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Title: **The Eco-Express: Exploring an Event-Specific Train Service to Enhance Sustainable Travel for Dunedin Tertiary Students**

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Abstract

Students traveling between their city of study and their hometowns are one of the largest sources of emissions for the University of Otago. This impact is evident not only in the university's emissions profile but also in the overall emissions profile of the City of Dunedin. In that context, this report will address the question 'How can an 'event specific' train to and from Dunedin be utilised to reduce the emissions created by student's travel behaviour and what other benefits could this deliver for students and Dunedin?' This inquiry aims to analyse solutions to the issue of emissions resulting from student travel, with a particular focus on travel between Dunedin and Christchurch for events and University breaks. Currently, the underutilisation of existing rail and public transport infrastructure contributes to high rates of flying and driving. The effective use of rail is a key tool to reducing transport emissions. However, in its current state, the reinstatement of passenger rail in the area is complex and facing barriers. Due to this, the introduction of irregular passenger rail has been thought as a more feasible near-term solution. Data for this report will be qualitative and collected through surveying stakeholders in the local public transport system; participants will be interviewed and the central themes which arise from these conversations will be analysed. This report offers insights into the viability of this method and provides a departing point for further studies on the introduction of this service and additional supporting initiatives.

Introduction

In the Dunedin City emissions profile from July 2021 to June 2022, transport accounted for 34% of total emissions, making it the second-largest contributor after agriculture (Swithinbank, 2022). A portion of these travel emissions can be linked to University of Otago students traveling to and from Dunedin throughout the academic year. In 2022, approximately 86% of students indicated that Dunedin was not their hometown, leading to a high demand for travel in and out of the city. As part of its greenhouse gas reporting, the University of Otago calculates that student air travel contributed 7,788.74 tonnes of carbon dioxide equivalent (tCO₂-e), when only accounting for one trip to and from Dunedin a year per student. This figure does not consider any additional trips which may be made by students throughout the year (Rutherford & Cliff, 2023). Whilst car and air travel are the predominant mode of transport used by students; the option of bus services also exists within the South Island. In line with the goals of the region's Zero Carbon Alliance, of which the University of Otago, the Otago Regional Council and the Dunedin City Council are members, this report explores ways in which support can be provided to students to facilitate more sustainable travel behaviours (Dunedin City Council, n.d.).

The key question informing this report is 'How can an 'event specific' train to and from Dunedin be utilised to reduce the emissions created by student's travel behaviour and what other benefits could this deliver for students and Dunedin?' First, this report will establish the theoretical framework, then explore the context of public transport in the South Island, followed by an outline of the scope and investigation method. The data gathered will then be analysed in four topical sections: benefits, operational barriers, barriers to ongoing engagement with the service, and the use of bus services. Finally, the findings will be used to offer considerations for implementation.

Theoretical frame

When looking at how to reduce transport emissions created by students, the most impactful approach would ideally involve preventing such travel altogether. However, recognizing the impracticality of complete elimination, the most viable strategy moving forward is to promote behaviour change towards more sustainable modes. As shown in Figure 1, Te Manatū Waka Ministry of Transport's behaviour change framework outlines that in order for an individual to make a transport behaviour change, they must have the motivation, capability and opportunity to do so. Support to achieve this goal must be gained at individual, institutional, business, infrastructure and socio-cultural levels.

Figure 1



Adapted from: Te Manatū Waka Ministry of Transport. (n.d.). *Behaviour Change Framework*. Te Manatū Waka Ministry of Transport. Retrieved February 5, 2024, from <https://www.transport.govt.nz/area-of-interest/strategy-and-direction/behaviour-change-framework/>

Based on this theoretical framework, this research seeks to identify how a passenger rail initiative could be implemented in a manner that would best support Dunedin tertiary students in achieving the common goal of reducing emissions. This can only be achieved via a combined facilitation of all the factors included in this framework: opportunity, capability, and motivation.

There are three prominent drivers which affect travel mode choice: cost, speed and convenience. Additionally, factors such as reliability and safety of service also have influence over the choice of travel modality (Rodrigue, 2020 & Balcombe et al., 2003). This is to say, that passengers are motivated to choose a method of travel that is the most cost effective, time efficient, and convenient; with reduced safety and reliability of methods acting as deterrents. To offer a more sustainable transport option for students that can compete with less sustainable choices like flying, an alternative must be competitive in most, if not all, of these key aspects.



Christchurch-Dunedin travel: context/background

The South Island has a significant amount of existing railway infrastructure, as shown in Map 1. However, the only remaining passenger rail lines are operated as tourist attractions and are marketed and priced as such. These services are run by Great Journeys New Zealand, the tourism division of KiwiRail (KiwiRail, 2024). While both the Coastal Pacific, which runs between Picton and Christchurch, and the TranzAlpine, which runs between Greymouth and Christchurch, could theoretically serve as regional transport options, the minimum one-way fare of \$219 per passenger puts them in the category of luxury services (Great Journeys New Zealand, n.d.).

Map 1

RAILWAY LOCATIONS SOUTH ISLAND

Note: The locations shown are station sites, junctions or other places of railway interest. Many of the stations are no longer used by passenger trains and many no longer have their station facilities.

-  Notable tunnels
-  Notable bridges & viaducts
-  Freight only lines
-  Places with turning facilities
-  Solid lines indicate passenger services



Adapted from: Steam Inc. (2022). Railway Locations South Island [Map].

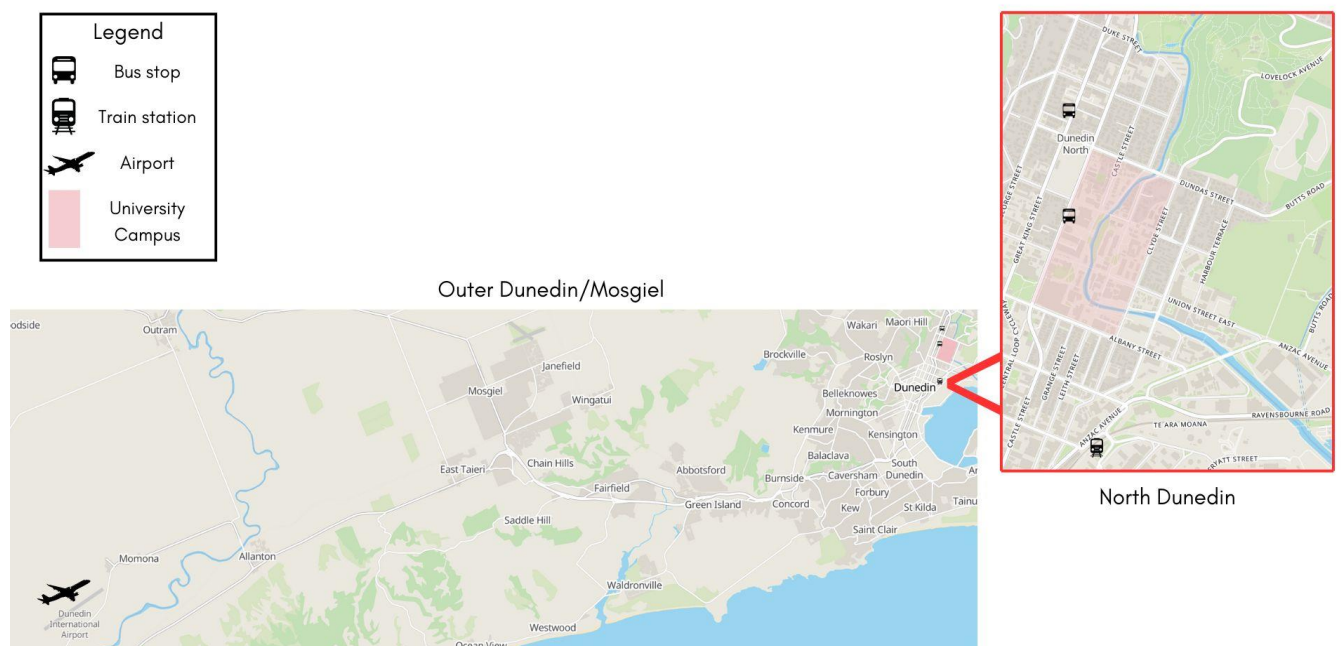
<https://www.steaminc.org.nz/assets/Uploads/Resources/Railway-SI-Locations.pdf>

Essentially, practical passenger rail that serves the South Island’s transport needs is non-existent. This decline followed the discontinuation of the Southerner passenger rail service in 2002, which operated on a regular timetable, transporting people from as far north as Christchurch to as far south as Invercargill. The Southerner's demise has been attributed to a lack of patronage, which led to issues with financial viability (Bromby, 2003). Since then, no service has stepped in to replace it. However, there has recently been growing discussion within the region, particularly at the University of Otago, about the possibility of reinstating some form of passenger service along the Southerner line. This interest is evident in the inclusion of a related question in the Otago University Students’ Association 2023 Referenda and in a proposal developed by the University. This existing interest and investigation form the foundation for this report, which will focus on the possibility of a passenger rail service between Dunedin and Christchurch.



Travel to and from Dunedin follows a unique seasonal pattern, with demand increasing exponentially around specific events, particularly those tied to the university calendar. A participant employed by Entrada Travel Group, the organisation that facilitates inter-regional bus services between Dunedin and Christchurch, noted that on the final day of a university term, a single bus service may run four to five coaches at one departure time on the route to Christchurch. This is a fivefold increase in capacity compared to typical operations and a clear indication of the demand towards travel created by students; however, this demand is not constant. Currently, the public transport options between Dunedin and Christchurch are limited to buses and flights. To provide further context on the accessibility of these services, particularly for students, Map 2 shows the locations of Intercity bus stops, the train station, and the airport, all relative to Otago University's main campus. Dunedin has a highly concentrated student housing area surrounding the University campus, with a significant portion of students residing in North Dunedin. Therefore, the accessibility of a service can be determined by its proximity to the University.

Map 2



Derived from Openstreet Map. (n.d.). OpenStreetMap. OpenStreetMap. Retrieved September 14, 2024, from <https://www.openstreetmap.org/#map=2/-41.2/-6.6>

As shown on Map 2, the distances between these locations vary significantly. Dunedin Airport is technically located in Momona, a small town in the Otago region, about 30–40 minutes by car from Otago University's North Dunedin campus, covering a distance of 32.1 km (Google Maps, n.d.). For students without access to a vehicle, the shuttle service to the airport can add an extra 1-2 hours to the travel time (Airport Shuttles Dunedin LTD, n.d.). In contrast, Intercity operates out of two designated 'University stops' on Great King Street and Cumberland Street. The Great King Street stop, for buses departing Dunedin, is 900 meters from the university. The Cumberland

Street stop, for buses arriving in Dunedin, is essentially on campus, located at the edge of the university grounds. The Dunedin Railway Station, which serves as both a train platform and a historic tourist destination, is approximately 1.7 km from the Otago University campus (Google Maps, n.d.).

In terms of the cost of these two pre-existing services, Table 1 demonstrates a pricing estimate for both travel methods.

Table 1

	<i>Dunedin to Christchurch (cost \$)</i>		<i>Christchurch to Dunedin (cost \$)</i>	
<i>Flight</i>	Average	Total range	Average	Total range
	110	72 - 273	150	72 - 273
<i>Bus</i>	Average	Total range	Average	Total range
	50	24 - 63	50	24 - 63

Data obtained from: (Google flights, n.d.) & (InterCity, n.d.)

This data was collected using Google's flight feature and directly from the InterCity website. It includes pricing information from Monday 16th September 2024 to Friday 28th February 2025¹. For the flight cost data, the analysis focused on the cheapest available flight each day, without accounting for variations in pricing based on flight times. Additionally, the bus fare was based on InterCity's student discount. This data not only highlights a clear price difference between the two services but also indicates the pricing level that any new services would need to achieve to remain competitive.

Scope

Within this context, the scope of this report is focused on a passenger service between Dunedin and Christchurch operating on an events-based schedule. This project targets this route due to its feasibility for alternative sustainable travel options and the significant demand for such services. Christchurch, located approximately 360 km north of Dunedin, is the largest city in the South Island and already has existing infrastructure for alternative travel forms, including bus services and rail infrastructure. Limiting the scope to this distance also ensures practicality, as extending the project further north would increase complexity regarding convenience and time efficiency. Flying becomes almost unavoidable when traveling to the North Island, where most other large New Zealand cities are located. Ideally, as technology evolves, the work done to facilitate sustainable student travel between these two cities could serve as a foundation for

¹ These cost calculations were completed on 13/09/24. Since prices can fluctuate based on demand and the time remaining until departure, all data was collected at the same date and time for consistency. This information is provided for context only and may not reflect the current/exact market prices for any of these services.



expanding into a broader range of travel distances, both within the South Island and across the North and South Islands.

Furthermore, the basis for an event-centred schedule allows the service to provide its benefits without incurring the risks associated with fluctuating demand that a regular service would face. In this report, an event is considered any occasion that prompts travel to and from Dunedin, which encompasses a wide range of activities. Primarily, student travel for university study is the central focus, occurring at the start and end of the academic year, with significant travel also taking place during university breaks. Additionally, other events in both Dunedin and Christchurch, such as festivals and sporting events that generate substantial student travel, are included. This irregular operation provides a form of insurance against the variable demand for transport services while allowing the service to operate when demand is present. It offers greater reassurance that there would be sufficient patronage at the times the service is run.

Finally, this report has a strong focus on specifically reducing the use of flying, as it can be better equated to other forms of public transportation than driving. Cars offer more privacy, convenience, better storage, and a myriad of other benefits that public transport services struggle to compete with. That is not to say that people who would typically travel by car would not benefit from enhanced public transport options. However, these options may not be as competitive in creating behavioural change within the market of individuals travelling by car. Therefore, this report prioritises reducing student travel emissions by focusing on alternatives to flying.

Method

The investigation undertaken was conducted by surveying relevant stakeholders involved in public transport to identify what kind of requirements are needed to facilitate an initiative such as the one explored in this report. Data was collected through interviews and then analysed to identify central themes, which were used as data points in this analysis. The questions posed to stakeholders were relevant to public transport policy across Aotearoa, as well as policy and planning in Dunedin and Christchurch, especially concerning the transport link between the two cities. Nine people were interviewed in total; participants included four industry professionals with direct links to the provision of public transport services², three students at Otago and Canterbury University and one expert individual with a background in transport planning. Those who were chosen to participate in these interviews were accessed via four main channels: (1) proximity to the existing work on this initiative that the university had already been facilitating was (2) a known contact of those accessed through the first criteria, (3) the researcher's pre-established network of contacts, (4) follow-up calls

² The industry professionals who participated in this project are not speaking as official representatives for their organisations, they are instead providing their perspective from their experience and position in the industry.



resulting from the Sustainability at Otago Instagram. Additionally, there was one participant who was accessed through cold contacting. This report also includes supporting data obtained through the OUSA 2023 referenda.

The Interviews with the stakeholders: summary of data and analysis

When analysing the interview content, it became clear that the data could be divided into five sections: the benefits of the service, the barriers to getting it up and running, the challenges it would face in ongoing operations, additional opportunities presented by running a train service, and finally, the emerging theme of inter-regional buses.

Benefits

Throughout this research, all stakeholders interviewed held strongly supportive and positive stances towards this concept of a passenger rail service. Benefits cited emerged across three themes: emissions reduction, connection, and the possibility for extending the use of this service to provide benefits to the wider community. The central benefit of a passenger rail service has been identified as emissions reduction as this is a lower emissions option when compared to flying and driving. Figures provided by an interview participant estimated the emissions per passenger for one flight to be around 100kg of CO₂, whilst a train trip would see around 12kg of CO₂. This reduction would support partners within the Dunedin Zero Carbon alliance, particularly the University of Otago and the Dunedin City Council, in reaching their commitments towards net zero carbon emissions by 2030.

Additionally, the theme of connectivity emerged prominently within this research; as the two largest cities in the South Island, Dunedin and Christchurch hold pivotal roles as major hubs for health, education, culture, tourism, and economic activity. The introduction of a service such as this stands to provide significant connection-based benefits for both cities, particularly among students. This service was envisioned by participants as an opportunity to improve social connectivity and collaboration between the two regions. Examples provided regarding this include increased opportunities for students to visit family, explore both the cities and the towns in-between, and foster inter-personal connection with each other throughout the use of this service. Notably, Christchurch-based participants highlighted the potential for collaboration with tertiary organisations like the University of Canterbury, allowing for their students to also utilize the service for trips to Dunedin during its operational times.

Furthermore, some stakeholders identified an opportunity to incorporate the use of the train to other major events in the area which are not exclusive to students. A participant employed by Events Dunedin stated that when major events occurred in Dunedin up to 60% of attendees will be coming in from outside the Dunedin Area, with the upcoming P!nk concert in March cited as an example of this. On this basis, they



articulated the ability to run event trains not only for students, but also for the public in collaboration with large sporting events and concerts. When asked to provide their perspective on this idea, another participant cited the possibility of providing people with the option to purchase a ticket to the event, which would also include access to use the train service between Dunedin and Christchurch. The synergies which are available to be utilised here are significant, as Dunedin Venues currently have oversight on Dunedin Railways, and so there is a strong opportunity to establish a collaboration of this nature.

Furthermore, many participants identified that they saw feasibility for this project in aspects relating to patronage, with many citing strong enthusiasm for a service of this nature within the Otago student community. In the Otago University Students' Association 2023 Referenda, the question 'Should OUSA support the University of Otago Sustainability Office to source sustainable transport options (such as a train) running between Dunedin and Christchurch at key times of year?' was asked; this received a 75% yes vote from the voting population (Otago University Student Association, n.d.).

Operational barriers

Despite there being significant enthusiasm and positive sentiment towards this concept of an inter-regional passenger rail service, within interviews participants discussed several barriers which may affect how it could be instituted. The barriers identified have been split into two categories within this report, barriers which face the practical operation of this service and barriers which may affect ongoing patronage and engagement. Operational barriers include financing, the accessibility of rolling stock, quality of rail infrastructure and track knowledge.

By far the most predominant theme which was discussed by almost every participant revolves around the pivotal issue of financing, with there being a common belief that accessing adequate funding would be a significant challenge. This financial challenge is characterised by a dual-sided cost pressure: the imperative to cover service costs, against the constraint caused by hesitation to pass the full financial burden onto intended student passengers. Creating an affordable and price competitive service is important in fostering accessible sustainable mode choices throughout all communities, however, this is particularly pertinent when students are the target market. Services intending to serve a student market tend to require lower pricing to meet lower student budgets. In interviews and consultations with students, a \$75 maximum cost per ticket has been identified as simultaneously high enough to cover chartering costs whilst still maintaining interest and not presenting a strong financial barrier to prospective ticket purchasers. However, this depends on full patronage on the train; if not enough tickets can be sold, this figure would be unable to cover costs. Accessing funding could provide benefits through two avenues, the first being through reducing the fare box recovery ratio for passengers, therefore reducing financial demands on passengers and possibly increasing patronage.

On the other hand, this could provide a form of security to allow costs to be covered regardless of whether full patronage of the service is achieved. Securing funding is complex, multiple participants identified a strong belief that an irregular train initiative would not be viable without significant central government support and funding; citing a belief that there would be a difficulty regarding accessing this level of resourcing from organisations within the Otago region. Outside of political lobbying throughout government to advocate for the funding of this service from a national level, sponsorship of the service by a private company was another avenue for funding suggested by participants. There was an opportunity identified to collaborate with organisations looking to add some sustainability initiatives to their sponsorship portfolio; looking at businesses already collaborating with the university in this capacity was suggested as a starting point for sourcing these. Furthermore, if this train service was extended to be run at additional times for events open to members in the wider community, such as concerts and sporting events, then non-students could possibly be charged at a slightly higher rate to support the operation of student focused services.

Accessing rolling stock was another significant barrier identified by participants. The first day of semester 1 for Otago University is typically the last Monday of February; in 2024 this lands on February 26th.³ The weeks leading up to this date are when the majority of students travel back into the Dunedin area, with orientation week beginning the Monday prior and 'Flo-week'⁴ beginning the week prior to that; in 2024 that is February 19th and February 12th respectively. This time of year makes up a significant amount of the travel between Dunedin and Christchurch, in order to target this travel effectively any initiative aiming to provide a lower emissions service would benefit from occurring at this time. This is particularly important on the weekend preceding orientation week, as this is when move in day for all 15 residential halls occurs. Additionally, when looking at habit forming in transport choices, allowing for students to start their year with the use of public transport may facilitate more sustainable choices throughout the year. However, there is an issue posed here as the current proposed rolling stock to run this service is that of Dunedin Railway's, currently being overseen by Dunedin Venues. Whilst Kiwi Rail also owns and operates passenger rail rolling stock in the area for its 'Great Journey's' sightseeing trains, previous investigation by the University determined that this was less practical, as the chartering costs were higher and passenger capacity was lower. The main service which is currently being provided by Dunedin Railway's rolling stock is sightseeing tourism trains, and this beginning of semester 1 timing is the peak of tourist season for Dunedin, particularly as there are many cruise ships in the area. This creates a difficulty in accessing rolling stock during this time period. There are two primary courses of action which were identified to mitigate this barrier, with a possibility for them both to be employed in a collaborative

³ Whilst it is too late to institute an initiative for the beginning of Semester 1 2024, these dates are being used as a reference point.

⁴ Flo-week is a colloquial term used by Otago University students to refer to the week prior to the traditional orientation week, in which students who are flatting throw non-university-affiliated orientation gatherings.

approach. The first being the creation of an agreement with Dunedin Railways so that they prioritise at least one student service over this period, with the opportunity of an ongoing revenue source for the organisation being an encouraging factor towards this. Alongside this, initiate further exploration of future dates across the year for student travel services, with particular focus on those which are outside of the summer tourism season.

Furthermore, one participant employed by Environment Canterbury identified a possible barrier relating to the reliability of rail infrastructure; with issues such as coastal erosion and flooding affecting the lines in the Timaru district being cited as an example. This was then contextualised by the participant with the discussion around possible solutions being included within development plans, however, the timeline for implementation is on a decades long scale. Moving forward with an irregular passenger rail service of these lines would require further consideration of and adaption to this. Additionally, a participant employed by Events Dunedin identified that in order for train drivers to operate along rail lines they must have extensive track knowledge of the route. The participant reported that none of the Dunedin Railways drivers currently hold that track knowledge, resulting in the need for one to be hired from another organisation, such as KiwiRail to run the initial trips and allow Dunedin Railway drivers to develop their own track knowledge.

Barriers to ongoing engagement in the service

To ensure the long-term sustainability of this service, it's crucial to address various barriers regarding on-going engagement and patronage. The barriers identified at an engagement and patronage level include the rolling stock's capacity for baggage, the length of the train trip itself and the last mile. The rolling stock owned by Dunedin Railways holds limited capacity for baggage at only one carry-on bag per passenger. This was identified by a participant employed by Events Dunedin, an organisation currently overseeing Dunedin Railways. This poses a significant barrier, particularly when looking at being competitive with other travel modes such as flying, where passengers are able to pay to take excess baggage. This becomes particularly pertinent when trying to target students who are traveling to and from home for breaks, as these breaks can be weeks at a time meaning that people will have more luggage to carry belongings. An adaption to this barrier would be to continue to focus on targeting the timetabling of this initiative to times of significant travel such as long-weekends, when large events occur and shorter university breaks, as passengers would intend to have less baggage over these times.

Additionally, the length of a trip and how passengers view the cost to their time presents as a barrier towards motivation towards modal choice change. Research on the relationship between modal choice for long-distance travel indicates that the length of time it takes to make the trip and the ability to utilise that time are significant factors. Time taken to travel in which a passenger cannot utilise it for other means, such as completing work on a laptop, is perceived as wasted and presents as a barrier (Malichová

et al., 2022). A flight between Dunedin and Christchurch is approximately 1 hour long, whilst a train trip is around 6 hours long⁵ (Bromby, 2003). This huge discrepancy in timing was identified by participants as a deterrent from students switching transport methods. Within these interviews, the provision of a comfortable experience to passengers during the trip and marketing this successfully were proposed as solutions to overcome this barrier. One point of competitive difference which a train service would be able to provide that other methods cannot is a more comfortable experience. The ability to provide passengers with more space and the use of a table whilst travelling allows for better utility of the travel time; this is increased significantly if resources, such as internet access are able to be provided as well. This is a strong contrast to the experience of a plane, in which mobile data must be switched off and technology use, particularly of laptops, is limited at times. A participant employed by Events Dunedin referred to the train as a venue and the trip as the event, that concept speaks to how embracing the novelty and comfort of a passenger train service can be central to overcoming this barrier.

Furthermore, when analysing the total trip time of these two methods of travel between Dunedin and Christchurch, from leaving the house to arriving at the final destination, the discrepancy shrinks significantly. As seen in Map 2 earlier in the report, the location of the Dunedin Airport being so far away from North Dunedin increases travel time significantly, this is a particularly large increase if a student is using the Airport Shuttle service, as it is a less direct method. Additionally, there is often a wait time within the Airport before the flight commences due to baggage and check-in timing requirements. So, whilst the train trip is technically longer, blocking out the time taken for the multi-modal travel and the waiting required for a plane trip lessens the contrast. As suggested by a student participant, strategically promoting this ability for better utilisation of time during a train journey and contrasting it with other modes of transportation within marketing could potentially reshape negative perceptions contributing to this barrier; this could also involve highlighting that train travel does not incur additional access costs, such as those associated with shuttles, which may be applicable to flights.

'The last mile' refers to the travel a passenger must take between the drop off point from their form of transport to their final destination. The first⁶ and last miles required to take in transport have significant weight in affecting the accessibility and perception of transport modes (Venter, 2020). A significant barrier which was presented was the service's ability to enter the centre city of Christchurch. Within my interview with an employee of Events Dunedin, it was discussed that to enter Christchurch past Rolleston, a town located an approximately 25-minute drive from the Christchurch City Centre, would require a KiwiRail guide to be brought onto the train. Whilst this would not be unfeasible to do, the root of this issue is financial, as paying to have this occur is

⁵ This figure is based on the timing of the original southerner service.

⁶ In connection with the last mile, the first mile refers to the travel a passenger must take to reach their mode of transport.

another financial demand. The prospect of only being able to be taken to Rolleston was indicated to be seen as a barrier towards motivation for behaviour change, particularly as accessibility and convenience is one of the key points of difference which would make a service such as this competitive. There are a few ways in which this could be mitigated and managed, the first being for the service to pay for the use of a Kiwi Rail guide to access the city, the second being chartering shuttles or buses to take passengers into the city.

Further possibilities of the train service

Alongside benefits and barriers, there were also other suggestions towards how the service could be conducted which warrant further investigation. The first of these being creating a collaborative partnership with Otago University residential colleges to promote and encourage this service. This would allow for a more concentrated marketing scheme, and with this being associated with their halls, residents may feel more empowered to choose this transport option. This could manifest in a variety of actions, from promotion of the service during mealtimes and around the hall, to providing shuttles for residents to and from the train station. Secondly, there is an opportunity to partner with Environment Canterbury to include a bus card loaded with credit as part of the price of the ticket. This would exist in line with the organization's current goal to expand the use of public transport within the city of Christchurch. This may help to reduce the caution felt by students who are wary about how they may travel within the city once they arrive and encourage public transport usage overall.

The use of a bus service

Whilst the use of a train service was of prominent interest to all interview participants, an unexpected emerging theme within this research was discussion regarding the current state, and possibilities for the future, of bus services between Dunedin and Christchurch. Currently, the only service operating along this route is the InterCity, which is an inter-regional bus service occurring on a daily schedule between Dunedin and Christchurch. During interviews with students, they were asked about their understanding of and relationship with this service, within responses there was a prevalent theme of feeling disconnected. To quote participants 'the bus sucks' and 'the buses aren't exactly pleasant'; while this data does not provide a quantitative representation of the entire student body's perspective, it does offer insights into the prevailing sentiments that may hinder modal change to this existing service. These participants spoke to a less than comfortable experience whilst using this service, the bus ride takes anywhere between 6 to 8 hours dependent on many factors, including traffic and the amount of time spent at stops. This extended duration spent in a confined space, like a bus, contrasts unfavourably with the more positive perceptions associated with flying, where the travel time is shorter than that of bus journeys.

However, there are many aspects of this service which may act to attract users, including some benefits that a train service might not be able to provide. A train service

would have limited infrastructure to stop in places, whilst buses can stop anywhere along their route; this allows shorter last and first miles for passengers. Participants indicated that this was a strong benefit that bus services provide, particularly when competing with other options such as flying. Additionally, these bus services can be extremely price competitive, with the cheapest ticket offered being \$50 and student discounts already being provided. Examining the emissions aspect, this is a service which is already being run and generating emissions. According to a conversation with a current employee of Entrada Travel Group, who facilitate the Intercity bus services, emissions are generated once the first passenger books a ticket for a specific departure. Subsequent passengers choosing the same time and day contribute to reducing emissions per person. By increasing ridership on this service then, there continues to be strong emissions reduction benefits when compared to flying.

Throughout these interviews, it became increasingly clear that there is an opportunity to facilitate increased ridership for this service. When speaking to a participant employed by Entrada Travel Group, it was established that there is currently capacity to increase usage of this service. This becomes especially relevant considering the impact of COVID-19 and associated lockdowns, resulting in a substantial reduction in capacity that has not fully rebounded to pre-pandemic levels. This suggests an opportunity for the revitalization of ridership numbers. Actioning this may be complex, as whilst the Otago Regional Council has responsibility over providing bus services within the region, and the Dunedin City Council provides the infrastructure for bus stops, inter-regional bus services are operated by private companies. However, there are certain actions which could be conducted by external organizations to enhance the receptiveness of students to use the service. Currently, 'best practice bus stop infrastructure' is not being used when it comes to this service, as indicated by a participant employed within the transport planning sector. Fan et.al, (2016) explores the idea that the wait time of passengers is a crucial factor in modal choice, the longer the wait time the more passengers are dis-motivated to choose that option. Although, it is also stated that the more pleasant the experience of waiting, such as the level of amenities and better feeling of safety, the shorter people may perceive this wait time, compared to if there were no amenities at all. InterCity has two stops within Dunedin City along its route. The stop aimed at university students traveling out of Dunedin is located at 686 Great King Street, as shown in Map 2 above. However, this stop offers no shelter for those waiting for the bus. Leaving those waiting for this service possibly standing in the rain and cold and acting as a deterrent. Therefore, there is an opportunity here to create a better experience and facilitate motivation within students to switch to this service through an improved North Dunedin stop.

Additionally, creating a strong partnership between the University of Otago, the Dunedin City Council, Entrada Travel Group, and possibly other local Tertiary institutions may be the key to providing students with a more positive perception of this service and encourage its usage. In response to the question, 'in what ways could Intercity be

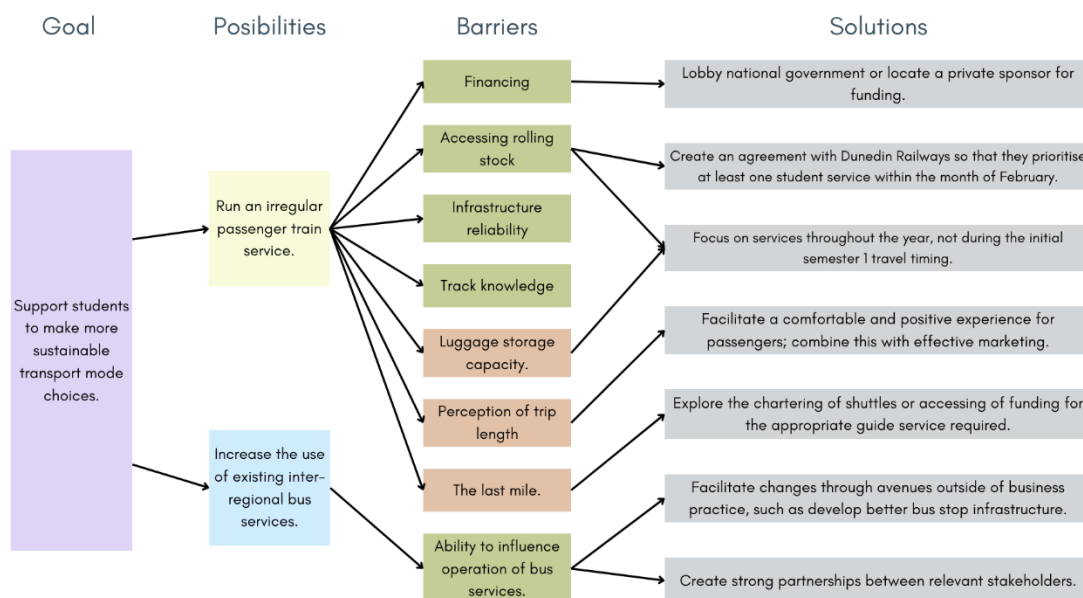


supported and what could be done to help increase student ridership along this route?’ a participant employed by Entrada Travel Group indicated that better marketing to students may be a key next step in this. This research underscores a compelling opportunity to not only facilitate an irregular rail service, but also to encourage more ridership on inter-regional buses for students, with the potential for these services to complement each other. There is significant room for more research into this possibility.

Considerations for implementation.

This project has identified a range of barriers and solutions that could support students to make more sustainable travel choices between Dunedin and Christchurch, as summarised on Figure 2 below:

Figure 2



As depicted in Figure 2, the actions recommended by this report to overcome challenges in the implementation of a train service include:

- Explore sources of financing for the student-focussed event train service, through either national funding or a private sponsor.
- Explore conducting the train service throughout times of year with prominent student travel, potentially examining times outside of the month of February to mitigate rolling stock unavailability and baggage capacity issues. Alongside this, investigate the creation of a partnership with Dunedin Railways for the prioritisation of one student travel service within February.
- Conduct further analysis into infrastructure reliability issues.

- Ensure a positive experience is provided during the train service and that this is marketed effectively, particularly in comparison with other services.
- Further explore ways in which the last mile issue could be mitigated, this could possibly entail accessing further funding for a KiwiRail guide or the chartering of shuttles.

There is also an opportunity here to provide support to inter-regional bus services. Doing so is not exclusionary to also facilitating a passenger rail service, in fact there are benefits to both services working in tandem to provide more sustainable transport options. However, there may be less barriers to acting on supporting bus patronage, so it may prove beneficial to action something on this first whilst work on a passenger rail service begins.

The insights provided by this research not only enhance understanding of the potential for reducing student travel emissions at Otago University but also offer a deeper context for public transport in certain areas of the South Island. Further research is needed to explore funding sources for such a service, assess the state of the rolling stock in greater detail, and conduct market testing for the service. Additionally, a more in-depth evaluation of how a bus service, such as the one provided by InterCity, could be utilised would also be beneficial.

Conclusion

In conclusion, this report intended to outline in what way an 'event specific' passenger rail service could be utilised to reduce student travel emissions, specifically targeting trips made between Dunedin and Christchurch. The theoretical framework, based on Te Manatū Waka Ministry of Transport's behaviour change model, forms the basis for understanding and addressing the motivations, capabilities, and opportunities of sustainable transport choices. Focusing on an irregular passenger rail service, especially during peak student travel periods, emerges as an effective approach. The benefits, including emissions reduction, enhanced regional connectivity, and broader community advantages, are evident from stakeholder interviews. Despite unanimous support by participants, barriers exist at both operational and patronage levels, including in financing, rolling stock accessibility, reliability of infrastructure, storage capacity, perception of travel duration and the last mile. This report suggests actionable solutions within the implementation of this service. It also recognizes an opportunity to improve patronage of the existing inter-regional bus service between Dunedin and Christchurch.

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