To which extent does a 15-minute community concept work to enhance social connection in St Albans?

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Executive Summary

The St Albans Resident Association presented the problem of social disconnection within the St Albans community caused by urban development (Northern Corridor Motorway and the geographical boundaries of current suburbs)

- Research project focuses on a 15-minute city concept
- Research question: "to which extent does a 15-minute community concept work to enhance social connection in St Albans".
- GIS analysis and survey analysis was used as the main methods to obtain data along with observations of the concerned area by the group
- The key findings from our GIS and survey were:
  - Limited amenities within 15 minutes walking
  - Lack of community feeling
- Limitations of this research project was Covid-19 and the exclusion of the youth population of the St Albans community
- Various recommendations have been made to St Albans Residents Association
  - Community involvement with local iwi
  - Focus groups (in particular on youth)
  - Addition of another community centre

Introduction

The research project focuses on the social disconnection within St Albans highlighted by the St Albans Residents Association, specifically in the Warrington Village. This has been the result of the urban development of the Northern Corridor Motorway, constructed by Christchurch City Council. The impact of this is it has provided a new directory for traffic heading into or from the north of the city, affecting surrounding roads. Traffic has been redirected down Cranford Street, the main road through St Albans. This street is interconnected with Warrington Street, of which the Warrington Village and its amenities are located. This has physically disconnected the St Albans suburb and the communities within it.

This is in accordance with the Council's physical recognition of St Albans and Edgeware as two different suburbs. Despite this physical separation, the residents still recognise these communities to be defined and contextualised to be part of the geographical boundary of the St Albans Borough, as identified by figure 1 (St Albans Resident Association, 2021). The community partners also stated that Warrington Village does not currently cater for people's daily needs because of the current amenities present.

Through these problems being identified, St Albans Residents Association and the group came up with the idea of a 15 minute city concept; to bridge social and spatial justice gaps created to make St Albans a more resilient community. St Albans Residents Association steered the questions and research aims, allowing the project to speak to the community needs. Literature reviews on the concept helped shape the method and ideas that we should implement throughout the project. From both of these we came up with our research question; *"To which extent does a 15-minute community concept work to enhance social connection in St Albans".* This project identifies how residents of St Albans can become more socially connected by using the existing spaces and amenities.
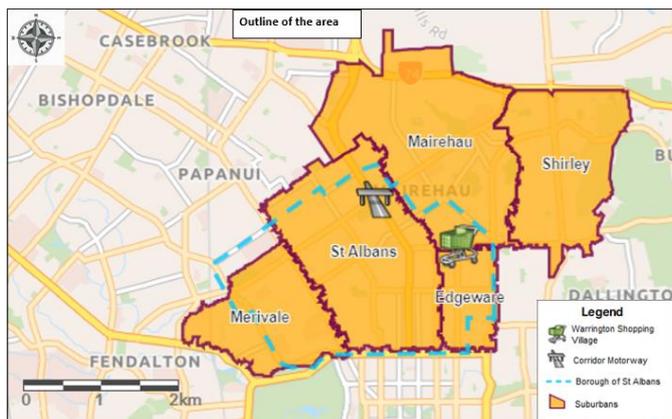
Figure 1: Map outline of the old 'borough' of St Albans overlapping the current suburb of St Alban and surrounding suburbs identified, (St Albans Residents Association, 2021)

Literature Review

St Albans Residents Association's aim was to enable the Warrington Village and the community to access their fundamental needs, services, and activities within this 15 minute concept. Our literature reviews focused on this concept, looking at international literature whilst focusing on the historical aspect of the community. Five sub-themes were identified from this concept. These were community socio-spatial connectedness, the influence of urban systems on social connection and concepts for socio-ecological/spatial justice for resilient and diverse communities.

The 15-minute concept looks at how cities can be redesigned to enhance existing amenities and facilities in the area to increase social connection of a local community (Pozoukidou & Chatziyiannaki, 2021). It looks at bringing urban functions to the community. The concept is to improve and connect people within communities, using the amenities already there (Pozoukidou & Chatziyiannaki, 2021. This is achieved by accessing communities' immediate needs by either walking, cycling or using public transport, each within their respective 15 minutes circumference (Pozoukidou & Chatziyiannaki, 2021). Returning communities to using amenities and functions locally would result in community wellbeing, satisfaction and a sense of place within a community (Loo, B.P.Y., 2021, Kidd and Northcott, 2020). This highlights the importance of localism and utilisation of amenities in a community.

Temples (2019) and Östh et al. (2018) both identified that spatial systems are influenced by both physical and social aspects such as transport systems, public amenities and socio-economic diversity. These influenced the spatial pattern of a community and therefore patterns of social connection within an urban system. These key attributes of an urban system are vital and must be considered when implementing concepts to the community of

St Albans to ensure that social connection occurs effectively and provides benefits to the community.

Key overlaps were found within literature reviews; in particular, existing amenities provide the community with a sense of place. This allowed communities to be more resilient to continuing changes that future urban development would present (Doorn, N., 2019). Doorn, N. (2019) held that social justice should not be measured in what people already have, but rather in terms of what people are effectively able to do with those amenities and functions. This was supported by Setianto & Gamal (2021) which holds that space forms the context of our lives, as it is where social relationships occur and communities are built. Although new facilities influence the welfare of a community, there might already be adequate facilities in existing public spaces of the community that play a role in creating a sense of community (Setianto & Gamal., 2021). This allowed us and the community partners to take into account what Warrington Village offers to the community. Acknowledging existing amenities in the community in accordance with the 15-minute concept would provide for better use and engagement from the community, bringing a sense of connectedness to the Warrington Village and its residents.

These literature findings have highlighted that communities with adequate facilities are able to meet their basic needs, interact and communicate with each other, building resilience within the community. The 15-minute concept would allow for St Albans to become more socio-spatially connected even though it is currently lacking connection and resilience because of the limited access to key amenities. When applying the concept to the methods chosen, we must acknowledge that these literature reviews focus on research for larger cities, therefore it may not accurately represent the problem identified in Warrington Village, on a smaller scale.

Methodology

An important aspect of our research project is that we worked alongside the community partners throughout the entire project. This provided them with the opportunity to steer and direct the project to accommodate their needs for present and future findings.

The literature review findings influenced the methods to ensure that they were appropriate for a human-based geography research. We established three main methods; 1) GIS mapping analysis, 2) online survey and 3) observational. These methods are the most

appropriate for community based research as they are able to represent the community and their needs. For the analysis of the online survey, both descriptive and regression based correlation was used. The regression-based correlations are built upon the literature review from Francis et al., 2012 where a linear regression was used to look at the relation between the quality of public spaces and sense of community to residents. These correlations allow the community partners to understand what is happening in the community currently.

Observational methods allow information about the structures and dynamics to be gathered, essential to the production of knowledge (Rhoads and Wilson, 2010). This method allowed us to go to the Warrington Village to observe and identify the space and how individuals currently use the space without disturbing them, preventing prestige bias (Gomez & Jones, 2010). It also allowed the group to get a feel for the place and what the residents experience when they use this area.

For this report, this method does not feature in our results as we only look at the St Albans park and the surrounding neighbourhood but we did not record any quantitative or qualitative data. This allowed us to measure the urban design of the area and what already existed in the village and what was missing.

Methods

GIS Mapping

GIS mapping was the best way to collect the existing qualitative and quantitative spatial analysis data as it produces more accurate and valid results. This method develops a clear understanding of visualization that improves language and communication between disciplines (Pandey, Shukla & Shukla., 2013). It was used to observe the St Albans suburb visually to check for any existing and missing amenities, their distribution, accessibility as well as comparing our findings to reality. GIS provides spatial information that acts as a powerful component to the research (Steinberg, 2005). Having visual findings will guide our community partners to understand the missing services and the diverse range of social groups in the Warrington Village and wider St Albans. This would empower SARA to guide funding from Council as they can use the GIS information to make an evidence-based decision.

The GIS map was based on the six main categories that should be met in a 15-minute concept to ensure a happy community (Kidd and Northcott, 2020):

- **Living** (variety in size, cost of housing)
- **Working** (qualification, industry, skills and experience)
    - People should not be limited to work within a small area as opportunities made by outside 15-minute zone
- **Learning** (schools)
- **Caring** (medical practices)
- **Enjoying** (Parks and cafes)
- **Supplying** (supermarkets, dairies etc)

The map highlights which of these are present within the Warrington Village 15-minute concept (figure 2).

ArcGIS was used to map a 15-min zone around the village based on travel within a 15 min time-frame using three different transport modes including, walking, biking and public transport (bus) (figure 2). The walking zone (purple) is mapped based on time (minutes), whilst the other two zones are based on distance (kilometer) as the app has one option only for walking time duration. GPS was used to estimate the travel distance by bus and cycle. We picked two locations A (the village) and B (location until the time of travelling from A to B was exactly 15 minutes), then we measured the destination in between A and B in ArcGIS to map a travel zone within that destination. Mapping the 15-minute concept allowed us to clearly identify the issues that are currently presented to the community. It also allows for details to be added if more future studies are done.
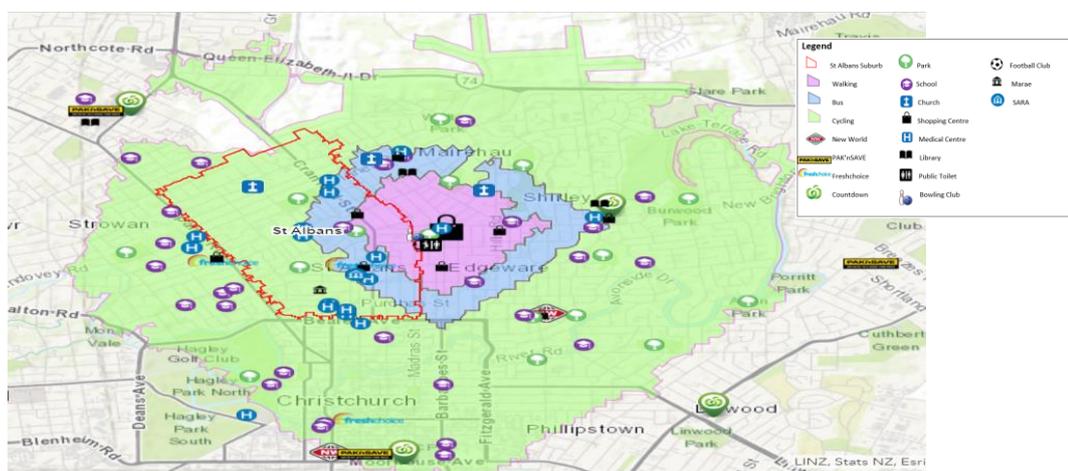

Figure 2: *GIS map of St Albans community, highlighting the surrounding amenities located within the 15-minute concept using the Warrington Village as a central point (shopping bag icon)*

Online Survey

We chose to obtain data through an online survey using Qualtrics, with the questions directed towards the residents who have knowledge of the area (Preston, 2009). Creating an online survey allowed the group to save time and to cover a broad range of the community. This enabled the spatial and social variations of the community to be collected (Preston, 2009). This was very practical as we entered into a lockdown and obtaining data from residents in person was not going to be achieved.

When we made the survey, we first gave it to our supervisor, to make sure that it was ethically sound to be sent out to the community. We also presented the draft to the community partners, to further refine the questions to suit what they saw relevant to the community, ensuring it was adequate for our research. Once all parties were happy it went live for fourteen days. This allowed enough time to get adequate responses for our data analysis to occur. Asking questions from the residents allowed us to obtain data that related specifically to the community and how they felt within the community. This provided us with valuable information for how the concept would fit into the community.

For the analysis of the survey data, we used descriptive statistics methods to analysis the qualitative data and performed a basic linear regression model based upon Francis et al., (2012) article where they examined the relationship between the quality of public spaces and the sense of community in residents.

Results and Discussion

GIS Results

The GIS map (figure 2) shows that cycling (green) was the fastest and further rearching transport mode, followed by public transport (blue) and then walking (purple). We thought that public transport would have been the most efficient mode of transport however our research shows that active transport modes were more useful. This highlights that access to local amenities within the Warrington Village and surrounding areas are difficult with the current bus systems. Accessibility was highlighted to be one of the main factors that creates community disconnection (Kelly & Donegan., 2015).

There are only two bus routes that pass by Warrington Village - routes 44 and 100 (figure 3). Although Warrington Village is a small shopping centre, it can still provide for individuals if

there were adequate bus routes that connect individuals to this area and its amenities. Having more bus routes would allow for better connection to different parts of St Albans, enhancing overall social connection in the community. This would also prevent crowds in the central city and other major shopping malls, such as Northlands mall. This highlights the need for the bus routes and the roading to be improved to cater for increased public transport use. It has been identified by Kidd and Northcott, (2020) that investment in public places increases public satisfaction. Improving the bus routes and roading through more signs, less frequent waiting times, more bus routes, more bus shelters etc.. would mean that more people are able to use the bus and therefore increase public satisfaction.
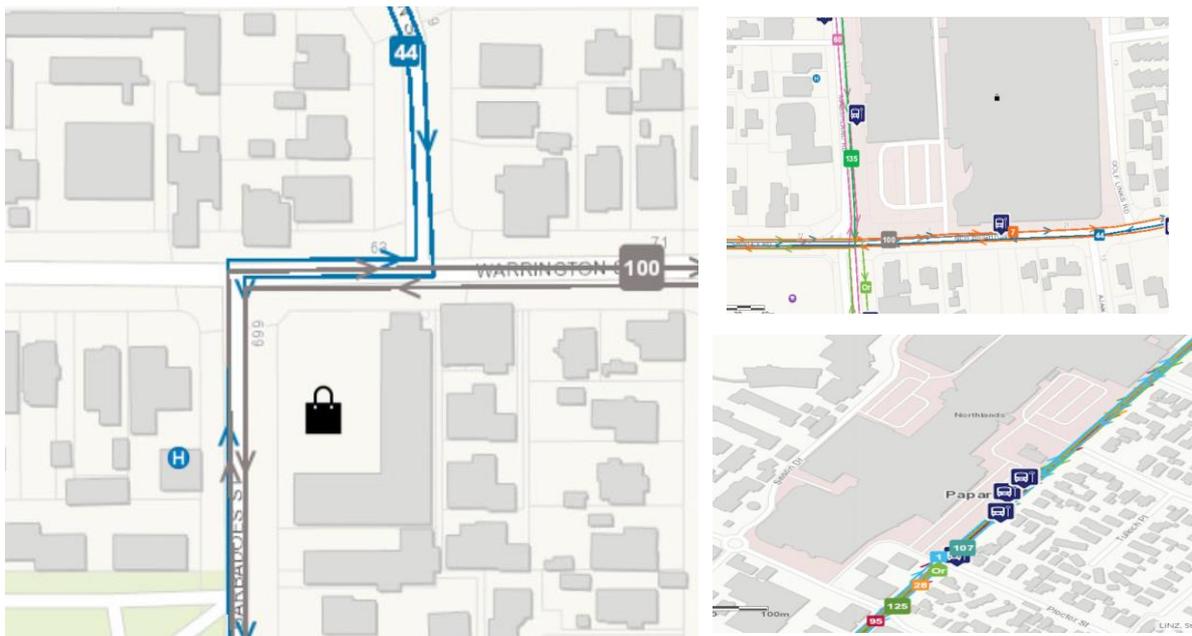

Figure 3: bus routes 44 and 100 passing Warrington Village, showing that there is no direct access by bus from the west (left). This is contrasted with the Palms (top right) and Northland mall (bottom right), which have more bus routes showing more accessibility.

The GIS map also shows that the six categories of a 15-minute city have mostly been met. It highlights that one of the key categories and needs for a community is missing within Warrington Village for its residents - caring. There is no local general practice located here, meaning that people are not able to access this by walking. Individuals are still able to access a GP either by bus or biking as there were some located in the other zones (figure 2).

These categories, although met, need improvement to cater for the needs for individual use. This is because the quality of services, production, appealing, and accessibility are low. Currently people are more likely to use services with higher quality outside of the area.

Online survey Results

From the total 72 responses, only 43 were valid because they had some sort of relation with the Warrington Village. Our sample consisted of 72% females and 28% males. The largest age group, representing 30% of our total sample was 40-49 years old.This was followed by 50 - 59 years old at 21%, 60 - 69 years old at 19%, 30 - 39 years old at 16% and 14% over 70+ years old. There was no data from 16-29 years old. 90% of our respondents were of New Zealand European ethnicity, 4.65% Maori and 4.65% of other ethnicities.

As our sample focused on people who lived with the postcodes 8013/8014 and had a relation to the Village, it is hard to tell if our survey results are representative of the St Albans population. NZ Stats and government entities impose different geographical boundaries on 'St Albans', breaking them down into smaller boundaries. Aggregating these boundaries would result in a modifiable areal unit problem.

Accessibility and Mobility

We asked the question "*how do you move to and around this area for the following purposes*" (question 5) to determine how people currently used the village and it's amenities. Majority of respondents used their private motor vehicle for all purposes apart from sports and exercise to move around (Table 1). Despite this there were also high rates of walking in categories for shopping, sports/exercise, personal business, entertainment/social and accompanying someone. Cycling and public transport and other methods used to move around were significantly lower. This shows that there was a wide variety of transport methods used.

Table 1: User choice totals of how you move around for the following purposes.

Q5 - How do you move to and around this area for the following purposes?

#	Field	Private Motor Vehicle	Walking	Cycling	Public Transport	Electric Scooter	Mobility Scooter or Wheelchair	Shared Ride / Taxi	Other	Total
1	Work	47.83% 22	19.57% 9	17.39% 8	4.35% 2	2.17% 1	0.00% 0	2.17% 1	6.52% 3	46
2	Shopping	44.32% 39	39.77% 35	10.23% 9	2.27% 2	0.00% 0	0.00% 0	2.27% 2	1.14% 1	88
3	Sport and exercise	20.59% 14	57.35% 39	14.71% 10	0.00% 0	0.00% 0	0.00% 0	4.41% 3	2.94% 2	68
4	Personal business	46.77% 29	33.87% 21	11.29% 7	0.00% 0	0.00% 0	0.00% 0	4.84% 3	3.23% 2	62
5	Entertainment/ social	42.37% 25	35.59% 21	10.17% 6	1.69% 1	1.69% 1	0.00% 0	6.78% 4	1.69% 1	59
6	Education	41.38% 12	24.14% 7	13.79% 4	6.90% 2	0.00% 0	0.00% 0	3.45% 1	10.34% 3	29
7	Accompanying someone	43.48% 20	34.78% 16	13.04% 6	2.17% 1	0.00% 0	0.00% 0	4.35% 2	2.17% 1	46
8	Medical appointments	54.55% 18	18.18% 6	12.12% 4	3.03% 1	0.00% 0	0.00% 0	3.03% 1	9.09% 3	33
9	Other	42.86% 3	28.57% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14.29% 1	14.29% 1	7

Showing rows 1 - 9 of 9

We then wanted to see the 15-minute concept being implemented into the community, by asking the participants "*how long would you be willing to walk,bike or use public transport to access the Warrington Village?".* In all methods the majority stated that they would be happy to do these in less than 5 minutes as shown by figures 4,5,6. There were moderate responses from all three to either walk, cycle or bus for 5-10 minutes. This willingness decreased as the duration increased, however this is what we expected to occur. Overall majority of the respondents stated that they would be willing to either walk, bike or use the bus for less than 15 minutes to the Warrington Village, indicating that the concept would be appropriate for the community.

Relating this to question 5, while people tend to prefer their personal motor vehicles to move around, there is a willingness to travel to the Warrington Village but mainly if their journey takes less than 5 minutes. Future research could potentially look into the psychological aspects of this to help develop strategies and behavioural change plans to switch to more sustainable mobility methods.
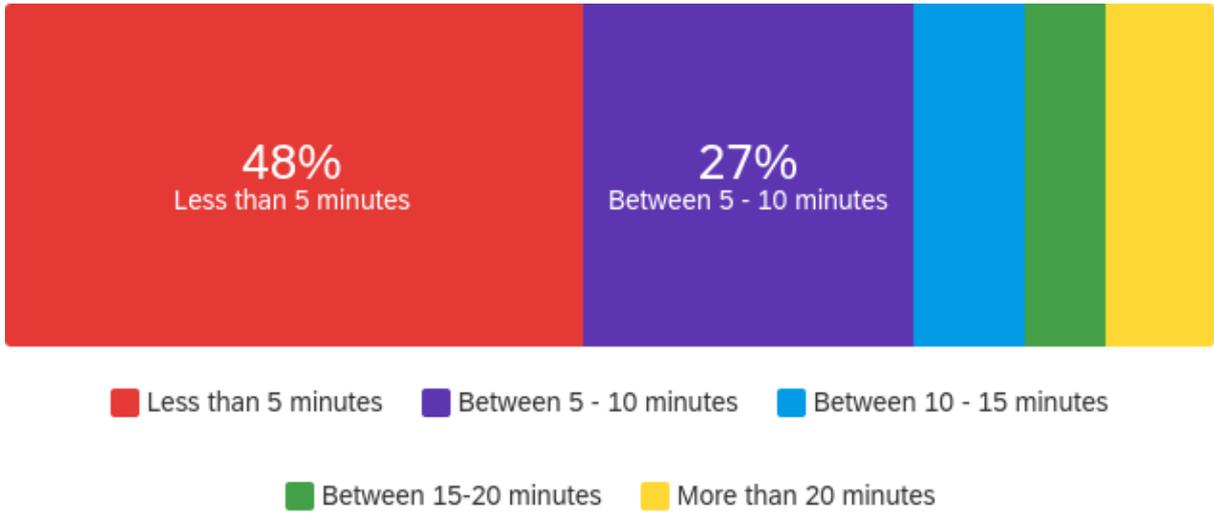
Figure 4: How long respondents would be willing to walk to the Warrington Village
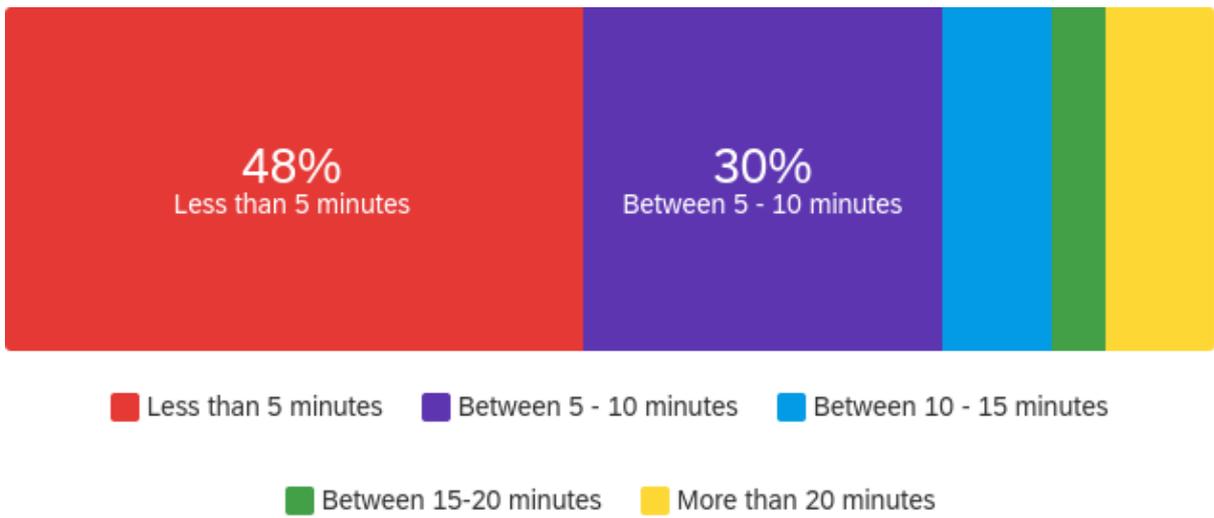

Figure 5: How long respondents would be willing to Bike to the Warrington Village
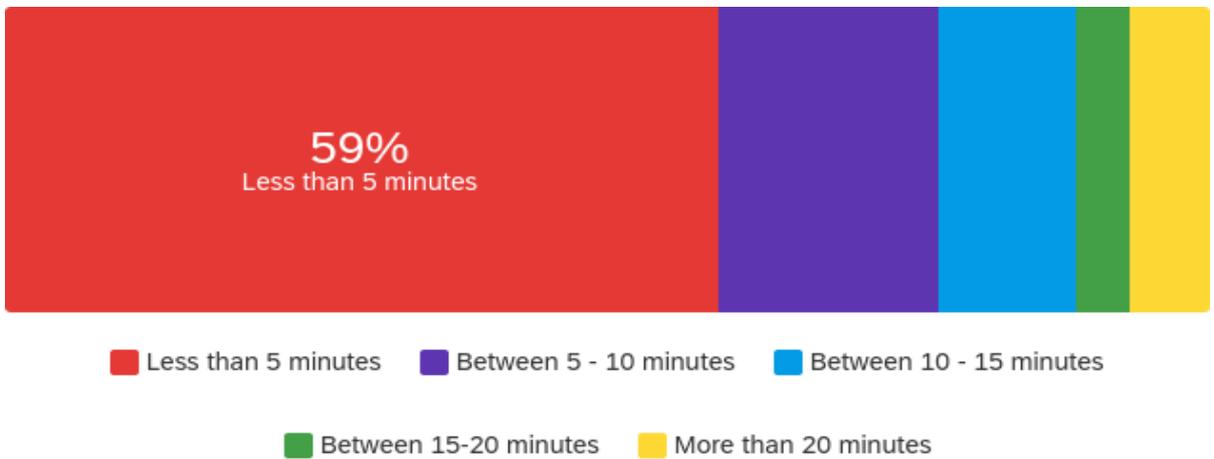

Figure 6: How long respondents would be willing to use Public transport to the Warrington Village

Amenities and attractiveness of Warrington Village

We asked participants various questions to rate the attractiveness of the Warrington Village area to give us an understanding of why people used this area. It was highlighted by figure 7 that the most popular amenities were the St Albans Park, Ris'tretto Cafe, followed by an auto centre and other food places. Comparing this to figure 8, which rated the least attractive amenities, it shows that general shops were least attractive to use. The new sports shop did not seem to attract respondents to come and surprisingly, the pub was rated as one of the least attractive amenities within the Warrington Village area. Overall these responses of attractiveness were supported by other questions asked in the survey that asked the respondents to rate the attractiveness of the village, through both a photo (see Appendix A) of the village and the physical urban design. 65% respondents rated the village overall to be either very poor or poor (figure 9).

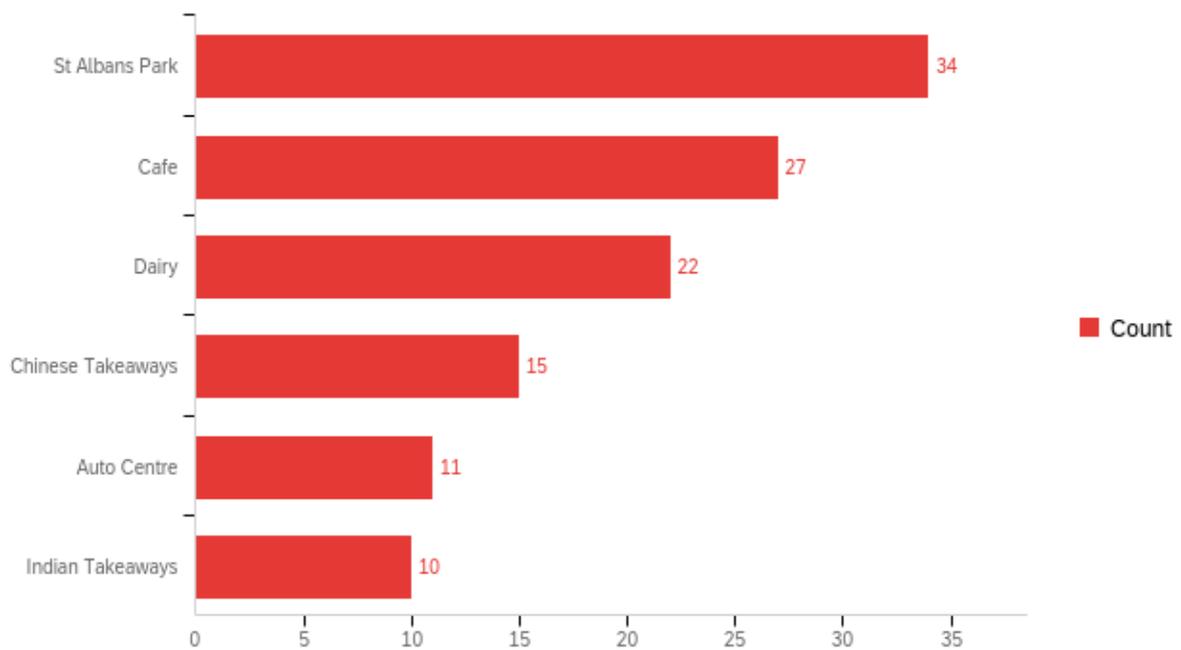What amenities from the list attracts you to come to the Warrington Village area?

Figure 7: Top 6 rated amenities that attract people to come to the Warrington Village area.

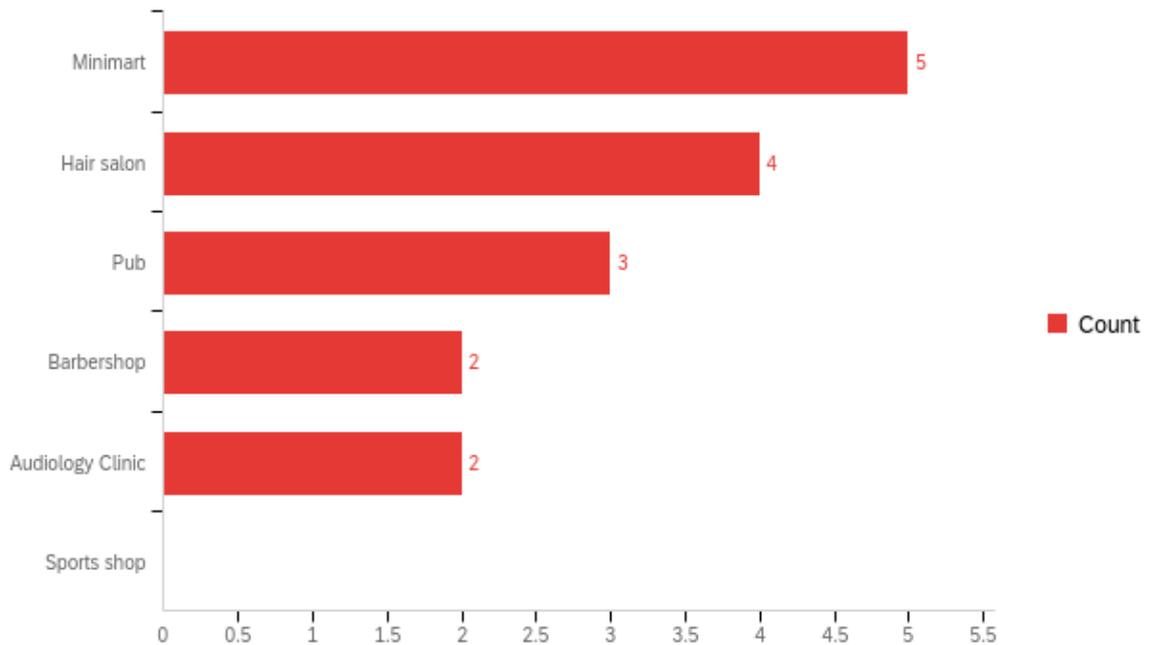What amenities from the list attracts you to come to the Warrington Village area?

Figure 8: Bottom 6 rated amenities that attract people to come to the Warrington Village area.
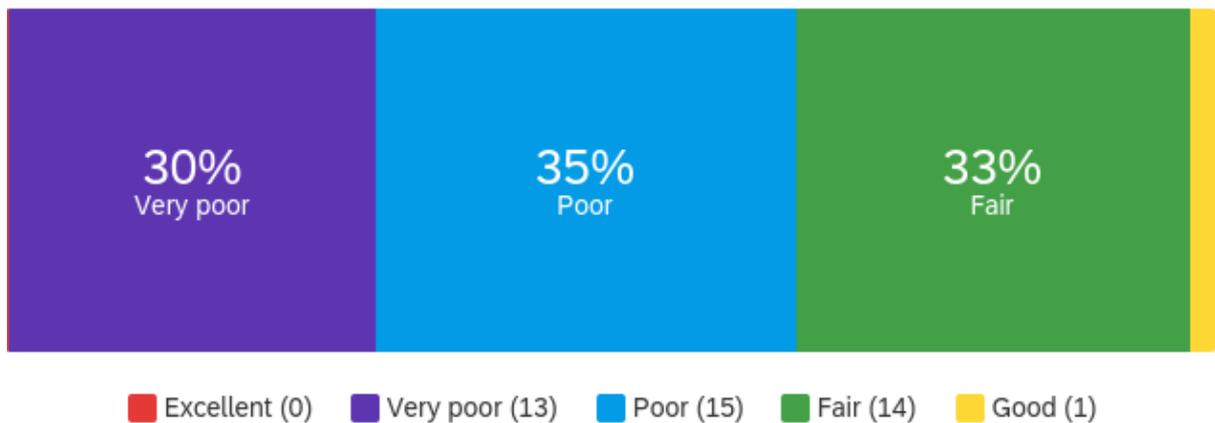
Atrractiveness of the Warrington Village

Figure 9: Rating the Attractiveness of the Warrington Village

In addition respondents were asked to rank eight urban designs (footpaths, cycle-ways, car parking, traffic lights/crossings, bus stops, public lighting, bike stands and access to amenities) between 1-5. Figure 10 shows that the top 3 urban designs were traffic lights, bus stops and footpaths, whilst the bottom were bike stands, car parking and public lighting.

When asked to elaborate on these choices in question 18, a common theme arose, majority of participants described the overall urban design as "ugly", "unloved", "unattractive" and "uninviting". One of the biggest concerns was car parking, in particular it was hard to access as it is located off Barbadoes Street. Another concern was the car park capacity as it is often full in the evenings resulting in residents having to park further away.

Footpaths	Cycle ways	Carparking	Crossings/Traffic lights
3.19	2.96	2.63	3.5
data	data	data	data

Public Transport and bus stops	Public Lighting	Bike stands	Access to amenities
3.35	2.94	2.47	3.07
data	data	data	data

Figure 10; Mean rating of urban design items in the Warrington Village

We also wanted to have the community's view point of what else they would think would benefit the village. The most common response to this was the addition of a fruit and veggie shop. It was highlighted that having a bakery, a nicer, upmarket pub and more takeaways (fish and chips/kebab shop) would benefit the area. The need for a pharmacy and/or GP was mentioned, supporting the GIS analysis finding that the key amenity of care is missing.

While the GIS map covers some supplying facilities, more consideration is needed for other local amenities such as bakeries, pharmacies or takeaways. This should be considered future research that looks into the spatial relationship of new amenities with existing amenities on a much smaller local scale.
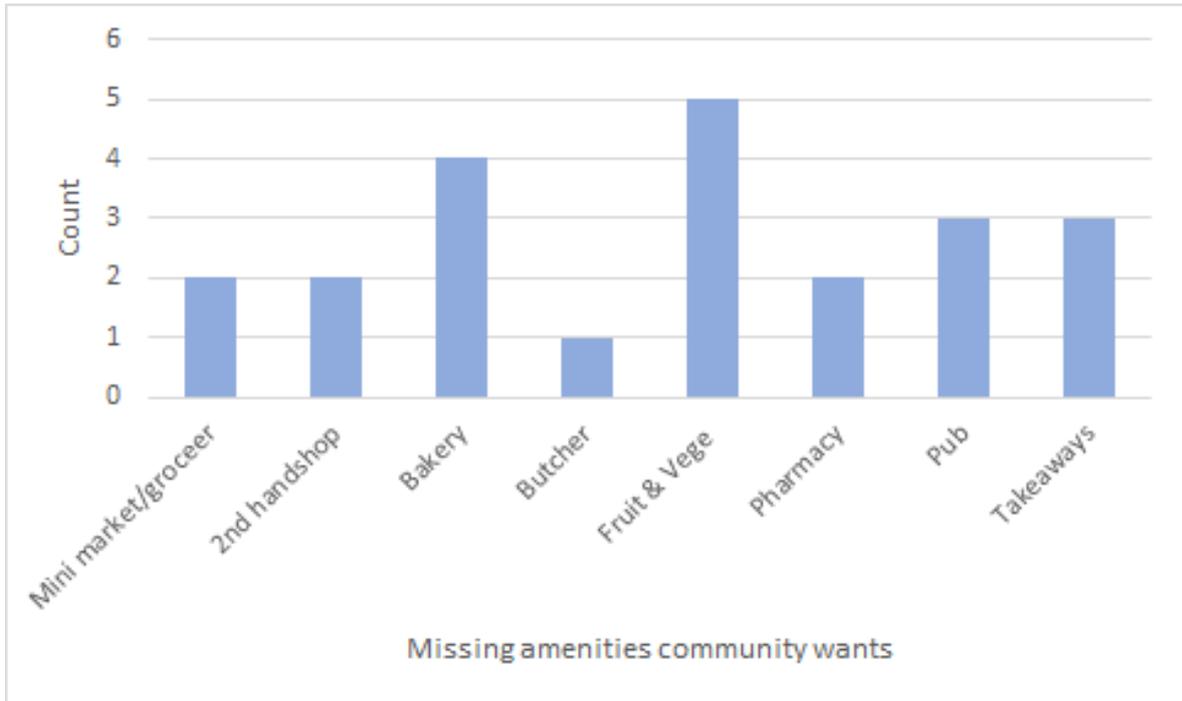
Figure 11: Response to the amenities missing from the Warrington Village

Social connectedness

To further build our understanding of the previous findings we wanted to understand the sense of community. A question was asked "*to what extent do you agree with the statement "I feel socially connected to the Warrington Village community".* Figure 12 indicates that only a third of our responses felt somewhat or strongly disagree that they feel socially connected. Whilst the majority felt socially connected. However when asked "how involved with the community" half of our respondents indicated that they had rare or no involvement with the community (figure 13)
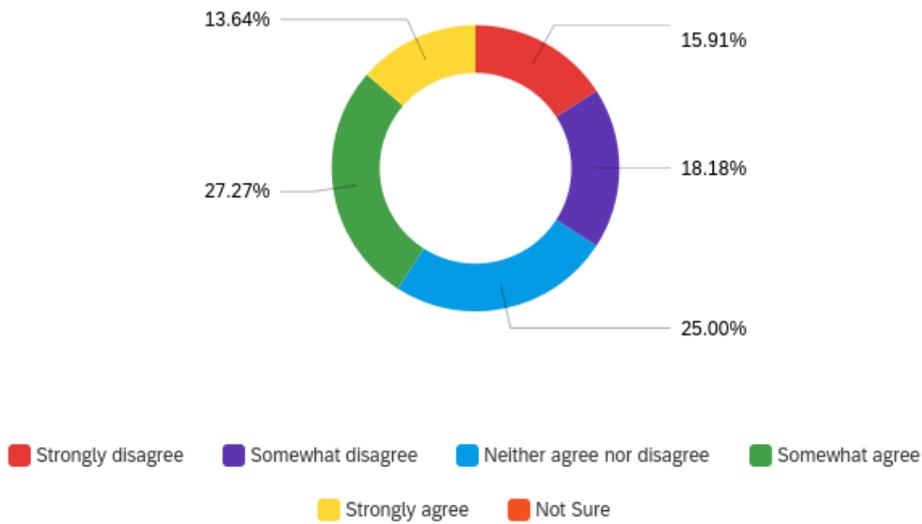
Figure 12: To what extent do you agree with the statement "I feel socially connected to the Warrington Village community"
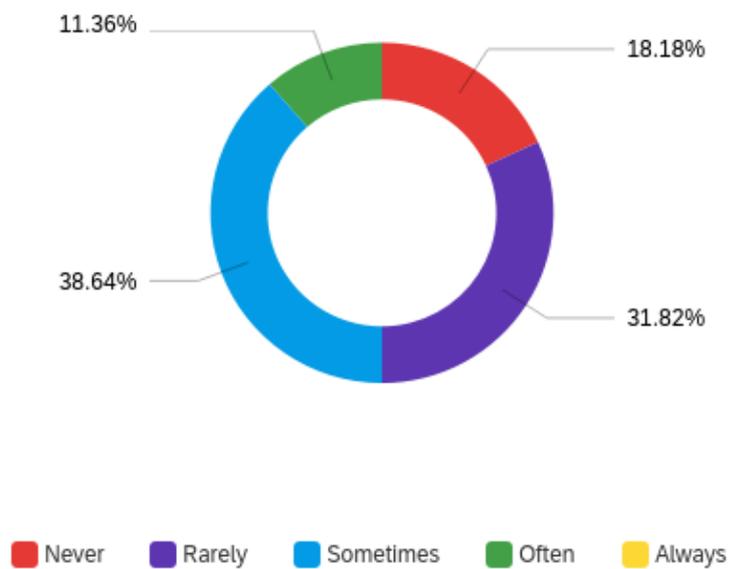

Figure 13: Involvement in the Warrington Village community

Linear Regression

We repeated a much simpler version of Francis et al., 2012 regression linear analysis of the relationship between the quality of public spaces and sense of community in residents. The results highlighted that shop quality was significantly and positively associated with a sense of community. This was performed with question 16 relating to the attractiveness of the village and question 9 asking how socially connected they felt to the village. Questions 16 and question 9 were re-coded to give numerical values for the correlation.

For attractiveness: "very poor" = 1 and "excellent: = 5

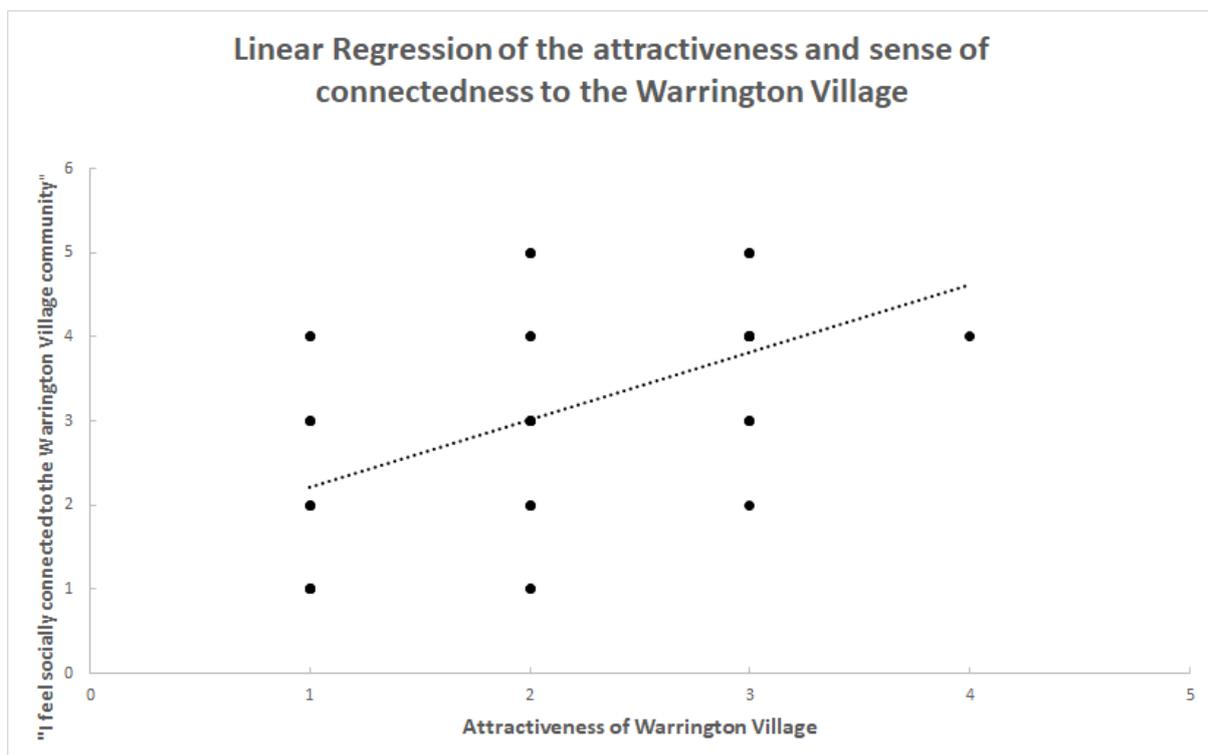For socially connected: "strongly disagree" = 1 and "strongly agree" = 5

Figure 14: Linear Regression of the relationship between the Attractiveness of the Warrington Village to how respondents feel socially connected to Warrington Village

Table 2: Model Fit and measurements of the relationship between the attractiveness of the Warrington Village to how respondents feel socially connected to Warrington Village

Model Fit Measures

Model	R	R²	Overall Model Test			
			F	df1	df2	p
1	0.531	0.282	16.1	1	41	<.001

Model Coefficients – "I feel socially connected to the Warrington Village community"

Predictor	Estimate	SE	t	p
Intercept	1.403	0.449	3.128	<.001
Attractiveness	0.805	0.201	4.012	0.013

A significant regression equation was found ($F(1, 41)$ = 16.1, p = <.001), with the attractiveness of the Warrington Village accounting for 28% of the variance in being socially connected to the Warrington Village. Attractiveness was a significant predictor of how people felt socially connected to the Warrington Village (b = .81, p = .0013). The attractiveness of the Warrington Village and how people felt socially connected to the Warrington Village was found to be a moderate positive correlation $r(41)$ = .531, p = <.001.

Although on a simpler level, our regression models show similar results presented in Francis et al., (2012) article where shop quality was significantly and positively associated with a sense of community. As discussed in Francis et al., (2012) and relative to our results, higher quality spaces are an important setting for enhancing social connectedness with residents of new housing development is related to the ongoing intensification of housing in Christchurch, in particular St Albans, as the benefits of improving the attractiveness of the Warrington Village will help provide a stronger sense of community as it may result in increased participation and better physical and mental health. From talking with our community partners, we can see this already with the Edgware Village in St Albans as funding after the earthquakes to improve the quality of the village has resulted in the place feeling more lively and residents being more socially connected.

There are some limitations that need to be considered. Due to a small sample size (43 responses) because of covid-19 restrictions, this limited our ability to collect a large enough sample size. The proportion of variance accounted for was of moderate strength which indicates confounding variables in our regression. Variables from the survey included the safety, accessibility or other variables that were not captured in the survey of the Warrington Village area would have improved the variance of the regression model.

Improvements

Our survey also asked participants what they wanted to see improved in the future. There were five notable themes from these results.

Appeal

As already highlighted in the response to question 16, residents rate the appeal of the Warrington Village poor. Residents acknowledge that the village needs to be improved to create a more welcoming feel. This was indicated by the addition of a pleasant outdoor area, flowers, bushes and other vegetation. More specifically, the appeal of shops such as the pub needed to be redeveloped to be more appealing. As indicated, the pub has been rated as one of the least attractive amenities wanting people to come to the Warrington Village. Other measures that were recognised to enhance appeal included painted roads, better signage for the village

Amenities

Overall the survey indicated more willingness to see more amenities such as bike stands, more seating and a weekly market. Residents want to see a diversity of shops to improve the amenity value of the Warrington Village.

Car Parking

Responses from the survey indicated that residents want better parking in the Warrington Village Area. There was an indication from one response who wanted a patrol warden as people will park on driveways during weekend sports at the park. Another suggestion was the addition of an electric car plug.

Traffic

Residents want to see better traffic management measures for the Village. One suggestion was the addition of red/green direction arrows at the traffic light. Another suggestion was the improvement of island crossings within the area.

Lighting

Residents want to see an improvement to the lighting in the Warrington Village area in the form of lighting in the carpark of the village and lighting within St Albans Park at the basketball court and in general.

Implications and contributions

Our project addresses the current gap in New Zealand's policy and planning and provides an opportunity to reduce it. The research we have conducted has meant that we have been able to provide councils and other communities with information about new community planning and in particular how the concept of a 15min city would benefit St Albans. This project is an opportunity for the community to voice their feelings about the community and what they think would improve it.

Implementing the 15-minute city concept also provides extra benefits such as reducing contributions to global warming as other sustainable options are used to access amenities. Additionally the concept will be an effective measure to reduce the negative consequences of common day issues such as loneliness and obesity that New Zealand is experiencing (Stats NZ cited in Kidd and Northcott, 2020; Keall et al., 2020).

Limitations

We identified two main limitations in our research. The first limitation was Covid-19 limiting our research as we weren't able to do face to face interactions. We initially planned to do these in order to gather information from shop owners and residents. This information would complement the data we collected through the survey and may have provided us with a different perspective. A second limitation we found was that our survey didn't include youth and therefore we have missed out a key part of the community and their voice. This would affect our results because it does not consider a part of the community who use the area and the facilities.

Recommendations

Throughout the project we have identified a few ways the community partners could carry on with the research we have done. A recommendation would be to establish a stronger partnership with Maori within the community. It was shown that only 4.65% participated in the survey indicating a lack of presence in the community. It would be beneficial to have them more involved in community programs and people with different backgrounds should be able to have social connection through their culture, religion, and traditions.

It could be beneficial to follow up with specific focus groups and the areas such as visual appearances and amenities as the research has identified to be of particular problems. For example youths in the community were excluded from the survey. Having a focus involving them would allow further research to be done in association with the 15 minute concept.

As identified on the GIS map, there is only one community center within the 15-minute neighbourhood of St Albans. It provides a central place for residents, allowing social connection to occur. If there was a community centre or a similar place located near the Warrington Village. This would allow for connections to be made within the community, improving the sense of the community. These areas of recommendations would continue to support the St Albans Residents Association with what they aspire to achieve in their community.

Conclusion

From these overall findings it indicates that currently the resident's view the Warrington Village to not to be adequate for their current daily needs. Due to our findings we have recommended to the St Albans Residents Association various options going forward with the continual use of the GIS map and the survey analysis. As highlighted in the GIS spatial analysis, there is a missing medical center within the 15-min walking zone and a lack of bus routes through the area. Although the village contains some key amenities it is lacking certain key amenities. As highlighted from our response from our survey and observation method, the overall attractiveness of the village lets the community down as it is not appealing for people to use and to stay in the area meaning that people will not spend a lot of time here. What residents want to see that would enhance the area is the overall appeal through more green vegetation and a more upmarket pub. More amenities which include a fruit & vege shop, bakery, more diverse takeaway options and more diversity of Shops. More car parks to cater due to pub patrons parking in the evening and on Saturday sports. More lighting in the carpark and in St Albans Park and better traffic management measures within the Warrington Village area.

References

Doorn, N. (2019). How can resilient infrastructures contribute to social justice? Preface to the special issue of sustainable and resilient infrastructure on resilience infrastructures and social justice. Sustainable and resilient infrastructure, 4(3), 99-102. https://doi.org/10.1080/23789689.2019.1574515

Christchurch (N.Z). Suburban Centres Programme. (2013). *Edgeware Village Centre master plan.* Suburban Centres Programme. Retrieved from: https://christchurch.bibliocommons.com/v2/record/S37C845655.

Christchurch City Library. (2016). *Christchurch Street names.* Retrieved from: https://christchurchcitylibraries.com/Heritage/PlaceNames/ChristchurchStreetNames-W-Z.pdf.

Francis, J., Giles-Corti, B., Wood, L., & Knuiman, M. (2012). Creating sense of community: The role of public space. Journal of environmental psychology, 32(4), 401-409. https://doi.org/10.1016/j.jenvp.2012.07.002

Kidd, D., & Northcott, C. (2020). 20-min city in Aotearoa. Future ready WSP.

Loo B.P.Y. (2021). Walking towards a happy city. Journal of Transport Geography, 93, 103079 https://doi.org/10.1016/j.jtrangeo.2021.103078

New Zealand Federation of University Women. Canterbury Branch. (1989). *St Albans: From swamp to suburbs: An informal history*. New Zealand Federation of University Women, Canterbury Branch

Östh, J., Dolciotti, M., Reggiani, A., & Nijkamp, P. (2018). Social capital, resilience and accessibility in urban systems: A study on sweden. Networks and Spatial Economics, 18(2), 313-336. https://doi.org/10.1007/s11067-017-9375-9

Pandey, D., Shukla, A. K., & Shukla, A. (2013). GIS: scope and benefits. I*n International Conference on Advances in Engineering and Technology* (pp. 60-65).

Pozoukidou, G., & Chatziyiannaki, Z. (2021) 15-minute city: Decomposing the New Urban Planning Eutopia. Sustainability (Basel, Switzerland), 13(928), 928 https://doi.org/10.3390/su13020928

Setianto, M. A. S., & Gamal, A. (2021). Spatial justice in the distribution of public services. IOP conference series. Earth and environmental science, 673(1), 12024. https://doi.org/10.1088/1755-1315/673/1/012024

St Albans Residents Association. (2021). *Group Discussion.* St Albans Residents Association.

Tempels Moreno Pessoa I. (2019). Planning with self-organised initiatives. A + BE
    (Architecture and the Built Environment) 9(4) https://doi.org/10.7480/abe.2019.4.3798

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Appendices

Appendix A - Photo of the Warrington Village for question 15 of the survey