Identifying the Importance of Social Infrastructure in Regional Communities

RESEARCH REPORT NO. 2

John Rolfe*, Paul Hyland*, Luz Guzman*, Tania Hutchinson*, Claudine Soosay* and Deborah Street**

THE IMPORTANCE OF SOCIAL INFRASTRUCTURE TO REGIONAL DEVELOPMENT RESEARCH REPORTS

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*** Faculty of Business and Law, Central Queensland University, Rockhampton 4702**
****University of Technology, Sydney.**

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Any comments will be gratefully received and should be directed to Associate Professor John Rolfe

Faculty of Business and Informatics
Central Queensland University
Rockhampton, QLD 4701
j.rolfe@cqu.edu.au
(07) 49232 132 (ph)
(07) 4930 9700 (fax)

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Executive summary

1. Social infrastructure is important because it allows community demands to be serviced. In regional areas social infrastructure contributes to the attractiveness of centres for attracting and retaining residents, and hence can be linked to labour mobility.

2. In this case study, residents from Blackwater (a small mining community), Rockhampton (a regional centre) and Brisbane (the state capital) have been surveyed about issues relating to social infrastructure. The surveys were performed using a drop-off and collect format in late 2004.

3. A majority of residents in all centres rated infrastructure as important. Education, health and other services were considered slightly more important overall than housing and leisure.

4. A significant proportion of respondents indicated that the facilities and services in their town or city catered to most if not all needs of their family. Brisbane residents were the most positive, and Blackwater residents the least positive.

5. One of the tasks in the survey for respondents was to identify if they would relocate to communities in four different regions of the state that were described in terms of a number of attributes, including the standard of social infrastructure.

6. For each community surveyed, the *Location Type, Jobs for Family*, and *Changed Income* were consistently important attributes. For Blackwater residents, *Health and Education Services* and *Access to Larger Centres* were also important. This may be because those are familiar issues to residents. For Brisbane residents, *Years of Commitment* was also an important attribute, while for Rockhampton residents *Health and Education Services* and *Social and Recreation* factors were important. These variations between the models indicate that the factors that people find important in relocation choices vary between communities.

7. Relative to the other key attributes, the *Standard of Social Infrastructure* was not a key determinant of peoples' relocation choices. However, the level of services was a key factor for regional communities, indicating that social infrastructure may play a key supporting role in attracting and retaining appropriate labour forces in regional areas.

1. Introduction

1.1 Why social infrastructure is important

Social infrastructure includes the physical assets in communities used to provide health, education, recreation and other community needs. Many elements of social infrastructure are provided through public funding, although some (particularly those relating to housing, social and recreational needs) are provided through private market mechanisms. Where infrastructure is provided from public funding, there are often debates about the appropriate levels and types of infrastructure needed. At the regional level these debates become very important because the standard of social infrastructure and associated services are often factors that differentiate communities. Communities with higher standards of social infrastructure are sometimes in a better position to attract a greater population base and capture economic development opportunities.

Social infrastructure can be defined as the network of physical assets that meet community needs, while economic infrastructure can be defined as the network of physical assets that meet business needs. While some assets are easy to define into community or business service categories, many infrastructure assets service both community and business needs and are more difficult to categorise.

Social infrastructure is important to regional communities for a number of different reasons. The first is that infrastructure is usually a prerequisite for the delivery of many services into regional communities. The second is that some social infrastructure is often required for business needs, and hence is directly required for economic development. The third is that social infrastructure is needed to attract and retain workforces in regional areas, and hence is indirectly required for economic development.

1.2 The relationship between social infrastructure and economic development

A model of the relationship between social infrastructure and economic development has been reported in the first research report relating to this project (Rolfe and Hyland 2004). This model, shown in Figure 1.1, identifies the reciprocal relationship involved where social infrastructure helps to drive economic activity and development, and where economic activity creates demands and funding for social infrastructure.

Those relationships can be specified in more detail. There are three specific models of the direct and indirect impacts of social infrastructure on regional economic development:

(a) Investment model – social infrastructure creates long-term beneficial outcomes for community welfare and economic development,

(b) Constraint model – social infrastructure provided when its absence is a constraint to community and economic development,

(c) Catalytic model – appropriate social infrastructure is a catalyst for community and economic development.

There is also a model of how economic development creates demands for regional infrastructure:

(d) response model - social infrastructure provided in response to community demands, particularly as communities grow and as expectations rise,

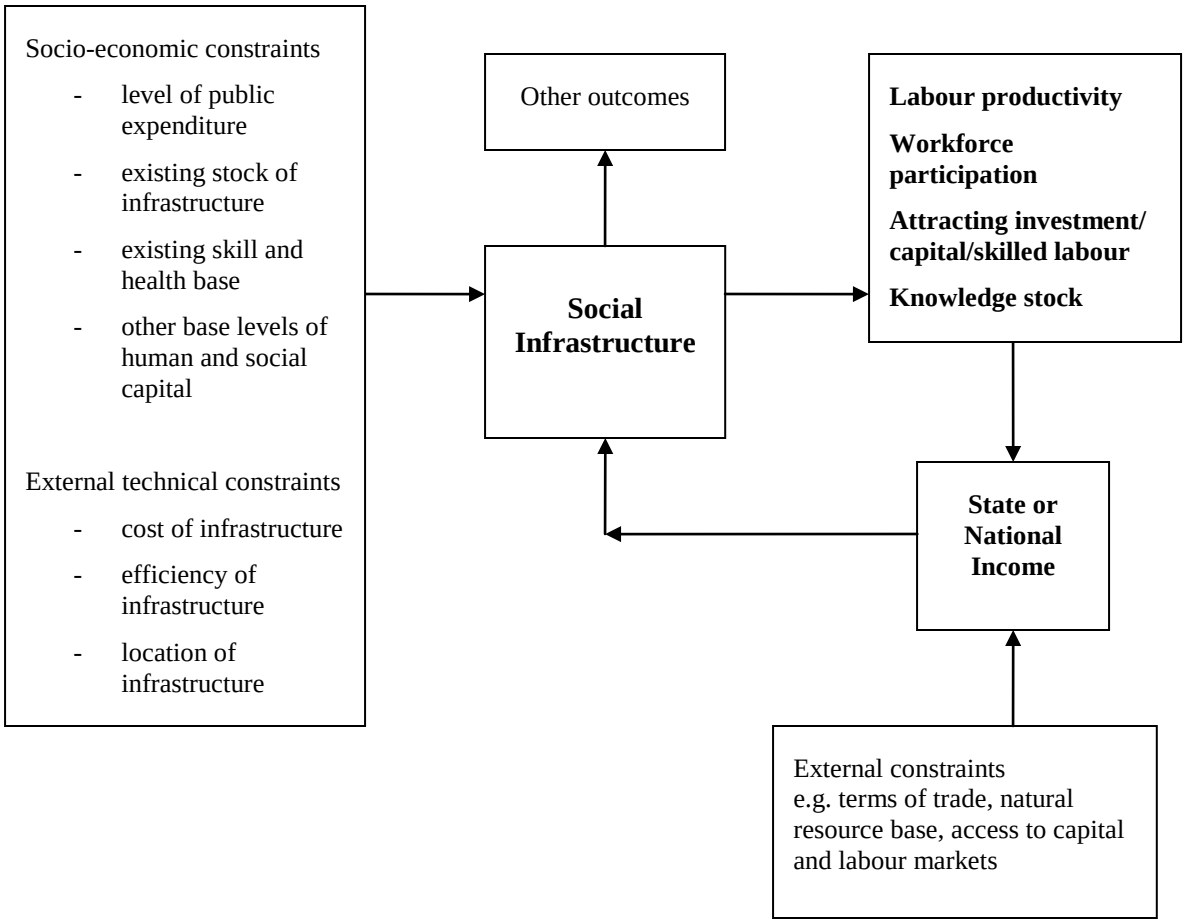

Figure 1 A model of how social infrastructure impacts on economic activity

1.3 How to assess the importance of social infrastructure

The focus in this report is going beyond those models to explore the importance of social infrastructure in regional development. This can be done by assessing the perceptions in communities about the standard and importance of social infrastructure, by identifying key demands for increased infrastructure provision, and by identifying the tradeoffs between infrastructure provision and other factors. To do this, two key design factors need to be considered.

Governments face competing demands from communities for infrastructure and service provision. The difficulty with simply assessing demands for infrastructure provision is

that many demands may be open-ended. It is more realistic to assess demands in terms of how communities might prefer to allocate resources when the tradeoffs are more explicit. Specialised assessment tools may be used for this purpose.

Another key factor to consider is that while demands for infrastructure and services are normally assessed in relation to existing populations, a key driver of economic development might be the ability of communities to attract and retain people with specialised skills. The attractiveness of communities for people to move there may be a critical factor in determining what opportunities the community has for growth. From this perspective, the importance of social infrastructure may not just be related to service provision for an existing community, but also to a future community.

1.4 Overview of the research

These issues have been explored in conduct of some case study work as a part of the research project. The project has been conducted by the Institute for Sustainable Regional Development at Central Queensland University with funding from the Department of State Development and Innovation. While the first part of the project involved the development of a conceptual model relating to social infrastructure (Rolfe and Hyland 2004), the second part has involved a case study approach for regional Queensland communities.

The focus of the case study work has been in four main areas. The first area has involved the assessment of community perceptions about existing standards of social infrastructure in their communities. The second area has involved the assessment of community perceptions about how important the different components of social infrastructure are, both in their own community and more generally. In the third area, people in different communities have been asked if they think the current expenditure patterns by Queensland and local government should be changed.

In the fourth area, the focus of the research has been to determine what would be important factors in driving relocation choices to four broad types of small towns in Queensland;

- Small towns in western Queensland areas,
- Small towns in the Bowen Basin (coal mining) region of central Queensland,
- Small towns in the Queensland coastal zone, and
- Small towns in the South-east Queensland region.

To achieve these goals, focus groups have been run in three different communities in central Queensland: Blackwater (a mining town in the Bowen Basin), Rockhampton (a regional hub in central Queensland), and Yeppoon (a coastal town in central Queensland). As well, drop-off and collect surveys have been conducted with a random sample of households in Blackwater, Brisbane and Rockhampton. In this way the views of very different communities on social infrastructure have been collected and assessed.

A range of data collection techniques have been employed within the focus groups and surveys. These have included ranking and rating exercises, budget allocation exercises, referendum type questions about different spending and infrastructure tradeoffs, and the

use of choice experiments (Choice Modelling). These techniques have allowed the assessment of infrastructure needs in controlled settings where tradeoffs can be more explicitly modelled.

This report is structured in the following way. The process of identifying issues relating to social infrastructure is commenced in Section 2 and results of scoping focus groups held in Yeppoon, Rockhampton and Blackwater are discussed. The research methodology is described and an explanation for the survey design is also provided in this chapter. This is followed by an overview of the performance of the survey.

The results of standard questions in the survey are presented in Section 3, including a comparison of results for Rockhampton, Blackwater and Brisbane. This is followed by a presentation of the results from the Choice Modelling section of the survey in Section 4. These results are then discussed in the context of this project in Section 5 and key conclusions are provided in Section 6.

2. Design and performance of surveys

2.1 Identification of the key issues that relate to social infrastructure

In qualitative research a process can be used to identify and capture the key issues for communities without any prior identification. In quantitative research it is important to identify broad areas of interest prior to the data collection stage so that appropriate mechanisms are used. In this study, a literature review process has been conducted, and scoping focus groups have been held to aid in the design stages. The literature review process has been outlined in the first research report (Rolfe and Hyland 2004), and the results of the scoping focus groups are outlined below.

2.2 Results of the scoping focus groups

Social Infrastructure round tables were held in Rockhampton, Yeppoon and Blackwater during September and December 2003. The purpose of these round tables was to summarise how community leaders and business representatives identified key issues relevant to social infrastructure in each location. Each group lasted for approximately two hours, and involved a focus group session as well as some specific ranking and rating tasks. Here, the outcomes of these sessions are summarised.

Residents of Yeppoon, the major town in the Capricorn Coast region, pointed out that the economic drivers for their community were tourism and the settlement of young retired people. Yeppoon residents consider that tourism has helped the town to develop as being attractive to different group ages.

Rockhampton is known as the regional centre for the central Queensland region. Residents of this regional city recognised Rockhampton as a safe place to live which is an important factor for new comers to the region such as retired people and university students. This group also stated that the university is an important generator of jobs and it is fundamental for the future development of the town.

In contrast, the Blackwater community leaders consider that young people and some young families with children are brought to the area as a result of workforce recruited for the mining industry. There is a reasonably high turnover of population through the area. Entertainment and activities for children are the major disadvantages encountered by this community in retaining this young skilled workforce.

Participants at the round tables were also asked to rank a list of social infrastructure issues they considered would be important for new comers to the area (Figure 2). The highest ranked issues for each community were housing, education and health care.

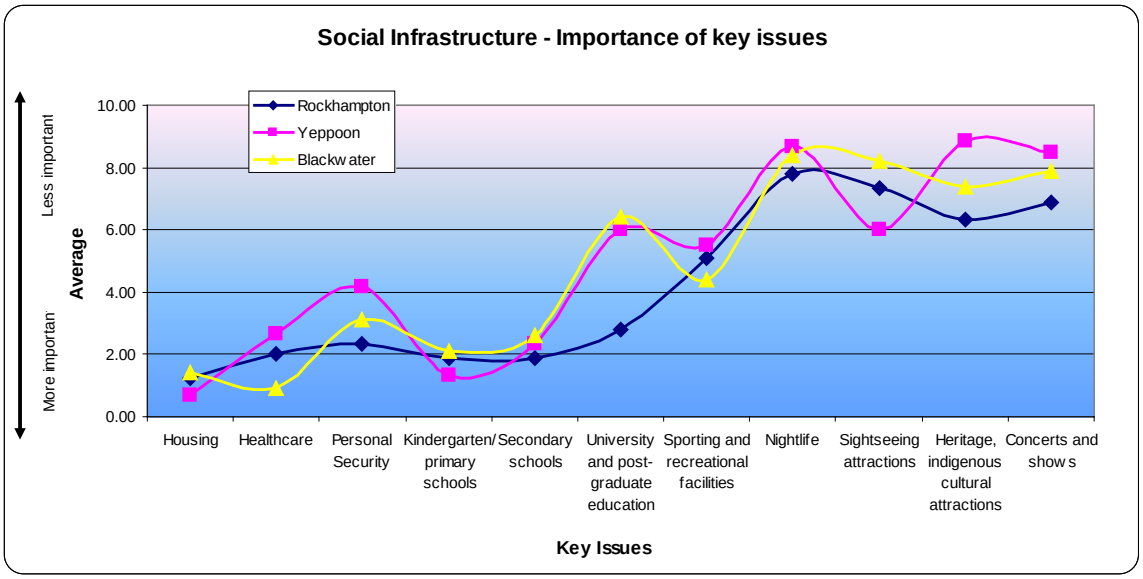

Figure 2 Ranking importance of social infrastructure key issues

The attendees were asked to indicate what advantages their communities have over other regional communities. Blackwater attendees nominated their strength as a united community which works together to support other community members, and raise funds for their own community as well as for charity. Rockhampton community leaders stated that their town has many residential care facilities for the elderly as well as attractive gardens, access to entertainment, beautiful climate and good retail facilities. The Yeppoon focus group identified strengths in having good quality secondary schools, the location of the town allowing people to enjoy sightseeing attractions, cafes, and restaurants, and a very good beach culture developed among the community.

In terms of disadvantages, all three groups answered that there is a lack of health facilities as well as specialists. Several medical procedures have to be undertaken in Townsville or Brisbane hospitals. The community leaders also identified that some groups of skilled workforce are more difficult to attract than others, particularly to the Blackwater community. It was generally agreed that retired people was the easiest group to attract to the coastal area, partly because of available land and low house prices.

Participants were asked what elements of infrastructure development they would target during the next five (5) and ten (10) years. For the next five years, the Rockhampton residents nominated: the construction of an entertainment centre that integrates old and young communities; focuses on personal security, housing, health care; and maintain and develop accessible roads between Rockhampton-Yeppoon-Gladstone. The Yeppoon group nominated to have public and private hospitals providing surgery in five years time, more parking facilities, retail shops and a swimming pool. Backwater would move towards to tourism, sightseeing attractions, and care facilities for elderly and disabled people.

The focus groups were asked to indicate which facilities or services would be missed if they were moving to another region. The answers are summarised in the following table.

Table 1 Facilities or services that would be missed if residents move to another place

Rockhampton	Yeppoon	Blackwater
Housing	Retail stores	Personal security
Health care	Transport	Attention at the Medical centre
Education	Climate	
Entertainment area	Beach	
Life Style	Life style	

Participants were asked to rate the same issues once again indicating this time their quality (Figure 3). Residents were using a scale from 1-Outstanding to 10-Worst. In general the outstanding factors nominated are personal security, kindergarden, primary and secondary schools, sporting and recreational facilities and housing. Categories that received lower approval ratings included nightlife, concerts and shows.

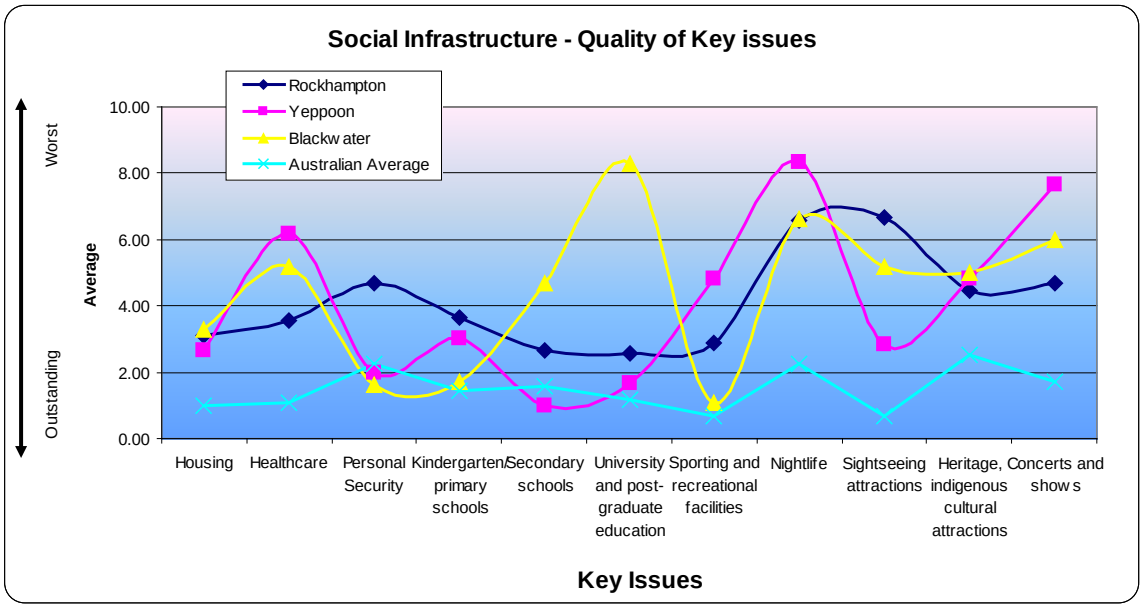

Figure 3 Rating quality of Social Infrastructure key issues

Figure 3 also shows the national ratings for these issues for comparative purposes (New South Wales Department of State and Regional Development 2003). The results show that satisfaction levels tend to be lower in each of the regional communities than at the national level. Areas that rated closest to the national average were personal security and education facilities, while areas where dissatisfaction was much higher than the national averages were healthcare, nightlife, sightseeing, and concerts and shows. There was also some variation between communities; for example Blackwater respondents were dissatisfied with university facilities but quite satisfied with sporting facilities in comparison with the other centres.

2.3 Design of survey

The information from the literature review and focus group stages was used to design a survey for data collection. The survey needed to be broad enough to cater for key issues that might be important to different communities, and specific enough to provide useful feedback. The survey had to be simple and concise so that it was easy for respondents to complete, but still be capable of providing useful information.

The 12 page survey was designed with five key sections. The first was a preamble. This acted to introduce the topic and provide instructions to participants. The second section collected information about how long participants had lived in their town, as well as perceptions about the standard of facilities there. These questions were easy to answer, and helped to familiarise participants with the topics of interest.

The third section of the survey involved a number of exercises to determine social infrastructure priorities. One of these was a simple rating exercise about the importance of different infrastructure issues. There were also two budget allocation exercises, where respondents were asked to indicate if they would prefer spending to be increased or decreased for the different categories of infrastructure spending. These were focused at local and state government levels. The final exercise in this section involved a hypothetical question about an increased payment of state tax or local government rates to fund additional infrastructure. Respondents could nominate their preferred project and if they would support a higher payment level.

The fourth section of the survey involved a Choice Modelling survey (outlined in more detail below). Four choice sets were offered to respondent in eight different versions of the survey, so that data was collected on 32 different choice sets in total. There were also some followup questions after the choice sets to explore reasons why different patterns of choice had been followed.

The final version of the survey collected data about the demographic characteristics of respondents. Information was collected about the following characteristics:

- Gender
- Age
- Size of household
- Special needs in household
- Occupation
- Income

2.4 Design of the Choice Modelling section

Choice Modelling is a stated preference technique that has been adapted from conjoint analysis roots in transport and marketing fields to estimate values in economic research. There have been a number of applications to recreation and environmental issues in recent years (eg Adamowicz et al 1998, Blamey et al 2000, Rolfe, Bennett and Louviere

2000, Morrison and Bennett 2000, Bennett and Blamey 2001). There has also been growing interest in using the technique to analyse the choices people make in production enterprises (Lusk and Hudson 2004, Windle and Rolfe 2005).

Of particular interest are efforts to adapt the technique to analysis of social issues. Rolfe and Windle (2003) used Choice Modelling to identify how both indigenous and non-indigenous groups valued the protection of Aboriginal cultural heritage sites. Bennett and Blamey (2001) used the technique to assess community preferences for the preservation of country communities in Australia. In this project, a key aim was to extend the application of Choice Modelling to social issues by analyzing the potential factors that influence relocation choices to regional areas.

Choice Modelling involves asking respondents to a survey to make a series of choices about alternative scenarios. Each choice requires consideration of a choice set, which features a number of profiles describing the alternatives on offer. It also includes a current or future status quo option, which is featured as a consistent profile across all choice sets. The profiles vary, so that respondents are being asked to make a series of similar, but different choices. An example of a choice set used in this experiment is given in Figure 4. Respondents could choose between four location options, which varied between choice sets, and two 'opt out' alternatives that were constant between choice sets.

The four location options were labeled into four separate regions of Queensland. These remained constant between the choice sets. The use of labels allows the most important determinants of choice to be flagged to respondents, and aids in the subsequent statistical analysis. To maximize consistency between the options, the survey respondents were asked to consider relocation to a 'standard' town within each region. The regions were chosen to be representative of four broad types of location choices:

- Western Queensland (representing traditional country towns)
- Bowen Basin (representing mining townships)
- Queensland Coast (representing lifestyle issues)
- South-east Queensland (representing proximity to major urban centres).

In Choice Modelling the profiles are made up of a number of attributes that describe the issue in question. In this experiment, seven attributes were used to describe each profile (Table 2). To generate differences between profiles, these attributes were allowed to vary across four different levels (e.g. 1, 2, 3 and 5 year placements). These profiles then represent different options for respondents to consider.

There are a large number of potential profiles that could be drawn and presented to respondents. As it is only possible to present a selection of profiles, an experimental design process is used to select the profiles, and then partition them into blocks for presentation to survey respondents. In this survey, a total of 32 different choice sets were developed to represent the choices on offer. This group was blocked into eight groups, so each respondent was offered four choice sets in a survey.

Option 1 – Western Queensland
• 1 year placement will improve career prospects
• Jobs for partners/children very rare
• Almost no health and education services available
• Access to larger centres is slow and expensive
• Standard of public infrastructure (buildings, roads, parks) is a bit rundown
• Good restaurants but few social events each weekend
50% increase in income level

Option 2 – Bowen Basin coal area
• 2 year placement will improve career prospects
• Jobs for partners/children easily available
• Excellent health and education services available
• Access to large centres is quick and affordable
• Standard of public infrastructure (buildings, roads, parks) is very high
• Few restaurants but variety of social events available each weekend
100% increase in income level

Option 3 – Close to Queensland Coast
• 3 year placement will improve career prospects
• Jobs for partners/children moderately available
• Most health and education services available
• Access to large centres is quick but expensive
• Standard of public infrastructure (buildings, roads, parks areas) generally good
• Good restaurants and variety of social events weekend
10% increase in income level

Option 4 – In south-east Queensland
• 5 year placement will improve career prospects
• Jobs for partners/children difficult to find
• Some health and education services available
• Access to large centres is slow but affordable
• Standard of public infrastructure (buildings, roads, parks) about average
• Few restaurants or social events
20% increase in income level

Please indicate one preference: (Tick one)

1	***Option 1***	2	***Option 2***
3	***Option 3***	4	***Option 4***
5	***I am undecided***		
6	***I would not move to any of these locations***		

Figure 4 Example choice set used in survey

The choice sets were introduced to survey respondents in the following way:

> *In the next few questions, we ask you about what factors are important for you in selecting where you might like to live. In each question, we are going to give you four options for moving from your current town to a different area in a couple of years time. Each option is described in different, but similar ways.*
>
> *The options given are all to move to a medium sized town somewhere in Queensland as described below*
>
> - *10,000 – 15,000 people*
> - *Small shopping centre (Woolworths)*
> - *Several pubs, some cafes, couple of restaurants, service stations, range of shops for local industries*
> - *A couple of hours drive to the next major centre*
> - *Housing a bit old-fashioned*
> - *Friendly people, tennis, golf, bowls, but a bit remote*
>
> *In a couple of years time, you/your partner are offered a job or business opportunity at this town. What would it take to make you consider shifting to that town?*
>
> ***There are no right or wrong answers – we are just interested in your opinions. There are four similar choice sets on the pages that follow.***

2.5 Performance of the survey

A survey of residents was undertaken for three centres of Blackwater, Brisbane and Rockhampton using a drop-off/collect technique. The survey was conducted during October, November and December 2004. A general quota of 100 residents was targeted for each centre, and the selection method was applied consistently until this quota was met. Potential respondents to be approached were identified systematically (every third house in every third street) within neighbourhoods selected at random from a map of each centre. To allow for diversity in respondent lifestyles, the timing of questionnaire distribution was varied and covered weekends and weekdays, mornings, afternoons and early evenings. A trial was conducted in Rockhampton and confirmed that the intended approach was feasible.

To seek their participation, residents were approached at home, provided with an overview of the study's purpose and asked if they would complete the questionnaire and place it in an agreed location for collection. Respondents were given at least half a day to complete the survey in their own time. Some residents, who were not initially prepared to take the questionnaire, changed their mind upon hearing that the results of the survey were being provided to the Queensland Government. Of the 527 questionnaires distributed, 339 were completed and returned, giving a 64 percent response rate. The response rate varied in each centre, ranging from 40 percent in Rockhampton to 86

percent in Brisbane and 87 percent in Blackwater. Once collected, the questionnaire results were collated in Rockhampton.

Table 2 Attributes and levels for the choice sets.

Attributes	**Levels**
Length of Placement	1, 2, 3, 5 years
Jobs available for partners and families	• Easily available, • moderately available, • difficult to find, • very rare
Health and education services available	• Excellent, • most, • some, • almost none
Access to larger centres	• Quick and affordable, • quick but expensive, • Slow but affordable, • difficult and expensive
Standard of public infrastructure	• Very high, • generally good, • about average, • Very rundown
Leisure and recreation	• Good choice of restaurants and variety of social events available each weekend, • Few restaurants but variety of social events available each weekend, • Good choice of restaurants but few social events available, • Few restaurants or social events available
Increase in income level	10%, 20%, 30%, 100%

3. Results of standard questions

4.1 Introduction

The questionnaire asked residents to answer a range of questions relating to their perceptions of the services, facilities and infrastructure in their centre. This section presents the results of the questionnaire for each centre. It commences with a demographic comparison of centres which is then applied to discussion regarding the results of the community attitude questions. This section contains the majority of the survey, with the exception of questions 9 to 12, which will be examined more closely in chapter 5.

4.2 Demographic profiles

The demographic section of the questionnaire provides a general overview of the respondents in each centre and characteristics of their household. Broad observations that can be made from this section suggest that the overall sample achieved for each centre is consistent with expectations for their greater populations. Notable points of difference between the centres relate to age, income, occupation and number of persons in households:

- Rockhampton respondents were generally older than those from Blackwater and Brisbane.
- The sample from Blackwater reported generally higher incomes, followed by Brisbane respondents and then Rockhampton who had a much greater proportion of low income-earners.
- While Rockhampton appeared to feature a mix of different occupations, there were a greater proportion of respondents in the retired/pensioner category than for the other centres. Brisbane reported a higher percentage of professionals, managers and administrators and volunteer/home duties/students, and Blackwater respondents' main household occupations were production and transport workers or tradespersons.
- Brisbane households were less likely to include two adults and children than Rockhampton or Blackwater, suggesting a greater proportion of single people, and Blackwater respondents generally reported a traditional family structure of two adults and some children.

Gender

Of the total group of respondents, sixty-two percent were female. The greatest split was in Blackwater, where only one quarter of respondents were male. This could be due to the centre's concentration of mining-related occupations leading to males in the household being unavailable during survey distribution.

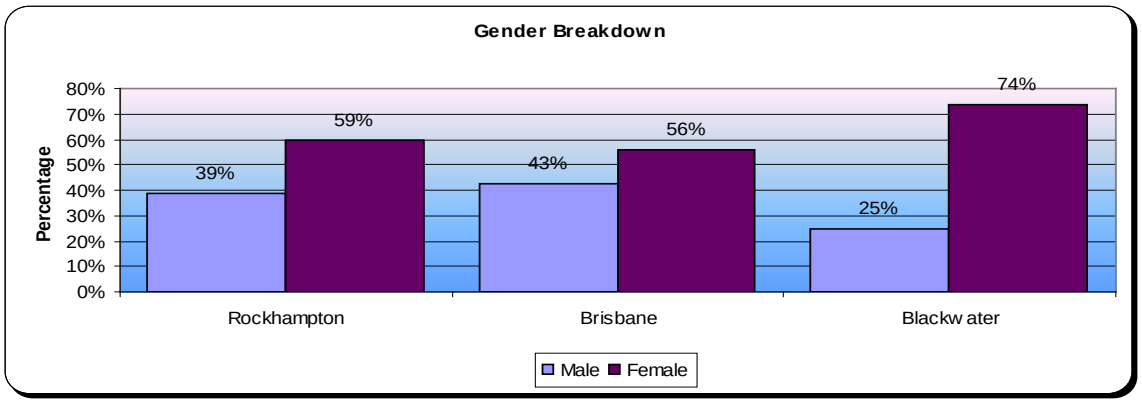

Figure 3 Gender Breakdown

Age

Of the respondents from Brisbane, fifty percent were aged 30 years or younger. While that same percentage of respondents in Blackwater and Rockhampton were aged 45 years or younger, twenty-three percent of respondents from Rockhampton were aged over 65 compared to only four percent from Blackwater and six percent from Brisbane. Generally, Brisbane respondents included a greater proportion of people beginning their working lives, Blackwater respondents were mostly at an age where their careers are likely to be well established, and almost a quarter of Rockhampton respondents have probably left the workforce.

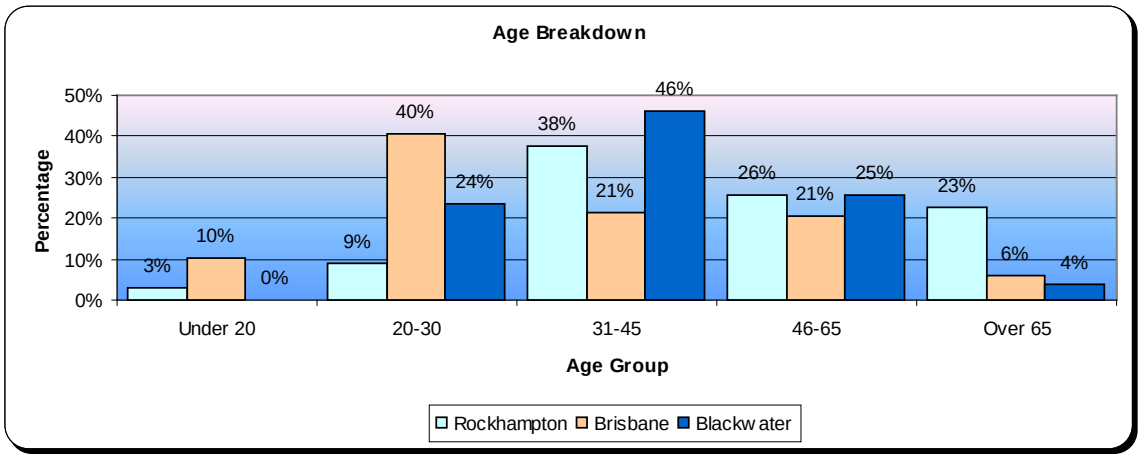

Figure 4 Age Breakdown

Marital Status

Close to seventy percent of respondents stated that they have a partner. Brisbane respondents were slightly less likely to have a partner than Rockhampton and Blackwater respondents were the most likely to have a partner.

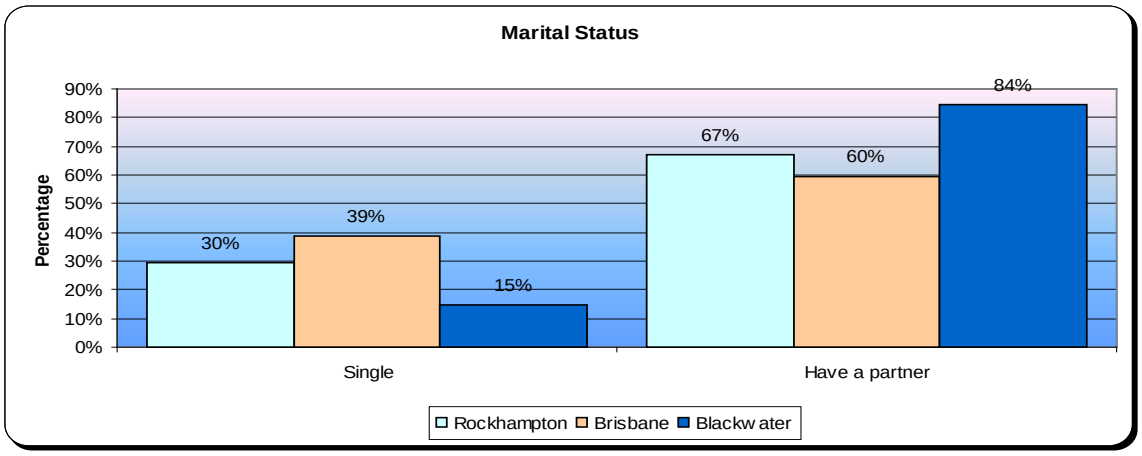

Figure 5 Marital Status

Persons in the household

The majority of households contained two adults and no children. Brisbane and Rockhampton reported a larger number of households with only one adult, and Brisbane responses included a higher proportion of households with more than two adults. Blackwater residents appeared more likely to have children, which is consistent with its age spread (mostly 20 to 65 year olds) and high proportion of two adult households. The high percentages of households with no children in Brisbane and Rockhampton have different explanations, considering age and marital status in these centres. Brisbane's younger age profile and slightly lower proportion of respondents with no partner suggests young singles, however Rockhampton's older population suggests there may be many couples who have children that no longer live at home.

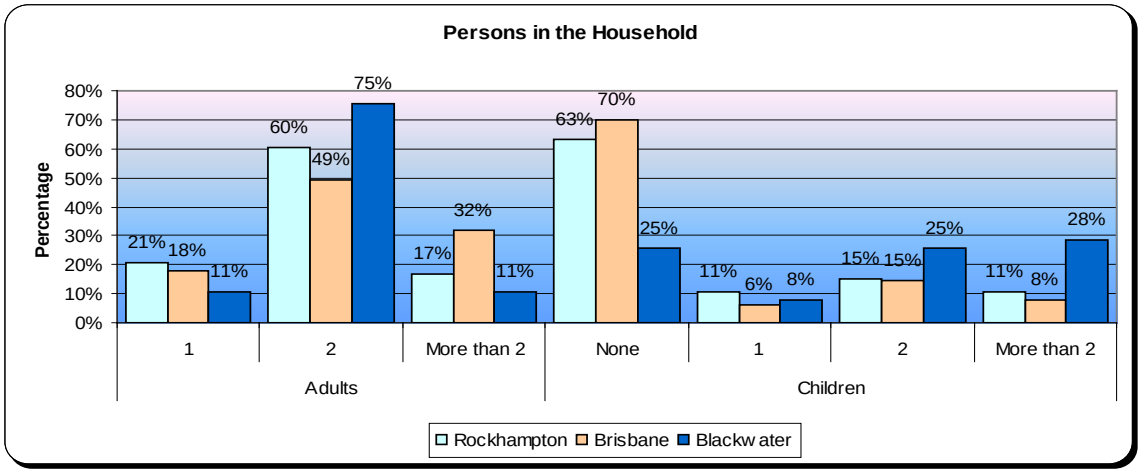

Figure 6 Persons in the Household

Special Needs

Rockhampton

Of the fourteen percent of respondents from Rockhampton who reported special needs in their household, seven percent did not identify what those special needs were. Those identified related to ageing or children's special needs with respect to education.

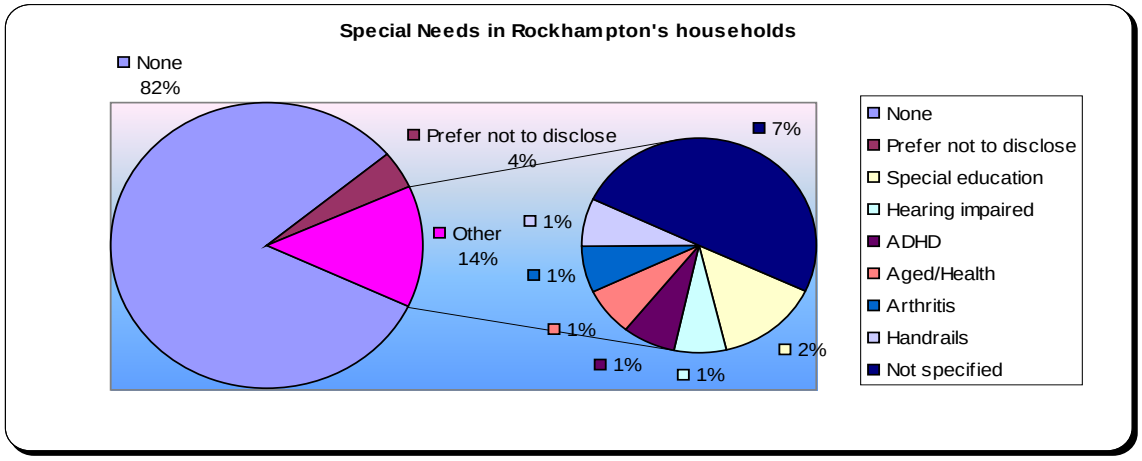

Figure 7 Special Needs in Rockhampton's Households

Brisbane

Only seven percent of Brisbane respondents reported special needs in their household. These were not identified, apart from one respondent who reported having a child with learning difficulties.

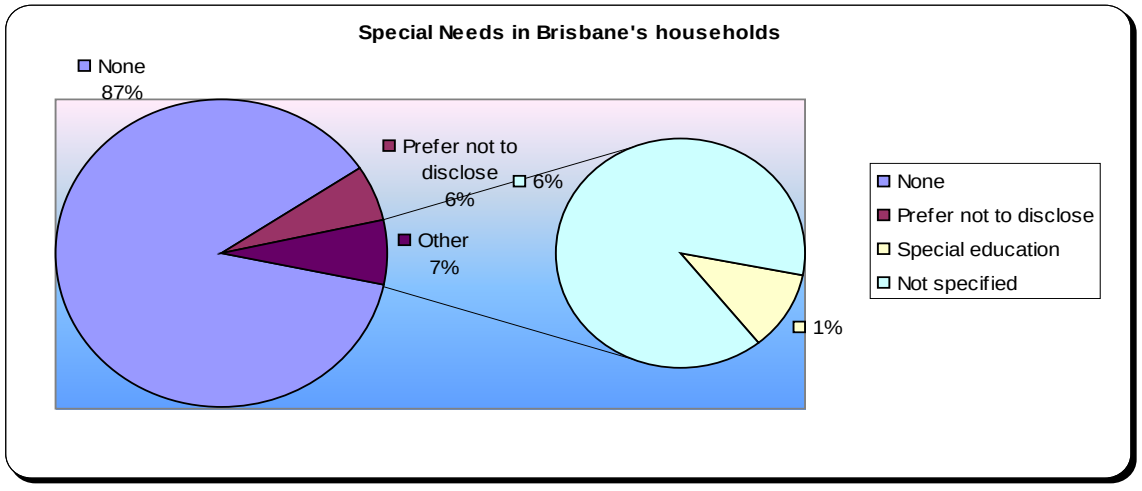

Figure 8 Special Needs in Brisbane's Households

Blackwater

Less than one fifth of Blackwater respondents indicated their household had special needs. Of the sixteen percent that did, more than half chose not to state what that need was. Those specified appeared to relate to either needs associated with children or ageing.

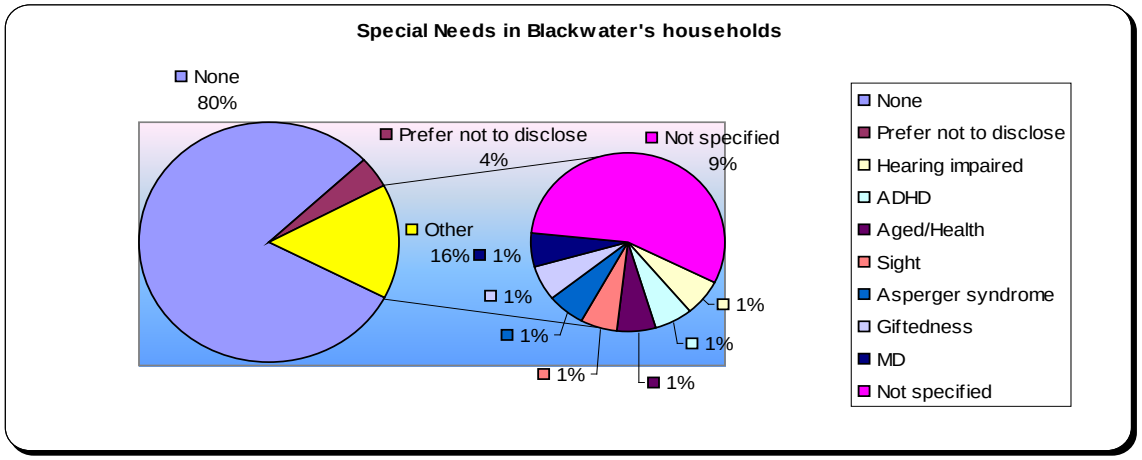

Figure 9 Special Needs in Blackwater's Households

Occupation

Each centre differed significantly in relation to main occupation. Brisbane respondents included a high number of professionals, managers and administrators and some typically low income earners including clerical/sales, volunteer/home duties/student and retired/pensioners. Rockhampton residents reported a range of occupations, with some professionals and tradespersons, not quite balanced by the lower income earners. The proportion of retired persons/pensioners was high, consistent with the higher age group of respondents from this centre. Blackwater residents reported a high number of production and transport workers and tradespersons, with only a limited number of employees in other categories. This is also consistent with the age breakdown, as most Blackwater respondents were aged from 20 to 65 and less likely to be a student or retired.

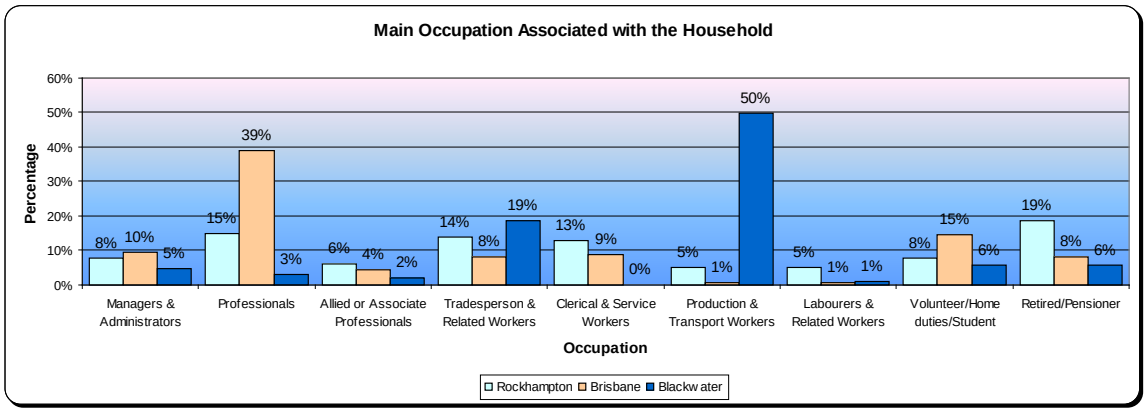

Figure 10 Main Occupation Association with the Household

Income

Respondents in Blackwater reported the highest incomes overall. This is thought to be related to employment in the mines and the shortage of skilled labour, particularly given that the main occupations associated with Blackwater were trades/technical and production and transport workers. Interestingly, the majority of Blackwater respondents were female, suggesting that they may be partners of these employees. Brisbane residents reported a mix of salary ranges. Although a significant proportion of the highest income earners were from Brisbane, this might relate to the Managers/Administrators and Professionals reported as the main occupation. The higher income might also relate to the higher number of adults in households and no children. Rockhampton reported the greatest proportion of low income earners. This may be due to the occupation mix - the high number of pensioners/retirees, clerical/service workers and labourers in proportion to other employees.

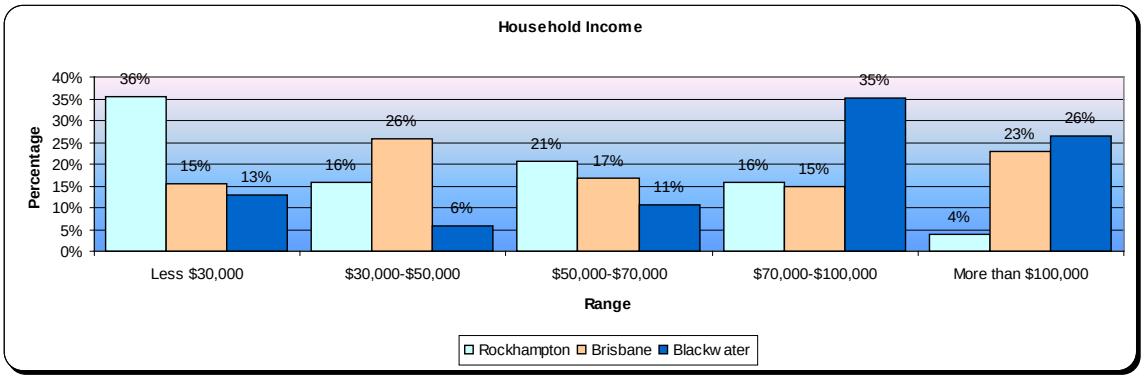

Figure 11 Household Income

4.3 Community attitude questions

Length of residency in town/city surveyed

More than half the residents surveyed have been living in their respective centre for more than ten years. Of the three centres surveyed, Blackwater respondents were the most evenly distributed across the length of residency categories. The greatest variance can be seen with respect to Rockhampton, where a much greater proportion of residents had been living in that town over the long term (over ten years) as opposed to the short to medium term (under ten years).

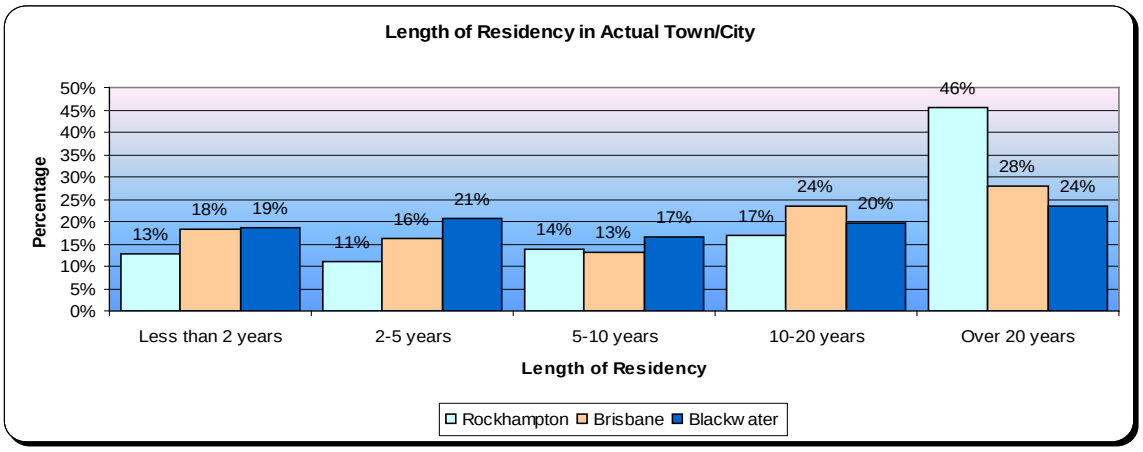

Figure 12 Length of Residency in Actual Town/City

Size of towns lived in before actual town or city surveyed

The surveyed population offered a mix of different backgrounds with respect to the size of town lived in before moving to Rockhampton, Brisbane or Blackwater. The lower proportion of respondents in Blackwater who had mostly lived in smaller towns could be due to the small size of Blackwater in relation to Rockhampton and Brisbane. A larger percentage of Rockhampton respondents have lived in smaller or similar sized towns than larger, which suggests they are less likely to come from cities such as Brisbane. More than half of respondents from Brisbane have lived in larger or similar sized locations, meaning they have mostly lived in other cities.

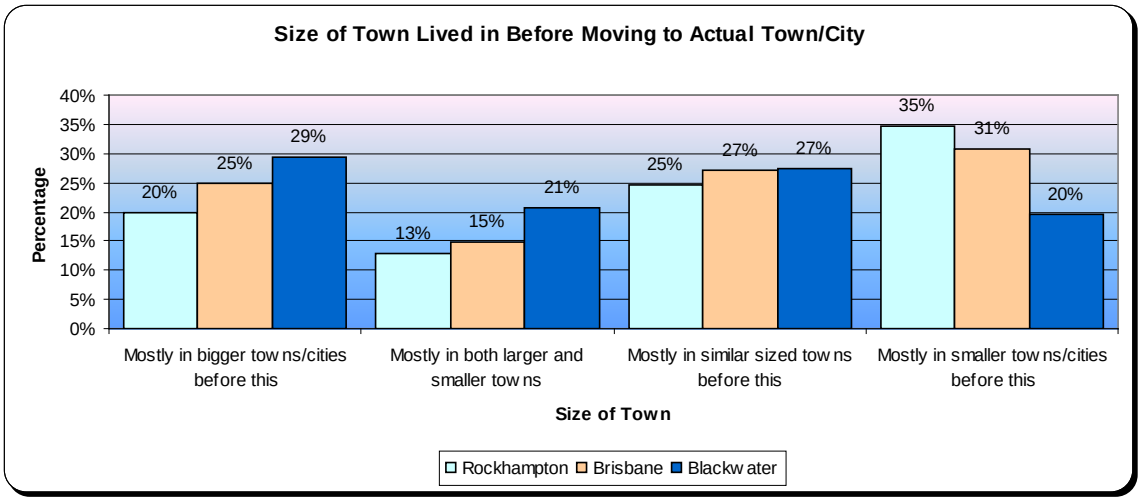

Figure 13 Size of Town Lived in Before Moving to Actual Town/City

Facilities of town or city surveyed

A significant proportion of respondents indicated that the facilities and services in their town or city catered to most if not all needs of their family. Brisbane residents were the most positive, and Blackwater residents the least positive, which is not surprising given

that as a larger centre, Brisbane residents have access to more facilities and services than Blackwater residents. Less than half of Blackwater residents stated that facilities and services catered to all or most needs of the family.

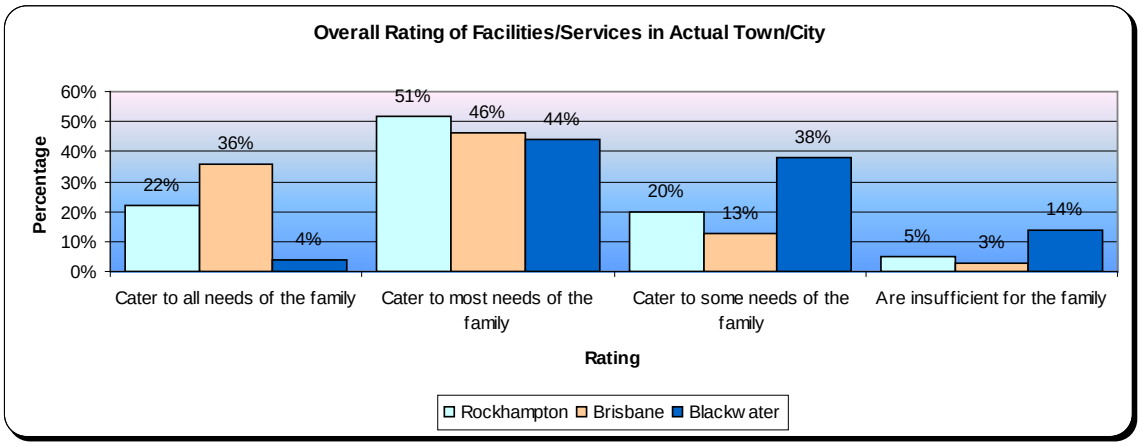

Figure 14 Overall Rating of Facilities/Services in Actual Town/City

Rating the standard of facilities

Respondents' ratings for the standard of facilities in their town/city varied depending on the location:

- Brisbane residents were generally more satisfied with their facilities, with just under three quarters of residents rating education, health and other services as adequate or slightly adequate and a higher proportion (nearly four fifths) of residents giving the same rating for housing and leisure.
- Rockhampton residents were also quite positive, with two thirds stating that education, health and other services were adequate or slightly adequate and a similar proportion giving the same overall rating to housing and leisure.
- Blackwater residents were less satisfied. More than a third of respondents from Blackwater rated the town's education, health and other services as inadequate or slightly inadequate and almost half rated housing and leisure facilities as inadequate or slightly inadequate. These results are consistent with the responses to question three, where Blackwater rated facilities and services lower than Brisbane and Rockhampton.

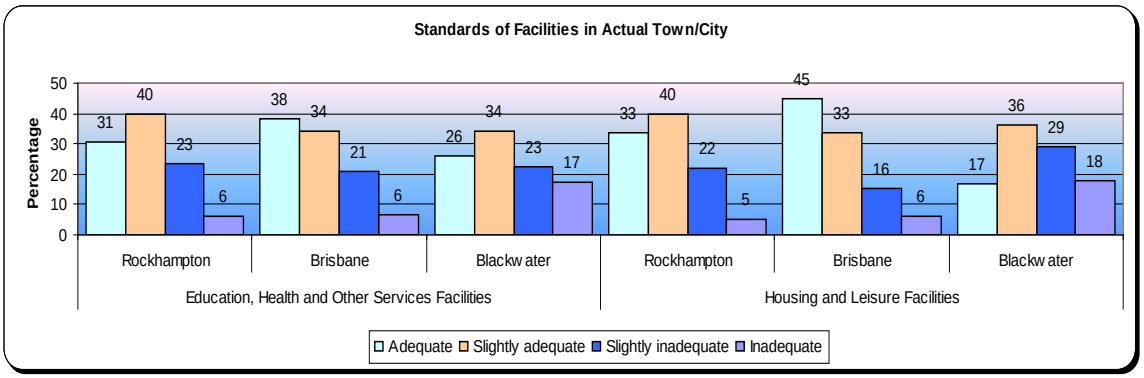

Figure 15 Standards of Facilities in Actual Town/City

When examined more closely in each centre, the lowest overall ratings were given to health and transport facilities. Blackwater residents gave housing facilities low ratings for their standard, while Rockhampton and Brisbane residents were more satisfied. Respondents from Blackwater were slightly more satisfied with the standard of police/emergency facilities. Education and entertainment were generally rated as satisfactory in standard, although Blackwater rated lower than Brisbane and Rockhampton.

Rockhampton

Rockhampton residents were generally satisfied with the standard of their education and housing facilities. A greater proportion of residents were dissatisfied with entertainment and police/emergency facilities and just over forty percent of residents felt that health facilities and transport facilities were either inadequate or slightly inadequate.

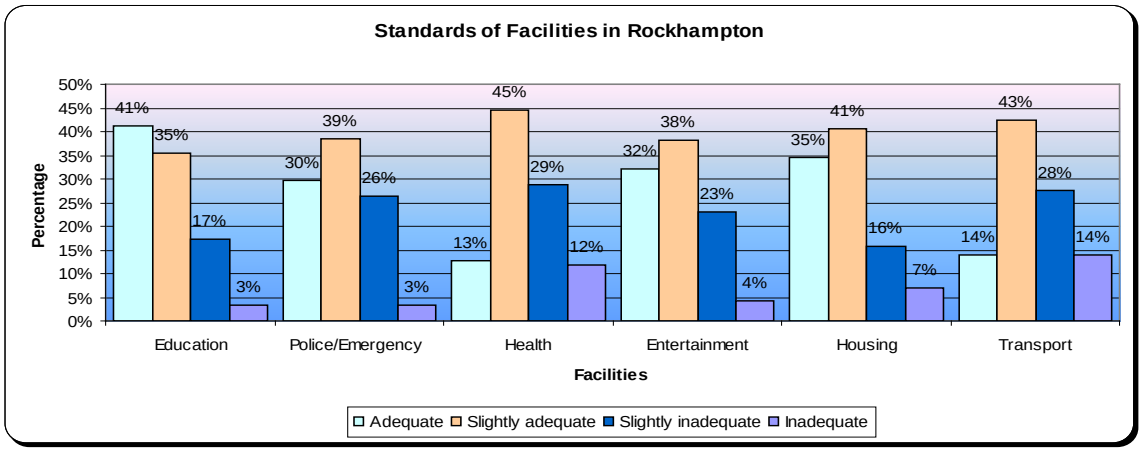

Figure 16 Standards of Facilities in Rockhampton

Brisbane

Brisbane residents were most satisfied with their housing facilities and generally rated other facilities as adequate or slightly adequate, with the exception of transport, which was rated as inadequate or slightly inadequate by almost forty percent of residents.

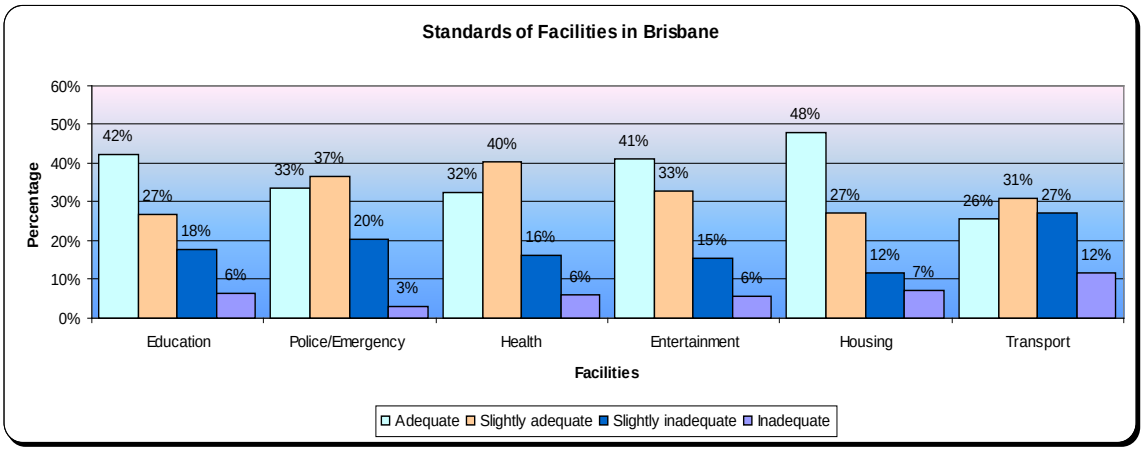

Figure 17 Standards of Facilities in Brisbane

Blackwater

Blackwater residents were most satisfied with police/emergency services, although almost one third of residents rated these services as inadequate or slightly inadequate. Education was the only other main category rated as satisfactory, with entertainment and transport achieving a mix of ratings. Of particular concern to Blackwater residents were health and housing, with these categories being rated as inadequate or slightly inadequate by fifty-eight and sixty-six percent of respondents respectively.

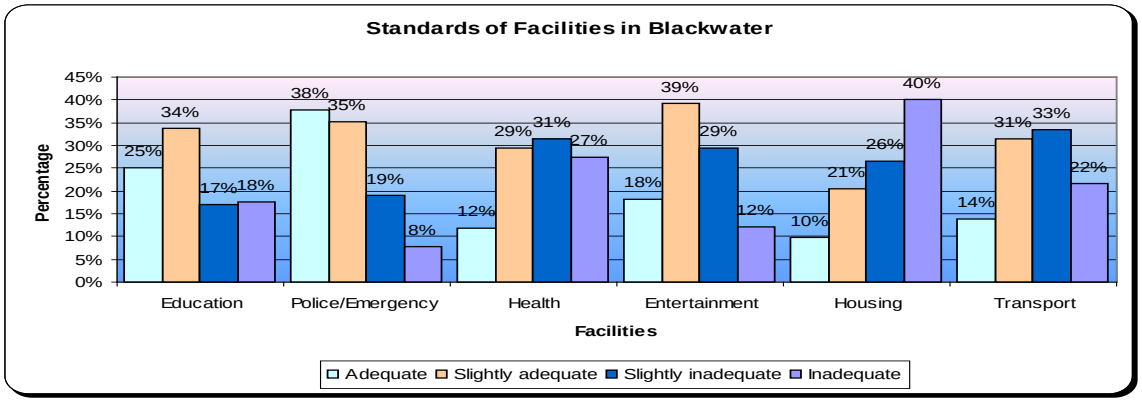

Figure 18 Standards of Facilities in Blackwater

Rating the importance of infrastructure

A majority of residents in all centres rated infrastructure as important. Education, health and other services were considered slightly more important overall than housing and leisure. While each centre rated the key infrastructure items very highly, question four shows that not all centres are as satisfied with the standards of their facilities. For example, all centres rated housing and leisure as less important, despite rating their standards quite differently.

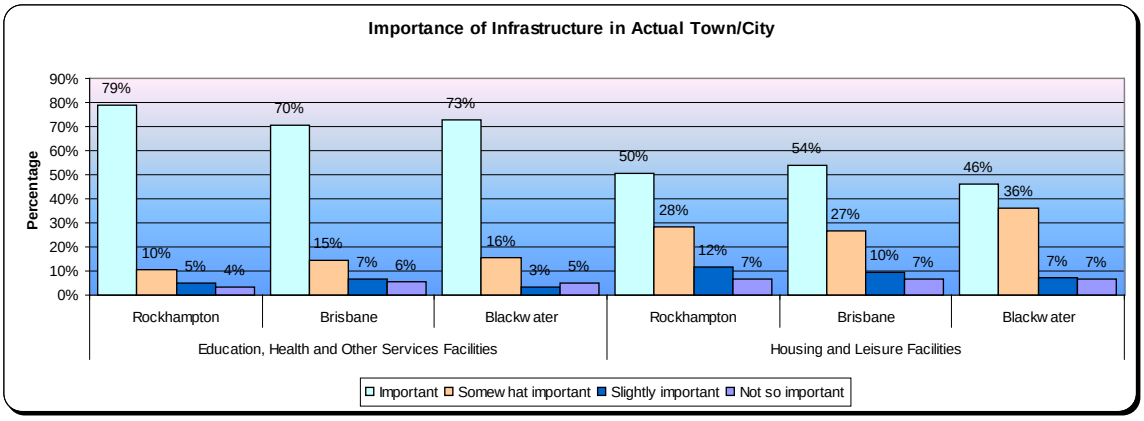

Figure 19 Importance of Infrastructure in Actual Town/City

Rockhampton

Rockhampton residents rated health, housing and police and emergency as the most important facilities, followed by education and transport. Entertainment was still generally considered to be important, but a lower proportion of residents gave it this rating. While the standard of both health and transport facilities were rated quite low in question four, health was perceived as more important than transport, as was police/emergency.

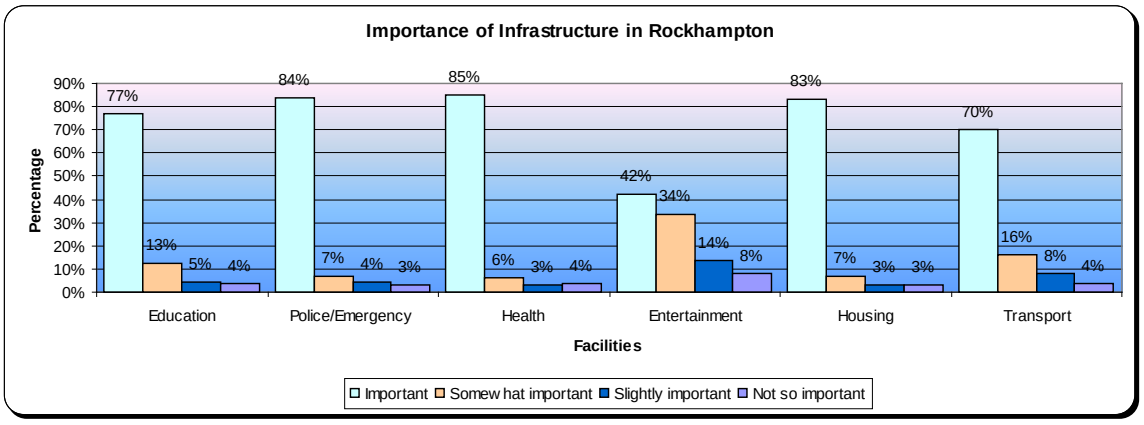

Figure 20 Importance of Infrastructure in Rockhampton

Brisbane

Brisbane residents also rated health facilities as the most important, followed by housing, transportation, police/emergency and then education. As with Rockhampton, Brisbane residents also gave entertainment a lower rating, although it was still classed as important/somewhat important overall. When compared with Brisbane respondents' ratings for the standard of facilities, housing facilities were of high importance and of adequate standard, but health and transportation facilities – also of high importance – were given the lowest ratings for standard.

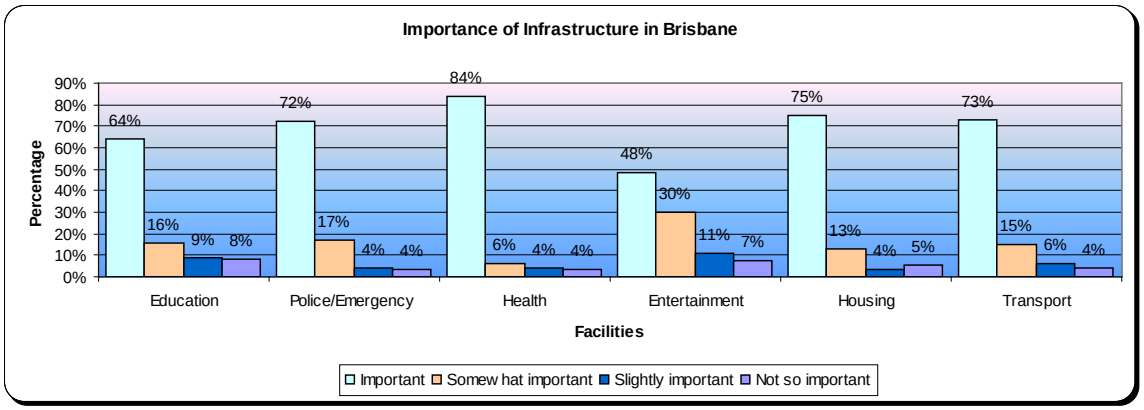

Figure 21 Importance of Infrastructure in Brisbane

Blackwater

Blackwater residents also felt health was most important, followed by police/emergency and housing. Education and transport were also generally rated as important. Entertainment was rated lower, with a greater proportion of residents stating that it was somewhat important rather than important. The most important - health facilities - were given a low rating in question four. Transport facilities were also rated comparatively low in terms of standards, however were only rated fifth-highest in terms of importance.

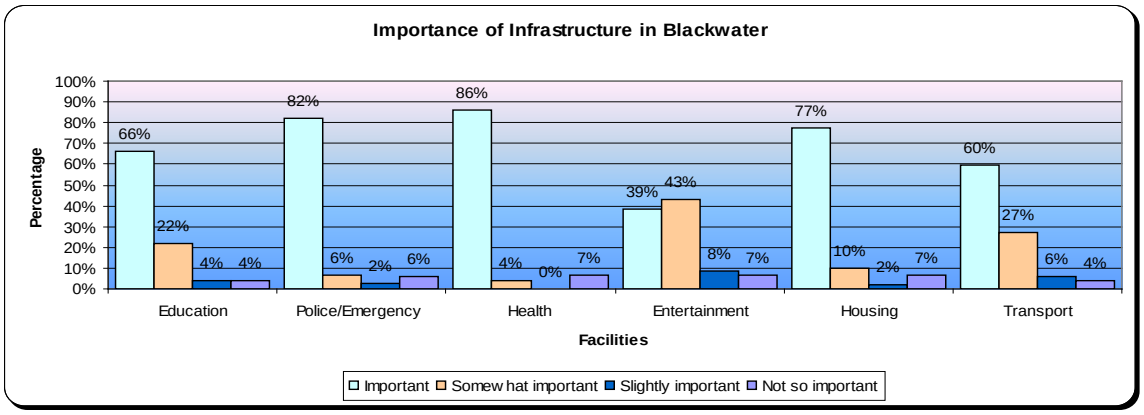

Figure 22 Importance of Infrastructure in Blackwater

Views on local government spending

Respondents rated a range of infrastructure delivered by local government in terms of whether there should be an increase or a decrease in spending on each item. Generally, the three centres were similar in terms of desired changes to spending, although Blackwater respondents generally wanted to see more spending than Brisbane and Rockhampton respondents. The areas where a difference is notable are town beautification, showgrounds, sporting grounds, youth centres, airport and sewerage system. With respect to showgrounds, sporting grounds and airport, a greater proportion of Brisbane residents wanted to see a decrease in spending than Rockhampton followed

by Blackwater residents. More Rockhampton respondents desired a decrease in spending on town beautification and youth centres than Brisbane and Blackwater. A higher proportion of respondents in Rockhampton sought an increase in spending on the sewerage system than Brisbane and Blackwater.

Rockhampton

Rockhampton residents overwhelmingly desired a decrease in spending on town halls followed by the showgrounds. Town beautification and the airport were also identified by more than half of the Rockhampton respondents as opportunities for a decrease in spending. The most popular choice for an increase in spending was aged care facilities, which is likely to relate to the large proportion of respondents who have lived in Rockhampton for more than twenty years and might be considering those facilities now or in the near future. Other facilities that were identified by a majority of respondents for an increase in funding were streets and footpaths (particularly low income earners and older respondents), roadworks, the sewerage system, youth centres and stormwater drainage. When compared with question four, it is interesting to note that the standard of transport facilities was rated relatively low, and an increase in funding is desired for roadworks, streets and footpaths, but not for the airport. From this, it can either be concluded that respondents in Rockhampton don't use the airport much or are satisfied with its standard, but that road transport is more of a concern.

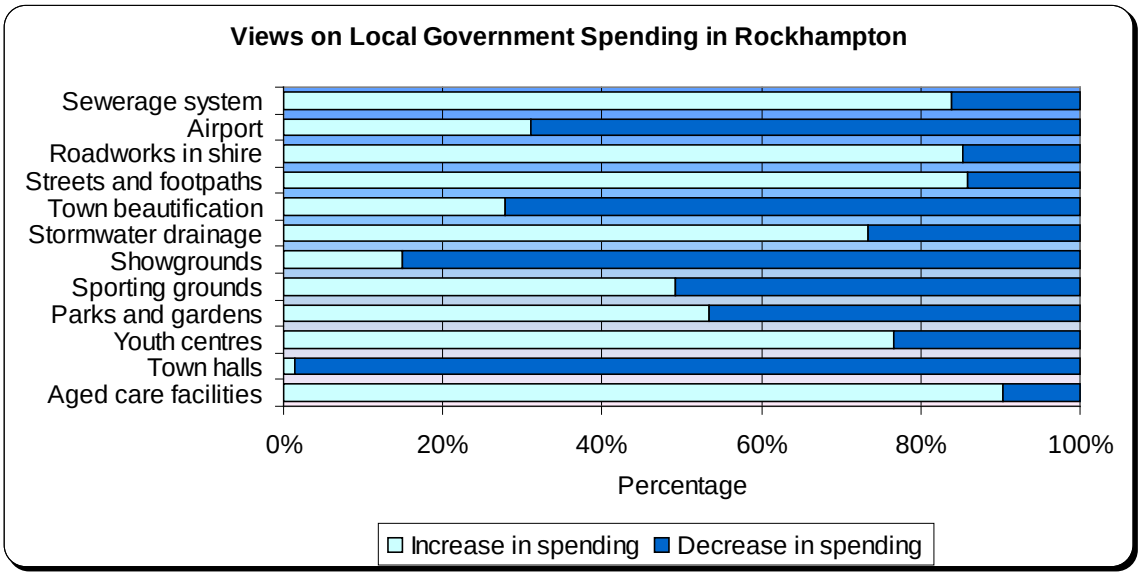

Figure 23 Views on Local Government Spending in Rockhampton

Brisbane

Respondents in Brisbane wanted to see a decrease in funding for the showgrounds, town halls, airport, sporting grounds and town beautification. An increase in funding was desired for aged care facilities (particularly by the older respondents), roadworks, streets and footpaths, youth centres, the sewerage system and stormwater drainage. This is very similar to Rockhampton, even in terms of the comparison with the standard of transportation facilities as rated in question four.

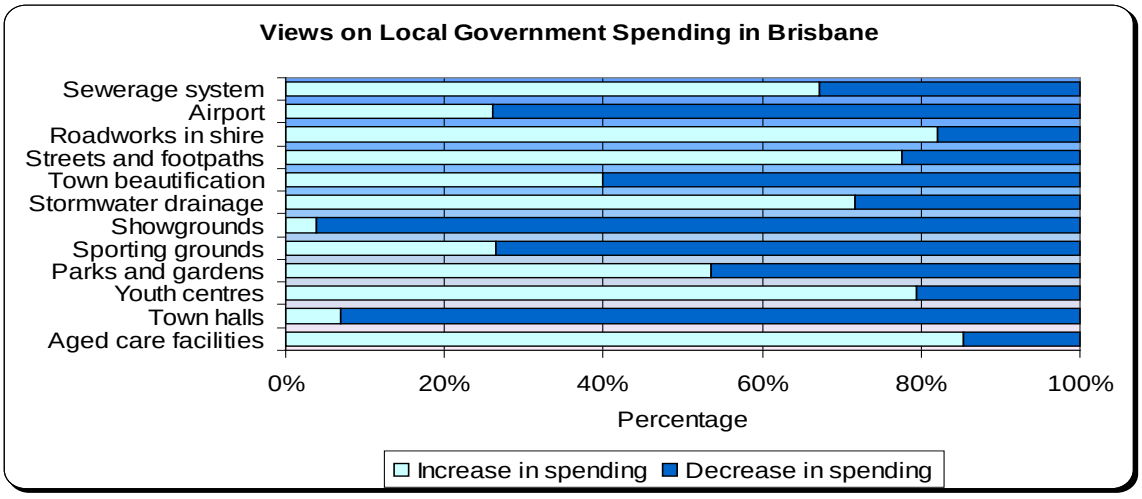

Figure 24 Views on Local Government Spending in Brisbane

Blackwater

Blackwater residents in general wanted more of an increase in spending across all items compared to Brisbane and Rockhampton. Respondents stated that a decrease in spending was desired for town halls and the showgrounds. An increase in spending was sought for youth centres, streets and footpaths, roadworks, aged care facilities and the sewerage system. Areas of difference from Rockhampton and Brisbane appear to be a greater desire spending on town beautification, parks and gardens, airport and youth centres.

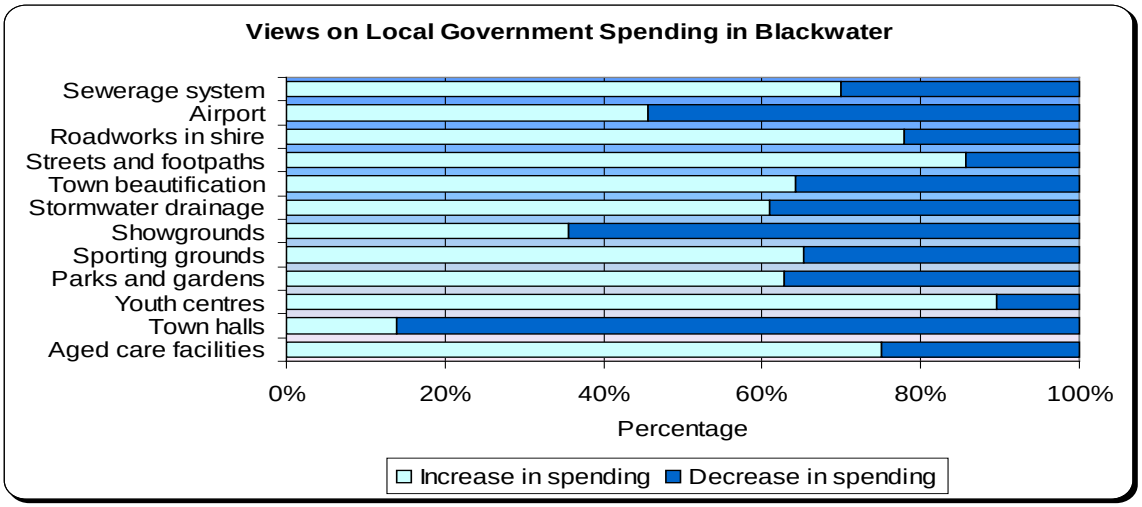

Figure 25 Views on Local Government Spending in Blackwater

Views of state area spending

As with question six, respondents from each centre indicated whether they would like to see an increase or a decrease in spending by the State Government on key portfolio areas. A greater proportion of Brisbane respondents desired an increase in spending on arts than

Rockhampton and Blackwater. Rockhampton respondents were notably less interested in spending on environmental protection than Brisbane and Blackwater. A greater proportion of Blackwater respondents indicated that an increase in spending on families was required than Brisbane or Rockhampton respondents. This might relate to the demographic profiles, with Blackwater respondents appearing more likely to have a family.

Rockhampton

Rockhampton residents expressed a desire for a decrease in spending on arts, local government and planning, natural resources and mines, environmental protection and corrective services. They sought an increase in spending on health, police, law and order, families, disability services, emergency services, main roads and transport. While the standards of health and transport facilities was rated similarly by Rockhampton respondents in question four, a greater proportion of respondents requested an increase in spending on health than on main roads and transport. This latter area of spending was also a less popular choice for an increase in spending when compared to police, law and order. Although the standard of police/emergency was rated higher than transport in question four, it was also rated as more important in question five.

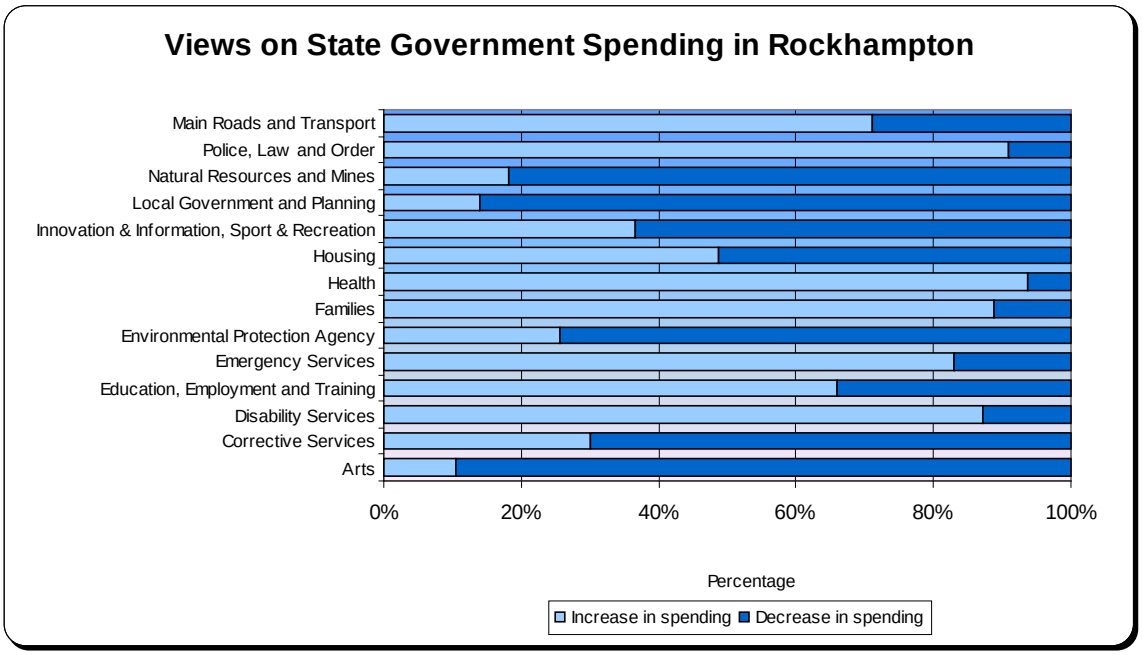

Figure 26 Views on State Government Spending in Rockhampton

Brisbane

Brisbane residents indicated a preference for a decrease in spending on natural resources and mines, local government and planning, innovation & information, sport and recreation, arts, corrective services and housing. An increase in spending was sought by a majority of respondents for health, emergency services, disability services and education, employment and training. As with Rockhampton, health was the most popular choice for an increase in spending, possibly due to the high importance placed upon

health facilities in question five. The standard of housing facilities was rated very highly in question four and this is consistent with the lower proportion of respondents in Brisbane that requested an increase in spending, compared with Rockhampton and Blackwater.

In question five, education facilities were rated as less important than transport and in question four, the standard of these facilities was rated as higher than transport facilities, yet a greater proportion of respondents indicated a desire for an increase in spending on this item. This may be due to the employment component being considered of importance. Police, law and order was not as popular a choice for an increase in spending as might be expected given the importance placed on these facilities in question five and the relatively low rating of their standards in question four (although older respondents were more likely to desire an increase in spending on this item). A lower proportion of responses requesting an increase in spending on families may relate to the demographics of Brisbane respondents, with fewer families assumed for the respondent profile of this centre.

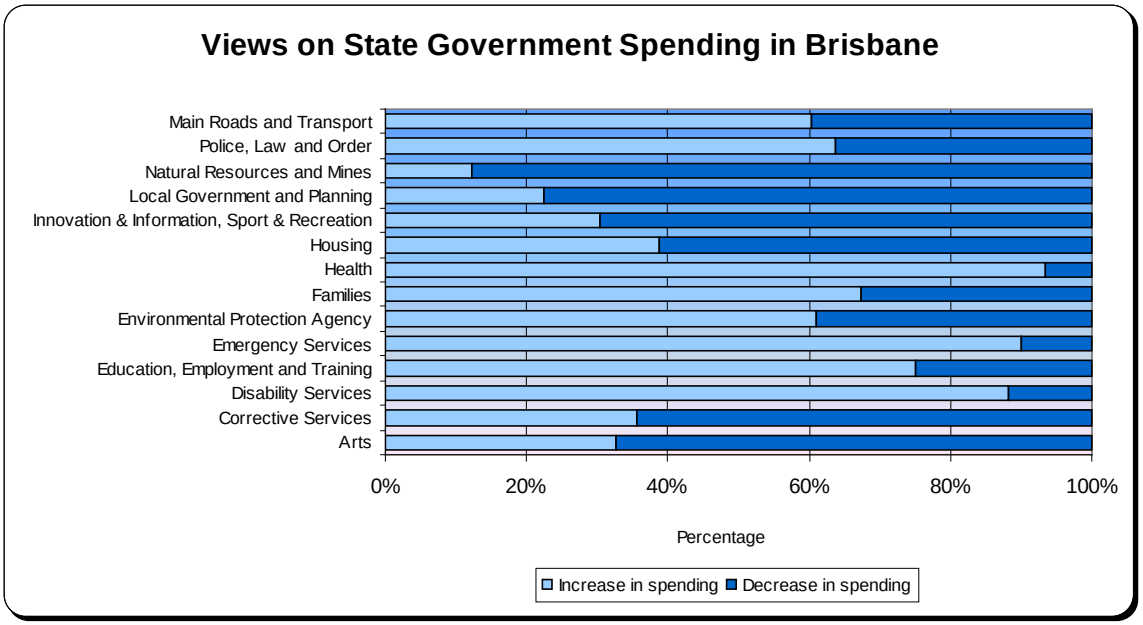

Figure 27 Views on State Government Spending in Brisbane

Blackwater

Blackwater residents desired a decrease in spending for arts, local government and planning, natural resources and mines and corrective services. Areas where an increase in spending was sought include health, families, police, law and order, housing, disability services, emergency services, education, employment and training.

Health, as the most important item in question five and one of the lowest rated facilities in terms of standard in question four, was the most popular choice for an increase in spending. While they rated the standard of police/emergency relatively highly in question four, most Blackwater respondents requested an increase in spending on police,

law and order and emergency services. This is likely to relate to the high importance placed on these facilities in question five. Housing was also an unsurprising item chosen for an increase in spending, given it was rated as the lowest standard facility in question four and of some importance in question five.

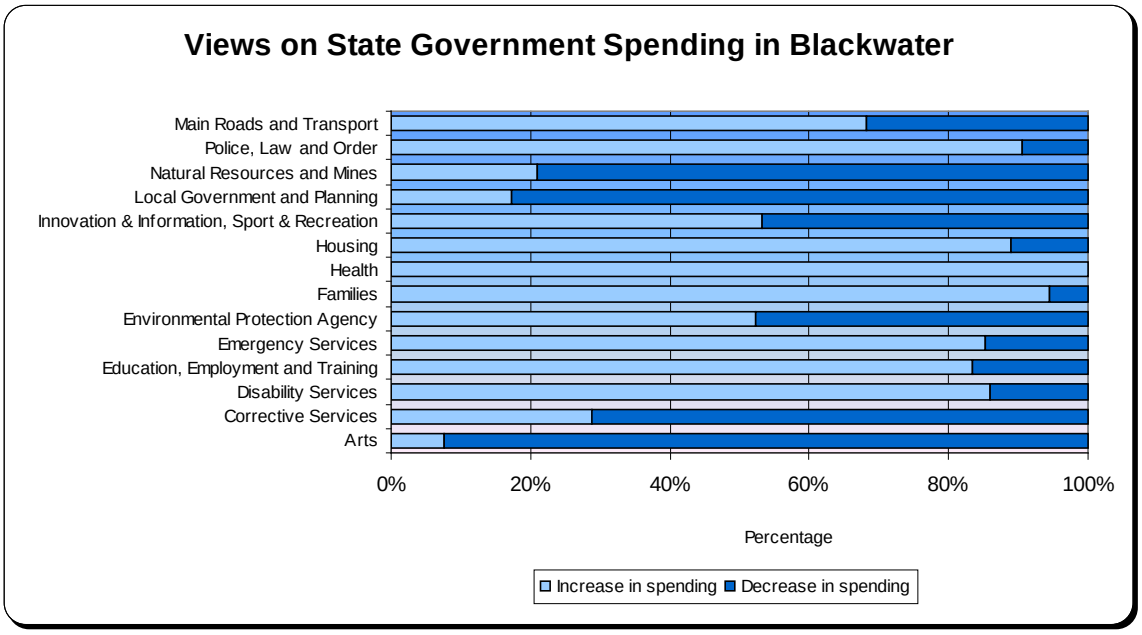

Figure 28 Views on State Government Spending in Blackwater

Preparedness to pay once-off tax

Over seventy percent of respondents indicated that they may be prepared to pay a once off tax to fund an initiative. Close to twenty three percent overall stated they were not prepared to pay the tax. Blackwater residents were the least supportive, and Brisbane residents were the most supportive.

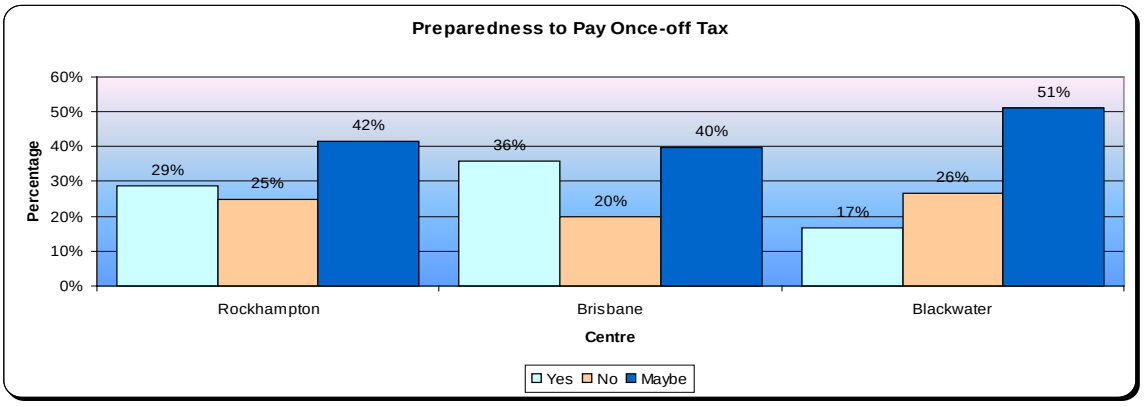

Figure 29 Preparedness to Pay Once-off Tax

4.4 Summary

While the three centres differed on a number of areas, they were more similar in priorities than different. Health, security and education consistently came out as the most important infrastructure issues for respondents and entertainment was always the least important. In terms of rating the standard of facilities, Brisbane generally indicated the highest satisfaction and Blackwater the lowest. Facilities that were given the lowest rating in terms of standard were health (Rockhampton, Brisbane and Blackwater), transport (Rockhampton, Brisbane and Blackwater) and housing (Blackwater).

Views on local government spending were generally consistent across the centres, with an increase in spending sought for aged care and road works by a majority of respondents in all centres. Common areas where a high proportion of respondents sought a decrease in spending were town halls and showgrounds. Views on state government spending differed across the centres, however a high proportion of respondents generally sought an increase in spending on items related to health/disability, police/emergency, transport and families. Desired decreases in state government spending related to the arts, local government and planning and natural resources and mines.

When considering relocation from their centre, respondents stated that available health and education services, income level and jobs for partners/children were the most important attributes. Brisbane respondents appeared to be the most prepared to move and Rockhampton the least.

5 Results of the choice modelling experiment

5.1 Overview

In the choice modelling experiment, participants were given a series of tradeoffs relating to their potential relocation to another centre, and asked to indicate their preferred choice in each. The number of choices made by respondents are summarised in the following figure. As expected, the dominant preference of respondents was to stay in their own community. Other key patterns that emerged were that Brisbane residents were interested in moving to Queensland Coast communities, Blackwater residents were not interested in moving to south-east Queensland, and Rockhampton residents were less interested in moving to Bowen Basin communities.

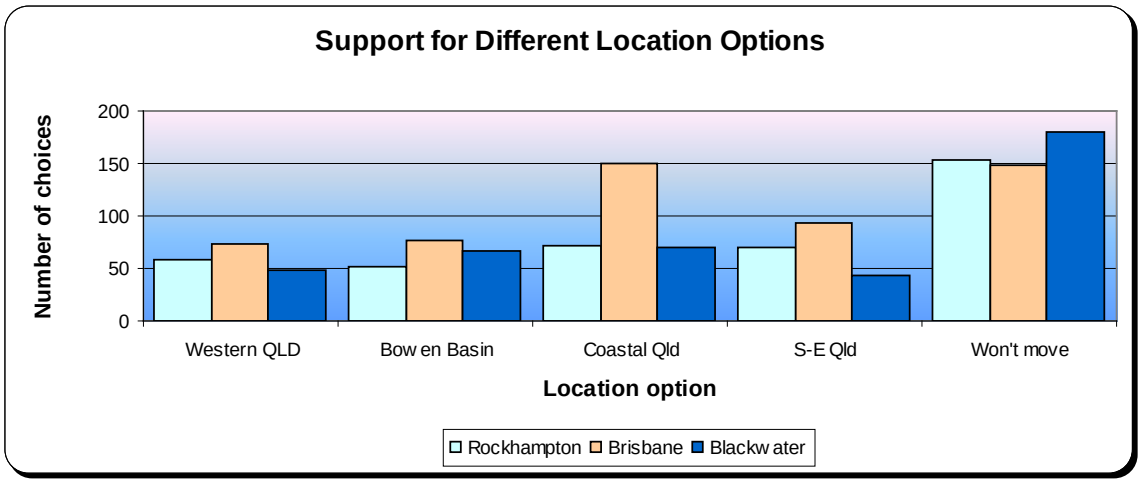

Figure 30 Support for different location options

Those respondents who indicated that they would not accept any of the relocation alternatives were asked to indicate their key reasons. The proportion of respondents by centre who were choosing not to move are summarised in the figure below.

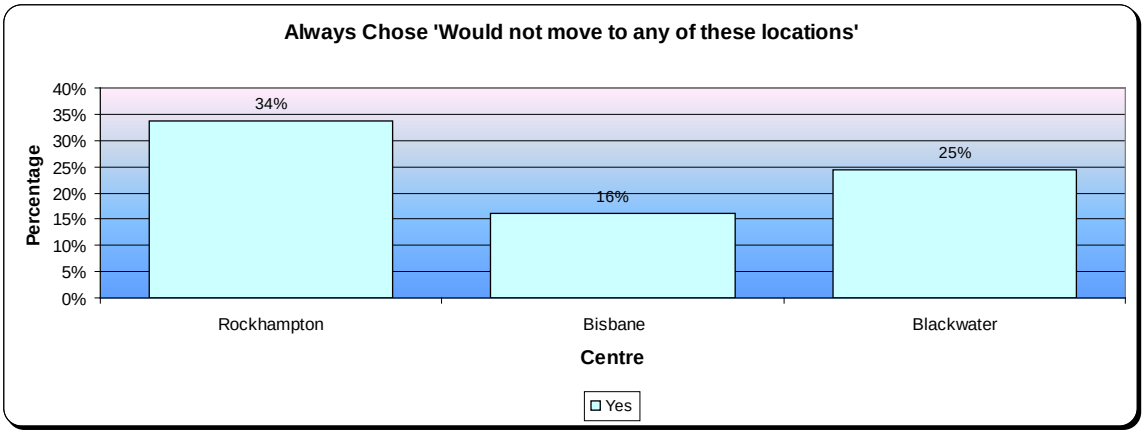

Figure 31 Proportion choosing "would not move to any of these locations"

Responses about the key reasons for not taking a relocation option are summarised below. The results show that the majority of these respondents were satisfied in their current location and not interested in moving.

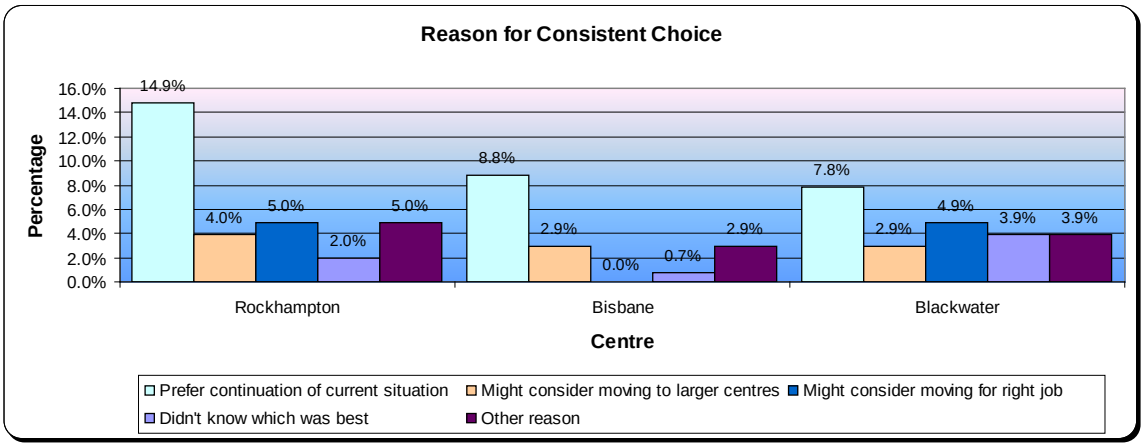

Figure 32 Key reasons for not choosing a relocation option

The choice information is analysed using a logistic regression model, which examines a series of choices to determine which factors are more likely to affect a choice. This allows a calculation of the probability that identified respondents would choose a particular option based on its composition. The probability that a respondent would choose a particular relocation option can be related to the levels of each attribute making up that option's profile (and the alternative profiles on offer), the socio-economic characteristics of the respondent, and other factors. The latter might include the ways in which the choices are framed to respondents through background information and structure of the survey, and the way in which the surveys are collected (Bennett and Blamey 2001, Rolfe, Bennett and Louviere 2002).

The logistic regression function can be used to generate probabilities of choice, and estimates of economic value between different choice profiles. Most interest usually lies in finding the difference in economic value between the status quo option and specific policy relevant profiles. As well as these estimates of economic values, the models can also be used to generate estimates of marginal value changes for each attribute. Known as part-worths, implicit prices, or attribute values, these provide an indication of the value to respondents of each one unit change in the provision of an attribute (Rolfe, Bennett and Louviere 2000).

A summary of the logistic regression models for the three locations is presented in the table below. The results show that while each model was significant (chi-square test), the rho-square statistics revealed an acceptable model for the Blackwater data, a weak model for the Rockhampton data, and a very weak model for the Brisbane data. These results fit with a priori expectations, as the location options included in the sets are likely to be very relevant to Blackwater residents, partially relevant to Rockhampton residents, and not so relevant to Brisbane residents.

The results show that only some of the attributes were important in explaining respondent choices. The signs on the coefficients met with a priori expectations. For example, higher levels of income were positively associated with choices, while longer term commitments, reduced jobs for family members, reduced services, reduced access and poorer infrastructure were negatively associated with choices.

The coefficients for the location options were significant and negative in each model. This confirms that the location descriptions were important drivers of choices, and that residents in each community preferred not to relocate.

For each community surveyed, the *Location Type*, *Jobs for Family*, and *Changed Income* were consistently important attributes. For Blackwater residents, *Health and Education Services* and *Access to Larger Centres* were also important. This may be because those are familiar issues to residents. For Brisbane residents, *Years of Commitment* was also an important attribute, while for Rockhampton residents *Health and Education Services* and *Social and Recreation* factors were important. These variations between the models indicate that the factors that people find important in relocation choices vary between communities.

Table 3 Basic Model – experimental codes only

	Blackwater	Brisbane	Rockhampton
Years of commitment	-0.033	-0.122***	-0.089
Jobs for family	-0.303***	-0.114**	-0.289***
Health and ed. Services	-0.289***	-0.045	-0.258***
Access to centres	-0.116*	-0.006	-0.059
Infrastructure	-0.027	-0.032	0.038
Social & recreation	0.019	-0.056	-0.160***
Changed income	0.223***	0.152***	0.164***
ASC WESTERN	-4.011***	-1.218**	-2.598***
ASC BOWEN BASIN	-3.659***	-1.204**	-2.744***
ASC COASTAL QLD	-3.594***	-0.531	-2.421***
ASC_SEQ	-4.114***	-0.982*	-2.388***
Number of observations	408	544	404
Log Likelihood	-559.37	-835.12	-582.86
Adjusted Rho-square	0.142	0.041	0.098
Chi-Square statistic (35 D. of F.)	64.53	28.57	61.04

*** = significant at the 1% level, ** = significant at the 5% level, * = significant at the 10% level.

The importance of the various attributes to the relocation choices can be demonstrated with the aid of the following figure. To allow comparisons to be drawn between the different models, ratios of each coefficient against the *Changed Income* coefficient have been calculated and plotted.

The results show that that for Blackwater and Rockhampton residents, the availability of *Jobs for Family Members* and the provision of *Health and Education Services* were relatively more important than *Changed Income* in relocation choices. *Social and Recreation* factors were also an important influence on the choices for Rockhampton residents. For Brisbane residents, *Changed Income* was the dominant attribute in choices, with *Years of Commitment* and *Jobs for Family Members* having the next highest impact. For each community, the *Standard of Infrastructure* had little impact on choices made.

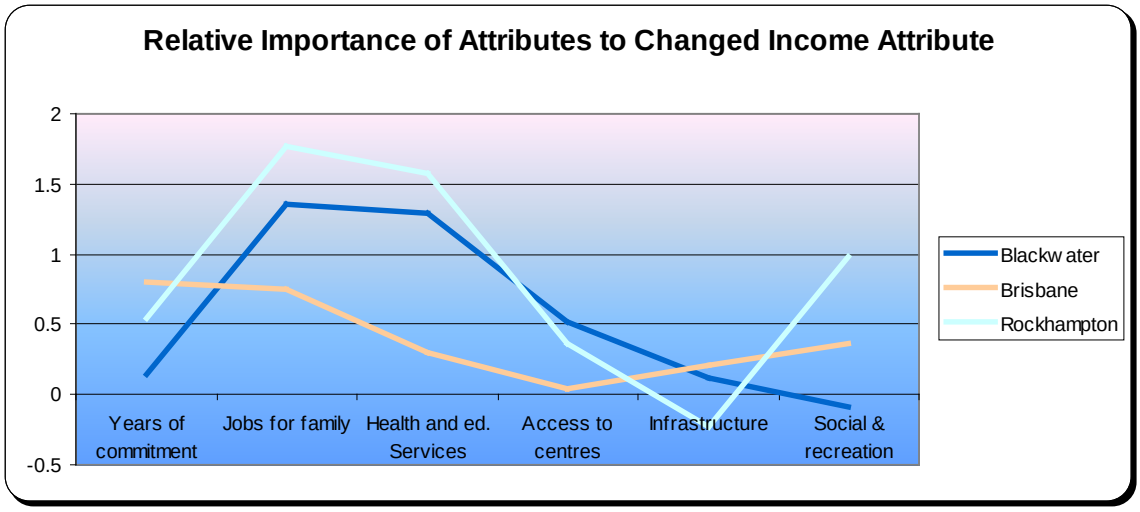

Figure 33 Relative importance of attributes to *Changed Income* attribute

These models can be extended in two important ways, and presented in the next two sections.

5.2 Impact of socio-economic factors on respondent choices

Expanded models were developed for each data set where demographic factors were included. Full models are reported in Appendix 1, and summary results are reported below in Table 5-2. The results indicate that the important demographic factors influencing relocation choices vary between communities.

Table 4 Summary expanded models for each community

	Blackwater	Brisbane	Rockhampton
Years of commitment	-0.032	-0.116**	-0.053
Jobs for family	-0.286***	-0.118**	-0.348***
Health and ed. Services	-0.283***	-0.043	-0.258***
Access to centres	-0.132*	-0.018	-0.028
Infrastructure	-0.098	-0.059	0.030
Social & recreation	0.002	-0.048	-0.175***
Changed income	3.80E-06*	0.159***	0.120*
Western Queensland			
Constant	-6.427***	-0.841	-6.222***
Gender	-0.021***	-0.425	-0.405
Age	-0.510*	-0.578***	0.285
Marital status	-0.158	0.629*	0.358
Adults in household	-0.495	-0.341**	0.643*
Children in household	-0.197	0.049	0.109
Special needs	1.454*	0.502	0.517
Income	2.13E-05***	7.69E-06***	5.48E-06
Bowen Basin			
Constant	-6.659***	0.915	-2.776
Gender	-1.027**	0.296	-0.727*
Age	0.122	-0.500***	-0.211
Marital status	0.198	0.918**	1.156**
Adults in household	0.069	-0.250	-0.151
Children in household	-0.114	0.066	-0.235
Special needs	0.284	-1.170**	0.479
Income	2.83E-05***	-2.05E-06	-8.13E-06
Coastal Queensland			
Coastal	-5.217***	-0.879	-5.879***
Gender	-0.512	-0.132	-0.420
Age	-0.033	-0.340***	0.192
Marital status	1.128	0.510*	0.464
Adults in household	-0.805*	-0.053	0.842***
Children in household	-0.033	-0.278**	-0.050
Special needs	-0.148	0.181	0.603
Income	1.66E-05***	7.59E-06**	-5.18E-06
South-east Queensland			
Gender	0.250	-0.216	-0.382
Age	0.945**	-0.347**	0.273
Marital status	-0.713	0.438	0.367
Adults in household	0.224	-0.196	0.590*
Children in household	0.370*	-0.229*	0.142
Special needs	2.440**	-0.398	-0.007
Income	4.98E-05***	9.96E-06**	5.29E-06
Number of observations	344	544	328
Log Likelihood	-420.065	-756.183	-451.74
Adjusted Rho-square	0.219	0.065	0.118
Chi-Square statistic (35 D. of F.)	175.56	89.37	101.37

Table 5 Significant demographic factors influencing relocation choices

	Blackwater	Brisbane	Rockhampton
Western Queensland			
Gender	Males more likely to relocate		
Age	Younger people more likely to relocate	Younger people more likely to relocate	
Marital status		People with partner more likely to relocate	
Adults in household		People from smaller households more likely to relocate	People from larger households more likely to relocate
Special needs	People with special needs more likely to relocate		
Bowen Basin			
Gender	Males more likely to relocate		Males more likely to relocate
Age		Younger people more likely to relocate	
Marital status		People with partner more likely to relocate	People with partner more likely to relocate
Special needs		People with special needs less likely to relocate	
Coastal Queensland			
Age		Younger people more likely to relocate	
Marital status		People with partner more likely to relocate	
Adults in household	People from smaller households more likely to relocate		People from larger households more likely to relocate
Children in household		People with more children more likely to relocate	
South-east Queensland			
Age	Older people more likely to relocate	Younger people more likely to relocate	
Adults in household			People from larger households more likely to relocate
Children in household	People with more children more likely to relocate	People with fewer children more likely to relocate	
Special needs	People with special needs more likely to relocate		

5.3 Identifying the part-worths associated with relocation choices

A different way of analysing the choices made is to identify how respondents made their tradeoffs relative to the actual levels of income change involved. To do this, the level of income change in each alternative chosen has been multiplied by the income level indicated so that choices can be related to the actual levels of income change anticipated[1].

The models were then recalculated. To compare results between models, part-worths were estimated for significant variables in each model, using the following equation:

Part-worth = Attribute coefficient/changed income coefficient x -1

Summary results are shown in the following table. In each model, the part-worths show the increase in annual income necessary to compensate for a decline in one level of the other attribute. As there were four levels for each attribute, there were three potential changes involved between levels. For example, with Brisbane respondents considering the *Level of Commitment*, the annual premium needed to commit to a second year = $19,691, the annual premium needed to commit to three years = 2 x $19,691, and the annual premium needed to commit to five years = 3 x $19,691.

With each of the other attributes, the results also relate to the appropriate level of the 'base case' or situation at hand in the local community. For example, while Blackwater residents value a reduction in the level of Health and Education services at $27,589, this only applies to potential reductions from their existing standard of services. If a relocation choice involves an improvement in the level of service available, then residents might accept a **reduction** in annual income of $27,589. In this way the part-worths signal the value of changes within each attribute no matter whether the change is a loss or improvement for the residents.

A similar analysis is available for the location choices offered in the experiment. For each community, the average annual increase in salary needed before they would relocate to an area as compared to a Queensland Coast location has been calculated. The results show that while a relatively small premium is needed to convince Blackwater residents to relocate in the Bowen Basin, it would take a larger premium to convince those residents to relocate to Western Queensland or South-east Queensland. By comparison, a very substantial premium is needed to attract the average Brisbane resident to Western Queensland or the Bowen Basin, or even to move them to South-east Queensland. Rockhampton residents indicated that South-east Queensland was preferred to coastal Queensland, and that townships in Western Queensland were viewed as more attractive than those in the Bowen Basin.

[1] Where respondents did not indicate an income level, the average income level for that survey sample was used.

Table 6 Part-worth for each attribute and location choice

	Blackwater		Brisbane		Rockhampton	
	Coeff.	Partworth	Coeff.	Partworth	Coeff.	Partworth
Years of commitment	-0.019		-0.126***	$19,691	-0.082	
Jobs for family	-0.299***	$28,483	-0.109**	$17,079	-0.285***	$33,368
Health and Ed. Services	-0.289***	$27,589	-0.046		-0.259***	$30,385
Access to centres	-0.108*	$10,331	-0.011		-0.062	
Infrastructure	-0.016		-0.027		0.037	
Social & recreation	0.018		-0.055		-0.163***	$19,044
Changed income	0.000***		0.000***		0.000***	
Premium for Western Qld compared to Qld Coast	-5.250***	$40,400	-2.108***	$107,401	-3.482***	$19,622
Premium for Bowen Basin compared to Qld Coast	-4.875***	$4,690	-2.089***	$104,364	-3.626***	$36,504
Premium for South-east Qld compared to Qld Coast	- 4.826***	$47,135	-1.420***	$69,497	-3.314***	-$6,470
Number of observations	408		544		404	
Log Likelihood	-522.45		-833.93		-581.85	
Adjusted Rho-square	0.153		0.043		0.099	
Chi-Square statistic (35 D. of F.)	78.36		30.95		61.92	

5.4 Identification of the key issues that relate to social infrastructure

The levels of social infrastructure have not emerged as a key attribute in the estimated models. More specialised models have been run to isolate any influences from this attribute without success. Compared to the other attributes used in the choice sets, the levels of social infrastructure are not a key driver of relocation choices. However, it is notable that the level of services (Health and Education, Social and Recreation) was significant for many communities, implying that infrastructure may be of secondary importance.

Further evidence about the preferences for different attributes was gained from some follow-up questions in the surveys. These asked respondents if they had consistent preferences for the attributes, and if they did, to rank them. Results of these questions are summarised in the diagrams below.

Results show that 5 Blackwater respondents (5 percent of total or 8 percent of respondents who answered this question), 2 Brisbane respondents (1 percent of total or 2 percent who answered this question) and 0 Rockhampton respondents rated infrastructure as the most important attribute, suggesting that it was not a critical attribute for making choices. Conversely, 2 Blackwater respondents (4 percent of total or 6 percent of respondents who answered this question), 9 Brisbane respondents (7 percent of total or 11 percent of respondents who answered this question) and 4 Rockhampton respondents (2 percent of total or 3 percent of respondents who answered this question) rated

infrastructure as the least important attribute, indicating that it was not disregarded by respondents. Overall, Blackwater and Rockhampton respondents rated the Infrastructure attribute as being more important than did Brisbane respondents.

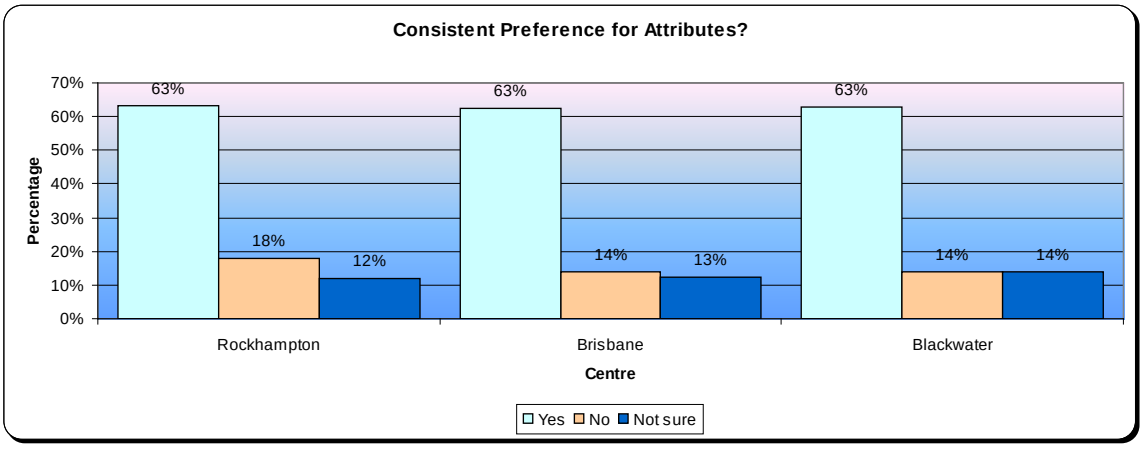

Figure 34 Respondents holding consistent preferences for different attributes

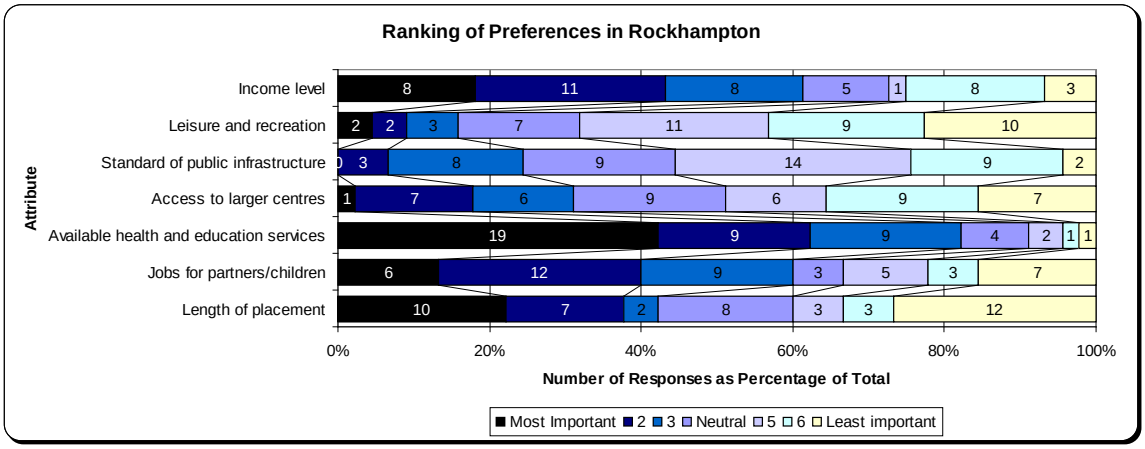

Figure 35 Attributes of importance in Rockhampton

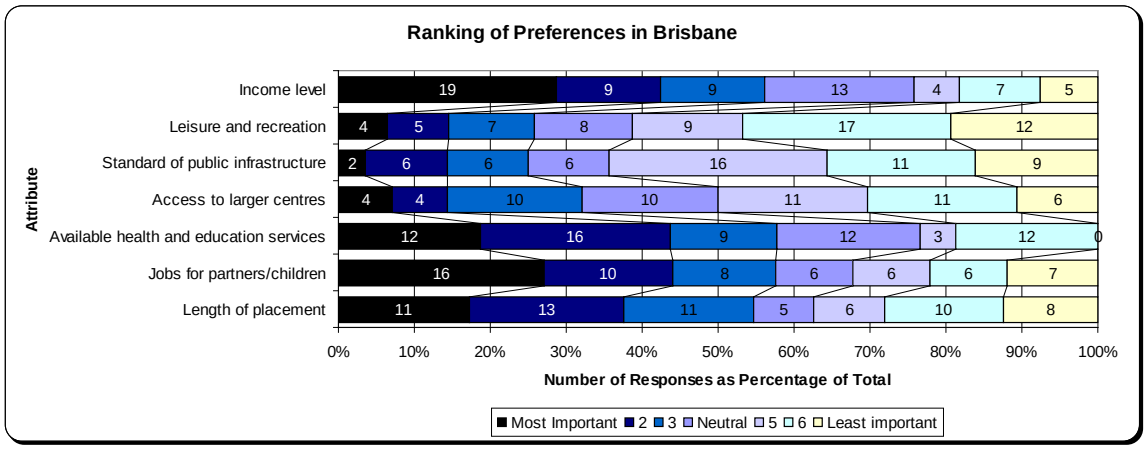

Figure 36 Attributes of importance in Brisbane

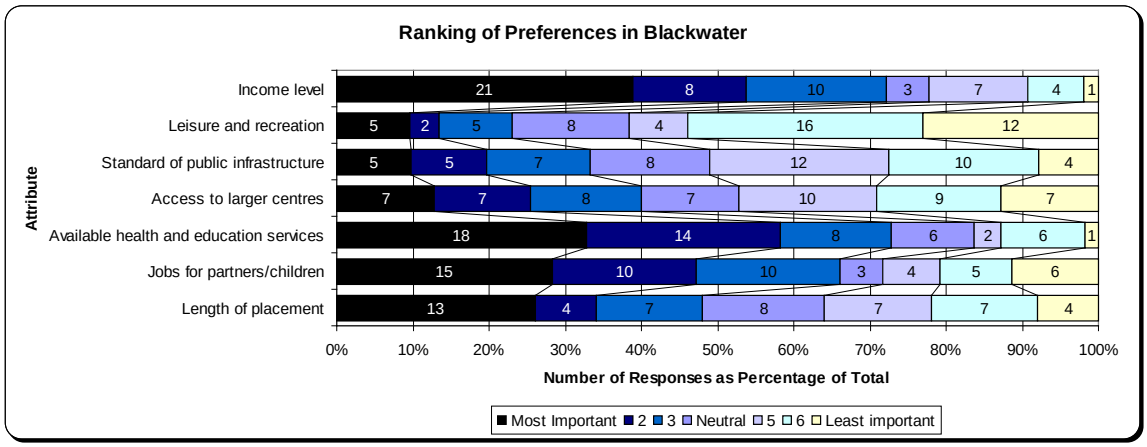

Figure 37 Attributes of importance in Blackwater

6 Discussion of Results

This research examined people's perceptions of local social infrastructure and compared the perceptions of the respondents to national figures. Compared to the national average, the ratings for personal security and education facilities in the three communities surveyed rated almost as well, while areas where dissatisfaction was much higher than the national averages were healthcare, nightlife, sightseeing, and concerts and shows. There was also some variation between regional communities but there are no major differences across the communities in this study. This is surprising given the different levels of social infrastructure between the communities. One possible explanation is that being able to access social infrastructure and services within the region rather than at the community level is more important and this would indicate that people in regional centres are prepared to travel for services and facilities. Another possible explanation is that people scale their expectations about social infrastructure to the size of the community they are in.

Blackwater is dependent upon employment in the mines and with the shortage of skilled labour it is not surprising that survey respondents there had the highest mean income. This is supported given that the main occupations associated with Blackwater were trades, technical and production and transport workers. Brisbane residents reported a mix of salary ranges. Although a significant proportion of the highest income earners were from Brisbane, this might relate to the managers, administrators and professionals reported as the main occupation. The higher mean income also relates to the higher number of households without children. Rockhampton residents reported the greatest proportion of low income earners. This is indicative of lower paid jobs and a larger percentage of respondents on fixed incomes or welfare payments.

A significant proportion of respondents indicated that the facilities and services in their town or city catered to most if not all needs of their family. Brisbane residents were the most positive, and Blackwater residents the least positive, which is not surprising given that as a larger centre, Brisbane residents have access to more facilities and services than Blackwater residents. Less than half of Blackwater residents stated that facilities and services catered to all or most needs of the family.

Respondents' ratings of the standard of facilities in their town or city varied by location. Brisbane residents were more satisfied with their facilities, with just under three quarters of residents rating education, health and other services as adequate and a higher proportion of residents giving a similar rating for housing and leisure facilities and activities. Rockhampton residents were also positive about their facilities, with two thirds stating that education, health and other services were adequate. Blackwater residents were less satisfied than either Brisbane or Rockhampton residents. More than a third of respondents from Blackwater rated the town's education, health and other services as inadequate and almost half rated housing and leisure facilities as inadequate.

Respondents were asked about a range of infrastructure delivered by local government and whether there should be an increase or a decrease in spending on each item. Generally, the three locations were similar in terms of desired changes to expenditure, although Blackwater respondents generally wanted to see more spending than Brisbane and Rockhampton respondents. The areas where a significant difference is notable are town beautification, showgrounds, sporting grounds, youth centres, airport and sewerage system. In terms of expenditure on showgrounds, sporting grounds and airport, a greater proportion of Brisbane residents wanted to see a decrease in spending than Rockhampton or Blackwater residents. A larger number of Rockhampton respondents wanted a decrease in spending on town beautification and youth centres than Brisbane and Blackwater. A higher proportion of respondents in Rockhampton believed there should be an increase in spending on sewerage systems compared to Brisbane and Blackwater.

Respondents from each centre when asked to indicate whether they would like to see an increase or a decrease in spending by the State Government on key portfolio areas indicated a wide variety of responses. A significant proportion of Brisbane respondents wanted an increase in spending on arts compared to Rockhampton and Blackwater. Rockhampton respondents were less interested in spending on environmental protection than Brisbane and Blackwater. A significant proportion of Blackwater respondents indicated that there was a need to increase spending on families and this was significantly higher than Brisbane or Rockhampton respondents. This is related to the high proportion of Blackwater respondents with a young family.

Over seventy percent of respondents indicated that they would be prepared to pay a once-off tax to fund an infrastructure or service initiative However, almost twenty three percent of the total stated they were not prepared to pay additional tax. Given the high income levels in Blackwater it is surprising that these residents were the least supportive, and Brisbane residents were the most supportive.

While the three centres differed on a number of areas, there were more similarities than differences. Health, security and education consistently came out as the most important infrastructure issues for respondents and entertainment was always the least important. In terms of rating the standard of facilities, Brisbane generally indicated the highest satisfaction and Blackwater the lowest. Facilities that were given the lowest rating in terms of standard were health (Rockhampton, Brisbane and Blackwater), transport (Rockhampton, Brisbane and Blackwater) and housing (Blackwater).

Views on local government spending were consistent across the three locations with an increase in spending sought for aged care and road works by a majority of respondents in all centres. Areas where a high proportion of respondents from all centres wanted a decrease in spending were town halls and showgrounds. Reponses to preferred state government spending differed across the three locations, however a significant proportion of respondents wanted an increase in spending on items related to health, disability, police and emergency services, transport and families. Respondents indicated they wanted decreases in state government spending on the arts, local government and planning and natural resources and mines.

When considering relocation from their current location, respondents stated that the most important attributes were available health and education services, income level and jobs

for partners and children. Brisbane respondents were the most prepared to move and Rockhampton the least. The results of the choice modelling analysis indicate that for each community surveyed, the Location Type, Jobs for Family, and Changed Income were consistently important factors. For Blackwater residents, Health and Education Services and Access to Larger Centres were also important. This is most likely to reflect the importance and familiarity of these issues. Brisbane residents indicated Years of Commitment was also an important attribute in relocation choice, while for Rockhampton residents Health and Education Services and Social and Recreation factors were important. These variations indicate that that people find different factors important in relocation choices and these vary between communities. However for each community, the Standard of Infrastructure had little impact on choices made.

An analysis was conducted for the location choices offered in the study. For each community, the average annual increase in salary needed before they would relocate to an area as compared to a Queensland Coast location was calculated. The results show that while a relatively small premium is needed to convince Blackwater residents to relocate in the Bowen Basin ($4,690), it would take a larger premium to convince those residents to relocate to Western Queensland ($40,400) or South-east Queensland ($47,135). By comparison, a very substantial premium is needed to attract the average Brisbane resident to Western Queensland ($107,401) or the Bowen Basin ($104,364), or even to move them to South-east Queensland. Rockhampton residents indicated that South-east Queensland (would accept an income reduction of $6,470) was preferred to coastal Queensland, and that townships in Western Queensland ($19,622) were viewed as more attractive than those in the Bowen Basin ($36,504).

7 Conclusions

This report explored the importance of social infrastructure in regional development for three communities by assessing the perceptions in communities about the standard and importance of social infrastructure, by identifying key demands for increased infrastructure provision, and by identifying the tradeoffs between infrastructure provision and other factors. Overall the respondents were satisfied with the level of infrastructure and their ability to access services in the region. However there were some areas of dissatisfaction where respondents gave lower ratings to local infrastructure, particularly healthcare, nightlife, sightseeing, and concerts and shows. None the less respondents were satisfied and a significant proportion of respondents indicated that the facilities and services in their town or city catered to most, if not all, needs of their family. Overall respondents were satisfied with their lifestyle and accepted the trade-offs they had made. So Rockhampton residents traded off access to entertainment in favour of a perceived higher level of personal security that capital cities, Blackwater residents traded off access

to facilities and services for affordable or low cost housing and in many instances higher wages.

It is more effective to assess demands for infrastructure in terms of how communities might prefer to allocate resources when the tradeoffs are more explicit. In specifically designed questions, respondents indicated what they wanted in terms of increases or decreases in spending at local and State government levels. The three locations were similar in terms of desired changes to expenditure at LGA level. Most communities were prepared to decrease spending on town beautification, showgrounds, sporting grounds, youth centres and airports. A high proportion of respondents from all centres wanted a decrease in spending on town halls and showgrounds and an increase in spending on aged care and roads. So there was an overall satisfaction with current spending on infrastructure by local government.

When considering State government spending, responses differed across the three locations, however a significant proportion of respondents wanted an increase in spending on items related to health, disability, police and emergency services, transport and families. Respondents indicated they wanted decreases in state government spending on the arts, local government and planning, and natural resources and mines. An area of concern for Blackwater residents was spending on families which they believed should be increased significantly. Overall respondents were less satisfied with State government spending on infrastructure than local government spending but it was the services rather than hard infrastructure that respondents wanted to see an increase in spending on. Demographic factors such as age of children or the presence of other family members have a significant impact on respondents. So people with young children want spending on families and education and older Australians want spending on aged care. All groups indicated the need to spend more on healthcare.

Another key factor to consider is that while demands for infrastructure and services are normally assessed in relation to existing populations, a key driver of economic development might be the ability of communities to attract and retain people with specialised skills. The attractiveness of communities for people to move there may be a critical factor in determining what opportunities the community has for growth. From this perspective, the importance of social infrastructure may not just be related to service provision for an existing community, but also to a future community. The results of the choice modelling indicated that for each community surveyed, the nature of the location was important as were jobs for the family, and altered income. For Blackwater residents, health and education services and access to larger centres were also important. Brisbane residents indicated years of commitment to the new job in a new location was also an important factor in relocation choices, while for Rockhampton residents health and educational services and social and recreational factors were also important. These variations indicate that that people find different factors important in relocation choices and these vary between communities. This not withstanding health, security and education consistently came out as the most important infrastructure issues for respondents

Overall respondents were satisfied with the level of infrastructure relative to the location and size of their communities although there is some room for a redistribution of spending, particularly at the State government level. Infrastructure did not emerge as a very important factor in relocation choices compared to other factors such as increased wages. However, this does not mean that infrastructure is not important. It was clear from the survey results that a range of services are particularly important to satisfaction levels, and service delivery is usually tied to adequate levels of infrastructure. It is also possible that people who need higher wages to consider relocation are taking into account changes in the levels of services and infrastructure. The results of this study show that capital city workers require the largest increase in salary or wages to relocate, possible because they recognise the value of the services and infrastructure that they have been used to accessing in Brisbane.

The results of the relocation exercises demonstrate that employment and salary levels are not the only factors that drive choices. Lifestyle factors and the provision of services also appear to be important, and these may be emerging as major drivers of location choices. For this reason it is expected that the provision of social infrastructure will continue to be very important for regional communities, and a critical issue in making communities attractive for potential new residents.

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Appendix A. Expanded model for each community

Blackwater Model

	Coeff.	Std.Err.	t-ratio	P-value
Years of commitment	-0.032	0.070	-0.458	0.647
Jobs for family	-0.286	0.072	-3.972	0.000
Health and ed. Services	-0.283	0.073	-3.889	0.000
Access to centres	-0.132	0.071	-1.866	0.062
Infrastructure	-0.098	0.071	-1.386	0.166
Social & recreation	-0.002	0.070	-0.026	0.979
Changed income	3.80E-06	2.31E-06	1.645	0.100
ASC WESTERN	-6.427	2.234	-2.877	0.004
ASC BOWEN	-6.659	2.001	-3.329	0.001
ASC COAST	-5.217	1.871	-2.789	0.005
ASC SEQ	-17.540	3.494	-5.020	0.000
Gender	-0.021	0.522	-0.040	0.968
Age	-0.510	0.264	-1.932	0.053
Marital status	-0.158	0.627	-0.251	0.802
Adults in household	-0.495	0.396	-1.251	0.211
Children in household	-0.197	0.156	-1.264	0.206
Special needs	1.454	0.778	1.868	0.062
Income	2.13E-05	7.46E-06	2.861	0.004
Gender	-1.027	0.419	-2.451	0.014
Age	0.122	0.276	0.441	0.659
Marital status	0.198	0.695	0.284	0.776
Adults in household	0.069	0.300	0.229	0.818
Children in household	-0.114	0.145	-0.789	0.430
Special needs	0.284	0.480	0.591	0.554
Income	2.83E-05	7.19E-06	3.940	0.000
Gender	-$0.512	$0.431	-1.187	0.235
Age	-$0.033	$0.252	-0.130	0.897
Marital status	$1.128	$0.736	1.534	0.125
Adults in household	-$0.805	$0.428	-1.879	0.060
Children in household	-$0.033	$0.130	-0.252	0.801
Special needs	-$0.148	$0.414	-0.358	0.720
Income	1.66E-05	6.22E-06	2.662	0.008
Gender	0.250	0.568	0.441	0.659
Age	0.945	0.420	2.250	0.024
Marital status	-0.713	0.930	-0.766	0.443
Adults in household	0.224	0.378	0.592	0.554
Children in household	0.370	0.189	1.960	0.050
Special needs	2.440	1.076	2.268	0.023
Income	4.98E-05	9.27E-06	5.370	0.000
Number of observations	344			
Log Likelihood	-420.065			
Adjusted Rho-square	0.219			
Chi-Square statistic (35 D. of F.)	175.56			

Brisbane Model

	Coeff.	Std.Err.	t-ratio	P-value
Years of commitment	-0.116	0.049	-2.395	0.017
Jobs for family	-0.118	0.049	-2.410	0.016
Health and ed. Services	-0.043	0.050	-0.872	0.383
Access to centres	-0.018	0.050	-0.360	0.719
Infrastructure	-0.059	0.048	-1.236	0.216
Social & recreation	0.048	0.049	0.975	0.329
Changed income	0.159	0.049	3.240	0.001
ASC WESTERN	-0.841	1.702	-0.494	0.621
ASC BOWEN	0.915	1.413	0.648	0.517
ASC COAST	-0.879	1.444	-0.609	0.543
ASC SEQ	0.243	1.433	0.169	0.865
Gender	-0.425	0.312	-1.361	0.173
Age	-0.578	0.165	-3.493	0.000
Marital status	0.629	0.374	1.683	0.092
Adults in household	-0.341	0.161	-2.120	0.034
Children in household	0.049	0.103	0.473	0.636
Special needs	0.502	0.732	0.686	0.493
Income	7.69E-06	4.56E-06	1.687	0.092
Gender	0.296	0.323	0.915	0.360
Age	-0.500	0.157	-3.180	0.001
Marital status	0.918	0.376	2.439	0.015
Adults in household	-0.250	0.168	-1.487	0.137
Children in household	0.066	0.101	0.655	0.512
Special needs	-1.170	0.521	-2.245	0.025
Income	-2.05E-06	4.86E-06	-0.422	0.673
Gender	-0.132	0.258	-0.512	0.609
Age	-0.340	0.129	-2.635	0.008
Marital status	0.510	0.302	1.688	0.091
Adults in household	-0.053	0.120	-0.446	0.656
Children in household	-0.278	0.120	-2.326	0.020
Special needs	0.181	0.557	0.325	0.745
Income	7.59E-06	3.75E-06	2.025	0.043
Gender	-0.216	0.288	-0.749	0.454
Age	-0.347	0.145	-2.394	0.017
Marital status	0.438	0.344	1.273	0.203
Adults in household	-0.196	0.135	-1.449	0.147
Children in household	-0.229	0.129	-1.773	0.076
Special needs	-0.398	0.547	-0.728	0.467
Income	9.96E-06	4.19E-06	2.377	0.017
Number of observations	544			
Log Likelihood	-756.183			
Adjusted Rho-square	0.065			
Chi-Square statistic (35 D. of F.)	89.37			

Rockhampton Model

	Coeff.	Std.Err.	t-ratio	P-value
Years of commitment	-0.053	0.068	-0.779	0.436
Jobs for family	-0.348	0.067	-5.194	0.000
Health and ed. Services	-0.258	0.068	-3.810	0.000
Access to centres	-0.028	0.067	-0.408	0.683
Infrastructure	0.030	0.068	0.450	0.653
Social & recreation	0.175	0.067	2.605	0.009
Changed income	0.120	0.066	1.826	0.068
ASC WESTERN	-6.222	1.844	-3.374	0.001
ASC BOWEN	-2.776	1.865	-1.488	0.137
ASC COAST	-5.879	1.837	-3.201	0.001
ASC SEQ	-5.112	1.831	-2.791	0.005
Gender	-0.405	0.381	-1.063	0.288
Age	0.285	0.223	1.277	0.202
Marital status	0.358	0.561	0.638	0.523
Adults in household	0.643	0.338	1.903	0.057
Children in household	0.109	0.143	0.763	0.445
Special needs	0.517	0.546	0.947	0.344
Income	5.48E-06	7.03E-06	0.779	0.436
Gender	-0.727	0.386	-1.886	0.059
Age	-0.211	0.202	-1.040	0.298
Marital status	1.156	0.586	1.972	0.049
Adults in household	-0.151	0.424	-0.356	0.722
Children in household	-0.235	0.170	-1.377	0.169
Special needs	0.479	0.577	0.831	0.406
Income	-8.13E-06	7.93E-06	-1.025	0.305
Gender	-0.420	0.368	-1.141	0.254
Age	0.192	0.196	0.982	0.326
Marital status	0.464	0.530	0.876	0.381
Adults in household	0.842	0.320	2.631	0.009
Children in household	-0.050	0.149	-0.338	0.736
Special needs	0.603	0.533	1.132	0.258
Income	-5.18E-06	7.34E-06	-0.706	0.480
Gender	-0.382	0.380	-1.006	0.315
Age	0.273	0.226	1.208	0.227
Marital status	0.367	0.553	0.663	0.507
Adults in household	0.590	0.344	1.715	0.086
Children in household	0.142	0.139	1.017	0.309
Special needs	-0.007	0.492	-0.015	0.988
Income	5.29E-06	7.03E-06	0.753	0.451
Number of observations	328			
Log Likelihood	-451.74			
Adjusted Rho-square	0.118			
Chi-Square statistic (35 D. of F.)	101.37			