Urban Transport Solutions

Lifting Aotearoa's sights to greater sustainable transport opportunities

2023

DoppelMayr

World market leader in cable-propelled mobility

Executive Summary

New and visionary transport options are needed

Modern urban cities function efficiently with effective integrated public transport networks. In most situations there is neither the space nor funding available to keep expanding New Zealand's urban road and rail networks. Where this has been done, vehicle travel volumes generally increase to fill the new capacity.

New Zealand's major urban centres are becoming increasingly congested, resulting in longer travel times and demand on existing transport infrastructure, which in some areas is already reaching or exceeding capacity. Many public transport schemes being investigated are expensive, would be disruptive and time consuming to build, and have high ongoing operational costs. With future growth and expansion planned in our urban areas, the pressure on existing transport networks is projected to increase.

Aerial Cable Cars – a globally-proven solution

Aerial cable car networks can resolve many of the public transport challenges facing New Zealand's major cities.

In cities such as Portland, and soon to be in Paris, aerial cable cars glide above the city and the streets below. As part of an integrated network, they open new possibilities by maximising the unused aerial environment and traversing other modes of transport.

The benefits of Aerial Cable Cars

Aerial cable cars are attractive to passengers and provide reliable, direct and fast journeys at high frequencies. They complement and fully integrate with existing train, bus and ferry services – filling gaps or extending current modes of transport.

Other advantages of aerial cable car systems include being a low-cost transport solutions compared to that of other transport infrastructure, a build time of two years or less, and minimal disruption to local communities and impact on the land and existing infrastructure. Once operational, aerial cable cars have a minimal physical and carbon footprint and are highly energy efficient. With capacity to transport up to 8000 passengers per hour per direction, aerial cable cars have the potential to connect communities around New Zealand to major activity hubs such as CBDs, airports, shopping centres, new developments, transport facilities and ports.

Research shows cable cars are perfect for New Zealand

A study by Abley, a specialist New Zealand planning and transport consultancy, found that "aerial cable cars can address several of the key transport challenges facing New Zealand cities", and that "in comparison to other on-road modes of transport, the overall advantages of cable cars are significant".

Abley undertook a strategic level analysis of opportunities for aerial cable car services across New Zealand, and identified twenty locations where there is a case for this public transport solution across six cities – Auckland, Wellington, Christchurch, Tauranga, Hamilton and Queenstown.

Key cable car solutions that could be progressed

Doppelmayr has shortlisted these options to ten sites based on the potential for aerial cable cars to address key transport challenges and provide effective solutions, as they have for many places around the world.

After suitable detailed evaluation, we propose further investigating these sites to potentially progress them as projects.

These opportunities fall into four categories:

1. Alternative to proposed Rapid Transit (e.g. light rail, busway)
2. Connect to and/or extend reach of proposed Rapid Transit (e.g. Auckland Northwestern Busway)
3. Provide additional capacity for a physically constrained corridor.
4. Direct connection across a physical barrier.

Scheme	Route	Strategic Value
Tāmaki Makaurau / Auckland		
Airport to Botany	Airport – Puhinui Railway Station – Manukau CBD – Botany	Rapid Transit network, alternative to Bus Rapid Transit
Airport to Onehunga	Airport – Mangere Town Centre – Mangere Bridge – Onehunga	Alternative to Light Rail: Airport – Onehunga section
Te Atatū – Henderson, via Busway	Te Atatū – Northwestern Busway – Henderson	Connect to proposed Northwestern Busway
Te Whanganui a Tara / Wellington		
Airport to CBD	Airport – CBD – Wellington Railway Station	Alternative to Bus Rapid Transit
Island Bay to CBD	Island Bay – Newtown – Wellington Hospital – CBD – Wellington Railway Station	Alternative to Light Rail Transit
Karori to CBD	West Karori - East Karori – CBD	Additional capacity for constrained corridor
Wainuiomata to Hutt Valley	Wainuiomata – Waterloo Rail – Hutt Town Centre	Direct connection across physical barrier
Ōtautahi / Christchurch		
Airport to CBD	Airport – University - CBD	Commuter and traveller connection
Belfast to CBD	Belfast – Northlands – Papanui – CBD – Bus Exchange	Key part of proposed mass rapid transit route
Tāhuna / Queenstown		
Airport to Town Centre	Airport – Frankton – Town Centre	Additional capacity for constrained road corridor

Where to now?

Doppelmayr is willing to partner with the appropriate planning and transport agencies to progress the investigation of these opportunities.

Where a transport demand and options analysis of the route has already been completed (e.g. the Auckland and Wellington rapid transit routes) this would be developing a cable car concept, along with costing and impacts analysis, for comparison with the currently proposed rapid transit option.

Delivering and funding New Zealand's first public transport cable car

There are a range of business delivery models that have been deployed internationally to build and operate aerial cable car systems including:

- Public works: traditional financing run by public operators
- Public turnkey project: procurement of design, construction, and the start-up by government agencies, run by private operators.
- Private Concession: construction, operation, and maintenance under private concession.

Doppelmayr has experience with these models and is seeking to work with the appropriate agency to deliver a cable car scheme. We are driven by the opportunity to deliver a solution that increases travel options for New Zealanders and connects with multi-modal transport networks, enabling greater use of buses, trains, ferries, cycleways, and walkways. We are ready to partner and collaborate with others to achieve this for New Zealand.

Doppelmayr is open to exploring the potential for private/public financing or equity arrangements to facilitate the implementation of a suitable cable car solution for New Zealand.

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Foreword

Bringing our global expertise to Aotearoa

Worldclass cities require worldclass infrastructure and innovative, effective transport networks, which provide accessible, equitable, and healthy solutions that connect communities and enable economic prosperity.

Doppelmayr has been designing, building, maintaining and operating cable-propelled systems in many cities around the world for 130 years.

Our expertise has also been applied to airports and urban environments. Mobility in and around many airports are facilitated by a Doppelmayr 'cable liner' automated people mover (APM), such as the recently installed Luton Airport DART in the United Kingdom.

With over 30 installations around the world, Doppelmayr has delivered urban cable car systems, both at ground level (funicular) and above ground (aerial).

Solving local problems

Doppelmayr New Zealand is the leading provider of ropeway systems in Aotearoa.

We are part of the urban transport sector, as the equipment supplier and maintainer for the Wellington cable car. This long-standing funicular cable car is a relevant example of how Doppelmayr's solutions technology can provide a direct, reliable transport connection, as part of the wider transport network.

Doppelmayr's experience is that aerial cable car systems offer a range of benefits to urban environments under pressure from growth and increasing vehicle congestion, while cities endeavour to meet ambitious climate change targets.

We are concerned that New Zealand is missing out on a new mode being adopted internationally that can help unlock the transport networks of our major cities.

Cable car stations can be harmoniously integrated into the urban environment, including the architectural design, the physical location of the station and complementary uses in the stations. There are examples around the world of stations that have been incorporated in new or existing buildings, underground stations or multifunctional stations, housing offices, shops and restaurants.

We have prepared this report as a resource to help decisionmakers and all those affected, and involved, in understanding the potential of aerial cable car solutions to meet key transport challenges in our cities. We look forward to engaging with you as we work together to improve the mobility of our cities.

Ngā mihi nui

Garreth Hayman
CEO

Fergus Gammie
Independent Director

New Zealand's Urban Transport Challenges

Aerial cable cars provide a proven and innovative approach to meeting many of our urban transport challenges.

Adapting to population growth

New Zealand's major urban centres are becoming increasingly congested. In the last 10 years, the number of vehicles on our roads has increased by 50 per cent in Auckland alone. This is causing longer travel times and demand on existing transport infrastructure, which in some areas is already reaching or exceeding capacity. With future growth and expansion planned in our urban areas, the pressure on existing transport networks is projected to increase.

In most situations there is neither the space, nor funding, available to keep expanding our urban road networks. Where this has been done, vehicle travel volumes generally increase to fill the new capacity.

Encouraging alternative travel modes, such as walking, cycling, and public transport, has been identified internationally as an approach that can increase the overall capacity of the transport network, and foster desired health, environmental and sustainability outcomes.

Our major cities are investigating mass rapid transit (MRT) solutions, which would provide high frequency, fast, reliable public transport, generally in their own corridor. Examples include light rail and busways in Auckland, light rail in Wellington and MRT in Christchurch.

Many of the MRT schemes being investigated are expensive, would be disruptive and time consuming to build, have high ongoing operational costs, and may not deliver the benefits promised.

Aerial Cable Cars – a Proven and Innovative Solution

Aerial cable cars offer a unique solution to many of the public transport challenges facing New Zealand's major cities.

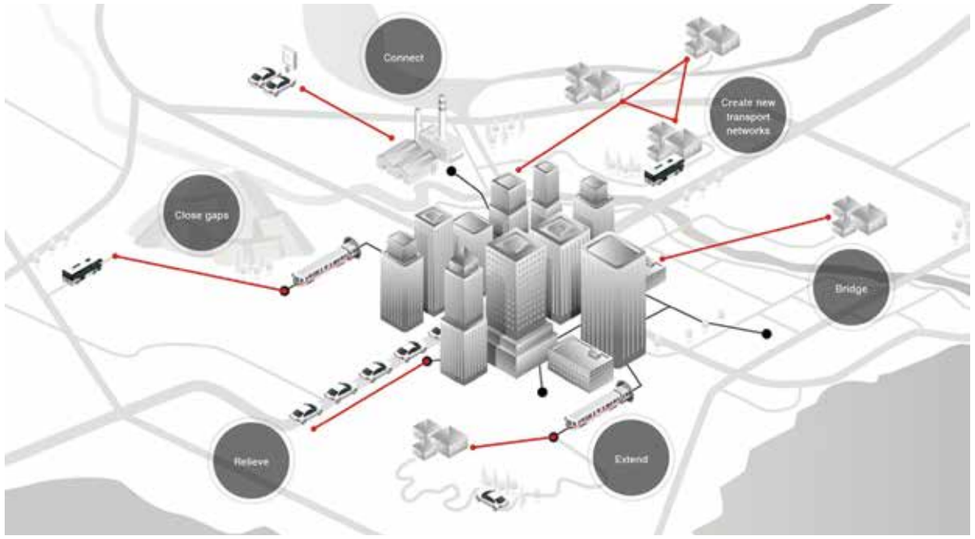
Proven internationally in countries such as France, England and Germany, aerial cable cars glide above the city and the streets below. As part of an integrated network, they open new possibilities by making use of the currently unused aerial level – one that is not hindered by other modes of transport. They complement and fully integrate with existing train, bus and ferry services – filling gaps or extending current services.

Urban cable car schemes are a lower cost transport solution when compared to the cost of other infrastructure. They can be built in two years or less, with minimal disruption and impact on land and existing infrastructure.

With capacity to transport up to 8000 passengers per hour per direction and with a minimum physical footprint, aerial cable cars have the potential to connect communities around New Zealand to major activity hubs such as CBDs, airports, shopping centres, new developments, transport hubs and ports.

Urban Aerial Cable Cars

Application of aerial cable cars in the public transport network



Connect

Creating public transport networks by incorporating a more efficient cable car

Portland, USA

- Links Portland Tram with Oregon Health and Science Hospital
- Key link into wider Portland public transport network
- Travel time is five minutes, compared to a 45-minute bus ride, 27-minute bike ride, 30-minute walk, 12-minute car journey
- Station has become a mobility hub

Extend

Growing the reach of Bus Rapid Transit (BRT)

Bogotá, Columbia

- Connects Ciudad Bolívar district with TransMilenio BRT network
- Serves as extension of the BRT network
- Commuting times reduced by up to two hours

Bridging Gaps

Linking communities over an obstacle such as river or valley

Koblenz, Germany

- Connection between Koblenz centre and Ehrenbreitstein Fortress
- Traverses the River Rhine
- Cable car ride approximately four minutes, bus ride approximately 25 minute

Creating Services

Establishing new transport services

Mi Teleferico, La Paz, Bolivia

- Connects two cities: El Alto and La Paz
- 10 cable car lines
- 33km network
- 315 million passengers in six years
- Cable car network has changed the way people move around the cities
- Aerial travel bypasses congested and difficult to access streets

Closing Gaps

Integrating public transport networks

Paris, France

- Paris Southeast suburbs
- Connecting Créteil with Villeneuve-Saint-Georges via Limeil-Brévannes and Valenton.
- 4.25km cable car
- Five stations
- Connects with Metro, Light Rail and bus routes
- Currently under construction
- Operational 2025

Advantages of Urban Aerial Cable Cars

PASSENGER BENEFITS

Direct Fast Journeys

Aerial cable cars travel above road congestion, taking a direct line between origin and destination.

Resulting travel times are typically much faster than bus.

High Trip Frequency

Aerial cable cars can come as frequently as every eight seconds, providing a true ‘turn up and go’ service.

With capacity to transport thousands of passengers per hour per direction and with a minimum physical footprint, this is ideal for transferring between travel modes.

Safe & Reliable Journeys

Operating at 99.9% reliability aerial cable cars journey times are consistent and do not require any interaction with street level traffic.

Every journey is safe, comfortable, informative with separated entry and exits, cabin lighting, digital signage CCTV monitoring, and intercoms.

Attractive Cabin Amenity

Modern designed cabins that can include passenger information systems, security features, air conditioning, WiFi, and charging stations, providing an attractive travelling environment for passengers, while incorporating universal design standards.

Accessible and Barrier Free

With barrier-free boarding, aerial cable cars provide equitable access for all passengers.

The entry to cabins is level with the platform, which makes access easy for wheelchairs, pushchairs and micro-mobility users.

Great Travel Experience

Passengers enjoy breathtaking views as they glide along in comfort high above ground.

Turning a public transport trip into a great travel experience.

SUSTAINABILITY BENEFITS

Efficient & Effective

Aerial cable cars are energy-efficient and effective, only using less than 0.1kW/h per passenger kilometre.

With modular systems, aerial cable cars have efficient design and manufacturing and very low construction waste.

Low Carbon Footprint

An aerial cable car system has zero local emissions thanks to its electric drive. With the use of renewable energies, operations can be entirely carbon-neutral.

Life Cycle Assessment of a LaPaz, Bolivia, route found cable car provides a significantly lower carbon footprint than other modes for the same transport challenge.

Small Physical Ground Footprint / Low Land Impact

Cable cars require substantially less land requirements than other public transport systems.

Towers spacing can be arranged to suit the environment with typical distances between 150m – 1km, with a 5-10sqm land permanent requirement for each tower.

CONSTRUCTION & DELIVERY ADVANTAGES

Lower Cost

Aerial cable cars are generally a third of the construction cost of light rail or bus rapid transit and a tenth of metro.

Autonomous operations means very low operating costs compared to other modes.

Intelligent Construction

The intelligent construction means the time required for aerial cable car installations is about two years - significantly less time compared to rail and road infrastructure projects.

Minimal Disruption

Aerial cable car projects have substantially lower disruption impacts than other LRT and BRT systems.

They can be integrated into the urban environment, including new or existing buildings, underground stations or multifunctional stations, housing, offices, shops and restaurants.

NEW ZEALAND SOLUTIONS

Doppelmayr New Zealand engaged Abley to assess the effectiveness of aerial cable cars in the New Zealand urban planning and transport context, and to identify and evaluate opportunities for urban cable car solutions across New Zealand.

Abley's research findings are presented in three reports, which are available from Doppelmayr New Zealand.

abley
Transport + Location Intelligence

(Part A) A Case for Urban Cable Cars in New Zealand

Summary: Finding smarter ways to use our transport network is essential for the ongoing prosperity and functioning of our cities.

Cable cars can address several of the key transport challenges facing New Zealand cities, including congestion, air and noise emissions as well as severance between our communities and the places we work, live and enjoy.

Fundamentally, the aerial cable car offers a reliable, efficient and low emission transport mode, addressing regional and urban congestion and enhancing connections between communities.

(Part B) Policy, Consenting & Installation Considerations

Summary: There are no significant planning or consenting impediments to the introduction of an aerial cable car system for public transport purposes in New Zealand.

Although New Zealand's planning framework does not typically accommodate aerial cable car requirements specifically, in essence they are no different to any other road or rail utility operator.

Implementation

Unlike the significant disruption and related network impacts when installing heavy solutions such as found with rail-based systems, cable cars can be installed with a minimum of disruption and in a shorter period.

(Part C) Urban Cable Car Opportunities in New Zealand

Identification of Opportunities

Factors considered:

- Minimum Population Density: Tier 1 metropolitan areas most likely candidates (Auckland, Hamilton, Tauranga, Wellington, Christchurch)
- Accessibility analysis: Comparison of PT travel times to private vehicle
- Patronage potential: Underlying demand, journey to work and journey to education
- Transport challenges amenable to cable car solutions

Abley identified 20 potential aerial cable car opportunities across New Zealand.

Evaluation of Opportunities

Economic Analysis

- Methodology akin to that used to assess PT options in a NZ government / local authority context
- Benefits estimates based on New Zealand 2021 Monetary Cost and Benefits Manual
- Strategic indicative benefit cost ratios (BCR) determined for each opportunity.
- Multi-Criteria Analysis
- Application of Waka Kotahi EAST (Early Assessment Sifting Tool) multi criteria tool

Highlighted Solutions

Ten of the 20 urban cable car opportunities identified by Abley are outlined below.

Auckland

- Airport to Botany
- Airport to Onehunga
- Te Atatū – Northwestern Busway – Henderson

Wellington

- Airport to CBD
- Island Bay to CBD
- Karori to CBD
- Wainuiomata to Hutt Valley (via Waterloo Rail)

Christchurch

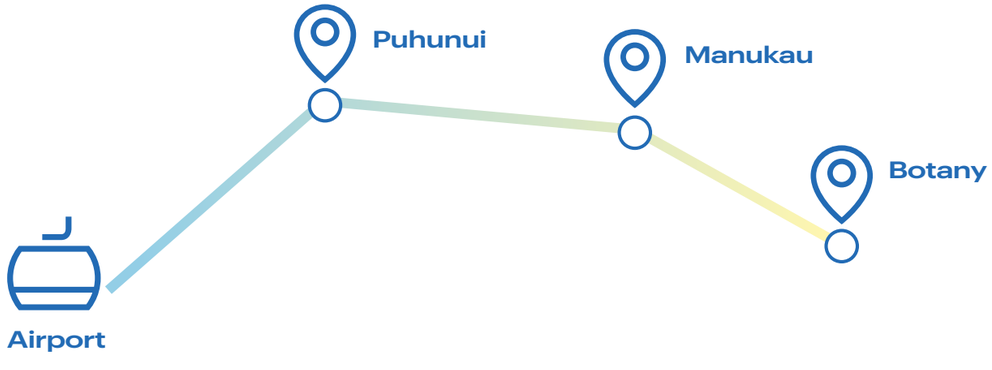
- Airport to CBD
- Belfast to CBD

Queenstown

- Airport to Town Centre

Auckland Airport to Botany

Alternative to Bus Rapid Transit



41min 56min 53min

Transport Solution

- Key Auckland strategic corridor
- Addresses a gap in rapid transit network.
- Connects Airport to rail at Puhinui Station
- Access to employment zones at Auckland Airport and Manukau
- Service Parameters

Service Parameters

- Key stations: Airport, Puhinui rail station, Manukau CBD, Botany
- Carry up to 2000 passengers per hour, per direction
- Interchange with rail and bus services

Passenger Parameters

- Aerial cable car departs every 36 seconds (approx.)
- Travel times significantly faster than current bus and car (cable car 41 minutes from Airport to Botany, bus 56 minutes, car is 53 minutes)
- Cable car times comparable to indicative BRT travel times
- No variability with cable car travel times compared to proposed BRT, which has at-grade street intersections with other traffic

Economic Assessment

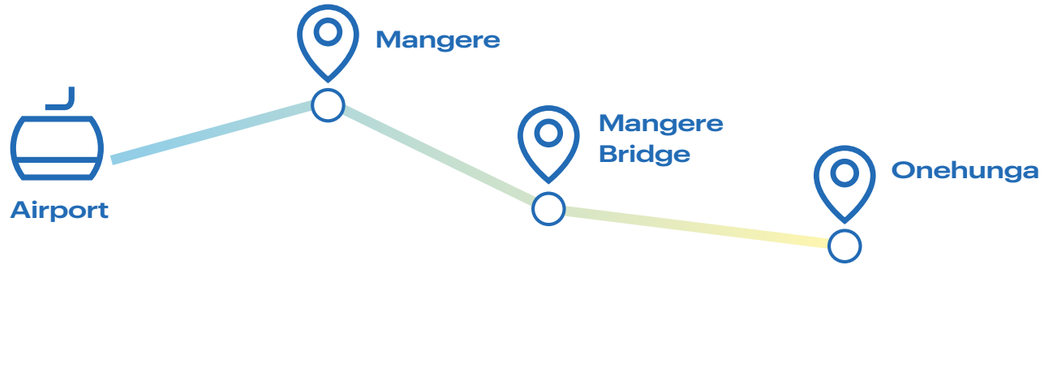
- Strategic Benefit Cost Ratio 1.8
- Cost to build and operate expected to be substantially lower than BRT

Implementation

- Aerial system enables navigation of physical barriers, e.g. Pūkaki Creek
- Very low land requirement compared to BRT

Auckland Airport to Onehunga

Alternative to Light Rail Transit (LRT)



26min 44min 33min

Transport Solution

- Connect Airport to Rapid Transit at Onehunga (rail and planned MRT)
- Access to employment zones at Airport, Onehunga and Puhinui

Service Parameters

- Key Stations: Airport, Mangere Town Centre, Mangere Bridge and Onehunga
- Carry up to 3000 passengers per hour, per direction
- Interchange with Rail, LRT, bus services

Passenger Parameters

- Aerial cable car departs every 24 seconds (approx.)
- Travel times faster than current bus and car (Cable car 26 minutes, Bus 44 minutes, Car 33 minutes)
- No variability with cable car travel times

Economic Assessment

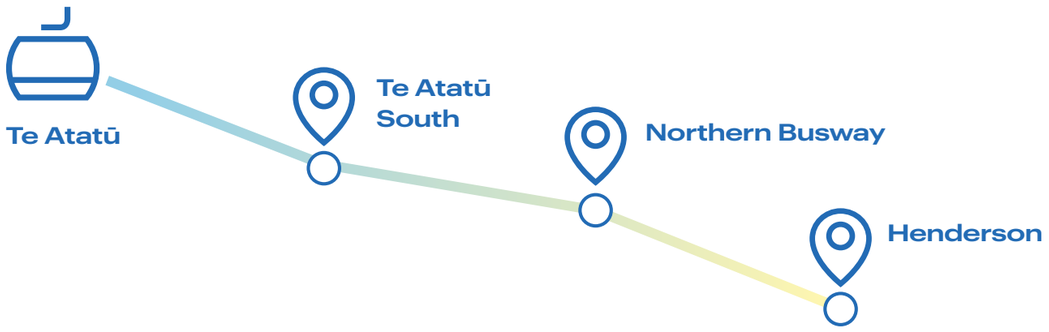
- Strategic Benefit Cost Ratio 2.4
- Cost to build and operate expected to be substantially lower than LRT

Implementation

- Aerial system enables navigation of physical barriers, e.g. Manukau Harbour
- Need to go under proposed new airport runway in tunnel (this is also requirement for LRT)

Te Atatū – Northwestern Busway - Henderson

Extend Bus Rapid Transit/ Connect



10min 35min 16min

Transport Solution

- Extend planned Northwestern Busway to Te Atatū/Henderson
- Access to amenities/services at Henderson

Service Parameters

- Key Stations: Te Atatū (two), Northwestern Busway, Henderson
- Carry up to 1000 passengers per hour
- Interchange with BRT, rail, bus services

Passenger Parameters

- Aerial cable car departs every 36 seconds (approx.)
- Travel times faster than current bus and car (cable car 10 minutes, bus 35 minutes, car 16 minutes)
- No variability with cable car travel times compared to large variability for car and bus

Economic Assessment

- Strategic Benefit Cost Ratio 0.7
- Note: this BCR does not include BRT passengers and benefits

Implementation

- Aerial system enables navigation of physical barriers, e.g. NW Motorway
- Very low land requirement

Wellington Airport to CBD

Alternative to Bus Rapid Transit

22min 36min 36min

Transport Solution

- Priority commuter and traveller connection
- Provide additional capacity in congested transport corridor.

Service Parameters

- Key stations: Airport, CBD (two), Wellington Railway Station
- Carry up to 2000 passengers per hour, per direction
- Interchange with rail and bus services

Passenger Parameters

- Aerial cable car departs every 36 seconds (approx.)
- Travel times faster than current bus and car (cable car 22 minutes, bus 36 minutes, car 36 minutes)
- Travel times comparable to indicative BRT travel times
- No variability with cable car travel times compared to large variability for car and bus

Economic Assessment

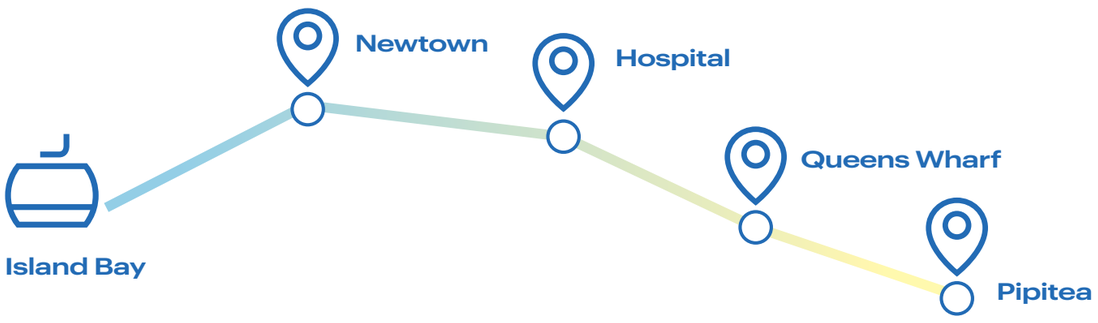
- Strategic Benefit Cost Ratio 1.7
- Cost to build and operate expected to be substantially lower than BRT (if cost of tunnel included for BRT)

Implementation

- Aerial system enables navigation of physical barriers, eg Mt Victoria
- Need to go under Wellington Airport runway via a tunnel or run a shuttle bus to cable car station

Island Bay to Wellington CBD

Alternative to Light Rail Transit



20min 42min 24min

Transport Solution

- Key Wellington strategic corridor
- Possible MRT connecting Wellington CBD to Island Bay
- Link to Wellington airport possible

Service Parameters

- Key Stations: Wellington Rail, Wellington Hospital, Newtown, Island Bay
- Carry up to 3000 passengers per hour
- Interchange with Rail and bus services

Passenger Parameters

- Aerial cable car departs every 15 seconds (approx.)
- Travel times significantly faster than current Bus and car (cable car 20 minutes, Car 24 minutes, Bus 42 minutes)
- No variability with cable car travel times; LRT would have at-grade street intersections with other traffic

Economic Assessment

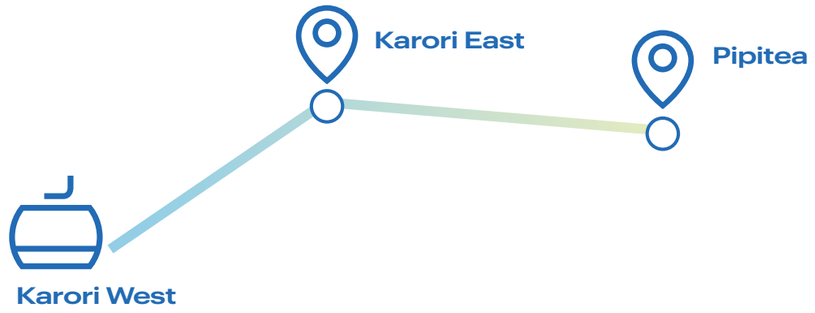
- Strategic Benefit Cost Ratio 2.0
- Cost to build and operate expected to be substantially lower than LRT

Implementation

- Very low land requirement compared to LRT
- Up to 2 year construction period compared to 5-8 years for LRT
- Minimal disruption compared to LRT

Karori to Wellington CBD

Relieve congestion



8min 33min 20min

Transport Solution

- Access to Karori (Wellington's largest suburb)
- Provide additional capacity in congested transport corridor

Service Parameters

- Key stations: Karori (two), Wellington Railway Station
- Carry up to 2000 passengers per hour, per direction
- Interchange with rail and bus services

Passenger Parameters

- Aerial cable car departs every 36 seconds (approx.)
- Travel times faster than current bus and car (Cable car 8 minutes, bus 33 minutes, car 20 minutes)
- No variability with cable car travel times compared to proposed bus and car which are highly variable

Economic Assessment

- Strategic Benefit Cost Ratio 1.8
- Cost to build and operate expected to be substantially lower than any other rapid transit alternatives

Implementation

- Aerial system enables navigation of physical barrier – hilly terrain

Wainuiomata to Hutt Town Centre via Waterloo Rail

Extend Rapid Transit

18min 47min 16min

Transport Solution

- Directly connect Wainuiomata to Railway Station at Waterloo
- Cross-valley connection

Service Parameters

- Key Stations: Wainuiomata, Waterloo Railway Station, Hutt Town Centre, Melling
- Carry up to 1000 passengers per hour, per direction
- Interchange with rail and bus services

Passenger Parameters

- Aerial cable car departs every 72 seconds (approx.)
- Travel times faster than current bus and similar to car (cable car 18 minutes, bus 47 minutes, car 16 minutes)
- No variability with cable car travel times

Economic Assessment

- Strategic Benefit Cost Ratio 1.2
- Cost to build and operate expected to be substantially lower than any other rapid transit alternatives

Implementation

- Aerial system enables navigation of physical barrier, the Wainuiomata

Christchurch Airport to CBD

Connecting Major Centres

25min 37min 30min

Transport Solution

- Priority commuter and traveller connection
- Provide additional capacity in congested transport corridor

Service Parameters

- Key stations: Airport, University of Canterbury, City Centre
- Carry up to 1000 passengers per hour
- Interchange with bus services

Passenger Parameters

- Aerial cable car depart every 36 seconds (approx.)
- Travel times faster than current bus, slower than car (cable car 25 minutes, bus 37 minutes, car 30 minutes)
- No variability with cable car travel times

Economic Assessment

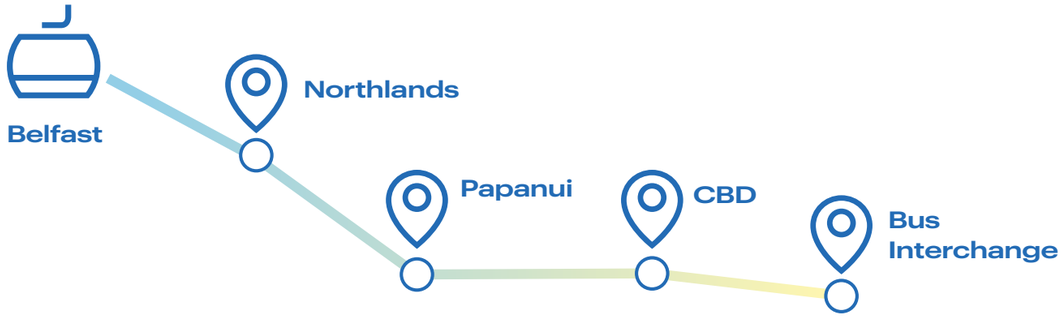
- Strategic Benefit Cost Ratio 1.5
- Cost to build and operate expected to be substantially lower than any other rapid transit alternatives

Implementation

- Implementation challenges with crossing Hagley Park

Belfast to Christchurch CBD

Alternative to Mass Rapid Transit



23min 32min 28min

Transport Solution

- Key part of proposed Christchurch MRT route
- Aim to reduce public transport journey times and increase public transport patronage

Service Parameters

- Key Stations: Belfast, Northlands, Papanui, City Centre, Bus interchange
- Carry up to 1000 passengers per hour
- Interchange with bus services

Passenger Parameters

- Aerial cable car depart every 36 seconds (approx.)
- Travel times significantly faster than current bus and car (cable car 23 min, bus 32 min, car 28 min)
- No variability with cable car travel times

Economic Assessment

- Strategic Benefit Cost Ratio 0.5
- Cost to build and operate expected to be substantially lower than full BRT

Implementation

- Very low land requirement compared to BRT

Queenstown Airport to Town Centre

Relieve Congestion

20min 24min 23min

Transport Solution

- Priority commuter and traveller connection
- Provide additional capacity in congested transport corridor

Service Parameters

- Key Stations: Airport, Frankton SH6/SH6A corner, Queenstown town centre
- Carry up to 1500 passengers per hour, per direction
- Interchange with bus services

Passenger Parameters

- Aerial cable car depart every 48 seconds (approx.)
- Travel times faster than current bus and car (Cable car 20 min, bus 24, car 23)
- No variability with cable car travel times

Economic Assessment

- Strategic Benefit Cost Ratio 1.1
- Cost to build and operate expected to be substantially lower than alternative off road options

Implementation

- Aerial system enables navigation of physical obstacles: narrow roadway, hillside
- Need to go under Queenstown Airport runway via a tunnel

Where to from here?

Key Cable Car Solutions to be progressed

Doppelmayr proposes that ten of the cable car opportunities identified by Ableyy be investigated further, and potentially progressed as projects after suitable detailed evaluation.

These opportunities fall into four 'transport solution' categories:

- Alternative to proposed Rapid Transit (eg, light rail or busway)
- Connect to/ extend reach of proposed Rapid Transit (eg, AKL NW Busway)
- Provide additional capacity for a physically constrained corridor
- Direct connection across a physical barrier

Scheme	Route	Strategic Value
Tāmaki Makaurau / Auckland		
Airport to Botany	Airport - Puhinui Rail - Manukau CBD – Botany	Rapid Transit network, alternative to Bus Rapid Transit
Airport to Onehunga	Airport – Mangere Town Centre – Mangere Bridge - Onehunga	Alternative to Light Rail: Airport - Onehunga section
Te Atatu – Henderson, via Busway	Te Atatu – NW Busway – Henderson	Connect to proposed Northwestern Busway
Te Whanganui a Tara / Wellington		
Airport to CBD	Airport – CBD – Wellington Rail	Alternative to Bus Rapid Transit
Island Bay to CBD	Island Bay – Newtown – Basin Reserve – CBD – Wellington Rail	Alternative to Light Rail Transit
Karori to CBD	West Karori - East Karori – CBD	Additional capacity for constrained corridor
Wainuiomata to Hutt Valley	Wainuiomata – Waterloo Rail – Hutt Town Centre - Melling	Direct connection across physical barrier
Ōtautahi / Christchurch		
Airport to CBD	Airport – University - CBD	Commuter and traveller connection
Belfast to CBD	Belfast – Northlands – Papanui – CBD – Bus Exchange	Key part of proposed rapid transit route
Tāhuna / Queenstown		
Airport to Town Centre	Airport – Frankton – Town Centre	Additional capacity for constrained corridor

Doppelmayr wishes to work with the appropriate planning and transport agencies to progress these opportunities.

The proposed next investigative step for each opportunity is shown below:

Scheme	Status of Transport Analysis	Proposed Next Step
Tāmaki Makaurau / Auckland		
Airport to Botany	Transport demand and options analysis completed for BRT	Develop cable car concept, costing and impacts – compare with BRT
Airport to Onehunga	Transport demand and analysis completed for Light Rail	Develop cable car concept, costing and impacts – compare with Light Rail
Te Atatū – Henderson, via Busway	No analysis to date	Initial demand and feasibility analysis
Te Whanganui a Tara / Wellington		
Airport to CBD	Transport demand and options analysis completed for BRT	Develop cable car concept, costing and impacts – compare with BRT
Island Bay to CBD	Transport demand and options analysis completed for Light Rail	Develop cable car concept, costing and impacts – compare with Light Rail
Karori to CBD	No analysis to date – existing bus services	Initial demand and feasibility analysis
Wainuiomata to Hutt Valley	Wainuiomata – Waterloo Rail – Hutt Town Centre	Direct connection across a physical barrier
Ōtautahi / Christchurch		
Airport to CBD	No analysis to date – existing bus services	Initial demand and feasibility analysis
Belfast to CBD	Study of Mass Rapid Transit (MRT) options underway	Include cable car as option in MRT study
Tāhuna / Queenstown		
Airport to Town Centre	Cable Car identified as long-term option to address corridor constraints	Develop cable car concept, costing and impacts

Doppelmayr has extensive experience of operating under all of the business - delivery models listed below, and would be willing to work with the relevant agencies to determine the appropriate approach.

Business Delivery Model & Financing

If further investigation found a positive case for progressing with a cable car solution, there are a range of business delivery models that have been used internationally to build an aerial cable car solution.

The most common models are:

- Public works: traditional financing run by public operators
    - Example is La Paz, Bolivia: cable car equipment designed, built, and installed by Doppelmayr; operated by government cable car company Mi Teleférico
- Public turnkey project: procurement of design, construction, and start-up by government agencies, run by private operators
    - Example is TransMiCable, Bogotá: system built by Doppelmayr, operated by separate operator.
- Private Concession: construction, operation, and maintenance under private concession
    - 37.5% of the construction cost is under a 30-year concession, with minimum guaranteed revenues. The concession can be extended to allow the investment to be recuperated on the basis of an agreed return of investment.

Financing

With their relatively low capital costs compared to comparative light rail/busway schemes, low operating costs, and attractive passenger benefits, cable car systems provide a potentially good case as a long-term investment option.

Doppelmayr is open to exploring the potential for private/public financing or equity arrangements to facilitate the implementation of a suitable cable car solution for New Zealand.

We are driven by the opportunity to deliver a solution that increases travel options for New Zealanders and connects with multi-modal transport networks, enabling greater use of buses, trains, ferries, cycleways, and walkways. We are ready to work with and collaborate with others to achieve this for New Zealand.

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