TMA High Productivity Freight Vehicle Monitoring Scheme

A Scheme using the Telematics Monitoring Application (TMA) for the Department of Transport, Victoria

February 2022

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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.

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Important: This document describes the Telematics Monitoring Application (TMA) High Productivity Freight Vehicle (HPFV) Monitoring Scheme only. Eligible vehicles may be enrolled in the TMA HPFV Monitoring Scheme and/or the Intelligent Access Program (IAP) HPFV Monitoring Scheme. This document does not provide information on the IAP HPFV Monitoring Scheme other than the details shown in Appendix B.

Regarding scheme enrolment:

- *Location is monitored through enrolment in the TMA or IAP HPFV Monitoring Scheme, as selected by the Operator.*

- *Mass is monitored only through enrolment in the TMA HPFV Monitoring Scheme.*

1   Introduction

1.1   Purpose

The TMA High Productivity Freight Vehicle Monitoring Scheme is a scheme, administered by the Department of Transport (DOT), Victoria, to permit access of eligible high productivity freight vehicles (HPFV) on approved routes on the Victorian road network.

1.2   Scope

This document describes the TMA HPFV Monitoring Scheme and how it will be used with the Telematics Monitoring Application (TMA).

The following information is included:

- Scheme parameters;

- Key scheme processes; and

- Roles and responsibilities.

Note: This document does not provide information on the Intelligent Access Program (IAP) HPFV Monitoring Scheme other than the details shown in Appendix B.

1.3   Background

In Victoria, an HPFV is a heavy vehicle combination that exceeds 26 metres and/or has a gross combination mass (GCM) of more than 68.5 tonnes. A Quad-axle semi-trailer that exceeds 46.5 tonnes GCM up to a maximum mass of 50.5 tonnes GCM is also classified as an HPFV. Being larger allows more freight to be transported with less vehicles, reducing transportation costs and improving productivity.

Not all roads and road infrastructure can safely provide access to HPFVs that are longer than 26 metres and heavier than 68.5-tonnes. This can be as a result of bridges that have not been built to cater for the heavier HPFVs or the road geometry is not suitable for vehicles longer than 26 metres. As a result, eligible HPFVs are monitored on approved routes for parameters such as identity, date and time, location, derived speed, and vehicle configuration and mass. The approved route network is available on the DOT website.

Eligible HPFV vehicle categories are outlined in the information sheet *Victoria's High Productivity Freight Vehicle (HPFV) Networks*, available from the DOT website.

Eligible vehicles may enrol in the TMA HPFV Monitoring Scheme and/or the related IAP HPFV Monitoring Scheme (see Figure 1 and Appendix B, Tables B.1 and B.2).

If eligible vehicles are already enrolled in the related IAP scheme:

- Enrolment may be cancelled in the IAP scheme and commenced in the TMA HPFV Monitoring Scheme; or

- Enrolment may be retained in the IAP scheme and commenced in the TMA HPFV Monitoring Scheme (i.e. enrolment may be in both schemes).

If eligible vehicles are not enrolled in the related IAP scheme, they may be enrolled in the TMA HPFV Monitoring Scheme or the IAP scheme.

Figure 1: Enrolment in TMA and/or IAP HPFV Schemes

	Prime Mover/ Rigid Truck	Trailer
Applicable Device	Telematics Device	Smart OBM System*
Enrolment	IAP HPFV Scheme — and/or — TMA HPFV Scheme	TMA HPFV Scheme
Data Collection	Location	Mass
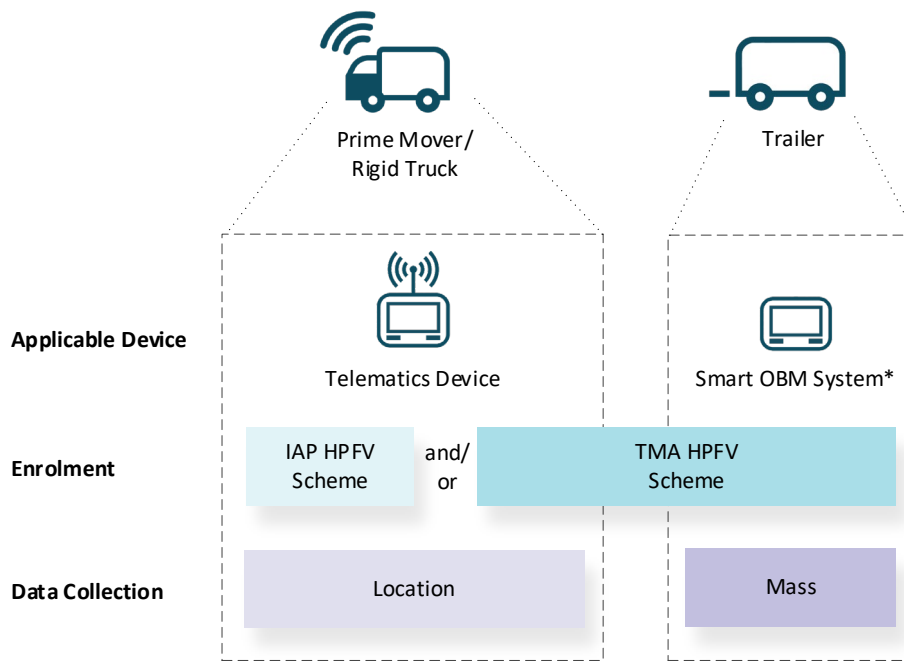
* Smart OBM system is an OBM system approved by TCA to Category B or C

To participate in the TMA HPFV Monitoring Scheme ('the scheme' henceforward), an Operator (e.g. a transport operator) must conform with the requirements specified within a Class 2 permit issued by the National Heavy Vehicle Regulator ('the permit'). Enrolment in the TMA application is one of these requirements.

Data is collected from vehicles fitted with TCA-approved telematics devices. Vehicle configuration and mass data is collected by on-board mass (OBM) systems approved by TCA to Category B or C, and sent to the certified Application Service Provider (ASP).

Note:

(i) *Approval may be in the form of type-approval or an equivalent approval mechanism acceptable to TCA. The ASPs must meet applicable requirements in the functional and technical specification, irrespective of the approval mechanism.*

(ii) *By 1 November 2022, all HPFVs must be fitted with an OBM system approved by TCA to Category B or C and paired with a certified ASP.*

ASPs provide data to TCA. TCA analyses the data and makes reporting available to DOT and participating local councils in Victoria via the Telematics Analytics Platform (TAP).

The TMA application is offered at Level 2 Assurance appropriate to these vehicles (see Appendix A for a definition of Level 2 Assurance).

The use of the TMA application for the scheme provides network-wide movements of enrolled vehicles on approved routes of the Victorian road network. The use of the IAP for schemes associated with it provides certificate-based data and evidence for the movements of enrolled vehicles on approved routes, as well as independent assessment and oversight of all aspects of a telematics application and service provision.

Note: The TMA application can be used for a variety of purposes. In this document, TMA is described in the context of the scheme, which has specific business requirements associated with the standard operation of the TMA application.

2 TMA High Productivity Freight Vehicle Monitoring Scheme

2.1 Participants

Figure 2 outlines the key interactions between participants for the use of the TMA application for the scheme:

- DOT, as the Authority 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;

- Operators are vehicle operators that agree to enrol vehicles into 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 National Telematics Framework [NTF]), collection of data from installed telematics devices and reporting of data to TCA; and

- 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 APSs, 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 (and other bodies authorised by 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 2: Scheme Participants and Key Interactions
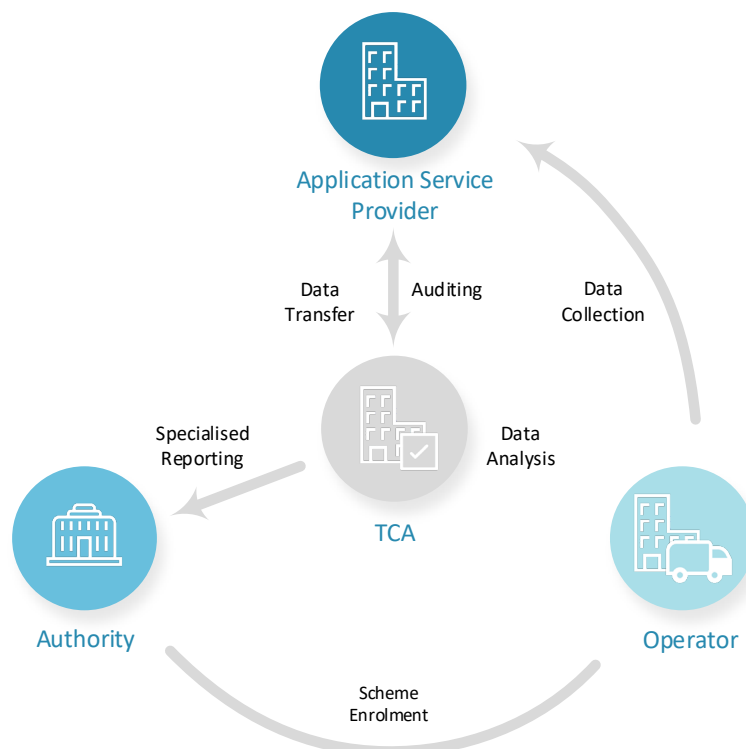
Note: Interactions between scheme participants are consistent with interactions between TMA application participants and are not specific to the scheme.

2.2   Scheme Parameters

This section describes the constraints and assumptions that will be used to deliver the TMA application for the scheme.

Note: The following information is for the TMA HPFV Monitoring Scheme only. This document does not provide information on the IAP HPFV Monitoring Scheme other than the details shown in Appendix B.

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 the 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 3 shows the pre-enrolment steps for the scheme.

Figure 4 shows the reporting processes for the scheme.

Figure 5 shows the enrolment cancellation and reporting processes for the scheme.

Note: See Appendix B, Table B.1, for values that must be entered into the Scheme and Authority Code data elements of an enrolment form or enrolment report.

c.   Devices and Data Collection

The primary 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 connected device used in the TMA application is an OBM system approved by TCA to Category B or Category C (see Appendix A for definitions of OBM system categories).

The OBM system will collect vehicle configuration and mass data. The OBM system will collect mass 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.

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 Monitoring Application Functional and Technical Specification*.

e.   <u>Data Analysis and Reporting</u>

TCA will make data analysis and reporting available to the Authority and participating local governments in Victoria through TAP.

Through TAP, the Authority and participating local governments in Victoria will have access to:

- interactive maps, which represent data using data elements collected as part of the scheme; and

- specific reporting required for scheme management.

    Note:

(i)   *The type, number, frequency and graphical output of specific reporting will be subject to agreed terms reached between TCA and the Authority.*

(ii)   *The TMA application relies on changes in vehicle position records over a 30-second period to derive vehicle speed. Average and maximum vehicle speed results are estimates only, and may be influenced by factors such as road geometry and GNSS quality. Authorities should exercise caution when interpreting vehicle speed derived from the TMA application.*

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 of the scheme (as agreed by the Operator in the ASP–Transport Operator Agreement).

The Authority and participating local governments in Victoria 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	- Count of all vehicles enrolled in the scheme - Count of vehicles enrolled in the scheme that TCA received data from - Vehicles enrolled in the scheme that TCA did not receive data from for at least 30 consecutive days *Note: Reporting of this measure will include vehicle identities. A participating vehicle will only be included in this measure if, without a satisfactory explanation, it has not provided data for at least 30 consecutive days.* - Count of Operators with enrolled in the scheme - Count of ASPs reporting data for vehicles enrolled in the scheme
Dimensions	- Operator - ASP

2.3   Key Scheme Processes

Figure 3 outlines the key actions taken by each participant during the pre-enrolment stage of the operation of the scheme.

Note:

i)   *This process assumes that TCA has already certified the ASP to provide TMA application services.*

ii)   *The following information is for the TMA HPFV Scheme only. This document does not provide information on the IAP HPFV Scheme other than the details shown in Appendix B.*
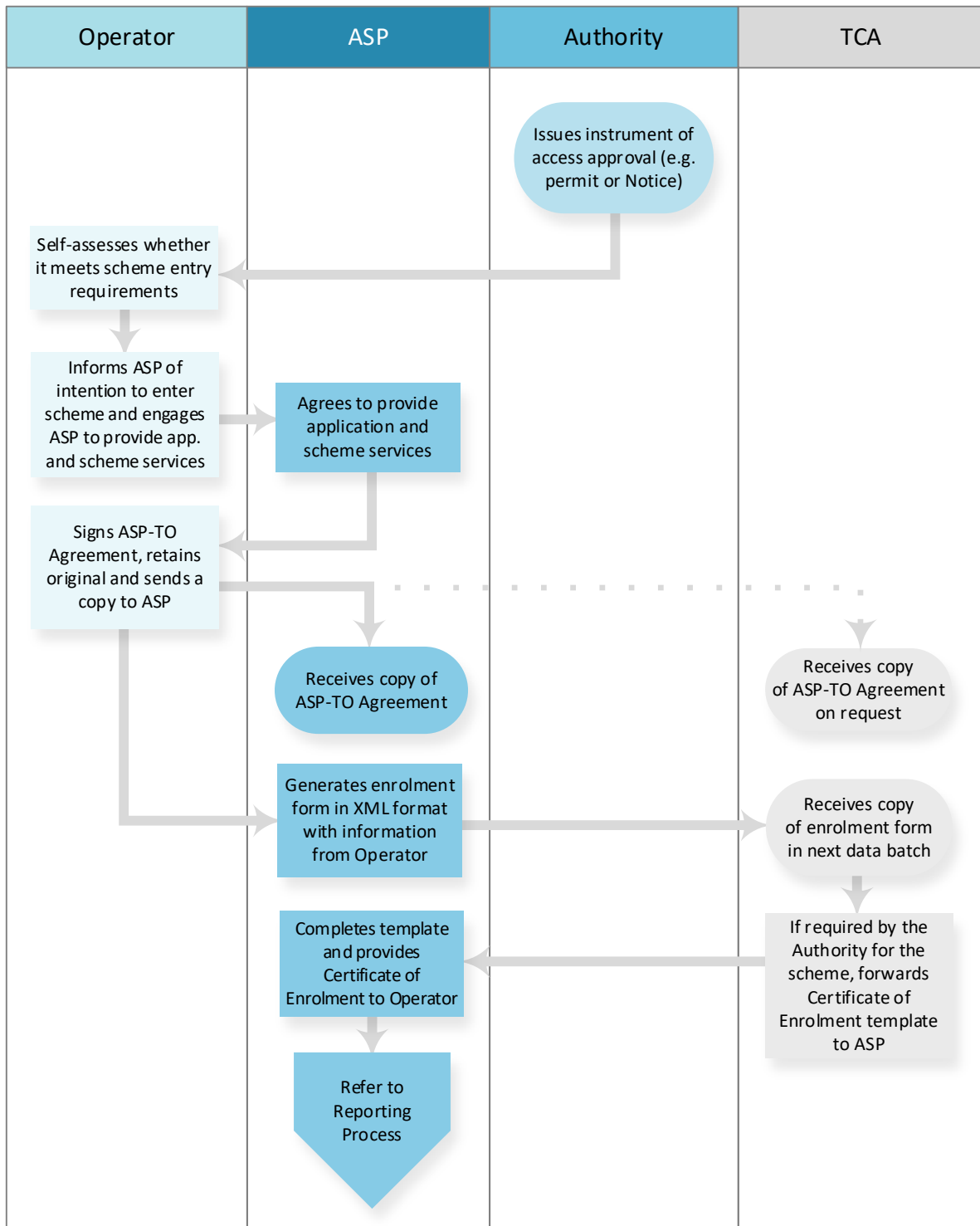
Figure 3: Pre-Enrolment Process

Figure 4 outlines the key actions related to data collection, record generation and reporting.

Figure 4: Reporting Processes
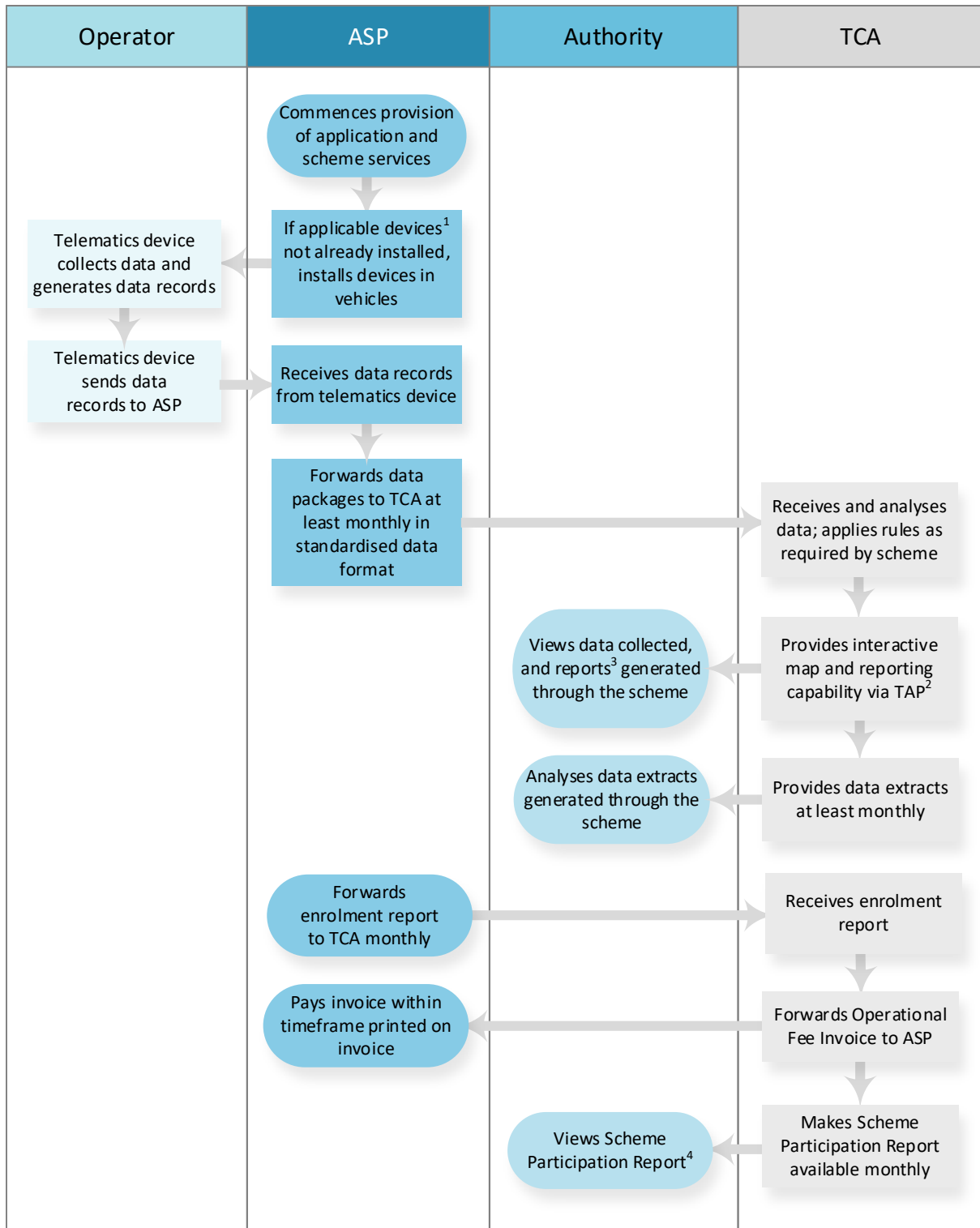
1. Applicable devices include a TCA-approved telematics device, and:
   - If mass and vehicle configuration will be collected, a TCA-approved OBM system at Category B or C; and/or
   - If comments are self-declared, a user interface connected to the TCA-approved telematics device.
2. Data will be updated at least monthly.
3. The Authority will nominate the locations that will be subject to location-based reports (subject to agreed terms).
4. Local governments in Victoria may also view this information.

Cancellation of enrolment may be initiated by the Operator, the Authority or the ASP.
Figure 5 outlines the key actions to discontinue enrolment of a vehicle.

Figure 5: Enrolment Cancellation and Reporting Processes
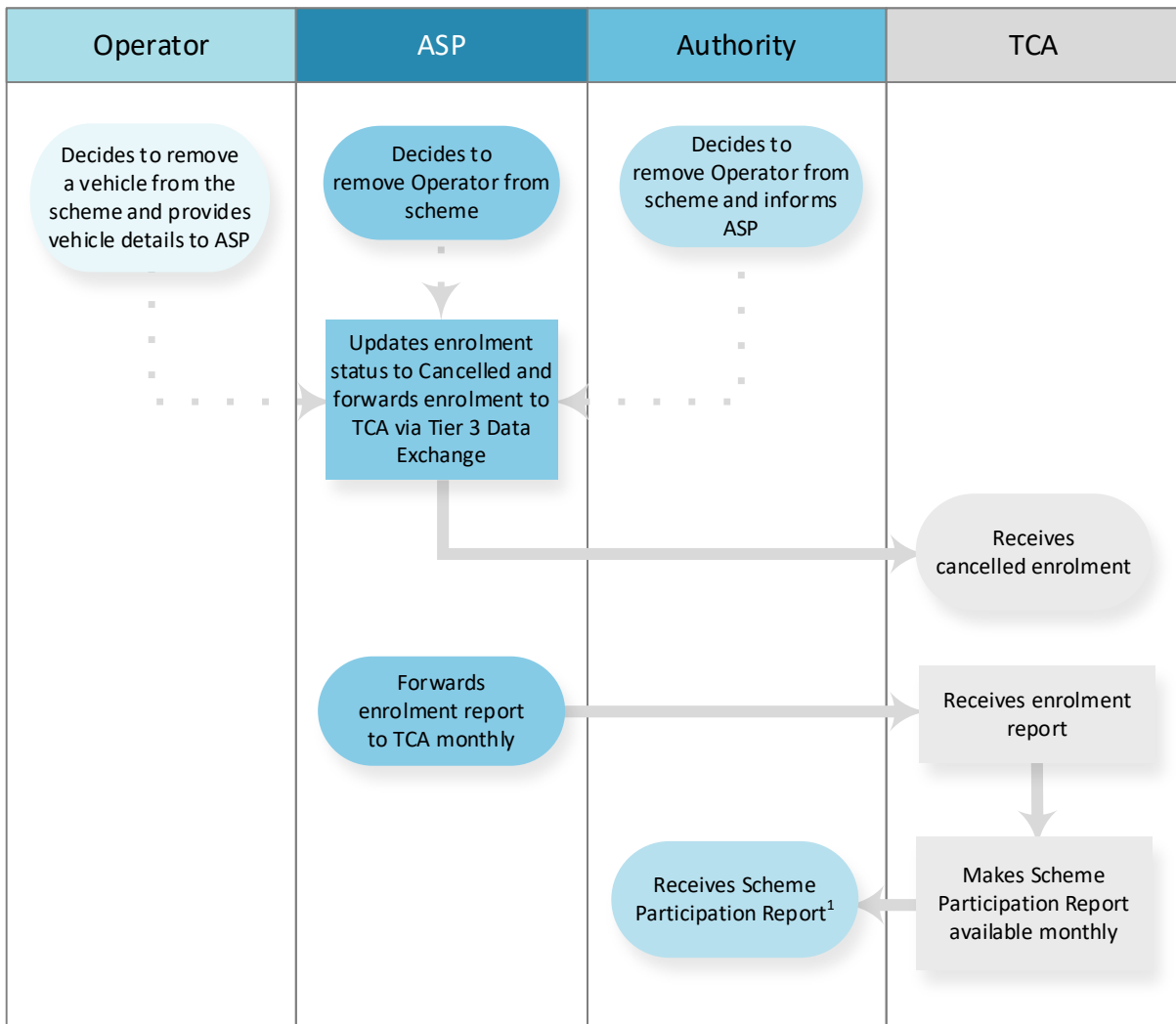
1. Local governments in Victoria may also view this information.

2.4 Roles and Responsibilities

Note: The following information is for the TMA HPFV Monitoring Scheme only. This document does not provide information on the IAP HPFV Monitoring Scheme other than the details shown in Appendix B.

In delivering the objectives of the 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 Exchange Functional and Technical Specification*

  - *Telematics Device Functional and Technical Specification*

  - *On-Board Mass System Functional and Technical Specification*

  - (as applicable) *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 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 and participating local governments in Victoria 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 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 documentation required by the Authority for the scheme pilot;

- undertake program coordination activities related to the scheme pilot 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; and

- conduct compliance activities as necessary; and.

- in conjunction with TCA, communicate scheme-related policy changes to industry and stakeholders.

ASPs will:

- interact with TCA to establish 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, 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 any connected 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 and determine whether they meet those conditions;

- access the permit 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 pilot;

- agree to share data collected by its ASP with TCA for the scheme using a signed TMA ASP–Transport Operator Agreement;

- follow rules for enrolment in the scheme pilot;

- store original signed ASP–Transport Operator Agreement and forward copies to the ASP and TCA (on request);

- install telematics devices (and any connected 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
GCM	gross combination mass
HPFV	high productivity freight vehicle
IAP	Intelligent Access Program
NTF	National Telematics Framework
OBM	on-board mass
TAP	Telematics Analytics Platform
TMA	Telematics Monitoring Application
UTC	Coordinated Universal Time

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 an ASP and TCA 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. An Authority may appoint an administrator to perform its functions. *See also: jurisdiction.*
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.
high productivity freight vehicle	In Victoria, a heavy vehicle combination that exceeds 26 metres and/or has a gross combination mass (GCM) of more than 68.5 tonnes. An HPFV also includes a Quad-Axle Semi-Trailer operating at up to 50.5 tonnes.
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.

Term	Definition
Level 2 Assurance	Independent assessment of specific elements of a telematics application. Telematics data is combined with other data sources.
OBM system category	A category of OBM system that is defined as follows: • 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 telematics 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 *Interconnectivity of Telematics Device with Other Systems Functional and Technical Specification*).
Operator	An entity that operates one or more vehicles eligible to enter a 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.
Smart OBM system	An OBM system approved by TCA to Category B or C. *See also: OBM system category*
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 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   Data Element Reference Values

For the TMA High Productivity Freight Vehicle Monitoring Scheme, refer to the following when entering values into data elements for Scheme or Authority Code – for example, in an enrolment report or enrolment form:

Table B.1: TMA Scheme Name and Authority Code

Scheme Name (full)	Scheme Data Element Value (e.g. for enrolment form or report)	Authority Code Data Element Value
TMA High Productivity Freight Vehicle Monitoring Scheme	TMAHPFV	VIC

For related the IAP scheme (which is referred to by the term 'IAP Application'), refer to the following when entering values into business documents such as intelligent access conditions (IACs) and participation reports (PRs).

Table B.2: IAP Scheme Name and Authority Code

Scheme Name (full)	IAP Application Name Data Element Value	Off-the Shelf Conditions ID	Authority Code Data Element Value
IAP High Productivity Freight Vehicle Monitoring Scheme	Non Standard Freight Vehicle	VIC_HPFV0001	VIC

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