths), and from additional costs of having to both cool and heat these homes.

Demand for larger homes in middle and outer growth areas of the west is driving more individuals and families into mortgage and rental stress. The affordability of housing is being worsened by poor transport connectivity, a low density and diversity of housing mix, and inequitable choice in and access to employment opportunities particularly for the significant proportion of residents working in the services and industrial sectors.[10]

Inadequate precinct planning and infrastructure provision

Melton and Wyndham are two of the fastest growing municipalities in Australia. Around 38 percent of all Melbourne's new dwellings are built in growth corridors in these LGAs which is significantly higher than the 30 percent target outlined in the State Government's planning strategy. Melton is predicted to more than double its population by 2051, growing from a forecast of 216,389 in 2022 to 450,823.[11] In these growth areas in particular, housing, employment, health services, transport, and retail are segregated. Consequently, these subdivisions are characterised by high car dependency, shopping centres that offer limited or poor amenity, and relatively low waged employment.

The more recent trend of declining block sizes and increasing densities is driving greater demand for services such as hospitals, schools and transport.[12] Inadequate planning and the mismatch between growth in housing and provision of critical infrastructure is a driver of risk and vulnerability in these areas in the context of climate change.

In terms of biodiversity and ecological damage, this poorly designed urban expansion has led to the decimation of the region's native grasslands, with less than 0.5 percent remaining.[13] Continued degradation and delays in the acquisition of land to develop reserves as offsets for vegetation clearing are also contributing to flood risks, due to the lack of porous ground surfaces to absorb heavy rainfall.

Limited urban green space and canopy cover

Urban greening is often emphasised as a strategy to improve community health, reduce heat stress, and promote social inclusion under a changing climate in the west. This is largely in response to the relatively low canopy coverage and high rates of vegetation clearing. All 5 LGAs have canopy cover lower than the metropolitan average, which means these areas are significantly impacted by the urban heat island effect (see below).

There are, however, few studies that longitudinally examine the health and wellbeing outcomes of urban greening initiatives for communities experiencing disadvantage. That is, evidence to support that the provision of greenspace in the west necessarily translates to better mental and physical health outcomes.[14] For example, despite Brimbank and Maribyrnong having similar levels of accessibility to greenspace, a lower proportion of residents in Brimbank visit greenspaces at least once a week.

Socioecological 'hotspots'

Modelling from the Clean Air and Urban Landscapes Hub indicates that Brimbank, Melton, Maribyrnong and Wyndham have an average summer urban heat island (UHI) reading 8 to 11 degrees hotter than non-urban areas **(Figure 2.3)**.[15] However, the distribution of these heat effects is geographically uneven. Moreover, higher heat effects seen in areas with high social vulnerability (low levels of economic development), such as St Albans, Tarneit and Altona North. As reporting across a range of socioecological indicators has shown, these 'hotspot' suburbs are largely those with a history of industrial land use, active polluting land-uses, and with ongoing industrial expansion, urbanisation and significant infrastructure projects that further compromise health and wellbeing.[16]

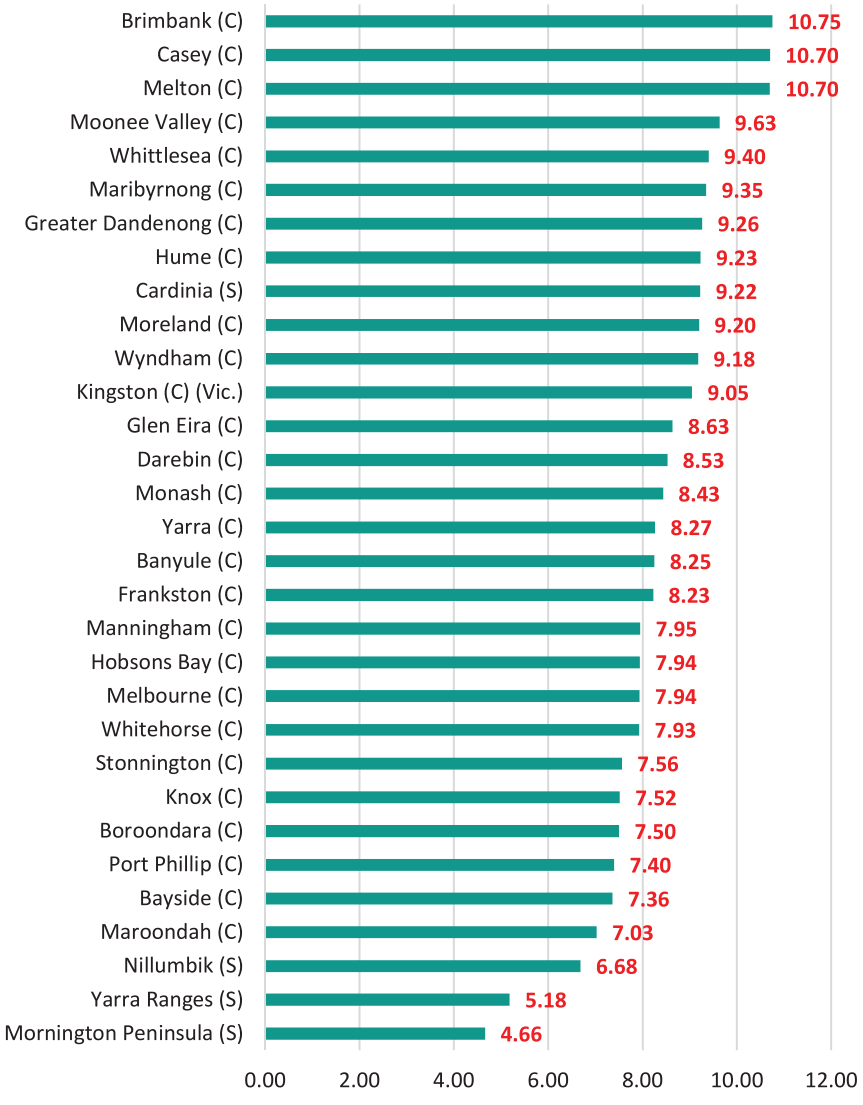

Figure 2.3. 2018 Urban Heat Island reading (°C) by Local Government Area for Greater Melbourne. Source: Sun et al. (2019, p. 7).

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Findings and emerging opportunities

While this analysis shows significant cross-over between indicators across the region, such as housing stress, populations born overseas and heat risks, there are also differences. This data profile does not capture access or availability of physical and social infrastructure and services, for example, how far people have to travel during heatwaves to access affordable or in-language services to stay cool. Those working in such places, such as CHCSOs, can provide more insights into the lived experiences of different communities and ideas for addressing the drivers of heat vulnerabilities.

Key findings and considerations:

- **Improving outcomes –** Analysing point-in-time data shows an improvement in multiple indicators of disadvantage across the west, particularly around educational attainment. This potentially reflects population movements as younger, working professionals have moved to the region.
- **Uneven disadvantage –** Multilayered and persistent disadvantage is apparent across all LGAs, although largely concentrated at the boundaries of Melton, Brimbank, and Wyndham in newly urbanised suburbs, as well as those experiencing industrial and residential expansion.
- **A better understanding of interdependencies is needed –** Point-in-time data does not account for interdependencies between variables nor the lived experience of those represented. For example, this data does not pick up gaps between the reported proximity of services and the cultural appropriateness of services.
- **Impact of COVID-19 –** Lags in datasets do not yet account for the impact of COVID-19 on such trends. In particular, the disproportionate impacts on individuals and communities in the west with job losses, displacement from rising housing costs, and the flow on effects from deferred debt and rising interest rates.
- **Understanding the diversity of communities –** Recognising the diversity of the region is essential for planning for climate justice, in understanding the risks but also the strengths, capabilities, and possibilities of different communities in providing culturally diverse and appropriate responses. For example, the bilingual and bicultural supports offered by ethno-cultural and Aboriginal Community Controlled Organisations.
- **Connectivity and accessibility –** The data is also limited in being able to map the connectivity and accessibility of communities, services and supports. For example, the ability of communities in outer growth areas to access greenspaces or other cool spaces during heat waves or the use of certain spaces over others. Further work could be done to provide a more detailed profile of the region to inform planning for climate adaptation and mitigation.

Key opportunities:

- **Place-based indicators of physical and social infrastructure –** Enhance place-based indicators relevant to mapping health inequities and climate risks within the region, bringing in community-based knowledge around the access and availability of physical and social infrastructure.
- **Diversified datasets and evidence –** Diversify datasets and evidence to be relevant to the current and projected impacts of climate change for local communities. For example, the accessibility of bulk-billing doctors or in-language services.
- **Community-led decision-making on climate adaptation –** Create opportunities for people with overlapping experiences of generational, locational and other forms of disadvantage to inform climate change adaptation planning to shape healthy, sustainable futures.

Notes

[1] Robert Tanton et al., *Dropping off the Edge 2021: Persistent and Multilayered Disadvantage in Australia* (Melbourne: Jesuit Social Services, 2021), 85-104.

[2] Qian Sun et al., *Urban Vegetation, Urban Heat Islands and Heat Vulnerability Assessment in Melbourne, 2018*. (Melbourne: Clean Air and Landscapes Hub, 2019), 12-15.

[3] North Western Melbourne Primary Health Network, *Chronic Disease Area Profile* (Melbourne, 2017), 4-8, https://nwmphn.org.au/wp-content/uploads/2020/01/NWMPHN-Chronic-Disease-Area-Profile-2018.pdf

[4] Sarah Coleman, "Built Environment: Increased Extreme Weather Events," in *Australia: State of the Environment 2016* (Canberra: Australian Government Department of the Environment and Energy, 2017), https://doi.org/10.4226/94/58b65a5037ed8.

[5] Inner West Air Quality Community Reference Group, *Summary Report: Air Pollution in Melbourne's Inner West – Taking Direct Action to Reduce Our Community's Exposure* (Melbourne, 2020), https://www.environment.vic.gov.au/sustainability/inner-west-air-quality-reference-group.

[6] SGS Economics and Planning Pty Ltd, *Economic, Social and Environmental Profile: Western Metro Region*, (Melbourne, 2019), 113-114. https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/04/SGS-Economic-social-and-environmental-profile-Western-Metro-Region-April-2019.pdf.

[7] Age Range of Residents in Melbourne's West versus Rest of Melbourne, 2009 & 2019. Authors' own calculations using HILDA, waves 2009 and 2019.

[8] Share of Population Born Overseas in Melbourne's West versus Rest of Melbourne, 2009 & 2019. Authors' own calculations using HILDA, waves 2009 and 2019.

[9] Michael Buxton et al., *Growing Pains: The Crisis in Growth Area Planning* (Melbourne, 2020), 47, https://bit.ly/3wFI908.

[10] SGS Economics and Planning Pty Ltd, *Economic, Social and Environmental Profile*, 6-11.

[11] "City of Melton: Population Forecast," .idcommunity, 2022, accessed 23 August, 2022, https://bit.ly/3CEtehO.

[12] Margaret Paul, "Housing Blocks in Melbourne's Outer Suburbs Getting Smaller, as Developers Flag Affordability Issue," *ABC News*, 18 August 2022, https://www.abc.net.au/news/2022-08-18/housing-blocks-melbourne-outer-west-getting-smaller/101340156.

[13] See for example, Elias Visontay, "A Broken Dream: Outer Melbourne Has Affordable Houses but No Train or School," *Guardian News*, 15 November 2021, https://www.theguardian.com/australia-news/2021/nov/15/a-broken-dream-the-walkable-melbourne; Victorian Auditor-General's Office, *Protecting Critically Endangered Grasslands* (Melbourne, 2020), 8-9, https://www.audit.vic.gov.au/sites/default/files/2020-06/20200617-Endangered-Grasslands-report.pdf.

[14] David Kelly et al., "Urban Greening for Health and Wellbeing in Low-Income Communities: A Baseline Study in Melbourne, Australia," *Cities 120* (2022), https://doi.org/10.1016/j.cities.2021.103442.

[15] Sun et al., *Urban Vegetation, Urban Heat Islands*, 7.

[16] Melissa Pineda-Pinto et al., "Mapping Social-Ecological Injustice in Melbourne, Australia: An Innovative Systematic Methodology for Planning Just Cities," *Land Use Policy 104* (May, 2021), https://doi.org/10.1016/j.landusepol.2021.105361.

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