



# Catering to the transport needs of Burlington Village

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## **Executive Summary**

The residents of Burlington lifestyle village have expressed concern over the current and future transportation options available to them. Their health is declining with age and their mobility will soon limit how they live. The question being researched in this project is 'what could be done to enhance the long-term accessibility options for the ageing population at Burlington Village'. A survey was conducted to gather necessary data on the resident's current transportation habits and future demands. The results showed that most residents are concerned about losing their independence and wellbeing when they can no longer drive. The residents revealed a strong interest in a bus stop outside the village or an improved shuttle service run by Burlington Village. Despite the bus stop being the most effective option and meeting the demands of our community partner, it is a time-consuming process and unrealistic for the time period of the research. Future research in this field should extend the time period allowed for the research. In addition to this it would be beneficial to adapt to working with the ageing population by communicating ideas very clearly to avoid miscommunication.

## **Introduction**

Burlington Lifestyle Village is a newly established retirement village located on Preston's Road. Although it has been open to the public since 2019 there are currently no accessible transport options for the residents. Preston's Road is often busy which is a safety concern for residents when entering and exiting the village. The surrounding footpaths and cycle lanes are underdeveloped, which acts as a barrier for the residents, and restricts their ability to engage in active transport. Residents have expressed concern over becoming isolated and losing their independence if they can no longer drive. As Burlington Village expands in the future it is likely more residents will struggle with the same issues. The aim of this research is to identify transport options that will enhance the long-term accessibility for the ageing population at Burlington Village.

## **Literature Review**

For our literature review, the sub-themes researched were based on the ideas of elderly people and loneliness, surveying and communicating with the elderly, development of retirement villages, transport innovations for older people and public transport policy for improving elderly mobility. These topics encapsulate various ideas within our overall research question, which were informative as to how we approached our research and recommendations.

### *Elderly people and loneliness*

Feeling a sense of belonging is the feeling of inclusion and being accepted into a large community (Lambert et al., 2013). This concept is important to elderly people as it allows them to value life by feeling like they have a purpose. Although Burlington Village operates as a lifestyle village, it is also a social community where they can feel included and interact with other residents. As elderly people experience a decline in their health and mobility, they often experience a lower quality of life as they lose their independence. A survey completed in New Zealand (NZ) showed that elderly people that had their license removed as opposed to willingly giving it up and considered losing their license to be a distressing and major life event (Davey, 2007). This concept was important for the research as several residents had expressed concern over how their lives would change once they lost their license. Although the residents have access to several facilities inside Burlington Village it is important for them to engage in activities outside of the village to allow them to make new connections, improving their sense of belonging.

### *Surveying and communicating with the elderly*

The present-day elderly grew up with limited technology, and the current technology boom has set many of them behind in terms of fully understanding new technology. In a quote from Bolin and Westlund (2009), they discuss how media was presented to past generations as they say, "The oldest generation was formed by a media environment dominated by radio (to a certain extent film, but this was not elaborated on as the study focused on news) and print

media (newspapers and books)". With this information, we have looked into the use of paper-based surveys as they are more likely to understand what is being presented, as well as creating a more comfortable and familiar feeling for the survey. We wanted to create a comfortable feeling for them and not have to stress them out during the survey as this was the most important part of gaining data. If the survey was done online, we ran the risk that some residents may not have access to the internet, and it also stopped the risk of any technical failure or not understanding how to use technology properly. Because of this, we decided to present our surveys on paper, rather than online.

### *Development of retirement villages*

This sub theme focuses on how the planning and functionality of retirement villages has changed over time. This research was important as it provides a deeper understanding of the factors which have led to the main issue in our project.

One of the key findings from the reviewed literature is that developers of aged care facilities have little understanding on elderly people's requirements (Osei-Kyei et al., 2022). This was due to retirement villages previously being built for the main purpose of generating profit. There has been a more recent shift in designing retirement villages in a way that advertises a healthy lifestyle which is now a major selling point (Xia et al., 2014; Zuo et al., 2014). This information is relatable to our study because one of the earliest messages we received from our community partner was that they had been sold the dream at Burlington Village but were now isolated with little consideration for their transport needs. The location of Burlington Village is what makes it isolated from transport services. This is because the original land acquisition may have been cheaper and easier to develop in remote urban areas (Osei-Kyei et al., 2022).

### *Transport innovations for older people*

Elderly people are particularly vulnerable when it comes to travel, and they have specific needs and physical capabilities unique to their age group. The ability to be mobile is the one of the most important factors enabling wellbeing and independence in elderly people, as found by Luiu & Tight (2021). Their study, which used data from the National Travel Survey in England, found that a key factor in enabling the elderly to keep active in society is to improve how they view transport options that are not car-dependent, which could be through innovative transport. An example of this are the electric golf carts in Peachtree City, Georgia. These carts enabled groups such as elderly, the less physically able and the economically disadvantaged to be less socially excluded. Conroy-Dalton (2007) found that 90% of 500 Peachtree City households considered the golf carts to be beneficial to the elderly citizens. Although it was not viable to suggest the use of golf carts in Burlington, the example showed how a non-traditional way of transportation has potential for positive impacts on the lives of the physically impaired.

### *Public transport policy for improving elderly mobility*

Good public transport policy has multiple positive flow on effects for the elderly population as for many elderly people, driving gives them a sense of freedom and independence (Metz,2003). This can change as they get older as they may lose their license and must reevaluate how they will get around in their day-to-day life. When this happens people can feel lost and isolated. They have had to give up something that gave them a sense of independence and now they may have to rely on others around them, however progressive transport policies can mitigate this effect. In NZ we currently lack progressive transport policies as NZ has focused on expanding infrastructure for cars rather than prioritising good public transport systems (Mohammadzadeh, 2021). As a result, we have cases like the residents in Burlington Village who are thinking how will they get around when they don't have a driver's license

### **Methods**

As a group, we reviewed our literature review findings to come up with the most effective form of research. We wanted to research as many residents as possible while making sure that it was easily accessible, so the idea of a survey stood out as the best option, from previous studies. However, we knew that we would have to organise an in-person meeting to compliment the findings of our survey, as previous findings showed that a survey alone often isn't enough.

### *Survey*

Our first data collection method was to construct and carry out a survey to the residents of Burlington Village. We decided this was the most effective way to give all 180 residents in our population of interest a chance to share their insights. A variety of sources in our literature review also found surveys to be an effective research method. Our findings suggested that we printed the surveys as opposed to sharing them digitally, so that there were no barriers such as access to technology or inability to use technology, giving us the most responses possible. The survey consisted of 28 questions which varied in sections such as general demographics, personal transport methods, perspectives on public transport, health and social well-being and lifestyle. Roughly half of the questions were taken from an existing survey that we had been granted permission to analyse. This survey was conducted at Arvida retirement village in Addington and has a similar purpose to ours. We adjusted the questions to make them appropriate for Burlington Village and then constructed our own additional questions to complete our survey content. It was designed on an online survey constructing tool called Qualtrics.

Because we were surveying such a large population and representing the University of Canterbury, we had to ensure our survey was ethically appropriate. The first 2 pages of our survey contains information regarding the purpose of the survey, what will be done with the results, and what is required of the participants. This was important to outline so the residents

of Burlington Village would trust our efforts and intentions. For example, we explained that only the members of our group would see the raw data in the individual surveys and that when they are published it will be anonymously as a whole so that individual responses cannot be identified. We also explained that the management group at Burlington Village would not know whether any individual completed the survey or not. For the residents who wanted the results of our study, we allowed them to add their personal email addresses at the end of the survey.

To respect the resident's privacy, we allowed them to answer 'prefer not to say' for two of the questions. These were questions 19 & 20 about health and wellbeing. We believed this was appropriate in case the residents did not wish to disclose these aspects of their personal life.

All five of our group members hand delivered paper copies of the survey to every mailbox in Burlington Village. Our community partner provided us with information regarding the number of occupants in each house so we could delegate the correct number to each. We gave the residents 10 days to complete the survey before we picked them up. We received 132 completed surveys out of 180 meaning 73% of our survey population responded. The raw data was then manually transferred into Qualtrics (online platform) where the data was summarised and sample statistics as well as graphs were produced.

### *Meeting*

The second part of our methodology was having a meeting with the residents to answer any questions or concerns the residents had with the survey. We also clarified some of the inaccuracies in our results with the residents. In accordance with the ethics standards, we informed the residents that we would use any useful information for our report but that we would keep it anonymous. For health and safety, we let our tutor know that we were visiting Burlington and we adhered to the safety protocols set by Burlington.

No incentives were given to the participants to come to the meeting, so the 20-30 residents that did come had invested interest in our project. The meeting was a great chance for us to gauge if people either favoured the bus or shuttle. The shuttle was the most popular choice for people at the meeting, and many residents gave us feedback on the frequency and where they'd like to see the shuttle go. We also clarified the inaccuracies in our results regarding the shuttle which was due to a misunderstanding of wording. At the meeting we all talked to a range of different residents so that we could utilise the knowledge of everyone who had made the effort to come meet us. This deepened our understanding of what the needs of the Burlington residents were which helped us form an effective final recommendation.

## Results

One of the main focuses of the survey was to find out about both the physical and mental health of the elderly we were studying to gain a further understanding of their needs.

It was important to learn about the physical capabilities of our population, so a few questions were designed around this. Figure 1 shows that 36% of the surveyed population have health problems that affect their physical activities.

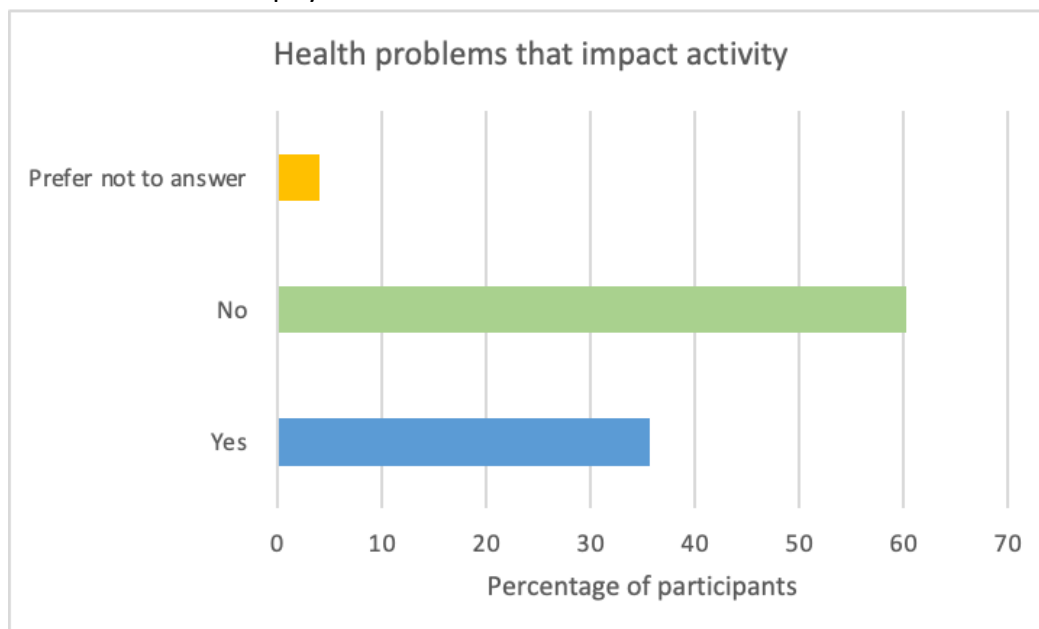


Figure 1. In general, do you have any health problems that require you to limit your activities?

A majority of the population studied did not find it difficult to walk 400 metres, ride a bike and other easy physical activities.

In one of the questions, they were asked how often people feel lack of companionship, left out and isolated from others. The data displayed in Figure 2 below summarises that:

- 55% have lacked companionship with 22% feeling some of the time/often
- 57% have felt left out with 20% feeling some of the time/often
- 52% have felt isolated with 13% feeling some of the time/often



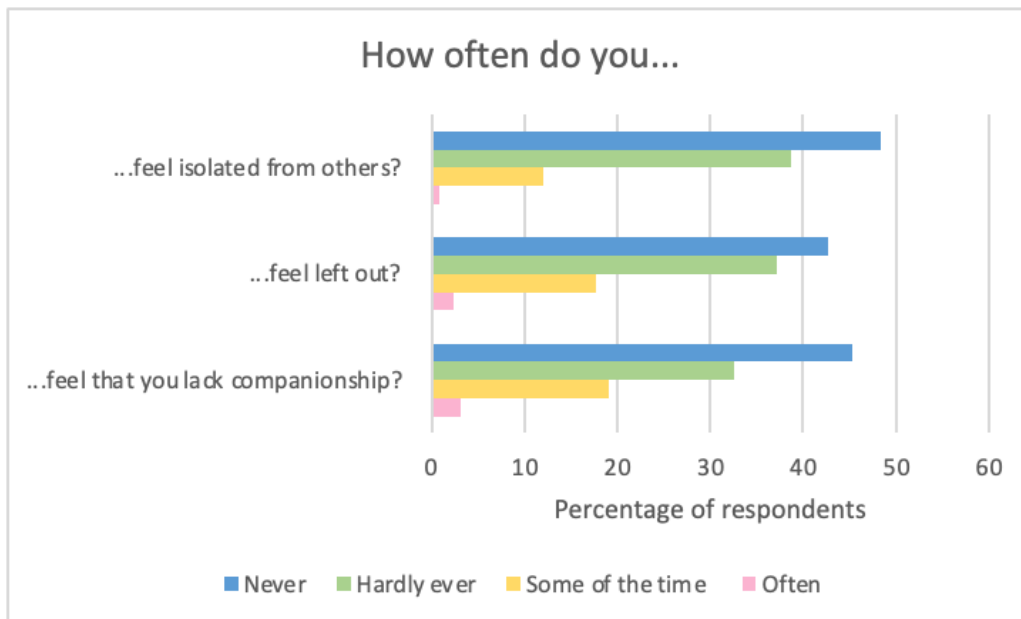


Figure 2. How often do you...

Initially the overpass was identified as a significant barrier as it restricted the resident's movement and made it difficult to access the nearest bus stop. In the survey the question "Have you ever walked over the overpass next to Burlington Village" was asked to the residents, 76% of residents answered yes while 24% answered no as shown in Figure 3.

For the question "If you were unable to drive, how much would the following help you to get to the places you want to go" one of the options listed was "a lower speed limit on Preston's Road". 64% answered that this would be really helpful/slightly helpful.

When asked to indicate whether they agree or disagree with the following statement "there are many destinations within walking distance outside Burlington Village", 77% of the residents stated that they disagree/strongly disagree (Figure 4). It is clear residents find it difficult to get around without a car as key destinations they want to visit regularly are not easily accessible.

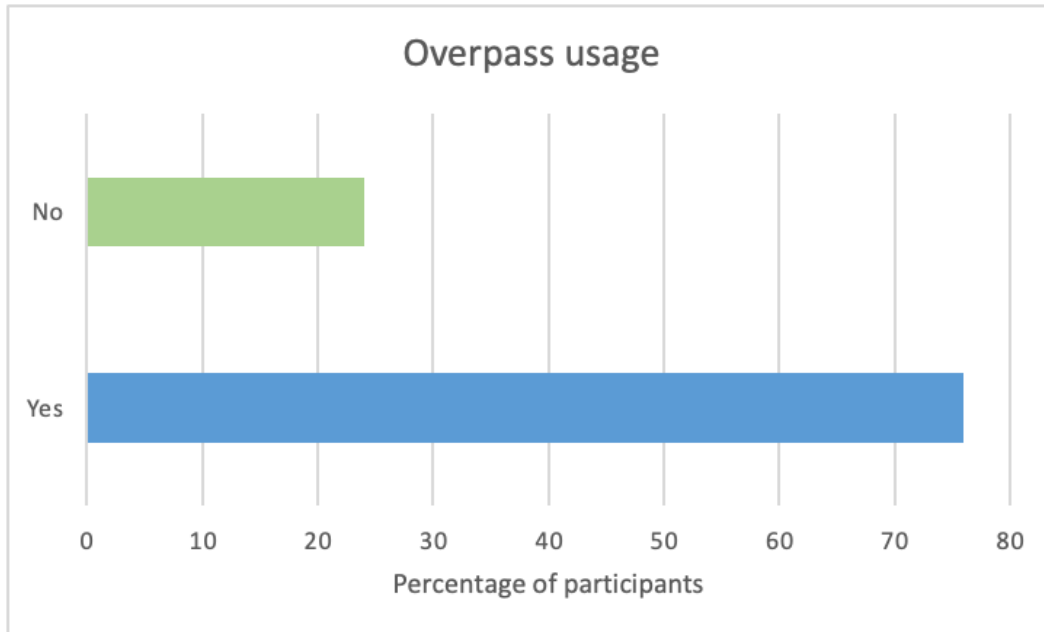


Figure 3. Have the residents of Burlington Village ever walked over the overpass?

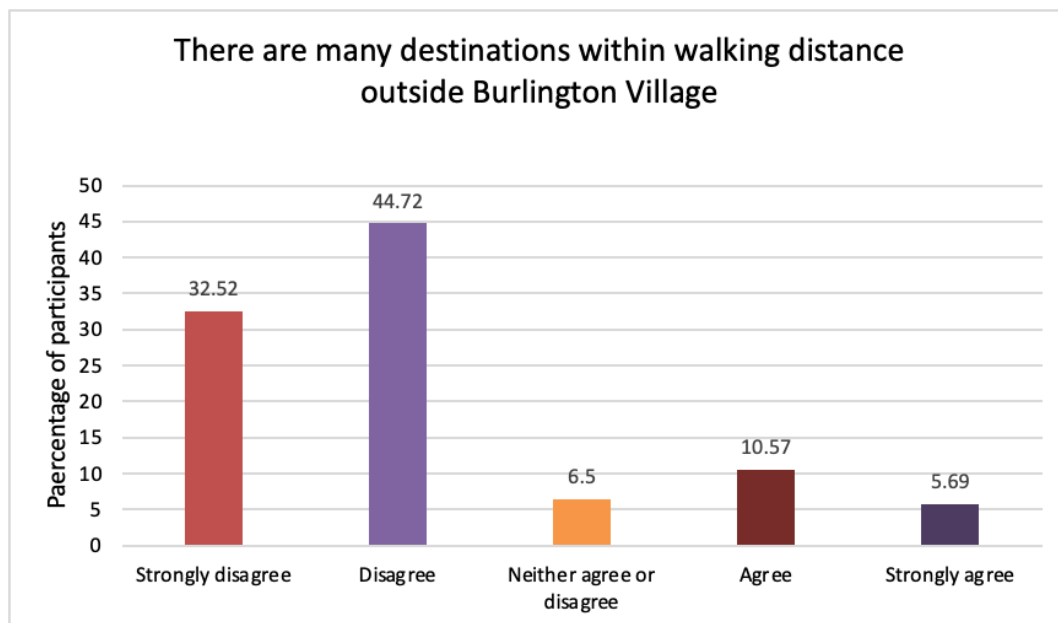


Figure 4. Perceptions on nearby destinations around Burlington Village

In our survey we designed multiple questions to indicate whether people were already using the shuttle and if they enjoyed it. The results from our survey showed that 30% of people had heard of the Burlington shuttle and have used it. Comparatively, 65% said they had heard of the Burlington shuttle but have not used it. Of the people who did use the shuttle 9% said they used the shuttle every time, whilst 36% of people said they would use the shuttle almost every time and 30% said they would rarely or almost never use it. These results are not 100% accurate due to a confusion in the wording of our questions. However, in our meeting we clarified where we went wrong and why people got confused. As a result, the percentages

shown in Figure 5 are a rough estimate of the resident's use of the Burlington shuttle, but they still indicate that residents enjoy using it.

How often do you use the shuttle, when provided?

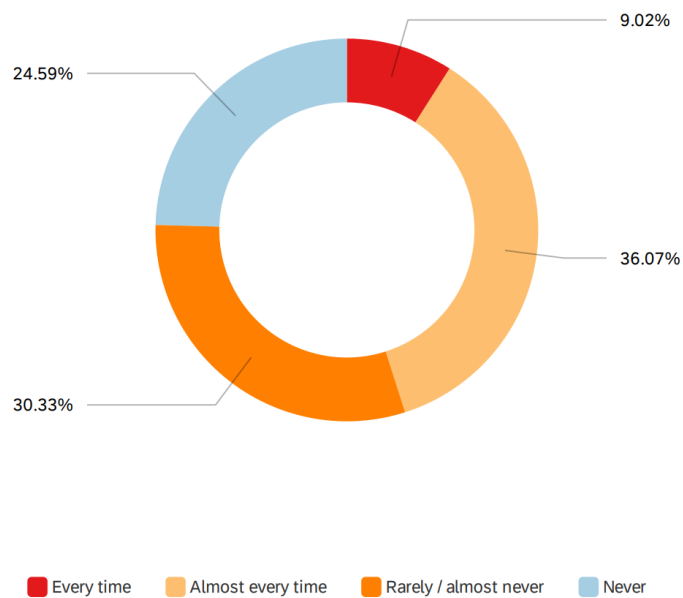


Figure 5. How often do the residents use the Burlington shuttle?

At the end of the survey when we were gathering data on alternatives transport options, we asked the residents if they would like to see the shuttle go to more destinations. As displayed in Figure 6 below, 83% indicated that this would be really helpful, 13% said this would be slightly helpful and only 4% said this wouldn't be helpful.

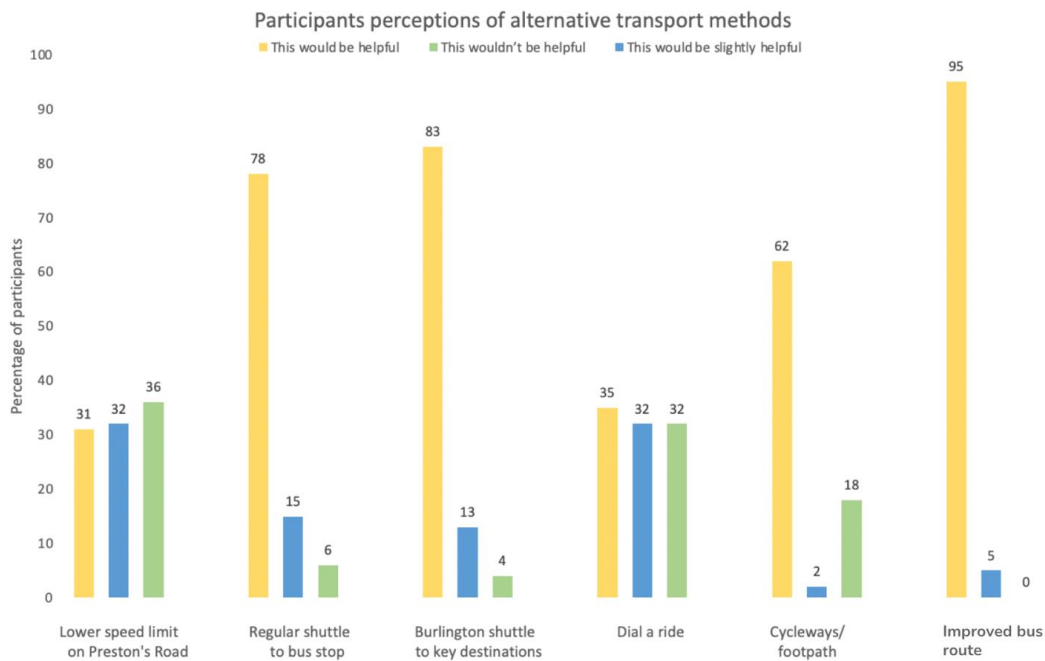


Figure 6. Ranking of suggested alternatives

Car ownership was a major topic that we wanted to include in our research. Before conducting our research, we had certain expectations about the high rates of car ownership within the village. These expectations were correct, as the results showed that 1% of the participants do not own a car, while 47% owns two cars and 52% owns one car. These findings are significantly different to the data from the Arvida survey, which found that only 25% of residents owned at least one car (Dares et al., 2022). However, the survey stated that the average for this age group is 98%, so our results closely resembled this number. Figure 7 below indicates the rates of car ownership within the participants.

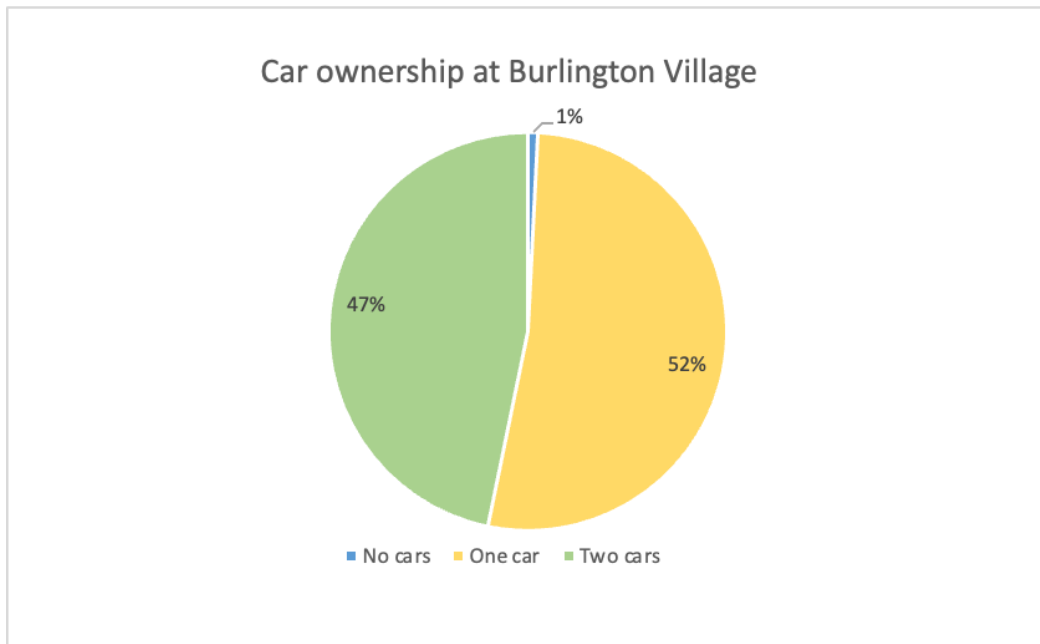


Figure 7. Percentages of residents with or without a car at Burlington Village

One question in the survey asked for the participants to rate their thoughts about various transport related statements on a scale from strongly disagree to strongly agree. Figure 8 below shows that 62% of residents either strongly disagree or disagree that they could live at Burlington Village without needing a car. Meanwhile, 55% of residents agree or strongly agree that they would like to travel by car less, and 79% of participants agree or strongly agree that residents without a car are at a disadvantage. These disadvantages could include an inability to socialise, or hindered access to basic facilities such as supermarkets or health services.

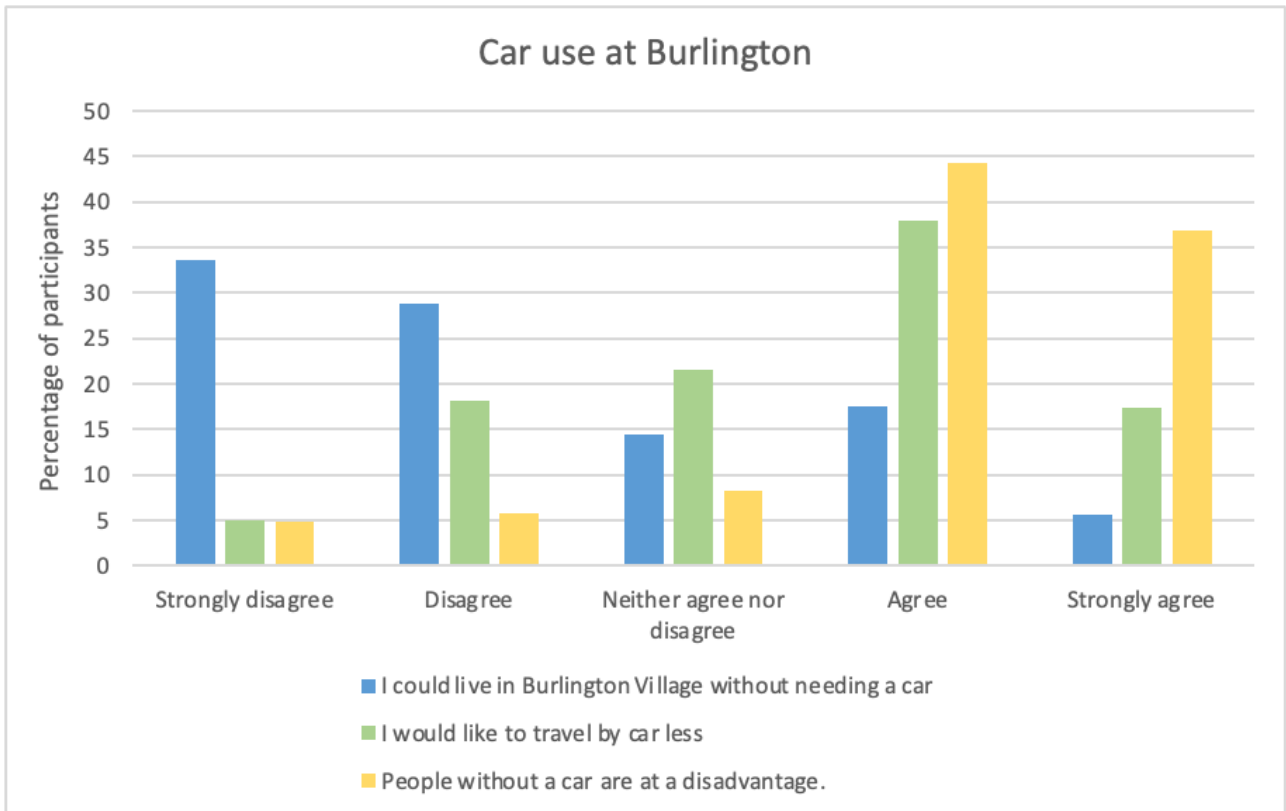


Figure 8. Perceptions on private car use

It was important to gauge an understanding of the residents' perceptions on public transport and their current frequency of use. This is because it would help us explore whether it was worthwhile lobbying for new public transport services around Burlington Village such as a bus stop.

Question 8 in the survey asks how often the residents use a specific mode of transport over the course of an average fortnight. The most common method was private cars with 46% of these respondents indicating that they drive 11-12 times a fortnight as shown in Figure 9. Only 17 participants (14%) said they currently take the bus with 16 of these only using it 1-2 times a fortnight as shown in Figure 10 below. Question 17 asked the residents to indicate their opinions on using a public bus. The majority of residents agree that using a bus would/does make them feel independent. They also express they feel confident riding the bus with only 3.3% of residents saying it makes them nervous. 55% of residents disagree that the current bus stop further down the road is easy to get to. This correlates with research showing that those with mobility impairments often struggle to use public transportation (Morris, et al., 2017)

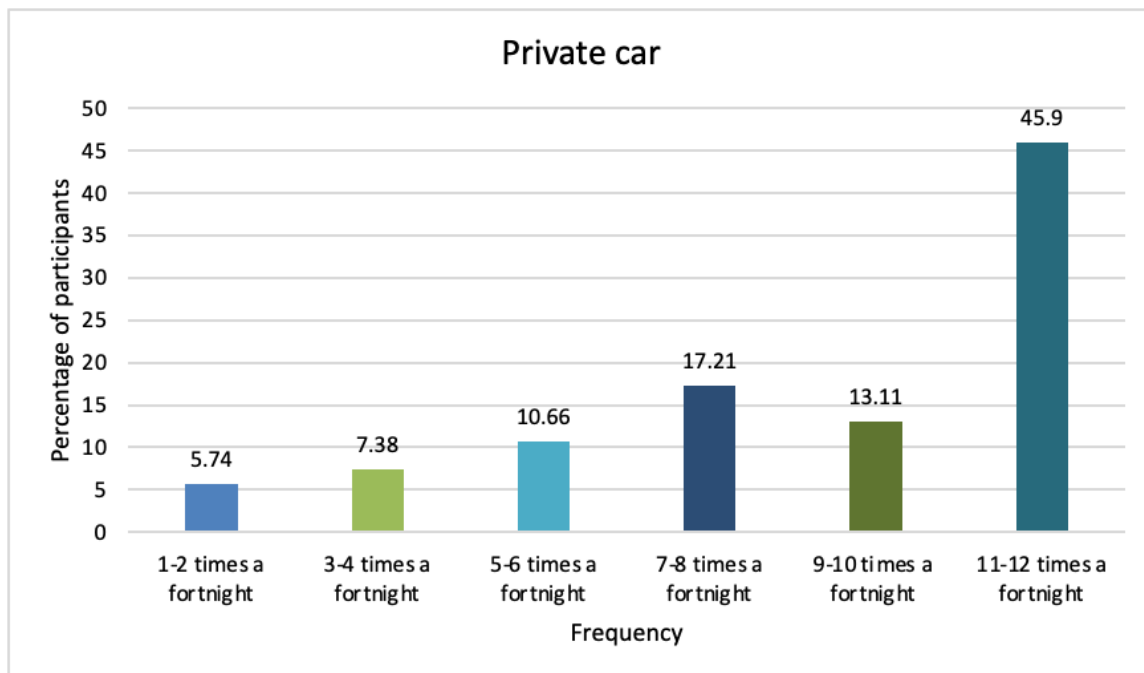


Figure 9. How often the residents of Burlington Village use a private car as a transport method

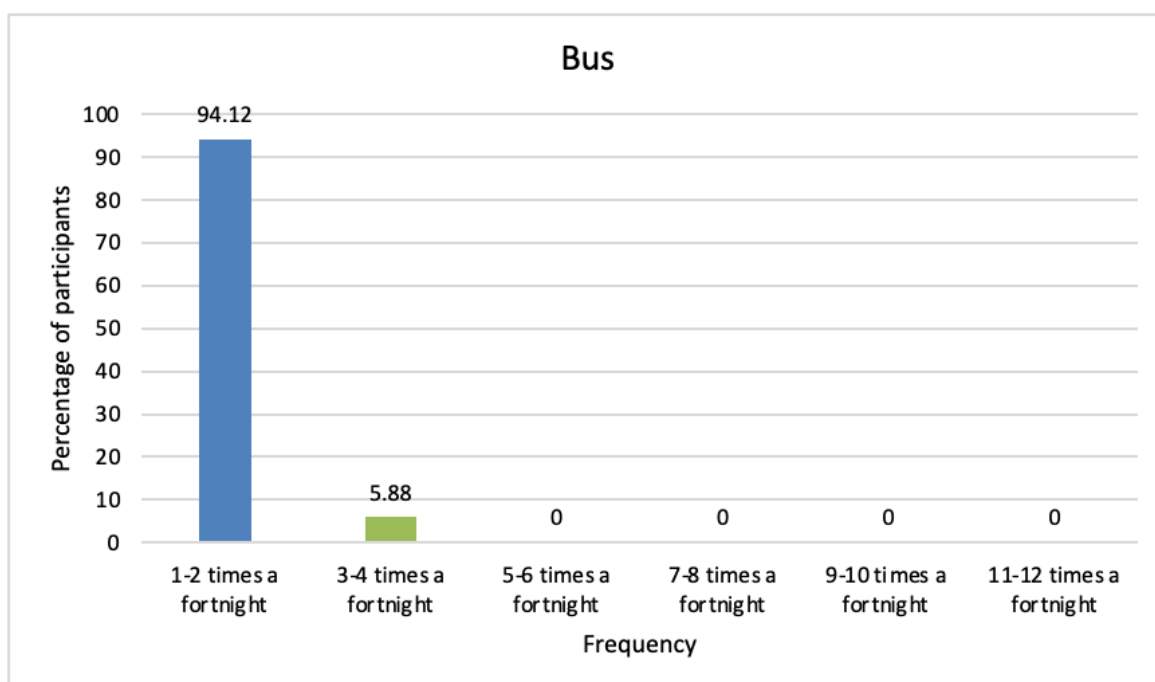


Figure 10. How often the residents of Burlington Village currently use a public bus as a transport method

At the end of the survey, we asked the participants to give us comments on any other information regarding the topic. We found that residents are currently capable of travelling and exercising freely but are concerned about their future and being isolated from friends and family. Their concern stems from knowing that they will be reliant on public transport and other modes of transport that do not currently exist.

## Discussion

Although the survey had a good response rate there was a few inconsistencies in the results. Some residents didn't complete all the questions in the survey so the number of answers per question differed. This made it difficult to gather data on questions residents didn't consider relevant to the research. In addition to this there were some contradictions in the answers due to misinterpretations. These inconsistencies can be explained due to working with the ageing population.

A survey completed at Arvida Park Lane retirement village in 2021 revealed similarities and differences between how the residents there and at Burlington Village move around. Arvida has established a successful shared e-car scheme. Out of 600+ respondents at Arvida 95% had heard of the shared e-car scheme and 75% have used it. Only 31% of respondents at Burlington Village have heard of the shuttle and used it. This is a significant difference and reveals that the shuttle is not well promoted and appealing to the residents compared to the e-car scheme. When asked "do you have any health conditions that require you to limit your activities" 36% of respondents at Burlington Village stated yes while only 10% of respondents at Arvida stated yes. The residents of both retirement villages are aged between 65-90 years of age but it appears a number of residents at Burlington Village find it difficult to move around due to limited mobility.

While working with our community partner it became clear her expected outcome was a bus stop outside Burlington Village. At the short meeting held at Burlington Village several residents also expressed their interest in a bus. Although this outcome was explored it turned out to be a long and time-consuming process that could not be achieved during the time period of the project. ECan was contacted to express the demand for a bus on Preston's Road but other options had to be explored. The outcome of the research was changed to be more realistic but also still appealing to the residents.

The results revealed that residents are currently capable of getting around by themselves as 98% of residents currently hold a valid New Zealand driver's license while only 36% have health problems that require them to limit their activities. Going into the research it was believed that the residents were currently facing the specified transportation issues. In addition to this, the overpass was initially identified as a major barrier for the residents. Because of this, it was assumed most residents had not attempted to walk across the overpass. The results showed that 76% of the residents have previously walked over the overpass while some residents do it regularly for exercise. This finding extends the timeline the final outcome needs to be achieved as residents will be capable of getting around until a long-term solution is established.

After analysing the results, we questioned residents further on how they would like to see the shuttle utilised in our meeting. Many residents disliked the fact the shuttle only ran



fortnightly and to a limited number of specific destinations. Residents indicated that they wanted to see the shuttle run more frequently and to more destinations such as Eastgate, the Palms or the City Centre. We contacted Burlington Village management to inform them that people enjoyed using the shuttle but wanted to see the shuttle go to more destinations frequently. Management failed to respond to our message, so we were unable to get any further information on why the shuttle runs infrequently to a limited number of destinations.

We reached out to Metro to investigate what the process would look like to implement a new bus stop or to change an existing bus route. They helped us by outlining the process the residents would need to go through. The Christchurch City Council looks after the infrastructure for buses such as line markings, kerbs and bus stops. Metro which is a part of Environment Canterbury (Ecan) looks after the bus schedules, contracts, routes and consultation regarding route changes. In 2023 Ecan will be reviewing their core route 1 but this process is likely to take about two years from consultation to implementation. Residents will have the chance to be included in the consultation process with Ecan and present our research which shows that there is a need for better public transport options for the people living in Burlington Village and its surrounding area.

One of the main findings of the literature reviews explains how the present-day elderly population grew up with limited technology which determined our approach to paper surveys. In the survey a few residents revealed they had difficulties using technology. An online survey could have reduced the number of responses received as some residents might not have been comfortable filling out the survey on Qualtrics. Other studies identified that newly established retirement villages have changed their planning and functionality. This can be seen as Burlington Village is located to a remote urban area next to a steep overpass. Management only offers the shuttle option for their residents and other forms of transport other than a private vehicle are not easily accessible. Residents have revealed concern after no new transport options are being offered to them even though Burlington Village has been established for two years.

#### *Final recommendations*

Based on the research and results from the survey the final recommendation for the resident's association at Burlington Village is to develop the Burlington Shuttle. Currently the shuttle operates once a fortnight and does not travel to key destinations within the city. An improved shuttle timetable would allow residents to use the shuttle more frequently while keeping their independence. There is also the possibility of integrating a shared shuttle timetable with the neighbouring residential villages such as Alpine View and Oakbridge, which are both located on Prestons Road.

The recommended long-term option is the expansion of the 125-metro bus route. The 125 currently travels through Grimsey's Road but could be extended to install a stop on Preston's

Road closer to Burlington Village. In order to achieve this, ECan and the city council need to be made aware of the demand for the bus. It is a long and time-consuming process to alter a bus route, so it is important for the process to begin as soon as possible. The last recommendation is to design an over 65's metro bus that circuits around Christchurch's biggest residential villages and travels to key destinations the elderly population needs to access on a regular basis.

### **Conclusion**

Through the data and knowledge gathered, this report has been able to advise the Burlington Residents Association on what transportation options are available to be enhanced for them. As discussed, there is little to no transport options available to the residents outside of private car use or walking. As the mental and physical health for these residents are declining, new transport options are necessary. Both short-term and long-term options through the use of the Burlington Village shuttle or a bus stop are available to them, however, there is still work to be done to allow for these options to be implemented. These solutions should enhance not only the availability of transport to them and future residents, it should also improve the lifestyles of these residents.

### **Acknowledgments**

We would like to acknowledge the help we received from a large number of contributors. Our community partner Jennie, Graham, and the Burlington Resident's Association played a huge part in our success in gaining data for the survey and for creating a base for our ideas. We would also like to acknowledge the large amount of work Lindsey did for our group behind the scenes.

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