TRANSPAC
CONSULTING PTY LTD

>> REPORT

>> RESPONSE TO SUBMISSIONS

>> SAMPLING-RELATED ISSUES IN THE COMMUNITY ATTITUDES SURVEY

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>> TABLE OF CONTENTS

1 INTRODUCTION

This document presents responses to issues raised during the EIS public consultation period in relation to the community survey, and in particular issues concerning sampling and methodology.

1.1 ISSUES

A number of submissions made reference to the sampling methodology employed for the quantitative study of community attitudes towards the project. Specific issues related to:

1. The total *size* of the sample;
2. The *spatial composition* of the sample, and consequent impact on the overall frequencies, namely that the sample over-sampled Thuringowa residents who were more in favour of the project, thereby over-stating the overall distribution of attitudes in the community towards the project. Related to this, some submissions implied that the under-sampling of residents living in closer proximity to the project site effectively meant that the attitudes of this community of interest were inadequately accounted for; and
3. The fact that some impacted residents would not have been *'covered'* by a telephone survey *viz*. residents living on a boat.

1.2 RESPONSE

1.2.1 SAMPLE SIZE

A common refrain in commentary on quantitative statistical surveys is that an extremely large sample of respondents is necessary to achieve survey accuracy, and that the number of respondents required is linked to the size of the population in question. That is, the larger the population being studied the larger the required sample to achieve a given level of accuracy.

This view is not consistent with the mathematical foundations that underpin sampling theory and practice. It is neither possible nor appropriate in this kind of document to present the details of sampling theory; suffice it to reference key texts on the matter [see for example Kinnear *et al*., 1994: 293-366 especially pp. 321-328]. The statistical literature shows that, executed properly, sampling has a number of benefits over its alternative, namely a census. These include:

- Cost effectiveness;
- Time effectiveness; and
- Improved accuracy, which results from several sources of inaccuracy called non-sampling errors, which occur in the research process. In census studies, there is more scope for non-sampling error to contaminate the research process (ibid., p. 294).

The sample surveyed in the study (409 persons) provides an estimated maximum margin of sampling error of +/-4.8% at 95% confidence level. The calculation took into account the population in question.

1.2.2 SAMPLING PROCEDURE AND SPATIAL COMPOSITION

The sampling procedure adopted was a random, stratified sampling method. A conscious decision was made to *over-sample* certain demographic or geographic groups to ensure sufficient observations were made for subsequent cross-tabulation analytical purposes.

Over-sampling is a commonly adopted procedure in quantitative social science research, and its use in this study is consistent with this generally accepted approach. Sampling similar numbers of respondents from Townsville and Thuringowa was undertaken to enable fine-grained analysis of attitudes amongst demographic sub-groups within each of the cities, with a reasonable level of statistical confidence.

The critical issue is the extent to which the over-sampling is reflected in skewed presentation of the results. In response to queries raised during the EIS public consultation phase, the consultants have re-analysed the data and weighted the findings to reflect the distribution of population across the two cities as at 30 June 2007 (ABS, 2008). The original presentation of results did not weight them for population distribution.

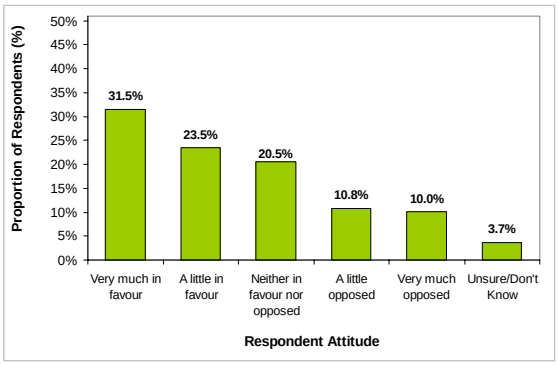
The unweighted (original) and weighted results for the three key questions concerning attitudes towards the proposed development and its component elements are shown in Figures 1, 2 and 3 (subsequent pages).

The weighted results on attitudes towards the integrated development and its component elements are well within the maximum margin of sampling error at 95% confidence (+/-4.8%) estimated for the survey, with weighted results differing by on average ~1% .

In addition to reviewing public submissions, personal communications between Transpac Consulting: Warwick Powell and one of the submitters, Mr Mal McLean was entertained prior to the closure of the public consultation period (29th February 2008) at the initiation of Mr McLean. These communications canvassed some of the issues being addressed in this response. Specifically in relation to the spatial composition of the sample, Mr McLean had indicated that as a retired mathematician he undertook re-weighting of the frequencies and that his own calculations weighted calculations resulted in variations to the reported frequencies of ~1% (that is, well within the margin of sampling error) (Reference: Internal File Note).

FIGURE 1: GENERALLY SPEAKING, WHAT IS YOUR ATTITUDE TO THE OVERALL PROPOSAL TO DEVELOP AN INTEGRATED OCEAN TERMINAL AND RESIDENTIAL AND MARINA COMPLEX?

Unweighted (Original)



Weighted

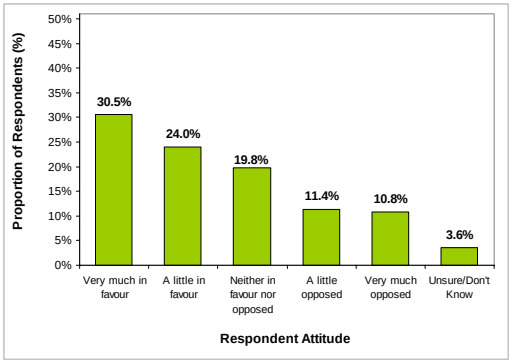
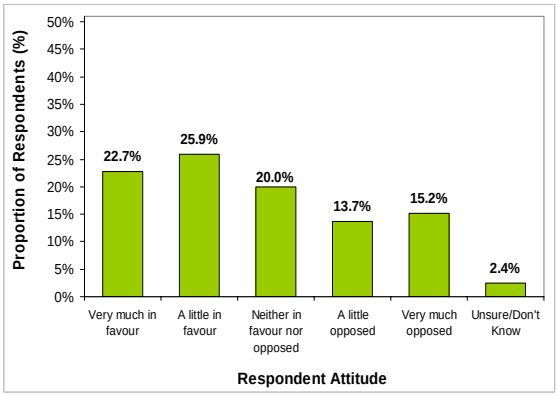


FIGURE 2: GENERALLY SPEAKING, WHAT IS YOUR ATTITUDE TO THE PROPOSAL TO DEVELOP A RESIDENTIAL AND MARINA COMPLEX ON RECLAIMED LAND IN FRONT OF JUPITER'S CASINO?

Unweighted (Original)



Weighted

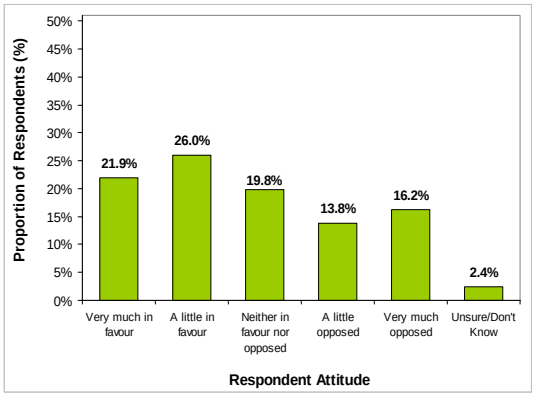
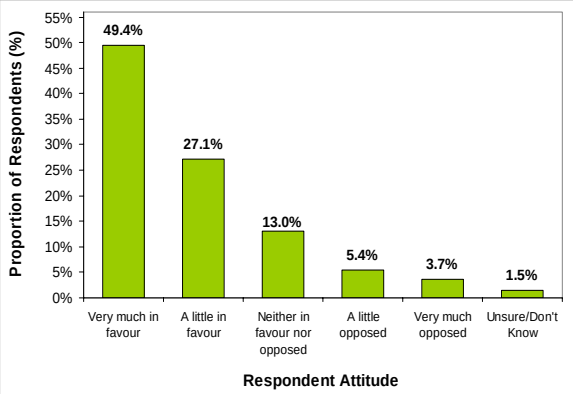
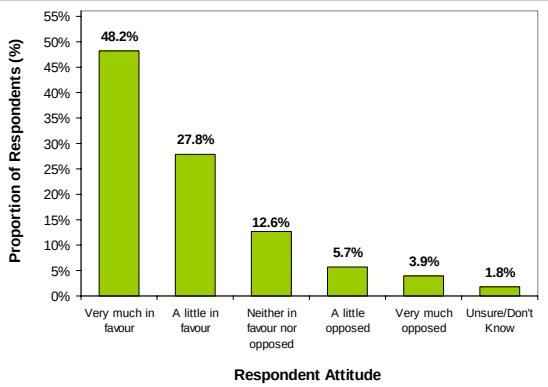


FIGURE 3: GENERALLY SPEAKING, WHAT IS YOUR ATTITUDE TO THE PROPOSAL TO DEVELOP AN OCEAN TERMINAL?

Unweighted (Original)



Weighted



As can be seen, on all key attitudinal questions, the re-weighted analysis confirms the overall assessment presented in the original research report. The variance is well within the margin of sampling error for this study. On this basis, the Consultants remain confident that the results as originally presented (as well as the weighted findings) are a fair and accurate reflection of community sentiments at the time the survey was undertaken (July 2007).

A sufficient number of respondents were surveyed from localities in close proximity to the project site to enable analysis with statistical confidence. The cross-tabulation analysis undertaken and presented in the original report shows where there were statistically significant differences in attitudes on the basis of locality of residence (amongst other demographic characteristics). As there were sufficient observations in the relevant sample cells, the Consultants are confident that the cross-tabulation results as presented are an accurate reflection of sentiment amongst different demographic and spatial groups within the community at the time the survey was undertaken. Moreover, given the consistency between un-weighted and weighted results, the Consultants are of the view that those demographic and spatial differences described in the original report remain unchanged.

It should be noted that the purpose of the study was to gauge the *distribution* of attitudes across Greater Townsville (including both the old Townsville City and Thuringowa City Local Government Areas). The study *did not* attempt to make value judgements as to whether certain attitudes deserve any form of privilege or preferential discrimination, either on the basis of proximity to the proposed project, whether the respondent had viewed the master plan at the time or on the basis of some other demographic consideration (e.g. gender, age or income). In this respect, *the attitudes of all respondents were treated with equal importance.*

1.2.3 COVERAGE

Finally, a number of submissions expressed concerns that some impacted residents simply could not have been sampled by a telephone-based survey method and specifically noted residents residing on boats without fixed (land) telephone lines.

The Consultants are aware of issues related to 'coverage' when conducting sample-based studies. As the data collection method is based on the use of Computer Aided Telephone Interview (CATI) and auto-dialer technologies that 'dial' fixed line numbers, residents without fixed telephone lines would not have been 'covered'.

It can, firstly, be noted that over 95% of Australian households have fixed telephone lines, thereby making this form of data collection one of the most effective in terms of coverage. Mitigating potential coverage-related errors is undertaken through a series of measures including extended periods (hours and days) of calling, call backs etc.

Secondly, to complement the telephone survey, the Consultants adopted a range of engagement methods to mitigate coverage-related shortcomings. Through these other processes, residents were able to engage in the EIS process and express opinions to the Consultants and project proponents on matters of import to them. These additional engagement channels are described in detail separately (refer Appendix 4 of the original Social Impact Assessment Report, Volume 1). In summary, these channels included:

- Reply paid response forms, which were distributed to ~8,000 households in the primary and secondary catchments;
- Provision of feedback forms via the City Pacific website, where all relevant public documentation could also be accessed;
- Provision of a 1800-number to enable free calls to the project team;
- A short survey of residents living in close proximity to the Port (self-complete); and
- Extensive publicity of the project to ensure local awareness, so that should local residents feel the need to express points of view, they could do so via the website. It can be noted that ~80% of residents were aware of the project.

In addition to these processes, the project proponent and the present Consultants participated in a 'public forum' organized by the Environmental Engineers Institute of Australia (NQ). The forum involved some 140 individuals or thereabouts. After a presentation by the proponent: Peter Trathen the floor was opened up to comments or questions for approximately 1 hour. Issues raised during this forum were consistent with issues identified through the formal social impact assessment, including concerns about the potential impacts on local traffic, the marine environment, nuisance to residents during construction, post-construction compatibility between the proposed Breakwater Cove precinct and the Port, impacts of the development on insurance premiums, impacts on upstream Ross Creek users occasioned by the construction of a temporary bridge etc. These issues were subsequently confirmed by submissions from members of the general public and the Townsville Motor Boat Yacht Club during the public consultation phase of the process.

Thirdly, given the numbers of residents without fixed line telephones (and their proportion within the community at large), it is unlikely that their attitudes would have fundamentally changed the broader distribution of attitudes as identified through the telephone survey. Again, it should be

emphasised that the purpose of the telephone survey was to gauge the distribution of attitudes towards the proposed development at a community-wide level.

Finally, as noted above, the community attitudes study has not sought to assign a privilege or preferential discrimination to any particular attitude or point of view simply on the basis of a pre-defined characteristic; this applies equally to people who own or as the case may be, do not own a boat.

Residents with a particular need or desire to express a point of view have had a number of opportunities to do so. Our experience is that interest groups and individuals with particular points of view or special interests tend to actively express their positions during formal and informal consultation processes. In this regard, from a strict research point of view, these groups would typically be un-representative of the population as a whole, as they suffer from what is termed self-selection bias.

This notwithstanding, as noted that boat-owners and members of the Townsville Motorboat and Cruising Yacht Club in particular have utilised the EIS Public Advertisement phase to express a range of views confirms the robustness of the process. The potential for impacts on organisations or individuals with usage of facilities located on Ross Creek upstream from the proposed temporary bridge were also noted in the original social impact assessment. This issue is addressed in more detail separately (Transpac Consulting 2008, Response to TMBYC Issues).

2 REFERENCES

Kinnear, T., Taylor, J., Johnson, L., and Armstrong, R., (1994) *Australian Marketing Research*, McGraw-Hill, Sydney

Transpac Consulting (2007) *Social Impact Assessment Report* (Volume 1)

Transpac Consulting (2008) *Response to Townsville Motor Boat Yacht Club Issues* (Supplementary Report)