A Liveability Assessment of the Gannawarra Shire:

An investigation of Kerang and Cohuna

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Executive Summary

In October 2019, the *Healthy Liveable Cities Group* at RMIT University completed a Neighbourhood Liveability Assessment of the towns of Kerang and Cohuna in the Gannawarra Shire. Seventeen neighbourhoods of approximately 400 people were assessed on important liveability indicators aligned to the social determinants of health. These determinants or influences of health can be simply understood as health being determined by where people are born, live, learn, work, play and age.

The Liveability Assessment of Gannawarra Shire was funded by the Department of Health and Human Services (DHHS) North Division in collaboration with the Mallee Regional Partnership. Liveability is a priority area of action for this partnership that includes the four Local Government Areas (LGAs) of Mildura Rural City, Swan Hill Rural City, Buloke Shire and Gannawarra Shire. This research into regional liveability is also supported by the Clean Air and Urban Landscapes Hub funded by the National Environmental Science Program. It is recommended that the results of this report are shared across local organisations, council departments, possibly Councillors and residents of the Gannawarra Shire community to encourage further discussion about future community goals and directions. These results are intended to identify liveability strengths and challenges across Kerang and Cohuna and to encourage integrated public health and urban planning initiatives based on best practice and evidence informed principles.

Several liveability indicators were identified as important to understanding and assessing liveability across the Gannawarra Shire. These priority issues were investigated in the 2 major towns of Kerang and Cohuna in the Gannawarra Local Government Area (LGA). This report provides a spatial analysis of 7 different indicators assessed by 12 separate measures across the townships of Kerang and Cohuna and includes:

- Socio-Economic Index for Areas – Index of Relative Socio-economic Disadvantage (SEIFA-IRSD);
- Access to Food;
- Access to Services for Daily Living;
- Access to General Practitioners;
- Cultural Access;
- Education; and
- Transport.

Summary of Key Findings

The objective of this report was to gain a better understanding of liveability within the Gannawarra LGA and specifically the towns of Kerang and Cohuna. This includes providing evidence about liveability strengths and challenges across the neighbourhoods of Kerang and Cohuna and the Gannawarra Shire, now and in the future. The central areas of both towns provide very good liveability with good access to healthy fresh foods, services of daily living, General Practitioners and a choice of accessible primary schools. However, on the outskirts of both towns, liveability is threatened by increasing distances to these important services and this finding should be considered in future urban planning and future development.

Limited walkable access to kindergartens and childcare facilities reduces the overall liveability of both Kerang and Cohuna, as does the reduced number of childcare hours and services offered in Cohuna. Both Kerang and Cohuna lack local public transport to service residents within their towns and most residents don't live close

(within 400m) to the limited services of long distance rail and coach networks that provide social and economic connectivity to other towns and regional centres across the Mallee Region.

The population of the Kerang-Cohuna community has increased 9% to approximately 11,000 between 2001 and 2016, though full time equivalent positions have decreased 10% between 2011 and 2016 and agricultural employment is declining while government services employment is substantially increasing[1]. These statistics are consistent with the evident socio-economic disadvantage identified by SEIFA-IRSD results for both Kerang and Cohuna. This disadvantage is likely to be associated with low rates of Year 12 or equivalent education completion which is approximately half the Victorian average in both towns. However, there are positive signs of change occurring within the community evident in the results for the Australian Early Development Census. The proportion of developmentally vulnerable children living in Kerang has significantly decreased since 2012 and the latest results suggest that the proportion of developmentally vulnerable children living in Kerang is now even lower than the 2018 Victorian average.

The results of this report identify the need and benefits of neighbourhood level assessment of liveability as opposed to standard use of LGA or municipal averages in the application of social, economic and environmental data. This is particularly important in regional Australian municipalities where the inclusion of larger and smaller towns across sparsely populated rural areas can result in the smoothing of aggregated, LGA averages where smaller towns and neighbourhoods with significant need can be overlooked.

Regional towns and cities across Australia are facing unique challenges. These challenges can threaten or encourage liveability and many challenges common to larger cities can also appear at smaller scales in regional contexts. This Liveability Assessment has been customised to the needs and priority issues of the Mallee Regional Partnership and suggests the need to limit urban development on the edges of towns and identifies area-based inequity. This is common across many smaller towns and larger cities across Australia and it is hoped that the results of this report will facilitate regional planning that encourages more equitable and closer distances to within-town services and facilities. Regional towns have good access to available land but new development that increases distances to important services decreases the liveability of towns and consequently, the health and wellbeing of residents. It is hoped that the proceeding detailed analysis is useful in informing future actions to improve liveability across the towns of Kerang and Cohuna and the Gannawarra Shire and begins with an explanation of a liveability assessment before detailed chapter-based results.

[1] https://www.mdba.gov.au/sites/default/files/pubs/community-profiles-kerang-cohuna-june2018.pdf

Why produce a Liveability Assessment of the Gannawarra Shire?

A Liveability Assessment of Gannawarra Shire was undertaken to provide a place-based or spatial analysis of liveability to understand liveability strengths and challenges across the towns of Kerang and Cohuna. This was completed using 17 Statistical Area Level 1 areas (SA1s) and 104 Mesh Block small area neighbourhoods across the towns of Kerang and Cohuna. The report aims to inform future policy and planning decision-making, strategies, interventions and investments across the municipality and to assist with longer term monitoring and evaluation across the Shire.

This project has been funded by the Department of Health and Human Services (DHHS) North Division in collaboration with the Mallee Regional Partnership. Liveability is a priority area of action for this partnership that includes the four LGAs of Mildura Rural City, Swan Hill Rural City, Buloke Shire and Gannawarra Shire. The partnership seeks to support local communities and the creation of healthy liveable communities.

A Liveability Assessment of the Gannawarra Shire focuses on the major towns of Kerang and Cohuna and provides a convenient method to understand critical social, economic and environmental factors that influence public health and quality of life outcomes for all residents of the LGA. This is also very important to assist with future planning for the area.

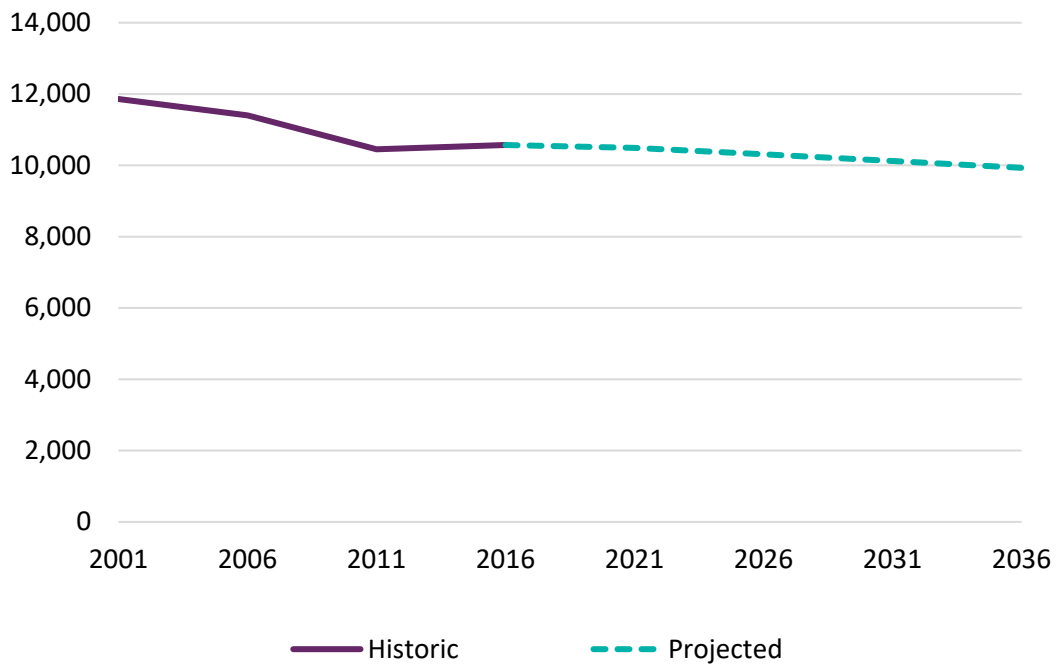

Figure 1: Victoria in Future projected population growth expected for Gannawarra LGA 2016 to 2036 (Department of Environment Land Water and Planning, 2019).

The population of Gannawarra Shire is steadily declining with a growing ageing population and without major intervention, these trends will continue. The resident population for the municipality was just over 10,500 in 2016 but is projected fall to 10,000 by 2036. This is concerning and has social and economic implications. It is also of concern for current residents of the Gannawarra Shire because decreasing populations can result in a decline of small business, local available services, associated employment opportunities, reduction in social and health-based services and the possibility of school closures. Additionally, declining populations can lead

to decreased community volunteering that community clubs and organised sports clubs rely on and declining and ageing populations can make it harder to field a local team. A loss of services and amenities also has the flow on effect of making towns of the Shire less attractive to new families creating a cycle of greater outward migration as people leave the area in search of more liveable communities.

To address these issues, the Gannawarra Shire's Municipal Public Health and Wellbeing Plan was developed within an integrated Council Plan 2017-2021[2] guided by Gannawarra Shire Council's vision of *building upon our strengths of people, place and pride to inspire a positive future together* and the Gannawarra Local Agency Meeting (GLAM) 2017 – 2021 Action Plan. The Gannawarra Council Shire Plan 2017-2021 focuses on 6 key strategy platforms: Reverse Decline in Working Population; Revitalise our Towns into Vibrant Places; Foster Economic Prosperity Through Diversity; Embrace Environmental Sustainability; Focus Education and Lifelong Learning; Facilitate Local, Regional and Global Connectivity (Figure 2).

Figure 2: Gannawarra Council Shire Plan 2017-2021 (Gannawarra Shire Council, 2017)

Additionally, the plan outlines 5 key focus areas: Connectivity; Economic Diversity, Growth and Prosperity; Sustainable and Natural Build Environments; Good Governance and a Healthy Organisation; and Strong Healthy Communities (Figure 3).

[2] https://www.gannawarra.vic.gov.au/Council/Council-Plan-2017-2021.vic.gov.au

Figure 3: Focus Areas of the Gannawarra Shire Council Plan selected from the 2019 Gannawarra Shire Council Annual Report (Gannawarra Shire Council, 2019)

The indicators selected for inclusion in this Liveability Assessment are relevant to all the themes identified across the Council Plan. The selected indicators have been developed in partnership with Gannawarra Shire Council and RMIT University based on the needs of council and a broader understanding of liveability and how this concept relates to the social determinants of health.

Gannawarra liveability, health and wellbeing themes and focus areas also connect to the priorities of the current Victorian Public Health and Wellbeing Plan 2015-2019 (Department of Health and Human Services, 2015) and domains of health and associated Victorian public health and wellbeing outcomes framework (Figure 4 overleaf). The updated Victorian Public Health and Wellbeing Plan 2019-2023 (Department of Health and Human Services, 2019) was released in September 2019 and continues the priorities of the previous plan with the inclusion of health impacts of climate change and antimicrobial resistance. The four priorities of the revised 2019-2023 plan are: tackling climate change impacts on health; increasing healthy eating; increasing active living; and reducing tobacco-related harms. All priorities are well aligned to this current investigation of liveability in Kerang and Cohuna.

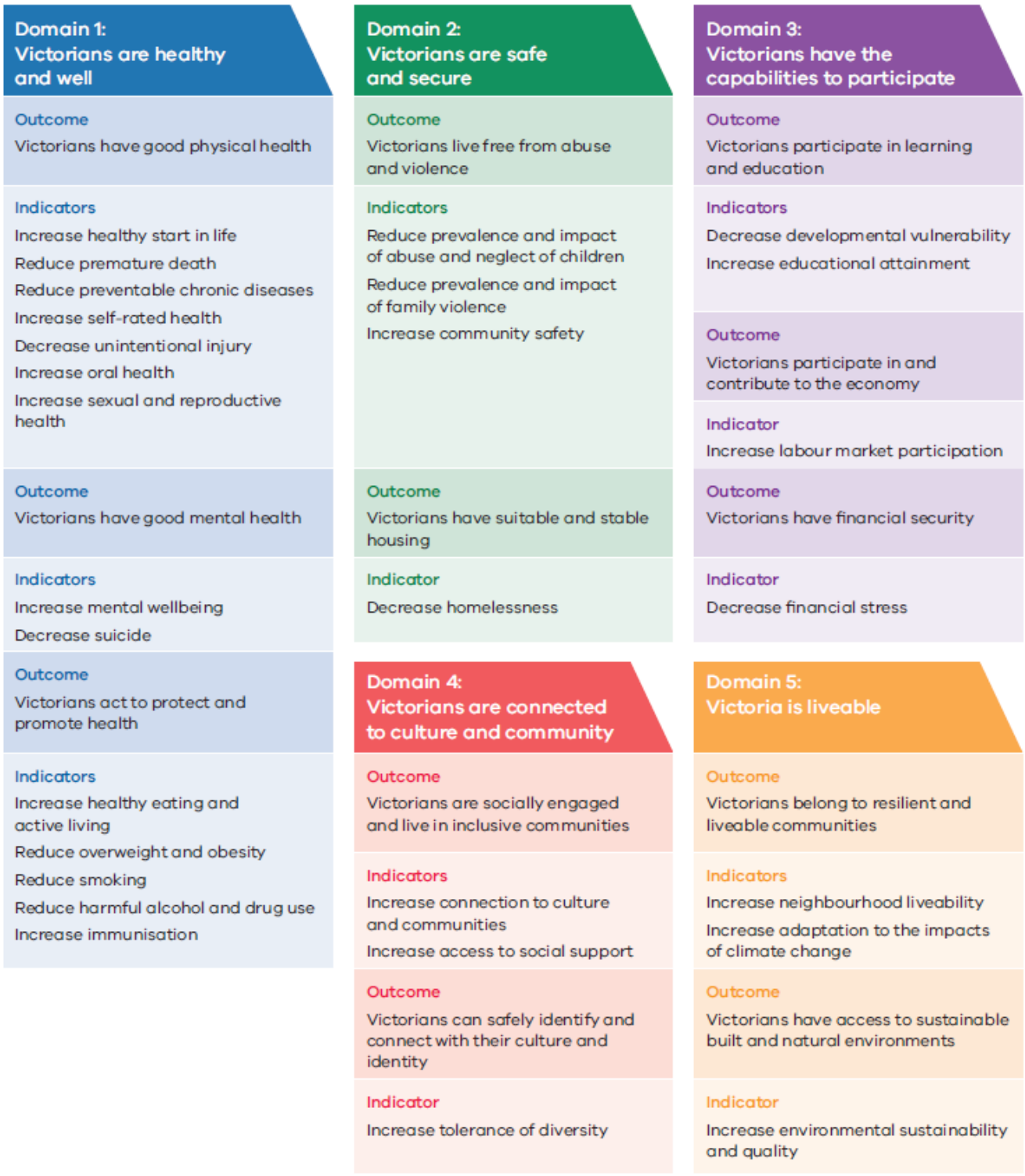

Figure 4: Domains included within the Victorian public health outcomes framework (Department of Health and Human Services, 2016)

What is a Liveability Assessment?

The Liveability Assessment of Gannawarra provides spatial analysis of 7 different liveability indicators at the neighbourhood level. Neighbourhoods were defined using both Mesh Blocks and Statistical Area Level 1 geographic boundaries according the Australian Statistical Geography Standard used by the Australian Bureau of Statistics. The selected liveability indicators are consistent with the Victorian Public Health and Wellbeing Plan 2015-2019 (Department of Health and Human Services, 2015) and based on over 7 years of research and conceptual understanding of liveability (Badland et al., 2014) within the *Healthy Liveable Cities Group* at RMIT University. This ensures that academically rigorous liveability indicators are included throughout the assessment with locally, nationally and internationally validated and respected measures.

A major benefit of a Liveability Assessment is that it provides a spatial assessment of key social determinants of health at the small scale neighbourhood level. Indicators selected for inclusion in a Liveability Assessment are social, economic and environmental spatial indicators that are deemed most relevant to a specific municipality. The specific indicators and measures selected for investigation in this Liveability Assessment for Gannawarra are provided in Table 1 and include 16 different indicators with 26 separate measures. These include:

- Socio-Economic Index for Areas (SEIFA);
- Access to Food/Food Security;
- Access to Services of Daily Living;
- Access to General Practitioners;
- Cultural Access;
- Education; and
- Transport;

Indicators included in the Liveability Assessment apply a method that is easily understood and communicated (a major benefit of spatial indicators) and are customised for the local area and develoiped according to best practice, public health, research methods and knowledge. This is essential for practical application in planning because indicators must be developed according to theory in order to interpret changes over time and should also be connected to a policy lever for population level changes to occur (Davern, Gunn, Giles-Corti, & David, 2017). Furthermore, indicators provide a tip of the iceberg representation of important issues and act as a catalyst to begin conversations within organisations, with stakeholders and the local community encouraging further investigation and an integrated planning approach. They are also necessary for the measurement of improvements made over time and support strategy evaluation.

Table 1: Indicators and Measures included in the Gannawarra Liveability Assessment

SEIFA - IRSD	• Socio-Economic Index for Areas – Relative Disadvantage (IRSD)
Access to Food/Food Security	• Access to supermarkets • Access to fast foods
Access to Services of Daily Living	• Average number of daily living types present measured as a score of 0-3, with 1 point for each category: (i) Convenience store/petrol station/newsagent; (ii) Public transport stop; (iii) Supermarkets within 1600m network distance.
Access to General Practitioners	• Access to General Practitioners (GPs)
Cultural Access	• Access to nearest library
Education	• Access to childcare and kindergartens • Access to primary schools • Completion of VCE or equivalent • Australian Early Development Census proportion of children "developmentally vulnerable" (0-10th percentile) on two or more AEDC domains Access to nearest library
Transport	• Proportion of residential dwellings within 400m of a public transport stop

Objectives of the Gannawarra Liveability Assessment

The primary objectives of the Gannawarra Liveability Assessment were:

1. Use a range of data to calculate spatial liveability indicators at two neighbourhood levels of Statistical Area Level 1 (SA1) which represents approximately 400 individuals and Mesh Block (MB) neighbourhood level which represents approximately 30 to 60 dwellings;
2. Identify differences in social determinants of health for the neighbourhoods across the Gannawarra Shire towns of Kerang and Cohuna with data presented and analysed using maps;
3. Benchmark liveability in 2019, and identify strengths, weaknesses and opportunities for planning to improve liveability across neighbourhoods within the towns of Kerang and Cohuna;
4. Strengthen evidence available to Gannawarra Shire Council for use in future planning and advocacy activities.

Background Understanding of Liveability

The *Healthy Liveable Cities Group* is located within the Centre for Urban Research at RMIT University[3]. The research program is led by Director, Professor Billie Giles-Corti, with Co-Directors Dr Melanie Davern and Associate Professor Hannah Badland bringing together a multidisciplinary research team investigating the influence of urban design and planning on community health and wellbeing. The team's policy focussed research is developed in partnership with stakeholders across industry, state government and local government to inform best practice policy and planning through the creation of liveability indicators. Team expertise has been developed from multiple disciplines, including epidemiology, psychology, spatial analysis, computer science, policy analysis and economic evaluation with a strong focus on research translation and engagement. Liveability research is the core interest of the *Healthy Liveable Cities Group.* The research program was established in 2012 and is built on policy partnered research development and application.

Liveability is a very popular term that is well known to a range of different stakeholders within government, planning, property, health and the general community. In 2012 the *Healthy Liveable Cities Group* at RMIT University completed a thorough review of both academic and grey literature on the topic of liveability. This led to an international review of liveability indicators and development of a new definition of a liveable community as:

> *safe, attractive, socially inclusive and cohesive, environmentally sustainable with affordable and diverse housing, linked by convenient public transport, walking and cycling infrastructure to employment, education, local shops and community services, leisure and cultural opportunities and public open space* (Lowe et al., 2013)

Since being developed, our definition of liveability has been adopted by DHHS in the Victorian Public Health and Wellbeing Plan 2015-2019 (Department of Health and Human Services, 2015) and again in the Victorian Public Health and Wellbeing Plan 2019-2023 (Department of Health and Human Services, 2019) and informed Plan Melbourne - the metropolitan planning scheme shaping the city and the state over the next 35 years. The *Healthy Liveable Cities Group* is also currently developing a Liveability Index for Melbourne that will be applied to other national cities across Australia as part of the NHMRC Centre for Research Excellence in Healthy Liveable Cities. This is arguably the world's first liveability index designed and built specifically to enhance population health outcomes. Most recently, our research group has released the *Creating Liveable Cities in Australia*[4] report which measures liveability across Australian capital cities.

The liveability indicators produced by the *Healthy Liveable Cities Group* are based on a spatial or place focussed assessment of liveability. These liveability indicators provide a spatial assessment of the building blocks required to produce good health outcomes and align to the social determinants of health – the conditions in which people are born, grow, live, work and age (World Health Organisation, 2017).

[3] http://cur.org.au/research-programs/healthy-liveable-cities-group/

[4] http://cur.org.au/project/national-liveability-report/

Liveability is an easily understood interpretation of the social determinants of health which are elegantly described in the Dahlgren and Whitehead's (1991) rainbow model of health provided in Figure 6.

Figure 6: Dahlgren and Whitehead's (1991) Rainbow Model of the social determinants of health

The upstream determinants or conditions that surround people are influential on long term health outcomes and these conditions are easily assessed and interpreted using small area liveability indicators. These indicator-based results can then be used to identify areas needing intervention or strategies for future policy and planning implementation.

Indicators included in this Liveability Assessment provide a neighbourhood level understanding of many of these upstream social determinants describing socio-economic conditions (SEIFA), access to food, access to services of daily living, access to medical services, culture, education and transport.

Methodology

Geographic Information Systems (GIS) are used in this report to complete small area spatial analyses. This spatial methodology is useful for the identification of trends and patterns across areas that are harder to identify using traditional forms of data analysis. Maps presented provide an assessment of liveability for a single point in time that can be replicated in the future during key planning milestones to identify changes occurring across time.

Australian Statistical Geography Standard (ASGS) Ed 2016 Digital Boundaries in ESRI Shapefile format were used to model neighbourhood boundaries and were obtained from the ABS. The geographies used in this report include the ABS, local government area (LGA), Sections of State Range (SOSR), Statistical Area Level 2 (SA2), Statistical Area Level 1 (SA1) and Mesh Blocks, in accordance with ASGS. [5]

[2] https://www.abs.gov.au/websitedbs/d3310114.nsf/home/digital+boundaries

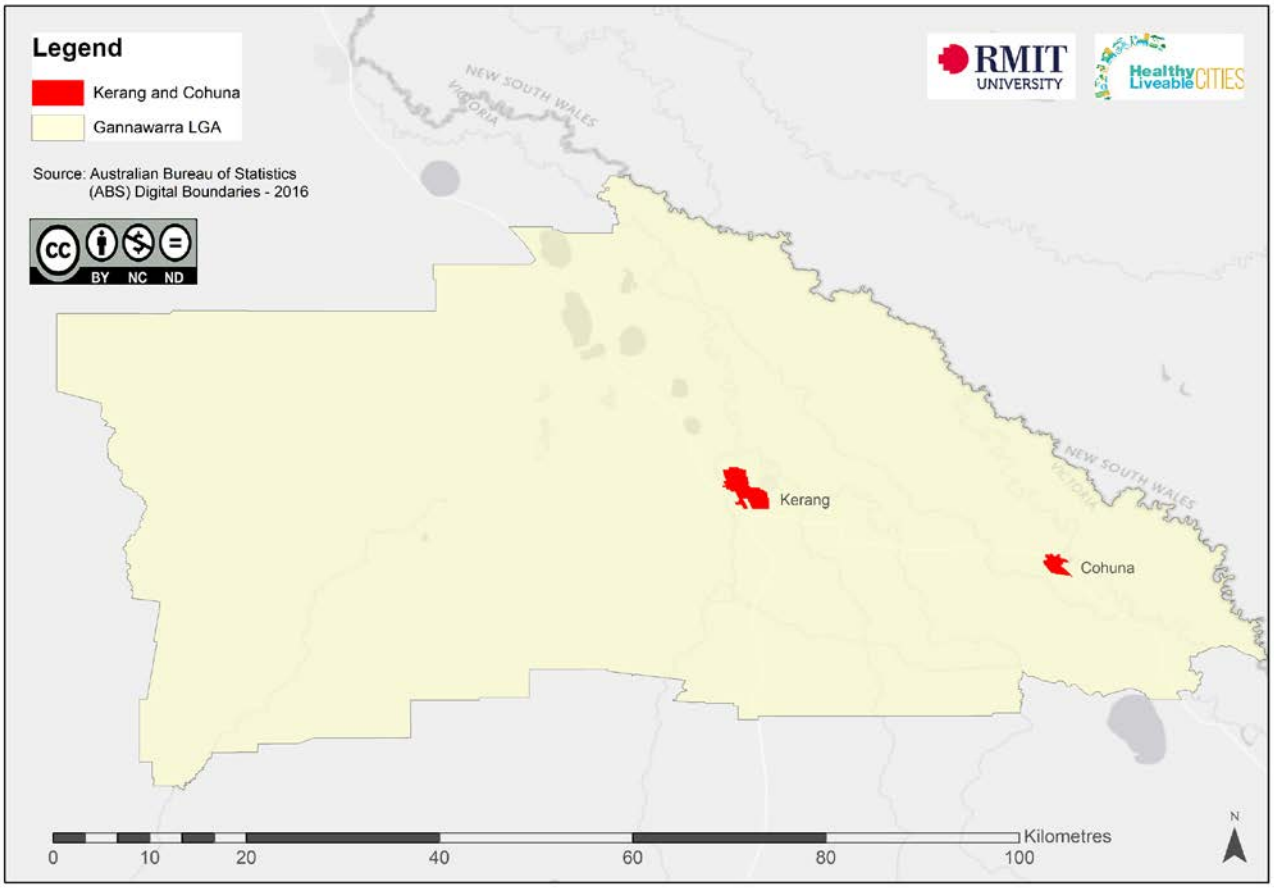

Figure 5: Location of Cohuna and Kerang townships within Gannawarra LGA

Figure 5 provides the location and ABS township boundaries of Kerang and Cohuna and their location in the Gannawarra LGA. The ABS apply the ASGS definition of Sections of State Range (SOSR) [6] using population counts to group together Urban Centres and Localities (UCLs) into four broad classes based on population size. 'Major Urban' areas have populations of 100,000 or more, 'Other Urban' areas have populations between 1000 to 99,999 and 'Bounded Localities' have populations between 200 to 999. The towns of Kerang and Cohuna are classified as 'Other Urban'.

Within Kerang there are 11 urban SA1s[7] and 70 urban Mesh Blocks[8] and in Cohuna there are 6 urban SA1s and 34 Mesh Blocks. Mesh Blocks are the smallest geographic area defined by the ABS and in urban environments are generally constructed so that they contain between 30 to 60 dwellings or have no dwellings at all. SA1s are larger geographic areas which are built from Mesh blocks and generally used to represent neighbourhoods with a population of 200-800 people or an average of 400 people. In rural environments is it often not possible to meet these population requirements and, in this report, the SA1s used have population numbers ranging from 138 – 491 with a mean population of 324 people. Similarly, the Mesh Blocks modelled in this report contain between 3-83 dwellings with a mean of 31. Any indicators created by extracted Census data (e.g. SEIFA and educational outcomes) are presented at SA1 to maintain privacy while geographical access indicators (e.g.

[6] https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.004~July%202016~Main%20Features~Design%20of%20SOS%20and%20SOSR~12

[7] http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.001~July%202016~Main%20Features~Statistical%20Area%20Level%201%20(SA1)~10013

[8] https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.001~July%202016~Main%20Features~Mesh%20Blocks%20(MB)~10012

access to food, early childcare, primary schools, services of daily living, GPs and culture) are presented at the finer-grained neighbourhood result of Mesh Blocks. It is anticipated that smaller neighbourhoods are more useful in interpreting the results for geographical/distance type indicators in regional towns.

The Socio-Economic Indexes for Areas or SEIFA Index for Relative Disadvantage (SEIFA - IRSD)[9] is provided for small area socio-economic area assessment (Australian Bureau of Statistics, 2011a). SEIFA indexes are used to measure socio-economic status and rank areas across Victoria using state based assessments of relative socio-economic advantage or disadvantage. These data are useful for making comparisons between areas experiencing disadvantage with areas that are less disadvantaged. The Indexes include variables such as income, education level, occupation and skill levels, housing and dwelling types, and other more general variables including internet connections, disability, car ownership, families, and marital status among others.

The maps included in this report are produced using a range of different data sources including those derived from the ABS 2016 Census, Gannawarra Shire Council and new data produced by the *Healthy Liveable Cities Group at* RMIT University. Indicators are presented at different scales based on data availability and type. All 2016 Census personal data was mapped at SA1 level to maintain privacy in small areas while maps of proximity and access to services were calculated at dwelling level and aggregated up to Mesh Block level to provide finer-grained analysis for geographic access type indicators. The Australian Early Development Census data is the only indicator mapped at SA2 which is the lowest level at which these data are publicly released.

Mesh Blocks that are an irregular shape, contain few dwellings or contain dwellings which are mostly clustered together with one outlying dwelling, may skew the average distance results when the measurements for individual dwellings are averaged or aggregated. Therefore, the location of dwellings is shown on the SIEFA maps included in this report to highlight the distribution of dwellings throughout each town. To minimise the risk of identifying individuals and disclosing confidential data, the ABS introduces small random errors into all data cells. Therefore, maps scales should be interpreted as indicative trends and not absolute measures.

The following section provides results for the Liveability Assessment of the Gannawarra Shire towns of Kerang and Cohuna with mapped indicator results presented first for Kerang and then for Cohuna. The final chapter of the report provides a summary of findings as well as implications for future planning of the towns.

[9] https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa

Results: Liveability Indicator Assessment

Socio Economic Index for Areas - Index of Relative Disadvantage (SEIFA IRSD)

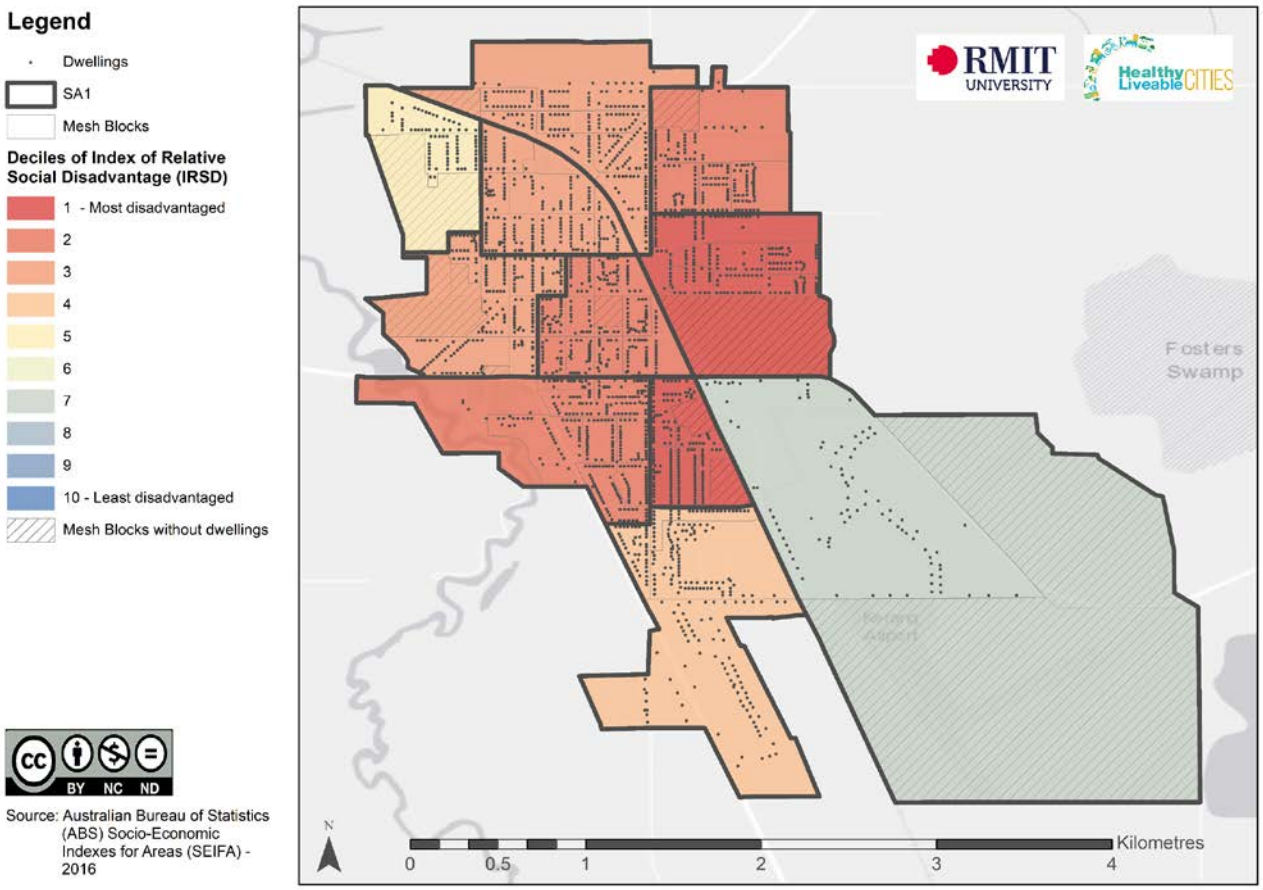

Figure 7: SEIFA Index of Relative Disadvantage (SEIFA-IRSD) and location of dwellings in Kerang

The SEIFA IRSD is described in further detail in the method section of this report and includes a range of social and economic factors in one index that includes income, education level, occupation and skill levels, housing and dwelling types, and more general variables such as internet connections, disability, car ownership, family types and marital status. These are deciles of relative disadvantage within all areas across Victoria. Figure 7 (above) and Figure 8 (overleaf) present SEIFA-IRSD results for the towns of Kerang and Cohuna respectively, with dot points representing the location of dwellings across the towns. Both Figures indicate that high levels of social disadvantage exist across both Kerang and Cohuna. Figure 7 reveals that 2 neighbourhoods of Kerang are ranked as the highest level of disadvantage with the majority of neighbourhoods ranging between the 2nd and 4th deciles. The outer south-eastern neighbourhood of Kerang is the least disadvantaged and ranked on the 7th decile. The most disadvantaged neighbourhoods in Kerang, shaded red and orange, are more likely to include people who work in low skilled employment, lack formal qualifications and are members of low-income households. In a state-wide map, areas shaded blue would be indicative of neighbourhoods where most people work in high skilled employment, hold tertiary qualifications and are members of high-income households. In Kerang, the absence of this blue shading indicates that these neighbourhoods do not exist and further highlights the significant disadvantage in this community. (ABS 2016)

The disadvantage evident in Gannawarra Shire may be attributed to many factors including the LGA's rapidly shrinking economy and decrease in Gross Value Product, low rates of secondary school completion and a low internet access: 26.0% of dwellings in Gannawarra do not have access to the Internet as opposed to the Victorian average of 13.6%[10]. High levels of disadvantage are also consistent with a lower median weekly household income which is $908[11] for Gannawarra and $511 below the Victorian average.

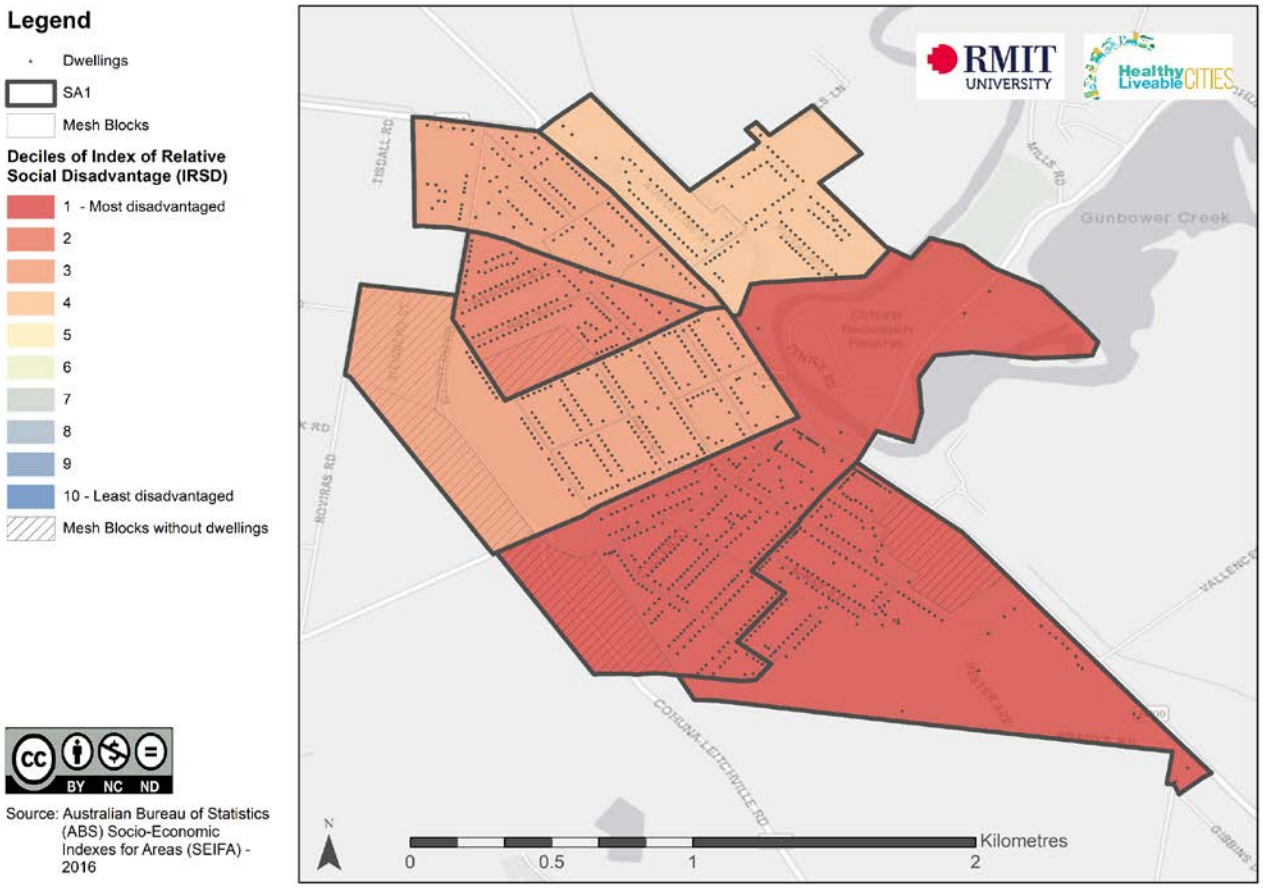

Figure 8: SEIFA Index of Relative Disadvantage (SEIFA-IRSD) and location of dwellings in Cohuna

SEIFA-IRSD results for the town of Cohuna are presented in Figure 8 where almost half of Cohuna is shaded red, indicating that these neighbourhoods are within the most disadvantaged decile across Victoria. The remaining northern areas of Cohuna are represented in various shades of orange representative of the bottom SEIFA-IRSD deciles between 2 to 4. There are no neighbourhoods in Cohuna that have SEIFA-IRSD deciles above 5 or mid-range socio-economic disadvantage.

The inclusion of dwellings as point data in Figures 7 and Figure 8 are intended to highlight the spatial pattern of dwellings locations within Kerang and Cohuna and highlight areas where dwellings are regularly spaced, clustered or dispersed.

[10] https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA22250
[11] https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA22250

Access to Supermarkets

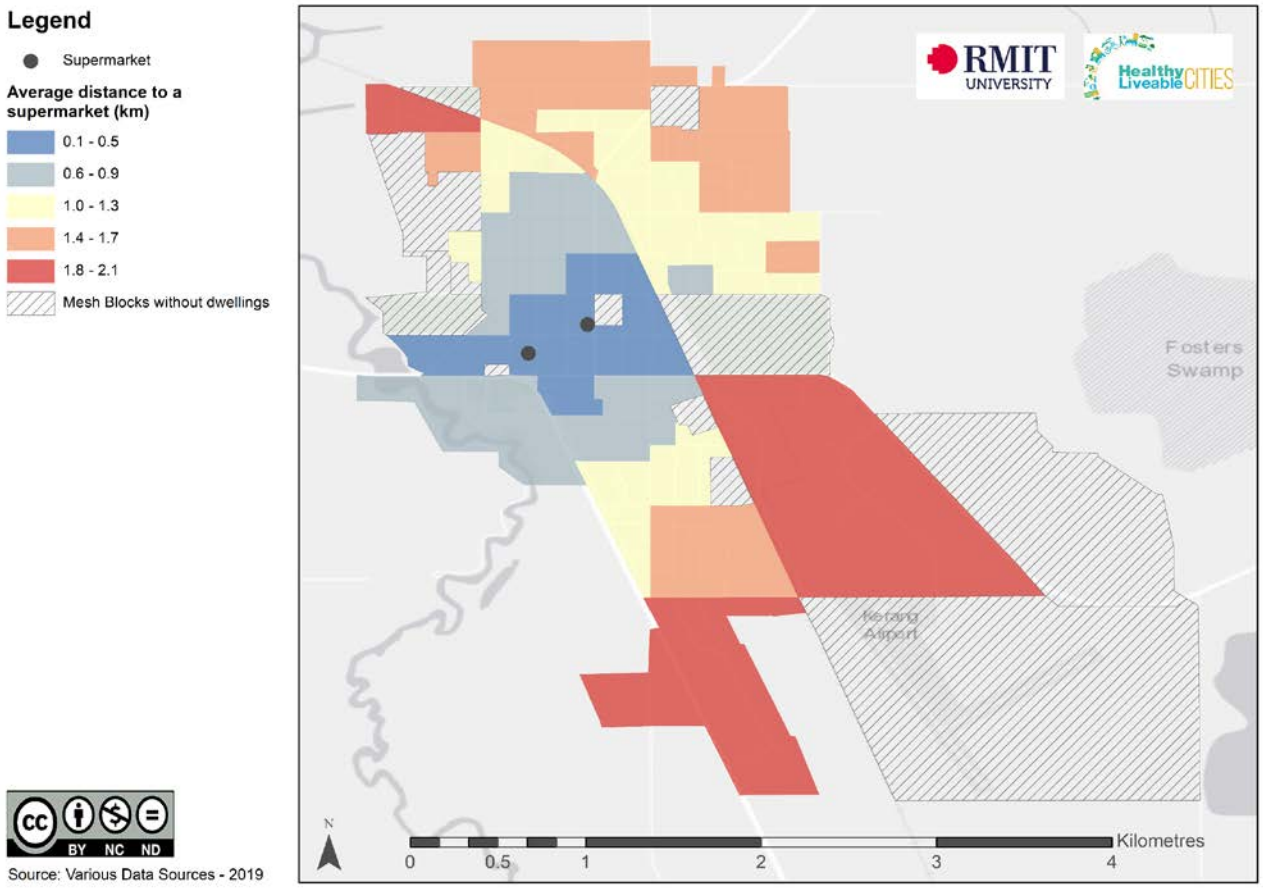

Figure 9: Average distance (km) to a supermarket in Kerang

Access to supermarkets are important for residents who need opportunities to purchase fresh, healthy foods that support healthy eating and healthy lifestyle which are consistent with the 2019 Victorian Public Health and Wellbeing Plan priorities (Department of Health and Human Services, 2015; 2019). This is also a priority action reported in the Gannawarra Council Plan 2017-2021 with the Gannawarra Council working in partnership with Northern District Community Health, Kerang District Health, Cohuna District Hospital, Mallee District Aboriginal Service, Victoria Police, Murray Primary Health Network and Mallee Family Care and the Southern Mallee Primary Care Partnership to develop and implement healthy eating policies across the region (Gannawarra Council, 2017).

There are two supermarkets in Kerang, a Woolworths and an IGA, and both are located in the main activity centre of the town (Figure 9). Approximately a quarter of the neighbourhoods in central Kerang (shaded dark blue) are within 500m of one or both supermarkets providing a close walking distance to fresh and healthy foods. Grey shaded areas represent neighbourhoods that remain within walking distances and extend this range up to 900m. Previous research indicates that most people will not regularly walk distances greater than 800m – 1km to destinations that include shops and services and their locations are particularly important for the encouragement of walking for transport (Gunn, King, et al., 2017; Gunn, Mavoa, et al., 2017). These distances should also be used in the interpretation of further results presented in this report in proceeding sections. Areas shaded in orange and red in the outer areas of Cohuna extend well beyond 1km and up to

2.2km making access to supermarkets difficult for residents of these areas, particularly if bulky purchases need to be carried, encouraging a car dependant lifestyle.

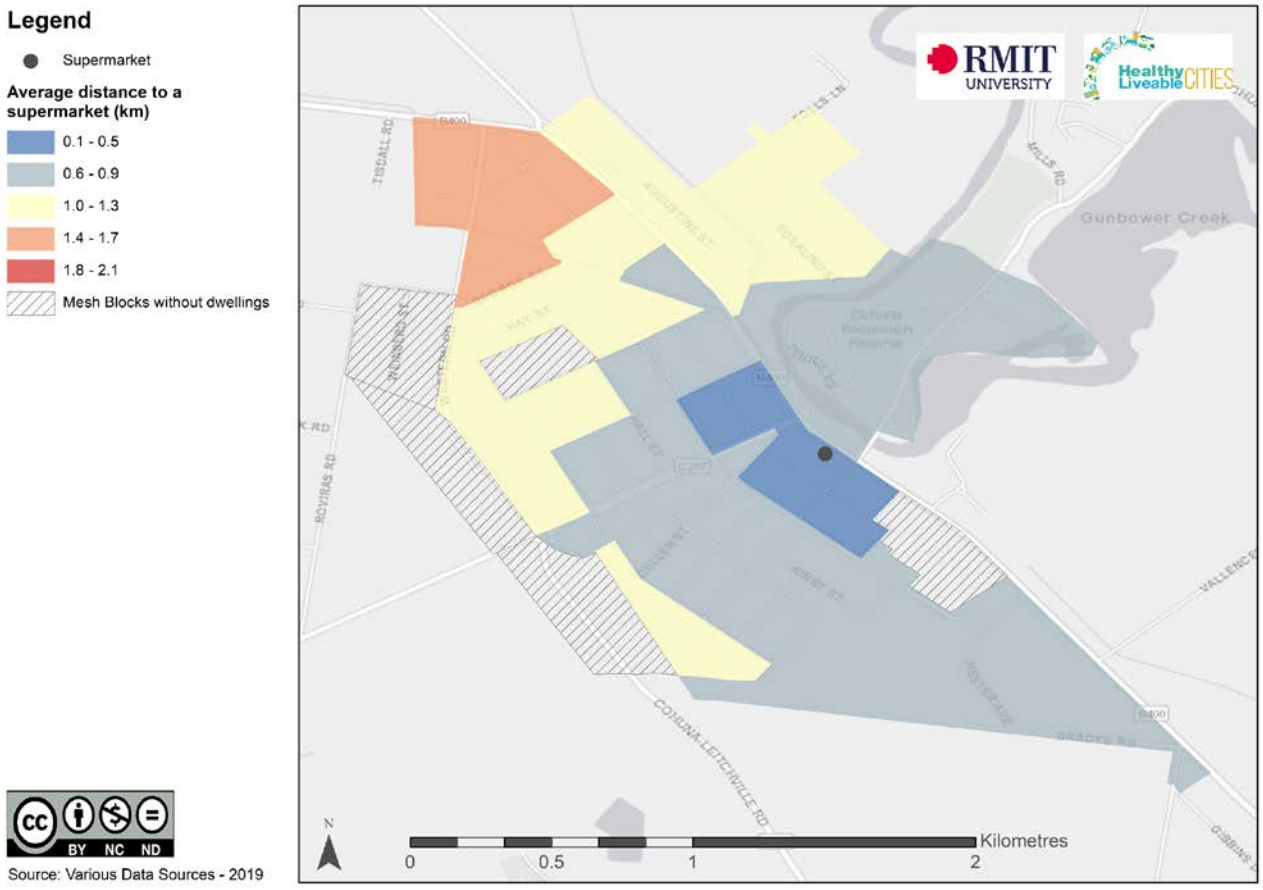

Figure 10: Average distance (km) to a supermarket in Cohuna

Residents of Cohuna only have access to one IGA supermarket in town and distances to this supermarket across neighbourhoods are presented in Figure 10 above. Approximately two thirds of the neighbourhoods in Cohuna are within a walkable 900m of this supermarket and these neighbourhoods are shaded in blue and grey in Figure 10. Residents of neighbourhoods shaded in yellow between 1km and 1.3km in distance from a supermarket and would most likely have to rely on motorised transport to access the IGA. One neighbourhood in in the outer north-western boundary of town is shaded orange and up to 1.7km from the supermarket making it harder for residents of this area to access the supermarket and fresh, healthy foods without access to private transport.

Access to Fast Foods

While supermarkets can be easily identified by their trading name and/or size, identifying fast foods is more complex in regional towns and centres because typically fast foods are sold by small, independent businesses as opposed to corporate or franchises of major, worldwide fast foods chains.

Considerable academic research has focussed on measures of food access and classification systems according to health or unhealthy food (Burns & Inglis, 2007; Hubley, 2011; Koleilat, Whaley, Afifi, Estrada, & Harrison, 2012; Thornton & Kavanagh, 2012; Thornton, Lamb, & Ball, 2016). The classification approach used for the creation of fast foods has been built on this existing evidence base and literature applied within the regional setting of Gannawarra Shire focussing on Kerang and Cohuna. For the purpose of this Liveability Assessment, fast food stores were defined as:

- major fast food company stores;
- local takeaway stores;
- petrol stations that sold take-away foods; and
- convenience stores that sold take-away foods.

These stores only refer to places where people can buy or take-home food and does not include restaurants. Data were sourced independently using online business directories validated using street view photography and public recommendation websites.

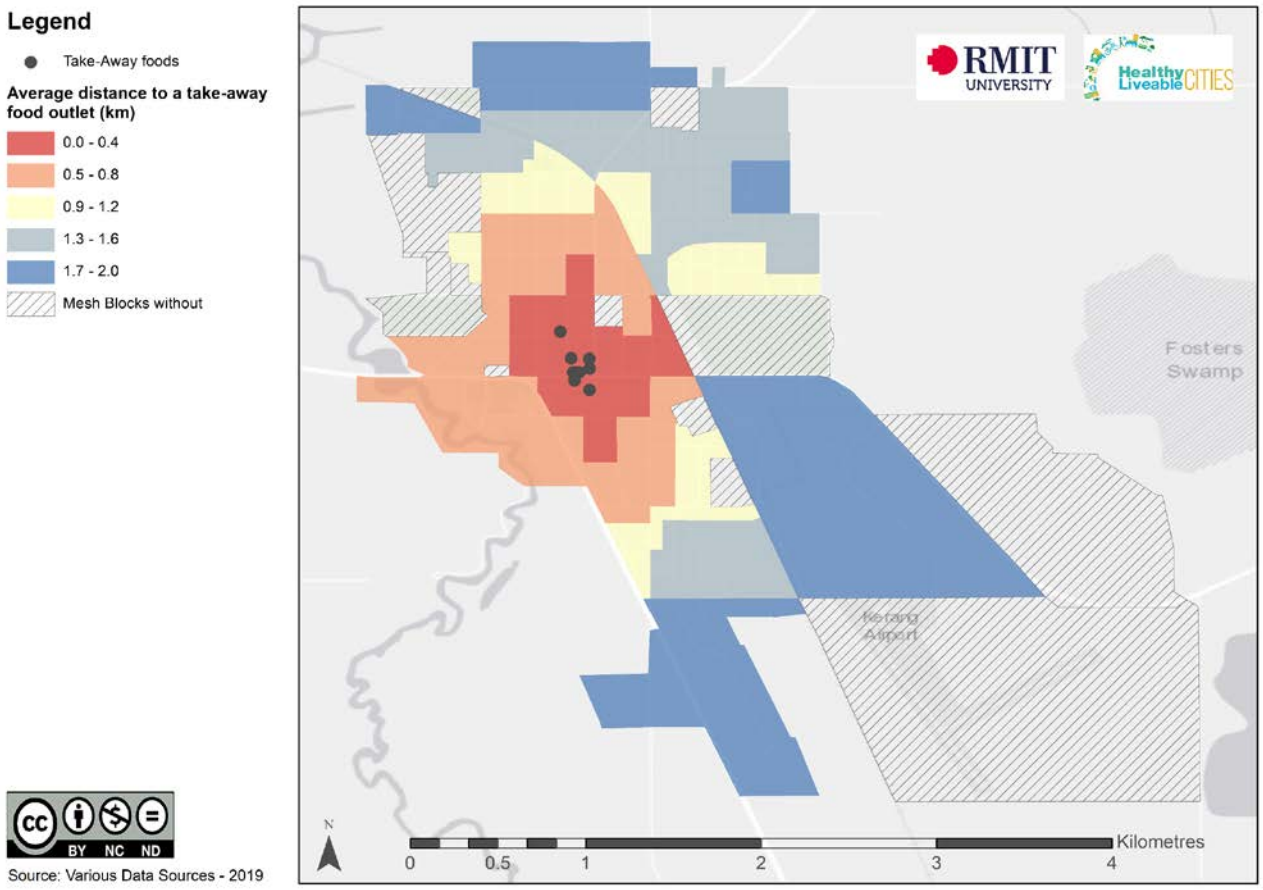

Figure 11: Average distance (km) to a fast food retailer in Kerang

No major fast food retail chains such as McDonalds or KFC are located in Kerang or within the Gannawarra Shire. However, in Kerang, there are numerous small businesses that sell take-away/fast foods with most clustered in the main activity centre along Wellington Street and Victoria Street. Similar to supermarkets, fast food venues are located in the centre of town with red shaded neighbourhoods representing dwellings located within 400m of a venue that sells fast food. When considered with the neighbourhoods shaded orange, almost half of Kerang is within a walkable distance of within 800m of take away food venues.

Neighbourhoods on the north and southern outskirts of town that are shaded grey and dark blue are more than 1.3km and up to 2.0km from these fast food retailers so residents in these areas would most likely have to rely on private transport to get to these businesses. Being further from these outlets and having to drive to the centre of town makes access to these food outlets more difficult and may reduce consumption of these less healthy food options.

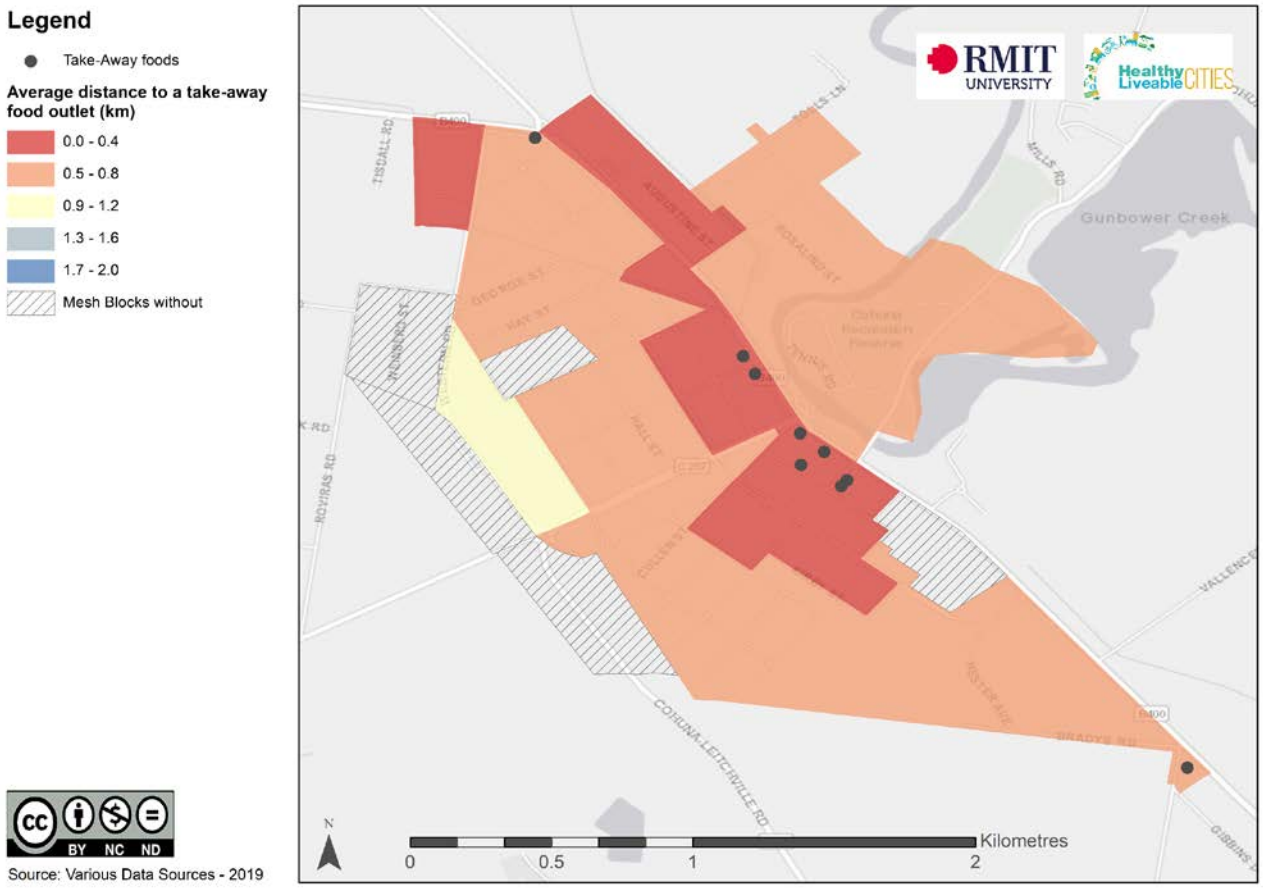

Figure 12: Average distance (km) to a fast food retailer in Cohuna

The location of fast food retailers in Cohuna is presented in Figure 12 above. Cohuna has no large fast food chains but has several take-away/fast food options provided by small businesses located within close proximity of the Murray Valley Highway that passes through the centre of town. Theses venues are mostly clustered in the main activity centre in the centre of town and most residents in these neighbourhoods shaded red live within 400m of these less healthy foods venues.

There are also two petrol stations/convenience stores at either end of Cohuna on the Murray Valley Highway which provide residents on the outskirts of town access to the take-away foods. The location of these petrol stations suggests that almost all of neighbourhoods in Cohuna (shaded red and orange) are within a walkable 800m distance of a venue which sells less healthy food options.

Access to Services of Daily Living

Services of daily living are important to meet the needs of residents and their everyday activities. Having more of these daily living destination types close-by allows people to meet their daily needs locally and encourages walking or cycling instead of driving which reduces the risk of chronic diseases.

The indicator of Access to Services of Daily Living has been defined as access to the following three types of essential 'daily living destinations' or destinations/services within a 1600m of a road network defined distance:

- a convenience store/petrol station/newsagent (these are places residents can get basics like milk and a newspaper);
- a public transport stop (public transport allows people to get to jobs, schools and other important places without relying on cars);
- supermarkets (where residents can purchase fresh, healthy food);

These services are generally needed by residents daily and the average number of daily living service types present are measured according to a score of 0-3 with a minimum score of 0 and a maximum score of 3, where 1 point is provided for each category present.

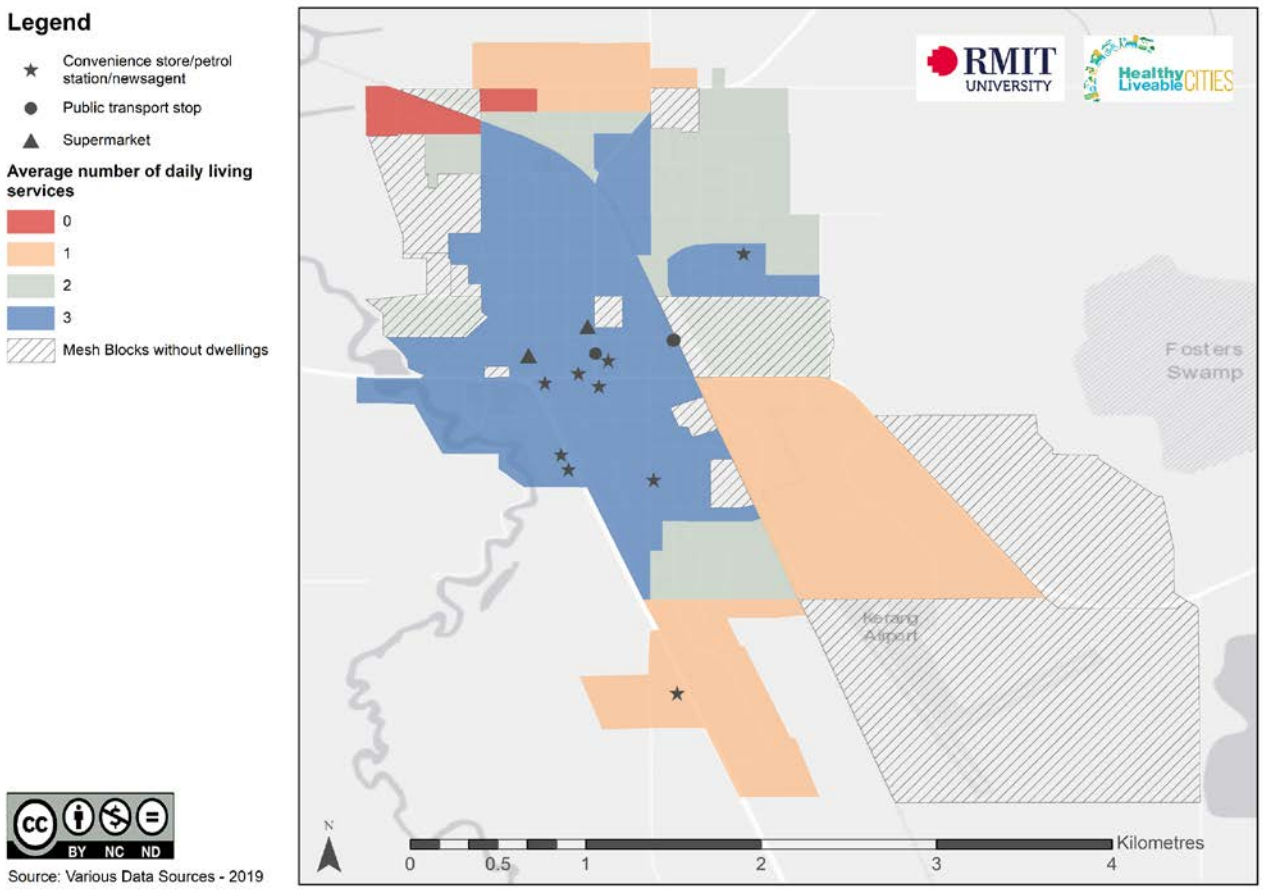

Figure 13: Access to services of daily living in Kerang

Access to services of daily living in Kerang are presented in Figure 13 above. Nearly half of neighbourhoods in central Kerang are shaded dark blue and most dwellings have access to a supermarket, a public transport stop and a convenience store (including milk bars)/petrol station and/or a newsagent within 1600m. Neighbourhoods shaded grey have access to any combination of 2 of these destination types and neighbourhoods shaded orange only have access to one of these services. Neighbourhoods shaded orange on the northern and southern boundaries have access to only 1 of these services and only two small neighbourhoods shaded red in the north of Kerang do not have any access to a service of daily living within 1600m.

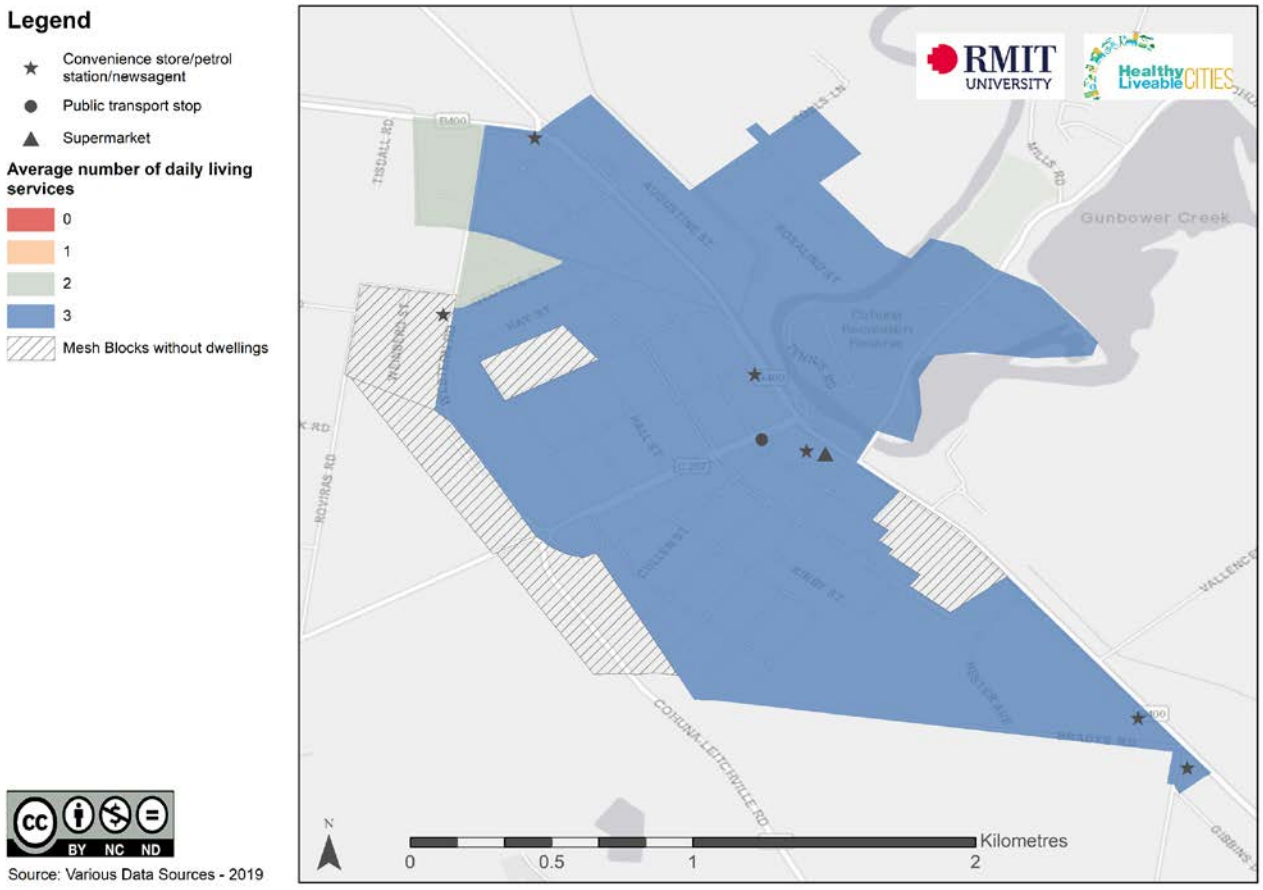

Figure 14: Access to services of daily living in Cohuna

Access to services of daily living in Cohuna are presented in Figure 14 above. Cohuna is only about 2.5km wide and smaller in size than Kerang so nearly every neighbourhood in Cohuna is within 1600m of all 3 daily living destinations, including a supermarket, a public transport stop, a convenience store, petrol station and/or a newsagent. There are only 2 areas shaded grey in the north-western boundary of town which only have access to a combination of 2 out of 3 of these destinations which shows that Cohuna is very liveable in terms of accessibility to services of daily living.

Access to General Practitioners

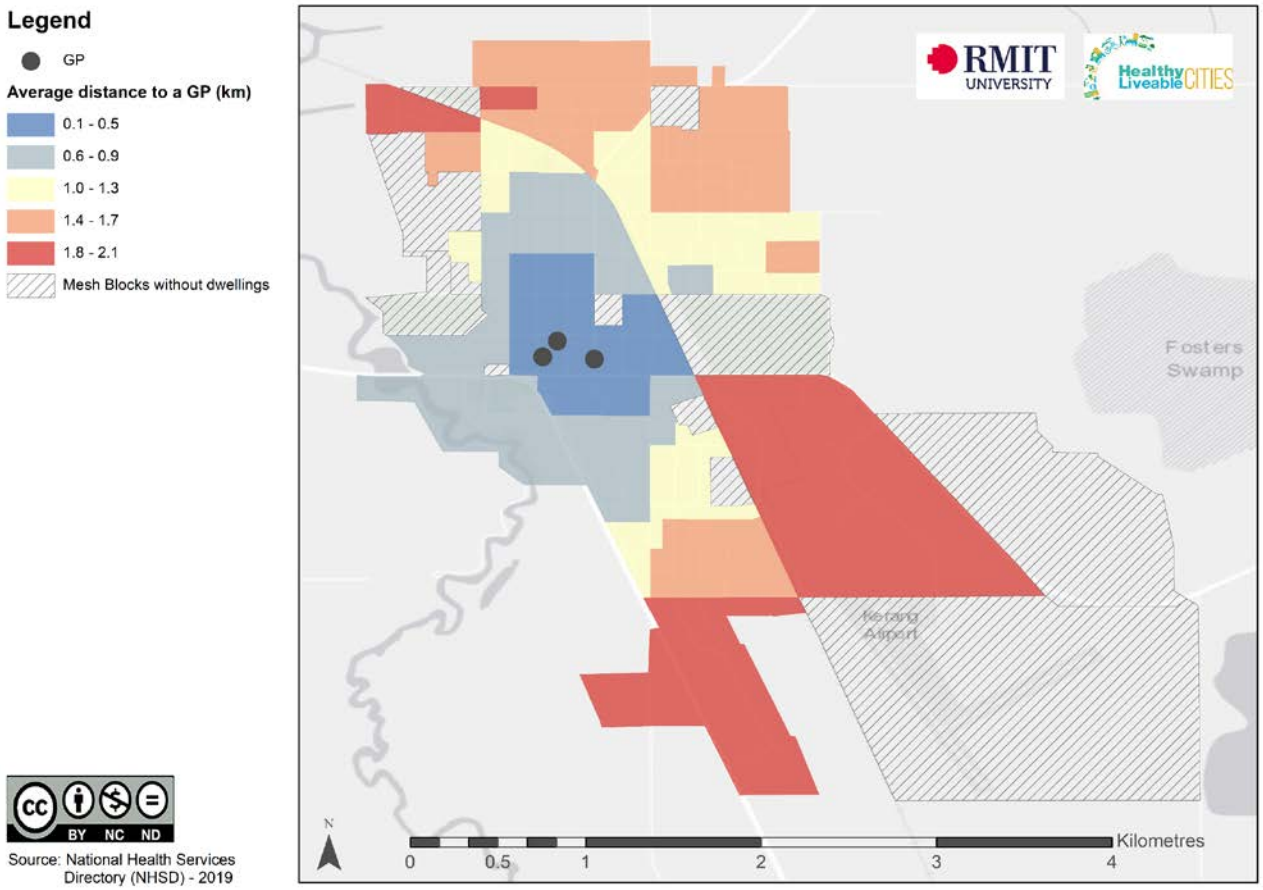

Figure 15: Average distance (km) to a General Practitioner in Kerang

Access to GPs are not only important for younger members of the community but have also been identified as a key service of importance to older people (Lowen, Davern, Mavoa & Brasher, 2015). This is particularly important in Kerang and other regional areas with an ageing population.

There are 2 medical clinics in the centre Kerang, the Kerang Medical Clinic and the Northern District Community Health, Fitzroy Street Medical Clinic. Additionally, the Mallee District Aboriginal Services which is located very close to the Fitzroy Street Medical Clinic, provides a GP and nurse service for Aboriginal and Torres Strait Islander people and their families. The location of these GP clinics and distances to access them are provided in Figure 15 above.

Approximately half of the neighbourhoods in Kerang are within 500m of a GP and shaded dark blue in Figure 15 while people living within neighbourhoods that are 600m to 900m of a GP are shaded grey. GPs are all located in the centre of Kerang and not distributed across the town. This creates distances greater than 1.0km (shaded yellow) which are considered less walkable distances, particularly for older people and young children, and there are notable areas in the south which are greater than 1.4km from a GP (shaded orange). The Kerang Medical Clinic and the Fitzroy Street Medical Clinic provide GP services Monday to Friday from 9am to 5pm and multi-lingual appointments are available at each site with GPs who can speak Hindi, Punjab, Urdu, Nepali and/or Yoruba in addition to English. The Kerang Hospital also provides 24-hour emergency GP care.

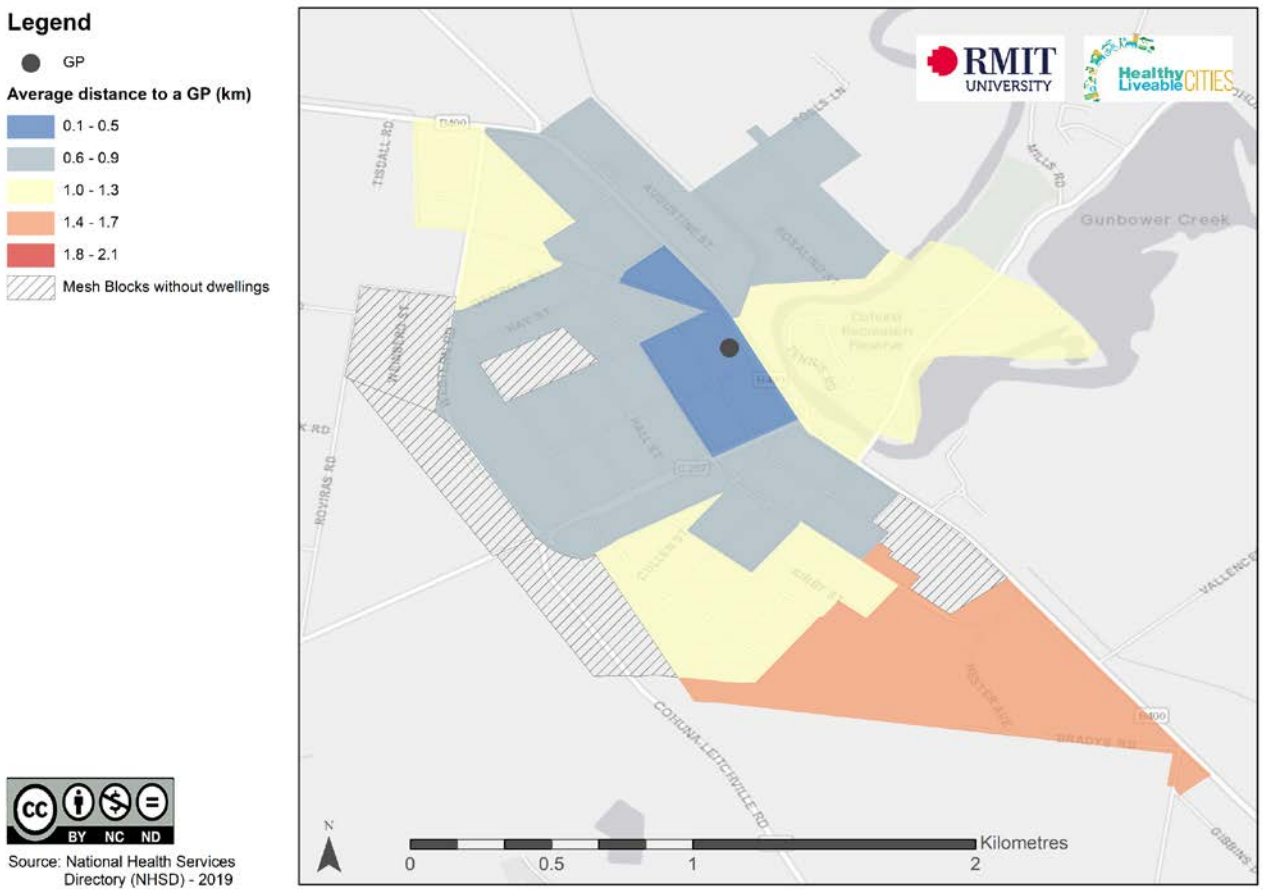

Figure 16: Average distance (km) to a General Practitioner in Cohuna

The Ochre Medical Centre is located in the centre of Cohuna and is the only medical clinic in town. It is open Monday to Friday from 8:30am to 5:30pm and on Saturdays from 9.00am to 12.00pm. A 24-hour after hours service is provided for urgent matters and residents can also access the Cohuna District Hospital in case of emergencies. Average distance to access a GP attending the Ochre Medical Clinic is presented in Figure 16 above.

Approximately a quarter of central neighbourhoods of Cohuna are within 500m of a GP (shaded dark blue) or between 600m to 900m in areas shaded grey. Almost two thirds of the town is within 1.3km of a GP when neighbourhoods 1.0-1.3km (shaded yellow) are also considered. Neighbourhoods shaded orange have greater distance to travel to access a GP (>1.4 km) and residents in these areas are more likely to require private motorised transport to access this service. It is also important to note that the orange shaded neighbourhoods in the south of town also include the most socio-economically disadvantaged neighbourhoods of Cohuna (Figure 8). Distances of 1.4km or greater to access a GP is likely to require the use of a private vehicle and probably not possible for older, younger or less physically mobile members of the community.

Like all accessibility indicators provided in this report, access to a GP measured by distance is the broadest measure of GP availability. Additional important factors include availability of appointments, bulk-billing service provision and possibly preference for a male or female GP or bilingual speaking practitioner. Geographic access provides the first level assessment of service availability while secondary analysis should investigate service frequency in further investigations.

Cultural Access – Access to Libraries

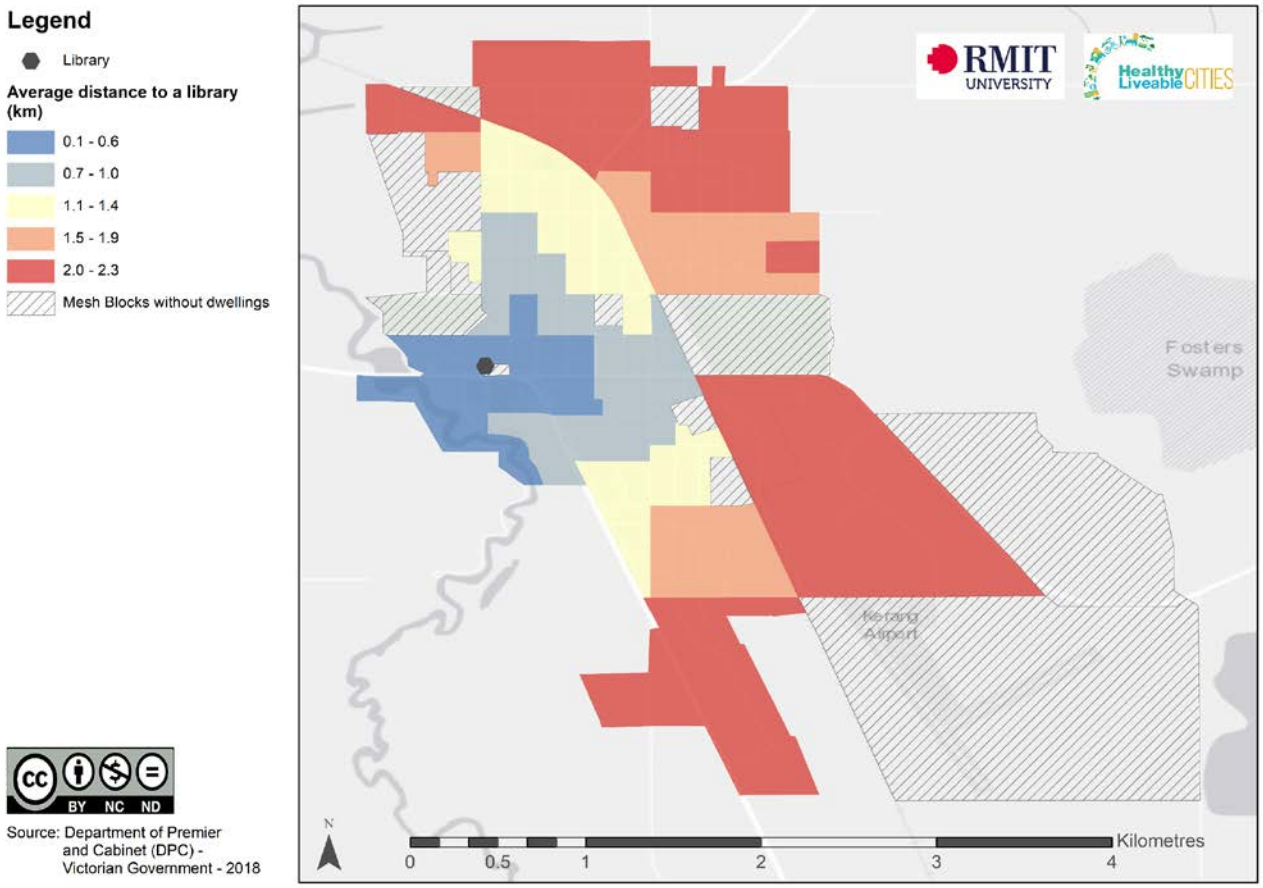

Figure 18: Average distance (km) to a library in Kerang

Libraries provide multiple social and economic benefits to the community and are essential social and community infrastructure. Libraries often provide multiple functions that include books, media and internet connectivity but also opportunities for lifelong learning, reading support for young children, career or job searching, information for homework and assignments, legal or financial issues and meeting places for the community (Fitch & Warner, 1998). Libraries are a central source of literature, culture and creativity in regional towns.

The location of libraries in Kerang and Cohuna were sourced from the Victorian Government, Department of Premier and Cabinet. The average distance to a library was calculated for neighbourhood across the towns and results are presented in Figure 18 (above) and Figure 19 (overleaf). Approximately one third of Kerang is within a walkable distance of 1km of the Sir John Gorton Library in Kerang with these neighbourhoods shaded in dark blue (<600m) and grey (700-1km). Neighbourhoods shaded yellow are 1.1 - 1.4km of the library which a longer distance to walk to, especially for older, younger and less physically mobile residents. Neighbourhoods shaded orange and red in the north and south of Kerang which are more than 1.5km from the library and hard to access without private motorised transport and includes some of the more disadvantaged areas of Kerang.

The Sir John Gorton Library in Kerang is open 5 days a week from Monday to Thursday 10am – 5pm, on Fridays from 10am – 6pm and on Saturdays from 10am – 12pm.

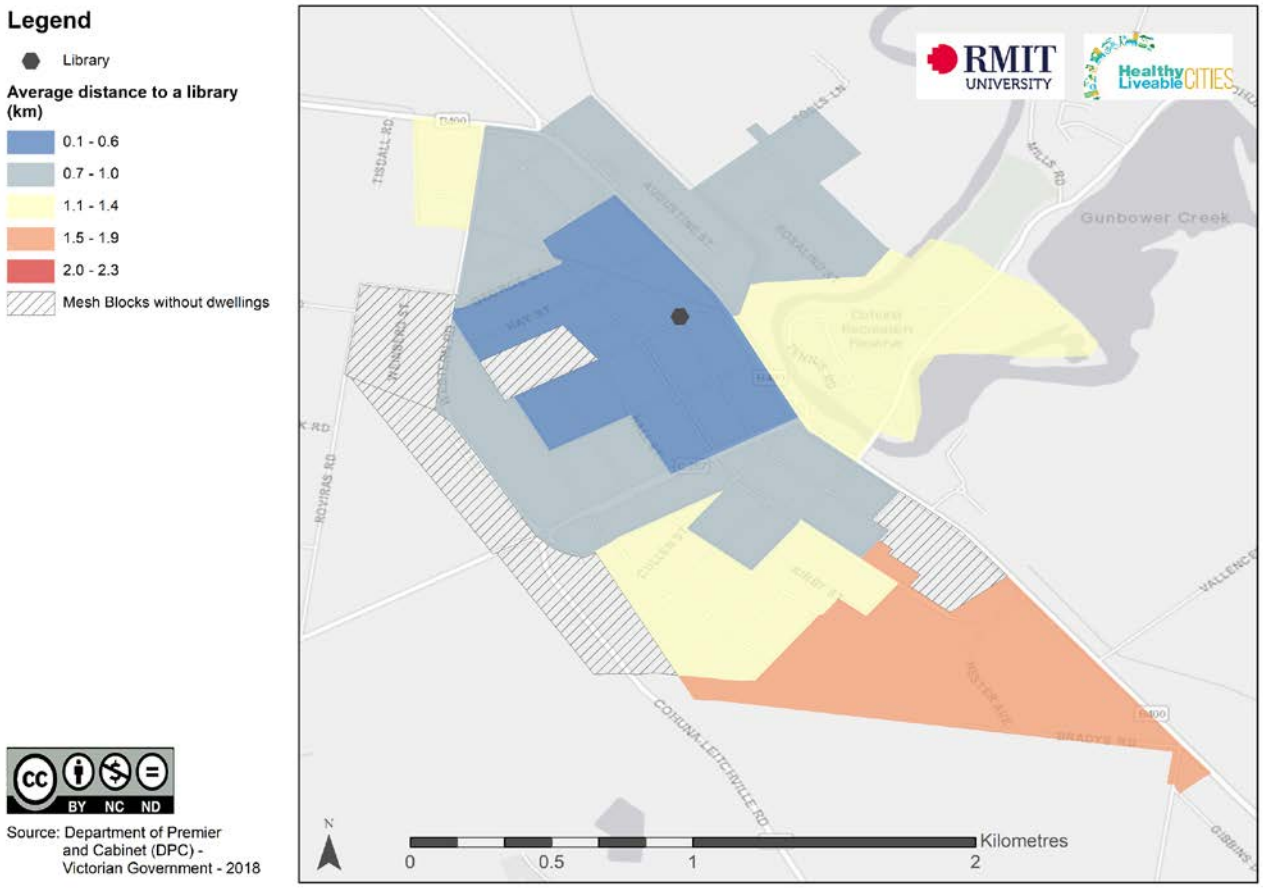

Figure 19: Average distance (km) to a library in Cohuna

Approximately half of neighbourhoods shaded dark blue and grey in Cohuna are within a very walkable distance of 1km of the Cohuna Library and almost a quarter of the town (shaded yellow) are within 1.4km of this service which makes it very accessible. There is a large neighbourhood shaded orange in the south of town where it is between 1.5 – 1.9km of the library and residents within this neighbourhood without private vehicles could find this distance more difficult to walk to. Once again, further distances are required to access services from this neighbourhood which is one of the most socio-economically disadvantaged neighbourhood of Cohuna.

In addition to the proximity of households to a library, access to these services is also dependent on the library's opening hours in each town. The Cohuna Library is closed on a Tuesday but opens all other weekdays from 10am – 5pm. It is also open on a Saturday from 10am – 12pm. While proximity is important, these opening hours may reduce access for local residents, particularly those who are employed during standard business hours.

Education – Access to Childcare and Kindergartens

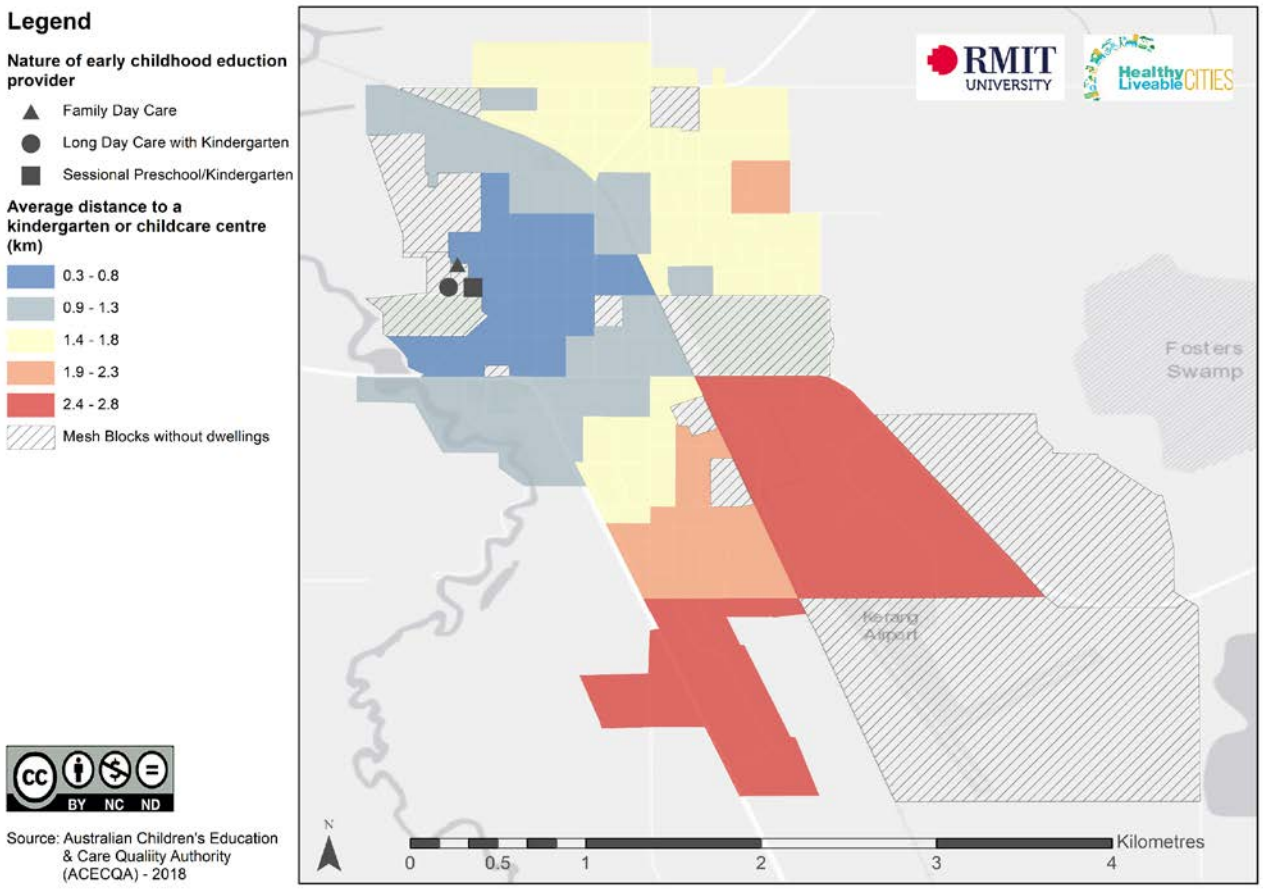

Figure 20: Average distance (km) to childcare and kindergartens in Kerang

In Kerang, the Gannawarra Shire Children's Centre offers a government funded 4-year old kinder program which runs 7.5 hours a day, from 8:30am – 4pm from Monday to Friday. The centre also offers long day childcare from 8am – 6pm, Monday to Friday. An additional family day care program is managed by the Gannawarra Shire Children's Service Team and all services are co-located at a single location shown in Figure 20.

The average distance to a childcare or kindergarten service is provided in Figure 20. Approximately a third of the residential areas of Kerang are with 1.3km of the Gannawarra Shire Children's Centre with dark blue shading representing <800m distance and grey shading representing 900m - 1.3km. Residents living in these dark and grey shaded areas are within a walkable distance to these services. Neighbourhoods shaded yellow are between 1.4 – 1.8km and represent a large area of the town while areas shaded orange are between 1.9 - 2.3km and those shaded red are between 2.4 – 2.8km from the Gannawarra Shire Children's Centre. As stated previously, distances greater than 1.0km are considered less walkable and particularly for older people and young children who would more than likely need to be supported by private motor vehicles to access these services.

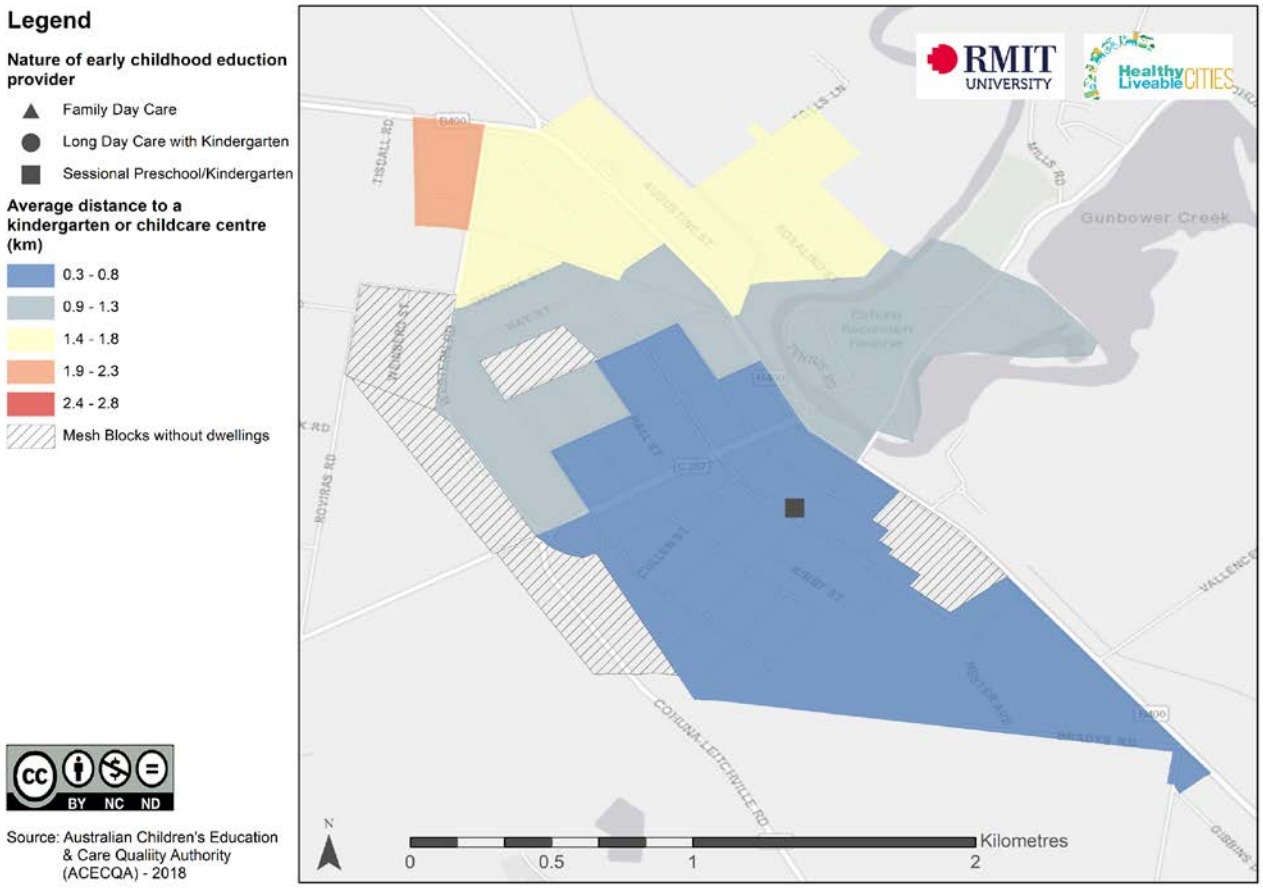

Figure 21: Average distance (km) to kindergartens in Cohuna

The Cohuna and District Preschool Centre also offers a government funded 4-year old kinder program. However, this program is limited to 5-hour sessions which operates from 9am - 2pm, on Monday, Wednesday and Thursday. The Cohuna and District Preschool Centre also provides a 3-year old kinder program which operates for 3 hours on a Tuesday and this service is not offered in Kerang. There is no available long day care service in Cohuna and being unable to access this service may impede some parents and carers seeking local employment.

The average distance to a kindergarten service in Cohuna is provided in Figure 21 above. Approximately two thirds of the neighbourhoods of Cohuna are within a walkable 1.3km of the Cohuna and District Preschool Centre. Neighbourhoods under 800m are shaded dark blue and neighbourhoods between 900m and 1.3km of the Centre are shaded grey in Figure 21. Neighbourhoods on the outer northern and eastern areas of Cohuna shaded yellow (1.4 – 1.8km) and orange (up to 2.3km) are more than 1.4km from the Centre with greater distances to travel.

While enrolment at the Gannawarra Shire Children's Centre is capped at 96, only 30 places are available at the Cohuna and District Preschool Centre and it is possible that enrolment might be capped by age brackets. Consequently, while access to these services in terms of proximity is important, vacancy rates at each centre will also influence access to these services.

Education – Access to Primary Schools

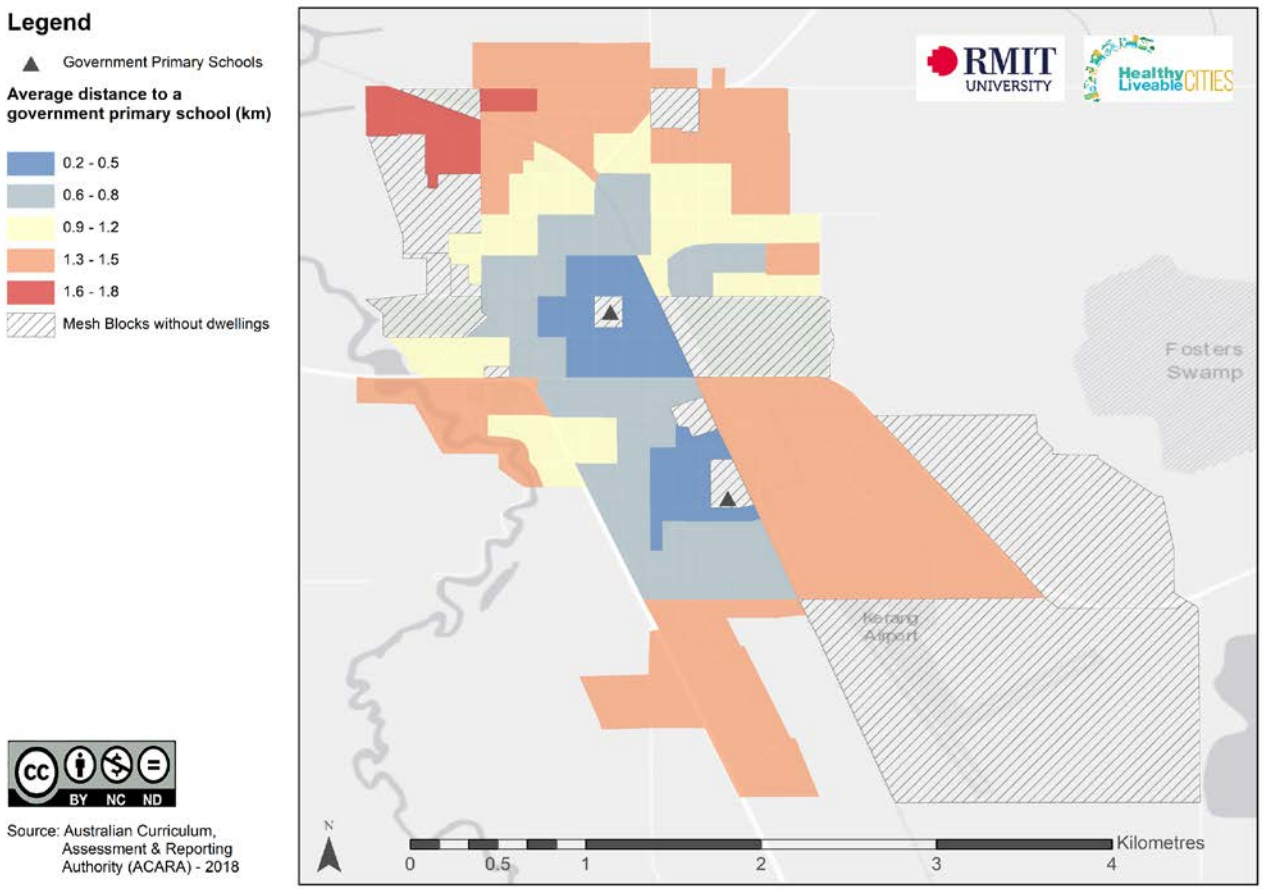

Figure 22: Average distance (km) to a government primary school in Kerang

Kerang has two government primary schools, Kerang Primary School in the north of the town which has approximately 70 children enrolled and the much larger Kerang South Primary School, which has approximately 150 enrolled students. The average distance travelled to access these primary schools is presented in Figure 22 above. Neighbourhoods shaded in dark blue and grey represent distances under 800m while neighbourhoods shaded yellow represent further distances from 900m - 1.2km and orange areas on the northern and southern boundaries of the town between 1.3 - 1.5km from a school. Residents living at the northern most boundary of Kerang live the greatest distance of 1.6 - 1.8km from Kerang Primary School and these neighbourhoods are shaded red in Figure 22.

Carver et al. (2008), reported that 800m is the maximum distance that a primary school aged child is likely to walk to school. Therefore, children living in neighbourhoods that are shaded yellow, orange and red are more likely to rely on private transport to access their local primary school.

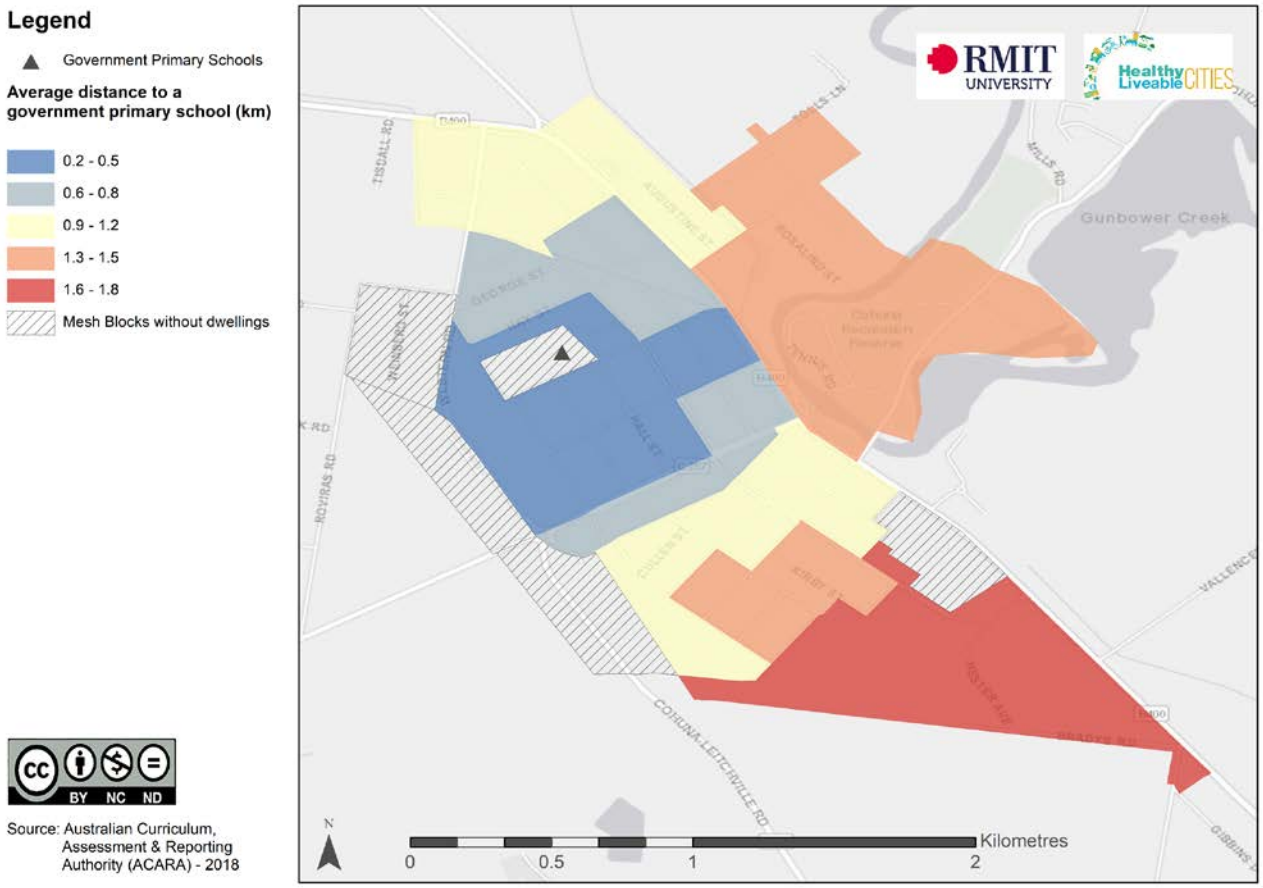

Figure 23: Average distance (km) to a government primary school in Cohuna

The Cohuna Consolidated School is the only public primary school in Cohuna and has approximately 150 enrolments and is centrally located in town. Average distances to the Cohuna Consolidated School is provided in Figure 23 above. Approximately half of the neighbourhoods in Cohuna are within 800m of this school which would support many of the primary school aged children who live in these areas to walk or cycle to school. These neighbourhoods are shaded in dark blue (<500m) and grey (600-800m) in Figure 23.

Children who live in the eastern neighbourhood along the Gunbower Creek (shaded red) and the southern neighbourhood on the edge of town (shaded orange) live on average, between 1.3 – 1.8km from the Cohuna Consolidated School and are more likely to rely on motorised transport to access primary school. Neighbourhoods in the northern boundary of town (shaded yellow) are also between 900m and 1.2km from the Cohuna Consolidated School and further development around the boundary of the current town will decrease the likelihood of children using active transport to get to school.

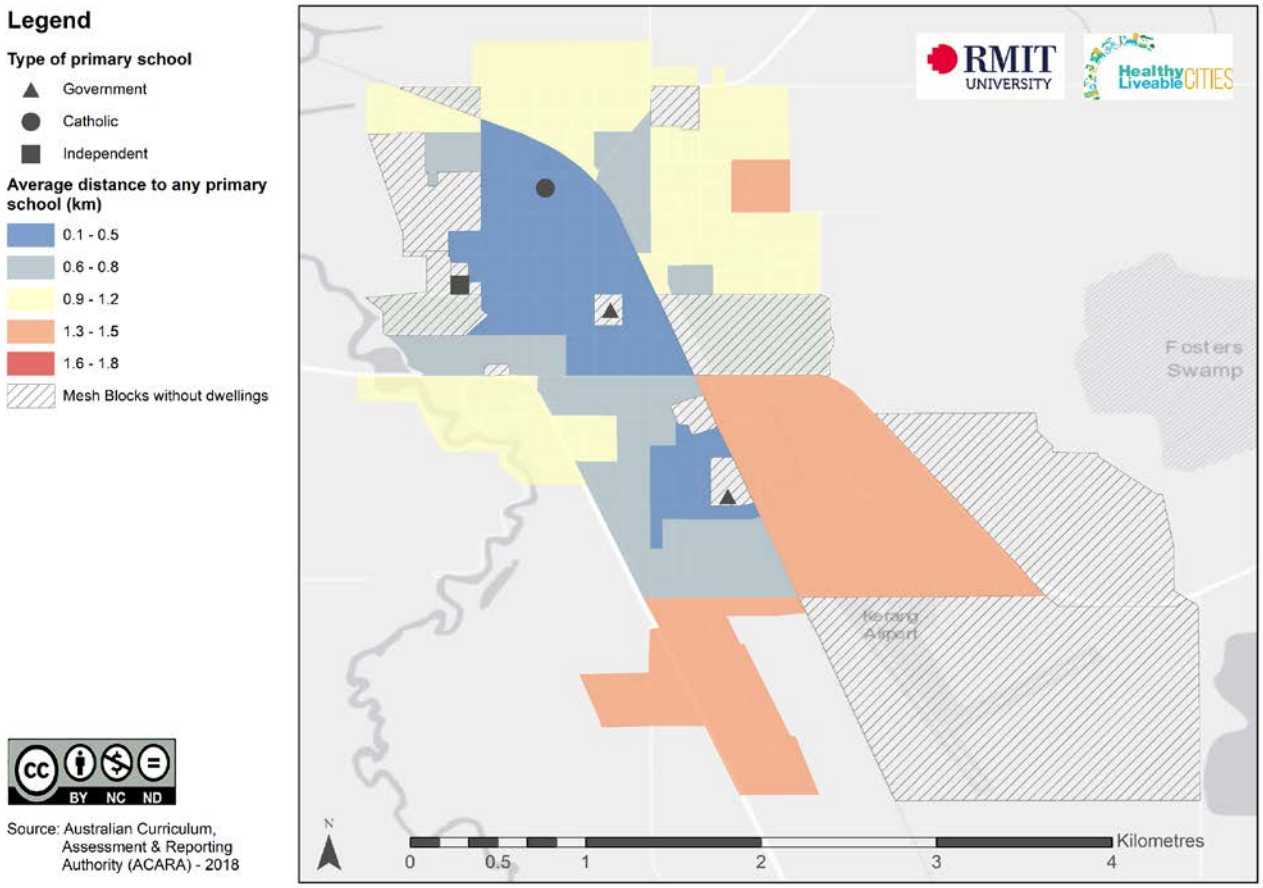

Figure 24: Average distance (km) to any primary school in Kerang

In addition to the two government primary schools, Kerang also has a Catholic primary school, St Joseph's Primary School, which has approximately 100 enrolments and the Kerang Christian College, which is an independent Prep to Year 12 school and has approximately 123 children enrolled. Average distances to any school in Kerang (including independent and public primary schools) are presented in Figure 24 above. The inclusion of these additional independent schools decreases the distances that need to be travelled in the northern neighbourhoods of Kerang. However, it is important to note that these areas are also classified as high socio-economic disadvantage according to SEIFA-IRSD presented in Figure 7 earlier.

Including the location of both independent and public schools reduces average distances to a primary school to 800m or less for most neighbourhoods of Kerang with these areas represented by dark blue or grey shading in Figure 24 above. However, school choices are likely to be influenced by several factors and this is important to consider when interpreting these results.

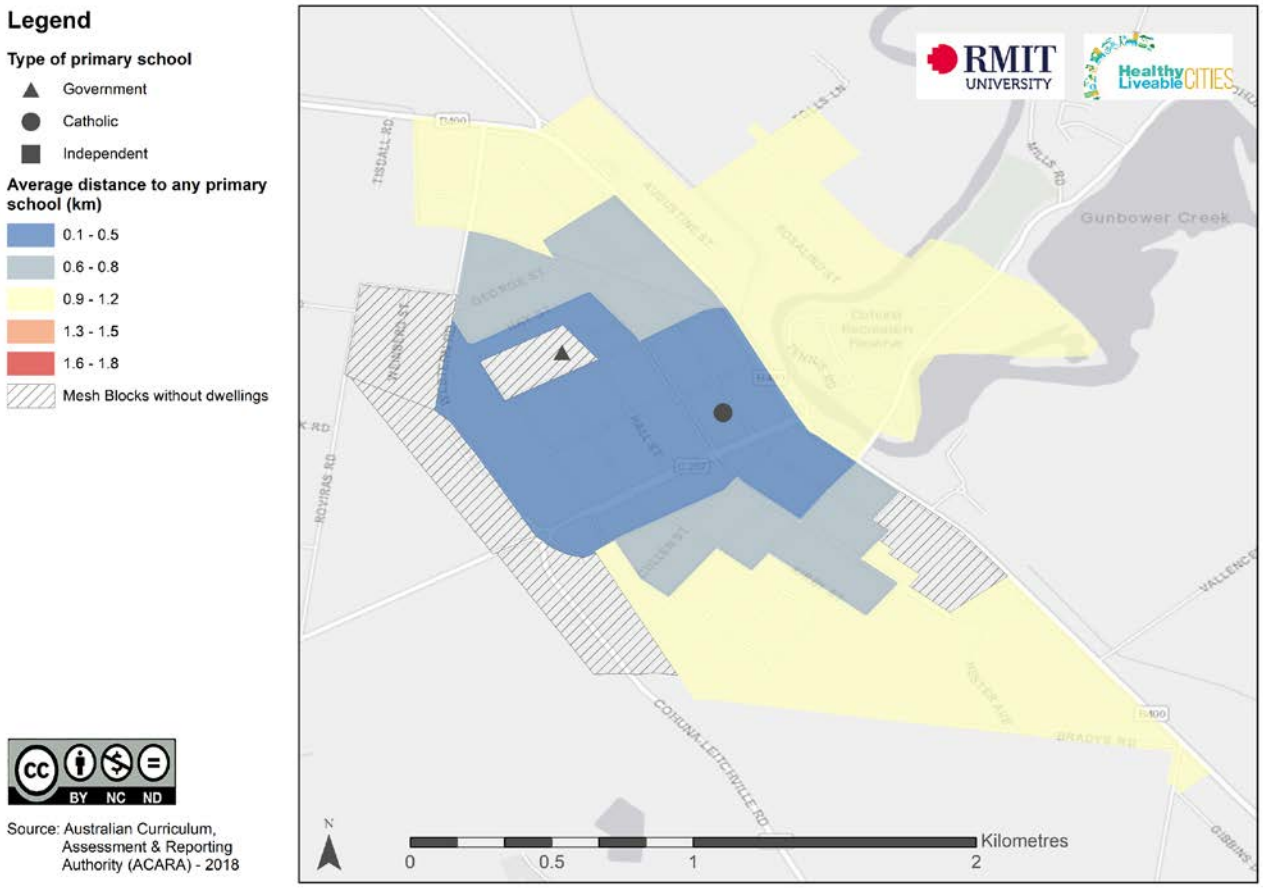

Figure 25: Average distance (km) to any primary school in Cohuna

In addition to the government run Cohuna Consolidated School, there is one Catholic primary school of St Mary's in Cohuna which has approximately 120 students enrolled. Access to this additional school reduces the distance to a school for some residents of Cohuna, particularly those living in the neighbourhoods near the Gunbower Creek. However, this neighbourhood and those presented in the southern areas of town shaded yellow in Figure 25, are socio-economically disadvantaged areas according to SEIFA-IRSD results presented earlier in Figure 8. It is also likely that enrolment in schools will be based on many factors other than proximity.

Large sections of Cohuna remain within 800m of any school with these areas shaded dark blue and grey in Figure 25 above. No neighbourhoods of Cohuna are further than 1.2km from a school when independent and public schools are both included in the assessment.

Education – Completion of VCE or Equivalent

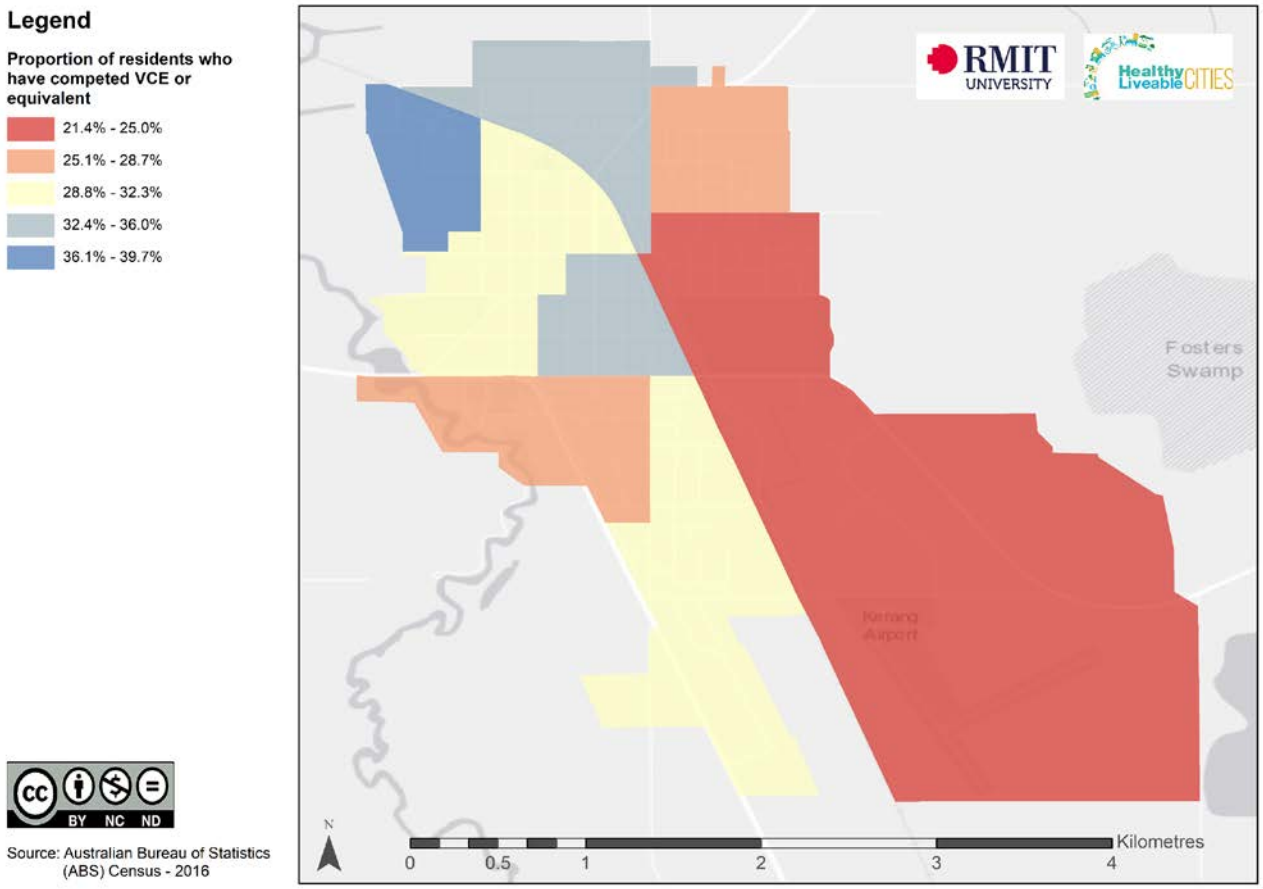

Figure 26: Proportion of residents who have completed Year 12 or equivalent in Kerang

In 2016, only 31% of Gannawarra Shire residents had completed Year 12 or equivalent which is well below the Victorian state average of 59% (ABS Census 2016) [12]. This is a striking statistic and likely to influence overall socio-economic disadvantage statistics such as SIEFA-IRSD presented in Figure 7 earlier in the report.

The proportion of Kerang residents with a VCE equivalent level of education are presented in Figure 26 above. The greatest proportion of residents with Year 12 or equivalent education live in the northern neighbourhoods of Kerang which are shaded dark blue and grey and represent completion rates between 32 - 40%. However, the neighbourhood shaded dark blue where 36 - 40% of residents have a Year 12 completion is also a neighbourhood with few dwellings (refer to Figure 7). Neighbourhoods in the east and south-east of Kerang have the lowest rates of Year 12 or equivalent completion with 21 - 25% (shaded red) and 25 - 29% (shaded orange).

[12] https://www.abs.gov.au/websitedbs/censushome.nsf/home/tablebuilder?opendocument&navpos=240

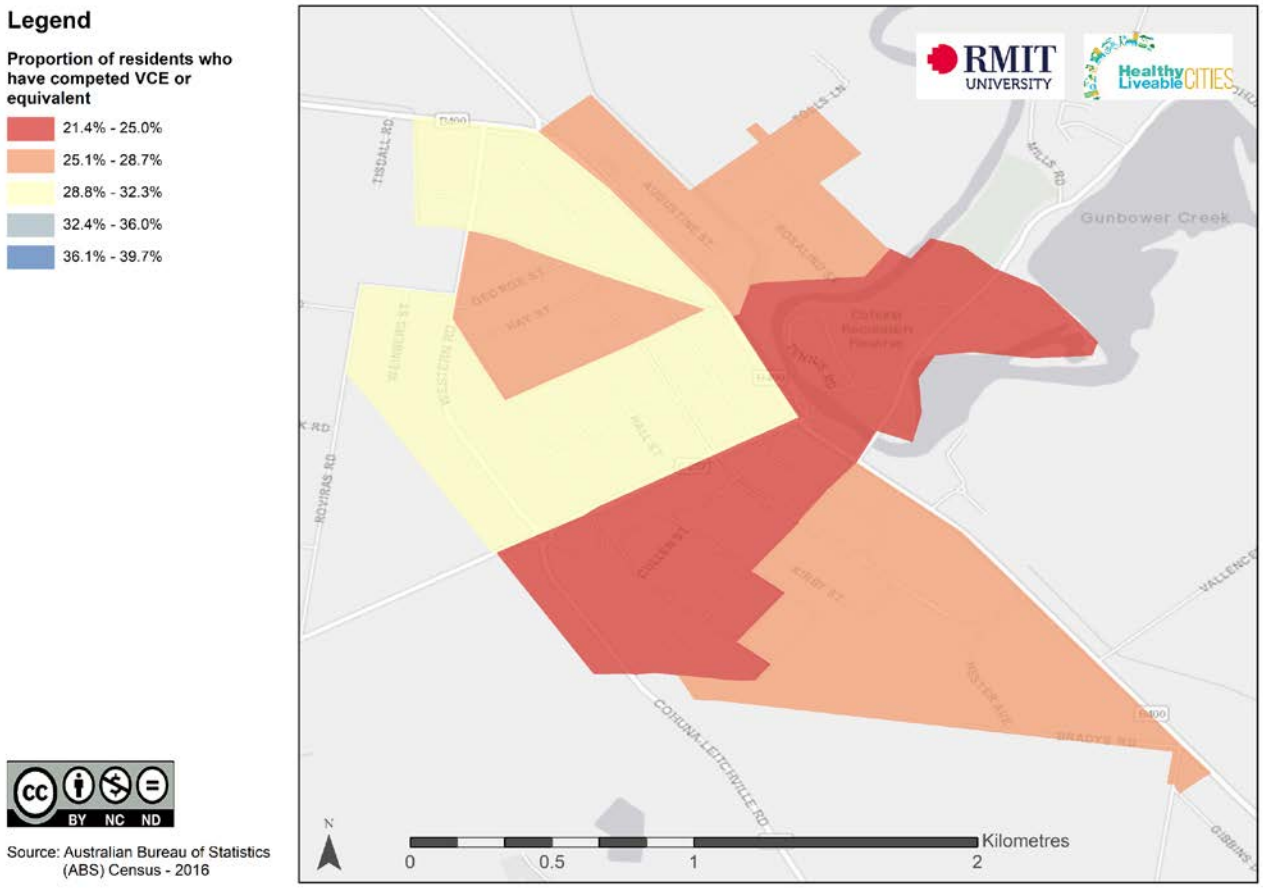

Figure 27: Proportion of residents who have completed VCE or equivalent in Cohuna

Year 12 or equivalent education completion rates do not extend above 32% for residents living in the neighbourhoods of Cohuna. This is also consistent with the SEIFA-IRSD results presented in Figure 8 showing high levels of socio-economic disadvantage with VCE completion rates well below the Victorian average.

The proportion of Cohuna residents with a VCE equivalent level of education are presented in Figure 27 above. In Cohuna, the highest proportion of VCE completion is in the neighbourhoods shaded yellow representing neighbourhoods where 29 - 32% of residents have completed 12 or equivalent. In neighbourhoods shaded orange 25 - 29% of residents have completed VCE or equivalent and neighbourhoods shaded red represent areas where as few as 1 in 5 people have a Year 12 or equivalent level of education.

Education – Australian Early Development Census

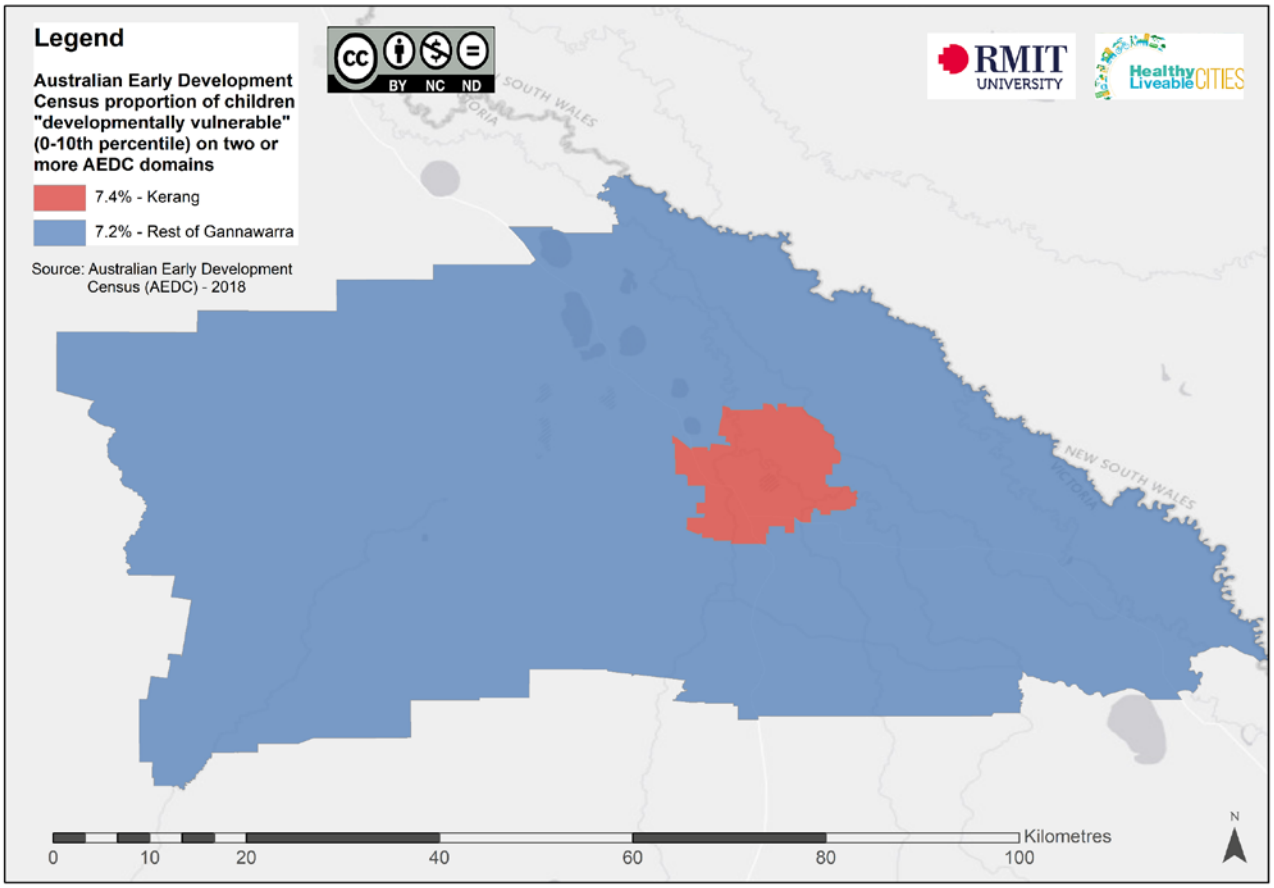

Figure 28: Proportion of children "developmentally vulnerable" on two or more AEDC domains across the Gannawarra Shire (2018)

The Australian Early Development Census (AEDC) assesses the development of children as they begin their first year of school and requires a school teacher to complete a survey instrument. The AEDC measures five important areas of early childhood development: physical health and wellbeing; social competence; emotional maturity; language and cognitive skills (school-based); and communication skills and general knowledge. Early childhood development was identified as important to the liveability assessment of Gannawarra. However, data are not available at the neighbourhood level and AEDC results are released at a larger unique geography similar to Statistical Area Level 2 (SA2).

AEDC results are summarised as indicators for areas graphically in Figure 28 above and measure the proportion of children with completed AEDC results that are classified as developmentally vulnerable[13] on two or more of the five domains. These AEDC data are collected at AEDC defined community levels[14] and data for the Gannawarra LGA have been customised and released by the AEDC according to SA2s. In Victoria in 2018, 10% of children were considered developmentally vulnerable on 2 or more domains and this was 7% in the Kerang region and lower than the Victorian average. The result was like the remainder of the Gannawarra area where 7% of children were also vulnerable on 2 or more domains.

[13] www.aedc.gov.au/resources/detail/about-the-aedc-domains
[14] www.aedc.gov.au/resources/community-profiles

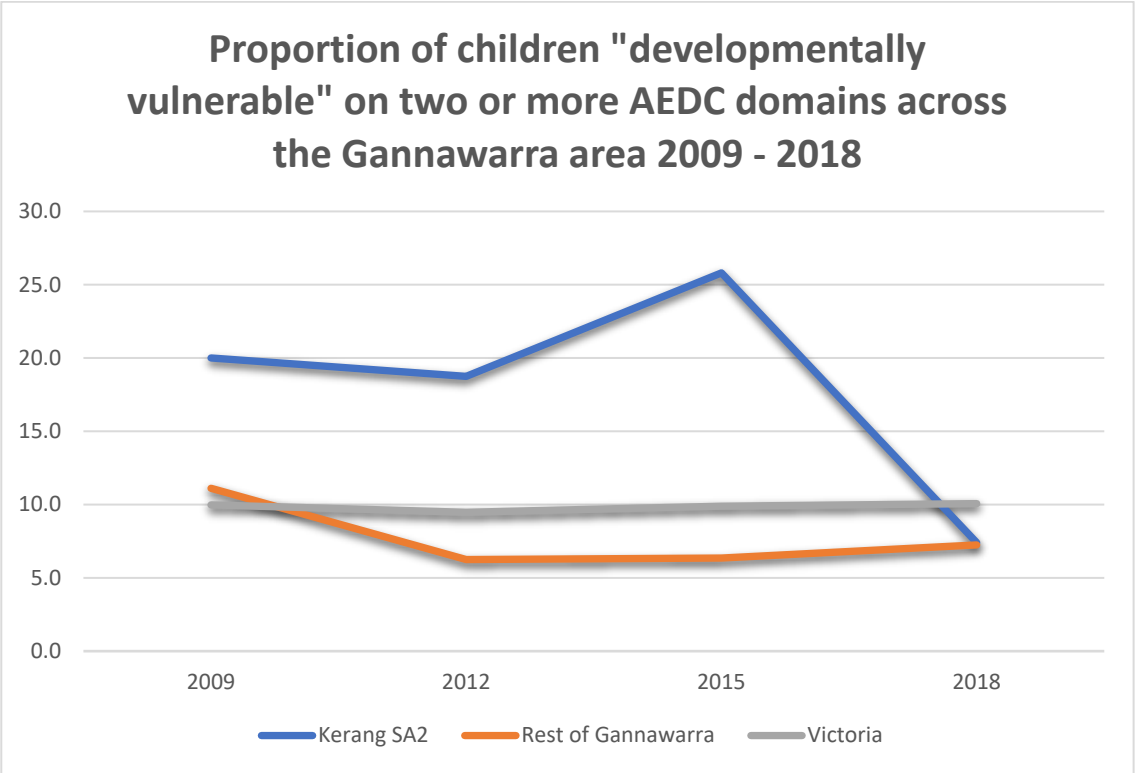

Figure 29: Changes in the proportion of children "developmentally vulnerable" on two or more AEDC domains across the Gannawarra Shire (2009 – 2018)

Notably, from 2009 to 2018 the proportion of developmentally vulnerable children living within the Kerang SA2 was much higher than the Victorian average and the rest of Gannawarra, particularly during 2015 (Figure 29). However, these statistics have changed dramatically over the past 9 years dropping from 26% in 2015 to 7% in 2018 so that the proportion of developmentally vulnerable children living in Gannawarra is now lower than the Victorian average of 10%.

Education – Access to Public Transport

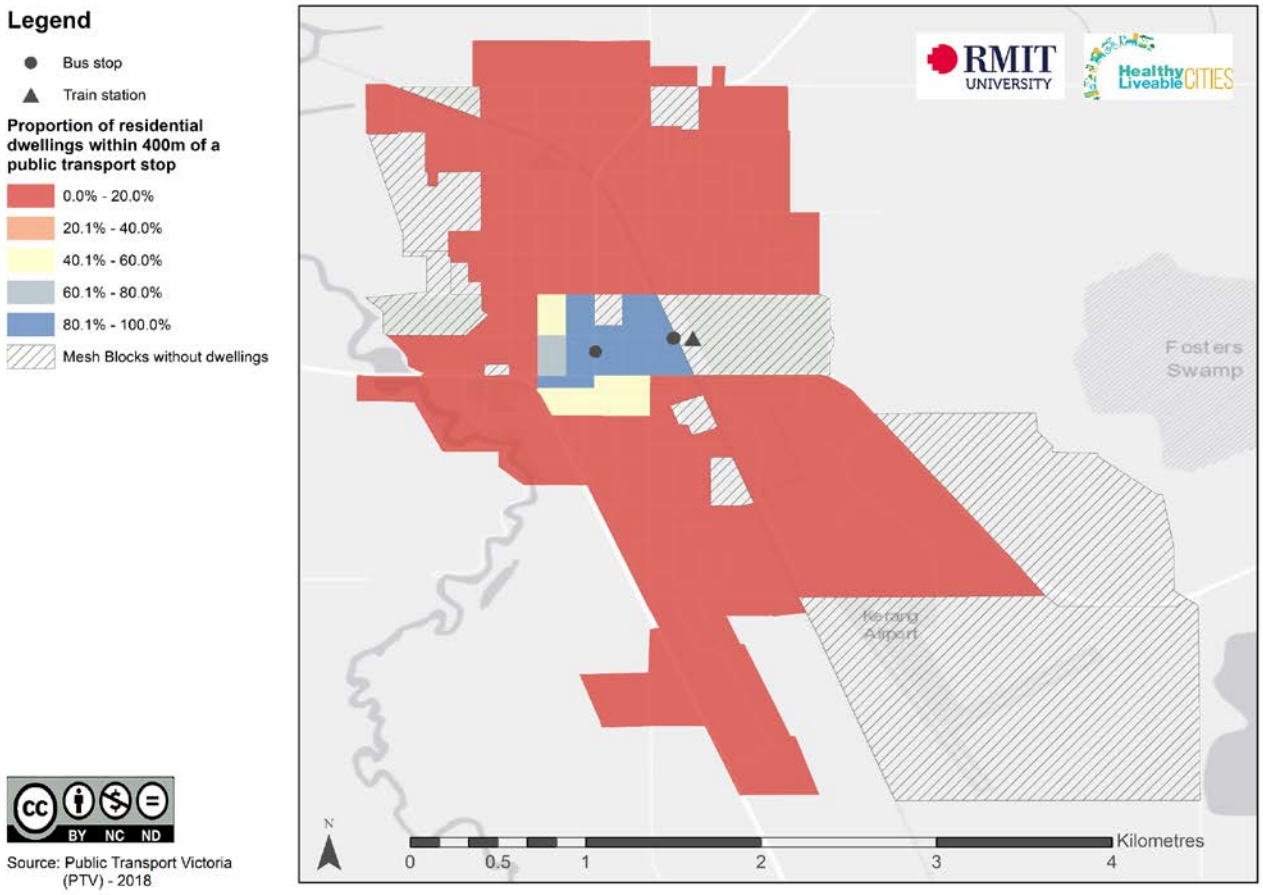

Figure 30: Proportion of dwellings within 400m of a public transport stop in Kerang

Kerang is on the Swan Hill train line that operates between Swan Hill and Bendigo with connection to Melbourne 7 days a week. Although there are two bus stops in Kerang, both stops are only serviced by long distance coaches en route to Bendigo, Swan Hill, Mildura, Albury (via Cohuna), Adelaide and Sydney. Coach services to these destinations run 7 days a week and an additional coach services runs to Echuca twice a week. Volunteers also run a bus service to Quambatook once a week but there is no public transport servicing just Kerang.

Figure 30 shows that there are very few neighbourhoods (shaded dark blue) in Kerang where 80% or more of dwellings are within 400m of one of these stops. There is a very small area shaded grey where 60 - 80% of dwellings are within 400m of a public transport stop and two areas shaded yellow where 40 - 60% of dwellings are within 400m of a stop. Most of Kerang is shaded red, indicating that less than 20% of dwellings within these areas are within 400m of a public transport stop.

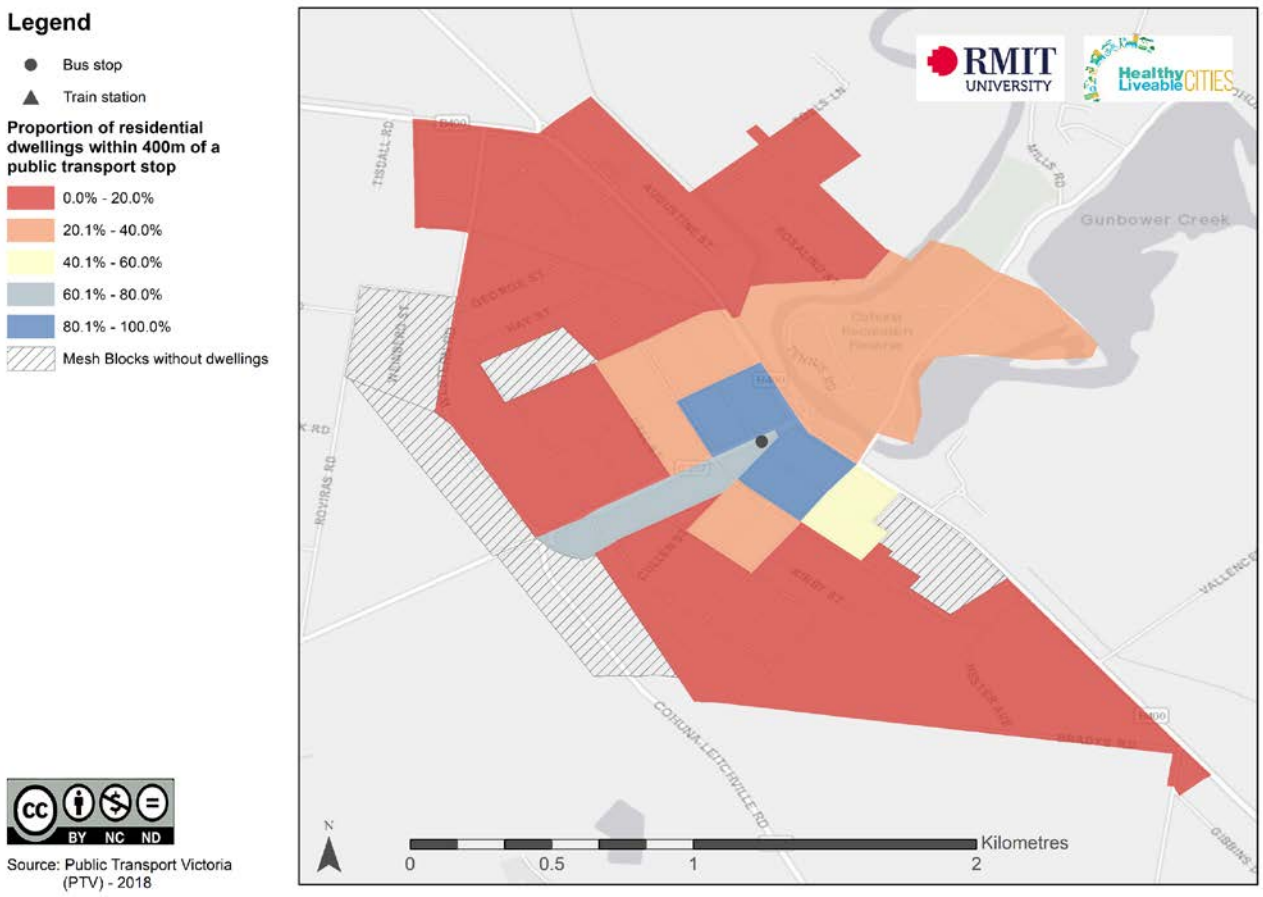

Figure 31: Proportion of dwellings within 400m of a public transport stop in Cohuna

Bus travel is the only form of public transport in Cohuna with only one bus stop in the centre of town. Long distance coaches run from Cohuna to Barham, Heathcote, Albury, Mildura (via Kerang), Sydney and Adelaide 7 days a week. However, there is no local public transport within town.

Figure 31 above indicates that most dwellings in Cohuna do not have access to a public transport stop within 400m. Approximately two thirds of the neighbourhoods of are shaded red and represents areas where less than 20% have access to a public transport stop within 400m. There is a small dark blue shaded neighbourhood in the centre of town where 80 - 100% of dwellings are within 400m of this stop and another area shaded grey, where 60 - 80% of dwellings are within 400m. These neighbourhoods are all located close to the centre of the town's activity centre. In neighbourhoods shaded yellow and orange, only 20 - 60% of dwellings have close access to this bus stop and are long distances from people who live in the northern and southern boundaries of Cohuna.

Conclusions and Implications

The Gannawarra Council Plan 2017-2021 identifies 6 key strategy platforms that were presented earlier in the introductory section of this report (Figure 2). These include: Reverse Decline in Working Population; Revitalise our Towns into Vibrant Places; Foster Economic Prosperity Through Diversity; Embrace Environmental Sustainability; Focus Education and Lifelong Learning; and Facilitate Local, Regional and Global Connectivity. The Gannawarra Council Shire has an integrated Municipal Public Health and Wellbeing Plan within this council plan with priority areas of: Connectivity; Economic Diversity, Growth and Prosperity; Sustainable and Natural Build Environments; Good Governance and a Healthy Organisation; and Strong Healthy Communities (Figure 3). Evidence provided in this Liveability Assessment can help with current assessment and future evaluation of progress being made towards these strategy platforms and to understand neighbourhood level differences across Kerang and Cohuna to inform future priority strategy development. It is also hoped that the results of this Liveability Assessment can assist the Mallee Regional Partnership to align shared interests and actions across the 4 LGAs of Mildura Rural City, Swan Hill Rural City, Buloke Shire and Gannawarra Shire with support from DHHS. The following section provides a summary of key findings and conclusions that can be drawn from this Liveability Assessment of the towns of Kerang and Cohuna in the Gannawarra Shire.

Socio-Economic Disadvantage

SEIFA-IRSD results identified significant disadvantage across both towns of Kerang and Cohuna and neighbourhoods with the highest levels of disadvantage were present in Kerang. Layered presentation of dwelling locations with SEIFA-IRSD also revealed that the majority of dwellings in Kerang are located in the central and northern areas of the town with fewer dwellings present towards the southern boundary of the town. Approximately half of the town of Cohuna has the highest levels of socio-economic disadvantage and there are no neighbourhoods above the mid-decile rankings of SEIFA-IRSD. These socio-economic factors should be considered in future planning and the interpretation of the remaining liveability findings summarized below.

Access to Supermarkets

Only 2 supermarkets are available in Kerang and both are located in the middle of the town creating distances over 1.4km for a number of residents living in the northern and southern neighbourhoods of the town. Food is a major household expense and supermarkets an essential source for the purchase of fruit and vegetables. However, the surrounding socio-economic disadvantage and lack of local within-town transport are likely to be confounding factors for residents of the town. A similar situation also exists in the town of Cohuna where there is only 1 supermarket available in the centre of town.

Access to Fast Food

A number of small fast food businesses exist in the centre of Kerang replicating the distance-based results for supermarkets. However, although there are only 2 supermarkets that provide access to healthy food options, there are multiple options for the provision of fast foods. A similar pattern is also evident in Cohuna but on a smaller scale with only 1 supermarket and fewer fast food businesses but with all food providers still located in the centre of town. This ratio of supermarkets to fast food is less compatible with the focus area of Strong Healthy Communities in the Gannawarra Shire Plan and creates tension with 2025 Key Strategy platforms that seek economic prosperity through diversity, and revitalisation of towns. The Strategy Platform of Embracing environmental sustainability is also threatened with many residents living in areas more than 1km away from centrally located services in the major activity area of the town centre, particularly with no within town public transport available.

Access to Services of Daily Living

These daily living services include access to a supermarket, public transport stop, newsagent or convenience store/milk bar/petrol station within 1600m. Most of these services are located in the centre of the towns but with a few services available across extended sections of Kerang, results suggest that more residents in non-central neighbourhoods are better served with services. Consequently, only the very northern and southern areas of Kerang have few local daily services available. Cohuna is a much smaller town than Kerang and including petrol stations as a source of daily living needs means that all areas of the town have access to these services.

Access to General Practitioners

Kerang has only 3 locations where they can see a GP and all locations are within short distance from each other in the central area of the town. This creates large distance for people to travel (up to 2.1km) if they live in the outer northern or southern areas of town. A similar pattern emerges in Cohuna and there is only 1 location where people can access a GP and the location in the centre of town also creates geographic barriers for people living in outer areas. This is a concern for people with mobility issues, particularly when there is no within-town public transport. Future planning around the location of GP services could consider alternative locations beyond central township locations and consider additional important factors such as bilingual practitioners, hours and types of services, waiting lists and bulk-billing availability.

Cultural Access via Libraries

Libraries provide multiple social, educational and economic benefits to a community. In Kerang the library is located on the western side of town near the central activity area which is up to 2km from many dwellings on the northern and southern boundaries of town but does provide reasonable access to neighbourhoods in the central areas. In Cohuna, the library is well located in the centre of town, near schools and no further than 1.3km for most residents excluding those in southern neighbourhoods. Further research could investigate patronage/membership of these local libraries as well as the services they provide to gain further understanding of how libraries are currently being used and the development of new programs. The reduced rate of VCE completion in both Kerang and Cohuna is also an important finding to consider in future program development.

Access to Kindergartens and Childcare

Both kindergarten services and childcare were combined for the purpose of this report and a major finding was the lack of a long day care program in Cohuna with the town only offering sessional kindergarten for both 4 year olds and 3 year olds. Kerang has a long day care centre and a 4 year old kindergarten program as well as family day care but is located on the western central area of the town making it less accessible to people living in southern neighbourhoods that are located up to 2.7km away.

Access to Primary Schools

Kerang has 2 public primary schools with the Kerang Primary School in the central northern area of town and the Kerang South Primary School in the central southern area. Many dwellings are located beyond 1km from these schools in Kerang but the inclusion of independent schools decreases this proportion although socio-economic disadvantage could present financial barriers. A similar pattern emerges in Cohuna with the inclusion of St Mary's Catholic Primary School.

Year 12 Completion

Less than a third of the population of Gannawarra Shire have a Year 12 or equivalent level of education which is approximately half the Victorian average. Of all neighbourhoods of Kerang, the highest proportion is only 40% with a Year 12 completion and below 32% in many areas. Completion rates are even lower in Cohuna where there are no neighbourhoods where more than 32% of the population have a Year 12 or higher level of education.

Australian Early Development Census

One of the most positive findings of this Liveability Assessment has been the identification of improvement in early development outcomes across Gannawarra Shire between 2009-2015. AEDC results separated the LGA into Kerang and the rest of Gannawarra Shire with high proportions of developmentally vulnerable children identified between 2009 and 2015 (up to 25% of children assessed) which have now dropped dramatically to 7% in the most recent assessment. In 2018, the proportion of children identified as developmentally vulnerable on 2 or more domains was below the Victorian average of 10%.

Public Transport

Both Kerang and Cohuna have very limited public transport options and no within town local transport. The only neighbourhoods with access to public transport are located in the central activity areas of the towns and both towns have bus stops with a regional coach service. Only Kerang is connected to a train line that can reach a capital city via the Swan Hill rail line with connection at Bendigo to Melbourne. Within town, for many residents of Kerang and Cohuna there are long distances (often beyond 1km) to the majority of services located in the centre of town. This is likely to encourage the use of motor vehicles for transport but difficult to afford given the socio-economic disadvantage present in both towns.

Future Actions and Implications or Final Conclusions

Many of the key findings presented in this report directly relate to the priorities of the Gannawarra Shire Municipal Public Health Plan and Council Plan. Future planning should consider the association between the location of services and urban development in towns with no available service of local public transport. Active transport is sustainable transport and important for the promotion of physical activity, health and wellbeing in towns with limited transport options, particularly for those with long distances to shops and services. Economic diversity, growth and prosperity are limited by the current rate of Year 12 or equivalent completion rates and a key finding identified in this report. This begins with early childhood education that leads to lifelong education benefits evident in early childhood education attendance and the AEDC improvements in Kerang are outstanding across 2009-2018 and likely to have resulted from many partnership activities and hard work. Strong healthy communities require partnership, and planning intervention in regional towns can produce powerful results. Influencing the location of future services including GP clinics, supermarkets and fast food outlets can also have a strong impact on community health and overall liveability.

This Liveability Assessment has only investigated a small number of factors that influence the liveability of regional towns in Victoria. It provides an understanding of the spatial liveability of neighbourhoods within the towns of Kerang and Cohuna and identifies the variation within town neighbourhoods. However, it is also important to note the limitations of this assessment of some indicators such as the hours that services operate, whether a GP is able to provide bulk-billing or multi-lingual service, or the current waiting lists of a childcare service. These are future actions to explore in consultation with the local expertise that exists within the Mallee Regional Partnership and greater community. However, it is anticipated that the indicator results provided in this Liveability Assessment are instrumental in further conversations and future policy and planning action.

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