
Higher Mass Limits Schemes



**Schemes using the Telematics Monitoring Application
(TMA)**

July 2021

www.tca.gov.au

Title	Higher Mass Limits Schemes
Document No.	TCA-SR11
Version	1.2
Date	July 2021
Status	Published

© Transport Certification Australia Limited 2021.

This document has been published by Transport Certification Australia Limited.

This document is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any person or process without the prior written permission of Transport Certification Australia Limited.

Transport Certification Australia Limited believes this publication to be correct at time of printing and does not accept responsibility for any consequences arising from the use of information herein. Readers should rely on their own skills and judgment to apply information to particular issues.

TCA™, Transport Certification Australia™, National Telematics Framework™, TCA Certified™, TCA Type-Approved™, Intelligent Access Program™, IAP®, IAP Service Provider™, IAP-SP™, In-Vehicle Unit™, IVU™, On-Board Mass™, OBM™, Telematics Monitoring Application™, TMA™, Road Infrastructure Management™, RIM™, Intelligent Mass Monitoring™, IMM™, Intelligent Mass Assessment™, IMA™, Intelligent Location Monitoring™ and ILM™ are trademarks of Transport Certification Australia Limited.

Transport Certification Australia Ltd
T: +61 3 8601 4600
E: tca@tca.gov.au
W: www.tca.gov.au
ABN 83 113 379 936

About Us

Transport Certification Australia (TCA) is a national organisation that provides assurance services relating to transport technologies and data to enable improved public purpose outcomes from road transport.

Priority outcome areas enabled by TCA services include improved road safety, transport efficiency, freight productivity, asset management and sustainability.

Key aspects of TCA include:

- An independent not-for-profit entity, with government oversight
- Administration of the National Telematics Framework, including its rules, specifications, agreements, digital infrastructure and other supporting services
- Assurance services that support but are appropriately separated from regulators, policy makers and enforcement activities, and underpin telematics applications and associated information and data services
- Advice that is based on evidence and a deep subject matter knowledge
- Trusted partner to both government and industry stakeholders, enabling a nationally consistent open market, with services covering all road vehicle types and associated digital infrastructure.

Contents

1	Introduction	5
1.1	Purpose	5
1.2	Scope	5
1.3	Background	5
2	Higher Mass Limits Schemes	6
2.1	Participants	6
2.2	Common Scheme Features	7
2.3	Key Scheme Processes	9
2.4	Roles and Responsibilities	12

Appendices

A	Acronyms and Definitions	14
B	Higher Mass Limits Scheme—Transport for NSW	17

1 Introduction

1.1 Purpose

This document describes Higher Mass Limits (HML) schemes associated with the Telematics Monitoring Application (TMA). An HML scheme is administered by an appropriate road authority and/or regulator ('Authority').

1.2 Scope

This document describes HML schemes and how they will be used with the TMA application

The following information is included:

- parameters of HML schemes;
- key processes of HML schemes;
- roles and responsibilities of HML scheme participants; and
- scheme descriptions in appendices, organised by Authority.

1.3 Background

Higher Mass Limits schemes provide Authorities with a way to use telematics to manage the operation of vehicles loaded to higher mass axle limits.

To participate in an HML scheme, an Operator (e.g. a transport operator) must conform with the requirements specified within an instrument of access approval (for example, a Notice, permit or guideline). Vehicles being utilised in accordance with the instrument of access approval must be enrolled in the TMA application.

The TMA application is an application of the National Telematics Framework and is offered at Level 2 Assurance (see Appendix A for a definition of Level 2 Assurance).

The use of the TMA application for the HML scheme provides identifiable vehicle data of enrolled vehicles.

Note: The TMA application can be used for a variety of purposes. In this document, TMA is described in the context of the scheme.

Enrolment in the TMA application is performed by the Application Service Provider (ASP) selected by the Operator.

The ASP is responsible for

- the installation of a TCA-approved telematics device in the vehicle being utilised in accordance with the instrument of access approval; and

Note: Approval may be in the form of type-approval or an equivalent approval mechanism acceptable to TCA. The ASP must meet applicable requirements in the functional and technical specification, irrespective of the approval mechanism.

- the collection of data from vehicles enrolled in accordance with the requirements of the TMA application for the scheme.

TCA makes reporting available to the Authority via the Telematics Analytics Platform (TAP).

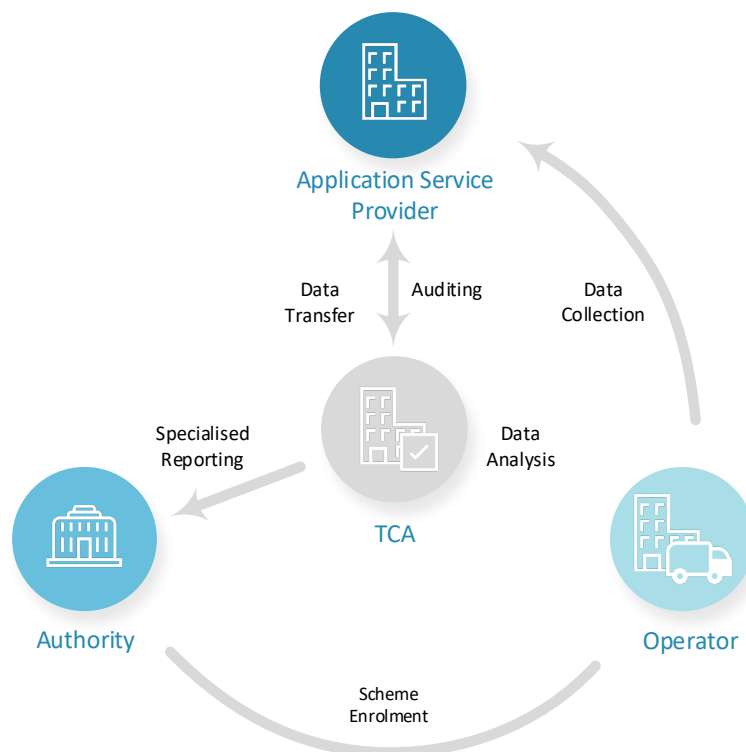
2 Higher Mass Limits Schemes

2.1 Participants

Figure 1 outlines the key interactions between participants for the use of the TMA application for an HML scheme:

- The Authority, as the administrator of the scheme, requires the monitoring, with reporting, of the Operator's vehicle(s) as a condition of the Authority allowing the Operator and its vehicle(s) to participate in the scheme. The Authority may conduct compliance activities as necessary.
Note: The functions associated with an Authority may involve a road authority or regulator, or both, as applicable to the scheme.
- Operators are vehicle operators that agree to enrol vehicles in the scheme, and consent to their data collected through the TMA application to be used for the intended purpose (as defined by the Authority and agreed to by the Operator in the ASP–Transport Operator Agreement).
- ASPs, certified by TCA, offer telematics services (hardware, software and associated processes) to enable enrolment of eligible vehicles in the TMA application (as well as other applications available within the NTF), collection of data from installed telematics devices, and reporting of data to TCA.
- TCA administers the TMA application and its schemes within the NTF, ensuring that data security and privacy concerns are managed. TCA receives vehicle enrolment details from Operators via ASPs, and makes ASP–Transport Operator Agreements available to participants. TCA also receives telematics data from ASPs, performs data analysis, and makes standard and specialised reporting available to the Authority via TAP as agreed between the Authority and TCA, and in accordance with the intended purpose as agreed by the Operator in the ASP–Transport Operator Agreement.

Figure 1: Scheme Participants and Key Interactions



Note: Interactions between scheme participants are consistent with interactions between TMA application participants, and are not specific to the scheme.

2.2 Common Scheme Features

This section describes the common features of an HML scheme. It includes optional features of the TMA application that may be utilised by an HML scheme. For information on features that are specific to an HML scheme, refer to scheme descriptions in the appendices of this document.

a. ASP Certification

TCA will certify ASPs to provide services for the TMA application.

b. Enrolment

ASPs will enrol vehicles in the TMA application and HML scheme at the request of the Operator.

The ASP will manage key steps of enrolment including approval, and as necessary, cancellation and replacement.

Note: Operators are expected to be more inclined to have their vehicles monitored through the TMA application based on the Authority transparently communicating the intended use of the TMA application, and obtaining assurance and safeguards from TCA that data collected through the TMA application will not be used for other, undisclosed purposes (such as compliance and enforcement).

Figure 2 shows the pre-enrolment steps for an HML scheme.

Figure 3 shows the reporting processes for an HML scheme.

Figure 4 shows the enrolment cancellation and reporting processes for an HML scheme.

c. Devices and Data Collection

The device used in the TMA application is a telematics device, approved by TCA for use at Level 2 Assurance or higher.

The telematics device will collect:

- position data at 30-second intervals (or as approved by TCA); and
- date and time data.

The following apply **only** if required by a scheme:

- If vehicle configuration and mass data is required, the data will be collected from vehicles with TCA-approved Category B or C OBM systems installed. The OBM system shall collect the data at 5-minute intervals.

Note: OBM systems are unable to provide reliable axle mass readings when a vehicle is in motion. The collection of mass records every 5 minutes is specifically for data analysis and the identification of possible changes to the load of a vehicle category.

- If self-declared data is required, self-declared data is manually entered via a user interface provided by the ASP.

Note: Refer to the scheme descriptions in the appendices of this document to determine whether the scheme requires these optional features.

d. Data Reporting

The ASP shall transfer data records collected through TMA to TCA no less frequently than each calendar month, and as described in *Telematics Business-to-Business Data Exchange Functional and Technical Specification*.

e. Data Analysis and Reporting

TCA will make data analysis and reporting for the scheme available to the Authority through TAP.

Through TAP, the Authority will have access to:

- interactive maps, which represent data collected as part of the scheme; and
- specific reporting required for scheme management (refer to the scheme description for examples).

Note: The type, number and frequency of specific reporting will be subject to agreed terms reached between TCA and the Authority.

The use of TMA for this scheme is intended to provide a basic representation of individual and identifiable vehicle movements based on the data collected and the use of data for the intended purpose (as agreed by the Operator in the ASP–Transport Operator Agreement).

The Authority will manually review the operation of vehicles (through TAP) against the approved road network. TCA does not offer automated exception reporting to assess whether a vehicle has not met access conditions granted by the Authority.

A Scheme Participation Report will be made available to the Authority on a monthly basis via TAP. This report may include the following standard measures and dimensions as shown in Table 1.

Table 1: Scheme Participation Report

Report Content	Examples
Aggregated measures	<ul style="list-style-type: none">• Count of all vehicles enrolled in the scheme• Count of vehicles enrolled in the scheme that TCA received data from• Vehicles participating in the scheme that TCA did not receive data from for at least 30 consecutive days <p><i>Note: Reporting of this measure will include vehicle identities. An enrolled vehicle will only be included in this measure if, without a satisfactory explanation, it has not provided data for at least 30 consecutive days.</i></p> <ul style="list-style-type: none">• Count of Operators with vehicles enrolled in the scheme• Count of ASPs reporting data for vehicles enrolled in the scheme
Dimensions	<ul style="list-style-type: none">• Operator• ASP

2.3 Key Scheme Processes

Figure 2 outlines the key actions taken by each participant during the pre-enrolment stage of the operation of an HML scheme.

Note: This process assumes that TCA has already certified the ASP to provide TMA services.

Figure 2: Pre-Enrolment Process

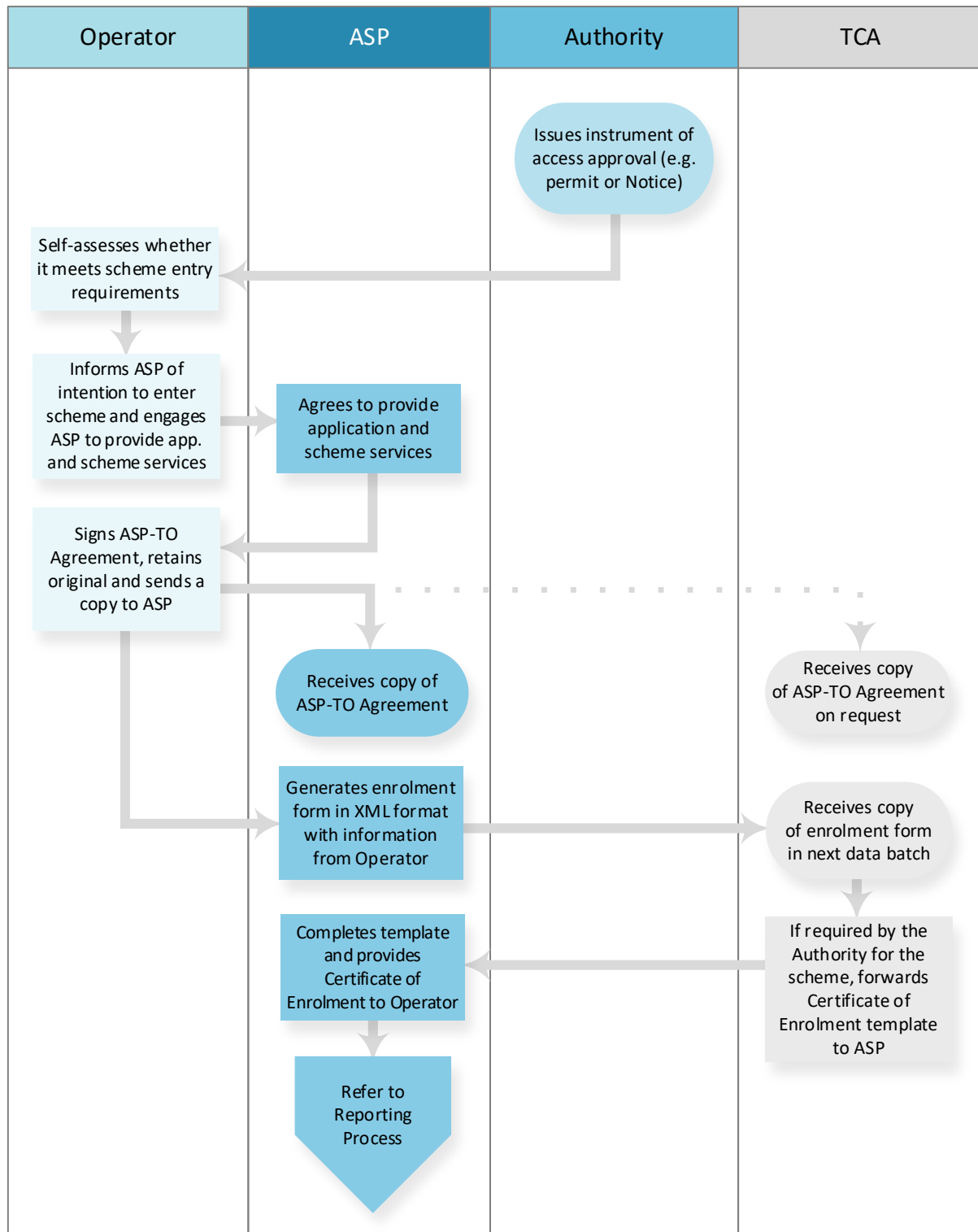
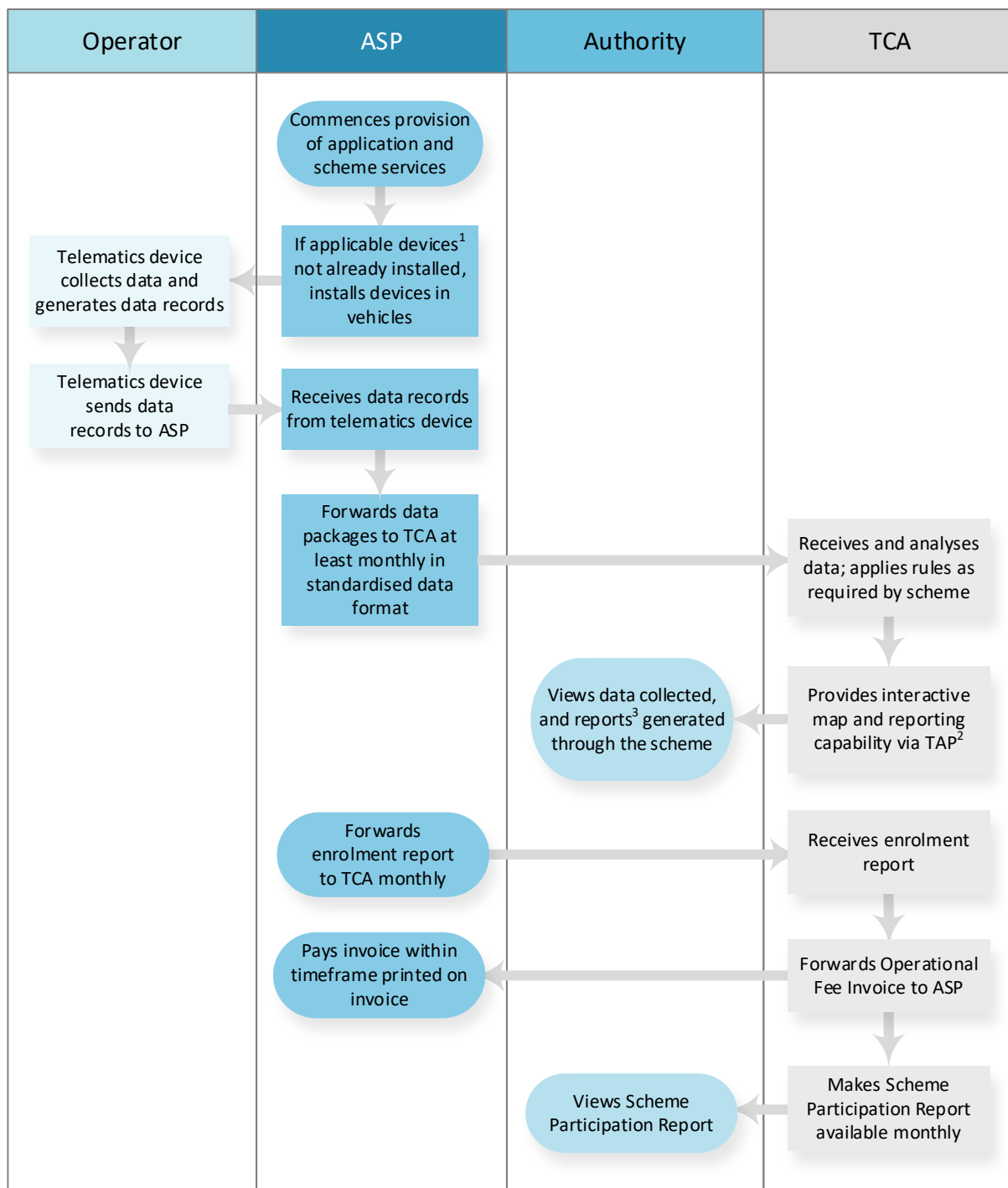


Figure 3 outlines the key actions related to data collection, record generation and reporting.

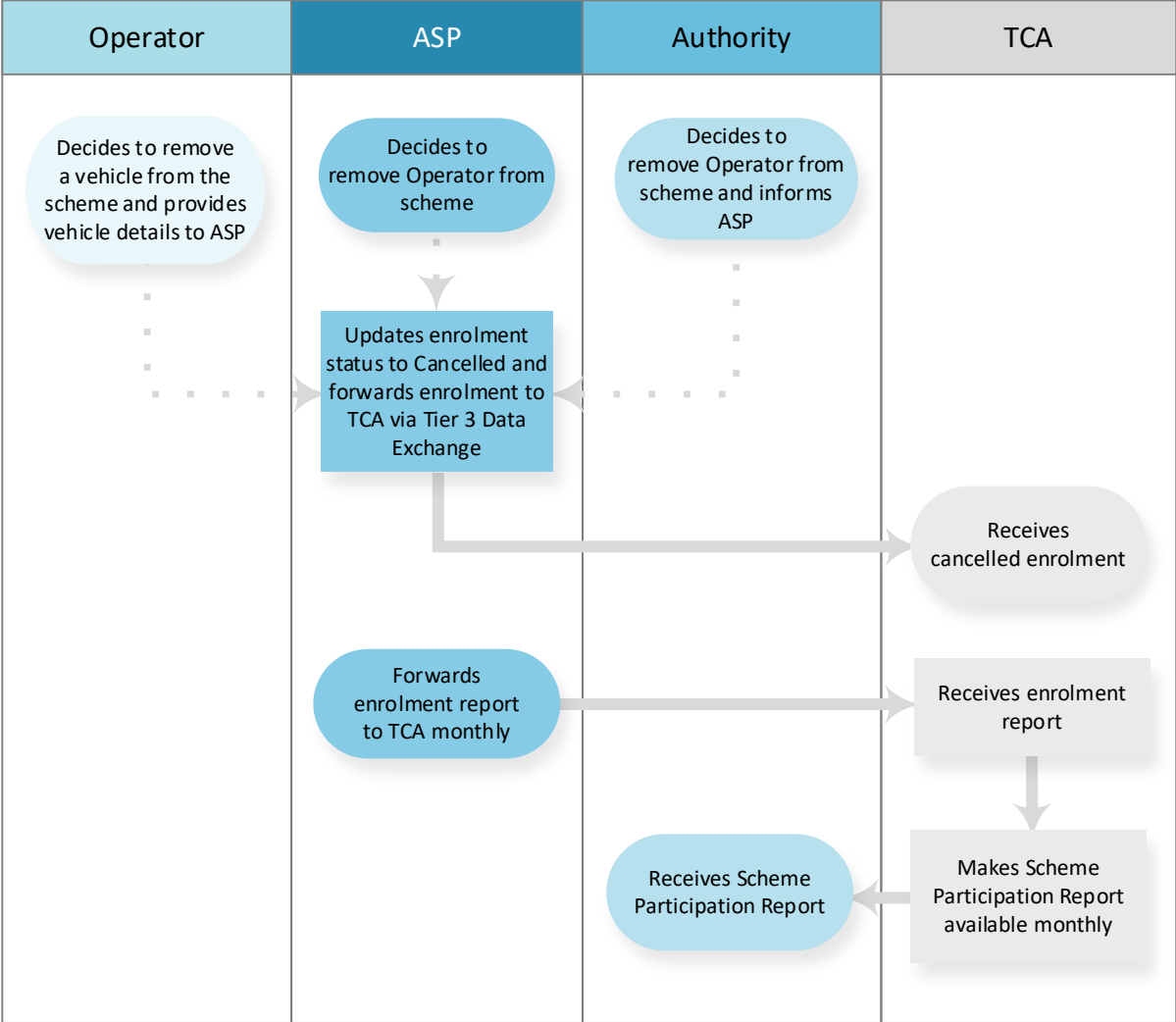
Figure 3: Reporting Processes



- Applicable devices include a TCA-approved telematics device, and:
 - If mass and vehicle configuration will be collected, a TCA-approved OBM system at Category B or C; and/or
 - If comments are self-declared, a user interface connected to the TCA-approved telematics device.
- Data will be updated at least monthly.
- The Authority will nominate the locations that will be subject to location-based reports (subject to agreed terms). If applicable to a scheme, a regulator may also have access to scheme data and reports via TAP.

Cancellation of enrolment may be initiated by the Operator, the Authority or the ASP.
Figure 4 outlines the key actions to discontinue enrolment of a vehicle in the scheme.

Figure 4: Enrolment Cancellation and Reporting Processes



2.4 Roles and Responsibilities

In delivering the objectives of an HML scheme, **TCA** will:

- provide a document (this document) describing the use of the scheme as part of the TMA application;
- produce or maintain collateral, as necessary, to support the scheme. Examples include the provision of current versions of:
 - *Telematics Monitoring Application Functional and Technical Specification*;
 - *Telematics Business-to-Business Data Transfer Functional and Technical Specification*;
 - *Telematics Device Functional and Technical Specification*;
 - (as required by a scheme) *On-Board Mass System Functional and Technical Specification*;
 - (as required by a scheme) *Interconnectivity of Telematics Device with Other Systems Functional and Technical Specification*.
- support the reporting of data records via Tier 3 Data Exchange using a RESTful API, with these records formatted using JSON;
- support the reporting of enrolment forms and enrolment reports using a RESTful API, with these documents formatted using XML;
- inform ASPs of the scheme details and entry conditions;
- produce an ASP–Transport Operator Agreement for use with the scheme and make it available from the TCA website;
- ensure that TAP is set up to enable the Authority to access reporting generated by the scheme (in accordance with the intended purpose as agreed by the Operator in the ASP–Transport Operator Agreement), and any malfunctions associated with vehicles enrolled in the scheme;
- maintain the cloud environment and databases, etc. for receipt of data records from the TMA application;
- produce and execute an ASP–TCA Certification Agreement, which formalises the relationship between TCA and the ASP with regard to ASP certification, or update the current Agreement;
- assess and certify whether an ASP meets requirements to provide TMA services;
- approve applicable devices used in the scheme;
- ensure the intellectual property rights of ASPs are protected when assessing whether an ASP can meet operational requirements of the scheme;
- if required by the Authority, provide certified ASPs with the Certificate of Enrolment template;
- at the end of each month, forward Operational Fee Invoices to ASPs upon receipt of enrolment reports;
- with the ASP, monitor via TAP whether a device malfunction has been resolved within agreed timeframes;
- notify the ASP when data from an enrolled vehicle has not been received for one month, followed by the Authority if unresolved;
- provide the Authority with reporting outlined in 2.2e via TAP;
- ensure the confidentiality of ASP data is maintained; and
- unless directed by the Authority and consented to by the Operator, de-identify the TMA telematics data it has received relating to the Operator’s nominated vehicle(s) 12 months from its receipt of the data.

The Authority will:

- maintain policy documentation required by the Authority for the scheme;
- undertake program coordination activities related to the scheme with TCA;
- monitor whether device malfunctions have been resolved within agreed timeframes;
Note: TCA will notify the ASP when data has not been received for one month, followed by the Authority if unresolved.
- access reporting outlined in 2.2e via TAP, and review data trends and numbers of enrolled vehicles;
- conduct compliance activities as necessary; and
- in conjunction with TCA, communicate scheme-related policy changes to industry and stakeholders.

Note: The functions associated with an Authority may involve a road authority or regulator, or both, as applicable to the scheme.

ASPs will:

- interact with TCA to manage the delivery mechanism for provision of data packages to TCA (noting that a data package includes data records, enrolment forms and enrolment reports);
- receive notification from Operators regarding the enrolment status of vehicles in the scheme, and forward this information to TCA using an agreed mechanism on a monthly basis;
- provide the ASP–Transport Operator Agreement to an Operator once an agreement to provide services for the scheme has been made;
- be responsible for the installation, operation and maintenance of telematics devices and the reporting of data received from those devices;
- if required by the Authority, provide Certificates of Enrolment to enrolled Operators, using the template received from TCA, and coordinate their removal from vehicles no longer enrolled in the scheme;
- pay Operational Fee Invoices received from TCA, generated upon receipt of enrolment reports, within the timeframe shown on the invoice;
- in the event of a device malfunction: liaise with the Operator and/or device supplier to resolve the issue; report the malfunction (unidentifiable) to TCA within the required time period; monitor via TAP whether the device malfunction has been resolved within agreed timeframes; and notify TCA when the malfunction has been resolved;
- provide back office capability to process collected data records as required by the scheme; and
- deliver data records to TCA, using agreed data delivery mechanism, required data formats and meeting data reporting requirements.

Operators will:

- access scheme rules and entry conditions on the Authority website (or other website as applicable, such as the National Heavy Vehicle Regulator) and determine whether they meet those conditions;
- access the instrument of access approval and ensure compliance with its requirements for the scheme;
- upon self-assessment that scheme entry conditions are met, notify the ASP of its intention to enrol in the scheme;
- agree to share data collected by its ASP with TCA for the scheme using a signed ASP–Transport Operator Agreement;
- follow rules for enrolment in the scheme;
- store original signed ASP–Transport Operator Agreement and forward copies to the ASP and TCA (on request);
- install telematics devices and engage an ASP to provide services for the scheme; and
- notify the ASP of the date that a vehicle or the Operator will no longer participate in the scheme.

A Acronyms and Definitions

Acronyms

Acronym	Definition
API	application programming interface
ASP	Application Service Provider
FTPS	File Transfer Protocol Secure
HML	Higher Mass Limits
NTF	National Telematics Framework
OBM	on-board mass
TAP	Telematics Analytics Platform
TMA	Telematics Monitoring Application
TO	transport operator

Definitions

Term	Definition
application	A capability of the NTF that provides business value to stakeholders, delivered as an assembly of policy, business components and technical components, within in the context of an identified level of assurance.
Application Service Provider (ASP)	A service provider that has been certified by TCA as meeting the requirements of one of more telematics applications.
approval mechanism	The mechanism by which TCA approves a device, such as a telematics device or connected device, for use in a telematics application. The approval mechanism used may be type-approval, or an equivalent approval mechanism acceptable to TCA.
ASP–TCA Certification Agreement	The written agreement made between TCA and an ASP that recognises the fact that the ASP, having satisfied TCA’s requirements for appointment as an ASP, is appointed in that capacity, and sets out the legal obligations of each party with respect to the ongoing role of the ASP.
ASP–Transport Operator Agreement	A written agreement between an ASP, an Operator and TCA which sets out the terms on which the ASP will provide application services to the Operator, and the intended purpose for collecting data from the Operator’s vehicle(s) enrolled in the scheme.
Authority	An entity, associated with a jurisdiction, responsible for the administration of one or more NTF applications, and compliance activities as necessary. An Authority may appoint an administrator to perform its functions. <i>See also: jurisdiction.</i> <i>Note: The functions associated with an Authority may be involve a road authority or regulator, or both, as applicable to the scheme.</i>
connected device	Any device or technology connected to a telematics device.
data collection period	A whole number of days in the UTC time zone for which all application data is provided. Successive data collection periods are contiguous.
data package	A package of information sent via Tier 3 Data Exchange for a data collection period
data record	A discrete and defined set of data elements, generated by a device.
enrolment	Both the process and outcome by which an Operator enters an Authority’s scheme. Each vehicle must be enrolled for each scheme it participates in. Enrolment also confirms the application and conditions (if applicable) that the vehicle is monitored under.
enrolment form	An electronic document that formally and simultaneously records the enrolment of a vehicle within a scheme, and within the application required by that scheme.
enrolment report	A summary of enrolments relevant to a given Authority for a specified reporting period, including any aggregated data required by specific applications.
jurisdiction	A geographical area containing a road network (i.e. typically an Australian state or territory).
level of assurance	An assurance level that supports telematics applications, structured around the intended use of a telematics application, risks being managed, and the needs and expectations of consumers and other stakeholders.
Level 2 Assurance	Independent assessment of specific elements of a telematics application. Telematics data is combined with other data sources.

Term	Definition
OBM system category	<p>A category of OBM system that is defined as follows:</p> <ul style="list-style-type: none"> Category A – OBM systems in this category electronically display collected data to drivers and/or loaders Category B – OBM systems in this category also collect data and transfer the collected data to a device using a mechanism agreed and implemented by the ASP and supplier of the OBM system Category C – OBM systems in this category collect data and transfer data records in a standardised way to a telematics device (in accordance with <i>Interconnectivity of Telematics Device with Other Systems Functional and Technical Specification</i>).
Operator	An entity that operates one or more vehicles eligible to enter a scheme.
Regulator	In the context of a scheme, an entity that provides regulatory and/or legislative context for the scheme, and may conduct compliance activities as applicable to the scheme.
scheme	The generic term for a specific use of an application linked to delivering a policy objective.
self-declaration	The self-declaration of data by an Operator and/or its nominated representative to the ASP.
telematics device	The primary telematics unit which monitors vehicle parameters.
Tier 1 Data Exchange	A web services solution where structured information is exchanged that complies with requirements such as authentication, security, privacy and certainty of delivery. It includes exchanges of information related to a vehicle's enrolment in telematics applications, conditions and adherence to those conditions.
Tier 2 Data Exchange	The human-initiated (rather than automated) exchange of business-related information and advice. Typical exchanges via this tier include reporting of issues and resolutions, correspondence regarding certification and re-certification, advice regarding information and communications technology (ICT), data assurance and other reporting.
Tier 3 Data Exchange	The packaging and delivery of data packages, comprising data records and enrolment-related artefacts. Data packages have several uses which include data analysis by the recipient, data assurance, and for research purposes.
vehicle category	A named business-level description of a prime mover/rigid truck and any trailers as defined by a vehicle category dataset approved for use by TCA. Example: 'Semi Trailer 6 Axle'.
vehicle configuration	A technical representation of the on-road footprint of the vehicle (that is, the number and configuration of trailers and axle groups), and is determined using data from the OBM system and data supplied by the ASP. It is typically captured with axle group pattern notation, for example '2-44/S444' for the vehicle category of Semi Trailer 6 Axle.

B Higher Mass Limits Scheme—Transport for NSW

Purpose

The Higher Mass Limits Scheme—Transport for NSW (the scheme) is a scheme administered by Transport for NSW (TfNSW) to enable eligible vehicles to operate at Higher Mass Limits (HML) on the NSW road network.

Background

The *New South Wales Higher Mass Limits Declaration 2020* (the Declaration) authorises the use of certain categories of heavy vehicles at Higher Mass Limits (HML) on stated areas and routes.

A condition of the Declaration is that Operators loading vehicles to HML in New South Wales must enrol in either the Intelligent Access Program (IAP) or the TMA application.

Note: The information which follows relates specifically to the use of the TMA application for the scheme. Information about the IAP is available at www.tca.gov.au/service-offering/intelligent-access-program.

TfNSW monitors vehicles enrolled in the scheme on routes as described in the Declaration and indicated on HML network maps. The maps are available on either of the following web pages, as applicable, on the TfNSW website:

- www.rms.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/index.html
- www.rms.nsw.gov.au/business-industry/heavy-vehicles/maps/road-train-map/index.html

Table B.1 lists vehicle categories that can be enrolled in the scheme.

Table B.1: HML Scheme for TfNSW – Applicable Vehicle Categories

Vehicle Categories	Key Dimension	Defined in
Short Combination	Up to 19 m	<i>New South Wales Higher Mass Limits Declaration 2020</i>
B-Double	Up to 26 m	<i>National Class 2 B-double Authorisation Notice 2019</i>
Modular B-Triple	Up to 35 m	<i>National Class 2 Road Train Authorisation (Notice) 2020, and the following TfNSW factsheets, as applicable:</i> <ul style="list-style-type: none">• <i>Modular B-triple access in NSW</i>• <i>Type 1 A-double access in NSW</i>• <i>B-triple access in NSW</i>• <i>AB-triple access in NSW.</i>
<ul style="list-style-type: none">• Type 1 Road Train• B-Triple• AB-Triple	Up to 36.5 m	

To participate in the scheme, Operators must comply with Heavy Vehicle National Law (HVNL), the Declaration and the following:

- Operators enrolling B-Double vehicles must also comply with the requirements contained in *National Class 2 B-double Authorisation Notice 2019* and the adjoining NSW schedule, which are available on the National Heavy Vehicle Regulator (NHVR) website.
- Operators enrolling Type 1 Road Train, B-Triple, Modular B-Triple and AB-Triple vehicles must comply with:
 - the requirements contained in *National Class 2 Road Train Authorisation (Notice) 2020*, the adjoining NSW schedule, which are available on the NHVR website
 - as applicable, a TfNSW factsheet listed in Table B.1, available on the TfNSW website.

Scheme Features

The following features are specific to the scheme:

a. Enrolment

The ASP provides Certificates of Enrolment to enrolled Operators, using the template received from TCA, and coordinates their removal from vehicles no longer enrolled in the scheme.

b. Devices and Data Collection

Vehicle configuration must be declared through a user interface provided by the ASP.

Other aspects of this scheme operate in accordance with generic HML scheme processes, such as ASP Certification, Enrolment, Data Reporting, and Data Analysis and Reporting. For more information, see 2.2.

Data Element Reference Values

Refer to the following when entering scheme name or Authority code values to an enrolment report or enrolment form:

Table B.2: HML Scheme for TfNSW – Scheme Name and Authority Code

Scheme Name (full)	Abbreviated Scheme Name (for enrolment report and form)	Authority Code
Higher Mass Limits Scheme—Transport for NSW	HMLNSW	NSW



Contact

Transport Certification Australia
Level 6, 333 Queen Street
Melbourne VIC 3000

Phone: + 61 3 8601 4600
Email: tca@tca.gov.au
Website: www.tca.gov.au
