

# **Wellington City Proposed District Plan**

## **Hearing Stream 1**

### **Appendix D**

**– Review of the designation of the  
Johnsonville Railway Line as a Rapid  
Transit System – by Lawrence  
Collingbourne, Tony Randle and Julie  
Ward**

# Review of the designation of the Johnsonville Railway Line as a Rapid Transit System

## Introduction

This paper, prepared by Lawrence Collingbourne, Tony Randle and Julie Ward, provides new information to the Planning for Growth Team at Wellington City Council from Johnsonville and Khandallah residents. This has arisen after our submissions on the draft District Plan (DDP) in December 2021.

In accordance with the commitment given to Councillor Diane Calvert, we ask that the Chief Planning Officer take these into consideration when assessing the DDP submissions and presenting the notified District Plan to Council.

We can now demonstrate unequivocally that there are no grounds in the (DDP) or the Regional Transport Plan (RLTP) for mandating building heights of at least 6 storeys within a walking catchment of the Johnsonville Railway Line (JVL) stops because JVL is not a rapid transit system (RTS) in accordance with the definition in the National Policy Statement on Urban Development 2020 (NPS-UD)<sup>1</sup>.

<sup>1</sup> <https://environment.govt.nz/publications/national-policy-statement-on-urban-development-2020/>

We demonstrate this through information obtained about:

- the lack of a proper assessment of rapid transit services in the Wellington Region,
- the precedent set by the assessment of its services Auckland Transport (AT), and
- the Let's Get Wellington Moving (LGWM) definition of an RTS.

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## Executive Summary

This paper presents new information that has arisen since we made our original written submissions on the DDP. It includes responses to LGOIMAs which we did not receive in time to include them in our written submissions on the DDP as well as information from the LGWM engagement report released on 12 April 2022.

We assess that the new information shows the JVL does not meet the NPS-UD definition of an RTS.

The statements in the RLTP and the DDP that JVL is an RTS are not the result of an assessment of its service against the criteria set out in the NPS-UD defining an RTS. The designation is based upon a transport categorisation in an unrelated document, the One Network Framework (ONF), which was created for a different purpose, and includes rail PT services that do not meet the characteristics of an RTS required under the NPS-UD.

The application of an RTS designation to JVL in the DP under the NPS-UD is not valid because WCC have not shown that it meets the NPS-UD requirements nor designated RTS stops.

The only assessment in New Zealand of what constitutes an RTS for development purposes under the NPS-UD is an assessment by Auckland Transport (AT). No assessment using NPS-UD criteria has been undertaken for Wellington public transport by any public body, although the most recent LGWM engagement report includes an explanation of what LGWM sees as the essential features of mass rapid transit (MRT).

When we apply the criteria AT developed to JVL we find that JVL fails to be an RTS on the key aspects of speed, frequency and capacity. JVL is therefore not an RTS by the only quantified definition of an RTS in New Zealand today.

For completeness, we also show that JVL does not meet the LGWM standard for MRT being proposed to enable High Density Residential Zones (HRZs) to the South and East of the City.

To support the future population projections in the DDP with lower carbon emissions JVL capacity will have to be double that available at present, something that is not planned, nor practical, nor affordable, and therefore not possible.

We also show that JVL and active transport modes perform very poorly compared to private vehicles to reach seven important destinations outside the central city required to meet the wider needs of residents.

Our evidence requires a response from WCC. WCC should undertake its own analysis of JVL and either:

- provide evidence JVL meets published criteria for an RTS, or
- provide evidence the 6-10 storey development along JVL is required to meet housing demand irrespective of access to JVL and provide evidence of transport investment that supports such development, or
- replace the HRZ around JVL with zoning appropriate to the centres JVL serves.

Our conclusion is that the correct densification for the northwestern suburbs served by JVL is now the Medium Density Residential Standards (MDRS) mandated by Government in the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021, as planned active and public transport are unlikely to support more given the range of commercial activities and community services these suburbs are planned to accommodate.

## Has the WCC Assessed JVL as an RTS?

We start by reviewing the designation of JVL as an RTS is based on a proper assessment of whether it meets the NPS-UD definition of an RTS for development purposes. We identify that it is councils' responsibility to do this. However, neither WCC nor Greater Wellington Regional Council (GWRC) have assessed our PT services using the criteria necessary to make such a designation. They appear to merely rely on the examples given in the NPS-UD or the Rooding Efficiency Group's ONF, as we show in the following subsections.

### What is an RTS?

The NPS-UD defines a "rapid transit stop" as a place where people can enter or exit a "rapid transit service." It defines a "rapid transit service" as follows:

"Rapid transit services are quick, frequent, reliable and high-capacity public transport services, which operate on a permanent route (road or rail) and that are generally separated from other traffic."

*Ministry for the Environment. 2020. Understanding and implementing intensification provisions for the National Policy Statement on Urban Development. Wellington: Ministry for the Environment retrieved 01 04 2022 from <https://environment.govt.nz/assets/Publications/Files/Understanding-and-implementing-intensification-provisions-for-NPS-UD.pdf>*

The document "Understanding and implementing intensification provisions for the National Policy Statement on Urban Development" states at p.21:

"Examples of existing rapid transit stops include train stations on the commuter rail services in Wellington and Auckland and bus stations on Auckland's Northern Busway."

*Ministry for the Environment. 2020. Understanding and implementing intensification provisions for the National Policy Statement on Urban Development. Wellington: Ministry for the Environment retrieved 01 04 2022 from <https://environment.govt.nz/assets/Publications/Files/Understanding-and-implementing-intensification-provisions-for-NPS-UD.pdf>*

The example referred to above appears to have been relied upon by WCC to designate the JVL to be an RTS.

It is important to note all statements in the document are subject to a very significant disclaimer in the document Preface, namely:

"The information in this publication is, according to the Ministry for the Environment's best efforts, accurate at the time of publication. The information provided does not alter the laws of New Zealand and/or other official guidelines or requirements. Users should take specific advice from qualified professional people before undertaking any action as a result of information obtained from this publication."

*Ministry for the Environment. 2020. Understanding and implementing intensification provisions for the National Policy Statement on Urban Development. Wellington: Ministry for the Environment retrieved 01 04 2022 from <https://environment.govt.nz/assets/Publications/Files/Understanding-and-implementing-intensification-provisions-for-NPS-UD.pdf>*

### Councils decide what are RTS's and Rapid Transit Stops

However, and more importantly, the Ministry for the Environment (MfE) repeatedly told the WCC that determining if a Public Transport (PT) route is an RTS is a decision for the local authorities (and not anyone else):

“... I will say now though that ultimately the decision will be up to the local authority to make the determination.”

*Email from MfE to WCC 9 November 2020 released under LOGOIMA*

“Ultimately it is up to local authorities to determine if a route is a rapid transit network. You should discuss with GWRC to confirm what is likely to be a complete RTN to J’ville by 2025.”

*Email from MfE to WCC 13 November 2020 released under LOGOIMA*

MfE also confirmed that determining whether a particular service meets the criteria on the NPS-UD is a local decision in a related LOGOIMA request asking for the same information from AT:

“Whether a particular service meets the criteria in the National Policy Statement on Urban Development 2020 (NPSUD) for a *rapid transit service* is a decision for councils to make in implementing the NPSUD.

A council must decide how the criteria and policies apply in their relevant local context; in the case of Auckland public transport this would be a decision for Auckland Council.

I am therefore refusing this part of your request under section 18(e) as the Ministry has not made any decisions about whether Auckland public transport meets the definition of a *rapid transit service* under the NPSUD, and therefore the information requested does not exist.”

*MfE OIA Reply OIAD-169 Reply 28 February 2022*

MfE clearly and consistently states GWRC and/or WCC are responsible for deciding whether JVL constitutes an RTS on all, or part of its length, and which, if any stops on JVL constitute rapid transit stops.

### Wellington Local Councils do not have any criteria for assessing Rapid Transit

Based on multiple requests for information we conclude WCC does not have its own criteria for assessing whether a PT route is, or is not, an RTS, or any criteria to assess whether a PT Stop is a Rapid Transit Stop under the NPS-UD. All requests to the WCC for information on the definition of Rapid Transit were responded with information related to the 2021/22 Wellington Regional Land Transport Plan (RLTP) and its reliance on the ONF.

The GWRC, who lead the RLTP, also do not have their own criteria to assess whether a PT service was an RTS was confirmed by the following LOGOIMA request response:

“Request for information 2021-027

I refer to your request for information dated 18 February, which was received by Greater Wellington Regional Council (Greater Wellington) on 18 February. You have requested the following:

- 1) Can the GWRC please provide the definition of "quick" it used in deciding whether a Wellington PT service meets the "rapid transit" service speed criteria outlined in the GPS?
- 2) Can the GWRC please provide the definition of "frequent" it used in deciding whether a Wellington PT service meets the "rapid transit" service frequency criteria outlined in the GPS?
- 3) Can the GWRC please provide the definition of "reliable" it used in deciding whether a Wellington PT service meets the "rapid transit" service reliability criteria outlined in the GPS?
- 4) Can the GWRC please provide the definition of "high-capacity" it used in deciding whether a Wellington PT service meets the "rapid transit" service capacity criteria outlined in the GPS?

5) Can the GWRC please provide the definition of "a permanent route (road or rail) that is largely separated from other traffic" it used in deciding whether a Wellington PT service meets the "rapid transit" separated from other traffic criteria outlined in the GPS ? ...

Parts 1 - 5

**Greater Wellington and the national guidance do not define the individual terms you have listed.** As there are no specific definitions for the terms you have listed I am refusing this part of your request under section 17(g) of the Local Government Official Information and Meetings Act 1987 (the Act) as the information is not held."

*GWRC LGOIMA 2021-027 Response dated 11 March 2021*

## Rapid Transit in the Wellington RLTP

The WCC and GWRC instead refer to the rapid transit section in the Wellington RLTP but the document relies on circular reasoning to designate JVL as an RTS.

The RLTP rapid transit section begins by stating the definition of an RTS taken from the Government Policy Statement on Land Transport (GPS) rapid transit as:

"a quick, frequent, reliable and high-capacity public transport service that operates on a permanent route (road or rail) that is largely separated from other traffic."

*Appendix A.3.2 Rapid transit in the Wellington Region*

<https://www.transport.govt.nz/assets/Uploads/Paper/GPS2021.pdf>

The Wellington RLTP recognises that the NPS-UD shares the same definition for an RTS but extends it to any existing or planned service. The RLTP states "planned" means planned in a regional land transport plan such as this RLTP.

The RLTP then simply states:

"The rapid transit network and services for the Wellington Region comprise the Kāpiti, Hutt, Melling and Johnsonville rail lines. The mass rapid transit network proposed by the Let's Get Wellington Moving programme (once the rapid transit network and stops are confirmed) will also form part of this rapid transit network."

The RLTP goes on to say:

"This corresponds with the classification of Class PT1 in Waka Kotahi's One Network Framework. The One Network Framework provides a common language for the transport system, land use and urban planning. "

Finally, this section notes:

"Plans to upgrade this network to increase service frequency and capacity are contained in the Wellington Regional Public Transport Plan and reflected in the significant activities in section 4 Regional programme."

<https://www.gw.govt.nz/your-region/plans-policies-and-bylaws/plans-and-reports/transport-plans/wellington-regional-land-transport-plan-2021/>

There are no plans stated in section 4 of the Wellington RLTP to increase the service speed, frequency, reliability or capacity of JVL services. So, to meet any definition of an RTS, the assessment must be on the current JVL service. The only matter in the RLTP relating to Johnsonville, or any areas near JVL stations, are for a cycleway between Johnsonville and Tawa, and Ngaio Gorge Road slip resilience works.

In relation to the RLTP statement that:

“The rapid transit network and services for the Wellington Region comprise the Kāpiti, Hutt, Melling and Johnsonville rail lines.”

at no point does the RLTP specify the criteria used by the GWRC to assess that “*the Kāpiti, Hutt, Melling and Johnsonville rail lines*” are rapid transit services. We note that rail lines correspond with the classification of Class PT1 in ONF, but this framework states:

“By definition, all Metro Rail lines would be classified as PT1 (highest strategic significance) as they are considered rapid transit corridors **irrespective** of frequency, availability and or volume of people movement.”

*ONF Movement and Place Classification Public Transport*

We conclude that the designation of JVL as an RTS in the RLTP has not been made by a proper assessment but relies on the ONF designation made under a different definition, which includes services that do not meet the NPS-UD definition, as we expand on in the next three subsections.

### Why is the Johnsonville Line an RTS but the Cable Car is not?

While claiming to rely on the ONF, it seems that the GWRC has used criteria beyond the ONF PT1 definition in deciding which PT Services are Rapid Transit. The Wellington Cable Car is excluded as a Rapid Transit Service despite this PT service meeting the ONF PT1 definition of being a metro rail line and having, in most respects, better performance than JVL:

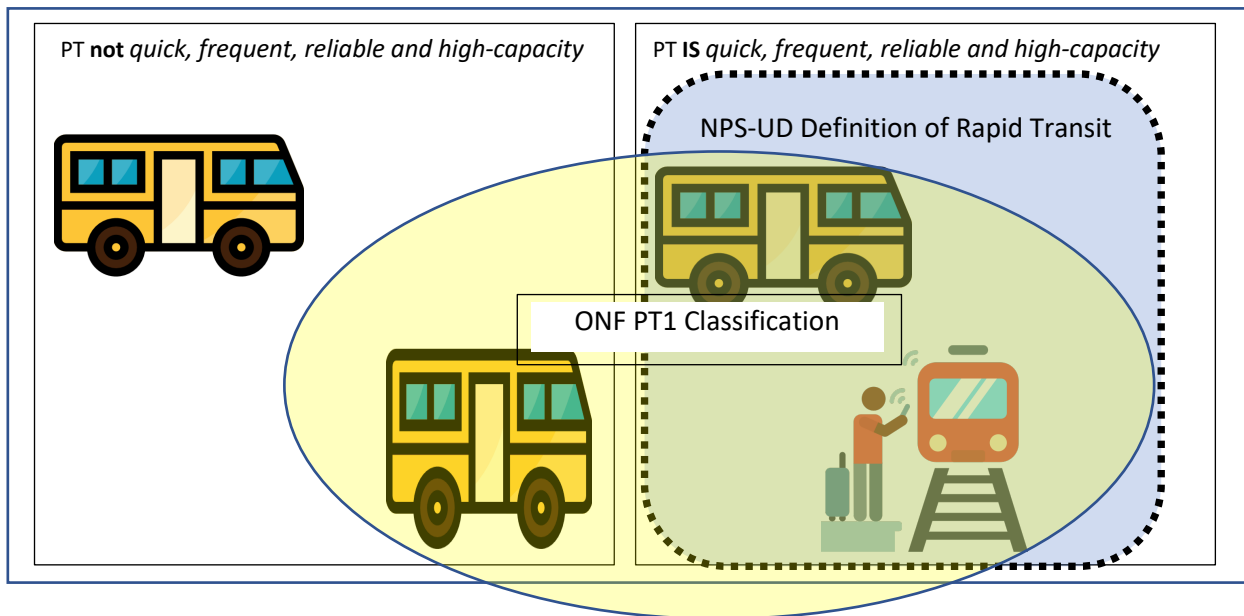
	<b>Johnsonville Line</b>	<b>Wellington Cable Car</b>
Speed (vs Bus Peak/Off Peak)	23 minutes (23/16min)	4 minutes (15/10 mins)
Frequency during Peak (Off Peak)	Every 15 Mins (30)	Every 5 Mins (10)
Reliability	97%	99%
Capacity	1970 passengers / hour	960 passengers / hour
Annual Patronage in 2019	1.4 Million	1.1 Million

There is no information that supports the GWRCs decision to exclude the Wellington Cable car from the list of RTS's in the RLTP.



## The ONF PT1 Classification cannot be used to assess PT services as Rapid Transit

Although the ONF Classification PT1 “Dedicated” appears to be similar to the definition to the RTS definition in the NPS-UD, they are actually very different in that the latter require rail mode PT services to be “quick, frequent, reliable and high-capacity public transport services” while the ONF PT1 definition does not. This can be seen in the diagram on the following page:



A slow, infrequent, unreliable and/or low-capacity rail service would not be deemed “Rapid Transit” under the NPS-UD even though it would be classified as PT1 under the ONF. This means a rail service meeting the PT1 definition does not necessarily mean it can be considered an RTS under the NPS-UD because these two frameworks use different definitions.

The Wellington RLTP claims that all Wellington Rail Lines are RTS’s is not supported by any analysis or evidence other than to refer to the ONF PT1 definition that is clearly different to the rapid transit criteria required by the NPS-UD:

NPS-UD Rapid Transit Definition	ONF PT1 Definition
“Rapid transit services <b>are quick, frequent, reliable and high-capacity public transport services</b> , which operate on a permanent route (road or rail) and that are generally separated from other traffic.”	“By definition, all Metro Rail lines would be classified as PT1 (highest strategic significance) as they are considered rapid transit corridors <b>irrespective of frequency, availability and or volume of people movement.</b> ”

The DDP relies on the Wellington RLTP to support its claim that JVL is rapid transit under the NPS-UD. However, as outlined above, the GWRC RLTP fails to do this because it relies on an ONF Framework PT Classification that uses very different criteria to that required to be used by the NPS-UD. Further, Waka Katohi do not hold any of the analysis information used by the REG to create the ONF PT1 Classification.

## The WCC District Plan must designate Rapid Transit Stops

The previous section established that WCC have not assessed JVL as an RTS, but neither has WCC designated which PT stops are Rapid Transit Stops as required under the NPS-UD. The Wellington RLTP clearly states it is the responsibility of the respective council District Plans to assess and confirm which PT Stops on an RTS a Rapid Transit Service are Rapid Transit Stops.

“...whether or not intensification is appropriate around rapid transit stops will be considered as part of each council’s district plan processes.”

*Wellington Regional Land Transport Plan 2021, p129*

Accordingly, GWRC sees it as the responsibility of WCC to determine which, if any, station on JVL is an RTS. However, while the DDP WCC proposed District Plan has many references to “rapid transit stops” it does not specify any *locations* as being rapid transit stops ... thus none are defined.

Having established that nobody has assessed whether JVL is an RTS under any quantified criteria, we now look elsewhere for definitions of an RTS and quantify JVL against these to see whether the WCC designation is a reasonable one.

## What is an RTS in the New Zealand context?

We have identified just two New Zealand sources that have clear criteria for assessing if a PT Service is Rapid Transit using NPS-UD criteria:

- LGWM criteria for rapid transit
- AT criteria for assessing its PT services as rapid transit.

The next sections explain what these are and assesses JVL against them.

### LGWM Criteria for Rapid Transit

The LGWM criteria for MRT is as follows:

#### “What is mass rapid transit?”

Mass rapid transit is the latest type of public transport for moving more people, more conveniently and comfortably. We know from cities like ours that mass rapid transit systems encourage surrounding suburbs to flourish and grow.

We’ve been investigating a mass rapid transit system to connect Wellington Railway Station with Wellington’s Regional Hospital, Newton, Island Bay, as well as Wellington International Airport and Miramar. Mass rapid transit will change the way we get around and through our city. Mass rapid transit will be:

**Frequent:** It operates from early in the morning until late at night, seven days a week. It runs at least every 10 minutes, and more often during peak times.

**Convenient:** It takes the most direct route to get you where you need to go quickly.

**Reliable:** It picks you up and drops you off on time. You can rely on it to get to your destination.

**Comfortable:** It’s a quiet and smooth ride in a modern electric vehicle with lots of space so there is no overcrowding. It’s easy to get on and off with level-boarding, which is ideal for people with, wheel-chairs or mobility aids.

**Safe:** You feel safer waiting for it, when you’re on it, and getting off it.

**Low-carbon:** The vehicles are electric, powered with New Zealand’s renewable electricity.”  
<https://lgwm-prod-public.s3.ap-southeast-2.amazonaws.com/public/Documents/Nov-1-MRT/FINAL-FAQ-SHI-MRT-291121.pdf>

### Assessing JVL against the LGWM Rapid Transit Criteria

We assess JVL against the LGWM criteria for MRT as follows:

**Frequent: No**, the JVL service does not, and cannot, operate at least every ten minutes because it is a single-track railway and there is no space for a passing place between Johnsonville and Khandallah stations, which are 10 minutes apart, so it does not meet the Frequent criteria.

**Convenient: Not all stops**, in terms of taking the most direct route to get to where you need to go quickly, the service is only convenient for those travelling to the CBD who are boarding at Crofton Downs, Ngaio and Awarua Street stations to commute to a workplace within a ten-minute walk of Wellington Station at peak time. For those travelling Simla Crescent the service is equivalent to driving or taking the bus. For those travelling from Box Hill, Khandallah, Raroa and from Johnsonville the bus or driving is a superior option. At all other

times travel to the CBD, and to most other destinations that people need such as shopping malls, hospitals, universities and leisure activities, JVL is considerably inferior.

**Reliable: No**, as the train only runs every fifteen minutes it is crucial to time your arrival at a station to coincide with a train. One minute late means a fourteen-minute wait. There is a high instance of maintenance outages on JVL that gives it an unreliable reputation.

**Comfortable: Not all stops**, as the Matangi trains are comfortable, but open waiting areas and the position of the stations, some down or up ramps or stairs, at some distance from other services such as shops, means the overall travel experience is not a comfortable one in inclement weather and for elderly, disabled passengers or families with young children.

**Safe: Not all stops**, as the routes from some stops on JVL are via deserted unlit paths or underpasses.

**Low carbon: Unknown**, while the trains on JVL are electric, it cannot be assumed that the electricity is necessarily generated by renewable energy, especially at peak hours. The Genesis real time app at the time of writing (12.14pm 13 April 2022) showed that a 26% of New Zealand's energy was being generated from carbon sources. There is also the issue of number of passengers. The present daytime patronage on JVL is very low which is no surprise because the bus service is significantly faster. Given it is not a convenient service other than for commuters, the 76.9-ton Matangi train<sup>1</sup> often runs with fewer than ten passengers on a service. We have not been able to ascertain the carbon footprint per passenger, but we suggest this needs investigation as it seems very likely that low numbers of passengers will often result in per capita carbon footprints higher than travel by electric cars recharged from off-peak electricity or solar power.

<sup>1</sup> Refer Wikipedia: [https://en.wikipedia.org/wiki/New\\_Zealand\\_FP\\_class\\_electric\\_multiple\\_unit](https://en.wikipedia.org/wiki/New_Zealand_FP_class_electric_multiple_unit)

We conclude that JVL is not a mass rapid transit by the LGWM criteria as it fails everywhere on frequency and many of its stops are not convenient, comfortable or safe, and whether it is low carbon is unknown.

## The Auckland Transport Assessment of RTS's

In support of the implementation of the NPS-UD, Auckland Transport has done its own assessment of which of Auckland's PT Services constitute RTS's. AT developed a set of RTS criteria based on the UOPS-UD and it has assessed its railway lines, finding that two current rail services are **not** RTS's.

On 17 December 2021 AT responded to a LGOIMA request by explaining the steps it had taken to determine which services in Auckland satisfied the definition of an RTS.

<https://fyi.org.nz/request/17720/response/68301/attach/3/Auckland%20Transport%20CAS%20471846%20X7Q8C9%2017%20December%202021.pdf> Retrieved 01 04 2022

The response is important and reproduced at some length.

The processes undertaken to establish a Rapid Transit Baseline by AT were comprehensive, rigorous, and inclusive of many interested agencies and stakeholders:

"Auckland Transport (AT) has been collaborating on the development of an Auckland Rapid Transit Plan with Auckland Council (AC) and Waka Kotahi New Zealand Transport Agency (WK). An early part of this project involved the development of a 'Rapid Transit Baseline' (Baseline), by which these three agencies agreed on a shared understanding of rapid transit in the Auckland context. This Baseline document's definitions are the basis on which decisions were made regarding which services would be included as rapid transit in the RTLP. The Baseline document has also been through the governance of the Auckland

Transport Alignment Project (ATAP), which includes representatives from the Ministry of Transport, KiwiRail, the Treasury, and other central government agencies.”

AT has assessed public transport as an RTS if it meets the following criteria:

“Fast – rapid transit services offer time-competitive travel with private vehicles, particularly at peak times. This does not require rapid transit to always be faster than travel by private vehicle. It does mean travel times must be close enough that other advantages of rapid transit (such as its reliability) make it a highly attractive option. To achieve this characteristic, rapid transit is generally faster than other public transport services, through provision of a dedicated corridor and wider spacing between stops.

Frequent – rapid transit services form part of the frequent public transport network, and therefore operate at frequencies that enable users to ‘turn up and go’ at most times of day, seven days a week<sup>2</sup>. These high frequencies enable rapid transit to quickly shift large numbers of people and allow for efficient connections between different public transport services.

Footnote 2 A true ‘turn up and go’ frequency would be a minimum of every 10 minutes. Currently, some rapid transit services only achieve this during the peak. The RPTP aspires for the entire rapid transit network to achieve this minimum frequency by 2028. The current definition in the RPTP is at least every 15 minutes, between 7am and 7pm, 7 days a week.

Reliable – rapid transit services operate with very high levels of reliability and are unaffected by other parts of the transport network. They have priority over other traffic through a dedicated corridor and/or priority at intersections. High reliability helps make rapid transit services competitive with private vehicles. Reliability complements frequency, by ensuring even spacing between services and predictable departure times, which enhances the customer experience.

High capacity – the combination of high frequency and large vehicles able to carry many people means that rapid transit corridors can move significant numbers of people per hour in a relatively small amount of space.”

*Auckland Rapid Transit Baseline section 3.2 released under LGOIMA*

*<https://fyi.org.nz/request/17720/response/68301/attach/5/Auckland%20Rapid%20Transit%20Baseline%20Working%20Doc.pdf>*

It should also be noted that although the Auckland Rapid Transit Baseline<sup>1</sup> provided to us under the LGOIMA response was in draft, AT confirmed in their response that:

<sup>1</sup>*<https://fyi.org.nz/request/17720/response/68301/attach/5/Auckland%20Rapid%20Transit%20Baseline%20Working%20Doc.pdf>*

“This Baseline document’s definitions are the basis on which decisions were made regarding which services would be included as rapid transit in the RTLP. The Baseline document has also been through the governance of the Auckland Transport Alignment Project (ATAP), which includes representatives from the Ministry of Transport, KiwiRail, the Treasury, and other central government agencies.”

AT’s Assessment in respect of potential RTS’s in the Auckland Region is summarised in the following table:

The following table from the Baseline outlines how the agencies assessed the existing rapid transit network, as set out in the Regional Public Transport Plan, against the Baseline’s criteria. This was the basis for the classification of the included in the RLTP. Criteria that are green were considered to be met today. Yellow will be met once projects funded in the RLTP are met. Red means the criteria will not be met (either in whole or on parts of the route) within the timeframe of the RLTP:

Service	Fast	Frequent	Reliable	High Capacity	Dedicated Corridor	Shaping Urban Development
Western Line (rail)						
<i>Travel time and off-peak frequency issues will be resolved once City Rail Link and new timetable are operational.</i>						
Southern Line (rail)						
<i>Off-peak frequency issue will be resolved once City Rail Link and new timetable are operational.</i>						
Eastern Line (rail)						
<i>Off-peak frequency issue will be resolved once City Rail Link and new timetable are operational.</i>						
Onehunga Branch (rail)						
<i>Frequency limited by single track.</i>						
Pukekohe Connection (rail)						
<i>Existing shuttle service and associated infrastructure limit speed (due to transfer), frequency and capacity. Electrification will overcome these issues. New stations, part of the New Zealand Upgrade Programme, will help to shape urban development.</i>						
Northern Busway services (NX1, NX2)						
<i>Priority infrastructure does not extend for full length of services. This lack of a dedicated corridor creates delays and reliability issues in the city centre. The impact of these issues on customers is mitigated by the frequency of services. There is limited evidence to date of the busway shaping urban growth, although proposals for intensification near certain stations are emerging.</i>						
Generally meets requirements	Deficiencies that will be addressed by funded projects		Deficiencies that will not be addressed by funded projects			

Note that the Onehunga Line fails to meet all RTS criteria and so is excluded from the Auckland Rapid Transit Network in the Auckland Regional Land Transport Plan.

### Applying the AT assessment of rapid transit services to JVL

In the absence of any other framework, we suggest the AT RTS criteria create a precedent for deciding whether JVL is an RTS or not.

JVL is most comparable to the single-track Onehunga Line, which was assessed by AT as follows:

“Members of the rapid transit plan’s working group discussed the interrelationship of the National Policy Statement on Urban Development (NPS-UD), the RLTP, and the Baseline’s definitions to agree that the Onehunga line did not meet the agreed definition of rapid

transit in Auckland. The key criteria that the service fails on is frequency – **the Onehunga line only operates services half-hourly, and there are no plans to change this in the next 10 years (i.e., the timeframe of the RLTP). This contrasts with other train services, which will all operate at least every 15 minutes (7am to 7pm, 7 days a week) once the City Rail Link opens.** At this point they will meet the Baseline’s definition of frequent (and therefore met its definition of rapid transit).”

<https://fyi.org.nz/request/17720/response/68301/attach/3/Auckland%20Transport%20CAS%20471846%20X7Q8C9%2017%20December%202021.pdf>

JVL as a commuter train exists as an accident of history. The line was built in 1880 and became part of the Main Trunk Line in 1908. In 1938 the Main Trunk Line was rerouted through a tunnel to Tawa and the existing track was terminated at Johnsonville.

The 10km line is a single track through very steep terrain rising from the waterfront to 150 metres above sea level. There are seven narrow tunnels, six bridges, and only three passing loops. The layout of the track means there can only be a train in each direction every 15 minutes and a four-car train, with a maximum capacity for 492 passengers sitting and standing, is the longest the track can accommodate on a 15-minute timetable.

The current timetable cannot be improved. At peak times the trains are near capacity. The 10km trip takes 23 minutes from Wellington Station to Johnsonville with the new Matangi trains, it took 26 minutes with the old English trains but only 19 minutes with a 1938 steam train, so it has become “rapid transit” over time. The current timetable has had to be adjusted to ensure reliability. Although there has been the recent addition of some use of Snapper cards on the service, there is no facility for transfers to other public transport nor integrated ticketing.

We have analysed JVL against the AT criteria, as follows:

**Permanent Route: Yes**, accept JVL operates on a permanent route and that is generally separated from other traffic.

**Quick: Not all stops**, not to all destinations (due to poor connectivity)

“Fast – rapid transit services offer time-competitive travel with private vehicles, particularly at peak times. ... To achieve this characteristic, rapid transit is generally faster than other public transport services”

*AT RTS Criteria*

For those boarding to commute to a destination within a ten-minute walk of Wellington Station at peak time JVL service at Crofton Downs, Ngaio and Awarua Street stations the service meets the quick criteria. For those travelling Simla Crescent the service is equivalent to driving or taking the bus. For those travelling from Box Hill, Khandallah, Raroa and from Johnsonville the bus or driving is a superior option.

At all other times and to most other destinations that people need such as hospitals, city shopping, universities and leisure activities, as well as workplaces more than a ten-minute walk from Wellington Station, JVL is decidedly inferior to bus, active or car alternatives as the alternatives provide direct service without changing modes.

The DDP and the Spatial Plan before it, repeatedly use the terminology “where residents live, work and play.” Commuting to work is only one aspect of the equation and we have

established that even in commuting JVL falls short of being an RTS. What about living and playing?

We have compiled a number of realistic travel scenarios for residents living within a ten-minute walk from stations along JVL and compared JVL with other transport options public, private and active. In all cases we have used Google maps estimates of travel times using various modes both on and off peak.

#### OFF PEAK TRAVEL TO WELLINGTON STATION

To Wellington Station	Train	Comparable bus service	Bus time	Drive off peak
Crofton Downs	8 minutes	No Service	No service	10 minutes
Ngaio	10 minutes	22 from Ngaio Town Hall (peak only)	16 minutes	11 minutes
Awarua Street	12 minutes	22 from Ottawa Road (peak time only)	17 minutes	12 minutes
Simla Cres	14 minutes	No service		12 minutes
Box Hill	15 minutes + 8 minute walk from bus stop	25 from Khandallah Stop A	19 minutes	13 minutes
Khandallah	18 minutes + 8 minute walk from bus stop	25 from Khandallah Stop A	19 minutes	12 minutes
Raroa	21 minutes	No service		11 minutes
Johnsonville	23 minutes	No 1 bus	16 minutes	11 minutes

Conclusion: JVL does not meet the AT RTS Criteria as being “Fast” at all stops.

**Frequent: No**, not frequent most of the time.

“A true ‘turn up and go’ frequency would be a minimum of every 10 minutes. ... The current definition in the RTP is at least every 15 minutes, between 7am and 7pm, 7 days a week.”  
*AT RTS Criteria*

During daytime JVL services are every 30 minutes, supplemented by 15-minute services an hour during the morning and evening rush. At night the service further reduces to hourly with only three services from Wellington Station to Johnsonville after 9pm. On the weekends services are hourly until 8.30am, then every 30 minutes until 7.30pm before returning to hourly services at night.

JVL is not a ‘turn up and go’ service at most times of day, seven days a week.

GWRC have in the past recognised that service frequency needs to be 10 minutes or less:

“... My research from a few years’ ago **and Metlink’s approach under previous plans was that for public transport to be attractive, the service frequency** (15 mins at a push for example evening or early morning services); stops have to be within 10 minutes walk of the stops; and this level of service needs to be maintained over the entire service period ie having rapid transit in peak time only will not lead to an overall behaviour change. My



concern here is that we may designate a rail line as rapid transit but if it doesn't change overall human behaviour then there is little point."

*GWRC Email to Auckland Transport 3 Feb 2021*

<https://fyi.org.nz/request/17720/response/68301/attach/4/Auckland%20Transport%20CAS%20471846%20X7Q8C9%20Combined%20emails%20Redacted.pdf> page 20

The Engagement Report of LGWM released on 12 April 2022 reinforces the public's definition of reliable public transport as having a 10 minute or less frequency:

"reliable public transport that comes every ten minutes or less" ranking the highest answer to the question: "What do you think is most important for the future of Wellington?"

<https://lqwm-prod-public.s3.ap-southeast-2.amazonaws.com/public/Projects/Mass-Transit/Mass-Rapid-Transit-Engagement-Report.pdf> at p.20

Unlike Auckland services classified as RTS's, JVL does not operate at least every 15 minutes (7am to 7pm, 7 days a week). There is no provision or budget in the Wellington RLTP plan to change this in the next ten years being the time frame of the RLTP.

Conclusion: JVL does not meet the AT RTS Criteria as being "Frequent".

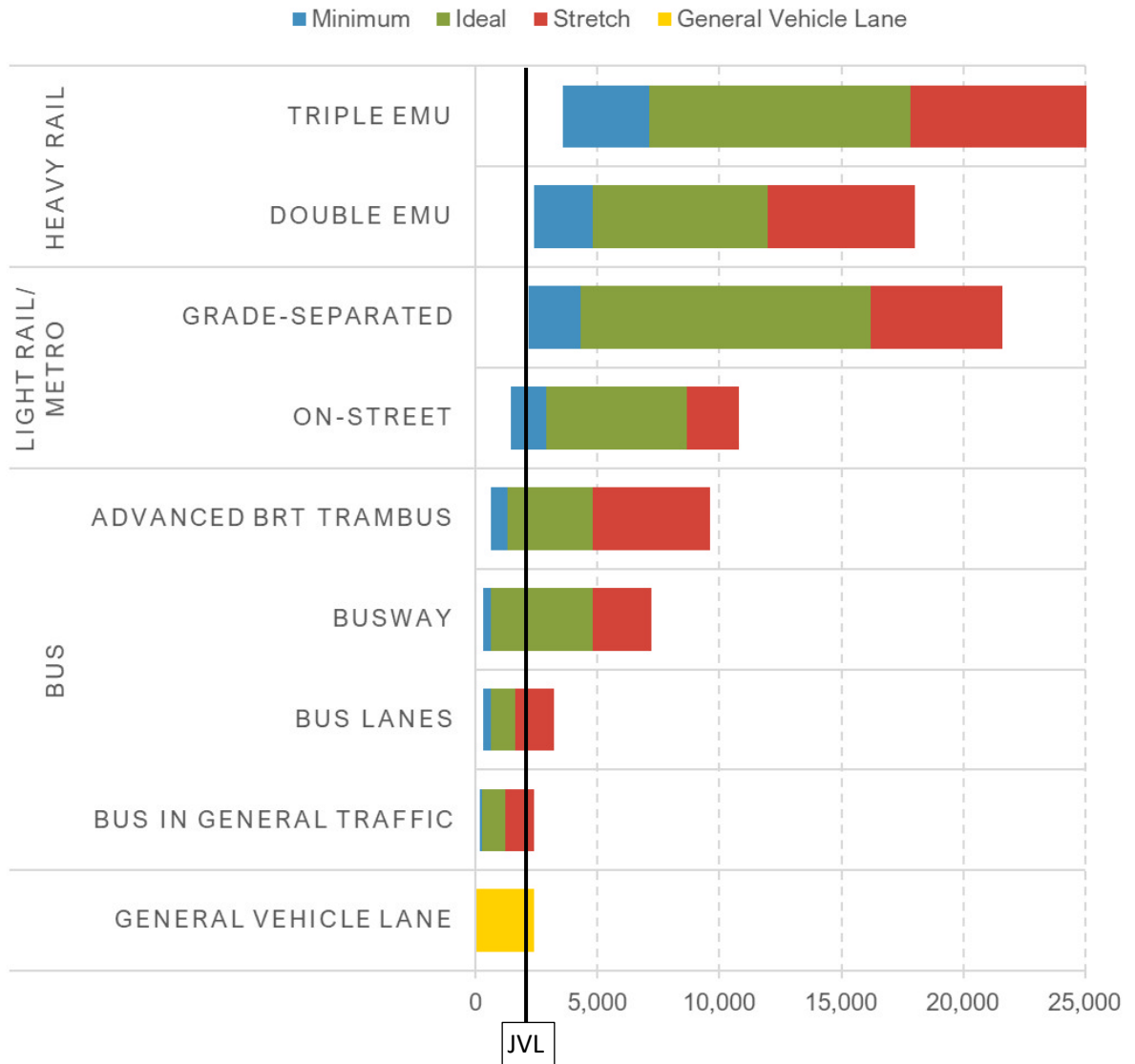
**High Capacity: No**, JVL does not meet the AT RTS Criteria for High Capacity:

"High Capacity - the combination of high frequency and large vehicles able to carry many people means that rapid transit corridors can move significant numbers of people per hour in a relatively small amount of space."

*AT RTS Criteria*

"Compared to the capacity of a single lane of traffic (800 - 2,000 vehicles per hour), rapid transit offers the potential to move vastly more people. The numbers possible vary depending on the mode's capacity, and service frequency. This is outlined in Figure 4-3 below. The bars show the approximate numbers of passengers per hour that can be moved on different systems at a given number of vehicles per hour (the numbers within the bars). These numbers are a guide...[see next page]

### PASSENGERS PER HOUR AT PEAK



page 20 AT "Auckland Rapid Transit Baseline" released under LGOIMA

The JVL peak capacity of just 2,000 passengers per hour does not meet the minimum capacity to be considered Heavy Rail rapid transit under the Auckland Rapid transit Baseline criteria. It is barely better than a bus in general traffic.

The JVL service is primarily for commuters, with the greatest patronage coming from commuters closest to Wellington Station who have no bus option, namely Crofton Downs and Ngaio North. It provides a useful transport service for intermediate and secondary school students but children living along the line are for the most part bound to the commuting needs of their parents or guardians.

We conclude that JVL is not an RTS by the AT criteria as it fails on frequency and capacity and not all its stops are quick.

But, would it do the job, even though it fails these criteria?

## Does JVL have the capacity to shift new residents to a lower-carbon lifestyle?

JVL cannot expand to meet demand arising from the projected population growth and transport mode shift anticipated by the DDP and RLTP. Any assessment of whether it can service mode shift and thus contribute to reducing transport emissions must therefore be measured against its current capacity.

GWRC have advised the WCC that current capacity of a four car JVL train is 492<sup>1</sup> passengers seated and standing at 100% crush capacity.

<sup>1</sup> GWRC LGOIMA response to Julie Ward File ref OIAP-7-16760 22 Oct 2020

The Draft District Plan envisages adding 11,083<sup>2</sup> to 13,479<sup>2</sup> more residents around JVL stations increasing the total population from 29,257<sup>2</sup> in 2021 to between 40,340 and 42,736 people by 2030.

<sup>2</sup> Figures supplied in email from Andrew Wharton (WCC) 24 November 2021

Various assumptions have been made about how mode share will change over the duration of the DP, including a 3x increase for new residents<sup>3</sup> and an overall 40% mode shift to public transport in the Wellington Regional Public Transport Plan<sup>4</sup> (RPTP). The ORCA written submission on the draft District Plan showed that JVL does not have the capacity based on these assumptions.

<sup>3</sup> Andrew Wharton (WCC) assumed a 3x increase in his calculations, email 24 November 2021

<sup>4</sup> <https://www.gw.govt.nz/assets/Documents/2021/10/J001366-Public-Transport-Plan-v5-web.pdf>

The JVL is primarily a commuter service and the DDP does not appear to envisage the population along the line having significantly greater access to local employment opportunities accessible by active modes than is currently the case. We have made our estimates on capacity assuming the balance of current transport modes, as nearby employment opportunities accessible by active modes are, and will continue to be, quite limited.

According to the 2018 census 57% of the total population from the Johnsonville catchment (16,233) travelled to work each day. We have calculated various possible futures based on the same percentages of residents travelling to work in 2030. 57% of 40,000 travelling to work is 22,800 people.

The table on the following page shows our calculations:

1. the 2018 census figures for commuting to work,
2. the current percentage mode share derived from the 2018 census,
3. the WCC percentage mode share for comparison,
4. the traffic increase at the projected growth with current mode share,
5. what capacities the achieved RPTP mode shift target requires if distributed at the current mode balance.

We draw the following conclusions from these calculations:

1. The number of buses and trains serving the JVL catchment must increase to carry 36% more people to accommodate the projected population growth at present mode share, but
2. The carbon emissions will also increase by 36% unless mode share is improved, while

3. To keep the number of car occupants at below current levels will require the RPTP mode share target of 40% of car users to change to other modes, and
4. To achieve the RPTP target of 40% mode shift to non-car modes will require almost double the number of buses and trains.

No.	Source	Car (driver or passenger)	Bus @ 68 per bus	Train @ 492 per train	Cycle	Walk	Other	Work from Home	Total
1.	2018 from census	9,138	2,010 (30 full buses)	2,016 (4 full trains)	564	911	518	1,470	16,627
2.	2018 census mode share	55%	12%	12%	3%	5%	3%	9%	(rounded)
3.	Wellington City Average 2018	45%	17%	4%	4%	19%	2%	8%	(rounded)
4.	2030 at census mode share, 22,800	12,530 (+36%)	2,756 (40 full buses)	2,764 (5.5 full trains)	773	1,249	710	2,015	22,797
5.	2030 with RPTP mode shift of 40%, 22,800	Reduce 2030 car use by 40% to <b>8,950</b> by increasing other modes	<b>3,922</b> (58 full buses)	<b>3,934</b> (8 full trains)	<b>1,100</b>	<b>1,777</b>	<b>1,010</b>	2,105	22,798

We are not expert public transport planners, but we have considered some academic material available regarding capacity constraints. This quote from Leurent in the European Transport Research Review quite clearly summarises the problem to be considered. We have bolded for emphasis.

**“In a public transport system, both users and operators are likely to react to traffic conditions. These reactions constitute complex feedback effects.**

**On the user side, quality of service determines the path choice. Every user perceives the quality of service under a given travel option, in particular with regard to time and discomfort, and chooses their option by trading off quality of service and price factors according to their own preferences, i.e. for personal rather than communal benefit. High levels of local congestion along a route will prompt users to transfer to another route, which distributes traffic between routes since route choices generate the trip flows.** In principle, this should reduce congestion on the initial route. However, route diversions can actually trigger paradoxical effects: Braess [3] has shown that for certain network configurations and loads, **detours by certain users can disadvantage others and adversely affect the global state of the system.** For our purposes, it is enough that microeconomic behaviour by the user triggers interactions with local quality of service through the formation of traffic flows.”

*Leurent, F. Transport capacity constraints on the mass transit system: a systemic analysis. Eur. Transp. Res. Rev. 3, 11–21 (2011). <https://doi.org/10.1007/s12544-011-0046-5>*

The loading levels created by the extra population foreseen in the DDP will at best leave passengers with little choice as to the service they catch, result in uncomfortable crush

capacity at peak times, and create loading delays disrupting the tightly tuned timetable, which has little room for variance due to single track and only three passing loops. The “other routes” available to users are buses, also at crush capacity, or private vehicles. If users choose private vehicles this will likely “disadvantage others and adversely affect the global state of the system” in the form of increased traffic congestion and will as well result in higher vehicle emissions.

The peak JVL service at 8am on average utilises all the seated capacity of a four-car train. We calculate that at current mode share, the peak hour train demand for the projected growth in the DP will exceed train capacity at least one day a week. Consequently about 40% of new resident commuters will use cars, vans or trucks, driving up carbon emissions. We also have shown in the table above that meeting the target of reducing car mode share below current levels relying on the capacity of JVL is unachievable.

There has been a suggestion that JVL is able to expand to six car trains. We are advised that it is not a straightforward matter to increase capacity to six car trains:

“Currently, one of the platforms on the Johnsonville line is not big enough for anything more than a four car train. Patronage on the Johnsonville line is also well below capacity, but if demand on the Johnsonville line increased, **significant operational planning and infrastructure changes would need to occur in order to accommodate a larger train.**”

*Email Pareesha Mehta-Wilson, Kaitohutohu | Policy Advisor, Metlink to Julie Ward 9 Nov 2020*

Most importantly, as previously noted, the RLTP does not include any plans or investment in JVL to improve its frequency or capacity in the next 10 years.

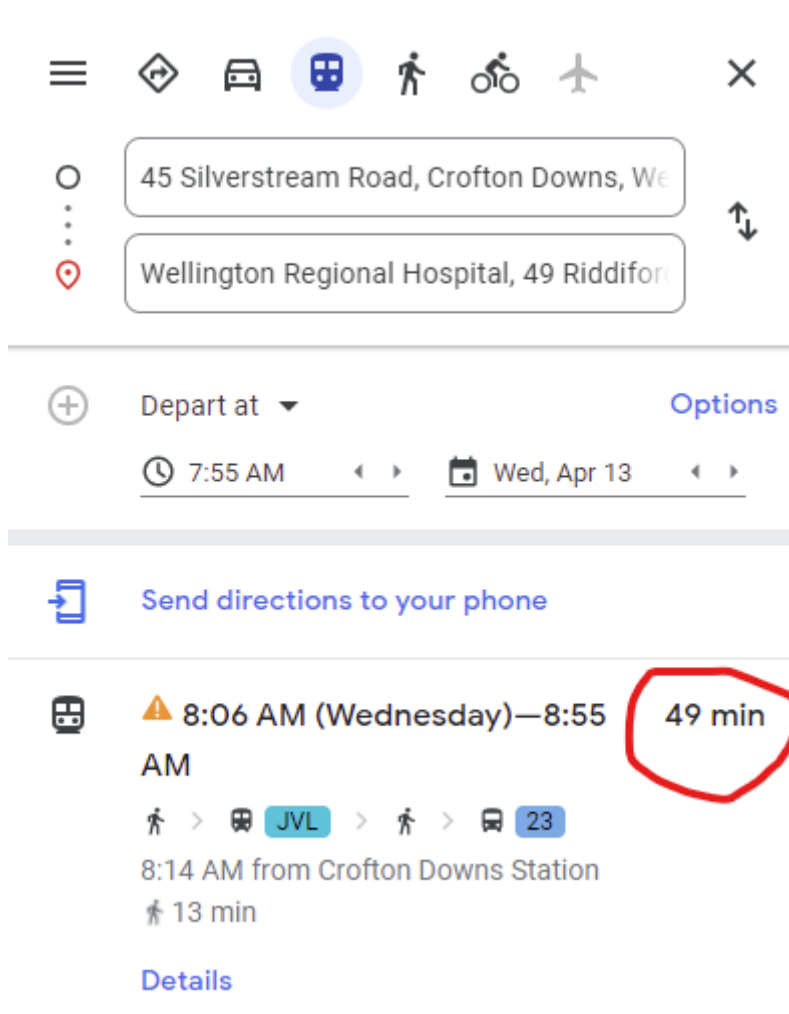
We therefore conclude that high density residential development zones in the north-western suburbs along JVL will cause unacceptable transport congestion and increase carbon emissions.

## The WCC District Plan must provide a holistic approach to wellbeing

The DDP and the Spatial Plan before it made regular use of the terminology where residents live, work and play. Commuting to work is only one aspect of the equation and we have established that even in commuting JVL falls short of being an RTS. What about living and playing?

We have compiled 23 realistic travel scenarios for residents living within a ten- minute walk of three JVL stations which are representative of the city, centre and Johnsonville ends of JVL. We have compared JVL with other transport options: public, private and active. In all cases we have used Google maps estimates of travel times using various modes both at peak-time and off peak.

Here is an example of how we applied our methodology using Google maps:



Scenario 1: Start: 45 Silverstream Road – a 7-minute walk from Crofton Downs Station

Destination	JVL + other PT	Bus only	Walk	Cycle	Private vehicle
Kenepuru Hospital (off-peak)	52 minutes (2 changes and 11 minutes walking)	No options	Unrealistic more than 4 hours on cross country tracks	59 minutes	22 minutes
Victoria University – Kelburn (Peak)	37 minutes	36 minutes and no changes	1 hr 21 minutes	28 minutes	10 to 16 minutes
Massey University	51 minutes	53 minutes	1 hr 32 mins	31 minutes	14 to 28 minutes
Embassy Theatre (off peak)	43 minutes	53 minutes	1 hr 27 minutes	28 minutes	15 minutes
Stewart Dawson Corner	29 minutes (includes 19 minutes walking)	No options	1 hr 12 minutes	24 minutes	15 minutes
Wellington Airport	1 hour 25 minutes (includes 23 minutes walking)	No options	2 hrs 43 minutes	56 minutes	22 to 35 minutes
Wellington Regional Hospital (Peak for 8.30am arrival)	49 minutes	No options	1 hour 47 minutes	37 minutes	16 to 35 minutes

Scenario 2: Start: 14 Rotoiti Street, Johnsonville – a 5-minute walk from Johnsonville Station

Destination	JVL + other PT	Bus only	Walk	Cycle	Private vehicle
Kenepuru Hospital (off-peak)	Requires travel to Wellington station unrealistic	22 minutes	Unrealistic more than 4 hours on cross country tracks	33 minutes	13 minutes
Victoria University – Kelburn (Peak)	Google maps does not suggest train as an option	44 minutes	2 hours 6 minutes	40 minutes	12 to 20 minutes
Massey University	Google maps does not suggest train as an option	51 minutes	2 hours 14 minutes	43 minutes	14 to 30 minutes
Embassy Theatre (off-peak)	Google maps does not suggest train as an option	37 minutes	2 hours 10 minutes	40 minutes	15 minutes
Stewart Dawson Corner	40 minutes (includes 17	29 minutes	1 hour 56 minutes	36 minutes	15 minutes

Destination	JVL + other PT	Bus only	Walk	Cycle	Private vehicle
	minutes walking)				
Wellington Airport	1 hour 27 minutes	1 hour 20 minutes	3 hours 26 minutes	1 hour 6 minutes	25 minutes
Wellington Regional Hospital (Peak for 8.30am arrival)	1 hour 1 minute	52 minutes	2 hours 30 minutes	47 minutes	16 to 35 minutes
Wellington Regional Hospital (off-peak)	Google maps does not suggest train as an option	44 minutes	2 hours 30 minutes	47 minutes	19 minutes

Scenario 3: Start: 34 Everest Street, Khandallah (10 minute walk to Boxhill Station and 7 minute walk to Khandallah Station)

Destination	JVL + other PT	Bus only	Walk	Cycle	Private vehicle
Kenepuru Hospital (off-peak)	54 minutes	53 minutes	Unrealistic more than 3.5 hours on cross country tracks	47 minutes there/56 minutes back	19 minutes
Victoria University – Kelburn (Peak)	Google maps does not suggest train as an option	39 minutes	1 hour 20 minutes	26 there/34 back	12 to 24 minutes
Massey University	52 minutes	41 minutes	1 hour 29 minutes	29 minutes down/37 minutes up	
Embassy Theatre (off-peak)	48 minutes	33 minutes	1 hour 24 minutes	26 minutes down/38 minutes up	15 minutes
Stewart Dawson Corner	35 minutes (includes 17 minutes walking)	26 minutes	1 hour 17 minutes	22 minutes down/31 minutes up	13 minutes
Wellington Airport	1 hour 22 minutes	1 hour 5 minutes	2 hours 40 minutes	52 minutes down/1 hour 2 minutes up	25 minutes
Wellington Regional Hospital (Peak for 8.30am arrival)	Google maps does not suggest train as an option	53 minutes	1 hour 44 minutes	35 minutes down/ 42 minutes up	16 to 35 minutes
Wellington Regional Hospital (off-peak)	Google maps does not suggest train as an option	46 minutes	1 hour 44 minutes	35 minutes down/ 42 minutes up	20 minutes



## Conclusion

WCC has still to make its determination of which public transport services in Wellington City comprise RTS's as required by MfE.

For JVL to be an RTS it must meet all the criteria in the definition of a rapid transit service in the NPS-UD, namely to provide quick, frequent, reliable **and** high-capacity public transport services, which operate on a permanent route (road or rail), and that are generally separated from other traffic.

Following from the analysis of AT and LGWM of what constitutes an RTS, we assess that JVL is not one. It clearly fails on frequency and capacity, with many of its stops failing on quickness and reliability. At many of its stops it also fails to meet the LGWM MRT criteria of convenient, comfortable, and safe. It is not a preferred transport choice to reach many key Wellington destinations.

To date there has been no evidence-based assessment on the part of the GWRC, the WCC, or anyone else, to determine whether the JVL meets the definition of an RTS under the NPS-UD. We therefore conclude that there has not been any analysis to define JVL as a rapid transit service. Accordingly, there is no requirement, nor any justification, for WCC to apply NPS-UD Policy 3 (c), "building heights of least 6 storeys within at least a walkable catchment" of the JVL.

The DDP also does not assess or designate any JVL Station or any other PT stop as a Rapid Transit Stop. As JVL is not an RTS and has no designated Rapid Transit Stops, the WCC cannot rely on Policy 3(c)(i) of the NPS-UD as grounds for saying it must enable at least six storeys within a walkable catchment of stations on the JVL.

The correct part of policy 3 of the NPS-UD to apply to areas surrounding JVL is Policy 3(d)(i) namely "the level of accessibility by existing or planned active or public transport to a range of commercial activities and community services."

The Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021 requires WCC to adopt the MDRS to boost housing supply and enable more types of housing. The MDRS enable people to build up to three units of three storeys on most sites in Wellington. WCC has not assessed the development capacity enabled in Crofton Downs, Ngaio, Khandallah, Broadmeadows, Raroa and Johnsonville by these changes. Nor has it assessed whether these areas are infrastructure-ready to support the development enabled by MDRS.

We suggest that the building heights and density enabled by the MDRS in Crofton Downs, Ngaio, Khandallah, Broadmeadows, Raroa and Johnsonville will enable as much development as existing or planned active or public transport can support to the range of commercial activities and community services these suburbs are planned to accommodate.

Our evidence requires a response from Wellington City Council. The Council should undertake its own analysis of JVL and either:

- provide evidence JVL meets published criteria for an RTS, or
- provide evidence the 6-10 storey development along JVL is required to meet housing demand irrespective of access to JVL and provide evidence of transport investment that supports such development, or
- replace the HRZ around JVL with zoning appropriate to the centres JVL serves.