Sustainable Public Transport Framework discussion document

On-demand public transport services

July 2023

Contents

1 Purpose

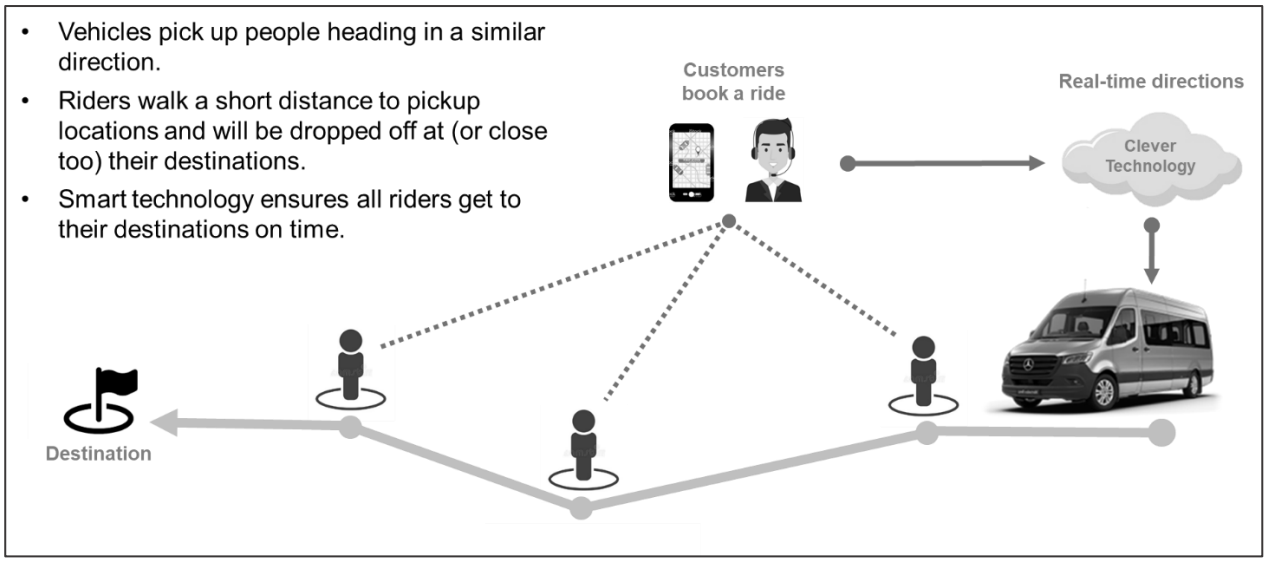
This document provides context, engagement questions, operational policy, and supporting guidelines relating to contracted on-demand public transport services as part of the Sustainable Public Transport Framework (SPTF) for consideration by the public transport sector.

2 Background

2.1 On-demand transport

On-demand public transport services have flexible routes that vary based on the location and destinations of passengers who book a trip. They often operate within a defined geographical area, which either link into existing public transport networks or cater for a defined customer market. This is distinct to fixed route public transport services (trains, ferries, buses) that operate to prescribed routes and timetables.

Key elements of on-demand public transport are summarised in the diagram below.



2.2 Current guidelines

Waka Kotahi provides guidance relating to the design and infrastructure requirements of on-demand public transport, available on the Waka Kotahi website.

This discussion document builds on and is intended to form the basis for updating existing guidance.

2.3 Land Transport Management (Regulation of Public Transport) Amendment Bill 2023

The SPTF includes a particular focus on clarifying and supporting the operation of on-demand services through amendments to the Land Transport Management Act 2003 (LTMA). The Land Transport Management (Regulation of Public Transport) Amendment Bill 2023 (LTMA Bill) proposes changes to provide more certainty regarding the ability to plan, procure and fund on-demand services as part of public transport networks.

The LTMA Bill includes the following explanatory note:

> ***Clarifying treatment of on-demand public transport services***
>
> *The LTMA Bill expands the definition of public transport to include unscheduled (on-demand) public transport services and shuttle services. This change clarifies the treatment of on-demand public transport services, enabling regional councils to provide any form of passenger transport service through any mode, other than air transport, whether delivered to a timetable or not.*

The LTMA Bill expands the scope of exempt services to include commercial on-demand services and commercial shuttle services. The LTMA Bill allows some exempt on-demand services and all exempt shuttle services to be operated without being registered with the regional council. This ensures that a smaller subset of commercially operated passenger transport services are subject to registration requirements—limited to those services more likely to affect public transport services provided by regional councils. This mitigates the potential for increased regulatory burden on operators and the potential for increased administrative burden on regional councils.

The LTMA Bill also ensures that regional councils can procure, contract, and deliver on-demand services separately to timetabled services. This is achieved by amending the definition of unit and removing the requirement for every unit to be contracted on an exclusive basis.

2.4 On-demand service types

The LTMA Bill enables on-demand service to be categorised as follows:

Type	Example	Status as per the LTMA Bill
Commercially provided services	Private hire services such as taxis, Uber and airport shuttle services.	Exempt (unregistered) services
	Ride sharing services of a scale that could impact public transport networks.	Exempt (registered) services
Publicly supported services	Examples include: • Total Mobility scheme • community transport initiatives.	Identified in accordance with section 120 (1) (a) (viii) of the LTMA
Publicly provided services	On-demand services considered integral to a region's public transport network and delivered by: • a Public Transport Authority (PTA), or • under contract to a PTA.	Integral services

2.4.1 Commercially provided on-demand services

Commercially provided on-demand services such as taxi's and uber operate without public subsidy. For further information regarding exempt on-demand services refer to the separate document outlining proposed operating policy and guidelines for contracted and exempt public transport services available on the Waka Kotahi website: Sustainable Public Transport Framework

2.4.2 Publicly supported on-demand services

Publicly supported services are passenger services that:

- are provided independently of PTAs on either a commercial or not for profit basis, and;
- utilise small passenger service vehicles and receive funding assistance from a PTA as per section 120 (1) (a) (viii) of the LTMA.

Examples of publicly supported services include, but are not limited to:

- taxi providers that participate in the Total Mobility scheme
- community transport initiatives that are financially supported by a PTA.

Publicly supported services often operate on an on-demand basis, forming part of the broader public transport system, but are distinct from publicly provided services that must be delivered as part of a unit under contract with a PTA.

Waka Kotahi intends to develop further guidance regarding publicly supported services; however, this is not within scope of this document.

2.4.3 Publicly provided on-demand services

Publicly provided services are on-demand services considered integral to a region's public transport network and delivered by:

- a PTA, or
- under contract to a PTA.

The remainder of this document relates to publicly provided on-demand services, from here on referred to as on-demand public transport (ODPT).

2.5 Terminology

This document uses the following key terms to help define elements that comprise ODPT.

Term	Meaning	Examples
On-demand public transport (ODPT).	On-demand services considered integral to a region's public transport network	On-demand services identified in a unit within a regional public transport plan (RPTP) and delivered by: • a PTA, or • another entity under contract with a PTA.
ODPT use case	Describes the problems or opportunities an ODPT service is intended to address	Use cases such as, but not limited to, providing coverage in locations with low travel demand and/or to address accessibility challenges.

ODPT scheme	Refers to the specific design elements and operating parameters of an ODPT service necessary to meet a defined use case	Scheme elements include but not limited to:
		• technology platform
		• data privacy
		• operating parameters
		  - spatial coverage
		  - operating mode(s)
		  - hours of operation
		  - pick-up/drop-off locations
		  - walking distances
		  - booking policy
		  - fare settings and payment methods
		• number of vehicles required
		• vehicle selection
		• accessibility
		• safety and security
		• scheme supervision
		• customer support
		  - in-app support
		  - call centre support
		• cost of service provision.

3 Eligibility for funding from the National Land Transport Fund

3.1 Discussion

The LTMA Bill makes clear that Public Transport Authorities (PTAs) can procure, contract, and deliver ODPT services considered integral to a public transport network. Integral services can be considered for funding from the National Land Transport Fund (NLTF).

This section proposes context, policy and guidelines under which Waka Kotahi may consider NLTF funding requests for the provision of ODPT services.

In essence an ODPT scheme must:

- address a suitable use case and represent good value for money
- be identified as an integral service in a RPTP and be allocated into a unit
- comply with relevant Waka Kotahi polices and procurement rules

Context for ODPT, along with discussion regarding use cases and considerations for allocation of ODPT services into units are outlined in the subsections below.

Discussion regarding procurement of ODPT technology and vehicles is outlined in section four of this document.

3.2 ODPT context

3.2.1 ODPT capabilities and benefits

ODPT allows passengers to request a ride at short notice and to be picked up and dropped off at convenient locations. Technology automates highly complex coordination, making the ODPT easier for customers to utilise and PTAs to provide. In addition, ODPT often utilises small format vehicles. This can enable service provision to locations inaccessible to other public transport service types.

ODPT is flexible, can offer a good customer experience and can access difficult locations. These capabilities offer a wide range of potential use cases and benefits for communities throughout New Zealand.

3.2.2 ODPT limitations

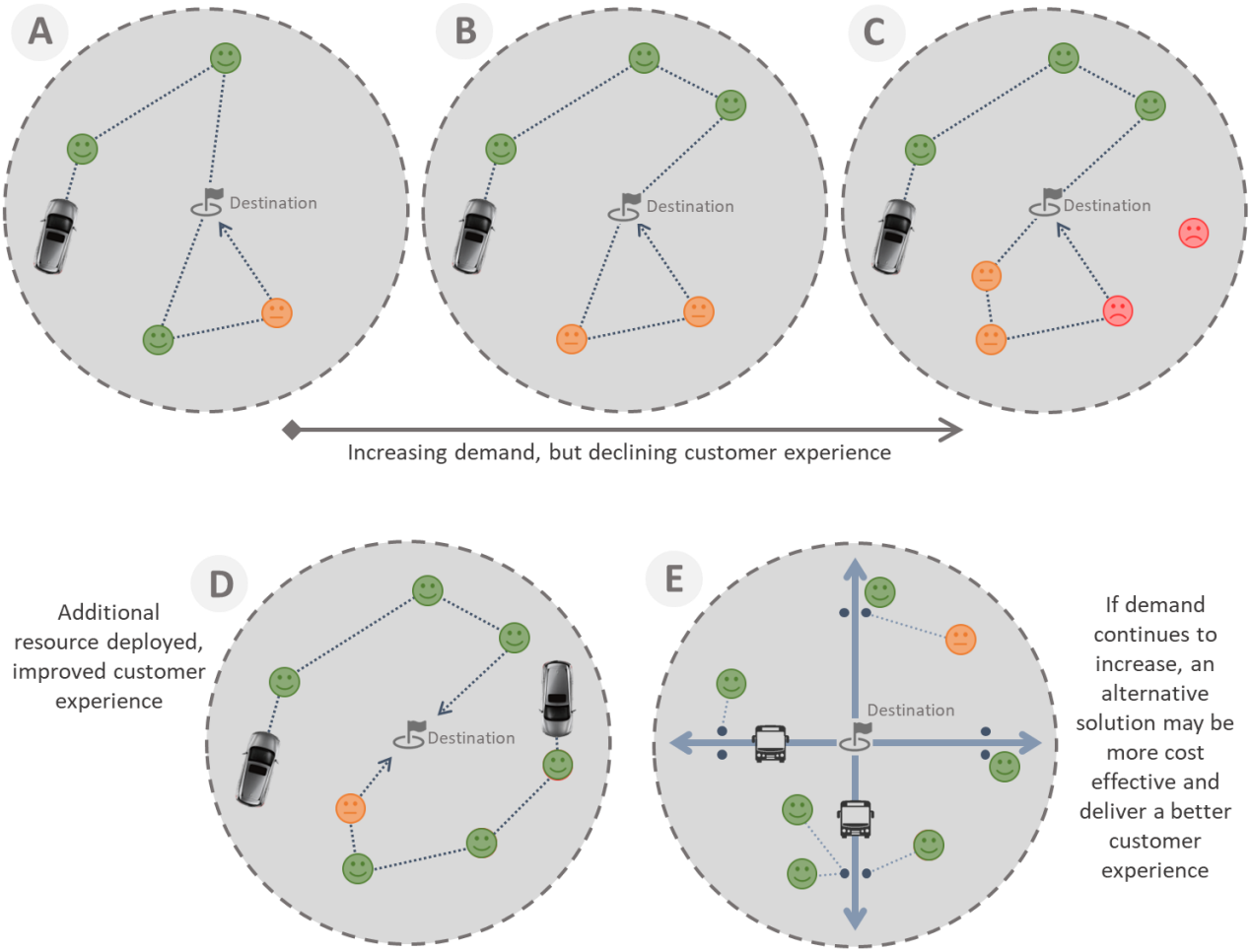
ODPT services should be regarded as a useful tool in the in the public transport toolbox. Like any tool, ODPT can be very effective at undertaking particular tasks but not necessarily well suited to undertaking every task.

ODPT is a useful tool for meeting some public transport use cases but not every use case. A key limitation of ODPT relates to scalability.

3.2.3 ODPT scalability

Because of its flexible nature, ODPT services can be popular resulting in increasing customer demand. While this is good, it can create a dilemma for scheme providers as the more people that seek to use an ODPT service, the less effective the service may become.

For example, as demand increases, customers are likely to experience longer wait times, longer walking distances to pick up locations, and there may be more journey requests that are unable to be fulfilled, leaving people without a transport option when they need it (refer to scenarios A to E in the diagram below).



As a rough guide for an urban environment, ODPT is likely to struggle to meet customer expectations when travel demand exceeds an average of five bookings per hour per vehicle (although much depends on the scheme, operating mode and operating environment). This figure is likely to be lower for rural environments where travel distances are greater.

A scheme provider could add more ODPT vehicles and drivers to meet increasing demand and retain good customer experience, however the financial cost of doing so can quickly exceed the cost of providing other solutions such as fixed route bus services with much higher per vehicle capacities (i.e 30, 50, 100+ people per hour per vehicle).

ODPT can be effective at servicing low demand use cases but does not scale well in response to increasing customer demand. As such:

- The suitability of the intended use case needs to be carefully considered prior to implementation of an ODPT scheme
- PTAs should signal in their RPTP what may happen in the event that demand for a scheme exceeds the capacity of the scheme to provide good customer experience
- ODPT schemes should be established in such a way that they can be transitioned between different operating modes as required.

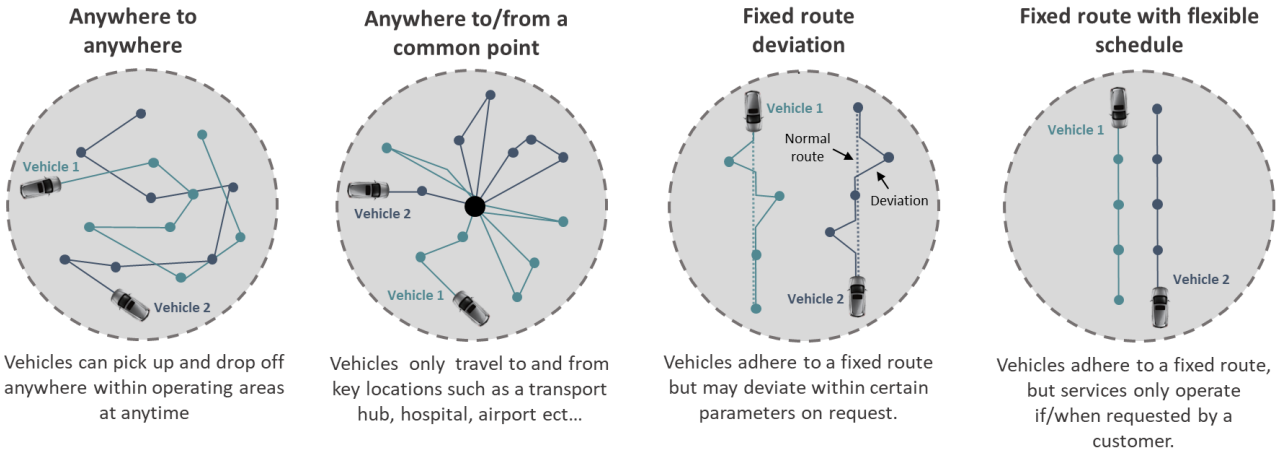
Engagement questions

1) Is the high-level guidance regarding ODPT, capabilities, limitations useful? If not, how could it be improved?
2) Are there other matters that need to be considered?

3.2.4 *ODPT operating modes*

Operation of ODPT schemes can vary significantly. For example, four distinct "operating modes" are outlined below. There are many operating modes and variations.

Operating modes can also be adjusted depending on demand and time of day. For example, "anywhere to anywhere travel" may be viable during off-peak periods but may not be viable during peak periods, where "travel to and from a common point" or "fixed route deviation" may be more appropriate.



In response to changing customer demand it may be necessary to transition an ODPT service between operating modes over time. In the context of multi-year service contracts, this is likely to be a highly desirable capability. To enable this, careful consideration needs to be given to:

- vehicle selection
- technology selection
- contracting terms and conditions
- procurement strategy including unit structure and supplier.

Engagement questions

3) Is the high-level guidance regarding operating modes useful?
4) Are there other operating modes that we need to provide guidance for?
5) Are there other matters should be considered or improvements made?

3.2.5 *Suitable and unsuitable ODPT use cases*

A key consideration for funding ODPT services is ensuring that the intended use case is appropriate relative to the capabilities and limitations of ODPT as a public transport mode.

Suitable use cases	Unsuitable use cases
As a general guide, ODPT services are good at moving a small number of people within a defined spatial area. Scenarios where ODPT may be more effective than fixed route services include (but are not limited to):	As a general guide, ODPT is not good at moving a lot of people efficiently. Unsuitable use cases include any scenario where demand for the service is likely to exceed the capacity of the service to provide a

• providing service coverage in locations or during time periods that have low passenger demand, this may include provision of new services or replacing existing services • seeding new services for an area as a stepping-stone to more comprehensive public transport services • providing feeder/first and last mile connections for higher frequency fixed route services • providing targeted services including (but not limited to) services for people with a transport disability • accessing areas that may be inaccessible to larger PT vehicles.	consistently reliable and good customer experience.

Engagement question

6) Is the high-level guidance regarding suitable and unsuitable use cases helpful? If not, how could it be improved?

3.2.6 RPTP policy

Prior to deploying an ODPT scheme, a PTA should have policy in its RPTP that signals to the public how a scheme may be adjusted in response to changing customer demand. For example, to ensure value for money and good customer experience it may be necessary to adjust one or more of the following:

- fares and payment methods
- operating area
- operating mode (see section 3.2.4 of this document)
- hours of operation
- eligibility for travel.

3.3 Value for money

Is ODPT good value for money? The answer depends entirely on context, which varies significantly by location, ODPT use-case and procurement methods utilised.

It's important to note that individual measures such as total scheme costs or average costs per boarding are meaningless in the absence of broader context.

Ultimately value for money will be determined by:

- what a given ODPT scheme is trying to achieve
- how significant the benefits of providing the scheme are
- how effective the scheme is designed and how well it preforms
- how much the scheme costs to provide, and;
- whether there are more effective ways of meeting community needs.

3.3.1 Principles for assessing and improving value for money

Waka Kotahi intends to develop nationally consistent guidance and methods for monitoring and assessing value for money in relation to ODPT schemes in New Zealand.

The guidance and methods are proposed to be developed based on the following principles:

a) ODPT schemes need to be assessed relative to the purpose and context for the which the service is intended to be provided, which can vary significantly by region, location and use case

b) ODPT performance data will be collected across all ODPT schemes that are co-funded from the NLTF in accordance with nationally consistent measures. The measures will at a minimum relate to:

- customer experience elements such as:

  wait times

  walking distances

  requests not fulfilled

  satisfaction survey (via standard annual public transport survey)

  accessibility metrics
- passenger boarding metrics
  - shared trip/aggregation metrics
- service reliability metrics
- technology platform performance metrics
- financial metrics
- key learnings

c) to the extent possible and appropriate, information and learnings will be:

- grouped into comparable use cases
- made accessible to all sector participants in New Zealand on an open basis for the purposes of supporting ongoing improvement to all elements of ODPT service provision overtime

Engagement questions

6) Do you agree with the high-level context for considering value for money in relation to OPPT schemes?

7) Do you have any feedback regarding the proposed principles and approach to underpin further work to develop guidance and methods for monitoring and assessing value for money?

8) Can you recommend ODPT performance metrics that should be nationally consistent?

3.4 Allocation of on-demand public transport services into units

Under section 120 of the LTMA, PTAs must identify services integral to the network and arrange those services into units in RPTPs.

The LTMA Bill 2023 enables unscheduled ODPT services to be considered integral and includes a requirement to outline the geographic area, and hours of operation for unscheduled integral services in RPTPs.

The process and rationale for allocation of on-demand services into units is the same as that of fixed route public transport services. It will ultimately depend on regional context, network design, supplier market dynamics, consultation with stakeholders, and a PTA's procurement strategy.

For clarity ODPT services can be allocated:

- into standalone units and those units may overlap with geographic service catchments of other units
- into units that combine both fixed route and on-demand services and those units may overlap with geographic service catchments of other units
- the operation of any unit could be outsourced or delivered in-house by a PTA.

3.4.1 Unit contract pricing elements

ODPT services need to be priced differently to fixed route services due to the variable nature of service delivery. ODPT pricing elements include:

- Fixed cost elements - Provision of ODPT services necessitate a base level of investment in relation to vehicles, technology platforms and labour. These elements will remain constant regardless of how much the scheme is utilised (fixed costs). The total quantum of fixed costs for a given ODPT scheme can be determined ahead of service provision, such as at the time of tendering for a contract, and
- Variable cost elements - Costs relating to energy (electricity/diesel), vehicle wear and tear and (in some cases) ODPT technology platform costs will vary depending on the operating parameters and actual passenger utilisation (variable costs). The total quantum of variable costs can be estimated but not known ahead of actual service provision.

Unit contracts that have a combination of fixed route and ODPT service types will need to accommodate different methods of pricing service level variations.

All unit contracts should include variation frameworks that allow, where appropriate, on-demand services to transition between operating modes, including to fixed route service and vice versa.

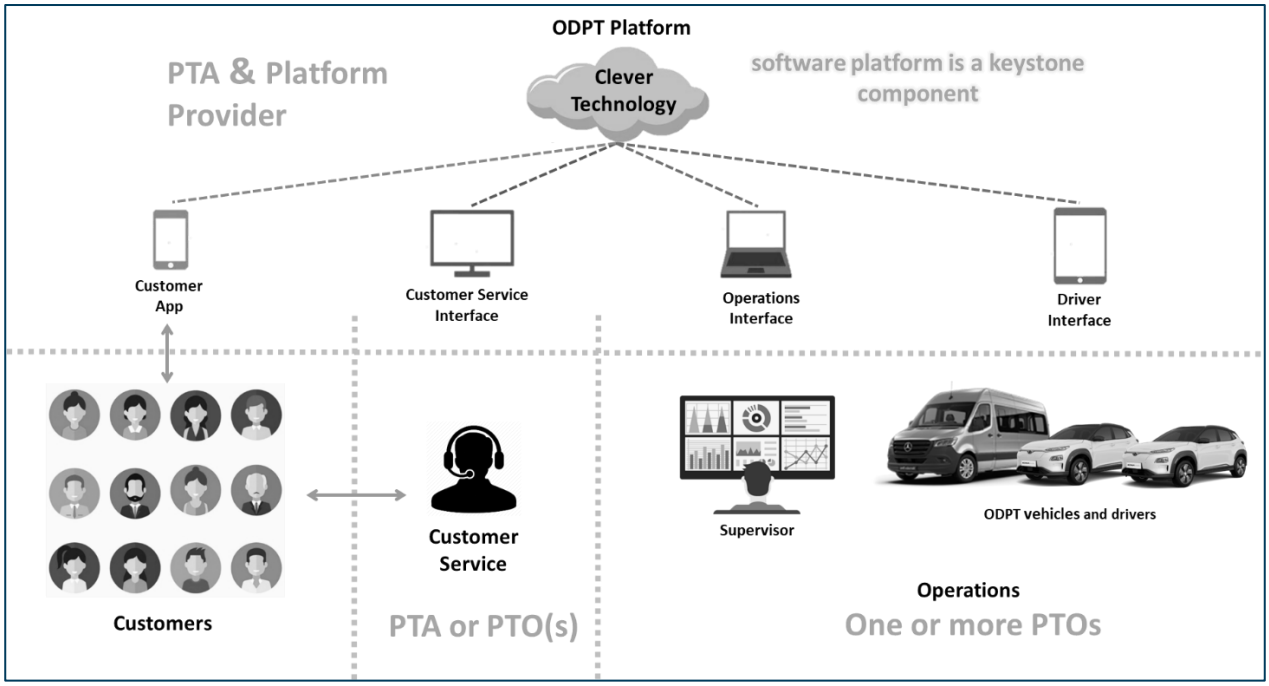
Engagement questions

9) Is the high-level guidance regarding allocation of ODPT services in units and unit pricing elements useful? If not, how could it be improved?
10) Are there other matters should be considered?

4 ODPT key components and procurement approaches

The diagram below outlines key components that enable delivery of an ODPT scheme. The remainder of this section outlines key considerations relating to:

- technology platform
- ODPT vehicles



4.1 ODPT technology platforms

4.1.1 Platform supplier market

There are a range of third-party software providers that specialise in the provision of end-to-end ODPT platforms (customer interfaces through to vehicle dispatch).

These providers are competing in a global market, are continuously improving their products and are willing and able to support deployments in New Zealand. The platforms are typically offered on a software as a service basis. Utilising these platforms is likely to represent good value for money (depending on context).

There are other considerations relating to platform interoperability and procurement approaches that Waka Kotahi is yet to form a view on and wishes to receive advice from the sector.

4.1.2 National context and key risks for consideration

For context there are 14 PTAs in New Zealand, each PTA:

- currently contracts with one or more PTOs for the delivery of services
- could have multiple ODPT schemes within each region
- could use different technology platforms across different ODPT schemes within the same region.

In the absence of a coordinated approach across New Zealand, the platform environment could become excessively complex and potentially confusing for customers.

Furthermore, once implemented, customers and PTAs can become highly dependent on a particular product, which can be difficult to change or cost effectively improve over time. This could create the potential for vendor capture and could result in reduced value for money.

Waka Kotahi is seeking sector feedback to help inform policy development with respect to:

- Platform interoperability
- Procurement approaches.

4.1.3 Technology platform interoperability

Platform interoperability can reduce the risk of supplier capture and can be good for customers. However, achieving interoperability may be challenging, time consuming and expensive. It's also unclear whether interoperability fits well with the commercial models of platform providers.

Engagement questions

11) To what extent can or should ODPT be interoperable between different PTA provided ODPT schemes within the same region?
12) To what extent can or should ODPT be interoperable between different PTA provided ODPT schemes throughout NZ?
13) To what extent can or should ODPT be interoperable with other transport options beyond PTA provided ODPT schemes, such as commercial micro-mobility options, commercial taxi / ridesharing services and community transport options?

4.1.4 Platform procurement approaches

To help inform the development of strategy and policy, Waka Kotahi is seeking feedback on potential procurement approaches for ODPT technology platforms. The following outlines some potential high-level approaches for discussion purposes:

- Each PTA determines its own method for procuring ODPT technology, this may include deferring responsibility to their contracted PTO(s).
- A national ODPT supplier panel is established with a basic set of common standards that make it easier for PTAs to switch between suppliers with minimal disruption for customers with the aim of enabling competitive tension among suppliers on an ongoing basis.
- National ODPT technology standards are developed, and PTAs can procure any outputs from any ODPT technology provider, provided the supplier meets the standards and the solution represents value for money.

Engagement questions

14) Who is best placed to procure ODPT technology and why, PTAs, PTOs or other?
15) Do you have any feedback regarding the high-level approaches outlined above in relation to platform procurement?

4.2 Fare payment methods, polices and ticketing systems

ODPT technology platforms typically come with in-app payment methods. However, not all passengers are comfortable with such payment methods which can create barriers to utilising ODPT for some.

Where ODPT is forming part of the of an integrated public transport network (as opposed to a standalone solution) it is highly desirable for have integrated fare payment policies, methods and pricing across all public transport modes and services to form a cohesive network.

To help inform future development of guidance and potentially policy, Waka Kotahi wishes to receive key insights and learnings to date from the sector regarding ODPT and fare payment methods.

Engagement questions

16) For stakeholders that have been involved with the establishment and operation of ODPT trials to date, what have been the key learnings / insights thus far regarding fare payment policies and payment methods?
17) What are the key considerations from a passenger perspective?
18) Is it essential for all ODPT schemes to be integrated with regional fare payment, policies and ticketing systems?
19) Are there scenarios where ODPT should not be / or does not need to be integrated with regional fare payment, policies, and ticketing systems?

4.3 ODPT vehicles

4.3.1 Vehicle types

ODPT vehicles tend to be smaller vehicles such as minibuses, passenger vans and cars. While the potential exists for marine based ODPT, the focus of this discussion document is on land-based vehicle options. The images below illustrate some examples of vehicles utilised to provide ODPT trial services in New Zealand to date.

For this discussion document, ODPT vehicles can be categorised as follows:

- Light passenger vehicles that are mass produced for the consumer market generally (refer images A, B and C below).
- Requirements for Urban Buses in New Zealand (RUB) compliant minibuses. These vehicles are designed and built specifically for the provision of public transport services (refer images D, E and F below).

4.3.2 Advantages and disadvantages

The two vehicle categories (light passenger vehicles and RUB compliant minibuses) have different advantages and disadvantages.

	Advantages	Disadvantages
Standard vehicles	• Have a lower capital cost • Low / no risk of becoming a stranded asset if an ODPT scheme is discontinued	• Are typically not accessible for people with wheelchairs / mobility aids / prams etc • By law, all children under seven years of age must use an approved child restraint appropriate for their age and size. The absence of appropriate child restraints can render the vehicle inaccessible for persons under seven and consequently their accompanying caregiver • Cannot be used for other public transport network purposes, such as

		for the provision of fixed route services • Vehicles may not be suitable for intensive use and be prone to wear and tear.
RUB compliant minibuses	• Are accessible for people with wheelchairs / mobility aids / prams etc • Do not require approved child restraints and are therefore readily accessible to people of all ages • Can be used for other public transport network purposes, such as for the provision of fixed route services	• Significantly higher capital cost compared with light passenger vehicles • Have some risk of becoming a stranded asset if an ODPT scheme is discontinued

4.3.3 Accessibility implications

Any contracted public transport service that is not accessible to people with wheelchairs, mobility aids, and prams and/or cannot accommodate people below a certain age, is not fit for purpose.

To be eligible for funding from the NLTF, ODPT schemes must use RUB compliant (accessible) vehicles.

PTAs can seek an exemption to RUB and provide a mixed fleet of accessible and non-accessible vehicles provided it can be demonstrated that:

a) the ODPT scheme can reliably prioritise and dispatch accessible vehicles to people that require an accessible vehicle, and;
b) people that require an accessible vehicle will receive an equivalent or better level of service compared to people that can utilise any vehicle type

For the avoidance of doubt, an ODPT scheme that consists entirely of non-accessible vehicles would not be eligible for funding from the NLTF.

Engagement questions

20) Do you agree with Waka Kotahi's proposed position relating to vehicle accessibility and eligibility for funding from the NLTF, if not why?
21) What other factors that should be considered with respect to OPDT vehicles and accessibility?

4.3.4 Safety considerations

In principle ODPT vehicles should at least have the equivalent driver and passenger safety features to that of standard buses, this includes features such as CCTV, duress alarms and where appropriate driver safety screens.

Waka Kotahi is also considering:

- updating RUB to mandate the provision of seatbelts in RUB compliant minibuses/very small buses.

Waka Kotahi also wishes to receive sector views relating to:

- PTA policy regarding unaccompanied minors on public transport
- Requirements relating to bus driver vetting and background checks

Engagement questions

22) Do you agree that ODPT vehicles should at least have the equivalent driver and passenger safety features to that of standard buses?
23) Do you agree that seatbelts should be mandatory in RUB compliant minibuses / very small buses, if not why?
24) Are there other safety considerations that should be considered with respect to ODPT vehicles?
25) Do PTAs have existing policy relating to unaccompanied minors on public transport and should unaccompanied minors on ODPT be treated any differently?
26) Is a higher standard of vetting / background checks warranted for ODPT drivers compared processes that checks that apply to fixed routes urban bus drivers, if so why, and what standards should apply?

4.3.5 Vehicle versatility and value for money

RUB compliant minibuses can be used for other public transport network purposes beyond ODPT, such as for the provision of fixed route services. This combined with accessibility considerations may mean that RUB compliant minibuses will represent better value for money in many cases, despite the higher cost compared with light passenger vehicles.

4.3.6 Stranded asset risk

From a PTO's perspective, a RUB compliant minibus may not have an obvious use or market for sale outside of a public transport contract with a PTA. In the event an ODPT scheme is discontinued, or a contract has a relatively short term, there is a risk that a RUB compliant minibus could become a stranded asset and may attract a price premium compared to a scenario where the risk is mitigated. The extent and circumstances under which this is a risk worth addressing is unclear. Feedback from the sector is sought on this topic (refer to engagement questions).

Engagement question

27) Is there a risk that ODPT vehicles such as RUB compliant minibus could become a stranded asset, if yes, is the risk significant enough to require mitigation and if so how?

4.3.7 Zero emission ODPT vehicles

Consistent with the principles of SPTF, the 2025 zero emission RUB mandate will apply to all ODPT vehicle types, whether RUB compliant or otherwise. This would mean all new ODPT vehicles from 2025 onwards must be zero emission to be eligible for funding from the NLTF.

Whilst zero emission buses are available at increasingly competitive prices compared to equivalent fossil fuel options, the same is not currently true for RUB compliant minibuses and, to a lesser extent, light passenger vans.

While limited options exist, RUB compliant zero emissions minibuses are not produced on the same scale as larger urban buses. Consequently, the per vehicle cost may be high relative to other vehicle options and could materially increase the overall cost of providing an ODPT scheme.

Strict adherence to the zero-emission mandate for ODPT vehicles may mean that potential ODPT schemes are uneconomic in more instances than they otherwise would be.

PTAs can seek an exemption to the zero emission RUB mandate (in so far as it relates to ODPT vehicles) provided it can be demonstrated that every reasonable effort has been made to source suitable zero emission ODPT vehicles.

For the avoidance of doubt, reasonable effort includes requesting zero emission vehicle options when tendering for ODPT service contracts.

Engagement question

28) Do you agree with Waka Kotahi's proposed approach relating to the application of the 2025 zero emission RUB mandate to ODPT vehicles. If not, why?

5 Total Mobility

ODPT services can potentially provide a similar service offering to that of the Total Mobility scheme. To help inform the development of strategy and policy, Waka Kotahi wishes to receive feedback on potential synergies or otherwise of PTA provided ODPT schemes and Total Mobility?

Engagement question

29) To what extent could ODPT complement and/or replace Total Mobility services?

6 Other matters

Engagement question

30) Are there any other matters not addressed in this document that you consider relevant?