Outer East Health
& Community Support Alliance

Outer East Community Food Access Research Project:

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Executive Summary

In 2008, the Outer East Health and Community Support Alliance (OEHCSA) identified food security, or access to an affordable, appropriate and nutritious food supply, as a priority health promotion issue. There was limited information on the extent of food insecurity in the region as well as little coordinated data on strategies already in place addressing this key population nutrition issue.

In 2008, the Outer East Health and Community Support Alliance (OEHCSA) identified food security, or access to an affordable, appropriate and nutritious food supply, as a priority health promotion issue. There was limited information on the extent of food insecurity in the region as well as little coordinated data on strategies already in place addressing this key population nutrition issue.

The outer eastern region of Melbourne covers three local government areas: the City of Maroondah, City of Knox and Shire of Yarra Ranges. The region is relatively advantaged compared to other areas of Victoria. There is varied cultural diversity, and a small, but significant Indigenous community in the Yarra Valley.

The aim of this project was to assess the level of food security in the region and use this information to develop recommendations on strategic approaches and community strategies that will aim to improve access to nutritious food for the communities of the outer east.

Four key methods were used to assess food security status

- Physical mapping of local food outlets
- The application of the Victorian Healthy Food basket survey
- Community Surveys
- Community consultation and focus groups

The results showed that food security exists in the Outer East.

- Lower social economic status was found to be associated with high levels of food insecurity
- Some communities that reflected a combination of the key determinants of food insecurity were identified as potential areas at risk of food insecurity
- The most significant determinants identified as contributing to food insecurity were:
  - The rising cost of living including housing, petrol prices and food prices
- The key determinants of accessing and eating a nutritious diet are
  - Convenience – preparation
  - Physical access to nutritious food
  - Economic access to nutritious food

The recommendations from the research indicate that any future health promotion initiatives need to be considered in the context of developing a sustainable food system in the region. This approach will inform many strategic and community and initiatives that include

- Investing in initiatives that increase physical access to affordable fruit and vegies
- Strengthening current initiatives such as community gardens, and their support and education
- Support for community kitchens
- Developing food policies that support a sustainable food system
- Monitoring and evaluation of the food supply
- Increasing transport available to nutritious food outlets

CHAPTER 1

Introduction to Food Security in the Outer East

The Outer East region of Melbourne consists of three local government areas: the City of Maroondah, the City of Knox and the Shire of Yarra Ranges. These three municipalities are supported in health promotion initiatives by the Outer East health and Community Support alliance (OEHCSA). The OEHCSA is an alliance or partnership of 20 agencies in the Outer East that represent community health services, hospitals, local government organisations, Divisions of General Practice, aged care providers. The OEHSCA has identified food security as a potential area of health promotion action.

A number of social determinants of health are associated with increased risk of food insecurity such as unemployment, stress, lack of education and poverty (VicHealth 2005). Food insecurity has a high cost to individuals, families and society, contributing to a reduction in physical, mental, spiritual and social health and wellbeing (Booth & Smith 2001). Feelings of hunger, fatigue and illness can directly contribute to short- and long-term health status (Blaylock & Blisard 1995). Burden of disease data for 2001 from the Victorian Government showed that preventable diseases which can be affected by nutritional status such as heart disease, stroke, type 2 diabetes and cancer ranked within the top ten causes of death in the Eastern metropolitan region (Victorian State Government 2007). These preventable diseases may also be attributed to similar risk factors and social determinants that can contribute to food insecurity such as unemployment, stress, lack of education and poverty (VicHealth 2005).

In accordance with the statewide health priority 'access to nutritious food', a better understanding of the barriers that prevent people from accessing nutritious food in the Outer East needs to be developed in order to facilitate future directions in research and interventions. Currently there is limited information regarding access to nutritious food and food security in the outer eastern metropolitan region of Melbourne.

The three local government areas in the outer east have different characteristics. The City of Maroondah is 61.4km2 in area and is mainly residential and industrial. The City of Knox is also largely suburban and industrial, covering 114km2, with decreasing population density towards the east of the municipality. In contrast, the Shire of Yarra Ranges is almost 2,500 km2 in area, making it the largest metropolitan municipality in Melbourne. About 70% of the population of the Yarra Ranges live in suburban areas, which make up about 3% of the total land area (Yarra Ranges Shire Council 2008). The rest of the shire is sparsely populated and is mainly national parkland or used for agriculture.

According to Community Indicators Victoria data from 2007, the percentage of individuals in the City of Knox and the Shire of Yarra Ranges who reported experiencing food insecurity in the past 12 months was 7.4% and 7.0% respectively; greater than the overall state result of 6.6% (Community Indicators Victoria 2007a, Community Indicators Victoria 2007b). In this report experiencing food insecurity is defined by having run out of food and not being able to afford to buy more. Additionally, local anecdotal data from emergency food relief agencies show that the number of people accessing these services has increased which indicates that food stress is a growing issue in the Outer East. (Personal communication 2008, Knox Emergency Food Relief Network, Maroondah Emergency Relief Network)

FOOD SECURITY MAY BE DEFINED AS:

'Access by all people at all times to sufficient food for an active and healthy life. Food security includes at a minimum: the ready availability of nutritionally adequate and safe foods, and assured ability to acquire food in socially acceptable ways.'

(Kendall & Kennedy 1998)

Introduction to Food Security in the Outer East [continued]

The populations of Maroondah, Knox and Yarra Ranges were 99198, 146741 and 140216 respectively. The median age for all areas is similar, ranging from 36-37 years. The age group of 35-44 years is predominant across all three areas and, of the three municipalities; Maroondah has the largest population group over the age of 65 years (13.9%). From 2001 to 2006, the prevalence of the over 65 years age group increased in all three municipalities. This parallels the trend toward an ageing population Australia wide in which the population over the age of 65 years increased from 12.6% in 2001 to 13.3% in 2006 (Commonwealth of Australia 2007).

Knox and the Yarra Ranges have a higher percentage of family households (80.2% and 79.7% respectively) in comparison to Maroondah and the State of Victoria (73.3% and 72.7% respectively). Maroondah has a larger proportion of lone person households (24.7%) in comparison to the other two areas (Knox 18.8% and Yarra Ranges 19.3%). The median weekly household income for all three areas was greater than the Victorian average of $1,022, with Knox having the highest of the three ($1,144). The median individual incomes for Maroondah ($501), Knox ($499) and Yarra Ranges ($475) were above the average for Victoria ($456). Despite these findings, a large proportion in the City of Knox (39.6%), City of Maroondah (39.2%) and Shire of Yarra Ranges (40.6%) reported a weekly individual income of less than $400. In addition, the average weekly median rent and mortgage payments across the three regions are $193.67 and $310.50 respectively, representing a large percentage of income for many residents. The average number of vehicles per household is highest in the Yarra Ranges (2.0 per dwelling), compared to 1.7 in Maroondah and 1.9 in Knox (Commonwealth of Australia 2007).

Socio Economic Indexes For Areas (SEIFA) rankings revealed that the municipalities of Knox, Maroondah and Yarra Ranges are ranked above the 80th percentile for relative socio-economic disadvantage, where the 100th percentile indicates the most advantaged areas. Disadvantage coexists with advantage within these municipalities as indicated by SEIFA percentile rankings ranging from 12 to 93 (ABS 2008).

The percentage of people with year 10 as their highest education qualification is greatest in the Yarra Ranges (20.7%), followed by Knox (18.4%) and Maroondah (17.5%); all were above the Victorian state average of 15.8%. Maroondah and Knox have similar percentages of individuals with year 12 as their highest qualification to the rest of the state (44.0%), but Yarra Ranges has a slightly lower percentage of 38.7% (Commonwealth of Australia 2007). All three areas in the Outer East had greater levels of employment compared to Victorian statistics, with 61.8% of Maroondah, 64.6% of Knox and 63.2% of the Yarra Ranges residents employed in the workforce. The rate of unemployment in each area, 2.5% for Maroondah, 2.8% for Knox and 2.7% for the Yarra Ranges, are all below the state level (3.3%). It is important to note that the remaining percentages for each municipality are those not in the workforce, for example retirees, stay at home parents and the disabled (Commonwealth of Australia 2007).

The population is predominately Anglo-Saxon with over 70% of each municipality in the Outer East region stating Australia as their place of birth. Of this group, 0.3% in both Maroondah and Knox and 0.6% in the Yarra Ranges communities were of Indigenous background. In Maroondah and the Yarra Ranges, the most common overseas birthplaces were the United Kingdom, New Zealand, Netherlands and Germany, whilst in the City of Knox the United Kingdom, India, Malaysia and Sri Lanka are the most common. English is the primary language spoken in households across the Outer East, however 13.9% of Maroondah, 21.9% of Knox and 9.3% of Yarra Ranges residents spoke a language other than English; most commonly Italian, Chinese languages, German and Dutch. Furthermore, Knox also has higher rates of Greek, Arabic and Vietnamese indicating greater cultural diversity than the other municipalities (Commonwealth of Australia 2007).

This report describes the consolidated findings of work undertaken by the OEHCSA's Outer East Nutrition Network during 2008. It aims to identify additional factors that may impact on the food security of individuals and communities in the outer east.

The methodology used to assess community security was based on previous work (USDA, 2002) and aimed to determine:

- Economic access or affordability of nutritious food;
- Physical access to nutritious food: location of food outlets, transport, ability to walk/carry shopping and physical infrastructure that supports access to nutritious food, such as public transport, safe walking routes to outlets;
- Availability of culturally and socially appropriate foods; and
- Food choice and personal barriers to accessing nutritious food.

This report aims to develop a greater understanding of food security in the outer eastern region and develop recommendations on community strategies that will aim to improve access to nutritious food and reduce the burden of food insecurity on these communities.

CHAPTER 2

Methods for Assessment of Food Security

This project was supported and coordinated by the OEHCSA through the formation of the Outer East Nutrition Network who designed the methodology for the project. Ethics approval was obtained from Eastern Access Community Health Service, an OEHCSA member organisation. Four key methodologies were employed to determine the economic and physical access to food in the region - mapping, Victorian healthy food basket surveys, stakeholder consultation and community questionnaires. These results were also used to assist in forming recommendations for health promotion action.

2.1 Mapping

Mapping of the three municipalities in the outer east region of Melbourne aims to determine physical access to nutritious food.

A list of registered food premises was acquired from each local government area and was categorised into the following outlet types: fruit and vegetable retailers, markets selling fruit and vegetables, supermarkets, butcher/poultry/fish retailers, bakeries, fast food and takeaway outlets, restaurants and cafes, convenience stores including milk bars and petrol stations and culturally specific stores/delicatessens. These outlets were then further grouped into essential and non-essential food stores. Essential foods included the food categories of fruit and vegetable retailers, markets selling fruit and vegetables, supermarkets, butcher/poultry/fish retailers and bakeries. Non-essential foods included fast food and take-away, restaurants and cafes, convenience stores including milk bars and petrol stations and culturally specific stores/ delicatessens. Culturally specific stores/delicatessens were categorised as non-essential food stores because the produce that they do not have a focus on fruit and vegetables in most cases. In the analysis emphasis was placed on access to outlets that sold fruit and vegetables such as fruit and vegetable retailers, supermarkets and markets, as these foods are a vital part of a healthy and nutritious diet. This focus is also consistent with previous and similar studies as well as current national and state recommendations (Children's Health Development Foundation & Deakin University, 1998).

Locations of emergency food relief centres were obtained through a manual produced by Eastern Access Community Health (EACH) and Internet search engines (EACH, 2007). Statistics on the use and type of aid was obtained through telephoning various initiatives, as well as through the attendance of a quarterly district meeting for emergency relief co-ordinators. Locations of community strategies for each municipality were obtained from council websites, Internet search engines and community health service Dietitians.

Public transport routes and timetables were obtained from the Metlink Melbourne website (www.metlinkmelbourne.com.au). Timetables for each route were analysed and a summary of start and finish times, number of buses, trip duration, access to major food shopping centres and wheelchair access was collected.

Mapping was initially performed using photocopies from the 'Mel ways' street directory. However, after initial drafting, electronic maps were deemed more suitable due to ease of presentation, transferability and analysis. The original electronic maps were obtained through Statutory Information Services, Department of Planning and Community Development Victoria. These maps were then modified using Adobe Illustrator CS3 (Version 13.0) in order to plot and present our findings.

A definition of 'food desert' was established through a literature review on previous studies investigating food insecurity. Data that informed mapping was obtained in April 2008.

The term 'food desert' was introduced in the 1990's to describe areas where access to nutritious foods such as fresh fruit and vegetables was limited (Smoyer-Tomic 2006). Much research has been done into the prevalence of 'food deserts' in the UK and North America, however evidence is currently lacking in Australia.

A number of factors must be taken in to account when defining food deserts in urban, suburban and rural areas due to geographic and population differences. Factors such as car ownership, terrain and public transport can influence the accessibility of food outlets, meaning that distance alone is not an accurate indicator of the accessibility of food outlets to communities. However for the purpose of analysis, it is useful to define an arbitrary measure to identify geographic areas that may be at increased risk of food insecurity.

Previous Australian and international studies into the prevalence of food deserts have used different measures to define accessibility of food outlets. A study conducted in London, Canada used a distance by foot of 1000m and a combination of a 10-minute bus ride with a maximum of 500m walking to define 'food deserts' (Larson and Gilliland 2008). This definition was developed from 2 previous Canadian studies in Edmonton and Montreal that used similar definitions (Smoyer-Tomic et al 2006; Apparicio et al 2007). Another measure of 500m radius to define food deserts has also been used in a number of older studies from the UK (Donkin et al 1999, Wrigley 2002).

For this study, the definition used by Larson and Gilliland (2008) has been chosen as it relates to the geographic environment of the Outer Eastern region; suburban and semi-rural. Food deserts will be defined as areas greater than 1000m by foot and greater than a 10 minute bus or train ride with 500m of walking. This, however, does not correlate perfectly with food insecurity due to the numerous other factors which can influence individual's ability to access food supplies such as disability, cost, variety, cultural acceptability, car ownership and physical environment.

2.2 Victorian Healthy Food Basket Surveys

The Victorian Healthy Food Basket (VHFB) (Palermo and Wilson, 2007) was used to assess affordability of nutritious food.

The VHFB tool was designed in 2007 to measure food access, including cost and availability of healthy food, tailored to Victorian family composition and food choices. This tool meets more than 80% of the nutrient requirements of individuals and at least 95% of energy requirements of the four reference families in a fortnight:

- Typical Family (two 44 year old parents, with an 18 year old female and 8 year old male)
- Single Parent Family (a 44 year old female with an 18 year old female and 8 year old male)
- Elderly Pensioner (a 71 year old female)
- Single Adult (an adult male greater than 31 years of age).

The VHFB includes a total of 44 items across the five core food groups (fruits, vegetables, breads and cereals, meats and alternatives and dairy) and one non-core food group (sugar, fats and oils). A Mars Bar and Coca-cola are also included, but only for cost comparison purposes and are not included as part of the overall nutritional analysis of the basket.

Sixty-one (61) supermarkets within the three local government areas : City of Knox =20, City of Maroondah =16 and Shire of Yarra Ranges =25 were identified using the lists of registered food premises from each local government area and Safeway, Coles, IGA, Foodworks and Aldi websites. A list of these supermarkets was drawn up under suburbs with the address of the store displayed and volunteers were recruited to conduct the surveys at supermarkets of their choice. Volunteers were provided with a copy of the survey tool with accompanying instructions and asked to return the results for data collation. Stores were surveyed during August 2008.

2.3 Key Stakeholder Consultation

i) Focus Groups

Focus groups were conducted with community members and workers in organisations to gain an understanding of community views on healthy eating, their perception of the barriers to accessing healthy food in their community and ways they think the community can be aided towards easier and better access to healthy food.

Nineteen (19) focus groups were held with community target groups and seven (7) focus groups held with workers from organisations between August and October 2008.

Community target groups captured a range of different population groups known to be vulnerable to food insecurity, including the elderly, mothers, people with a mental and chronic illness, those living in supported accommodation or homeless shelters, people from a non-English speaking background (Chinese, Burmese, Sudanese), Indigenous people and people with a disability. Subjects were recruited through organisations with existing groups and were contacted via telephone or email to set up a suitable time to speak with either the entire group or with a select representation of people from the groups. An

opportunistic approach was taken to recruit participants for groups that were not pre-formed.

Workers from organisations who support people vulnerable to food insecurity were contacted and invited to participate in the project. Focus groups were conducted with financial counselling groups and crisis and welfare services.

Each focus group varied in size, from a minimum of three (3) to a maximum of seventeen (17) participants. They also varied in length, lasting from twenty minutes to one hour. A written explanatory and consent statement was provided to all participants prior to the session, except for the non-English speaking groups where a verbal explanation was given and verbal consent obtained. Verbal consent for taking voice recordings of the sessions was also obtained from all participants at the beginning of each focus group. All groups consented except the mental health support group, where minutes were kept in writing only. Where voice recordings were permitted written notes were also taken, except for the non-English speaking groups. In the case of the non-English speaking groups voice recordings were later interpreted and transcribed into written notes.

A set of open ended guiding questions were designed to allow for maximal discussion and aimed to gain a better understanding of what healthy eating means for them and what the barriers to accessing healthy, nutritious food are for the community. (Box 1)

Focus group transcripts from community members and workers from organisations were grouped together and analysed for key themes using a content analysis approach (Liamputtong and Ezzy, 2005).

ii) Focus Group Questions

Community Member Questions

- What do you think of when we say healthy eating?
- Statement: Dietitians define healthy eating as having a balanced diet, including all the major food groups, such as breads and cereals, meats, dairy, fruits and vegetables. How do you feel your current diet compares to the dietitians definition?
- How important is having a healthy diet to you and your family?
- What influences the food choices you make when you go shopping?
- How do you get to and from the shops?
- What are some of the barriers in your community for accessing healthy food?
- Scenario: how would you get by if you had an emergency situation and were on a lower-than normal budget for food with no access to your usual mode of transport?
- Who can help make accessing healthy food easier? What can they do to make accessing healthy food easier?

Workers from Organisations Questions

- We are very interested to hear why you were inspired to be involved today?
- What are the first things you think of when you hear the term ‘food access’ or ‘food security’?
- How have food insecurity or food access issues surfaced in your daily work?
- What do you perceive the issues/barriers that members of the community have to accessing nutritious and affordable food? Let’s rank these into a top 3
- Within your organisation, what are the issues you have in providing your services to your clientele? Again, let’s rank these into a top 3
- What do you think you could do to overcome these issues?
- Are there any additional points you would like to discuss?

iii) Questionnaires

The aim of the self-administered questionnaire was to obtain demographic and quantitative data regarding food insecurity in vulnerable population groups. A sub committee comprising of dieticians and health promotion practitioners of the OEHCSA designed the survey. The purpose of the survey was to obtain information that would determine whether respondents had any issues with respect to accessing healthy, nutritious food and what were their barriers.

The survey had three sections:

Demographics:

The purpose of gathering demographic data was to ascertain the characteristics of the respondents and their relationship as a sample to the wider population of the outer east. Demographic data that was collected included questions regarding the respondents age, gender, country of birth, language, aboriginality, household income, whether a single parent family, number of dependent children and ages, type of accommodation and suburb.

Food Access:

The purpose of collecting this information was to establish a greater understanding of the issues surrounding economic access to food. This section was designed to elicit whether the household had ran out of food and if so how often, whether this has changed over the last two years and why they were unable to buy more food. Questions were also related to whether they had access to emergency relief and if so how often they accessed emergency food relief and lastly what does the household do when there is limited food in the house.

Shopping:

The purpose of this section was to establish a greater understanding of the issues surrounding physical access to food. This section included questions such as how often the household eats different types of food, where they buy their food, how they get to the shops and how much they spend on groceries.

The survey was tested for literacy level using the Flesch Kincaid Grade Level Readability Score. It was designed to score below a sixth grade literacy level.

Two-hundred (200) questionnaires were distributed to Community Health Services (Knox, Yarra Valley, Eastern Access, Ranges), Adult Multicultural Education Services, Swinburne University, Anchor Community Care and Foster Care (provides emergency and referred support for individuals of all ages and families facing homelessness and foster care for children aged 0-18 years), Groups participating in water exercise, gym groups, family child health or diabetes groups, Maroondah Addictions Recovery Project Inc., Indigenous community members and Volunteers. In addition, participants of the community member focus groups were also invited to complete the questionnaires. Surveys were either administered in person or post. One survey was given to each participant with a stamped self- addressed envelope.

At the end of the data collection period the completed questionnaires were entered and verified into a secure Access database (Access 2007). The data was analysed using computer programmes including Intercooled STATA 10.0 for windows (Stata 2008) and Excel (Excel 2007). Only valid data recorded as Yes=1 and No=2 were used for analyses, and data recorded as ‘unknown’ or left blank were excluded. Where subcategory data was missing or recorded as unknown, it was assumed the response was negative. This approach was taken to avoid having to discard respondents from the sample. In each of the tables, the proportion of missing or ‘unknown’ data is indicated in footnotes. The Chi-Square test was used to analyse categorical variables with more than 2 levels, and Fisher’s Exact test was used for dichotomous variables. Level of significance was determined as $p<0.05$.

Data was assessed according to whether respondents reported food insecurity in the last 12 months (Yes or No) as well as, household type (Single, Couple and Family) and type of accommodation (Rental, Own house, Government). Other sub-group analyses were conducted based on respondent characteristics, such as gender, age groups (less than 60 years and 60 years or more), Non-English Speaking background (Yes or No). Respondents were asked to record the suburb they live in which were grouped into one of the three LGAs.

Logistic regression was performed with the respondents reporting food insecurity (Yes or No) as the dependant variable. All other demographic variables such as young age (less than 60 years), single household, low income, own house or mortgage were included as the independent variables. Variables that reached statistical significance in the univariate analyses were included in the logistic regression models, as it was not practical to include all variables (Peduzzi et al., 1996).

CHAPTER 3

Results

The purpose of the mapping was to identify potential areas at risk of food insecurity due to poor physical access to healthy food outlets. Identification of food outlets, public transport and emergency food relief provides a picture of access to nutritious food in the outer east.

3.1 Mapping

The purpose of the mapping was to identify potential areas at risk of food insecurity due to poor physical access to healthy food outlets. Identification of food outlets, public transport and emergency food relief provides a picture of access to nutritious food in the outer east. Figures 1 (a-c) show the food outlets and type located in the three local government areas in relation to public transport routes. Figures 2 (a-c) highlight the relationship between the number of fruit and vegetable retailers, markets and supermarkets and the number of fast food and take-away outlets also showing SEIFA quartiles for suburbs.

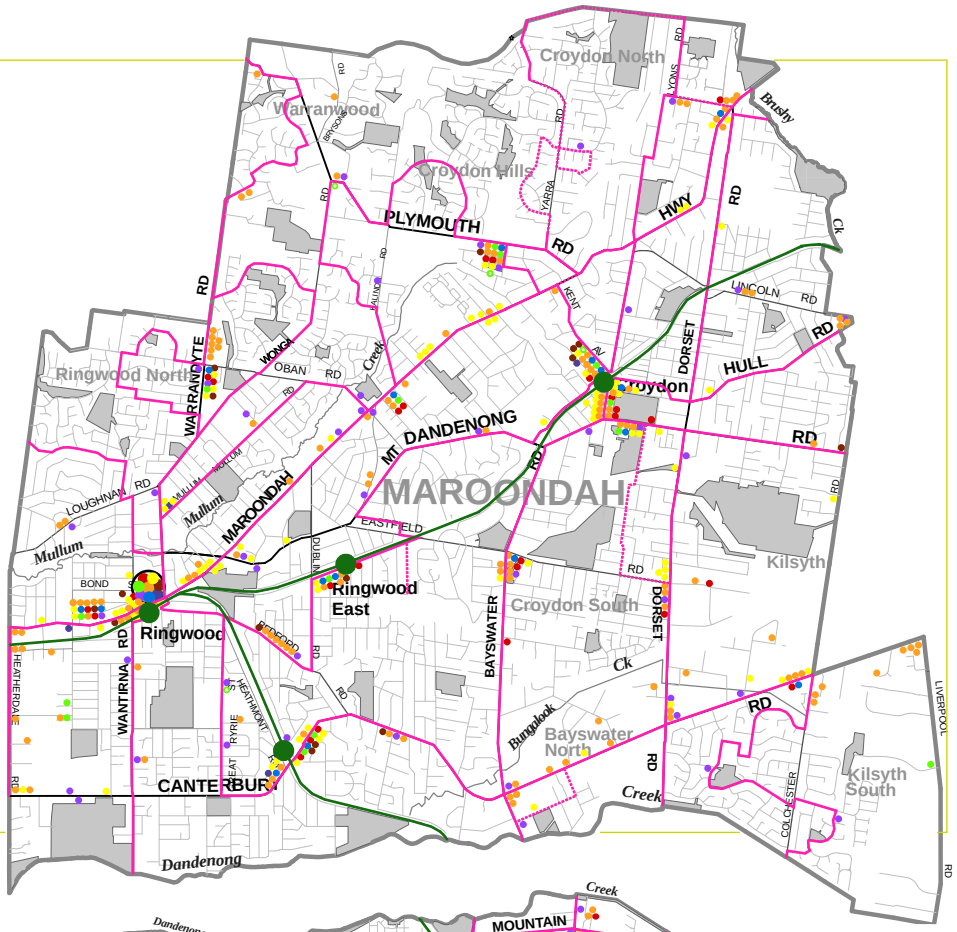
Analysis of these maps identified Bayswater North, Bayswater, Healesville, Yarra Junction, Wesburn/ Millgrove and Warburton as the areas at risk of food insecurity due to a lower SEIFA index (below the 50th percentile) and a low ratio of supermarkets/fresh food to fast food/ take-away outlets. In addition, no fruit and vegetable retailers or markets were identified within Bayswater North and Wesburn/Millgrove. Croydon South, despite higher SEIFA rankings, also lacked fruit and vegetable retailers and markets and had a high ratio of fast food and take-away outlets to supermarkets. Warranwood, although smaller in area and categorised in the highest SEIFA quartile, had one market but no supermarkets or fruit and vegetable retailers, yet there were five fast food and take-away outlets. Another suburb of concern was Lysterfield where the predominant types of food outlet were fast food and convenience stores with no supermarkets, fruit and vegetable retailers or markets. The Basin also had similar ratios of food outlets to Lysterfield yet was ranked in the highest SEIFA quartile. (Figure 2)

In all three local government areas, all essential food outlets were accessible by public transport except for one supermarket in Lilydale and three fruit and vegetable retailers, however these were found to be wholesale or home delivery services only. There were 471 buses operating within Maroondah and 436 buses operating through Knox on a weekday, both with fewer services on the weekends. Most of the buses only have wheelchair access on weekends. In the Yarra Ranges 23 suburbs were not serviced by any public transport, which correlated with the absence of food outlets. A total of 361 buses run through the region on weekdays; most of these did not have wheelchair access. Public transport in the Yarra Ranges was most predominant in the west and southwestern areas of the municipality and limited to main roads in the north and east. This coincides with the geographical layout of townships and population spread throughout the region.

A trend was seen across the three regions in relation to public transport and location of food outlets. Around each train station a cluster of all types of food outlets were available. In addition to this, many of the bus routes started, finished or travelled via one or more train stations, further increasing access to food outlets. In general, the communities of Knox and Maroondah were mostly able to access food either by foot or public transport and were therefore not classified as a food desert. Figure 3 (a-c) reveals that access to essential foods covers a smaller area of each region as shown by areas of darker shading. The City of Maroondah had good access to food outlets of any type, however the areas with access to essential foods was smaller and more centralised within the municipality. A similar trend was also seen in Knox and to a lesser extent the Yarra Ranges. It was evident that the Yarra Ranges had a greater proportion of the region in food deserts. It should be noted that areas outside of the highlighted access circles (and therefore considered food desert areas) also had no access to public transport.

FIGURE 1A:

Maroondah:
All food outlets with public transport



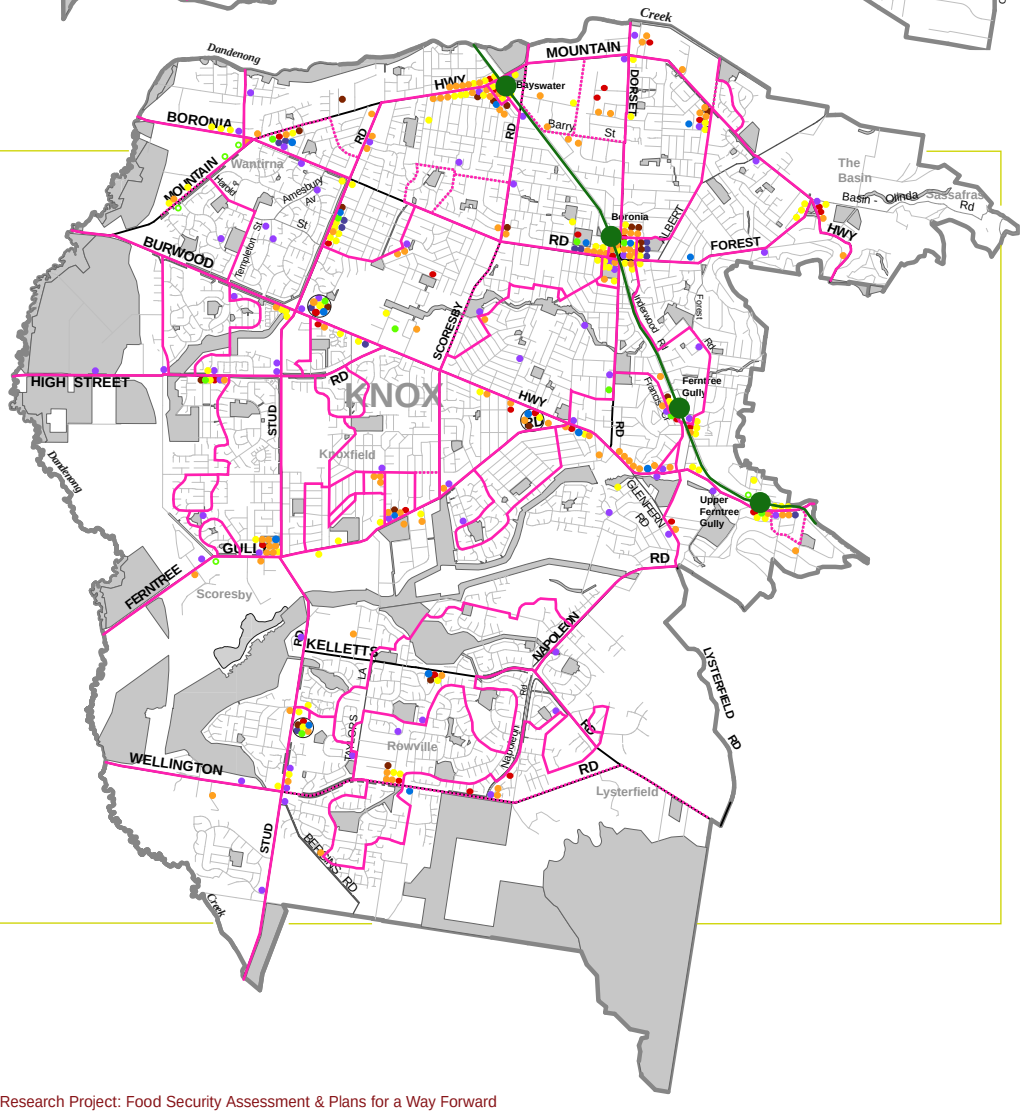
City of Maroondah

0 1 2

kilometres

FIGURE 1B:

Knox:
All food outlets with public transport



City of Knox

0 1.5 3

kilometres

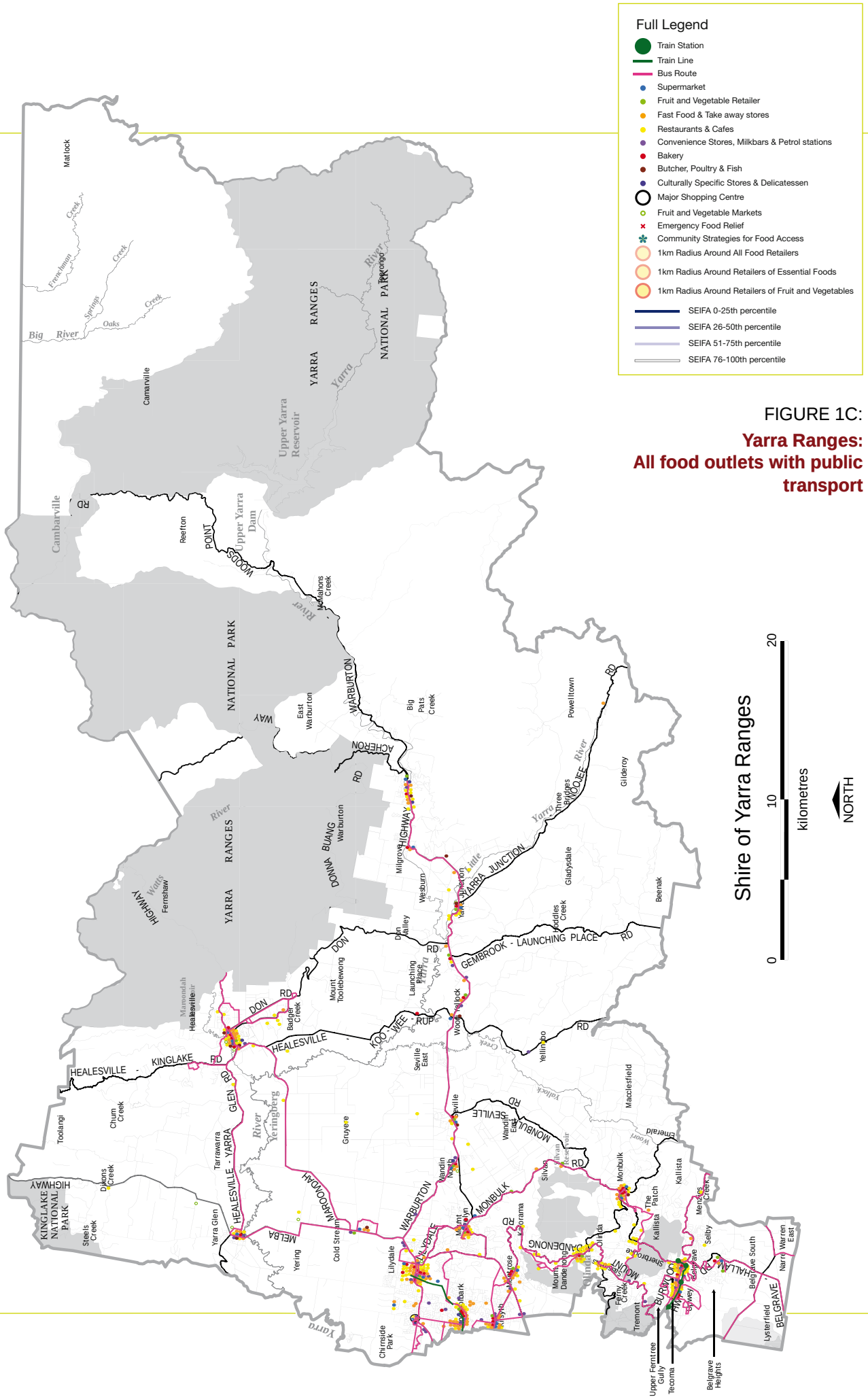
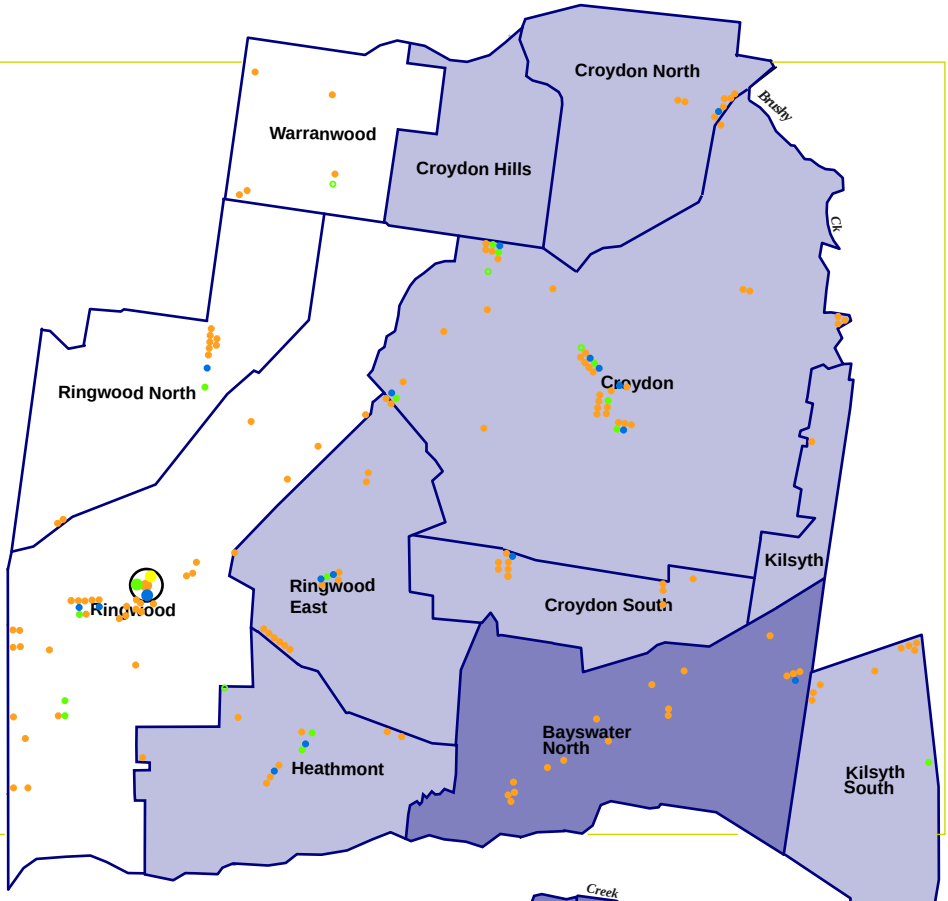


FIGURE 1C:

Yarra Ranges: All food outlets with public transport

FIGURE 2A:

Maroondah: Comparison of fruit and vegetable retailers, markets and supermarkets with fast food and take-away outlets and SEIFA quartiles (white (highest SEIFA) to dark blue (lowest SEIFA)



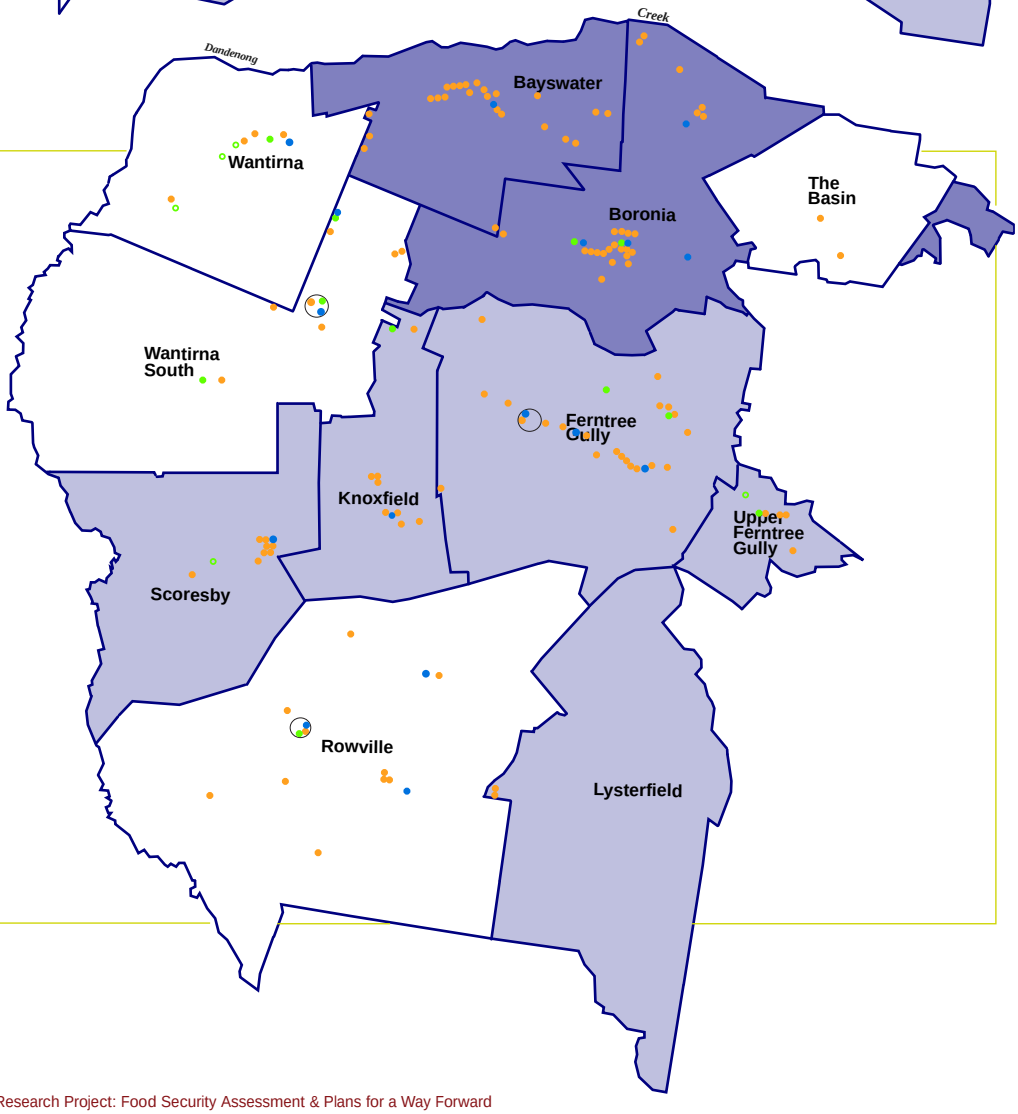
City of Maroondah

0 1 2

kilometres

FIGURE 2B:

Knox: Comparison of fruit and vegetable retailers, markets and supermarkets with fast food and take-away outlets and SEIFA quartiles (white (highest SEIFA) to dark blue (lowest SEIFA)



City of Knox

0 1.5 3

kilometres

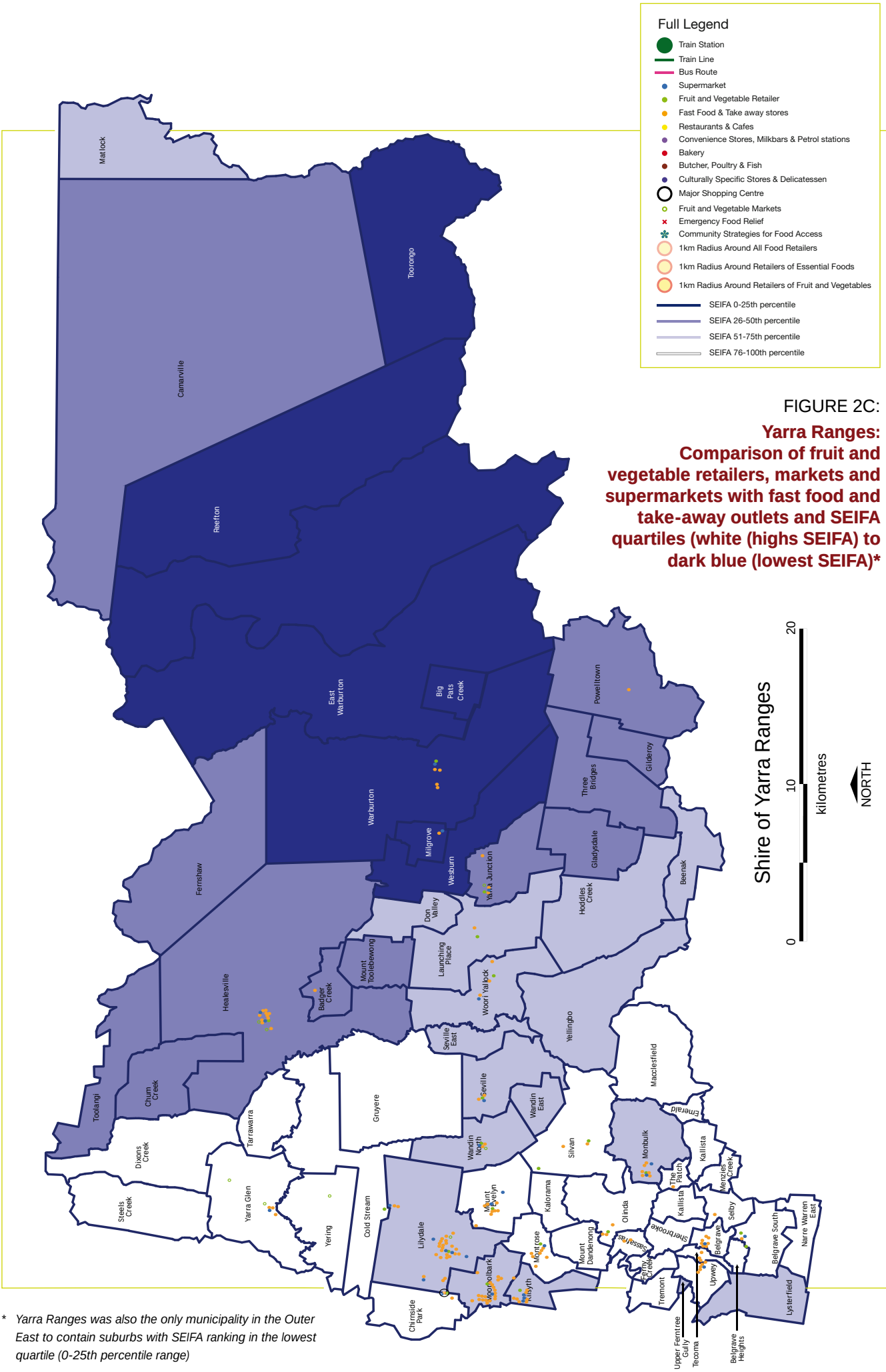


FIGURE 2C:

Yarra Ranges: Comparison of fruit and vegetable retailers, markets and supermarkets with fast food and take-away outlets and SEIFA quartiles (white (highs SEIFA) to dark blue (lowest SEIFA)*

* *Yarra Ranges was also the only municipality in the Outer East to contain suburbs with SEIFA ranking in the lowest quartile (0-25th percentile range)*

FIGURE 3A:

Maroondah: Areas of Food Deserts with Public Transport

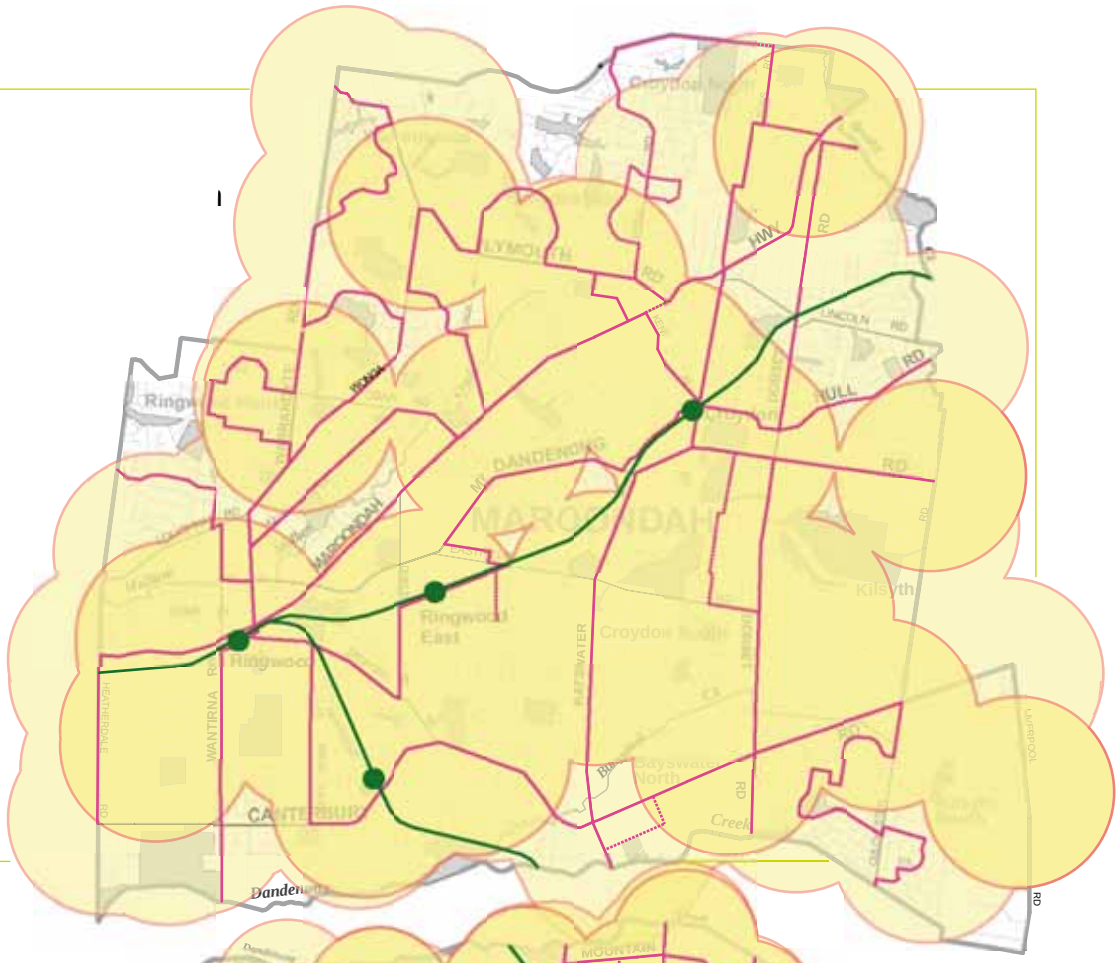
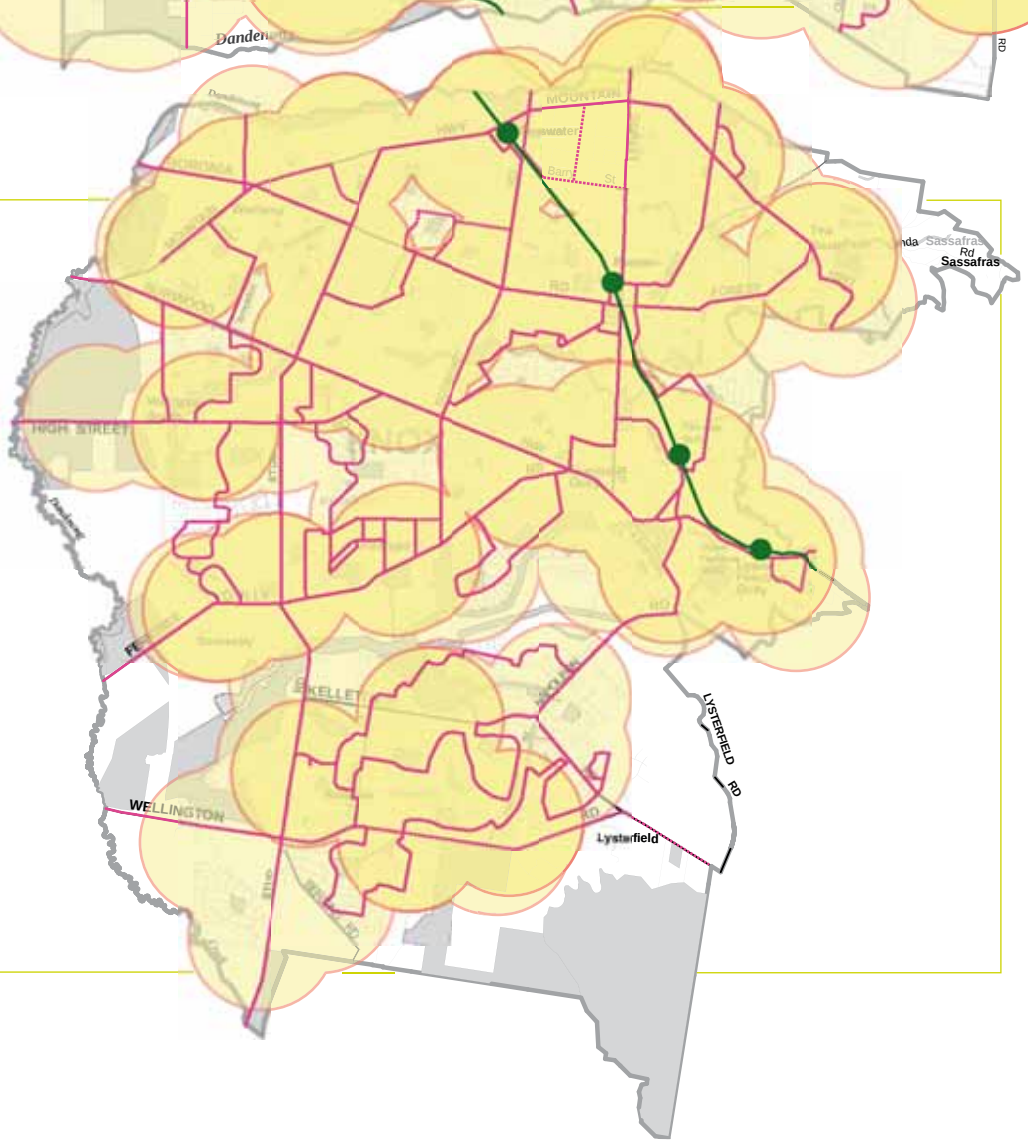


FIGURE 3B:

Knox: Areas of Food Deserts with Public Transport



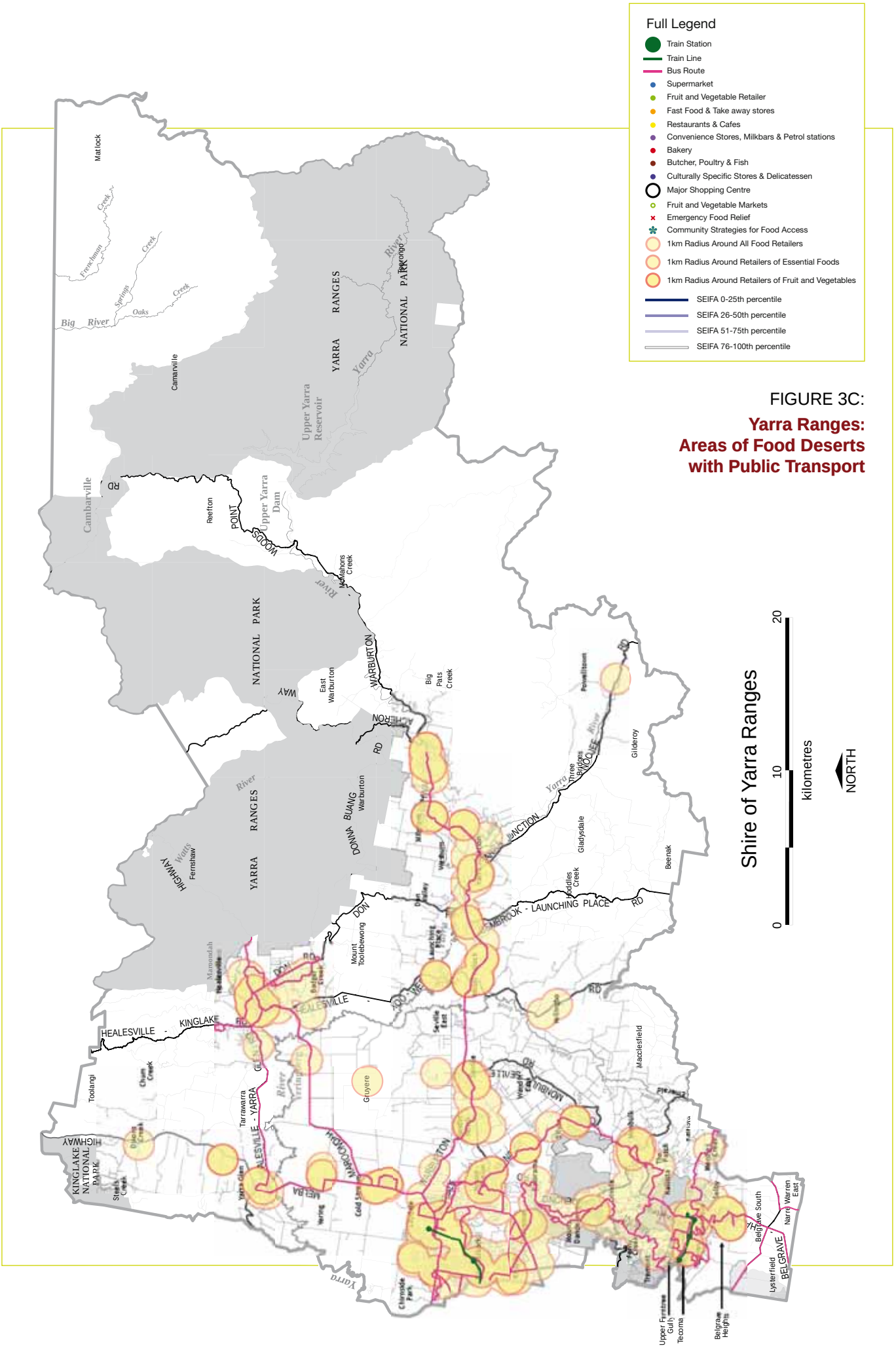


FIGURE 3C:

Yarra Ranges: Areas of Food Deserts with Public Transport

Results [continued]

The three local government organizations in the region are attempting to address or prevent food insecurity through some community initiatives. Table 1 shows these community initiatives mapped against the environments for health framework (Department of Human Services, 2001). This shows that the current variety of activities occurring throughout the region is limited. More strategies that aim to address the underlying determinants of this issue are warranted.

TABLE 1:

Current Activities Addressing Food Security in the Outer East – based on (Vic Healthy planning healthy communities document)

Local Food System	Action Areas			
	Built	Social	Economic	Natural
Food produced		Healesville Indigenous community garden Tecoma community garden Knox community garden Ringwood Community garden Karen Community Farm (Croydon) Croydon Community garden North Ringwood Hope Church Careforce, Montrose		
	Community Harvest Project, Shire of Yarra Ranges			
Food available for distribution and purchase	Shopping bus service Maroondah Mullum Mullum Indigenous Food Bank	Healesville men's community kitchen Yarra Junction young mum's community kitchen Truth and Liberation Concern (TLC) community kitchen, Bayswater Nth	Farmers Markets *(Knox, Carribean, Upper Fern Tree Gully, Wantirna, Bayswater, Croydon, Ringwood East)*	
Food eaten		Meals on Wheels Centre Based meals *(Senior Citizens (Croydon/Ringwood East, Maroondah Federation Estate)* Dinner at Darren's, Healesville Various weekly church based social meal events Community café, Croydon		

3.2 Victorian Healthy Food Basket Surveys

Victorian Healthy Food Basket surveys were conducted in 51 stores (Knox=20, Maroondah = 16, Yarra Ranges = 25) across the three local government areas, indicating an 83% coverage of all eligible stores in the area.

The average cost (mean) of the basket of healthy foods was the least expensive in Maroondah ($387) and most expensive in Knox ($403) and Yarra Ranges ($412) (Table 2). The location of stores and the fortnightly cost of the basket for the 'typical family' at that store are shown in Figures 4 (a-c). The cost of the healthy food basket is most expensive, relative to income, for the typical family, with up to 38% of their income being spent on healthy food at the stores in this region. The cost of the healthy food basket for the single parent family is second most expensive followed by the cost of the healthy food basket for the single man being third most expensive. The typical elderly woman spends up to 18% of her income on a healthy food basket - making her basket the least expensive in the region relative to her income.

TABLE 2:

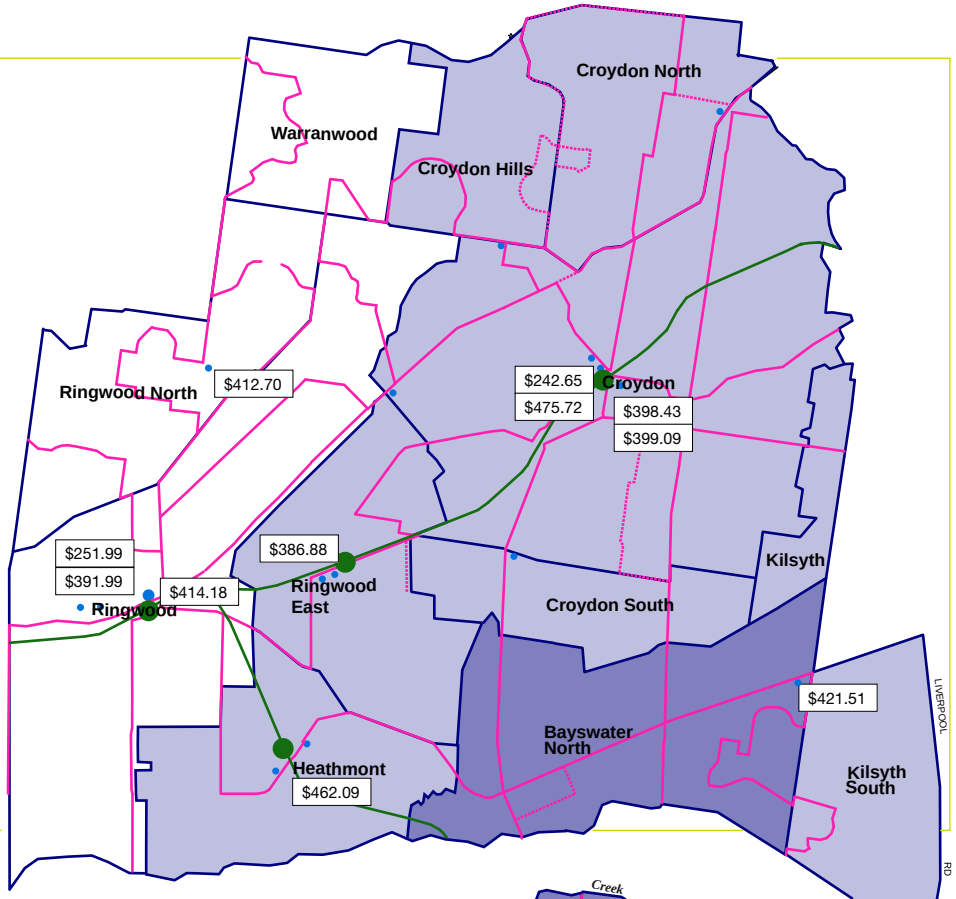
Average cost of healthy food basket for four different family types Knox, Maroondah and Yarra Ranges Local Government Areas, expressed as total cost and as a percentage of government benefits income.

	Maroondah $ mean cost (% income*)	Knox $ average (mean) cost (% income*)	Yarra Ranges $ mean cost (% income*)
Typical family	387.02 (35%)	403.29 (37%)	412.42 (38%)
Single parent family	265.71 (31%)	276.55 (32%)	282.90 (33%)
Elderly women	93.32 (17%)	96.79 (18%)	99.12 (18%)
Single Man	119.16 (27%)	124.04 (28%)	126.91 (29%)

** Based on Centrelink income figures (assumes unemployment) September 2008*

FIGURE 4A:

Maroondah: Victorian Healthy Food Basket Total Cost for Typical Family in stores surveyed across LGA.



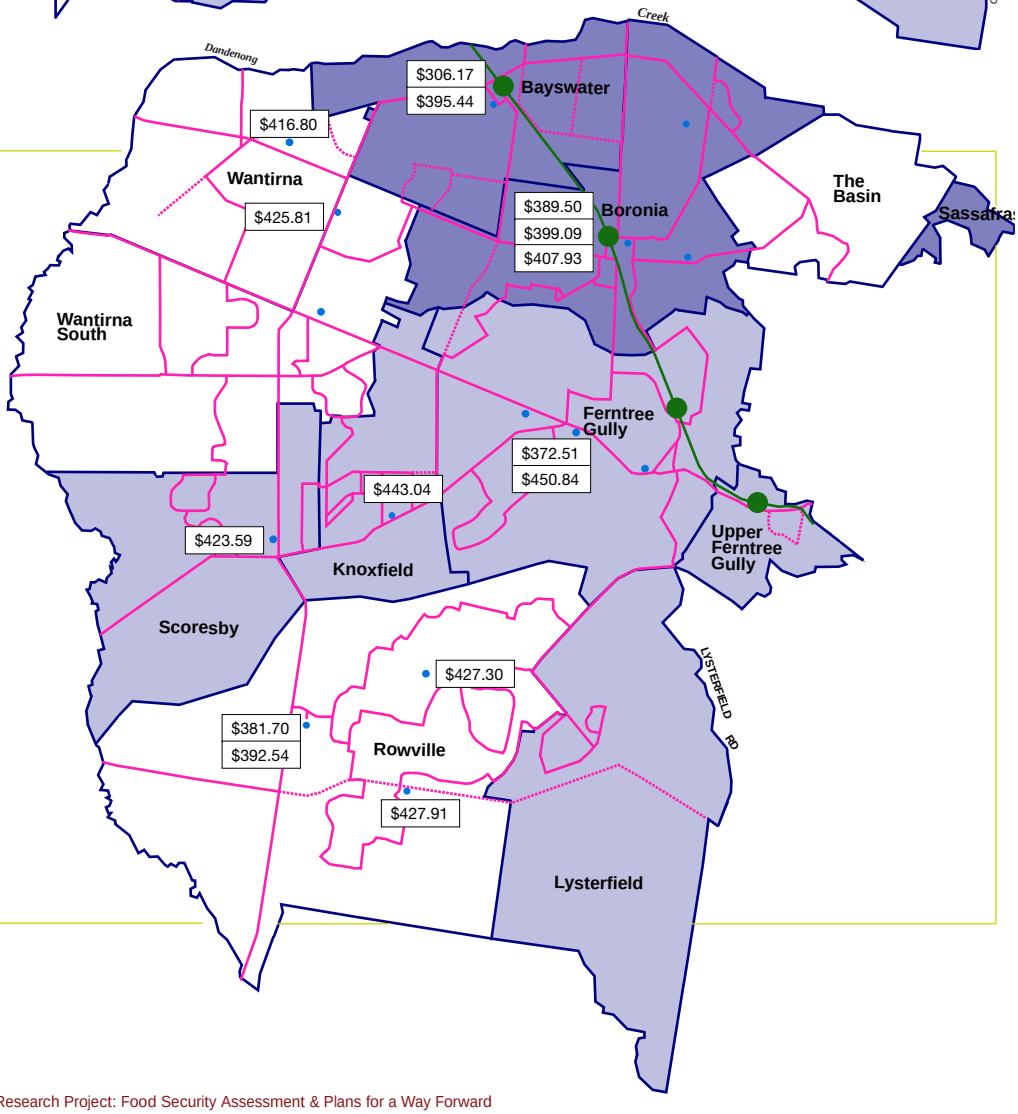
City of Maroondah

0 1 2

kilometres

FIGURE 4B:

Knox: Victorian Healthy Food Basket Total Cost for Typical Family in stores surveyed across LGA.



City of Knox

0 1.5 3

kilometres

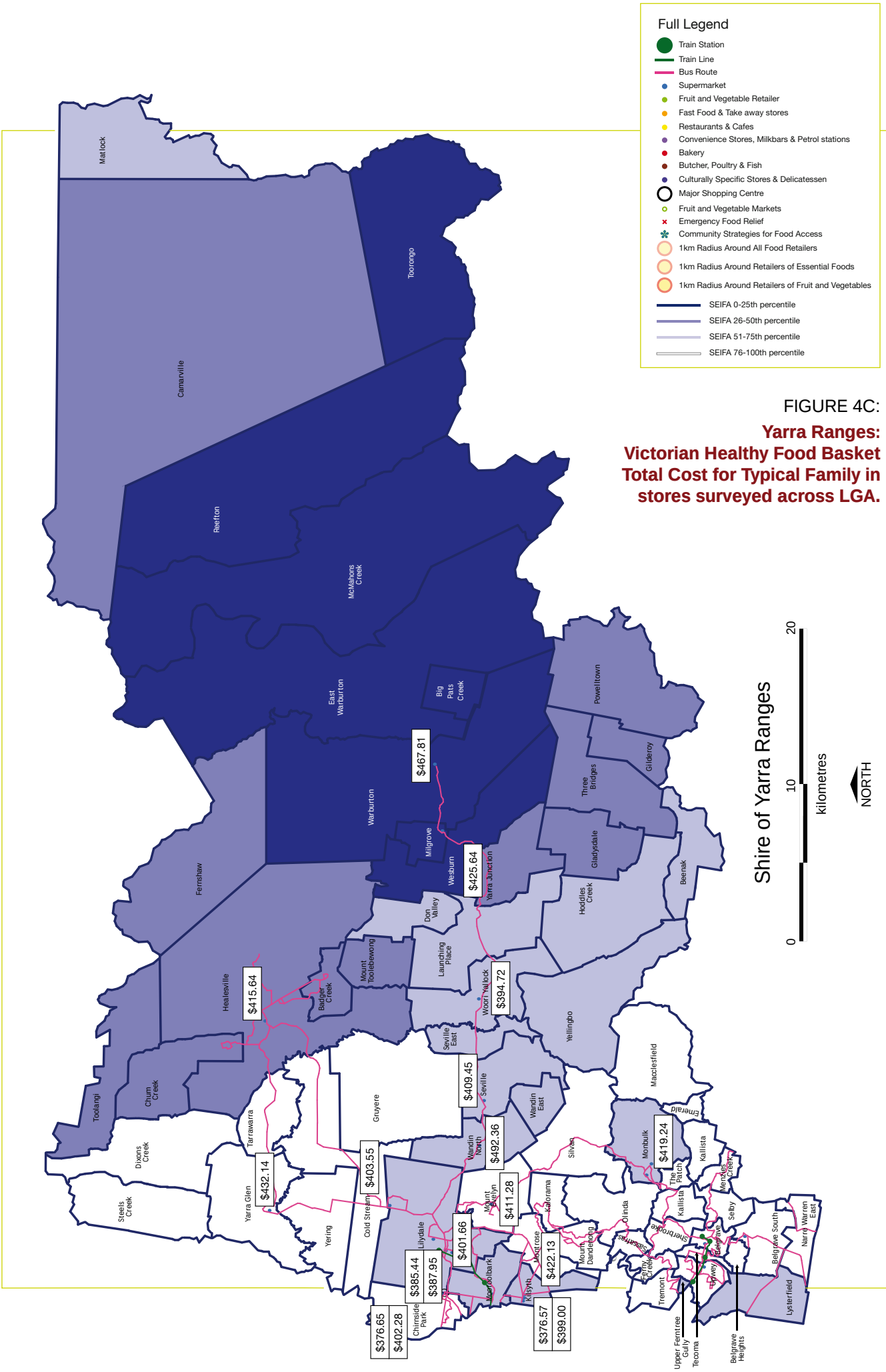


FIGURE 4C:

Yarra Ranges: Victorian Healthy Food Basket Total Cost for Typical Family in stores surveyed across LGA.

3.3 Key Stakeholder Consultation

i) Results from focus groups

Qualitative analysis of the focus group transcripts from both community members and workers of organisations with an interest in food security identified three key themes:

1. The communities of the outer east know what healthy eating is and try to make it a priority. However, they identified other reasons for not consuming nutritious food;
2. Key determinants of eating a nutritious diet are convenience as well as the economic and physical access to nutritious food; and
3. Strategies to improve food security need to involve the community.

ii) Theme I:

The communities of the outer east know what healthy eating is and try to make it a priority. However, they identified other reasons for not consuming nutritious food.

Across all the community focus groups, participants had common ideas on what healthy and unhealthy foods were. Foods high in sugars, salts and fats were considered unhealthy, whereas fresh fruits and vegetables were considered healthy. Participants in focus groups had varying depth in their knowledge of nutrition with some giving general descriptions for the requirements of a healthy diet such as “eating a balanced meal” or “having a bit of everything” while others gave more specific descriptions such as “fruits and vegetables” and “meat”. Some members of the community reported that the quality of fresh foods from major supermarkets in their area were not ideal. Some participants responded that they were eating in accordance to the definition of a healthy diet whereas others were quite definite that they were not eating well.

Community members that participated in the focus groups do consider that healthy eating is important but many of them have differing reasons for that view.

Some of the reasons that were discussed for why eating healthy food is important were:

- To prevent sickness and allow them to have sufficient energy to complete activities of daily living
- To provide nutritious foods and to set good eating habits for their children
- To ensure good blood glucose control and therefore prevent complications of diabetes
- To make them feel better by providing the feeling that they are in control and thus improving self-esteem
- To provide emotional comfort to help them when they are going through a difficult time
- To help improve chances of longevity

In contrast to this community view, workers from organisations felt that members of the communities’ lack the knowledge of how to eat healthy and nutritious food. Workers also reported that people receive misleading messages and information biasing unhealthier options. They also reported that some groups in the community lack the knowledge to make informed decisions. For residents in Supported Residential Services (SRS), it was identified that the knowledge of the proprietors is also a barrier to eating a nutritious diet. ‘Cultural disruption’ was a term used to describe the current prevalence of the population’s lack of everyday knowledge of how to live and eat well. ‘Generational learning’ was another phrase used to describe the way a family continues the same [poor] food practices and habits leading to chronic food issues such as insecurity, inability to cook and lack of exposure to fresh nutritious food.

iii) Theme 2:

Key determinants of eating a nutritious diet are convenience as well as the economic and physical access to nutritious food

The determinants of healthy eating, as identified by the community members, are the ability to easily access food, the financial cost of food and the convenience to prepare or cook food. The significance of each of these determinants changed according to community members' life stage and situation.

A key factor that influenced food choice was physical access to food. Physical access to food is determined by adequate personal and public transport. Transport also influenced the quantity of shopping that could be transported and thus the frequency that food shopping needed to be completed. Community members who rely on public transport or walking to the shops are restricted in the types and amounts of foods they purchase due to:

- The location of the closest shops,
- What the closest shops stock,
- How many groceries they can carry home, and
- The time it takes to get home.

For community members from culturally and linguistically diverse backgrounds, it is difficult to find acceptable, ethnic foods. Some of the participants in the Burmese groups are travelling to suburbs that are far away from them by public transport to access foods ethnically familiar to them. For new immigrants or non-English speaking people, language was a common issue. For example, asking for where the shops are and how to get to the shops is a difficult task. Once at the shops, they felt that they had to use all sorts of strategies including hand signalling to act out what item it is they are enquiring after. Workers from organisations described the imbalance in availability of fresh food outlets vs. fast foods and takeaway food outlets as a barrier to accessing adequate and affordable nutritious food. A lack of competitive pricing in rural areas was expressed as another reason for unaffordable foods.

Low-income earners were identified by community workers as being vulnerable to food insecurity. A person's ability to access nutritious food is affected by high costs of living such as food prices, rent, petrol, transport, bills and medical expenses. Community workers expressed that 'financial constraints' were the most commonly reported barrier to achieving food security.

Community members that lived alone and cooked for themselves described convenience as the most important determinant of what foods that they buy and cook. One opinion was that, when cooking for one, it was a waste of resources to cook a complete meal of meat and three vegetables. Others commented that they would rather use their time to do other more "useful things" than spending time preparing a meal. Community workers saw that a lack of adequate and secure facilities to store and cook food was a factor that determines food security. Lack of refrigeration and cooking devices and adequate safe storage of food (i.e. to prevent it from being stolen) in rental or share accommodation were reported by workers from organisations as reasons why community members may have food access or insecurity issues.

Cooking was also reported to be difficult for some and therefore convenience items were purchased to eat. When cooking for a family, consideration was placed more into the nutritional adequacy of the meals where they tried to incorporate lots of vegetables into the meals for children to eat. For community members with a chronic illness, consideration went towards foods that they can eat and therefore they would only buy foods prescribed as part of their special diet.

For some sub-groups of the community, such as the Sudanese group, other priorities overshadow the importance of healthy eating. Some of the women said that for them, housing is a big "headache" where they cannot find a place to live. Due to the burden of housing insecurity, food insecurity becomes an issue of much lesser importance. Community workers also reported prioritising as a common barrier that leads to food insecurity. They described that for the vast majority of their clients, food is of low priority. Other financial expenses such as rent, bills, medications, pets, children's needs, petrol and addictions and habits (gambling, smoking and alcohol) often took precedence over adequate and nutritious food. A common and closely linked theme expressed by these workers was that people who lack the ability to self restrict financially, and to budget effectively, end up with little funds to purchase food and hence end up in a state of food insecurity.

Crisis situations including sudden loss of housing; the death of a spouse, friend or relative, relationship break-up, chronic depression, unexpected illness or accident, receiving a large bill or fine and lack of support during times of hardship were perceived as having a major influence on a person's food access. Workers felt that low motivation to change poor food habits or to buy and prepare healthy food among the community is a barrier to achieving food security. Shame, pride and embarrassment were reasons given why people might not access emergency food when needed. In addition, lack of awareness of how to access emergency relief also described why people might not have access to enough food when in need.

Barriers to accessing food do not affect all groups to the same extent, and often co-exist, compounding on the difficulty for some groups to access food.

iv) Theme 3:

Strategies to improve food security need to involve the community

Community members and workers from organisations described many different ideas for ways to improve the nutrition of people in the outer east region such as:

- Strategies that would ease the burden of the cost of living such as increasing the pension allowance or decreasing the cost of healthy foods
- Strategies that would ease the burden of a lack of transport such as cheaper and more accessible public transport
- Strategies that would provide support packages to aid disabled people with their daily needs such as help with shopping and/or cooking
- Strategies that would improve food access such as waiving home delivery fees and increasing online shopping facilities
- Social events and dinners to meet new people and have an opportunity to cook together and share recipes
- Education programs from an early age regarding nutrition, cooking and budgeting to provide children with the skills that will enable them to consume a healthy diet in the future
- Teaching budgeting skills and shopping tips to people of all ages such as freezing meals, using specials and buying seasonal produce
- Strategies to promote community gardens and promoting the idea of growing ones own food

Community workers made suggestions on ways to improve emergency food relief services.

These stakeholders expressed that the amount of space and facilities (fridge/freezer) determine the amount and types of foods they can offer to their clientele. No organisation had the facilities to store fresh foods (meat, dairy, fruit and vegetables) and thus could only provide a range of non-perishable foods. All workers identified that the demand for emergency food relief outweighs their current supply. In addition, a noticeable increase in demand has been felt and some services cannot meet the demand. The image of emergency food relief services could also be improved with some community members reporting that accessing emergency relief was 'a last resort'.

Suggestions to improve emergency food relief services were:

- An increase in secure funding to allow more food and more services to be offered as well as more staff to be trained
- A better range of donations from small, local businesses, larger companies and governmental bodies to increase the amount and type of foods to offer clients
- Increasing types of services offered in terms of food provision to better cater to the individual needs of clients
- Culturally specific foods and assistance to cater for all ethnic groups
- Providing free recipes/cookbooks
- Composing a 'Let's Cook' show-bag containing utensils, ingredients and recipes
- Offering vouchers for fruit and vegetable outlets and butchers to ensure spending on nutritious food
- Forming discrete ways of providing discounts at food shops (i.e. a card that is scanned at the counter)

Workers from organisations also suggested re-structuring policies to help avoid food insecurity. Suggestions included:

- Increasing the Centrelink income and better determination of who is in need and eligible for assistance
- Creating an environment where it is easy to access healthy and affordable food
- Controlling the number of fast food outlets and alcohol in each municipality
- Increasing the number of fresh food outlets to bring competition and lower prices
- Creating community kitchens, community gardens and fresh food co-ops
- Creating community awareness of the issue to increase volunteers

Other issues that workers from organisations expressed as important to consider when planning food security strategies included the fact that community members vulnerable to food insecurity suffer from a complex mix of physical, social and emotional issues. These issues render them difficult to engage in terms of healthy and adequate food. In addition, they reported a shift in organisational values from helping people to generating profit. This includes the opinion that the welfare system is difficult to navigate, time consuming and not a holistic, user-friendly service.

v) Results from Questionnaires

Response Rate

Of 200 surveys, 134 were returned completed giving a response rate of 67%.

Age and Gender demographics

As shown in Table 3, more females completed the survey compared to males and just under half of respondents (49%) were aged less than 60 years.

TABLE 3:

Age and Gender of respondents

Age Group	Total n (%)	Female n (%)	Male n (%)
Total Respondents	134	104 (78)	30 (22)
18-24 years	6 (5)	6 (6)	0 (0)
25-39 years	27 (20)	19 (18)	8 (27)
40-59 years	33 (25)	28 (27)	5 (17)
60-69 years	25 (19)	20 (19)	5 (17)
70-79 years	21 (16)	13 (13)	8 (27)
80 + years	22 (16)	18 (17)	4 (13)

Background of respondents

Over half of respondents' country of birth was Australia (56%) and one in ten were either from Burma or the United Kingdom. The majority of respondents' main language spoken was English (n=114, 85%). Fourteen respondents (10%) main language spoken was Karen or Chin. Other languages spoken by individual respondents included Cantonese, Farsi, Italian, Japanese, Khmer and Tedim. Five respondents (4%) classified themselves as an Aboriginal or Torres Strait islander.

Household type

52% of respondents described their household as single, 35% described their household as a couple and 19% described their household as a family. One in five respondents was from a single parent family and one third of respondents had dependent children in their household.

FIGURE 1:

Type of household respondents live in

Income

The questionnaires were mostly completed by people with a low income:

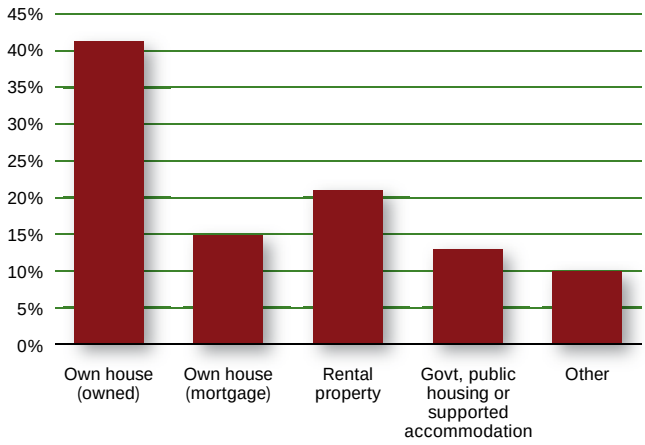
- 78% of respondents from a single household earned less than $20,000
- 42% of respondents from a couple household earned less than $27,000
- 42% of respondents from family households earned less than $38,000

Type of Accommodation

More respondents live in their own home (owned) than any other type of accommodation. 'Other' accommodation included living with family (n=4), live in car (n=1), Supported Residential Service (n=1), transitional property (n=1) and retirement village or own unit (n=2).

FIGURE 2:

Type of accommodation respondents live in



Suburb and Council of residence

The majority of respondents lived in the Shire of Yarra Ranges (63%), followed by City of Maroondah (33%) and City of Knox (4%). Respondents were mainly living in Croydon (n=18), Healesville (n=12), Yarra Junction (n=11), Ringwood (n=10) and Mooroolbark (n=9).

Food Access

Twenty six percent of individuals reported experiencing food insecurity in the past 12 months. Of these, 50% felt that it had worsened over the last two years while 38% felt it had stayed the same and 13% believed it had improved.

The respondents who reported experiencing food insecurity were more likely to be:

- Aged less than 60 years
- Living in a single household
- Spending less than $100 per week on groceries
- A low income earner
- Live in housing which is considered insecure (government or public housing, supported accommodation, rental or other e.g. parents home).

The logistic regression model identified that the demographic factors that most strongly predicted a respondent reporting food insecurity was:

- Being young (aged less than 60 years) (P=0.003)
- Living in a single household (P=0.011)
- Having a low income (Single <$20,000, Couple <$27000; Family <$38,000) (P=0.046)

Sex (male/female) and amount of money spent on groceries per week were not associated with reporting food insecurity (P=0.325 and P=0.690, respectively).

TABLE 4:

Reasons respondents gave for experiencing food insecurity

Reasons (n=34)	n (%)
Not enough money to buy food regularly	24 (71)
Food is too expensive in the local shops	19 (56)
The cost of rising petrol prices	18 (53)
The cost of rising housing prices	17 (50)
Find it difficult to carry my shopping home	10 (29)
Not motivated to cook	7 (21)
The shops are too far away	7 (21)
Can't physically get to the shops	5 (15)
No oven or cooking equipment to cook with	4 (12)
No storage facilities for food	4 (12)
Not able to cook or eat because of health problems	3 (9)
Find it difficult to shop due to language barriers	2 (6)
Can't find the sort of food I'm looking for at the local shops	2 (6)
Not enough time for shopping or cooking	2 (6)
Don't know how to cook	2 (6)
Other	6 (18)

TABLE 5:

Strategies used to manage food insecurity

Strategy (n=34)	n (%)
Skip meals	17 (50)
Cut down on meat	17 (50)
Reduce the size of my meals	16 (47)
Reduce the variety of foods eaten	15 (44)
Get emergency food parcels/vouchers	13 (38)
Cut down on fruits and vegetables	12 (35)
Adults eat less	11 (32)
Get help from friends and family	10 (29)
Grow my own fruits and vegetables	7 (21)
Children eat less	1 (3)
Other	5 (15)

Food Consumption

- Seventy-seven percent of the total respondents reported eating fruit and vegetables daily. There was no difference in the profile of respondents who ate fruit and vegetables daily by gender, country of birth, language, whether they were a single parent or had children, income or by certain councils.
- Seventy-two percent of the total respondents reported eating meat daily. Respondents aged less than 60 years, from a Non-English Speaking Background or living in insecure housing were less likely to eat meat daily.
- Seventy percent of the total respondents reported drinking milk daily. Respondents aged less than 60 years, from a Non-English Speaking Background, living in a single person household or living in insecure housing were less likely to eat milk products daily
- Eighty-three percent of the total respondents reported eating bread daily. Respondents not born in Australia, from a Non-English Speaking Background, or living in Maroondah or Knox City Council were less likely to eat bread products daily

Food Purchasing Habits

Eighty-two percent of respondents ranked supermarkets as the most likely place they would shop for food. Around 60% of respondents shop at the fruit/vegetable markets and butcher/seafood shop. Around 40% would shop at a milk bar or takeaway outlet.

- Of the respondents living in a single household, the majority spend $50-$100 on food in a week.

  Of the respondents living in a couple household, the majority spend $50-$150 on food in a week.

  Of the respondents living in a family household, the majority spend $150-$200 on food in a week.

Mode of transport used to access shops

Car was the most popular mode of transport used to get to the shops. Other modes of transport included use of public transport, walking or using family or friends' cars.

Strategies suggested lessening the burden of food insecurity

Respondents described a number of ways to make it easier to make sure that there was always enough nutritious food to eat:

- Assistance with growing their own fruits and vegetables,
- Cooking classes to ensure people know how to cook nutritious food,
- A cheap fruit and vegetable market in their area,
- Community gardens and food co-ops,
- A guide to shops selling affordable food in their region,
- A group of people to buy bulk food cheaply,
- A community bus that takes people to the shops,
- Home delivery of groceries.

(See Table 6)

TABLE 6:

Preference for Food Security Strategies by different demographic groups

	Non-English Speaking Backgrounds	Families with Children	Single Parent	Aged <60 years	In insecure housing
Assistance with growing my own fruits and vegetables	(2=6, P=0.013)	(2=8, P=0.007)		(2=6, P=0.013)	
Cooking classes	(2=10, P=0.002)			(2=6, P=0.018)	
A cheap, local fruit and vegetable market	(2=7, P=0.040)			(2=6, P=0.016)	
Food Cooperative			(2=5, P=0.034)		(2=6, P=0.015)
Share a garden to grow food			(2=11, P=0.001)		(2=12, P=0.001)

CHAPTER 4

Discussion & Recommendations

This report aimed to measure access to nutritious food and thus the risk of food insecurity across the Outer East health and Community Support Alliance catchment area: City of Knox, Maroondah and the Shire of Yarra Ranges.

4.1 Discussion of Results

The report has identified that for some areas and population groups within the region food insecurity is a real risk. Nutritious food is not always accessible to certain community members due to poor physical and economic access to food.

This region is similar to others across Melbourne, Victoria with population statistics showing similar levels of risk to food insecurity. While there are clearly defined “pockets” of greater risk of food insecurity, much of the population has an adequate income, living standards and transport to access nutritious food for good health. The socio-economic status of Bayswater North, Bayswater, Yarra Junction, Warburton, Healesville and Wesburn/Millgrove together with their lack of physical food access, in the form of lack of supermarkets and fresh fruit and vegetable outlets, indicate that these communities may be at greater risk of food insecurity.

Mapping of food outlets across the three municipalities demonstrated a wide distribution of all food outlet types. In Knox and Maroondah local government areas the majority of the population could physically access food either by foot or public transport, however in the Yarra Ranges a large amount of the area was classified as a ‘food desert’. While this may not be of concern to the areas within the Yarra Ranges local government area classified as national park or agricultural land, there are a number of towns, including Healesville and Warburton, with a significant population that do not have physical access to nutritious food. Access to essential food outlets was limited in parts of each municipality indicating that although these communities have access to food it may not be from nutritious or appropriate food choices to constitute a healthy diet.

The Victorian Healthy Food Basket Survey showed that food is least expensive in the cities of Maroondah and Knox and most expensive in the Yarra Ranges. The research also demonstrated cost variations within the local government areas including Maroondah and Knox. This variation ranged from $20- to $50- for a typical family of four living in Maroondah and Knox. While the differences across the outer east region may be due to the extra geographical distance from Melbourne to the Yarra Valley, there is limited evidence to suggest that food in more rural areas of Victoria have greater food costs (Palermo et. al., 2008). Healthy food may be unaffordable for some households, in particular those at risk such as unemployed families and single unemployed men for who the VHFB showed may need to spend up to 40% of their government income on healthy food. The single elderly female pensioner’s expenditure on healthy food is in line with the estimated average income expenditure on food at around 20%, providing evidence that single pensioners in the Outer East, as in other areas of Victoria, have good economic food access (Palermo et. al., 2008).

However, the physical food insecurity issues (mobility, disability, illness or transport, rising cost of living) for this group still leaves them vulnerable to food insecurity (Booth and Smith, 2001) and thus an important target population for food insecurity prevention initiatives.

There is evidence to suggest that monitoring the cost of healthy food can be used to influence public health nutrition policy and practice (Burns and Friel, 2007). One local government area in Victoria has used the VHFB survey as an ongoing local government monitoring tool. The results of the VHFB survey have previously been used to inform key actions for municipal public health planning and to identify areas where resources could be used to address some of the determinants of food insecurity and further support community strategies. The data collected to date has influenced planning decisions, such as location of new supermarkets and provides valuable evidence to assist in prioritising local food initiatives (Palermo and McCaffer, 2005). This report provides a benchmark of food cost in the outer east and a start to ongoing monitoring of the food supply in the region. However, there are limitations in the capacity of local government to change planning regulations and influence the free market economy.

Key stakeholder consultations conducted with a range of community members and workers of organisations that are in regular contact with those vulnerable to food insecurity, identified three key themes or findings: (i) The communities of the outer east know of what healthy eating is and try to make it a priority however they identified other reasons for not consuming nutritious food; (ii) Key determinants of eating a nutritious diet are convenience as well as the economic and physical access to nutritious food; and (iii) Strategies to improve food security need to involve the community. The inconsistency between the views of community members and community workers around the communities' knowledge of healthy eating may be explained by the differences in their perceptions of a healthy diet. In addition, the fact that community workers are regularly working with those most vulnerable to food insecurity may also impact on their views around the determinants of food choice. This data provides evidence to support initiatives that aim to reduce the financial burden of food and improve physical access to food. There is evidence to suggest that community food security initiatives work. Community gardens appear to have a positive influence on social support as well as influencing nutritional intake. In addition, food cooperatives, community kitchens, shopping trips, farmers markets, community supported agriculture are local strategies that have also been found to improve access to and thus intake of nutritious food (Toronto Food Policy Council 1994; VicHealth 2003, FCHS 2007, Friends of the Earth, May 2009). Emerging ideas such social procurement also have potential to improve access to nutritious food and be sustainable (Social Enterprise, 2004). These strategies and others like them offer community based local solutions to improving food security by addressing the determinants of food access and therefore reduce reliance on emergency food relief.

The community questionnaire provided additional details around food access to nutritious food in the region, particularly as it was targeted to those experiencing food insecurity. The proportion of respondents who reported experiencing food insecurity (running out of food and not being able to buy more) in the past 12 months was 26% (n=134). This is far greater than the general population data that showed that approximately 7% of the population across the LGAs reported experiencing food insecurity. This provides evidence that the respondents that were identified as being at risk of food insecurity were three times more likely to experience food insecurity compared to the remainder of the individuals living in the region. The questionnaire also identified the amount of money respondents reported they spent on food (including groceries, takeaway, restaurants) per week which was around $50 to $100 for single households; $50 to $150 for couples and $150 to $200 for families. This is lower than what the VHFB survey identified that these groups would need to spend in order to obtain a healthy diet indicating additional risk of food and nutrition insecurity for this population group and some evidence that they may not be meeting nutritional requirements. Of the respondents who reported experiencing food insecurity over the last twelve months only half knew how to access emergency food relief. This may be due to a range of reasons such as a lack of services in their local area or limited promotion of these services for fear of not being able to meet demand. This provides evidence that the solution to food insecurity in the region is not through the provision of more emergency food relief but through better promotion of existing services and investment in strategic approaches that reflect integrated planning and collaboration to prevent food insecurity.

4.2 Limitations

This assessment of food insecurity has a number of limitations. Identification of food outlets for the mapping and healthy food basket survey may not have captured all food outlets in the region. The council database together with use of websites does not guarantee a full compliment of outlets. The limited time for the work prevented physical mapping of outlets by hand but this would have ensured a complete sample. The healthy food basket survey is limited in that it is based on foods of limited cuisine. It does not cater for culturally and linguistically diverse communities' food preferences. It is important to note that the methodology for the basket (excluding generic brands to improve reliability) does not provide a picture of the cheapest basket of food available. The mapping of activities aimed at preventing food security (Table 1) is also limited in that it was collected at one point in time and communities are ever changing in their initiatives to improve access to nutritious food. The questionnaire was not designed to select a random sample of the population in the outer eastern region but to capture the different types of people who are affected by food insecurity, however it was not designed to determine the prevalence of food insecurity in the region. The questionnaires were given to a convenience sample, non-random and non-representative group. Subsequently this data cannot be generalised to the region.

4.3 Recommendations

Initiatives aimed at increasing access to nutritious food in the outer eastern region of Melbourne should be targeted towards people who are vulnerable (experiencing the greatest inequities in health) determined by socioeconomic status, physical or mental disability, or living in insecure housing. The Indigenous community in the Yarra Ranges should be considered a specific focus to initiatives. Initiatives should be directed to those locations in the outer east that reflect the confluence of low SEIFA indexing and therefore limited economic access, high rental properties, lack of physical access to food outlets and public transport, social isolation and unemployment.

Future health promotion initiatives to address the issue of community food access and food insecurity should reflect systems thinking and with a strong focus on integrated planning, partnerships and collaboration across diverse sectors. The strength of any health promotion planning will be that initiatives sit within an overarching goal that aims to facilitate a sustainable food system within the outer east region. The recommendations sit within three key intervention options – generic intervention, interventions to improve food supply and interventions to improve food access (NSW Health, 2003). The range of recommendations is characteristic of the consultations from the community collected during the research . The recommendations however are not exhaustive.

Generic Interventions that include

- Food policy coalitions
- Development of food policies that support a sustainable nutritious food system. For example, policies for food outlet types and initiatives, such as water rebates for people growing their own food, social procurement to support local agriculture and Community Supported Agriculture (CSA"s)
- Advocacy for food security
- Research, Monitor and evaluate the food supply for the region. For example, conduct annual Victorian healthy food basket surveys to monitor food costs, measuring prevalence of food insecurity

Intervention to improve food supply

- Strengthen current initiatives that support local food production such as community gardens, school gardens, home gardens, local agriculture networks and operators
- Offer community members fruit and vegetable gardening support and education.
- Increase community transport available to nutritious food outlets, specifically fruit and vegetable
- Working in partnership with food retail outlets and food preparation outlets

Interventions to improve food access

- Invest in initiatives that increase physical access to affordable fruit and vegetables, such as farmers markets and delivery services.
- Build on the initiatives that promote positives messages about healthy food
- Initiatives that address the economic barriers to accessing nutritious food
- Support community members in establishing food cooperatives
- Support the establishment of community kitchens in high- risk areas.

The recommendations are not exhaustive.

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