How effectively are the public transport needs of existing and future residents of the ICE being met? How can the public transport system be changed to better meet demand?

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Executive Summary

- Transport in the Inner-City East (ICE) has been identified by the ICE Revitalisation Working Group as an issue when needs improvement.

- The research question developed was άH2ό ŜŦŦŜcΰλØŜfè aNŜ ΰKŜ LJdzbfλc ΰNayãLJ2Nΰ yŜŜŘă 2Ŧ existing and future residents of the ICE being met? How can the public transport system be cKayƎŜŘ ΰ2 bŜΰΰŜN YˇŜŜΰ ŘŜYˇayŘKέ

- GIS, surveys, and interviews with Environment Canterbury and Christchurch City Council were used to answer the research question.

- The research resulted in potential solutions regarding better care of bus shelters and lower bus fares, and increased frequency of the 60 Line. An overhaul of the fare system, such as the adoption of distance based prices, could aid lower fares. Bus accessibility, through a network analysis and surveys. was de3010F>36yeq1[n,s alewhen needs improvement.

(2014) also found that DRT can be a suitable alternative for PT. However, both studies refer to issues such as funding and subsidies as prohibiting factors to implement a DRT system.

Another study which related to the research question was by Stenzel et al. (2016

spark conversation and build a more casual, conversational atmosphere than survey one. The aim was to build rapport and create a space where people felt comfortable and had enough time to discuss their feelings and opinions of the PT system. This surveè ʎƴǇǰdzǁŜŘ ǘKŜ ǎdzbƐŜcǘΩǎ age group and potential issues they may have with the current bus system. The survey continues by questioning KƧǿ ǎaǘʎǎŦʎŜŘ ǁŜǎLJƧƴŘŜƴǘǎ ǿŜǁŜ ǿʎǘK accŜǎǎ ǘƧ ǉŜè ǎŜǁǿʎcŜǎΣ ŦǁƧY ΨŜÈǘǁŜYŜƒè ǎaǘʎǎŦʎŜŘΩ ǘƧ ΨŜÈǘǁŜYŜƒè ŘʎǎǎaǘʎǎŦʎŜŘΩ.

Finally, survey three was distributed via flyer into approximately 2000 homes in the ICE. This ǎdzǁǿŜè cƧƴǘaʎƴŜŘ a ƒʎƴǇ ǘƧ ΨƴŜǘǁŜǎdzƒǘΐϕcƧϕƴΐΩ which, when typed into a browser, redirected to the online survey (F*ig. 3).* This final survey outlined potential solutions elucidated from previous survey data - including lowering fares, more frequent buses, and better bus shelter quality. Respondents were asked to rank their support or opposition of the potential solutions for the ICE area using a matrix table, from Ψǎtrongly supportΩ to Ψǎtrongly opposeΩ.

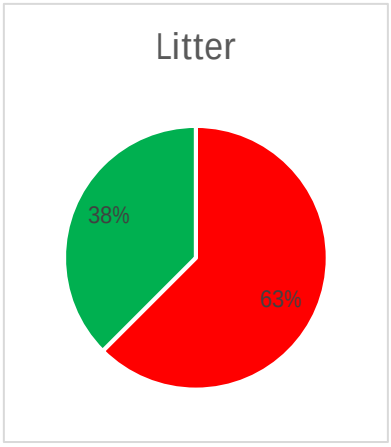
Interviews

In order to complement public opinion, professional opinion was sought from ECan and Christchurch City CouncilΩǎ (CCC) transport sectors. The first interviewee was Darren Fidler of the CCC, the Strategic Transport Advisor. The second was Len Fleete of ECan, a Senior Strategy Advisor for Public Transport. The interviews were designed to gain an understanding of the logistical methods behind PT functioning, upkeep, and changes.

Results

Part One: Surveys 1 and 2

Bus Stop Conditions



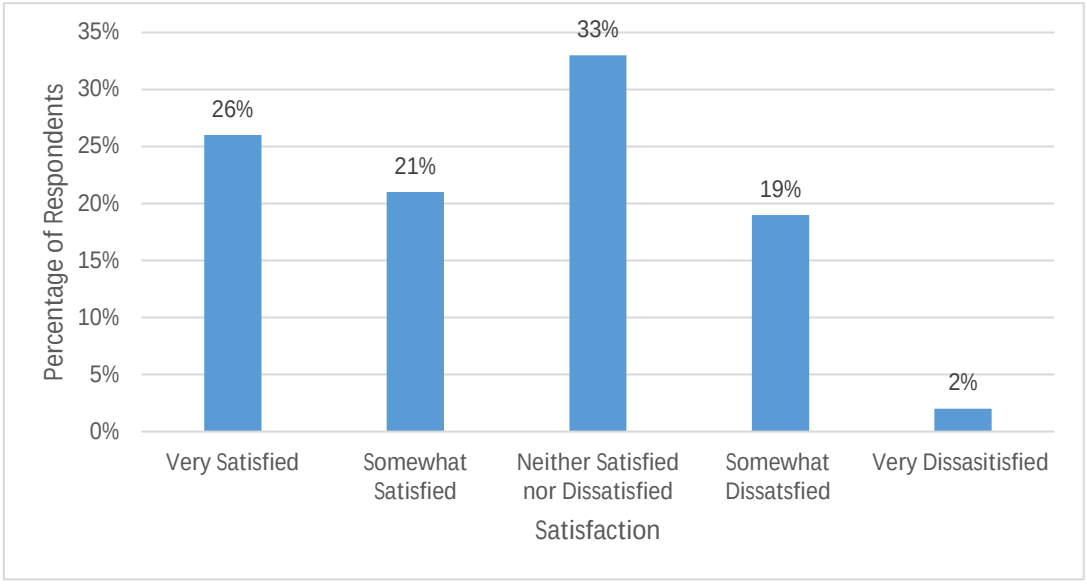


Figure 10: Level of Satisfaction of Bus Users with the condition of their bus stop (Survey 1)

Fig. 10 displays how satisfied respondents were with the conditions of their bus stop. 47% of respondents were satisfied, 21% were dissatisfied, and 33% were neither satisfied nor dissatisfied.

Fig. 12 shows responses when asked to rate potential public transport solutions drafted in response to surveys one and two. Out of the four solutions, lower bus fares was the most supported solution, strongly supported by 90% of respondents, and somewhat supported by 10% of respondents. More frequent 60 route and increased bus shelter quality were both supported by 50% of respondents, with 50% indifferent. The higher coverage solution was opposed by 73% of respondents.

Respondents were allowed room to make additional comments at the end of all surveys. Out of 79 total responses overall, 25 additional comments were given and categorised as follows.

Table 2: Extra comments regarding bus service satisfaction

Increased distribution of bus stops would lower average walking time to bus stops. However, it would likely also add to unnecessary bus stopping, increased waiting time and bus unreliability lowering the performance of the bus stop system overall (Huang & Liu, 2014). Given that the majority of ICE residents are satisfied with their walk time, but dissatisfied with the reliability of the bus systems, this study does not recommend the addition of extra bus stops within the ICE. Further research may include extensive GIS analysis using population density data to identify the ideal bus stop positions.

Access to Services

A key concern of this research was how well the Christchurch public transport system met demand; was it getting people where they wanted to go? This study found that satisfaction levels with access

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Bus Scheduling, Frequency and Reliability

This study has identified two areas of frequency and reliability requiring improvement; the frequency of the 60 route, and the reliability of the 60 and Yellow Route, particularly the 60. A significant 100% of respondents catching the 60 reported dissatisfaction with both frequency and reliability. Studies have shown that

structure, as there is a set fee to travel on the bus within Christchurch. For an ICE resident, a 4km return trip into the City Centre costs the same as a 27km return trip to Prebbleton. Flat fare systems have been criticised as unfair as they incentivise long journeys at the expense of short trip users (Brown, 2018; Bandegani & Akbarzadeh, 2016). Therefore, this study recommends ECan conduct a feasibility study on transitioning to a graduated distance-based system. Such a system would charge users based on each unit of length travelled. Additional equipment would need to be installed in busses to allow users to scan on and off, however, with the impending rehaul of the Christchurch bus fleet the initial cost of these machines could be outweighed by more equitable fares. Alternative solutions may include the implementation of a proper zonal system, or procuring increased funds from central or local government to lower the fares overall.

Limitations

This research has encountered some limitations which have ultimately impacted the quality of our research. The first limitation involved health and safety measures taken to prevent risk of harm to the researchers. One such measure took place on a Saturday afternoon, where surveying was taking place at a bus stop. An encounter with an intoxicated man from the area resulted in the group members removing themselves from the situation twice, and finally abandoning the surveying for the day. This limited the quality of our study by lowering the number of potential responses collected, particularly for that time and day of the week. Ultimately, this may have further impacted research as it was decided that no surveying would occur after 6 pm for safety reasons.

A further limitation was the short time frame for research.

Ryley, T. J., A. Stanley, P., P. Enoch, M., M. Zanni, A., & A. Quddus, M. (2014). Investigating the contribution of demand responsive tranu0a4 Tmv3rt ive, aribfnnran&ys1m