TMA Tow Truck Monitoring Scheme (WA)

A scheme using the Telematics Monitoring Application (TMA) for Main Roads Western Australia

December 2024

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About Us

Transport Certification Australia (TCA) is a centre of excellence within Austroads, responsible for assessing and recognising telematics and other vehicle-based technologies. Through its administration of the National Telematics Framework, TCA helps Australian and New Zealand transport agencies collect data from vehicles in ways that are trusted by government and industry, and to provide data and analytical services that enable improved road outcomes.

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1 Introduction

1.1 Purpose

This document describes the TMA Tow Truck Monitoring Scheme (WA) ('scheme'), which is made available by Main Roads Western Australia (MRWA). The scheme is associated with the Telematics Monitoring Application (TMA).

The scheme will enable monitoring of eligible Tow Trucks on the Western Australian road network.

1.2 Scope

This document describes the scheme and how it is used with the TMA application.

The following information is included:

- Scheme parameters
- Key scheme processes
- Roles and responsibilities of scheme participants.

1.3 Background

The scheme was developed to allow MRWA to monitor the movements and position-derived speed of Tow Trucks in Western Australia, in a scheme operating at Level 2 Assurance. It will also monitor whether a Tow Truck is loaded or not loaded throughout its journey.

To participate in the scheme, a transport operator ('Operator') must conform with the requirements specified within the instrument of access approval, which consists of a Western Australian government permit. Eligible vehicles are defined in the instrument of access approval.

Enrolment in the TMA application is one of the requirements that must be met by the Operator. Enrolment in the TMA application is performed by the certified Application Service Provider (ASP) selected by the Operator.[1]

The ASP is responsible for the installation of a TCA-approved[2] telematics device and user interface in the vehicle being utilised in accordance with the instrument of access approval.

The ASP is responsible for the collection of data from vehicle enrolled in accordance with the TMA application for the scheme.

ASPs provide data records to TCA. TCA analyses the data and makes reporting of identifiable data available to MRWA via the Telematics Analytics Platform (TAP).

The TMA application[3] is offered at Level 2 Assurance appropriate to these vehicles (see Appendix A for a definition of Level 2 Assurance).

[1] The Operator may be eligible to perform the role of ASP in full or part, subject to the approval of TCA.

[2] TCA approval of a telematics device and user interface 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.

[3] 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.

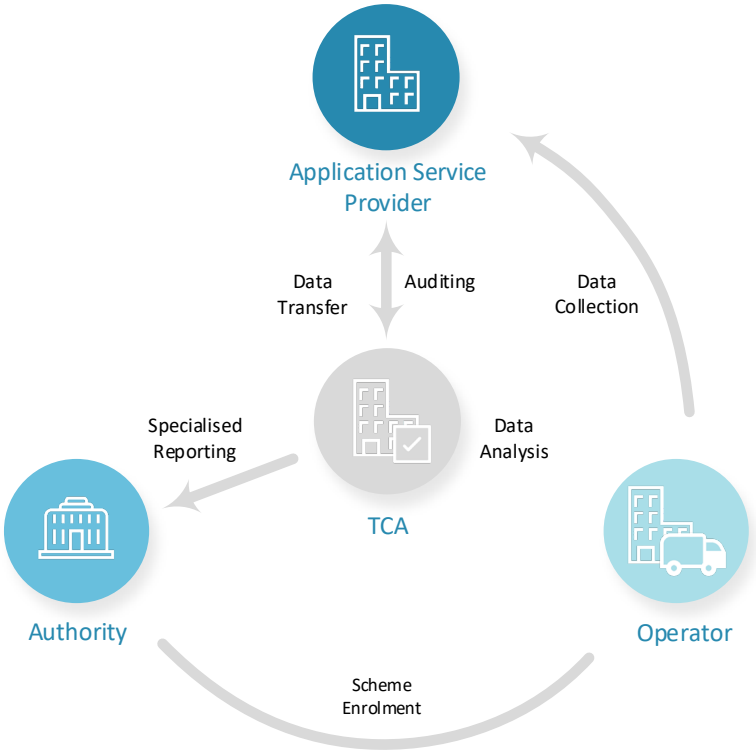
2 TMA Tow Truck Monitoring Scheme (WA)

2.1 Participants

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

- MRWA, 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 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–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.
- 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–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–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 Scheme Parameters

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

a. ASP Certification

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

Note: In the ASP–TCA Certification Agreement, TCA will note any supported optional features of the TMA application that the ASP may provide services for. Not all ASPs will necessarily support all optional features.

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.

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

Figure 3 shows the reporting processes for the scheme.

Figure 4 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, and
- Date and time data.

Vehicle speed will be derived from position records.

The load status must be self-declared at the start of the enrolled vehicle's journey, and whenever the status changes until the journey ends. A TCA-approved user interface is required for the self-declared load status entry of 'Operation with Load' or 'Operation with No Load', noting that the load status must be entered as a self-declared comment code and comment name.

For more information on self-declared comment codes, see *National Telematics Framework Vehicle Categories*, Table 3.

Important: The Operator must ensure that:

- *The ASP it selects to facilitate enrolment in this scheme is certified by TCA to provide self-declaration services for the TMA application; and*
- *The ASP provides a TCA-approved user interface that allows self-declaration in the drive unit of the vehicle.*

  Note: The TCA-approved user interface may be in the form of a web app associated with and used in the drive unit, or an in-vehicle device that is installed and used in the drive unit.

d. Data Reporting

The ASP shall transfer data records collected through the TMA application to TCA no less frequently than each week, and as described in *Telematics Monitoring Application 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 identifiable 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 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–Operator Agreement).

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

Examples
• 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. 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.* • Count of Operators with vehicles enrolled in the scheme • Count of ASPs reporting data for vehicles enrolled in the scheme

2.3 Key Scheme Processes

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

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

Figure 2: Pre-Enrolment Process

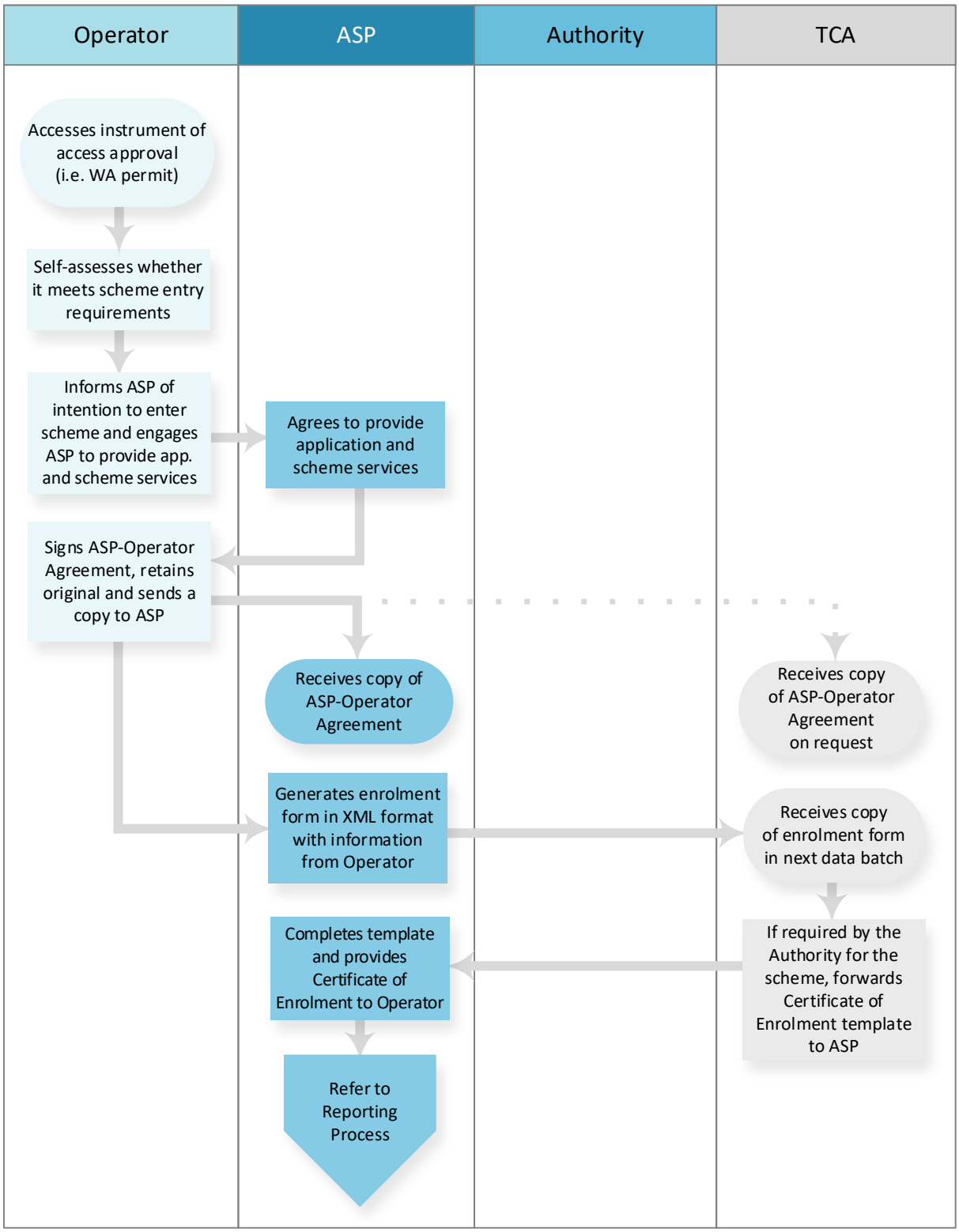
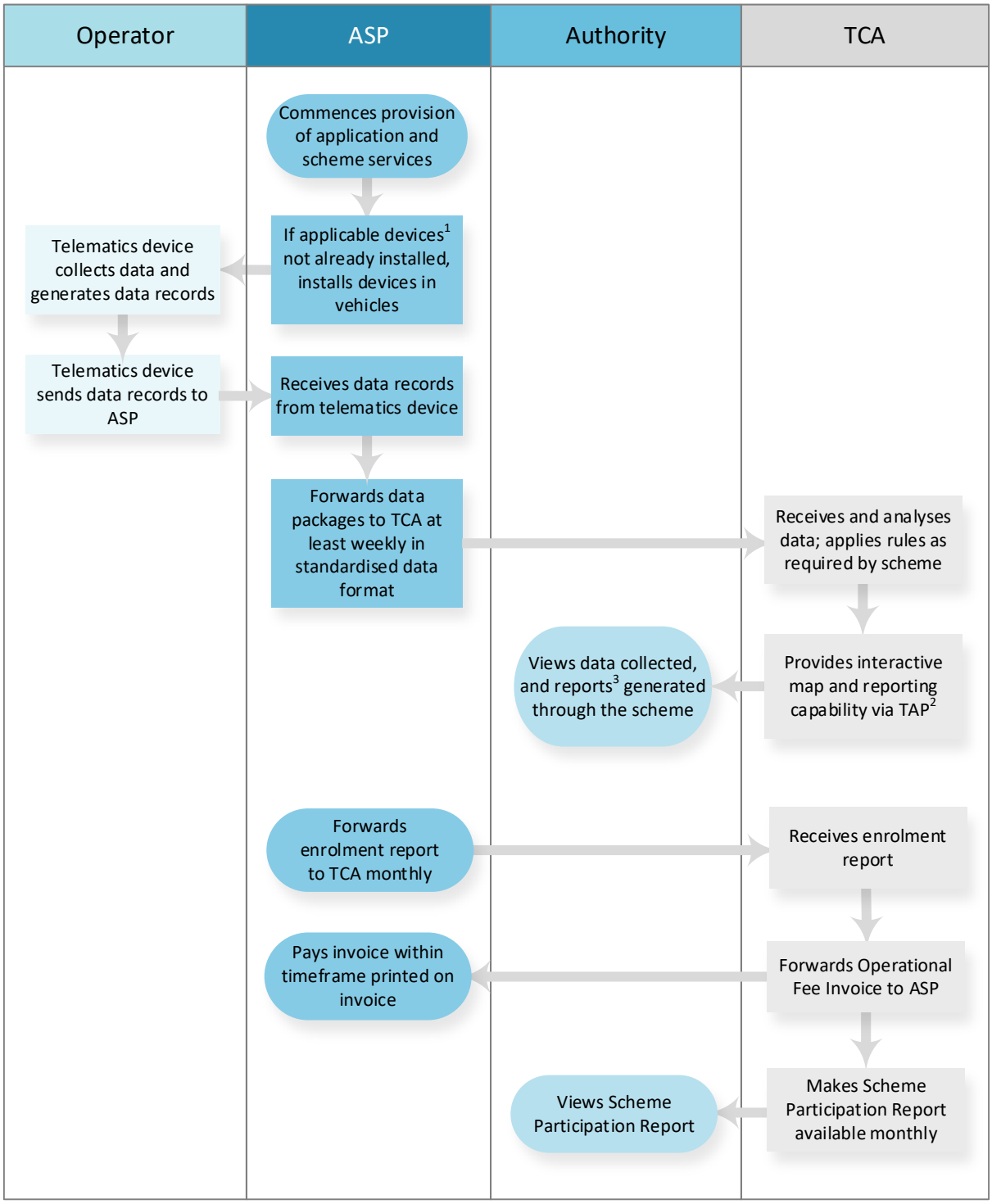


Figure 3 outlines the key actions related to data collection, record generation and reporting for the scheme.

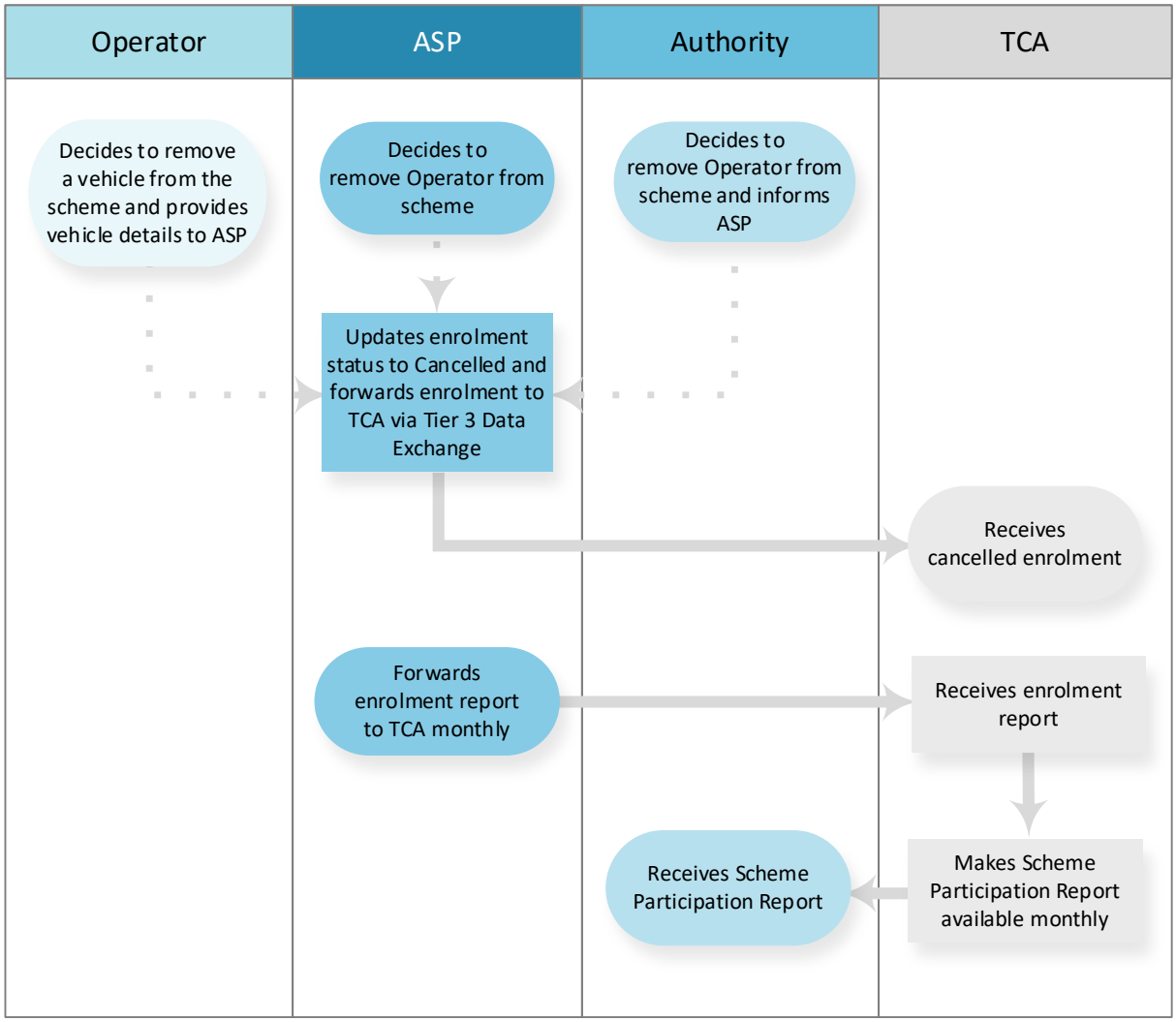
Figure 3: Reporting Processes



1. Applicable devices include a TCA-approved telematics device and user interface
2. Data will be updated weekly.
3. The Authority will nominate the locations that will be subject to location-based reports (subject to agreed terms).

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 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*
- Support the reporting of data records via Tier 3 Data Exchange using a RESTful application programming interface (API), with these records formatted using a JSON format
- Support the reporting of enrolment forms and enrolment reports using a RESTful API, with these documents formatted using an XML format
- Inform ASPs of the scheme details and entry conditions
- Produce an ASP–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–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 (with the Self-Declaration feature)
- 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
- After 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
- 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
- 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
- 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 in the scheme, and forward this information to TCA using an agreed mechanism on a monthly basis
- Provide the ASP–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 user interfaces and the reporting of data received from the telematics devices, and as described in the *Telematics Monitoring Application Functional and Technical Specification*
- 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
- 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 as made available by MRWA 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 TMA ASP–Operator Agreement
- Follow rules for enrolment in the scheme
- Store original signed ASP–Operator Agreement and forward copies to the ASP and TCA (on request)
- Engage an ASP to provide services for the scheme
- 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
GNSS	Global Navigation Satellite System
NTF	National Telematics Framework
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 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–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. *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.

Term	Definition
drive unit	That part of a vehicle which contains the power unit to which the telematics device is affixed.
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 a state, territory or region; or an entire country).
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.
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.
telematics device	The primary telematics unit which monitors vehicle parameters, which may include identity, datetime, location, speed, vehicle category or mass.
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	A drive unit with trailers, dollies or other connections. *See also: drive unit*
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'.

Term	Definition
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.
user interface	A generic term for any device or interface used by the Operator and/or its nominated representative to enter data into the telematics device or ASP System. *Note: In this scheme, the user interface must be either associated with the drive unit (if it is a web application) or installed in the drive unit (if it is a device that allows data entry).*

B Data Element Reference Values

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 Tow Truck Monitoring Scheme (WA)	TMATOWWA	WA

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