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# Hindmarsh Shire Community Attitudes and Aspirations:

# Perceptions of the Wimmera Mallee Pipeline

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## 1. Foreword

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Water is a scarce resource. Less than one percent of the world's water is usable fresh water. The value of water is becoming increasingly important, especially in the Wimmera Mallee where continued drought years and climate change have placed great pressure on the availability of water for its various uses. In this region, substantial change is underway to the current stock and domestic channel system, with construction of the Wimmera Mallee pipeline, which will replace 16,000 kms of highly inefficient earthen channels responsible for the loss of up to 85% of water through seepage and evaporation. Although the pipeline will provide a reliable, quality water supply and save up to 103 000ML of water per year, the actual amount of water available will depend on climate.

The Water in Drylands Collaborative Research Program (WIDCORP) is a group of peak organisations from the Wimmera Mallee and University of Ballarat working collaboratively to study the social, economical and environmental impact of this additional water on the community. Using the Wimmera Mallee Pipeline as a case study, this research focuses on identifying water uses and water values in a dryland region; how communities balance the competing demands for water and; how communities can best maximise opportunities made available as a result of the pipeline. Research is undertaken concurrently with the construction of the pipeline and forms the basis for an on-going research program at the Horsham Campus of the University of Ballarat. The research frameworks and outcomes are expected to provide useful base models, which can be modified for dryland communities elsewhere in Australia and globally.

This report provides a valuable insight into the attitudes and aspirations of residents of the Hindmarsh Shire regarding the Wimmera Mallee pipeline, a significant infrastructure development in the region.

A handwritten signature in black ink, appearing to read 'P. McRae-Williams'.

Dr Pamela McRae-Williams  
Research Director  
WIDCORP



## **2. Acknowledgments**

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The Water in Drylands Collaborative Research Program (WIDCORP) commissioned the University of Ballarat's Centre for Regional Innovation and Competitiveness (CRIC), [www.cric.com.au](http://www.cric.com.au), to undertake computer assisted telephone interview (CATI) surveys of Hindmarsh Shire residents. This report contains the results of the survey. The contributors to this research include Dr Steven McEachern, David Lynch, Dr Patrice Braun, Professor Julian Lowe and the CRIC CATI team at Ballarat and Horsham, in collaboration with Dr Pam McRae-Williams, WIDCORP. WIDCORP would also like to thank Hindmarsh Shire Council for their assistance.



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### 3. Executive Summary

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In November 2005, the Water in Drylands Collaborative Research Program (WIDCORP) commissioned the University of Ballarat's Centre for Regional Innovation and Competitiveness (CRIC) to undertake a telephone interview survey of Hindmarsh Shire residents. The major purpose of this survey was to provide a base line study prior to the construction of the Wimmera Mallee pipeline and to examine expectations, perceived impacts and potential aspirations of residents relating to the Wimmera Mallee pipeline's development. In particular, the research was designed to explore the breadth of economic, environmental and social opportunities that may emerge from the rollout of the Wimmera Mallee pipeline. In this survey, the pipeline project refers to the replacement to the existing open channel system supplying domestic (non-potable) and stock water in the Hindmarsh Shire with piped water.

The survey results highlighted the differing water supply systems within the Hindmarsh Shire. In particular, the area west of the Wimmera River where water supply is via ground water and not by the open channel system. This may go some way to explain the significantly different responses from Nhill residents who comprise a significant portion of the survey respondents. Considering these differences in water supply systems across the Shire, this report clearly identifies two distinct groups of respondents, those not currently part of the open channel system, characterised by Nhill respondents, and those within the channel system characterised by other respondents.

#### Research Objectives

The following research questions, developed collaboratively by the WIDCORP Research Advisory Committee and CRIC, served as a roadmap for the study.

1. What are the major characteristics of the economy and social structure of the Hindmarsh and adjacent Shires?
2. What are the community's needs and aspirations with regard to the economy, social fabric and environment within the region?
3. What are the gaps between the present characteristics and the community's needs and aspirations?
4. What awareness, understanding and expectations do Hindmarsh residents exhibit with regard to the Wimmera-Mallee pipeline?
5. Which of the gaps between the current and aspired economic, social or environmental status are relevant to the availability of an increased, reliable and high quality water supply?

#### Sample

All Hindmarsh Shire households, listed within the electronic version of the *White Pages*, were contacted as part of the data collection process. The study's sample of 630 Hindmarsh Shire residents aged 18 or over was interviewed by telephone, from April 7th to May 4th, 2006.



## Major Findings

Analysis of the collected data revealed the following major findings concerning residents' perceived benefits of the pipeline and aspirations for the Hindmarsh Shire region. The survey identified a clear distinction in the attitudes and aspirations regarding the pipeline between those directly impacted by the replacement of open channels with the proposed pipeline and those not directly impacted as exemplified by Nhill respondents. Many of the findings reinforce this, particularly where the regional benefits of the pipeline appear not to be fully recognised by many in the Shire.

### **Community awareness and interest in the pipeline**

The vast majority of those surveyed were aware of the pipeline project. However, whilst the pipeline project has been highly visible through the media and there has been extensive community consultation during the concept and project development stages, it is of interest that there remains a proportion of the community (8%) not aware of the project. There appeared little variation across the Shire in levels of awareness.

In general, a high level of interest in the pipeline project is evident across the Shire. However, it would be expected that residents in those locations not directly impacted by the current channel system might have a lower level of interest in the pipeline. This is clearly supported in the survey results with almost one third of Nhill respondents having little or no interest at all. The interest in the pipeline was mostly regarding the progress of the pipeline and water allocations and was particularly reported by rural respondents.

### **Regional aspirations: Economic, social and environmental**

To place attitudes and expected benefits of the pipeline in context, respondents were asked to indicate their concerns for the Shire and more broadly the region. Across the Shire, the drought and economic concerns appear more significant than social concerns. The impact of the drought, and the need to reduce water wasted in the region rated highly as did the need to attract more tourists. Lack of employment opportunities and recreation and entertainment opportunities were more important for Jeparit and Rainbow when compared with other towns in the Shire.

With regard to the economy, respondents indicated a strong belief that the future of the region's economy will continue to be based in agriculture (with 79.7 percent of respondents agreeing), focused on grains specifically and that tourism would increase. Regarding the future social attributes of the region, respondents agreed most strongly that there will be a more culturally diverse community and there will be more swimming and water activities.

When asked to identify their aspirations regarding environmental considerations for the region, respondents indicated strong agreement that the Shire be more visually appealing and exhibit greater biodiversity.

### **Perceived benefits of the pipeline**

Residents were asked to identify the major regional benefits of the pipeline and what benefits the pipeline would have for them personally. Regionally, environmental



benefits were clearly identified as most important by residents; with water supply and quality also seen as important. Nhill residents indicated less regional benefits than other towns. Few respondents identified regional economic benefits of the pipeline as important; Jeparit being the exception where 29% of respondents identified economic benefits.

Personal benefits expected from the pipeline were more diverse across the region with the majority of Nhill respondents seeing no personal benefits. Water availability and water quality were identified as most benefit across the remainder of the Shire.

### **Expectations of the pipeline**

A list of benefits of the pipeline identified in the business case for the Wimmera Mallee Pipeline project formed the basis of a quadrant analysis of residents' expectations and the level of importance placed on pipeline benefits. In this analysis, when both expectation and importance scored highly, that factor is identified as a strength. Respondents identified the following strengths associated with the pipeline:

- Providing the region with a more reliable supply of water
- Increasing access to improved quality of water
- Providing a more reliable and better supply of water to the region's farms
- Providing a more reliable and better supply of water to the region's towns
- Improving the region's river and lake system
- Increasing water flows into the Wimmera river

The major strengths of the pipeline relate to providing the region with a more reliable and better supply of water and improving the region's lakes and river system – primary benefits of the pipeline to the region.

In contrast, respondents considered the following elements to be relative weaknesses of the pipeline – that is low expectation and of low importance:

- Reducing the impact of low rainfall
- Improving the appeal of the region as a tourist destination
- Increasing water for recreational, fishing and boating opportunities

This finding suggests that any linkages between the benefits of the pipeline associated with reducing the impact of low rainfall (drought), increasing tourist visitation to the region and increased water recreational activities was not clearly made.

There was some variation across the Shire regarding the strengths and weakness of the pipeline. Analysis of expectations of Jeparit residents identified all benefits, with the exception of water trading, were seen as strengths of the pipeline. Dimboola and Rainbow respondents considered most of the benefits as strengths although not its ability to increase agricultural production, which was identified as a weakness. Other small settlements showed variability in responses. Analysis of Nhill respondents indicated below average expectations regarding the pipeline to deliver identified benefits.

Analysis of respondents involved in farming or primary production of the expected farming benefits of the pipeline identified three major strengths; a more flexible water supply, increased agriculture opportunities, and improved livestock condition and size. Expectations of the pipeline were relatively low with regards increased



horticulture and other new business opportunities and increasing the effectiveness of pesticides and spray units.

Expectations for increased or diversified agricultural opportunities clearly identified intensive livestock production; however, this was not seen as important by most of those involved in farming across the Shire, the exception being those in the Jeparit region where it was seen as important.

## **Conclusion and recommendations**

### *Major characteristics of the economy and social structure of the Hindmarsh Shire*

The survey demographics reflect those of the Shire and Census data. The economy is dependent on the agriculture industry with a high proportion of self-owned businesses (generally farms). The concerns within the region are regarding the availability of employment (particularly skilled employment) within the region, which influences business growth and sustainability.

Factors relating to the social structure of the Shire demonstrated high levels of recognition of the quality of the health and education services, and of the strong social and recreational facilities and activities available within the region. The major concern in towns is the availability of activities for younger people.

### *Community's needs and aspirations with regard to the economy, social fabric and environment within the region*

The analysis indicated the focus of residents is on the economic and environmental benefits of the pipeline. The future environmental aspirations of residents focussed on achieving better environmental outcomes from the increased flow of water, such as improved biodiversity and greater visual appeal. The economic aspirations of residents continued to focus on grains-related business enterprises, along with associated businesses necessary for the maintenance of local towns. There appeared little interest in the development of non-grain agricultural businesses.

Future aspirations for social change were limited. There was some interest in increasing the level of cultural diversity within the region. This suggests that residents are not currently recognising the potential social benefits of the pipeline. Exploration of the wider social implications of the pipeline may be a point of focus for WIDCORP into the future.

### *Gaps between the present characteristics and the community's needs and aspirations*

The quadrant analysis of the potential benefits of the pipeline identified the weaknesses between resident priorities and expectations with regard to the impact of the pipeline and these included the ability of the pipeline to;

- reduce the impact of low rainfall,
- improve the appeal of the region as a tourist destination, and
- increase water for recreational, fishing and boating opportunities.

Concern that the pipeline will not be able to address water shortages is likely a function of concerns built up over the extended period of drought in recent times. This has affected the various water-related tourist destinations within the region. The survey does highlight ongoing reservations about the capacity of the pipeline to



deliver on a wide range of environmental, economic and social expectations while drought conditions persist.

*Gaps between the current and aspired economic, social or environmental relating the availability of an increased, reliable and high quality water supply*

Several of the identified aspirations of residents are associated with the availability of a quality reliable water supply. In general, the environmental benefits of the pipeline are clearly dependent on the availability of more and better quality water. Improving flows to rivers and lakes, and the resultant improvements in visual appeal of the region, are a priority for Hindmarsh residents. This is recognised as a community benefit, even when residents may feel that there is limited personal benefit to them.

In terms of economic aspirations, there is a strong interest among respondents to maintain or improve grains-related businesses, which benefit from a reliable quality water supply. In general, residents identified a need for increasing the range of businesses that exist within the Shire, however were unable to identify specific opportunities: while an interest in intensive livestock production was observed. This highlights an opportunity for pipeline stakeholders to identify and communicate potential business opportunities that can take advantage of an improved water supply.

Limited interest in changing social conditions associated with the pipeline suggests limited awareness of the potential social benefits that may be derived. Broadening the community understanding of the impact of the pipeline on the region is an area of future activity for WIDCORP stakeholders.

Conclusions drawn from this research suggested recommendations for WIDCORP stakeholders and further research.

*1. Development of a pipeline business opportunities program*

Hindmarsh residents identified an interest in expanding the range and number of businesses within the region, but did not see the future of the region as moving away from grains-oriented industries.

*2. Building community capacity regarding the of social benefits associated with the pipeline*

The study identified that Hindmarsh Shire residents place a higher level of importance on, and greater expectations concerning the economic and environmental benefits provided by the pipeline, rather than its social benefits.

*3. Follow-up studies: expectations versus reality in pipeline implementation*

This study has now captured the expectations and aspirations of Hindmarsh residents with regard to the pipeline implementation and into the future. There is now a need for subsequent research to build on this base-line study and track the medium and longer-term implications of the pipeline on the sustainability of the region.



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## 4. Overview

This report details the background, methodology, major findings and conclusions of a survey that explored Hindmarsh Shire residents' perceptions of the Wimmera Mallee Pipeline and aspirations for the region. It provides valuable base line information prior to the construction of the Wimmera Mallee pipeline providing the basis for subsequent studies during and post pipeline across the region.

### 4.1 Background

The large majority of water in the Wimmera Mallee Region water system is wasted through seepage and evaporation, and the region's waterways have suffered as a result. The Wimmera Mallee Pipeline project involves the construction of a reticulated pipeline to replace the existing, highly inefficient open channels. At present, 85% of water supplied to the channels from the Grampians is lost through seepage and evaporation<sup>1</sup>.

The pipeline is proposed to provide economic and social benefits to the Wimmera Mallee region, in addition to improved environmental flows. WIDCORP was established to identify the emerging opportunities as the pipeline progresses. In particular, WIDCORP's research program has been designed to maximise opportunities for the region to achieve economic and social development and environmental sustainability.

Following consultation with the WIDCORP Research Advisory Committee the Centre for Regional Innovation and Competitiveness (CRIC) was commissioned to undertake a research project to be conducted in the Wimmera's Hindmarsh Shire. The purpose of the project was to examine the expectations, perceived impacts and potential aspirations of residents of the Hindmarsh Shire and surrounding areas impacted by the development of the Wimmera Mallee pipeline. It was determined that data would be collected through a telephone survey of households in the area. In particular, researchers designed a survey to explore the breadth of economic, environmental and social opportunities that may emerge from the rollout of the Wimmera-Mallee pipeline.

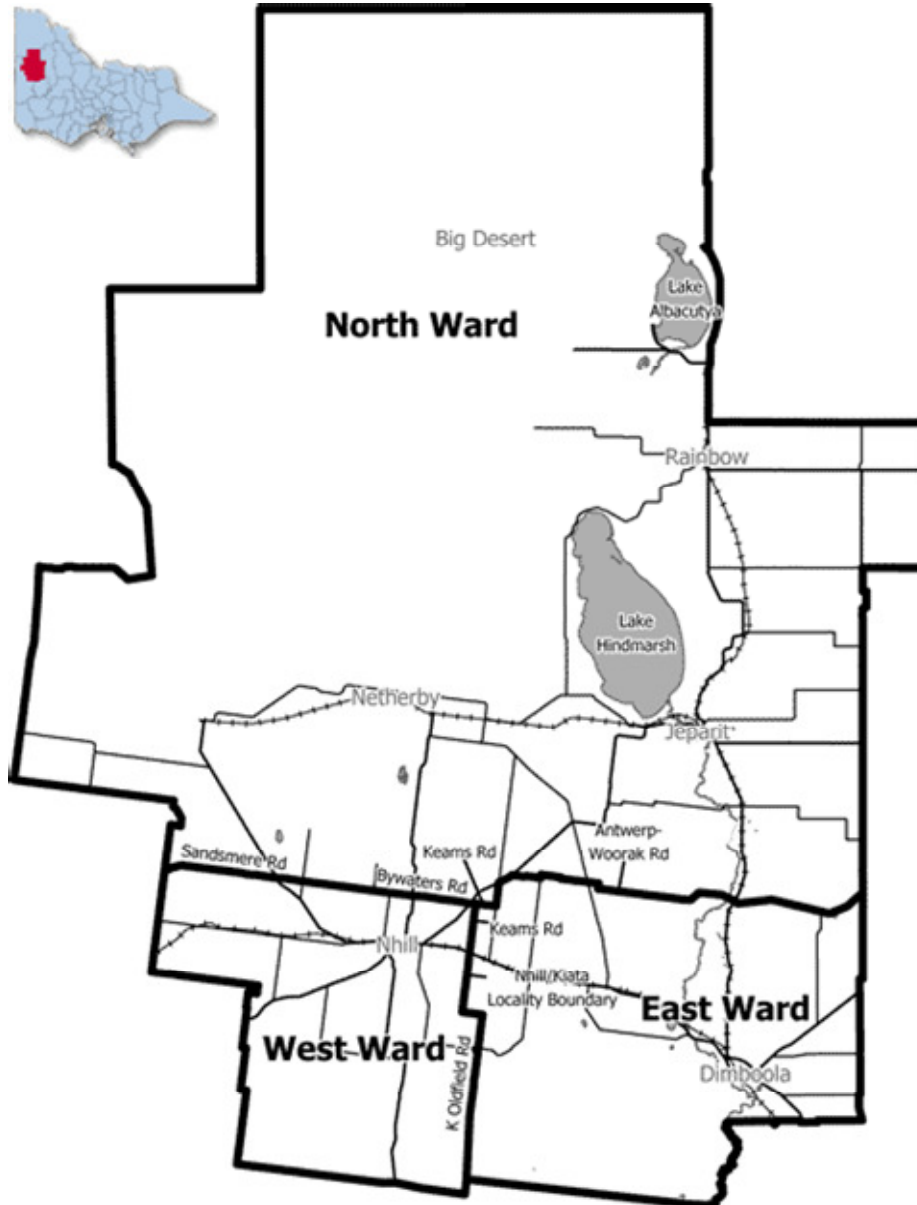
The community attitudes survey focused on the replacement to the existing open channel system supplying domestic and stock water to the region. This will supply domestic (non-potable) and stock water to essentially farming communities living on land or in small settlements connected to the current channel system within the Hindmarsh Shire. The survey results highlighted the differing water supply systems within the Hindmarsh Shire. In particular, the area west of the Wimmera River where water supply is via ground water and not by the open channel system (see Figure 1). This may go some way to explain the significantly different responses from, in particular, Nhill residents who comprise a significant portion of the survey respondents (48.1%) and the remaining population of the Hindmarsh Shire. Whilst the pipeline system is specific to the remainder of the shire, there has been recent discussion regarding the piping of water to the township of Nhill. This discussion may have heightened a level interest in the pipeline as an alternate water supply to the

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<sup>1</sup> Source: Department of Sustainability and Environment

current ground water supply. It is therefore noteworthy to consider these differences in water supply across the Shire when interpreting the survey data and its analysis throughout this report.

**Figure 1 - Map of the Hindmarsh Shire**



## 4.2 Research Objectives

The CRIC developed the following research questions in consultation with the WIDCORP research advisory committee.

1. What are the major characteristics of the economy and social structure of the Hindmarsh and adjacent Shires?
2. What are the community's needs and aspirations with regard to the economy, social fabric and environment within the region?
3. What are the gaps between the present characteristics and the community's needs and aspirations?



4. What awareness, understanding and expectations do Hindmarsh residents exhibit with regard to the Wimmera-Mallee pipeline?
5. Which of the gaps between the current and aspired economic, social or environmental status are relevant to the availability of an increased, reliable and high quality water supply?

### **4.3 Other Pertinent Information**

- As some of the questions required in the research obtained multiple responses, some figures will sum to over 100%.
- Hindmarsh Shire residents are represented by the study's sample. We are 95% confident that the true target population's values are equal to the sample estimate within the standard error of (+/-) 3.6%<sup>2</sup>.

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<sup>2</sup> E.g. If the response to a question is 50%, we are 95% confident that the true value is between 46.4% and 53.6%.



## 5. Methodology

### 5.1 Type of Study

A survey research technique was used to enable the study to answer the research objectives of the project. This method involved using trained interviewers to interact with Hindmarsh Shire residents, by telephone, to obtain facts, opinions and attitudes. A questionnaire with six sections was developed, to provide an orderly and structured approach to data gathering.

### 5.2 Target Population

The target population for the survey included all persons aged 18 years or over residing in the Hindmarsh Shire.

### 5.3 Sample Design

All Hindmarsh Shire households, listed within the electronic version of the *White Pages*, were contacted as part of the data collection process. WIDCORP expressed interest in maximising the representativeness of the survey. According to the 2001 Census, Hindmarsh Shire currently has 2,500 households, of which 2,260 households were contacted as part of the survey process. Out of these contacted households, 363 were invalid (e.g. no longer in service or business numbers), resulting in a sample frame of 1,897 households.

The Computer Assisted Telephone Interviewing (CATI) software automatically provided the telephone interviewers with a number from the sample, to dial one after another.

To ensure that all respondents fulfilled the criteria of the study's target population, the following screening questions were asked on initial contact:

- a. Firstly, I need to confirm that you are aged 18 years or over, and
- b. can I confirm that your household is located within the Hindmarsh Shire?

This enabled members of the target population to identify themselves rather than the research team having to identify them.

### 5.4 Questionnaire Development

The CRIC team, in close consultation with the WIDCORP Research Advisory Committee, developed the telephone questionnaire. The questionnaire went through a thorough revision and piloting process to ensure that the information obtained would address the study's objectives. The final version of the questionnaire (refer appendix one) consisted of 37 questions in total, within the following six sections:

- Perceived benefits of the pipeline
- Perceived disadvantages of the pipeline
- Key issues in the Hindmarsh Shire
- Regional aspirations
- Social and recreational activity
- Demographics

Representatives of the WIDCORP Research Advisory Committee approved the survey instrument prior to its implementation.



## **5.5 Data Collection**

The data was collected via a telephone-based survey using CRIC's CATI facility. The study's sample of 630 Hindmarsh Shire residents aged 18 or over was interviewed by telephone, from April 7th to May 4th, 2006. In order to maximise the response rate of the survey, the data collection was undertaken from 10am-8pm Monday-Thursday, from 10am-5pm Fridays and from 1pm-4pm on weekends. Hindmarsh Shire residents were also pre-notified about the survey through a letter to all households and coverage in the local media.

## 6. Major Findings

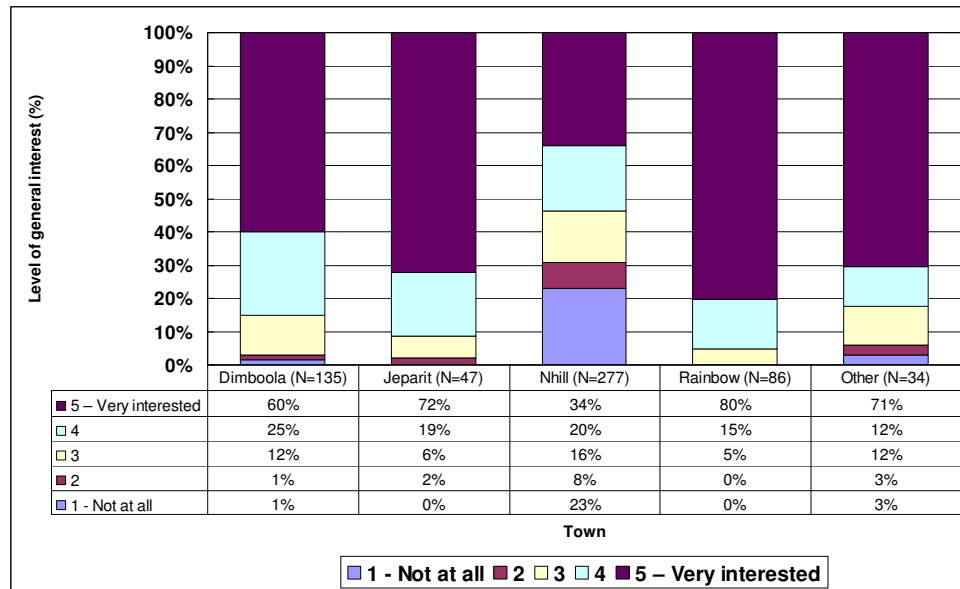
The following section details the major findings from the study in relation to response rates; characteristics of the sample; awareness of the pipeline; interest in the pipeline; perceived benefits of the pipeline; key issues in the Hindmarsh Shire and regional aspirations.

### 6.1 Response rates

At the conclusion of data collection, the final number of respondents to the survey was 630, a response rate of 33.21 percent. Thus, the anticipated response rate of 50% of all households in the Hindmarsh Shire was not achieved.

The lower response rate can be attributed to a combination of factors. Firstly, the length of the survey was 27 minutes on average, compared to the original estimate of 15 minutes. This suggests that there was a high level of interest in the content among those who responded, but also a likely deterrent to non-respondents. Secondly, the broad coverage of the sample, which included areas not directly linked to the pipeline (particularly Nhill, the largest population centre in the Shire), meant that the level of interest in the content of the survey (an important determinant of likely response) was lower than expected. The variance in interest levels is reflected in Figure 2, which presents the level of interest in the pipeline in general.

**Figure 2 - Level of general interest in the pipeline by town (%)**



### 6.2 Characteristics of the sample

#### Geographic location

As indicated by Table 1, nearly half of respondents from the survey (48.1%) were located in Nhill. The second highest town represented in the sample was Dimboola (23.8%), followed by Rainbow (14.3%) and Jeparit (8.1%).



**Table 1 - Distribution of respondents by town (%)**

Town	Count	%
Nhill	303	48.1%
Dimboola	150	23.8%
Rainbow	90	14.3%
Jeparit	51	8.1%
Other <sup>3</sup> :	36	5.8%
- Antwerp	8	1.3%
- Yanac	7	1.1%
- Gerang Gerung	6	1.0%
- Yaapeet	6	1.0%
- Kiata	5	0.8%
- Tarranyurk	4	0.6%
<b>Total</b>	<b>630</b>	<b>100.0%</b>

### Sample Characteristics - influence of Nhill residents

The high proportion of respondents deriving from Nhill has a substantial effect on the aggregated results of the survey. As discussed later in the report, the perceived impact of the Wimmera-Mallee Pipeline was substantially lower amongst Nhill residents. This lower perceived impact could be attributed to the present circumstances relating to Nhill's current water supply. Unlike the other major towns within the Shire, Nhill is not connected to the channel system, which the pipeline will replace. Consequently, their interest in the pipeline was also considerably lower than that of respondent from other major towns in the Shire.

### Age and gender distribution

The age distribution of the respondents is broadly consistent with the age profile of the Shire, although slightly under-represented in the younger age groups. Table 2 indicates the distribution of respondents by age and gender. Gender distribution of respondents was also relatively even, although males are slightly under-represented (43.9% as compared to 49.1% in the ABS 2001 Census statistics).

**Table 2 - Distribution of respondents by age and gender (%)**

Age	Male	Female	Total %	2001 ABS Census
18-24	1.4%	3.7%	2.7%	7.4%
25-34	6.2%	7.3%	6.8%	12.3%
35-44	14.9%	17.5%	16.3%	18.9%
45-54	25.7%	20.1%	22.5%	17.5%
55-64	21.4%	19.8%	20.5%	15.0%
65-74	19.9%	15.5%	17.8%	13.7%
75 or older	10.5%	15.5%	13.3%	15.2%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
Distribution by Gender	43.8%	56.2%	100.0%	100.0%

<sup>3</sup> Note: Due to the relatively small number of respondents from Antwerp, Yanac, Gerang Gerung, Yaapeet, Kiata and Tarranyurk, these towns were aggregated into an *Other* category for the purpose of analysis.

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2001 ABS Census	49.1%	50.9%	100.0%	100.0%
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Note: Further characteristics of the sample are provided in Appendix Two: Additional Sample Characteristics

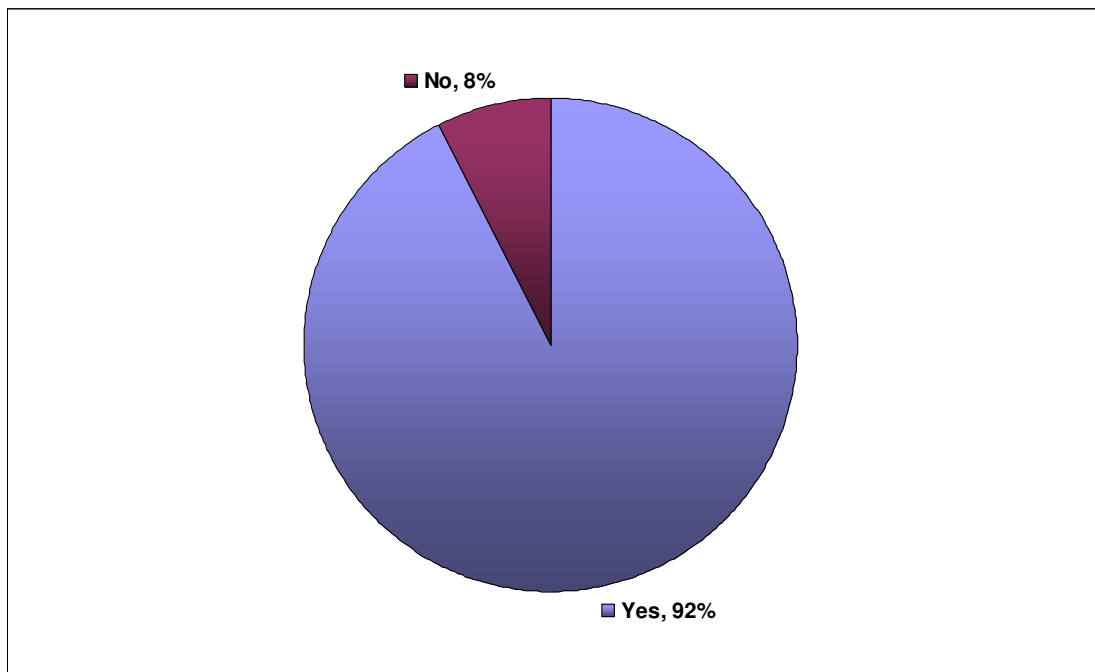
### 6.3 Awareness of the pipeline

As indicated by Figure 3, the overwhelming majority (92%) of respondents indicated that they were aware of the Wimmera-Mallee Pipeline. This high level of awareness was consistent amongst respondents from each of the Shire's major towns; with no significant discrepancies in awareness levels across the region (see Figure 4).

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**Figure 3 - Awareness of the pipeline (%)**

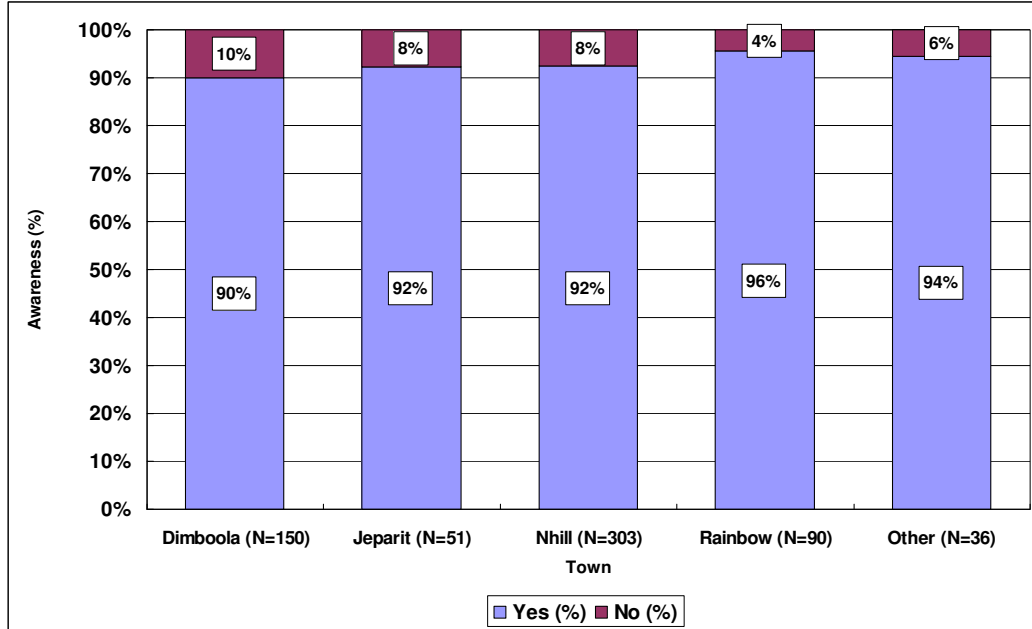
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Base = Total respondents (n=630)

Readers should note that due to their lack of familiarity with the Pipeline, the 48 respondents that did not have any awareness of the pipeline were not asked Questions 2-13, as it was felt that they would not be able to respond credibly to questions, which asked about the impact of the pipeline. Thus, the responses for Questions 2 to 13 are based on a sub-sample of 582 respondents, rather than 630.

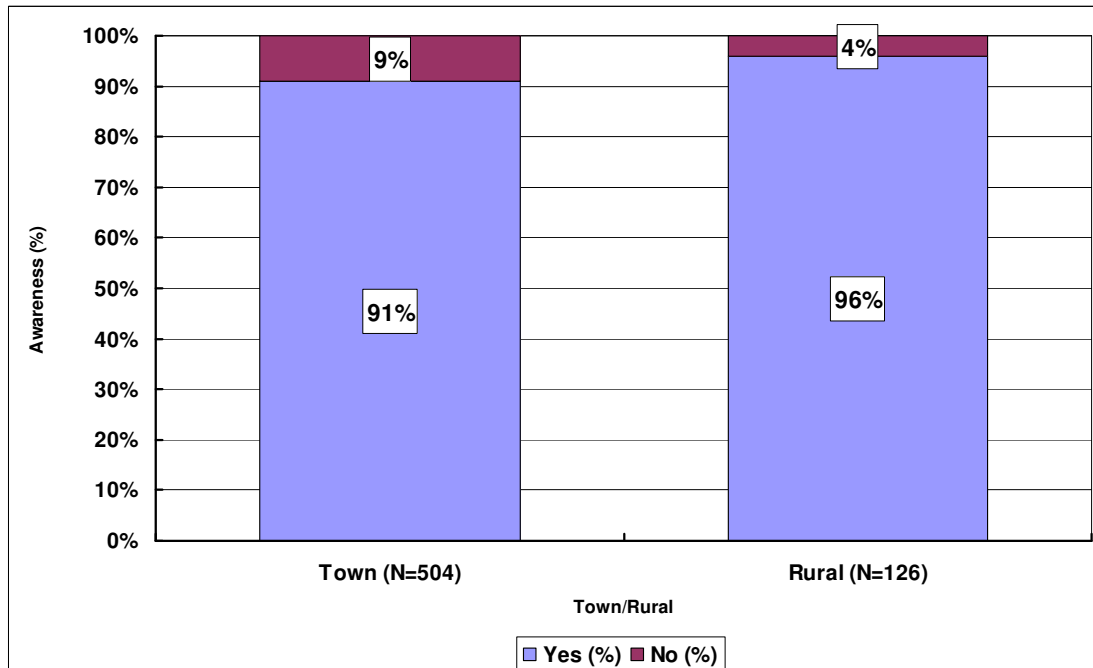
**Figure 4 - Awareness of the pipeline by town (%)**



( $\chi^2=2.72$ ,  $df=4$ ,  $p=0.61$ )

Although the analysis did not find a significant relationship between the awareness of the pipeline and town of residence, respondents who resided in rural locations were somewhat more likely to be aware of the pipeline. As demonstrated by Figure 5, 96% of rural and 91% of town residents were aware of the pipeline (significant at the 0.10 level).

**Figure 5 - Awareness of the pipeline by town/rural location (%)**



( $\chi^2=2.98$ ,  $df=1$ ,  $p=0.08$ )

## 6.4 Interest in the pipeline

As indicated previously in discussing response rates, interest in the pipeline varied by town, and by issue. Question 2 in the survey asked respondents:

“Thinking about the Wimmera-Mallee Pipeline, on a scale of 1 to 5 how interested are you in the following aspects of the project (where 1 is not at all interested and 5 is very interested)?”

There were four issues raised in terms of interest in the pipeline

- The progress of the pipeline construction
- The allocation of water from the pipeline
- How much water you will personally be able to access from the pipeline
- The pipeline in general

As indicated by Table 3, average interest was generally greatest in the *pipeline in general*, followed by the *progress of pipeline construction*, the *allocation of water and personal access from the pipeline*. The majority of respondents indicated that they were either interested or very interested (i.e. provided a rating of 4 or 5) in each of the elements under consideration. Almost of quarter of respondents (24.2%), however, did indicate that they were not at all interested in the amount of water they will personally be able to access from the pipeline.

**Table 3 - Interest in the pipeline**

	Response %					Valid n	Mean	SD
	1	2	3	4	5			
a. The progress of the pipeline construction	13.5%	7.6%	13.3%	22.5%	43.2%	579	3.74	1.42
b. The allocation of water from the pipeline	16.3%	6.3%	11.6%	20.1%	45.7%	558	3.73	1.49
c. The amount of water you will personally be able to access from the pipeline	24.2%	6.5%	10.0%	17.2%	42.3%	542	3.47	1.64
d. The pipeline in general	11.6%	4.3%	12.1%	19.9%	52.2%	579	3.97	1.36

(Scale: 1=Not at all interested, 5=Very interested)

Table 4 indicates the average interest level in each of the elements amongst respondents from the Shire’s major towns. For each of the four interest areas, Nhill residents demonstrated significantly less interest than residents from other major towns did. Furthermore, residents from Rainbow indicated a significantly higher level of interest in the amount of water they will be able to access from the pipeline and the progress of its construction than residents from the Shire’s smaller localities (i.e. the *Other* category).

**Table 4 - Interest in the pipeline by town**

	Town				
	Dimboola (a)	Jeparit (b)	Nhill (c)	Rainbow (d)	Other (e)
a. The progress of the pipeline construction	4.22 <sup>c</sup>	4.43 <sup>c</sup>	3.11	4.63 <sup>ce</sup>	3.82 <sup>c</sup>
b. The allocation of water from the pipeline	4.30 <sup>c</sup>	4.46 <sup>c</sup>	3.08	4.50 <sup>c</sup>	3.88 <sup>c</sup>
c. The amount of water you will personally be able to access from the pipeline	3.91 <sup>c</sup>	4.34 <sup>c</sup>	2.78	4.48 <sup>ce</sup>	3.56 <sup>c</sup>
d. The pipeline in general	4.41 <sup>c</sup>	4.62 <sup>c</sup>	3.34	4.76 <sup>c</sup>	4.44 <sup>c</sup>

(Scale: 1=Not at all interested, 5=Very interested)

For each significant pair ( $p < 0.05$ ), the letter of the town with the smaller mean appears under the town with the larger mean (e.g. Dimboola residents' (a) level of interest in *the progress of the pipeline construction* was significantly higher than that of Nhill residents (c), as demonstrated by 4.22<sup>c</sup>.)

As demonstrated by Table 5, residents from rural locations demonstrated significantly higher interest levels in the progress of the pipeline, the allocation of water and the pipeline in general, than their town counterparts. There was also generally less interest in the issue of personal access to water amongst both rural (mean=3.60) and town respondents (3.43).

**Table 5 - Interest in the pipeline by town/rural location**

	Town/Rural	
	Town (a)	Rural (b)
a. The progress of the pipeline construction	3.65	4.09 <sup>a</sup>
b. The allocation of water from the pipeline	3.62	4.11 <sup>a</sup>
c. The amount of water you will personally be able to access from the pipeline	3.43	3.60
d. The pipeline in general	3.87	4.34 <sup>a</sup>

(Scale: 1=Not at all interested, 5=Very interested)

For each significant pair ( $p < 0.05$ ), the letter of the location with the smaller mean appears under the location with the larger mean.



## 6.5 Perceived benefits of the pipeline

As indicated by Table 6, when respondents were asked to nominate the major **regional** benefits of the pipeline, the most common responses related to environmental benefits, more water supply of a better quality and a more reliable supply. Respondents from each of the Shire's major towns consistently raised these benefits. However, a third (33.5%) of Nhill respondents did indicate that the pipeline would provide no benefit for the region.

**Table 6 - Nominated regional benefits of the pipeline by town**

Main Theme	Town										Combined	
	Dimboola		Jeparit		Nhill		Rainbow		Other		Total	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Environmental	110	83.3%	26	57.8%	101	37.1%	55	64.7%	20	60.6%	312	55.0%
More water/Better quality	38	28.8%	20	44.4%	49	18.0%	15	17.6%	5	15.2%	127	22.4%
Reliability	41	31.1%	15	33.3%	29	10.7%	29	34.1%	12	36.4%	126	22.2%
None/No Benefit	3	2.3%	2	4.4%	91	33.5%	2	2.4%	4	12.1%	102	18.0%
Economic	22	16.7%	13	28.9%	42	15.4%	13	15.3%	3	9.1%	93	16.4%
Other (Specify)	9	6.8%	1	2.2%	16	5.9%	1	1.2%	3	9.1%	30	5.3%
Total Respondents	132		45		272		85		33		567	



Following the nomination of regional benefits, respondents were asked to identify how they believed the pipeline would benefit them **personally**. As indicated by Table 7, nearly half of respondents (45.2%) suggested that they did not believe the pipeline would provide them with any benefits. This level of negative response is however, significantly influenced by the strong representation of Nhill residents within the sample, where nearly three-quarters (72.0%) of respondents did not nominate any personal benefits derived from the introduction of the pipeline. In the Shire's other major towns, the response was more positive. A relatively high proportion of respondents in Dimboola, Jeparit and Rainbow believed that they would personally benefit from an increased availability and quality of the region's water supply.

**Table 7 - Nominated personal benefits of the pipeline by town**

Main Theme	Town										Total	
	Dimboola		Jeparit		Nhill		Rainbow		Other		Count	(%)
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
None/No Benefit	26	21.3%	6	12.8%	195	72.0%	11	13.1%	13	41.9%	251	45.2%
Water Availability	42	34.4%	13	27.7%	15	5.5%	32	38.1%	8	25.8%	110	19.8%
Quality	22	18.0%	23	48.9%	30	11.1%	22	26.2%	4	12.9%	101	18.2%
Personal/Domestic Use	16	13.1%	7	14.9%	6	2.2%	8	9.5%	1	3.2%	38	6.8%
Environment /Conservation	15	12.3%	1	2.1%	15	5.5%	4	4.8%	-	-	35	6.3%
Farming	6	4.9%	5	10.6%	4	1.5%	11	13.1%	6	19.4%	32	5.8%
Town/Region	7	5.7%	2	4.3%	9	3.3%	8	9.5%	2	6.5%	28	5.0%
Society	2	1.6%	-	-	8	3.0%	6	7.1%	-	-	16	2.9%
General	6	4.9%	-	-	-	-	3	3.6%	-	-	9	1.6%
Business	3	2.5%	-	-	2	0.7%	1	1.2%	1	3.2%	7	1.3%
Cost	4	3.3%	-	-	1	0.4%	1	1.2%	1	3.2%	7	1.3%
The Future	2	1.6%	-	-	-	-	-	-	-	-	2	0.4%
Other	6	4.9%	-	-	8	3.0%	4	4.8%	2	6.5%	20	3.6%
Total Respondents	122		47		271		84		31		555	



### 6.5.1 Expectations of the pipeline

Survey respondents were asked about specific benefits that might result either during the implementation of the pipeline, or subsequent to its construction. The list of possible benefits was derived from the business case developed for funding the pipeline.

Respondents were asked about 14 possible benefits of the pipeline. For each possible benefit, the respondents were asked to identify the following:

- a) If they believe that the pipeline will deliver the benefit – on a scale of 1 to 5 (with 1 being strongly disagree and 5 being strongly agree); and
- b) How important the benefit is to them – on a scale of 1 to 5 (with 1 being not important at all and 5 being very important)

Table 8 presents the expectations of respondents as to whether the pipeline will **deliver** the identified benefits. It indicates that Hindmarsh Shire residents are confident that the pipeline will deliver a more reliable and higher quality water supply, with nearly three-quarters (70%) of respondents either agreeing or strongly agreeing that they believe the pipeline will provide a more reliable supply for the region (Q5a), for farms (Q5c) and for towns (Q5d). However, fewer respondents are confident in the capacity of the pipeline to provide long-term benefits. Less than 50 percent of respondents agree or strongly agree that the pipeline will increase agricultural production (Q5i), create new industries and investment (Q5j) or improve the ability to buy and sell water allocations (Q5m).



**Table 8 - Expected benefits of the pipeline**

	Response %					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
a. Provide the region with a more reliable supply of water	13.3%	5.8%	8.9%	27.7%	44.3%	571	3.84 (2)	1.39
b. Increase access to improved quality of water	11.6%	7.8%	12.9%	30.0%	37.6%	550	3.74 (4)	1.34
c. Provide a more reliable and better supply of water to the region's farms	12.0%	5.4%	10.1%	30.9%	41.7%	557	3.85 (1)	1.34
d. Provide a more reliable and better supply of water to the region's towns	12.2%	6.3%	10.6%	30.9%	40.0%	567	3.80 (3)	1.35
e. Provide a more reliable and better supply of water to businesses within the region	13.1%	6.8%	11.2%	34.9%	34.0%	556	3.70 (5)	1.35
f. Improve the region's river and lake system	13.9%	9.0%	12.1%	29.5%	35.4%	545	3.63 (6)	1.40
g. Increase water flows into the Wimmera river	13.8%	7.8%	14.4%	30.5%	33.5%	501	3.62 (7)	1.38
h. Increase water for recreational, fishing and boating opportunities	16.1%	10.5%	14.2%	27.9%	31.4%	542	3.48 (8)	1.43
i. Increase agriculture production	17.9%	17.3%	20.0%	24.4%	20.4%	554	3.12 (12)	1.39
j. Create new industries and attract new investment in the region	19.3%	15.8%	19.5%	25.7%	19.7%	538	3.11 (13)	1.40
k. Improve the appeal of the region as a tourist destination	17.7%	11.6%	10.9%	26.3%	33.3%	558	3.46 (10)	1.49
l. Increase the availability of water for the region's parks and gardens	16.8%	7.4%	13.6%	34.9%	27.3%	553	3.48 (8)	1.40
m. Improve the ability to buy and sell water allocations	20.9%	13.7%	21.8%	24.7%	18.9%	417	3.07 (14)	1.41
n. Reduce the impact of low rainfall	19.0%	14.0%	14.4%	26.4%	26.1%	541	3.26 (11)	1.46

(Scale: 1=Strongly disagree, 5=Strongly agree)

### 6.5.2 Important attributes of the pipeline

Respondents were also asked to indicate the extent to which proposed benefits of the pipeline were **important** to them, on a scale of 1 to 5. Table 9 indicates that reliability (Q5a) and quality (Q5b) of water are of high importance. However, it also highlights that ecological and environmental concerns are of primary importance –



improving the river and lake system (Q5f), and increasing water flows into the Wimmera River (Q5g) had the highest proportion of people indicating that this benefit was of high importance. By comparison, new industry (Q5j), increased agricultural production (Q5i) and improving trade in water allocations (Q5m) were of lowest importance.

**Table 9 - Importance of benefits associated with the pipeline**

	Response %					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
a. Provide the region with a more reliable supply of water	13.0%	4.5%	8.3%	20.1%	54.1%	577	3.98 (3)	1.41
b. Increase access to improved quality of water	16.0%	6.7%	8.7%	19.4%	49.2%	563	3.79 (6)	1.50
c. Provide a more reliable and better supply of water to the region's farms	15.9%	4.8%	12.9%	17.5%	48.9%	566	3.79 (6)	1.48
d. Provide a more reliable and better supply of water to the region's towns	14.1%	5.4%	7.7%	23.7%	49.2%	575	3.89 (4)	1.43
e. Provide a more reliable and better supply of water to businesses within the region	16.3%	9.6%	12.4%	22.4%	39.3%	563	3.59 (12)	1.48
f. Improve the region's river and lake system	8.3%	2.8%	9.4%	23.2%	56.2%	564	4.16 (1)	1.22
g. Increase water flows into the Wimmera river	8.6%	3.3%	11.3%	21.9%	55.0%	549	4.11 (2)	1.25
h. Increase water for recreational, fishing and boating opportunities	12.9%	8.1%	14.4%	21.3%	43.3%	568	3.74 (9)	1.41
i. Increase agriculture production	19.1%	9.5%	16.4%	21.4%	33.6%	566	3.41 (13)	1.50
j. Create new industries and attract new investment in the region	13.3%	8.6%	16.0%	27.5%	34.5%	556	3.61 (11)	1.38
k. Improve the appeal of the region as a tourist destination	12.5%	8.0%	12.5%	25.8%	41.2%	566	3.75 (8)	1.39
l. Increase the availability of water for the region's parks and gardens	15.4%	5.5%	14.2%	25.1%	39.8%	565	3.68 (10)	1.43
m. Improve the ability to buy and sell water allocations	27.3%	15.6%	22.9%	16.3%	17.8%	454	2.82 (14)	1.45
n. Reduce the impact of low rainfall	13.5%	6.0%	13.6%	20.5%	46.4%	550	3.80 (5)	1.42

(Scale: 1=Not at all important, 5=Very important)



## Quadrant analysis

Following the identification of overall preferences, researchers undertook a quadrant analysis to identify the perceived strengths and weaknesses of the pipeline. This process involved an assessment of respondents' expectations concerning the proposed benefits of the pipeline, in relation to their perceived importance of these elements.

As demonstrated by Figure 6 (overleaf), the vertical axis of the quadrant represents the level of importance associated with each proposed benefit of the pipeline. The horizontal axis indicates respondents' expectations concerning the likelihood that the pipeline will deliver each proposed benefit. A comparison of the average importance of the benefit relative to the perceived expectation that the benefit will actually eventuate enables the various benefits to be classified into four quadrants (Table 17): strengths, weaknesses, adequate, maintain.

**Table 10 - Quadrant classifications**

<b>Quadrant</b>	<b>Importance rating</b>	<b>Expected benefit rating</b>
Strengths	Above average	Above average
Weaknesses	Above average	Below average
Adequate	Below average	Below average
Maintain	Below average	Above average

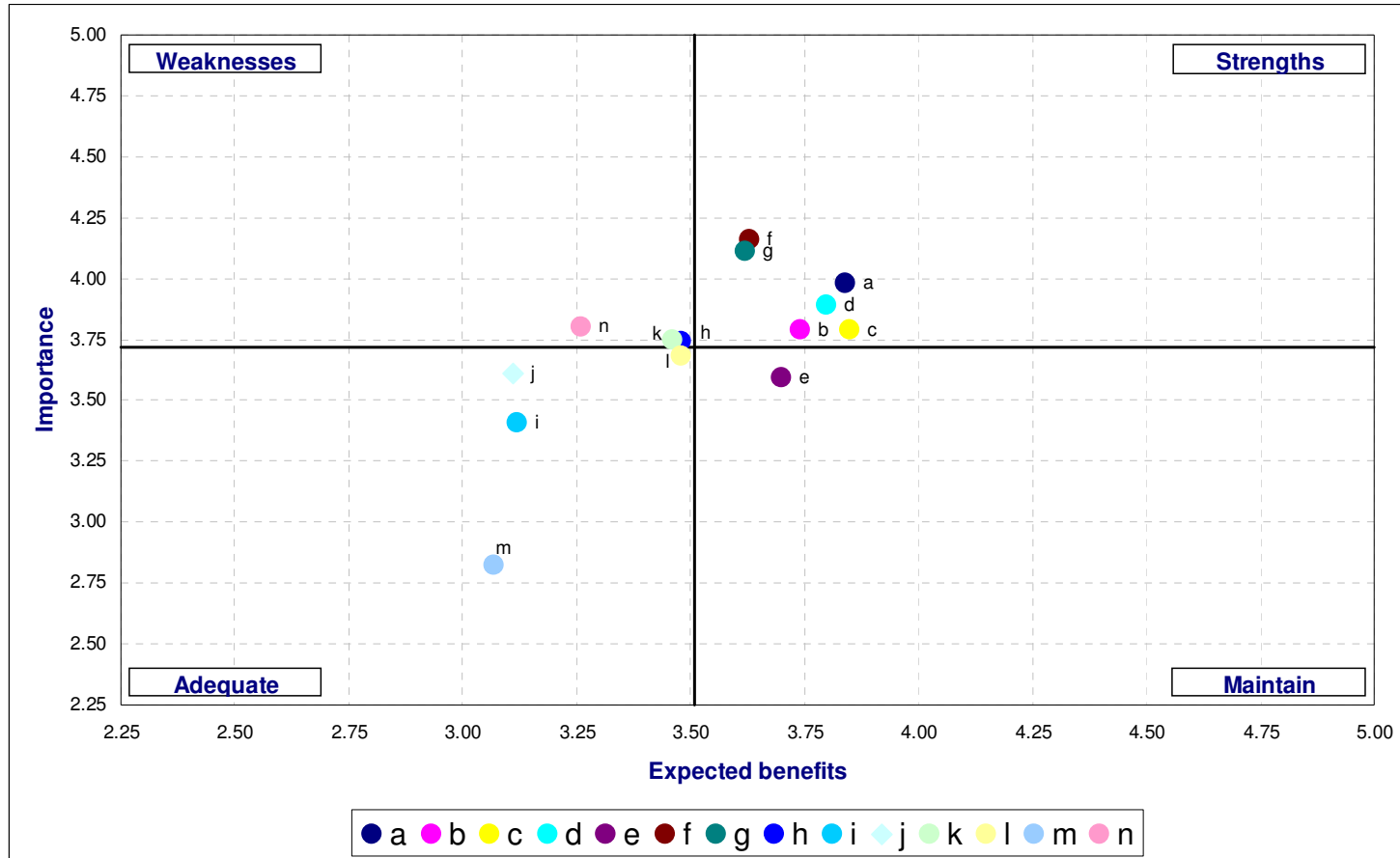
The letter codes used in the quadrant analysis represent the following identified benefits:

**Table 11 - Quadrant analysis codes**

<b>Code</b>	<b>Identified benefit</b>
a.	Provide the region with a more reliable supply of water
b.	Increase access to improved quality of water
c.	Provide a more reliable and better supply of water to the region's farms
d.	Provide a more reliable and better supply of water to the region's towns
e.	Provide a more reliable and better supply of water to businesses within the region
f.	Improve the region's river and lake system
g.	Increase water flows into the Wimmera river
h.	Increase water for recreational, fishing and boating opportunities
i.	Increase agriculture production
j.	Create new industries and attract new investment in the region
k.	Improve the appeal of the region as a tourist destination
l.	Increase the availability of water for the region's parks and gardens
m.	Improve the ability to buy and sell water allocations
n.	Reduce the impact of low rainfall



Figure 6 - Quadrant analysis - expected benefits & important attributes of the pipeline





The quadrant analysis (Figure 6) indicates that respondents perceived that the major strengths of the pipeline were in relation to:

- Providing the region with a more reliable supply of water (item a)
- Increasing access to improved quality of water (b)
- Providing a more reliable and better supply of water to the region's farms (c)
- Providing a more reliable and better supply of water to the region's towns (d)
- Improving the region's river and lake system (f)
- Increasing water flows into the Wimmera river (g)

These identified benefits can be considered as the most positive elements of the pipeline amongst respondents. Items a, b, c and d relate to providing the region with a more reliable and better supply of the pipeline. These elements are considered core benefits of the pipeline to the region and the perceptions of respondents are in accordance with this overall objective.

In contrast, respondents considered the following elements were considered relative weaknesses of the pipeline:

- Reducing the impact of low rainfall (n)
- Improving the appeal of the region as a tourist destination (k)
- Increasing water for recreational, fishing and boating opportunities (h)

This finding suggests that there is some level of cynicism concerning the ability of the pipeline to alleviate drought effects, increase visitation and increase water recreational activities - all of which were considered relatively important benefits by respondents. Consequently, it is important that the pipeline's ability to deliver such benefits be more effectively communicated to local residents. As important aspects of water supply within the region, the ability of the pipeline to deliver such benefits is likely to affect overall attitudes towards the initiative.

Respondents also indicated that they had relatively low expectations concerning the ability of the pipeline to deliver benefits relating to increasing agriculture production (item i); creating new industries and attracting new investment (j); increasing the availability of water for the region's parks and gardens (l); and improving the ability to buy and sell water allocations (m). These elements were, however, considered less important than those within the 'weaknesses' quadrant. Therefore, it is considered more important to direct resources towards allowing the pipeline to deliver and communicating the benefits identified as 'weaknesses' by residents.

The pipeline's ability to provide a more reliable and better supply of water to businesses within the region was considered to be below average in importance, yet above average in terms of respondents' expectations. Therefore, the pipeline's ability to provide this benefit is not considered as essential as those considered as strengths by respondents. Furthermore, the difference in the level of importance placed on this item amongst business owners (mean=3.62) and non-business owners (3.57) was not significant.

### Expected benefits and important attributes of the pipeline by town

As indicated by Table 12, expectations concerning the ability of the pipeline to deliver each identified benefit were significantly lower in Nhill than other major towns in the Shire. This finding is reflective of Nhill residents' generally perception that the pipeline will not provide direct benefits to their town.

**Table 12 - Expected benefits of the pipeline by town**

	<i>Dimboola</i> (a) Mean	<i>Jeparit</i> (b) Mean	<i>Nhill</i> (c) Mean	<i>Rainbow</i> (d) Mean	<i>Other</i> (e) Mean
a. Provide the region with a more reliable supply of water	4.31 <sup>c</sup>	4.49 <sup>c</sup>	3.17	4.65 <sup>c</sup>	4.41 <sup>c</sup>
b. Increase access to improved quality of water	4.10 <sup>c</sup>	4.52 <sup>c</sup>	3.19	4.24 <sup>c</sup>	4.21 <sup>c</sup>
c. Provide a more reliable and better supply of water to the region's farms	4.28 <sup>c</sup>	4.53 <sup>c</sup>	3.18	4.61 <sup>c</sup>	4.47 <sup>c</sup>
d. Provide a more reliable and better supply of water to the region's towns	4.35 <sup>c</sup>	4.43 <sup>c</sup>	3.16	4.52 <sup>c</sup>	4.24 <sup>c</sup>
e. Provide a more reliable and better supply of water to businesses within the region	4.08 <sup>c</sup>	4.48 <sup>c</sup>	3.11	4.35 <sup>c</sup>	4.21 <sup>c</sup>
f. Improve the region's river and lake system	3.93 <sup>c</sup>	4.22 <sup>c</sup>	3.19	4.02 <sup>c</sup>	4.06 <sup>c</sup>
g. Increase water flows into Wimmera river	3.93 <sup>c</sup>	3.98 <sup>c</sup>	3.16	4.18 <sup>c</sup>	3.83
h. Increase water for recreational, fishing and boating opportunities	3.91 <sup>c</sup>	4.14 <sup>c</sup>	2.97	3.94 <sup>c</sup>	3.88 <sup>c</sup>
i. Increase agriculture production	3.34 <sup>c</sup>	3.89 <sup>c</sup>	2.78	3.32 <sup>c</sup>	3.36
j. Create new industries and attract new investment in the region	3.55 <sup>c</sup>	3.90 <sup>c</sup>	2.64	3.51 <sup>c</sup>	3.09
k. Improve the appeal of the region as a tourist destination	3.89 <sup>c</sup>	4.33 <sup>c</sup>	2.87	4.08 <sup>c</sup>	3.62 <sup>c</sup>
l. Increase the availability of water for the region's parks and gardens	4.12 <sup>c</sup>	4.37 <sup>c</sup>	2.76	4.23 <sup>c</sup>	3.76 <sup>c</sup>
m. Improve the ability to buy and sell water allocations	3.35 <sup>c</sup>	3.69 <sup>c</sup>	2.66	3.43 <sup>c</sup>	3.46 <sup>c</sup>
n. Reduce the impact of low rainfall	3.71 <sup>c</sup>	3.77 <sup>c</sup>	2.87	3.52 <sup>c</sup>	3.29

(Scale: 1=Strongly disagree, 5=Strongly agree)

For each significant pair ( $p < 0.05$ ), the letter of the town with the smaller mean appears under the town with the larger mean.

The significantly lower expectations concerning the benefits of the pipeline amongst Nhill residents, was also reflected in the importance of such elements. Nhill residents consistently provided a lower rating for each of the items, in relation to respondents from other towns within the Shire.

**Table 13 - Importance of benefits associated with the pipeline by town**

	<i>Dimboola</i> (a) Mean	<i>Jeparit</i> (b) Mean	<i>Nhill</i> (c) Mean	<i>Rainbow</i> (d) Mean	<i>Other</i> (e) Mean
a. Provide the region with a more reliable supply of water	4.54 <sup>c</sup>	4.68 <sup>c</sup>	3.3	4.76 <sup>c</sup>	4.29 <sup>c</sup>
b. Increase access to improved quality of water	4.4 <sup>c</sup>	4.74 <sup>c</sup>	3.05	4.53 <sup>c</sup>	3.97 <sup>c</sup>
c. Provide a more reliable and better supply of water to the region's farms	4.37 <sup>c</sup>	4.38 <sup>c</sup>	3.11	4.58 <sup>c</sup>	4 <sup>c</sup>
d. Provide a more reliable and better supply of water to the region's towns	4.5 <sup>c</sup>	4.7 <sup>c</sup>	3.21	4.58 <sup>c</sup>	4.09 <sup>c</sup>
e. Provide a more reliable and better supply of water to businesses within the region	4.06 <sup>c</sup>	4.49 <sup>c</sup>	2.90	4.42 <sup>c</sup>	3.88 <sup>c</sup>
f. Improve the region's river and lake system	4.36 <sup>c</sup>	4.8 <sup>c</sup>	3.78	4.64 <sup>c</sup>	4.3
g. Increase water flows into the Wimmera river	4.45 <sup>c</sup>	4.73 <sup>c</sup>	3.66	4.55 <sup>c</sup>	4.44 <sup>c</sup>
h. Increase water for recreational, fishing and boating opportunities	4.04 <sup>c</sup>	4.46 <sup>c</sup>	3.26	4.37 <sup>c</sup>	3.94 <sup>c</sup>
i. Increase agriculture production	3.88 <sup>c</sup>	4.06 <sup>c</sup>	2.95	3.77 <sup>c</sup>	3.39
j. Create new industries and attract new investment in the region	3.82 <sup>c</sup>	4.16 <sup>c</sup>	3.3	4.12 <sup>ce</sup>	3.33
k. Improve the appeal of the region as a tourist destination	4.07 <sup>c</sup>	4.43 <sup>c</sup>	3.28	4.42 <sup>c</sup>	3.68
l. Increase the availability of water for the region's parks and gardens	4.15 <sup>c</sup>	4.3 <sup>c</sup>	3.14	4.42 <sup>ce</sup>	3.5
m. Improve the ability to buy and sell water allocations	3.12 <sup>c</sup>	3.67 <sup>c</sup>	2.36	3.17 <sup>c</sup>	3.31 <sup>c</sup>
n. Reduce the impact of low rainfall	4.32 <sup>c</sup>	4.48 <sup>c</sup>	3.27	4.36 <sup>c</sup>	3.7

(Scale: 1=Not at all important, 5=Very Important)

For each significant pair ( $p < 0.05$ ), the letter of the town with the smaller mean appears under the town with the larger mean.

The quadrant analysis undertaken for the overall ratings concerning the expected benefits and importance of attributes relating to the pipeline were replicated for each of the major towns (refer figures on pages 23-26).

### Summary of town quadrant analysis:

- Dimboola residents considered most of the items as relative strengths of the pipeline, however, its ability to increase agriculture production (item i) was identified as a weakness (refer Figure 7).
- Jeparit residents provided an above average rating regarding their expectations of the pipeline to deliver each of the identified benefits. Furthermore, the only item that the town's residents did not provide an above average importance rating for was improving the ability to buy and sell water allocations (item m) (refer Figure 8).
- Respondents who resided in Nhill, provided below average expectations regarding the pipeline's ability to deliver each of the identified benefits. Furthermore, Nhill residents also indicated below average ratings concerning the importance of each benefit with the exception of improvements to the region's river and lake system (item f). This analysis demonstrates that although Nhill residents' perceptions of the pipeline were significantly lower than other towns, the relatively low level of importance placed on these



aspects suggests that this sentiment is not a direct weakness of the pipeline (refer Figure 9).

- Respondents from Rainbow generally perceived the identified benefits to be a strength of the pipeline. Nevertheless, expectations relating to the ability of the pipeline to increase agriculture production were disproportionate to the relative level of importance placed on this aspect (refer Figure 10).
- Residents within the Shire's smaller towns demonstrated the greatest variability concerning their perceived benefits of the pipeline. Although the majority of items were considered strengths of the pipeline, the level of expectations and importance of several items, in particular, creating new industries and attracting new investment in the region (item j); increasing agriculture production (i); and improving the ability to buy and sell water allocations (m), were relatively low (refer Figure 11).



Figure 7 - Quadrant analysis - expected benefits & important attributes of the pipeline (Dimboola)

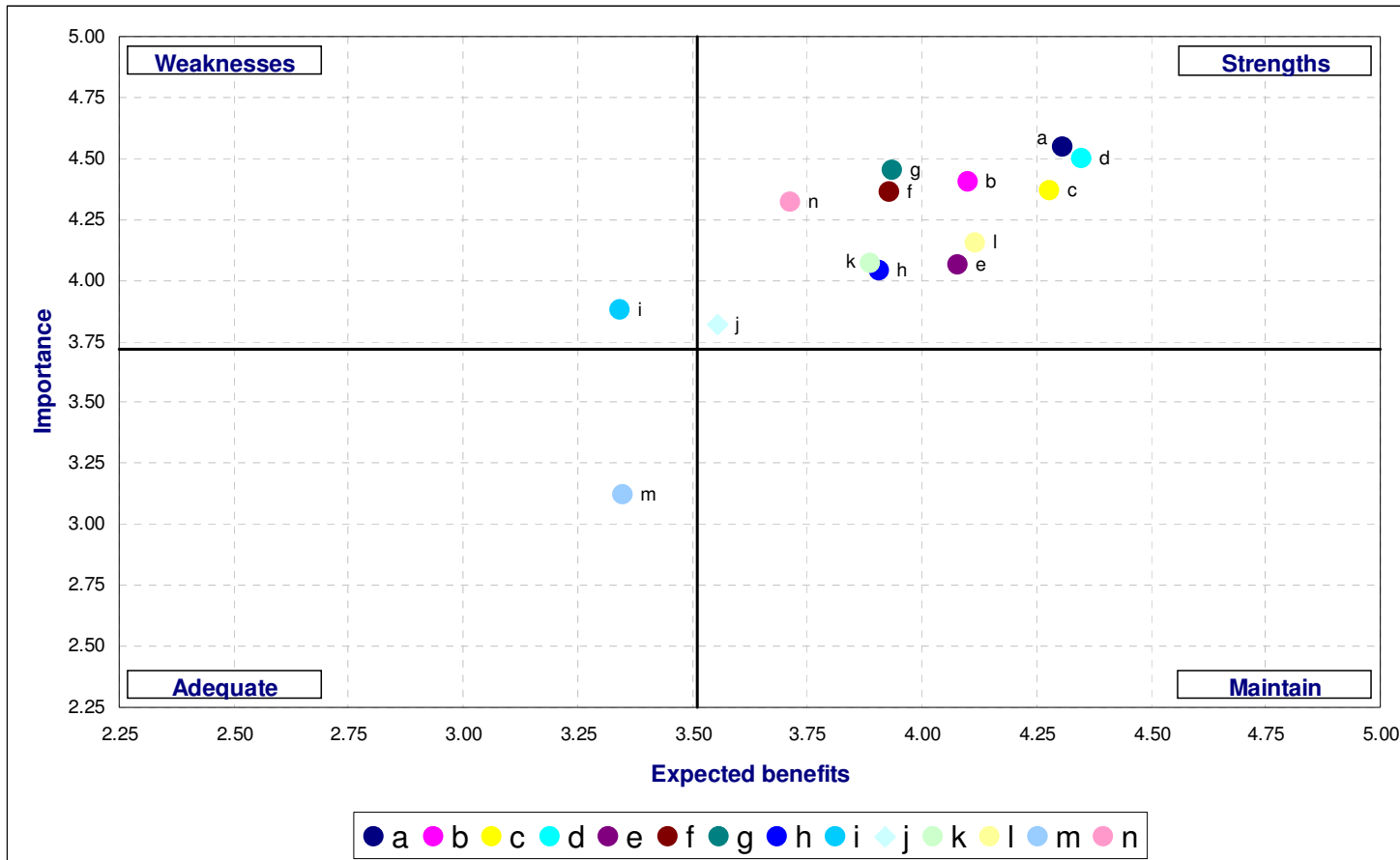


Figure 8 - Quadrant analysis - expected benefits & important attributes of the pipeline (Jeparit)

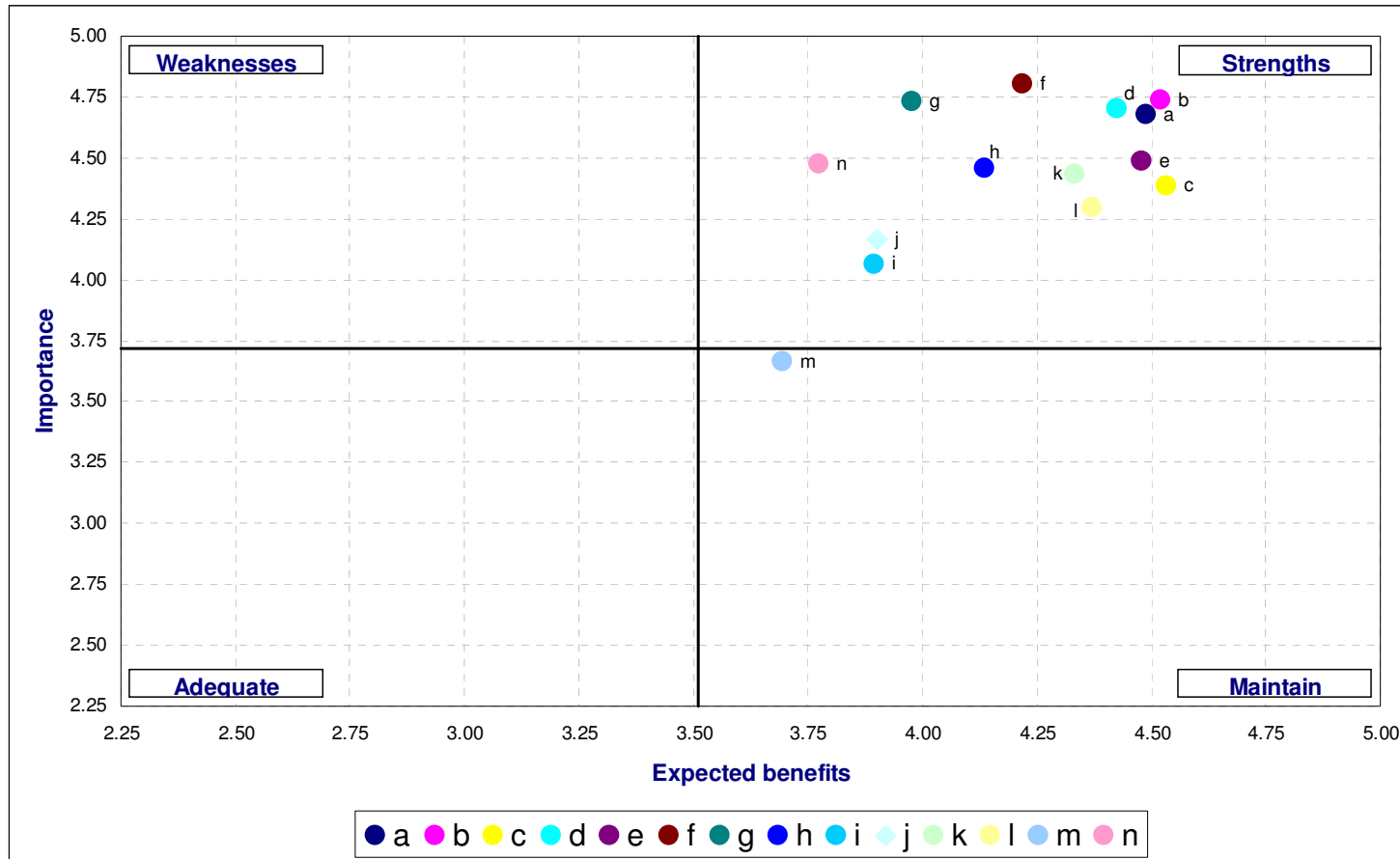


Figure 9 - Quadrant analysis - expected benefits & important attributes of the pipeline (Nhill)

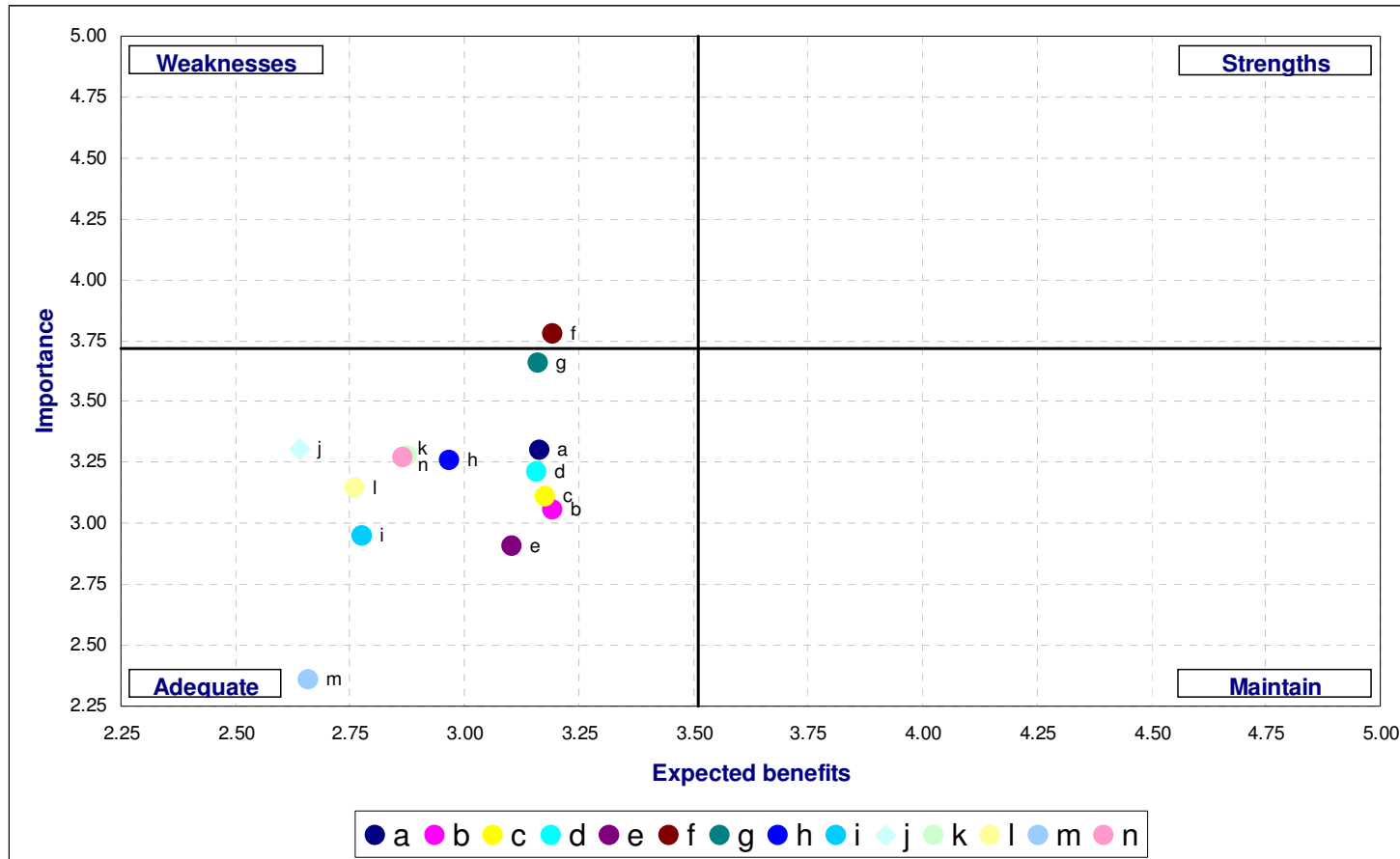


Figure 10 - Quadrant analysis - expected benefits & important attributes of the pipeline (Rainbow)

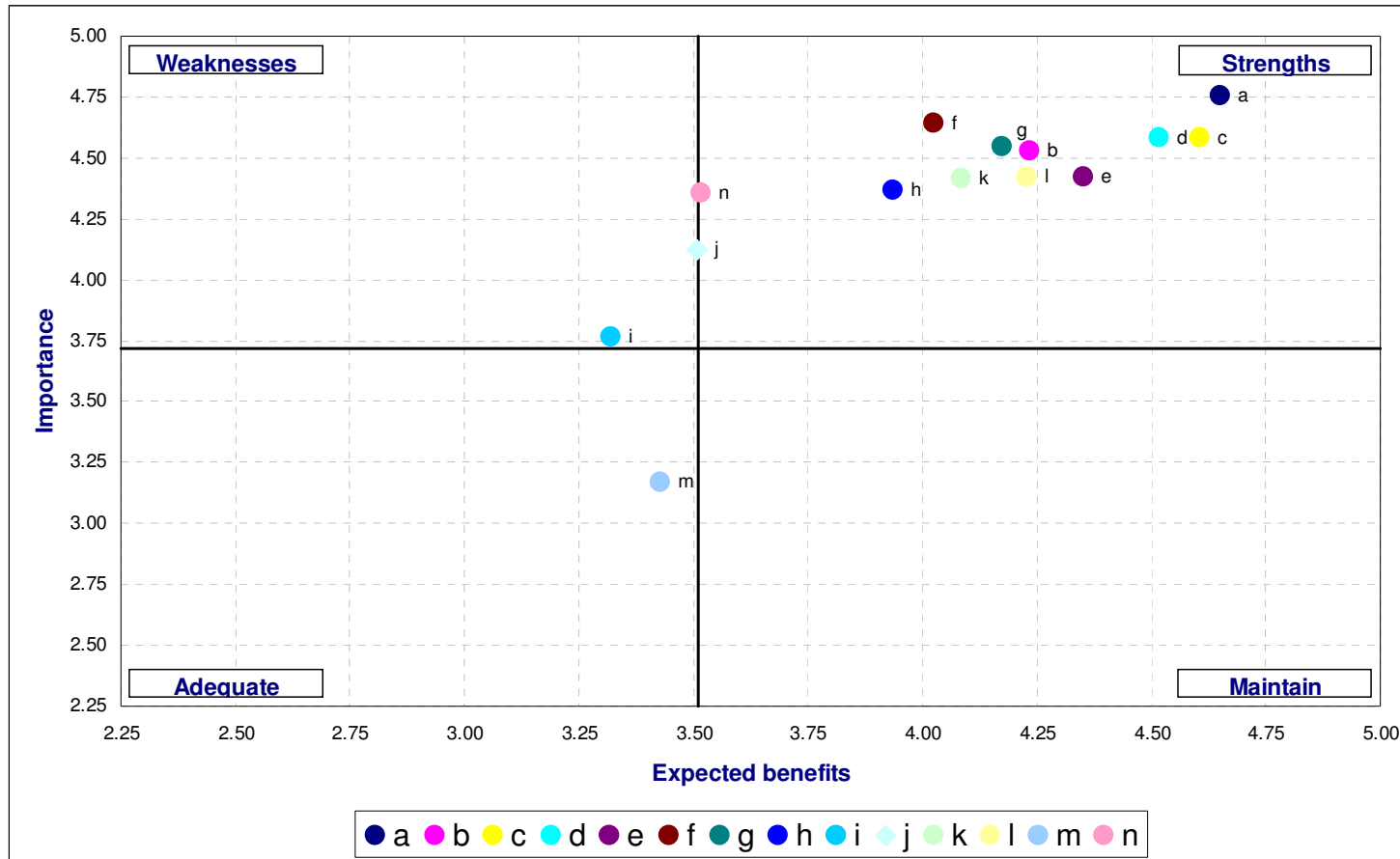
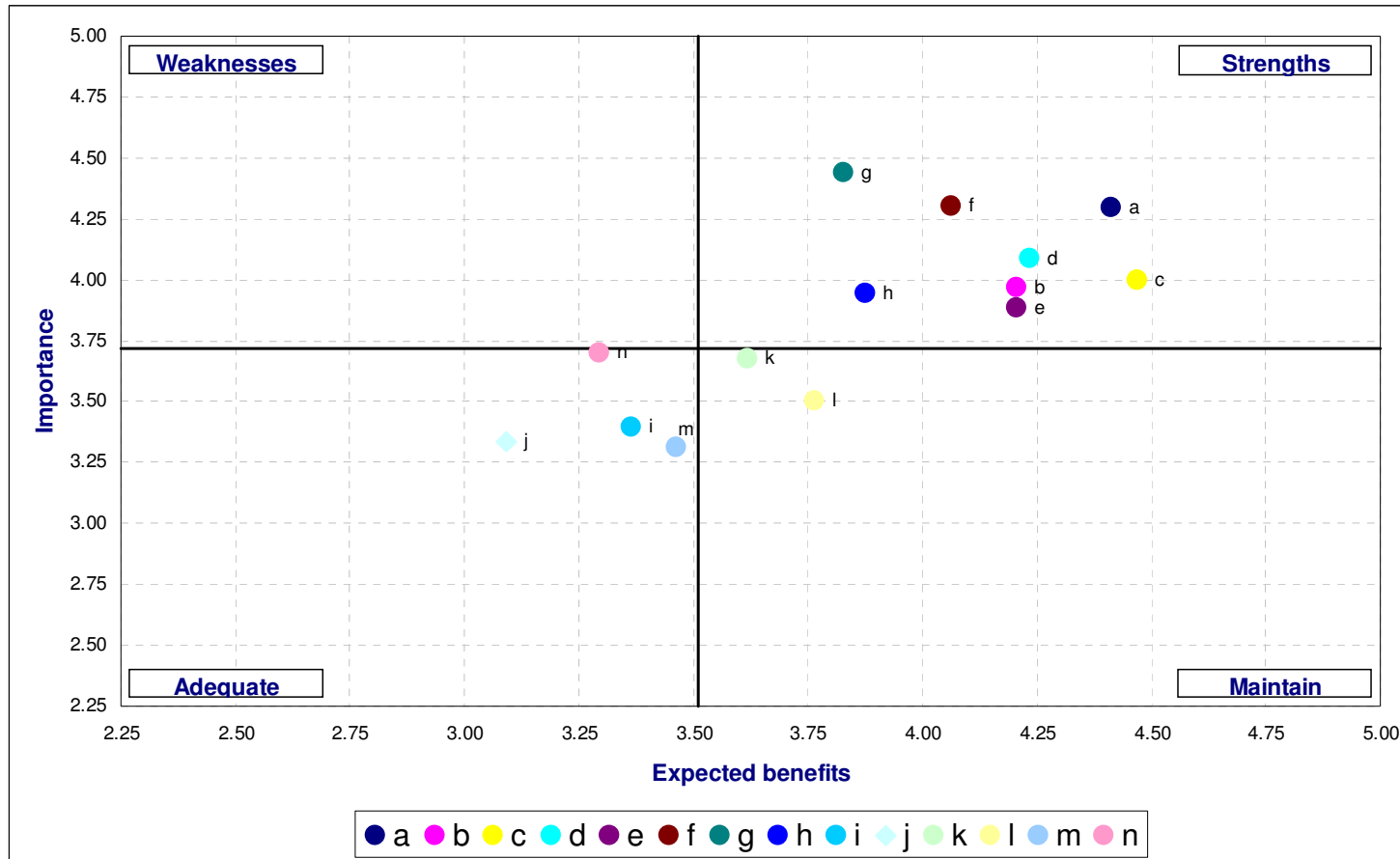


Figure 11 - Quadrant analysis - expected benefits & important attributes of the pipeline (Other)



## Expected benefits and important attributes of the pipeline by town/rural location

As indicated by Table 14, respondents that lived in rural locations had higher expectations compared to their town counterparts regarding a number of identified benefits deriving from the pipeline. In particular, rural residents were more optimistic in the pipeline's ability to:

- provide the region with a more reliable supply of water (item a);
- provide a more reliable and better supply of water to the region's farms (c), towns (d) and businesses (e);
- increase water flows into the Wimmera river (g);
- increase water for recreational, fishing and boating opportunities (h);
- improve the appeal of the region as a tourist destination (k);
- increase the availability of water for the region's parks and gardens (l); and
- improve the ability to buy and sell water allocations (m)

**Table 14 - Expected benefits of the pipeline by town/rural location**

	<i>Town</i> (a) Mean	<i>Rural</i> (b) Mean
a. Provide the region with a more reliable supply of water	3.75	4.17 <sup>a</sup>
b. Increase access to improved quality of water	3.7	3.89
c. Provide a more reliable and better supply of water to the region's farms	3.77	4.14 <sup>a</sup>
d. Provide a more reliable and better supply of water to the region's towns	3.71	4.16 <sup>a</sup>
e. Provide a more reliable and better supply of water to businesses within the region	3.62	3.98 <sup>a</sup>
f. Improve the region's river and lake system	3.6	3.76
g. Increase water flows into the Wimmera river	3.55	3.88 <sup>a</sup>
h. Increase water for recreational, fishing and boating opportunities	3.41	3.73 <sup>a</sup>
i. Increase agriculture production	3.09	3.25
j. Create new industries and attract new investment in the region	3.07	3.22
k. Improve the appeal of the region as a tourist destination	3.39	3.71 <sup>a</sup>
l. Increase the availability of water for the region's parks and gardens	3.42	3.72 <sup>a</sup>
m. Improve the ability to buy and sell water allocations	2.98	3.40 <sup>a</sup>
n. Reduce the impact of low rainfall	3.22	3.41

(Scale: 1=Strongly disagree, 5=Strongly agree)

For each significant pair ( $p < 0.05$ ), the letter of the location with the smaller mean appears under the location with the larger mean.

The importance of the identified benefits was similar for both town and rural residents. The only exception being increased water for recreational, fishing and boating opportunities (item h), which was considered significantly more important for rural residents.



**Table 15 - Importance of benefits associated with the pipeline by town/rural location**

	<i>Town</i> (a) Mean	<i>Rural</i> (b) Mean
a. Provide the region with a more reliable supply of water	3.93	4.17
b. Increase access to improved quality of water	3.75	3.93
c. Provide a more reliable and better supply of water to the region's farms	3.73	4.00
d. Provide a more reliable and better supply of water to the region's towns	3.85	4.01
e. Provide a more reliable and better supply of water to businesses within the region	3.52	3.82
f. Improve the region's river and lake system	4.13	4.27
g. Increase water flows into the Wimmera river	4.09	4.20
h. Increase water for recreational, fishing and boating opportunities	3.66	4.03 <sup>a</sup>
i. Increase agriculture production	3.35	3.63
j. Create new industries and attract new investment in the region	3.58	3.75
k. Improve the appeal of the region as a tourist destination	3.71	3.90
l. Increase the availability of water for the region's parks and gardens	3.68	3.70
m. Improve the ability to buy and sell water allocations	2.77	3.00
n. Reduce the impact of low rainfall	3.76	3.97

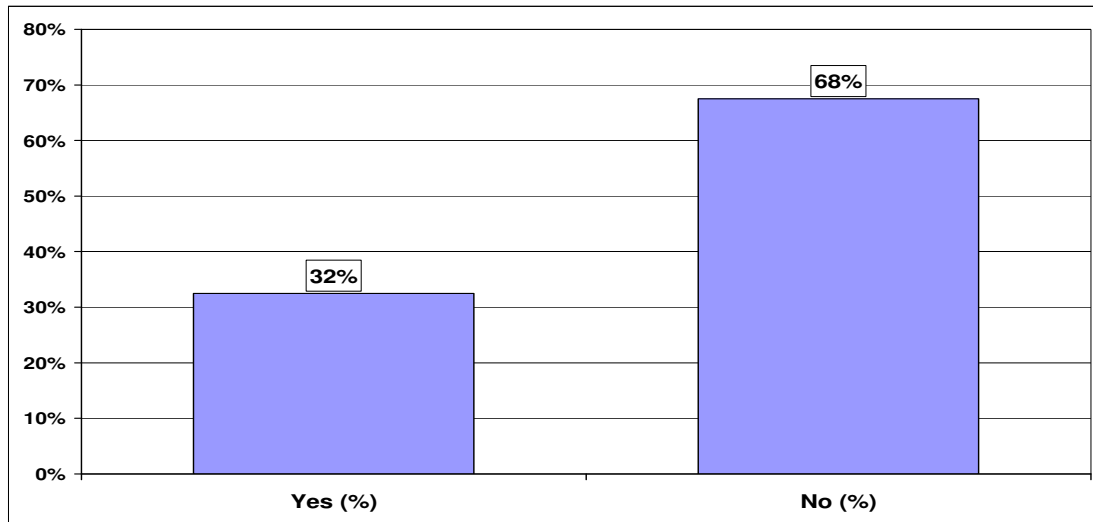
(Scale: 1=Not at all important, 5=Very important)

For each significant pair ( $p < 0.05$ ), the letter of the location with the smaller mean appears under the location with the larger mean.

### 6.5.3 Agricultural benefits and important attributes of the pipeline

Respondents who personally worked or had family members working in farming or primary production industries, were asked a series of questions regarding the potential benefits of the pipeline to farming. Figure 12 shows that 32 percent of respondents (or 189 respondents in total) either worked themselves or had another member of the household working in farming or primary production.

**Figure 12 – Respondents with a connection to farming or primary production (%)**



Base = Respondents who were aware of the pipeline (n=582)

These 189 respondents were asked about their expectations concerning a series of potential impacts of the pipeline on the agricultural, horticulture or any other farming or primary production industries. They were asked to respond in two ways:

- a) “If you believe that the pipeline will deliver the following aspects – on a scale of 1 to 5 (with 1 being strongly disagree and 5 being strongly agree)”; and
- b) “How important the aspect is to you – on a scale of 1 to 5 (with 1 being not important at all and 5 being very important)”

Table 16 shows that respondents expected that the likely impact of the pipeline would be in terms of specific on-farm benefits rather than longer-term business developments. For example, 59.9 percent of respondents agreed or strongly agreed that the pipeline would reduce the reliance on rainwater for pesticides and herbicides (item h) and flexibility in water supply (c). In contrast, only 49.4 percent of respondents believed that the pipeline would increase new horticulture opportunities.

In terms of the importance of farming-related benefits, a similar pattern to that of the expected benefits emerged. Specific benefits (such as flexibility with water supply) are rated highly, whereas longer-term business development issues are rated of lower importance.

As indicated by the quadrant analysis of expected farming benefits and the importance of these attributes (Figure 13), no apparent weaknesses arise regarding respondents’ perceptions of the pipeline. Although respondents’ expectations relating to increased horticulture opportunities (item b), increasing opportunities to move into new business areas (g) and increasing the effectiveness of pesticides & spray units were relatively low, the importance of these attributes were also considered below average. The three major strengths of the pipeline, arising from this analysis, relate to a more flexible water supply (item c), increased agriculture opportunities (a) and improved livestock condition & size (d).

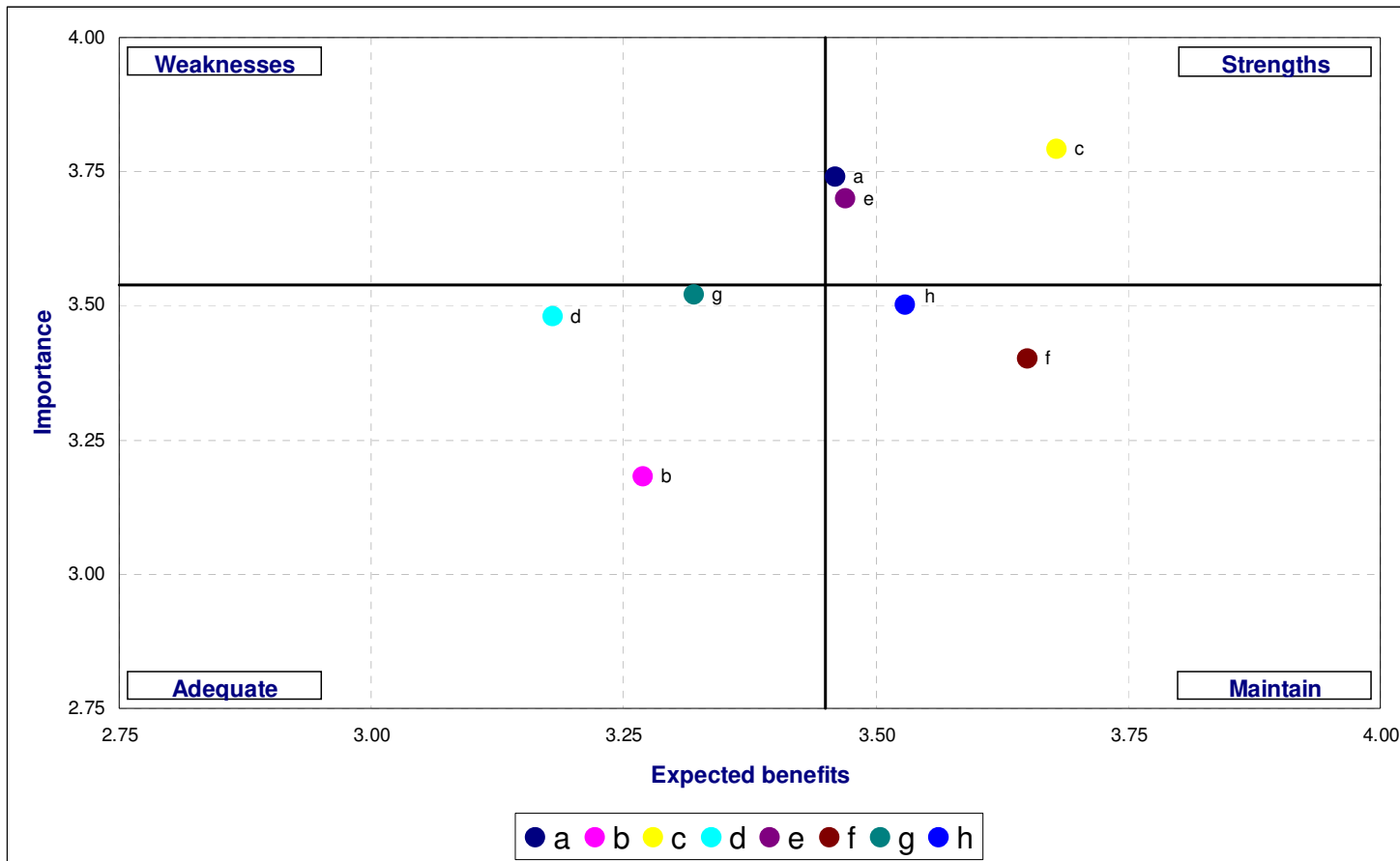


**Table 16 – Expectations and importance of the pipeline’s farming benefits**

	Response %					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
<b>Expectations</b>								
a. Increased agriculture opportunities	13.5%	10.3%	16.2%	36.8%	23.2%	185	3.46 (5)	1.32
b. Increase horticulture opportunities	12.4%	5.9%	15.6%	28.0%	38.2%	176	3.27 (7)	1.27
c. More flexible water supply	12.5%	14.8%	23.3%	31.8%	17.6%	181	3.68 (1)	1.31
d. Increase the effectiveness of pesticides & spray units	16.9%	16.9%	20.8%	21.9%	23.5%	160	3.18 (8)	1.49
e. Improve livestock condition & size	12.2%	6.6%	13.3%	37.0%	30.9%	180	3.47 (4)	1.40
f. Further development of intensive livestock enterprises	12.0%	8.7%	11.5%	24.0%	43.7%	181	3.65 (2)	1.31
g. Increase opportunities to move into new business areas	23.1%	11.3%	13.8%	28.8%	23.1%	180	3.32 (6)	1.32
h. Reduce the need to use rainwater for pesticides & herbicides	21.3%	7.7%	11.8%	20.1%	39.1%	172	3.53 (3)	1.39
<b>Importance</b>								
a. Increased agriculture opportunities	13.9%	13.9%	12.8%	30.6%	28.9%	186	3.74 (2)	1.35
b. Increase horticulture opportunities	14.1%	9.8%	8.2%	27.7%	40.2%	183	3.18 (8)	1.41
c. More flexible water supply	12.7%	5.0%	17.7%	34.3%	30.4%	183	3.79 (1)	1.40
d. Increase the effectiveness of pesticides & spray units	15.3%	10.9%	18.6%	29.0%	26.2%	169	3.48 (6)	1.57
e. Improve livestock condition & size	14.4%	12.8%	18.9%	34.4%	19.4%	184	3.70 (3)	1.44
f. Further development of intensive livestock enterprises	11.4%	10.3%	23.4%	24.5%	30.4%	183	3.40 (7)	1.38
g. Increase opportunities to move into new business areas	14.5%	8.7%	16.9%	28.5%	31.4%	184	3.52 (4)	1.33
h. Reduce the need to use rainwater for pesticides & herbicides	14.7%	14.7%	15.8%	15.8%	39.0%	177	3.50 (5)	1.49



Figure 13 - Quadrant analysis - expected farming benefits & important farming attributes of the pipeline





As indicated in the following table, Nhill residents generally had lower expectations concerning the farming benefits that the pipeline will provide. Furthermore, Nhill residents generally considered such benefits to be less important than respondents from other major towns in the Shire (refer Table 18).

**Table 17 - Expectations of the pipeline’s farming benefits by town**

	<i>Dimboola</i> (a) Mean	<i>Jeparit</i> (b) Mean	<i>Nhill</i> (c) Mean	<i>Rainbow</i> (d) Mean	<i>Other</i> (e) Mean
a. Increased agriculture opportunities	3.50	4.08	3.01	3.69	4.19 <sup>c</sup>
b. Increase horticulture opportunities	3.48	3.62	2.86	3.42	3.90 <sup>c</sup>
c. More flexible water supply	3.74	4.08	3.24	4.03 <sup>c</sup>	4.29 <sup>c</sup>
d. Increase the effectiveness of pesticides & spray units	3.47 <sup>c</sup>	4.58 <sup>ce</sup>	2.38	3.89 <sup>c</sup>	3.11
e. Improve livestock condition & size	3.54	4.58 <sup>c</sup>	3.01	3.82 <sup>c</sup>	3.68
f. Further development of intensive livestock enterprises	3.74	4.25 <sup>c</sup>	3.09	4.11 <sup>c</sup>	4.29 <sup>c</sup>
g. Increase opportunities to move into new business areas	3.61 <sup>c</sup>	3.92 <sup>c</sup>	2.84	3.63 <sup>c</sup>	3.65
h. Reduce the need to use rainwater for pesticides & herbicides	3.79	4.00	3.10	3.89 <sup>c</sup>	3.70

(Scale: 1=Strongly disagree, 5=Strongly agree)

For each significant pair ( $p < 0.05$ ), the letter of the town with the smaller mean appears under the town with the larger mean.

**Table 18 - Importance of the pipeline’s farming benefits by town**

	<i>Dimboola</i> (a) Mean	<i>Jeparit</i> (b) Mean	<i>Nhill</i> (c) Mean	<i>Rainbow</i> (d) Mean	<i>Other</i> (e) Mean
a. Increased agriculture opportunities	3.81	4.46 <sup>c</sup>	3.16	4.26 <sup>c</sup>	4.33 <sup>c</sup>
b. Increase horticulture opportunities	3.61 <sup>c</sup>	3.54	2.68	3.26	4.00 <sup>c</sup>
c. More flexible water supply	4.09 <sup>c</sup>	4.69 <sup>c</sup>	3.10	4.37 <sup>c</sup>	4.19 <sup>c</sup>
d. Increase the effectiveness of pesticides & spray units	3.82 <sup>c</sup>	4.33 <sup>c</sup>	2.70	4.16 <sup>c</sup>	3.74
e. Improve livestock condition & size	4.03 <sup>c</sup>	4.83 <sup>c</sup>	3.03	4.23 <sup>c</sup>	4.00 <sup>c</sup>
f. Further development of intensive livestock enterprises	3.69 <sup>c</sup>	4.17 <sup>c</sup>	2.87	3.87 <sup>c</sup>	3.52
g. Increase opportunities to move into new business areas	3.85 <sup>c</sup>	4.00	3.08	3.74	3.95
h. Reduce the need to use rainwater for pesticides & herbicides	3.82 <sup>c</sup>	4.08 <sup>c</sup>	2.85	4.24 <sup>c</sup>	3.55

(Scale: 1=Not at all important, 5=Very important)

For each significant pair ( $p < 0.05$ ), the letter of the town with the smaller mean appears under the town with the larger mean.

The levels of expectations concerning the farming benefits provided by the pipeline were generally similar for both town and rural residents. The only irregularity was expectations relating to the further development of intensive livestock enterprises (item f), which were significantly higher for rurally based respondents.



**Table 19 - Expectations of the pipeline's farming benefits by town/rural location**

	Town (a) Mean	Rural (b) Mean
a. Increased agriculture opportunities	3.37	3.55
b. Increase horticulture opportunities	3.23	3.31
c. More flexible water supply	3.56	3.80
d. Increase the effectiveness of pesticides & spray units	3.05	3.29
e. Improve livestock condition & size	3.42	3.52
f. Further development of intensive livestock enterprises	3.40	3.88 <sup>a</sup>
g. Increase opportunities to move into new business areas	3.30	3.33
h. Reduce the need to use rainwater for pesticides & herbicides	3.53	3.54

(Scale: 1=Strongly disagree, 5=Strongly agree)

For each significant pair ( $p < 0.05$ ), the letter of the location with the smaller mean appears under the location with the larger mean.

The correspondence between town and rural respondents' expectations of the pipeline's farming benefits was replicated by the importance that such attributes hold for each group.

**Table 20 - Importance of the pipeline's farming benefits by town/rural location**

	Town (a) Mean	Rural (b) Mean
a. Increased agriculture opportunities	3.62	3.85
b. Increase horticulture opportunities	3.13	3.23
c. More flexible water supply	3.70	3.87
d. Increase the effectiveness of pesticides & spray units	3.49	3.47
e. Improve livestock condition & size	3.78	3.62
f. Further development of intensive livestock enterprises	3.30	3.50
g. Increase opportunities to move into new business areas	3.43	3.61
h. Reduce the need to use rainwater for pesticides & herbicides	3.53	3.47

(Scale: 1=Not at all important, 5=Very important)

For each significant pair ( $p < 0.05$ ), the letter of the location with the smaller mean appears under the location with the larger mean.

### 6.5.4 General benefits associated with the pipeline

After identifying particular benefits or impacts of the pipeline, respondents were also asked to indicate their perceptions of the key benefits or impacts overall, in terms of economic, social and environmental impact. Respondents were asked to address the following:

"Now I would like to ask about the impact of the pipeline overall. Again, on a scale of 1 to 5, I'd like to know if you believe a) that the pipeline will produce the following aspects; and b) how important this aspect is to you.



The Wimmera-Mallee Pipeline project will...

- a. Improve the region's economy
- b. Improve the region's social activities
- c. Improve the region's environment

indicates the extent to which respondents felt that the Wimmera-Mallee pipeline would improve the economy, socialisation and the environment. It shows that Hindmarsh residents perceive that the pipeline will deliver on all three "triple-bottom line" elements, with consistency in the extent to which respondents believe that economic, social and environmental improvements will occur because of the pipeline.

By comparison, respondents were generally more interested in economic and environmental outcomes than social benefits of the pipeline. The importance ratings in, show that only 64.8 percent of Hindmarsh residents felt that improvement in social activities was important (a rating of 4) or very important (5), compared to 71.1 percent for economic improvement, and 76.5 percent interested in environmental improvements.

**Table 21 – Expectations & importance of general benefits associated with the pipeline**

	Response %					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
<b>Expectations</b>								
a. Improve the region's economy	13.1%	9.7%	15.5%	34.5%	27.2%	556	3.53 (2)	1.33
b. Improve the region's social activities	15.7%	10.7%	15.0%	31.3%	27.2%	559	3.43 (3)	1.40
c. Improve the region's environment	13.1%	9.4%	13.7%	34.3%	29.5%	563	3.58 (1)	1.35
<b>Importance</b>								
a. Improve the region's economy	9.6%	6.7%	12.6%	25.1%	46.0%	565	3.91 (2)	1.31
b. Improve the region's social activities	11.1%	8.8%	15.3%	27.4%	37.4%	569	3.71 (3)	1.34
c. Improve the region's environment	8.2%	3.9%	11.4%	29.3%	47.2%	570	4.03 (1)	1.22

(Expectations scale: 1=Strongly disagree, 5=Strongly agree)

(Importance scale: 1=Not at all important, 5=Very important)

Table 29 also shows that the level of expectations in the general benefits from the pipeline varied by town. Nhill residents once again had lower expectations and lower levels of importance in all three triple-bottom line items, relative to other towns in the Shire.



**Table 22 - Expectations & importance of general benefits associated with the pipeline by town**

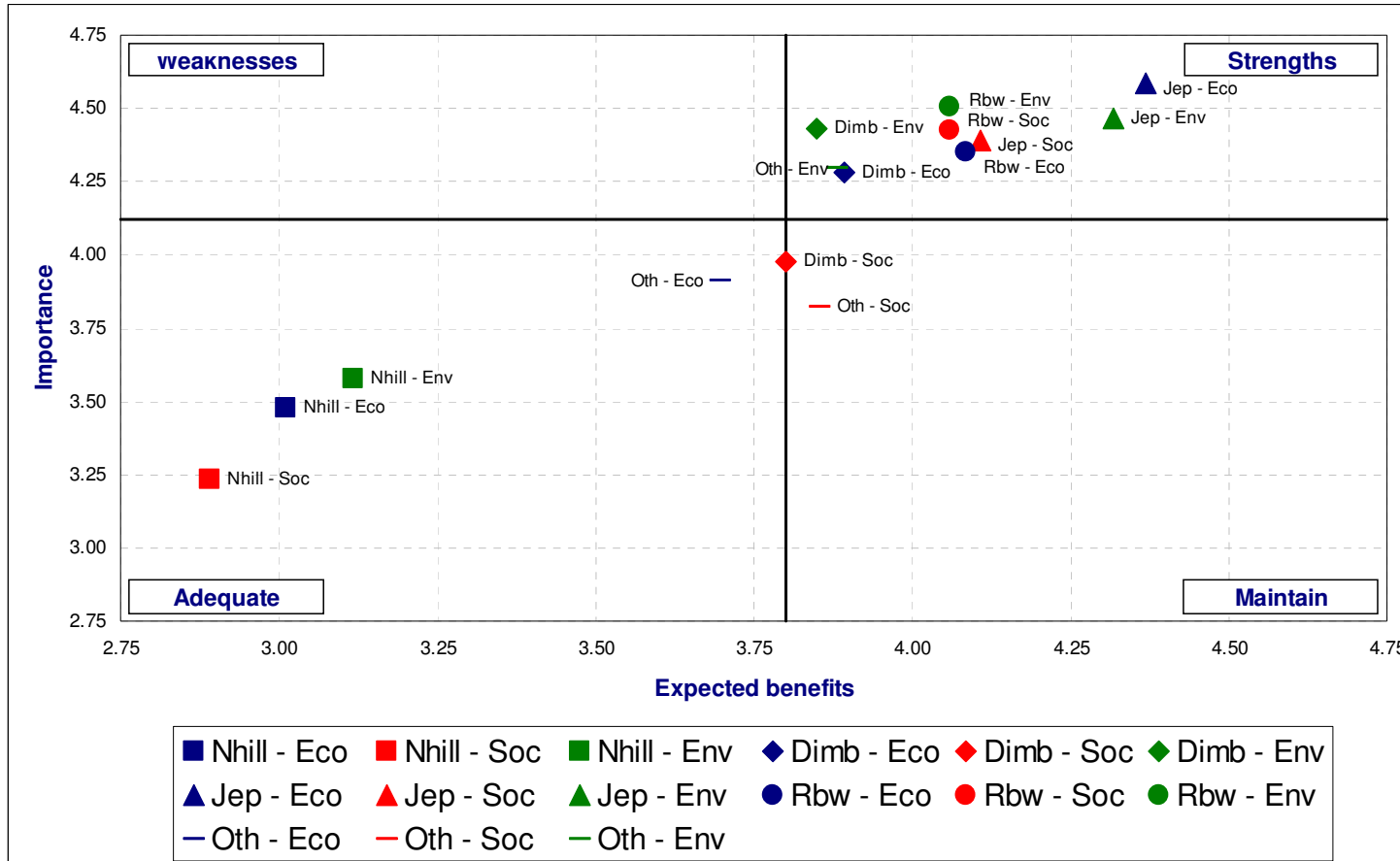
	<i>Dimboola</i> (a) Mean	<i>Jeparit</i> (b) Mean	<i>Nhill</i> (c) Mean	<i>Rainbow</i> (d) Mean	<i>Other</i> (e) Mean
<b>Expectations</b>					
a. Improve the region's economy	3.89 <sup>c</sup>	4.37 <sup>c</sup>	3.01	4.09 <sup>c</sup>	3.70 <sup>c</sup>
b. Improve the region's social activities	3.80 <sup>c</sup>	4.11 <sup>c</sup>	2.89	4.06 <sup>c</sup>	3.85 <sup>c</sup>
c. Improve the region's environment	3.85 <sup>c</sup>	4.32 <sup>c</sup>	3.12	4.06 <sup>c</sup>	3.88 <sup>c</sup>
<b>Importance</b>					
a. Improve the region's economy	4.28 <sup>c</sup>	4.59 <sup>c</sup>	3.48	4.35 <sup>c</sup>	3.91 <sup>c</sup>
b. Improve the region's social activities	3.98 <sup>c</sup>	4.39 <sup>c</sup>	3.23	4.42 <sup>c</sup>	3.82 <sup>c</sup>
c. Improve the region's environment	4.43 <sup>c</sup>	4.47 <sup>c</sup>	3.58	4.51 <sup>c</sup>	4.29 <sup>c</sup>

For each significant pair ( $p < 0.05$ ), the letter of the town with the smaller mean appears under the town with the larger mean.

A comparison of these general benefits was once again conducted using a quadrant analysis (Figure 13). It shows that there are no clear weaknesses in terms of important priorities compared to their expected delivery, although Nhill is clearly less engaged with the pipeline outcomes (relative to other towns).



Figure 14 - Quadrant Analysis of General Benefits by Town





In terms of desired benefits, the residents in the Hindmarsh Shire are most interested in the environmental outcomes. Respondents were asked to respond in their own words to the question “What would you like to see happen in the Wimmera Mallee region as a result of the pipeline?”

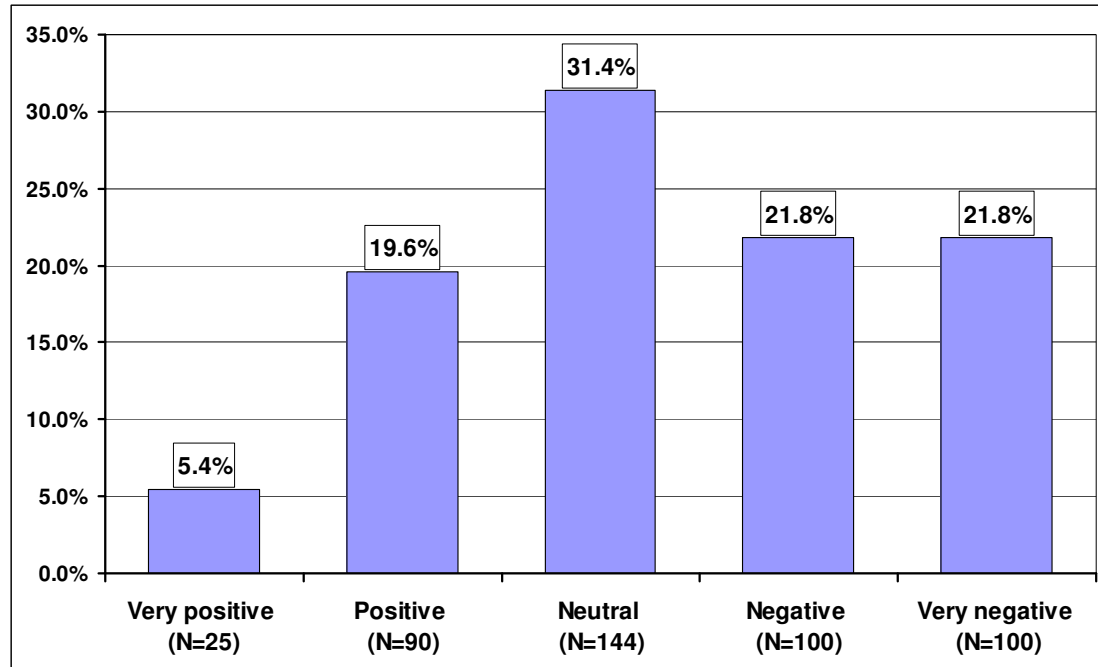
**Table 23 - Desired outcomes of the Wimmera Mallee pipeline (self-reported)**

Main Theme	Town										Total	
	Dimboola		Jeparit		Nhill		Rainbow		Other			
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Environment/Conservation	51	44.0%	19	47.5%	68	31.8%	42	56.0%	14	48.3%	194	40.9%
Availability	28	24.1%	16	40.0%	44	20.6%	13	17.3%	8	27.6%	109	23.0%
Economic	17	14.7%	10	25.0%	21	9.8%	14	18.7%	7	24.1%	69	14.6%
Agriculture/Farms	15	12.9%	4	10.0%	26	12.1%	5	6.7%	3	10.3%	53	11.2%
Negative	11	9.5%	5	12.5%	32	15.0%	3	4.0%	1	3.4%	52	11.0%
Towns	10	8.6%	6	15.0%	12	5.6%	9	12.0%	-	-	37	7.8%
Social/Recreation	7	6.0%	3	7.5%	15	7.0%	9	12.0%	2	6.9%	36	7.6%
Cost	12	10.3%	1	2.5%	15	7.0%	-	-	3	10.3%	31	6.5%
Quality	12	10.3%	5	12.5%	9	4.2%	3	4.0%	2	6.9%	31	6.5%
Personal/Domestic	4	3.4%	1	2.5%	6	2.8%	1	1.3%	1	3.4%	13	2.7%
Future	3	2.6%	-	-	2	0.9%	-	-	-	-	5	1.1%
Channels	2	1.7%	-	-	-	-	-	-	-	-	2	0.4%
Other	11	9.5%	-	-	58	27.1%	3	4.0%	2	6.9%	74	15.6%
<b>Total Respondents</b>	<b>116</b>		<b>40</b>		<b>214</b>		<b>75</b>		<b>29</b>		<b>474</b>	

Of those respondents who indicated an interest in environmental outcomes, 72.8 percent of them were focussed on seeing full lakes and rivers resulting from the pipeline, and 22 percent were interested in seeing the excess from the pipeline flowing to the river system.

Residents had varied attitudes in terms of other interests in the pipeline. Respondents were asked, “How would you best describe your attitude towards the idea of being able to buy and sell your water allocations from the pipeline?” Figure 15 demonstrates that 44 percent of respondents were neutral in their attitude towards this notion, and only 25 percent of respondents were positive. The relatively high proportion of respondents who were unable to express their attitude (19.5%) also supports the high neutral response.

**Figure 15 - Attitudes towards buying and selling water allocations**



Base = Respondents who were aware of the pipeline (N=459)

Respondents were however more positive with regard to their general attitude towards the pipeline. Respondents were asked, “How would you best describe your overall attitude towards the Wimmera-Mallee Pipeline?” Figure 16 shows that 72 percent of respondents were either positive or very positive towards the pipeline overall and only 17 percent expressed a negative attitude.

**Figure 16 – Overall attitudes towards the pipeline**

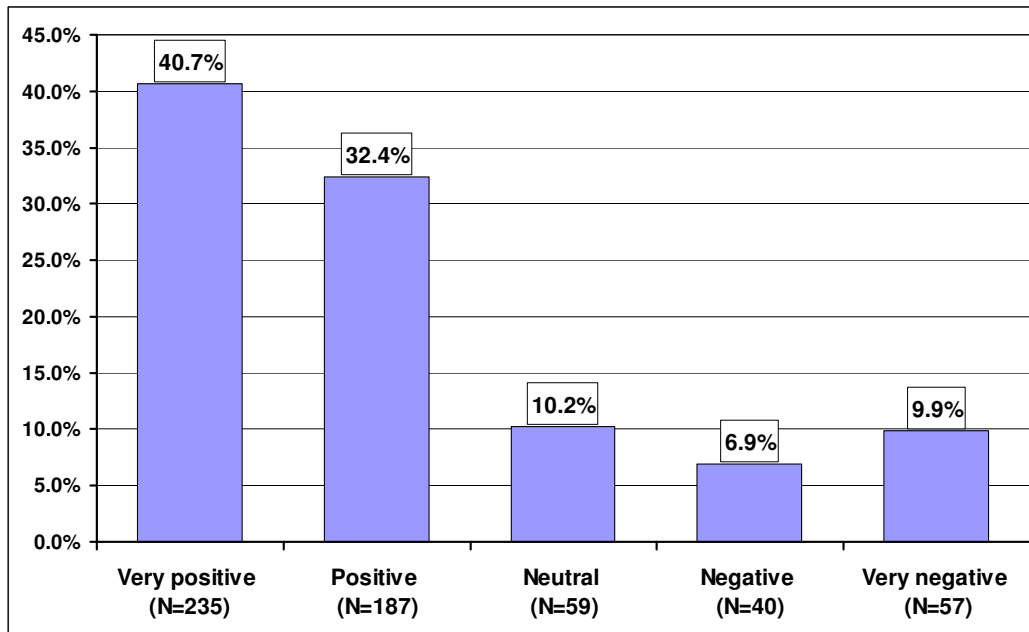
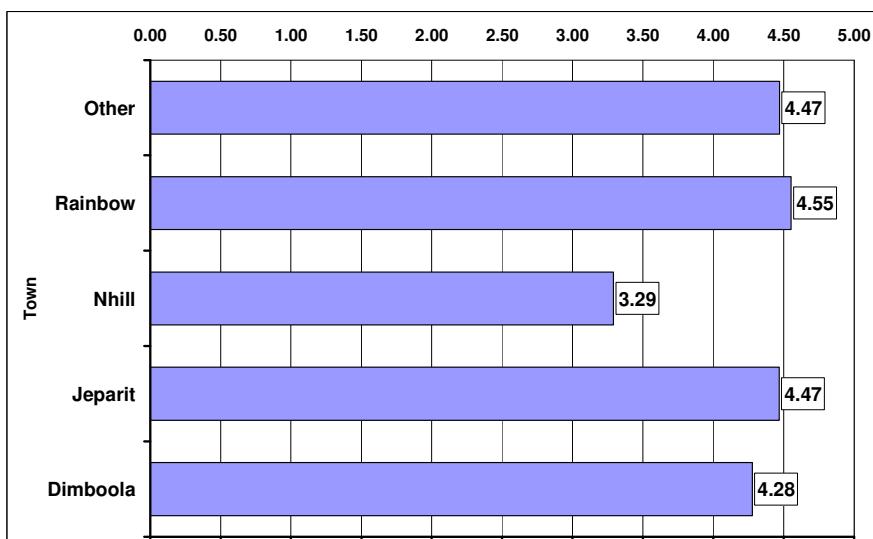


Figure 17 highlights that the lower levels of negative attitudes were generally in Nhill, relative to the other towns in the area. The average attitude of Nhill residents towards the pipeline was one point lower on the five-point scale relative to other towns in the Shire.

**Figure 17 – Overall attitudes towards the pipeline by town**



(Scale: 1=Very negative, 5=Very positive)



### 6.5.5 Impacts

Finally, respondents were asked to indicate, in their own words, how “you think the pipeline will personally affect you?” (Q.12). Table 24 shows that 20 percent of respondents believe that the pipeline will have no effect on them personally. Of those who felt that there would be an effect, the major issues identified were changes in costs (18.6 percent of respondents), and in water quality (16.1 percent).

**Table 24 - Key themes regarding personal affect of the Wimmera-Mallee Pipeline by town (self-reported)**

Main Theme	Town										Total	
	Dimboola		Jeparit		Nhill		Rainbow		Other			
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
No effect	15	13.9%	3	7.5%	59	28.8%	9	12.9%	3	12.5%	89	19.9%
Costs	10	9.3%	4	10.0%	59	28.8%	5	7.1%	5	20.8%	83	18.6%
Water quality	18	16.7%	18	45.0%	18	8.8%	12	17.1%	6	25.0%	72	16.1%
Lakes/Rivers/Dams	18	16.7%	6	15.0%	24	11.7%	14	20.0%	3	12.5%	65	14.5%
Water restrictions	23	21.3%	2	5.0%	28	13.7%	5	7.1%	2	8.3%	60	13.4%
Water reliability	19	17.6%	3	7.5%	4	2.0%	4	5.7%	5	20.8%	35	7.8%
Farming	8	7.4%	6	15.0%	3	1.5%	11	15.7%	4	16.7%	32	7.2%
Economic growth	5	4.6%	5	12.5%	6	2.9%	9	12.9%	1	4.2%	26	5.8%
Towns	12	11.1%	2	5.0%	3	1.5%	4	5.7%	1	4.2%	22	4.9%
Water conservation	4	3.7%	-	-	1	0.5%	-	-	-	-	5	1.1%
Other	13	12.0%	4	10.0%	43	21.0%	13	18.6%	4	16.7%	77	17.2%
Total Respondents	108		40		205		70		24		447	

### 6.5.6 Perceived Disadvantages of the Pipeline

The final series of questions regarding impacts of the pipeline addressed its perceived disadvantages. Respondents were asked the following about seven different potential disadvantages of the pipeline:

“Again, based on your expectations relating to the Wimmera-Mallee Pipeline project, on a scale of 1 to 5 (with 1 being strongly disagree and 5 being strongly agree) could you please indicate your view concerning each of the following statements”

Table 25 indicates that the major concern for Hindmarsh Shire residents is the potential additional costs of water access that may result from the pipeline implementation. Over three-quarters (80.4%) of respondents either agreed or strongly agreed that they were concerned about an increase in the cost of water (item d) while 72.3 percent of respondents were concerned about additional access costs (g).

**Table 25 - Perceived disadvantages of the pipeline**

	<i>Response %</i>					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
a. Concern about having water metered	32.1%	21.6%	17.6%	11.8%	16.9%	561	2.60 (7)	1.46
b. Concern about changes to the region's channel and dam systems	27.6%	22.3%	14.6%	18.3%	17.2%	529	2.75 (4)	1.46
c. Concern about relying on tank water for emergency supplies	34.2%	20.9%	11.9%	14.4%	18.6%	570	2.62 (6)	1.53
d. Concern about a possible increase in the cost of water	6.6%	5.7%	7.3%	22.5%	57.9%	577	4.19 (1)	1.20
e. Concern about changes to the region's landscape	27.8%	24.1%	17.9%	16.2%	14.1%	569	2.65 (5)	1.40
f. Concern that there will be less on-farm recreational opportunities	23.2%	21.0%	18.2%	17.8%	19.9%	539	2.90 (3)	1.45
g. Concern about additional costs associated with gaining access to the pipeline water	10.2%	8.8%	8.6%	23.9%	48.4%	568	3.92 (2)	1.36

### 6.6 Key issues in the Hindmarsh Shire

To place the attitudes towards the pipeline in context, respondents were also asked about what they perceived were current concerns within the Hindmarsh Shire and Wimmera region. Respondents were asked the following about 13 possible issues, related to social, economic and environmental issues.



**Table 26 - Key issues in the Shire**

	Response %					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
<b>Social issues</b>								
a. Lack of employment opportunities for local residents	12.0%	15.4%	15.1%	26.1%	31.4%	617	3.50 (5)	1.38
b. Quality health services are difficult to access within the region	24.8%	23.1%	17.5%	18.3%	16.3%	624	2.78 (13)	1.42
c. Quality education facilities are difficult to access within the region	18.7%	27.8%	20.2%	20.5%	12.8%	609	2.81 (12)	1.31
d. Lack of recreation and entertainment opportunities for local residents	14.3%	25.5%	18.9%	23.8%	17.5%	623	3.05 (10)	1.33
e. Lack of activities which bring the local community together	17.2%	27.4%	21.4%	21.4%	12.6%	617	2.85 (11)	1.29
f. Limited opportunities for skilled workers within the region	12.0%	13.6%	16.2%	32.1%	26.0%	616	3.46 (6)	1.33
<b>Economic issues</b>								
g. Difficult to attract new businesses	3.9%	9.0%	16.8%	33.2%	37.0%	608	3.90 (4)	1.12
h. Need to attract more tourists	3.4%	7.3%	14.7%	36.6%	38.0%	626	3.99 (2)	1.06
i. Too dependent on the agriculture industry	8.7%	17.7%	19.5%	29.7%	24.4%	620	3.43 (7)	1.27
<b>Environmental issues</b>								
j. Difficulties in balancing economic growth with environmental protection	7.9%	14.1%	28.8%	31.7%	17.4%	545	3.37 (8)	1.16
k. Local farms and businesses need to take greater responsibility for the impact they have on the environment	12.0%	15.2%	19.1%	32.5%	21.3%	619	3.36 (9)	1.30
l. Need to reduce the amount of water wasted throughout the region	8.6%	7.5%	11.9%	28.7%	43.2%	613	3.9 (3)	1.27
m. The drought has severely affected the region	0.8%	4.3%	8.2%	18.4%	68.3%	624	4.49 (1)	0.88

Table 26 shows that the key areas of concern for Hindmarsh residents are economic rather than social. It shows that there is a level of satisfaction with the level of services (b, c & e) and with the social infrastructure of the region (d). There are however significant concerns among residents regarding the economic opportunities available within the region, for both employment and business (a, f-i). There is also recognition by residents that the drought and the availability of water (and the resultant environmental impacts) do place restrictions on the potential development of the region.

As indicated by Table 27, Nhill residents generally expressed a lower level of agreement, than residents from the Shire's other major towns, with items relating to social, economic and environmental issues.

**Table 27 - Key issues in the Shire by town**

	<i>Dimboola</i> (a) Mean	<i>Jeparit</i> (b) Mean	<i>Nhill</i> (c) Mean	<i>Rainbow</i> (d) Mean	<i>Other</i> (e) Mean
<b>Social issues</b>					
a. Lack of employment opportunities for local residents	3.99 <sup>c</sup>	4.52 <sup>ce</sup>	2.83	4.27 <sup>c</sup>	3.66 <sup>c</sup>
b. Quality health services are difficult to access within the region	2.78	2.94	2.71	2.79	3.14
c. Quality education facilities are difficult to access within the region	2.75	3.34	2.78	2.73	2.80
d. Lack of recreation and entertainment opportunities for local residents	2.98	4.06 <sup>acd</sup>	2.77	3.34 <sup>c</sup>	3.53 <sup>c</sup>
e. Lack of activities which bring the local community together	3.03 <sup>c</sup>	3.48 <sup>c</sup>	2.62	2.90	3.03
f. Limited opportunities for skilled workers within the region	3.73 <sup>c</sup>	4.20 <sup>c</sup>	3.07	3.88 <sup>c</sup>	3.54
<b>Economic issues</b>					
g. Difficult to attract new businesses	4.06 <sup>c</sup>	4.48 <sup>c</sup>	3.56	4.37 <sup>c</sup>	4.03
h. Need to attract more tourists	4.05 <sup>c</sup>	4.54 <sup>ac</sup>	3.74	4.43 <sup>ac</sup>	3.92
i. Too dependent on the agriculture industry	3.54	4.10 <sup>c</sup>	3.20	3.63	3.46
<b>Environmental issues</b>					
j. Difficulties in balancing economic growth with environmental protection	3.66 <sup>c</sup>	3.76 <sup>c</sup>	3.15	3.39	3.25
k. Local farms and businesses need to take greater responsibility for the impact they have on the environment	3.55	3.50	3.28	3.35	3.03
l. Need to reduce the amount of water wasted throughout the region	4.11	3.98	3.77	4.06	3.67
m. The drought has severely affected the region	4.73 <sup>c</sup>	4.92 <sup>c</sup>	4.24	4.63 <sup>c</sup>	4.64

For each significant pair ( $p < 0.05$ ), the letter of the town with the smaller mean appears under the town with the larger mean.

Table 28 provides a comparison of respondents' perceptions concerning the extent of each potential issue by their overall attitude towards the pipeline. This analysis reveals that respondents who were positive towards the pipeline were more likely to agree that the potential issue was apparent within the Shire. The only exception was the accessibility of health services, which was relatively consistent across differing attitudes towards the pipeline.

**Table 28 – Perceived issues by attitude towards the pipeline**

	Attitude towards the pipeline		
	Negative	Neutral	Positive
	(a) Mean	(b) Mean	(c) Mean
<b>Social issues</b>			
a. Lack of employment opportunities for local residents	2.86	3.32	3.67 <sup>a</sup>
b. Quality health services are difficult to access within the region	2.63	2.55	2.83
c. Quality education facilities are difficult to access within the region	2.46	2.82	2.89 <sup>a</sup>
d. Lack of recreation and entertainment opportunities for local residents	2.38	3.24 <sup>a</sup>	3.17 <sup>a</sup>
e. Lack of activities which bring the local community together	2.29	2.98 <sup>a</sup>	2.94 <sup>a</sup>
f. Limited opportunities for skilled workers within the region	3.06	3.33	3.58 <sup>a</sup>
<b>Economic issues</b>			
g. Difficult to attract new businesses	3.36	3.70	4.05 <sup>a</sup>
h. Need to attract more tourists	3.62	3.85	4.13 <sup>a</sup>
i. Too dependent on the agriculture industry	2.94	3.35	3.54 <sup>a</sup>
<b>Environmental issues</b>			
j. Difficulties in balancing economic growth with environmental protection	2.96	3.23	3.48 <sup>a</sup>
k. Local farms and businesses need to take greater responsibility for the impact they have on the environment	2.88	3.59 <sup>a</sup>	3.41 <sup>a</sup>
l. Need to reduce the amount of water wasted throughout the region	3.23	4.14 <sup>a</sup>	4.09 <sup>a</sup>
m. The drought has severely affected the region	4.32	4.31	4.58 <sup>a</sup>

For each significant pair ( $p < 0.05$ ), the letter of the 'attitude' with the smaller mean appears under the 'attitude' with the larger mean.

### Relationship between age and perceived issues

The analysis found a poor relationship between respondents' age and their sentiments concerning the 13 possible social, economic and environmental issues. This finding suggests that there is uniformity concerning each of these issues across different age groups. The only exception was a "lack of recreation and entertainment opportunities for local residents", which was perceived to be a greater issue by younger residents (i.e. aged 25yo-54yo).

## 6.7 Regional aspirations

The final area of interest discussed with respondents in the survey was that of their aspirations for the future. Respondents were asked to identify what they felt the nature of the region's economy, social structure and environment would be like in 10 years, time, using the following statement:

"I would now like to discuss your preferences for the future of the Hindmarsh Shire. Could you please indicate on a scale of 1 to 5 (where 1 is strongly disagree and 5 is



strongly agree), how strongly you agree or disagree with each of the following statements”

With regard to the economy, Table 29 shows that there is a strong belief that the future of the region’s economy will continue to be based on agriculture generally (with 79.7 percent of respondents agreeing) and focused on grains specifically (66.5 percent agreement).

**Table 29 - Future aspirations for the region's economy**

<i>In ten years time, the region's economy will</i>	Response %					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
a. Continue being based on agricultural activities	0.3%	5.1%	15.0%	48.4%	31.3%	608	4.05 (1)	0.83
b. Provide more employment opportunities	8.4%	24.2%	30.8%	27.9%	8.6%	594	3.04 (6)	1.10
c. Be focused around the grains industry	2.2%	8.0%	23.4%	39.2%	27.3%	590	3.81 (2)	1.00
d. Be more focused around non-grains agribusinesses	16.7%	28.5%	24.8%	24.3%	5.6%	568	2.74 (7)	1.16
e. Have an increased tourism industry	6.0%	17.6%	30.3%	35.6%	10.5%	601	3.27 (3)	1.06
f. Encourage new business ventures	6.5%	18.5%	30.3%	34.0%	10.7%	588	3.24 (4)	1.08
g. Have viable commercial centres	8.3%	21.7%	29.8%	32.0%	8.3%	557	3.10 (5)	1.09

In regards to the environment, Table 30 shows that there is broad support for a number of environmental aspirations, including being more visually appealing and exhibiting greater biodiversity.

**Table 30 - Future aspirations for the region's environment**

<i>In ten years time, the region's environment will</i>	Response %					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
a. Have free-flowing rivers	11.5%	17.1%	27.9%	27.4%	16.1%	566	3.19 (4)	1.23
b. Have full lakes	13.0%	15.2%	24.8%	28.7%	18.4%	561	3.24 (3)	1.28
c. Exhibit greater biodiversity	6.1%	12.2%	31.7%	36.5%	13.6%	559	3.39 (2)	1.06
d. Be more visually appealing	5.3%	12.0%	27.1%	38.4%	17.2%	583	3.5 (1)	1.07
e. Have a greater number of recreational spaces and opportunities	10.8%	21.8%	29.0%	27.0%	11.3%	582	3.06 (5)	1.17

In terms of the region’s social future, Hindmarsh Shire residents have the greatest support for aspirations of a more culturally diverse community (with 48.9 percent of respondents either agreeing or strongly agreeing with the statement). Increasing sporting activities and more restaurants and cafes are of less interest to residents.



**Table 31 - Future aspirations for the region's social structure**

In ten years time, the region will have	Response %					Valid n	Mean (Rank)	SD
	1	2	3	4	5			
a. A larger population	20.6%	28.9%	22.7%	19.2%	8.6%	608	2.66 (5)	1.24
b. A broader range of sporting activities	16.4%	28.9%	30.7%	18.2%	5.8%	603	2.68 (4)	1.12
c. More restaurants and cafes	19.4%	35.3%	23.2%	17.6%	4.5%	598	2.53 (6)	1.12
d. A more culturally diverse community	8.0%	15.8%	27.3%	38.2%	10.7%	589	3.28 (1)	1.10
e. More swimming and water activities	11.2%	21.2%	26.4%	29.4%	11.8%	591	3.10 (2)	1.19
f. A closer knit community	12.3%	19.8%	34.2%	26.1%	7.6%	602	2.97 (3)	1.12

Table 32 indicates the regional aspirations of respondents by their overall attitude towards the pipeline. Respondents who were positive towards the pipeline also had a stronger level of agreement concerning the majority of items relating to regional aspirations. This was most evident within environmental and social aspirations, where respondents who were positive towards the pipeline were generally more optimistic about the future development of the region.

**Table 32 – Regional aspirations by attitude towards the pipeline**

	Attitude towards the pipeline		
	Negative (a) Mean	Neutral (b) Mean	Positive (c) Mean
<b>Economic aspirations</b>			
a. Continue being based on agricultural activities	3.86	3.8	4.12 <sup>ab</sup>
b. Provide more employment opportunities	2.91	2.95	3.12
c. Be focused around the grains industry	3.81	3.65	3.83
d. Be more focused around non-grains agribusinesses	2.26	2.82 <sup>a</sup>	2.83 <sup>a</sup>
e. Have an increased tourism industry	2.93	3.07	3.43 <sup>ab</sup>
f. Encourage new business ventures	3.21	3.07	3.31
g. Have viable commercial centres	3.09	2.94	3.14
<b>Environmental aspirations</b>			
a. Have free-flowing rivers	2.83	3.04	3.38 <sup>a</sup>
b. Have full lakes	2.91	2.89	3.45 <sup>ab</sup>
c. Exhibit greater biodiversity	3.01	3.09	3.53 <sup>ab</sup>
d. Be more visually appealing	3.13	3.18	3.65 <sup>ab</sup>
e. Have a greater number of recreational spaces and opportunities	2.83	3.04	3.38 <sup>a</sup>
<b>Social aspirations</b>			
g. A larger population	2.29	2.7	2.74 <sup>a</sup>
h. A broader range of sporting activities	2.39	2.6	2.76 <sup>a</sup>
i. More restaurants and cafes	2.09	2.53	2.64 <sup>a</sup>
j. A more culturally diverse community	3.15	3.18	3.32
k. More swimming and water activities	2.53	2.82	3.33 <sup>ab</sup>



For each significant pair ( $p < 0.05$ ), the letter of the 'attitude' with the smaller mean appears under the 'attitude' with the larger mean.

### Relationship between age and regional aspirations

The analysis found that respondents' aspirations for the Hindmarsh Shire were generally consistent across all age groups. Younger respondents (aged between 18-34yo) were, however, less optimistic that the region will have full lakes in 10 years time than older respondents. Furthermore, respondents aged 55-64yo were more likely to believe that the region's economy will continue being based on agricultural activities.

### Social activity and participation

Part of the low interest in additional sports and restaurants can be attributed to the existing social activities. Table 33 shows that 44.4 percent of respondents "often" take part in church, sporting or social club activities, while 26.3 percent have often been out to a local café, pub or show.

**Table 33 - Resident social activity and participation**

<i>Activity</i>	<i>Not at all</i>	<i>Yes, a few times</i>	<i>Yes - often</i>
	(%)	(%)	(%)
Spoken to your neighbours	4.0%	24.1%	71.9%
Visited friends locally	3.7%	33.9%	62.4%
Taken part in a local church, sporting or social club	24.8%	30.8%	44.4%
Done voluntary work with a local community organisation	33.3%	29.8%	36.8%
Visited a local park or garden	24.0%	43.7%	32.4%
Been out to a local café, pub or show	21.5%	52.2%	26.3%
Picked up other people's rubbish in a public place	36.7%	43.7%	19.6%
Minded a friend's or neighbour's child	57.2%	27.5%	15.3%
Been to a public meeting or signed a petition	51.8%	40.5%	7.7%
Gone swimming in the local pool, river or dam	85.2%	11.3%	3.5%



## 7. Conclusions and Recommendations

### 7.1 Conclusions

The above discussion and analysis of the research data allow us to draw a number of conclusions related to the research questions posed at the start of the study. Each of these questions is addressed in turn here.

*1. What are the major characteristics of the economy and social structure of the Hindmarsh Shire?*

The overview of the demographics of the survey, discussed in Section 3.2 of the report, highlighted the key characteristics of respondents to the survey, which were consistent with the Census information about the Hindmarsh Shire more generally. As is well known, there is a strong dependence on the agriculture industry for the economic wellbeing of the shire, and a high proportion of self-owned businesses (generally farms) within the Shire. There are however concerns within the region regarding the availability of employment (particularly skilled employment) within the region, which influences business sustainability.

In terms of the social structure of the shire, there is a high level of recognition of the quality of the health and education services, and of the strong social and recreational facilities available within the region. There is also high levels of engagement in recreational activities, particularly sporting, religious and social clubs, which provide a social infrastructure to the Hindmarsh communities. Certain towns however are concerned about the availability of activities for younger people.

*2. What are the community's needs and aspirations with regard to the economy, social fabric and environment within the region?*

*3. Are there economic or social characteristics that the community would find desirable?*

Section 3.6 examined the aspirations of the Hindmarsh Shire residents with regard to the economic, social and environmental future of the region. The analysis indicated that there is a higher focus of residents on the economic and environmental benefits of the pipeline. The future environmental aspirations of residents focussed on achieving better environmental outcomes from the increased flow of water, such as improved biodiversity and greater visual appeal. The economic aspirations of residents continued to focus on grains-related business enterprises, along with associated businesses necessary for the maintenance of local towns. There was little support for the development of non-grain agricultural businesses.

By comparison, future aspirations for social change were more limited. There was some interest in increasing the level of cultural diversity within the region. This provides potential opportunities for immigrant workers and new residents in the shire, as a way of addressing potential labour shortages that may result during construction. However, population growth, new restaurants and cafes or broader sporting and swimming activities were not of particular interest to residents. This suggests that the potential social benefits of the pipeline implementation are not currently being recognised by residents, and may be a point of focus for WIDCORP into the future.



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#### 4. What are the gaps between the present characteristics and the community's needs and aspirations?

The quadrant analysis of the potential benefits of the pipeline (Figure 5) highlights the current gaps between resident priorities and expectations with regard to the pipeline implementation. In contrast, respondents considered the following elements relative weaknesses of the pipeline:

- Reducing the impact of low rainfall (n)
- Improving the appeal of the region as a tourist destination (k)
- Increasing water for recreational, fishing and boating opportunities (h)

Thus, there is a clear concern that the pipeline will not be able to address concerns regarding water shortages, as there is simply insufficient water to meet required demand in times of drought. It is likely that this is partly a function of concerns built up over the long period of drought in recent times, which has also affected the various water-related tourist destinations within the region (such as Lake Albacutya, Lake Hindmarsh and the Wimmera River). It does mean however that there will be ongoing reservations about the capacity of the pipeline while the drought conditions persist.

#### 5. What awareness, understanding and expectations do Hindmarsh residents exhibit with regard to the Wimmera-Mallee pipeline?

The survey findings demonstrated that over 90 percent of Hindmarsh shire residents were aware of the pipeline. It appears however that a small section of the community has not been receiving information regarding the pipeline, even in those communities most closely affected (such as Dimboola or Rainbow).

With regard to understanding about the pipeline, the pattern of responses to questions about the benefits and concerns of the pipeline indicates a high level of awareness and understanding of the potential implications of the pipeline, with few respondents providing a "don't know" response to such question. There was however, a degree of confusion about water trading entitlements associated with the pipeline, and these will need further consultation with residents into the future.

The quadrant analysis discussed above indicates that respondents perceived that the major strengths of the pipeline were in relation to:

- Providing the region with a more reliable supply of water
- Increasing access to improved quality of water
- Providing a more reliable and better supply of water to the region's farms
- Providing a more reliable and better supply of water to the region's towns
- Improving the region's river and lake system
- Increasing water flows into the Wimmera river

The concerns about the benefits of the pipeline that residents were not sure could be delivered have been discussed earlier. However, residents were also concerned about the longer-term effects on their water supply. In particular, a significant proportion of residents expressed concern that the pipeline implementation may lead to rising costs of their water supply.



6. Which of the gaps between the current and aspired economic, social or environmental status are relevant to the availability of an increased, reliable and high quality water supply?

While residents were not asked directly which of their concerns could be addressed by improving the quality of water supply, several of their identified aspirations can be associated with the availability of supply.

In general, the environmental benefits of the pipeline are clearly dependent on the availability of better water. Improving flows to rivers and lakes, and the resultant improvements in visual appeal of the region, are a priority for Hindmarsh residents, and appear to be recognised as a community benefit, even where residents may feel that there is no personal benefit to them.

In terms of economic aspirations, there is a strong interest among respondents to maintain or improve grains-related businesses, which are not highly dependent on large volumes of water for effective operation, but benefit from more consistent supply. Residents felt that there is also a need for increasing the range of businesses that exist within the Shire, but were not readily able to articulate what the nature of such businesses might be. Thus, there may be a need for pipeline stakeholders to better identify and communicate potential business opportunities that can take advantage of improved supply.

Similarly, there was only limited interest in changing social conditions within the respondent group, and they did not express particular interest in improving water-related social activities. This may be a result of limited awareness of the potential social benefits of the Pipeline, and could be an area of future marketing activity for WIDCORP stakeholders.

## 7.2 Recommendations for further research

Given the above conclusions, the following recommendations for further research are identified. Each of these recommendations may be of relevance to one or several WIDCORP stakeholders.

### *Development of a “Pipeline Business Opportunities” program*

Hindmarsh residents identified an interest in expanding the range and number of businesses within the region, but did not see the future of the region as moving away from grains-oriented industries. Further research to identify and foster potential economic development opportunities and groups may inform economic development agencies other pipeline stakeholders in the region to target the business opportunities that could emerge from the pipeline implementation and to develop facilitation programs to allow these businesses to develop. In addition, a better understanding of the triggers for new or diversified agricultural and tourism business to develop as a consequence of the pipeline would provide clear guidelines for maximising the benefits of the pipeline.



### *Promotion of social benefits*

The study identified that Hindmarsh Shire residents place a higher level of importance on, and have greater expectations concerning, the economic and environmental benefits provided by the pipeline, than its social benefits. A review of the communication strategy for the Wimmera Mallee Pipeline's with a view to increase awareness of the importance of social benefits provided by the pipeline. An enhanced value placed on such elements is also likely to have a positive influence on overall attitudes towards the project.

### *Follow-up studies: expectations versus reality in Pipeline implementation*

This study has now captured the expectations and aspirations of Hindmarsh residents with regard to the pipeline implementation and into the future. There is now a need for two types of studies to follow on from this work:

- a) Related studies in the other trunks of the pipeline, to compare perceptions between the Hindmarsh Shire and other affected sections of the Wimmera-Mallee
- b) A follow-up study in 2-3 years, to determine if the perceived benefits of the pipeline were actually achieved – comparing expectations with reality.



## Appendix

### Appendix One: Questionnaire

#### Introductory text

Good (M/A/E), my name is (INTERVIEWER) from the University of Ballarat. I am calling today to invite you participate in a survey being conducted throughout the (Hindmarsh Shire/Wimmera), examining community attitudes and needs in relation to the Wimmera-Mallee Pipeline project.

Would you be interested in being involved?

IF YES Go to "More information"

IF NO

Would it be possible if I called back at a more convenient time?

IF YES Arrange callback

IF NO

Thank respondent and end call

#### More information

INSERT ADDITIONAL BACKGROUND INFORMATION HERE.

The survey itself takes between 20 to 25 minutes to complete. Would you be able to complete the survey now, or could we arrange a better time?

YES – START NOW

Go to Screening question

NO – CALL BACK

Arrange callback

NO – REFUSED

Thank respondent and end call

#### Screening question

Are you a resident of the Hindmarsh Shire aged 15 years or over?

YES – START NOW

Go to Benefits section

NO – FOLLOW-UP

#### Follow-up

Is there anybody in the household who is a resident of the Shire and aged over 15 years who would like to participate in the survey?

YES

Repeat introductory text with new respondent

NO – CALL BACK

Arrange callback

NO – REFUSED

Thank respondent and end call



### Perceived Benefits of the Pipeline

The first section of the survey is intended to discuss your awareness and expectations concerning the Wimmera-Mallee Pipeline.

#### Awareness

Q1. Are you aware of the Wimmera-Mallee Pipeline?

Yes (continue)

No (goto Q14)

Q2. Thinking about the Wimmera-Mallee Pipeline, on a scale of 1 to 5 how interested are you in the following aspects of the project (where 1 is not at all interested and 5 is very interested)?

- a. The progress of the pipeline construction
- b. The allocation of water from the pipeline
- c. How much water you will personally be able to access from the pipeline
- d. The pipeline in general

Q3. What do you believe are the main benefits of the pipeline to the region?  
(open text response)

Q4. What do you believe are the main benefits of the pipeline to you personally?  
(open text response)

Q5. I'd like to ask about your expectations regarding the project. I'm going to read out a series of statements regarding some aspects of the Wimmera-Mallee pipeline. I'd like to know:

- a) If you believe that the pipeline will deliver the following aspects – on a scale of 1 to 5 (with 1 being strongly disagree and 5 being strongly agree); and
- b) How important the aspect is to you – on a scale of 1 to 5 (with 1 being not important at all and 5 being very important)

I believe the pipeline will...

- a. Provide the region with a more reliable supply of water
- b. Increase access to improved quality of water
- c. Provide a more reliable and better supply of water to the region's farms
- d. Provide a more reliable and better supply of water to the region's towns
- e. Provide a more reliable and better supply of water to businesses within the region
- f. Improve the region's river and lake system
- g. Increase water flows into the Wimmera river
- h. Increase water for recreational, fishing and boating opportunities
- i. Increase agriculture production
- j. Create new industries and attract new investment in the region
- k. Improve the appeal of the region as a tourist destination
- l. Increase the availability of water for the region's parks and gardens
- m. Improve the ability to buy and sell water allocations
- n. Reduce the impact of low rainfall

Q6. Now I would like to ask about the impact of the pipeline overall. Again on a scale of 1 to 5, I'd like to know if you believe a) that the pipeline will produce the following aspects; and b) how important this aspect is to you.

The Wimmera-Mallee Pipeline project will...

- a. Improve the region's economy
- b. Improve the region's social activities
- c. Improve the region's environment



- Q7. Do you or another member of your household work in any farming or primary production industries?  
Yes  
No (goto 0)
- Q8. The following statements relate directly to expectations for the agricultural, horticulture or any other farming or primary production industries. Again, I'd like to know:
- a) Whether you believe that the pipeline will deliver the following aspects – on a scale of 1 to 5 (with 1 being strongly disagree and 5 being strongly agree); and
  - b) How important the aspect is to you – on a scale of 1 to 5 (with 1 being not important at all and 5 being very important)

The Wimmera-Mallee Pipeline project will...

- a. Increase agriculture opportunities
  - b. Increase horticulture opportunities
  - c. Allow properties to be more flexible with their water supply
  - d. Increase the effectiveness of pesticides and spray units
  - e. Improve livestock condition and size
  - f. Allow for further development of intensive livestock enterprises (e.g. piggeries, feedlots)
  - g. Increase opportunities to move into new business areas
  - h. Reduce the need to use rainwater for pesticides and herbicides
- Q9. What would you like to see happen in the Wimmera-Mallee region as a result of the pipeline?  
(open-text response)
- Q10. How would you best describe your attitude towards the idea of being able to buy and sell your water allocations from the pipeline?
- a. Very positive
  - b. Positive
  - c. Neutral
  - d. Negative
  - e. Very negative
- Don't know/Can't say
- Q11. How would you best describe your overall attitude towards the Wimmera-Mallee Pipeline?
- a. Very positive
  - b. Positive
  - c. Neutral
  - d. Negative
  - e. Very negative
- Q12. How do you think the pipeline will personally affect you?  
(open-text response)



#### Perceived Disadvantages of the Pipeline

- Q13. Again, based on your expectations relating to the Wimmera-Mallee Pipeline project, on a scale of 1 to 5 (with 1 being strongly disagree and 5 being strongly agree) could you please indicate your view concerning each of the following statements:
- I am concerned about having my water metered
  - I am concerned about changes to the region's channel and dam systems
  - I am concerned about relying on tank water for emergency supplies
  - I am concerned about a possible increase in the cost of water
  - I am concerned about changes to the region's landscape
  - I am concerned that there will be less on-farm recreational opportunities (e.g. swimming and fishing in dams)
  - I am concerned about additional costs associated with gaining access to the pipeline water

#### Key issues in the Hindmarsh Shire

- Q14. I'd now like to ask about your general views concerning the Hindmarsh Shire. On a scale of 1 to 5, where 1 indicates strongly disagree and 5 indicates strongly agree, could you indicate your view regarding each of the following statements:

#### Social

- There is a lack of employment opportunities for local residents
- Quality health services are difficult to access within the region
- Quality education facilities are difficult to access within the region
- There is a lack of recreation and entertainment opportunities for local residents
- There is a lack of activities which bring the local community together
- There are limited opportunities for skilled workers within the region

#### Economic

- The region finds it difficult to attract new businesses
- The region needs to attract more tourists
- The region is too dependent on the agriculture industry

#### Environmental

- The region faces difficulties in balancing economic growth with environmental protection
- Local farms and businesses need to take greater responsibility for the impact they have on the environment
- There is a need to reduce the amount of water wasted throughout the region
- The drought has severely affected the region



### Regional aspirations

Q15. I would now like to discuss your preferences for the future of the Hindmarsh Shire. Could you please indicate on a scale of 1 to 5 (where 1 is strongly disagree and 5 is strongly agree), how strongly you agree or disagree with each of the following statements:

#### *Economy*

In ten years time, the region's economy will...

- a. Continue being based on agricultural activities
- b. Provide more employment opportunities
- c. Be focused around the grains industry
- d. Be more focused around non-grains agribusinesses
- e. Have an increased tourism industry
- f. Encourage new business ventures
- g. Have viable commercial centres
- h. Is there anything else you would like to see in the local economy?  
(open text response)

#### *Environment*

In ten years time, the region's environment will...

- a. Have free-flowing rivers
- b. Have full lakes
- c. Exhibit greater biodiversity
- d. Be more visually appealing
- e. Have a greater number of recreational spaces and opportunities
- f. Is there anything else you would like to see in the local environment?  
(open text response)

#### *Social*

In ten years time, the region's society will have...

- a. A larger population
- b. A broader range of sporting activities
- c. More restaurants and cafes
- d. A more culturally diverse community
- e. More swimming and water activities
- f. A closer knit community
- g. Are there any other social activities that you would like to see?  
(open text response)



### Social and recreational activity

Now I would like to move on to discuss your social activities.

Q16. I'd like to begin by ask you now about your participation in the community. In the last month, how often have you done any of the following things?

1. Done voluntary work with a local community organisation
2. Visited friends locally
3. Spoken to your neighbours
4. Picked up other people's rubbish in a public place
5. Taken part in a local church, sporting or social club
6. Been out to a local café, pub or show
7. Minded a friend's or neighbour's child
8. Been to a public meeting or signed a petition
9. Visited a local park or garden
10. Gone swimming in the local pool, river or dam

Response categories:

- Yes, often
- Yes, a few times
- No
- Don't know

### Demographics

I would like to now move on to the final part of the survey, to ask you for some basic information about you and your household.

#### Age

Q17. Could you please indicate which of the following letters indicates your age group?

Response categories:

- |          |                |
|----------|----------------|
| a. 15-24 | e. 55-64       |
| b. 25-34 | f. 65-74       |
| c. 35-44 | g. 75 or older |
| d. 45-54 | Refused        |

#### Gender

Q18. Is the person male or female?

DO NOT ASK – INFER FROM VOICE

#### Marital Status

Q19. What is your present marital status?

#### Household

Q20. Including yourself, how many people usually live in your household?  
If response is 1 (goto Q25)

Q21. How many adults (i.e. aged 18 and over) usually live in your household?

Q22. Are you the parent or guardian of any children living in your household?

Response categories:

- Yes
- No (goto Q24)
- Refused (goto Q24)



Q23. Which of the following indicates the age of your youngest child?

Response categories:

- a. 0-5 years
- b. 6-14 years
- c. 15 years or over

Refused

*Employment and business activity*

Q24. Do you own or operate a business within the Hindmarsh shire region?

Yes (goto Q26)

No (continue)

Refused (continue)

Q25. Which of the following best describes your employment status?

(Read categories a-h)

Response categories:

- a. Working full time (goto Q31)
- b. Working part time or casual (goto Q31)
- c. Unemployed and looking for work (goto Q35)
- d. Retired or on a pension (goto Q35)
- e. Mainly doing house duties (goto Q35)
- f. Studying (secondary) (goto Q35)
- g. Studying (tertiary) (goto Q35)
- h. Other (please specify \_\_\_\_\_)
- i. Refused (goto Q35)

Q26. How would you best describe the type of business you operate?

(open-text response)

(To be coded into the follow categories post-survey)

▪ Accommodation, Cafes and Restaurants	▪ Health and Community Services
▪ Agriculture, Forestry and Fishing	▪ Manufacturing
▪ Communication Services	▪ Mining
▪ Construction	▪ Personal and Other Services
▪ Cultural and Recreational Services	▪ Property and Business Services
▪ Education	▪ Retail Trade
▪ Electricity, Gas and Water Supply	▪ Transport and Storage
▪ Finance and Insurance	▪ Wholesale Trade
▪ Government Administration and Defense	▪ Other

Q27. What are the main goods produced or main services provided by your business?

(open text response)



Q28. Could you please tell me which one of the following indicates the approximate turnover received by your business over the last 12 months?

Response categories:

- a. Less than \$50,000
- b. Between \$50,000-\$200,000
- c. Between \$200,000-\$500,000
- d. Between \$500,000-\$1million
- e. Between \$1million-\$5million
- f. More than \$5million

Don't know/refused

Q29. Besides the activities of your business, do you undertake any additional work as an employee for another organisation?

Response categories:

- Yes
- No (goto Q34)

Q30. What was the nature of this employment?

Response categories:

- a. Working full time
- b. Working part time or casual

*Occupation*

Q31. How would you best describe your major occupation?  
(open-text response)

Q32. How would you best describe the industry that you work in?  
(open-text response)

(To be coded into the follow categories post-survey)

▪ Accommodation, Cafes and Restaurants	▪ Health and Community Services
▪ Agriculture, Forestry and Fishing	▪ Manufacturing
▪ Communication Services	▪ Mining
▪ Construction	▪ Personal and Other Services
▪ Cultural and Recreational Services	▪ Property and Business Services
▪ Education	▪ Retail Trade
▪ Electricity, Gas and Water Supply	▪ Transport and Storage
▪ Finance and Insurance	▪ Wholesale Trade
▪ Government Administration and Defense	▪ Other

Q33. What are the main goods produced or main services provided by your employer?  
(open-text response)

*Hours of work*

Q34. Last week, how many hours did you work in all jobs?



Length of residence

- Q35. How long have you lived in the Hindmarsh Shire region?
- a. Less than 6 months
  - b. 6 months to less than 1 year
  - c. 1 to less than 2 years
  - d. 2 to less than 5 years
  - e. 5 to less than 10 years
  - f. Over 10 years

- Q36. Before living here, had you or your family mainly lived in this general area, or somewhere else?
- 1. This general area
  - 2. Some other area (Interviewer: record response) \_\_\_\_\_

Household Income

Q37. Could you please tell me which one of the following letters indicates your approximate total household income before tax?

(weekly, fortnightly, monthly equivalents will be provided if requested)

Response categories:

Annual	Fortnightly	Monthly
a. Under \$10,000	Under \$385	Under \$833
b. \$10,000 - \$19,000	\$385-\$731	\$833-\$1,583
c. \$20,000 - \$39,000	\$769-\$1,500	\$1,667-\$3,250
d. \$40,000 - \$59,000	\$1,538-\$2,269	\$3,333-\$4,917
e. \$60,000 - \$99,000	\$2,308-\$3,808	\$5,000-\$8,250
f. \$100,000 or more	\$3,846 or more	\$8,333 or more
Negative income		
Nil income		
Don't know/refused		

Conclusion

Would you be interested in participating in any follow-up research relating to the Wimmera-Mallee Pipeline?

Yes (record contact details)

No

Could you please provide your contact details:

Name: .....

Phone: .....

Finally, are there any other comments that you would like to make regarding issues that have been discussed in this survey?

(Open-ended)

I would like to thank you for your time and contribution to this study. If you have any queries about the conduct or the results of the survey, you can contact the project coordinator, Dr. Steven McEachern, on (03)5335-2235. If you have any concerns about the conduct of the survey itself, please contact the University of Ballarat Human Ethics Committee on (03) 5327-XXXX.



The results of the study will be reported widely over the next 2-3 months. In addition, we could forward you a copy of the results for your interest. Would you like us to do so?

IF YES – request name and postal address

IF NO – go to End Call

End of call

Once again, thank you for you time, and goodbye.

## Appendix Two: Additional Sample Characteristics

### Lifecycle distribution

The respondent's current life situation (as indicated by marital status and number of children) is likely to influence their attitudes towards the future. As indicated by Table 34, the most common lifecycle classifications of respondents were *Older working married person* (20.9%) and *Older non-working married person* (20.3%). This finding is generally reflective of the Shire's demographic structure, with a relatively high proportion of residents in later lifecycle stages (i.e. older age groups).

**Table 34 – Lifecycle distribution of respondents (%)**

	Count	%
Young/Midlife Single	29	4.6%
Young/Midlife Couple	21	3.4%
Parent with youngest child aged 5 or less	52	8.3%
Parent with youngest child aged 6-14	96	15.3%
Parent with youngest child aged 15+ still living at home	24	3.8%
Older working single	46	7.3%
Older non-working single	100	16.0%
Older working married person	131	20.9%
Older non-working married person	127	20.3%
<b>Total</b>	<b>626</b>	<b>100.0%</b>

### Employment status

More than half of respondents (50.7%) indicated that they were either in full time or part time employment (see Table 4). There was also a significant number of respondents who were now retired. Only a small proportion of respondents (1.7%) were currently unemployed or studying.

**Table 35 - Employment status of respondents<sup>4</sup>**

	Count	%
Working full time	123	23.6%
Working part time or casual	141	27.1%
<b>Total employed</b>	<b>264</b>	<b>50.7%</b>
Unemployed and looking for work	7	1.3%
Retired or on a pension	204	39.2%
Mainly doing house duties	32	6.1%
Studying	2	0.4%
Other	12	2.3%
<b>Total</b>	<b>521</b>	<b>100.0%</b>

### Occupation and industry classifications

Respondents to the survey came from a wide variety of occupations. The most common occupation classification amongst respondents was Professionals (24.2%),

<sup>4</sup> Note: Table 4 does not include self-employed respondents who **did not** also work as an employee for another organisation.



followed by Intermediate Clerical, Sales and Service Workers (18.6%) and Managers and Administrators (16.3%). In comparison with the 2001 ABS Census findings, Managers and Administrators are under represented within the sample, while Professionals are over represented.

**Table 36 - Occupation classifications of respondents (ASCO)**

	Count	%	2001 ABS Census (%)
Managers and Administrators	43	16.3%	28.7%
Professionals	64	24.2%	11.5%
Associate Professionals	11	4.2%	7.8%
Tradespersons and Related Workers	20	7.6%	10.6%
Advanced Clerical and Service Workers	14	5.3%	2.5%
Intermediate Clerical, Sales and Service Workers	49	18.6%	9.3%
Intermediate Production and Transport Workers	13	4.9%	8.3%
Elementary Clerical, Sales and Service Workers	14	5.3%	6.7%
Labourers and Related Workers	27	10.2%	12.4%
Inadequately described/Not stated	9	3.4%	2.4%
<b>Total</b>	<b>264</b>	<b>100.0%</b>	<b>100.0%</b>

The three most common industries in which working respondents were employed were Health and Community Services (25.0%), Agriculture, Forestry and Fishing (21.6%) and Education (12.5%). This representation is similar to the findings of the 2001 ABS Census, however, Health and Community Services workers are over-represented, while Agriculture, Forestry and Fishing employees are under-represented in the sample.

**Table 37 - Industry classifications of respondents (ANZSIC)**

	Count	%	2001 ABS Census (%)
Health and Community Services	66	25.0%	13.0%
Agriculture, Forestry and Fishing	57	21.6%	30.8%
Education	33	12.5%	5.3%
Retail Trade	17	6.4%	11.1%
Transport and Storage	15	5.7%	5.7%
Manufacturing	10	3.8%	8.5%
Construction	10	3.8%	4.3%
Accommodation, Cafes and Restaurants	9	3.4%	2.8%
Property and Business Services	9	3.4%	2.9%
Government Administration and Defence	8	3.0%	3.5%
Wholesale Trade	7	2.7%	4.4%
Finance and Insurance	5	1.9%	1.1%
Personal and Other Services	5	1.9%	1.8%
Communication Services	2	0.8%	1.3%
Cultural and Recreational Services	2	0.8%	1.1%
Mining	0	0.0%	0.0%
Electricity, Gas and Water Supply	0	0.0%	0.5%
Not classified	9	3.4%	2.2%
<b>Total</b>	<b>264</b>	<b>100.0%</b>	<b>100.0%</b>



## Annual household income

The median annual gross household income of respondents was between \$20,000 and \$39,999. The most common income brackets were \$20,000-\$39,999 (27.2%), followed by \$10,000-\$19,999 (22.8%) and \$40,000-\$59,000 (20.3%).

**Table 38 - Income distribution of respondents**

	<i>Count</i>	<i>%</i>
Nil income	5	1.1%
Under \$10,000	22	4.7%
\$10,000 - \$19,999	106	22.8%
\$20,000 - \$39,999	126	27.2%
\$40,000 - \$59,999	94	20.3%
\$60,000 - \$99,999	80	17.2%
\$100,000 or more	31	6.7%
<b>Total Respondents</b>	<b>464</b>	<b>100.0%</b>
	<i>Count</i>	<i>% sample</i>
<i>Don't know</i>	21	3.3%
<i>Refused</i>	145	23.0%

## Business owners

Over a quarter of respondents (26.4%) indicated that they owned or operated a business within the Hindmarsh Shire. Of these business owners, the majority (58%) operated within the Agriculture, Forestry and Fishing industry.

**Table 39 - Industry classifications of business owners (ANZSIC<sup>5</sup>)**

	<i>Count</i>	<i>%</i>
Agriculture, Forestry and Fishing	96	58%
Retail Trade	20	12%
Transport and Storage	12	7%
Construction	11	7%
Finance and Insurance	9	5%
Manufacturing	6	4%
Health and Community Services	4	2%
Wholesale Trade	3	2%
Communication Services	2	1%
Personal and Other Services	2	1%
Not classified	1	1%
<b>Total</b>	<b>165</b>	<b>100%</b>

As indicated by Table 40, the majority of business owners suggested that their annual turnover was either between \$50,000 and \$200,000 (35.8%) or between \$200,000 and \$500,000 (25.7%).

<sup>5</sup> Australian New Zealand Standard Industry Classification



**Table 40 - Business turnover distribution of respondents**

	<i>Count</i>	<i>%</i>
Less than \$50,000	16	14.7%
Between \$50,000-\$200,000	39	35.8%
Between \$200,000-\$500,000	28	25.7%
Between \$500,000-\$1million	14	12.8%
Between \$1million-\$5million	10	9.2%
More than \$5million	2	1.8%
<b>Total</b>	<b>109</b>	<b>100.0%</b>