

SAFETY, PRODUCTIVITY & ENVIRONMENT CONSTRUCTION TRANSPORT SCHEME (SPECTS)



**A SCHEME USING THE ROAD INFRASTRUCTURE
MANAGEMENT (RIM) APPLICATION FOR
TRANSPORT FOR NSW**

DECEMBER 2019

SAFETY, PRODUCTIVITY & ENVIRONMENT CONSTRUCTION TRANSPORT SCHEME (SPECTS)

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



DOCUMENT DETAILS

Title:	Safety, Productivity & Environment Construction Transport Scheme (SPECTS)
Document Number:	TCA-SR01
Version	1.1
Version Date	December 2019
Custodian	Specification Manager

DOCUMENT HISTORY

Version	Date	Description
1.0	August 2019	First version, describing Phase 1 of the scheme.
1.1	December 2019	Updated to describe the full operation of the scheme.

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.

TCA page numbering convention: for ease of digital readability and referencing, the cover is page 1.

ABOUT US

Transport Certification Australia (TCA) is the Australian entity responsible for providing assurance in the use of telematics and related intelligent technologies.

We manage the National Telematics Framework, which brings transport operators, road managers, heavy vehicle regulators, other regulators and third-party business partners together on a common digital business platform.

The National Telematics Framework:

- Provides a national platform for the use of telematics and related intelligent technologies
- Supports different applications across regulatory, contractual and commercial needs
- Supports different levels of assurance
- Is outcome-focussed and encourages innovation.

CONTENTS

1	INTRODUCTION	5
	1.1 PURPOSE	5
	1.2 SCOPE	5
	1.3 BACKGROUND	5
	1.4 REFERENCES	6
2	SPECTS	7
	2.1 PARTICIPANTS	7
	2.2 SCHEME PARAMETERS	8
	2.3 KEY SCHEME PROCESSES	11
	2.4 ROLES AND RESPONSIBILITIES	14

APPENDICES

A	DEFINITIONS	16
B	DATA ELEMENT REFERENCE VALUES	19

1 INTRODUCTION

1.1 PURPOSE

The Safety, Productivity and Environment Construction Transport Scheme (SPECTS) (“the scheme”) is a scheme administered by Transport for NSW (TfNSW) to improve the safety, environmental performance and productivity of heavy vehicles used within the construction industry in the Greater Sydney Metropolitan Area (NSW Urban Zone, as defined by TfNSW).

Vehicles participating in the scheme are permitted to travel on all state roads and approved local roads in the NSW Urban Zone excluding bridges signposted with load limits.

The use of the RIM application for the scheme provides TfNSW, and local government road managers, visibility on network-wide vehicle movements across the road network.

1.2 SCOPE

This document describes the scheme and how it will be used with the RIM application.

The following information is included:

- the scheme parameters;
- key scheme processes; and
- roles and responsibilities.

1.3 BACKGROUND

SPECTS is a specific use of the RIM application linked to delivering a policy objective. To enrol in SPECTS, an Operator (e.g. a Transport Operator) must conform with the requirements specified within the Notice on the National Heavy Vehicle Regulator (NHVR) website, and business rules set by TfNSW (*SPECTS Business Rules*). Enrolment in the RIM application, which is administered by TCA as part of the National Telematics Framework (NTF), is one of these requirements.

Data is collected from vehicles fitted with telematics devices, such as an in-vehicle unit (IVU). Application Service Providers (ASPs) provide data to TCA. After de-identification and analysis, TCA processes the data and makes reports available to TfNSW and other road managers (including local governments) via the Telematics Analytics Platform (TAP).

The RIM application is offered at a Level 1 Assurance (see Appendix A for definition).

The use of the RIM application for the scheme:

- enables the collection of data from enrolled vehicles within the NSW Urban Zone;
- provides relatively simple entry requirements for Operators;
- allows Operators to self-assess whether they meet the requirements of SPECTS, and enrol eligible vehicles;
- allows Application Service Providers (ASPs), or Operators who provide their own systems, to self-assess whether they meet the requirements of RIM;
- does not provide any data to TfNSW, nor does it generate event reports; and
- does not require type-approval of telematics in-vehicle units (IVUs), certification of services, or auditing of Application Service Providers (ASPs).

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

Parameters

The use of the RIM application for SPECTS will collect position, time and vehicle identity parameters.

Where vehicle mass information is also available, this parameter can also be collected through the RIM application for SPECTS.

1.4 REFERENCES

The documents referenced by this scheme are as follows:

- Transport for NSW 2019, *Safety, Productivity & Environment Construction Transport Scheme (SPECTS)*, Transport for NSW, Sydney.
- National Transport Commission 2008, *The Standards and Vehicle Assessment Rules*, National Transport Commission, Melbourne.
- National Transport Commission 2007, *Network Classification Guidelines*, National Transport Commission, Melbourne.
- Transport Certification Australia (TCA) 2019, *Road Infrastructure Management Functional and Technical Specification*, Transport Certification Australia, Melbourne.
- Transport Certification Australia (TCA) 2019, *Telematics Business-to-Business Data Exchange Functional and Technical Specification*, Transport Certification Australia, Melbourne.

2 SPECTS

2.1 PARTICIPANTS

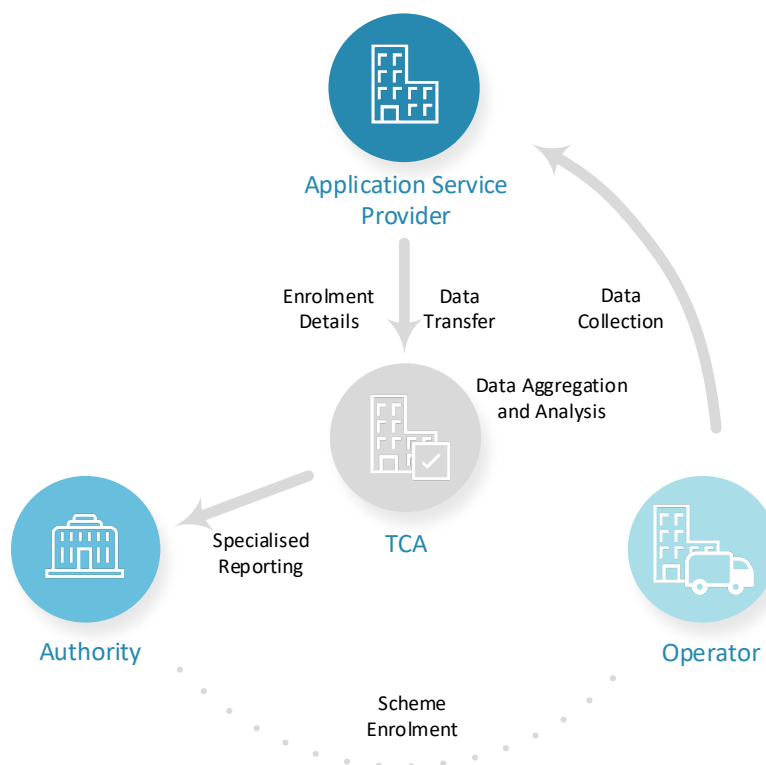
Figure 1 outlines the key interactions between participants for the use of the RIM application for the scheme:

- TfNSW, as the Authority of the scheme, will access road usage reports through TAP using telematics data collected through the RIM application;

Note: Telematics data is not made available to TfNSW.

- Operators are vehicle operators that agree to enrol vehicles into the scheme, and consent to their data collected through the RIM application to be used for the intended purpose by TCA and road managers;
- ASPs offer telematics services (hardware, software and associated processes) that TCA has registered for the RIM application; and
- TCA administers the RIM application and its schemes within the NTF, ensuring that data security and privacy dimensions 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 aggregation, de-identification and processing, and makes road usage reports available to TfNSW and other participating road managers via TAP as agreed between TfNSW and TCA.

Figure 1: Scheme Participants and Key Interactions



Note: The ASP may also be the Operator.

Interactions between scheme participants are consistent with interactions between RIM 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 RIM application for the scheme.

a. ASP Self-Assessment and Registration

ASPs shall self-assess, against requirements in *Road Infrastructure Management Functional and Technical Specification*, whether they meet requirements to provide services for the RIM application.

TCA will register ASPs that have satisfactorily demonstrated that data transfer requirements for the RIM application have been met.

b. Scheme Participation

ASPs will enrol vehicles in RIM at the request of the Operator.

The ASP will manage key steps of enrolment including approval, and as necessary, cancellation and replacement. There will be no interim enrolment.

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

The Operator will self-assess whether it meets scheme entry requirements as published in the Notice on the NHVR website. The Operator will notify the ASP that it intends for vehicles to enrol in the scheme, and will provide details of vehicles enrolled and no longer enrolled to the ASP.

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

Figure 3 shows the key reporting processes for the scheme

Figure 4 shows the enrolment cancellation and reporting process.

c. Devices and Data Collection

The telematics device used in the scheme is a telematics IVU or similar.

The telematics device (i.e. telematics IVU or similar) used for the scheme shall collect position data at intervals of no greater than 1 minute and no less than 1 second and as determined by the ASP.

d. Data Reporting

The ASP shall transfer data records collected through the RIM application 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 Processing and Reports

TCA will perform data transformation, data aggregation, de-identification and processing functions on data obtained from position records.

TCA will perform basic data cleaning, which includes:

- removal of duplicates;
- removal of anything that is not in the prescribed format;
- removal of alarm data, and
- if necessary, changing column names.

Incomplete or unacceptable data records will not be included in data processing.

Note: The type, number and frequency of road usage reports will be subject to agreed terms reached between TCA and TfNSW.

A **Road Usage Report** will be made available to TfNSW and other road managers on a monthly basis via TAP. It is anticipated that TfNSW will use standard RIM measures and dimensions, such as those shown in Table 1. The title and content can be adjusted to fit the needs of TfNSW.

Table 1: Road Usage Report

Report Content	Examples
Aggregated measures	<ul style="list-style-type: none"> • Count of vehicles traversing a specified road infrastructure asset • Speed of vehicles (derived from consecutive position records) traversing a specified road infrastructure asset • (When able to be supported) Mass of vehicles traversing a specified road infrastructure asset
Dimensions	<ul style="list-style-type: none"> • Defined time period (year, month, week, day, hour, minute) • Vehicle type (when available) • Direction of travel.
Typical reporting and analysis	<ul style="list-style-type: none"> • Count of the total number of traversals monitored by day of week (over defined time periods), in each direction, by vehicle category • Average vehicle speed when monitored vehicles traverse a specific road infrastructure asset (over defined time periods) • Trend analysis of changes to road infrastructure usage over time • Distribution of vehicle speeds for monitored vehicles traversing a defined road infrastructure asset • Heat map showing count of vehicles traversing a specified road infrastructure asset, and the total number of traversals

A **Scheme Participation Report** will be made available to RMS on a monthly basis via TAP. This report may include the following standard measures and dimensions as shown in Table 2.

Table 2: Scheme Participation Report

Report Content	Examples
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 enrolled 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
Typical reporting and analysis	<ul style="list-style-type: none"> • Month-on-month trend analysis of data related to scheme participation • Count of the total number of traversals monitored by day of week (over defined time periods), in each direction, by vehicle category

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 registered the ASP to provide RIM application services.

Figure 2: Pre-Enrolment Process

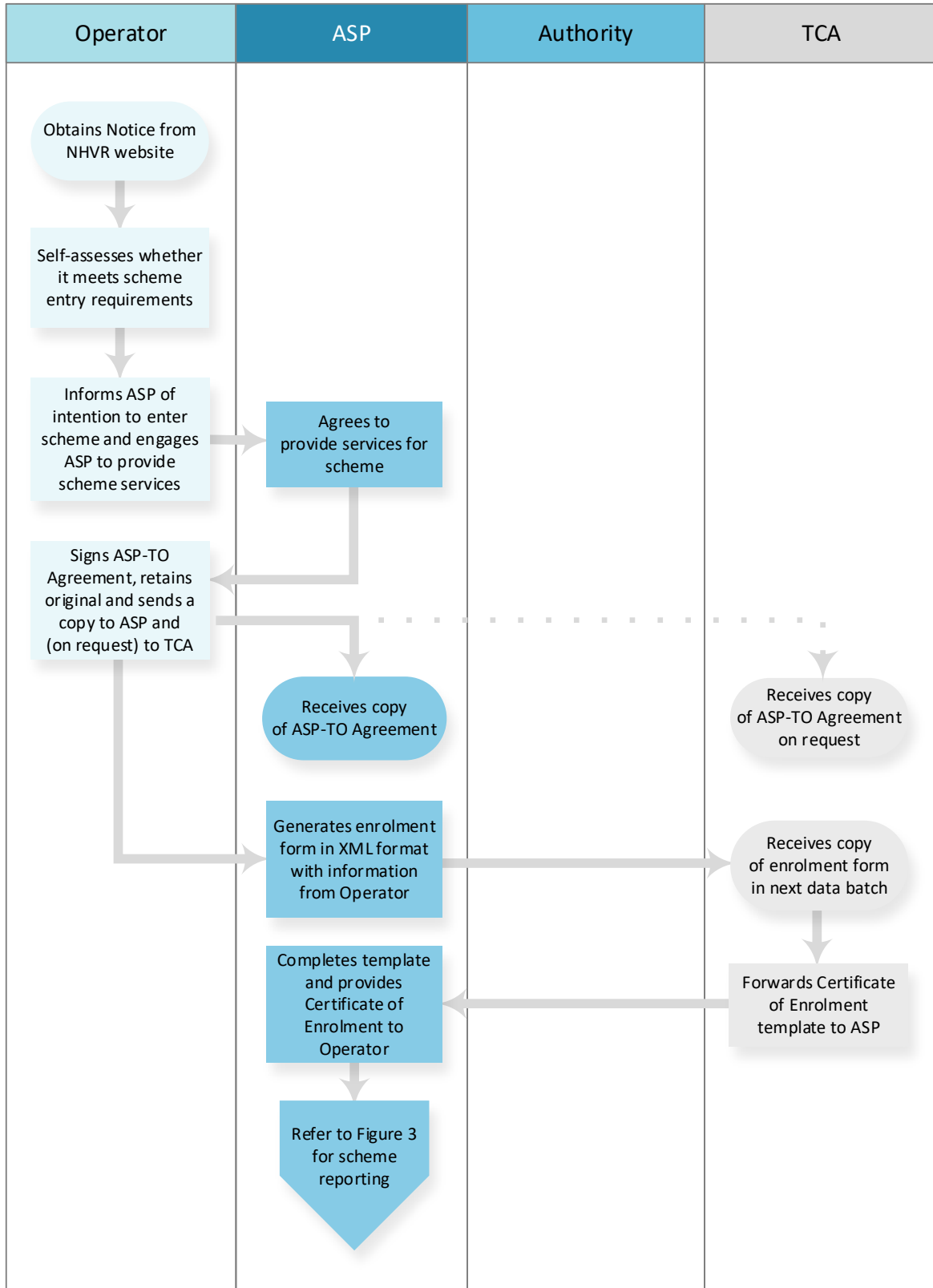
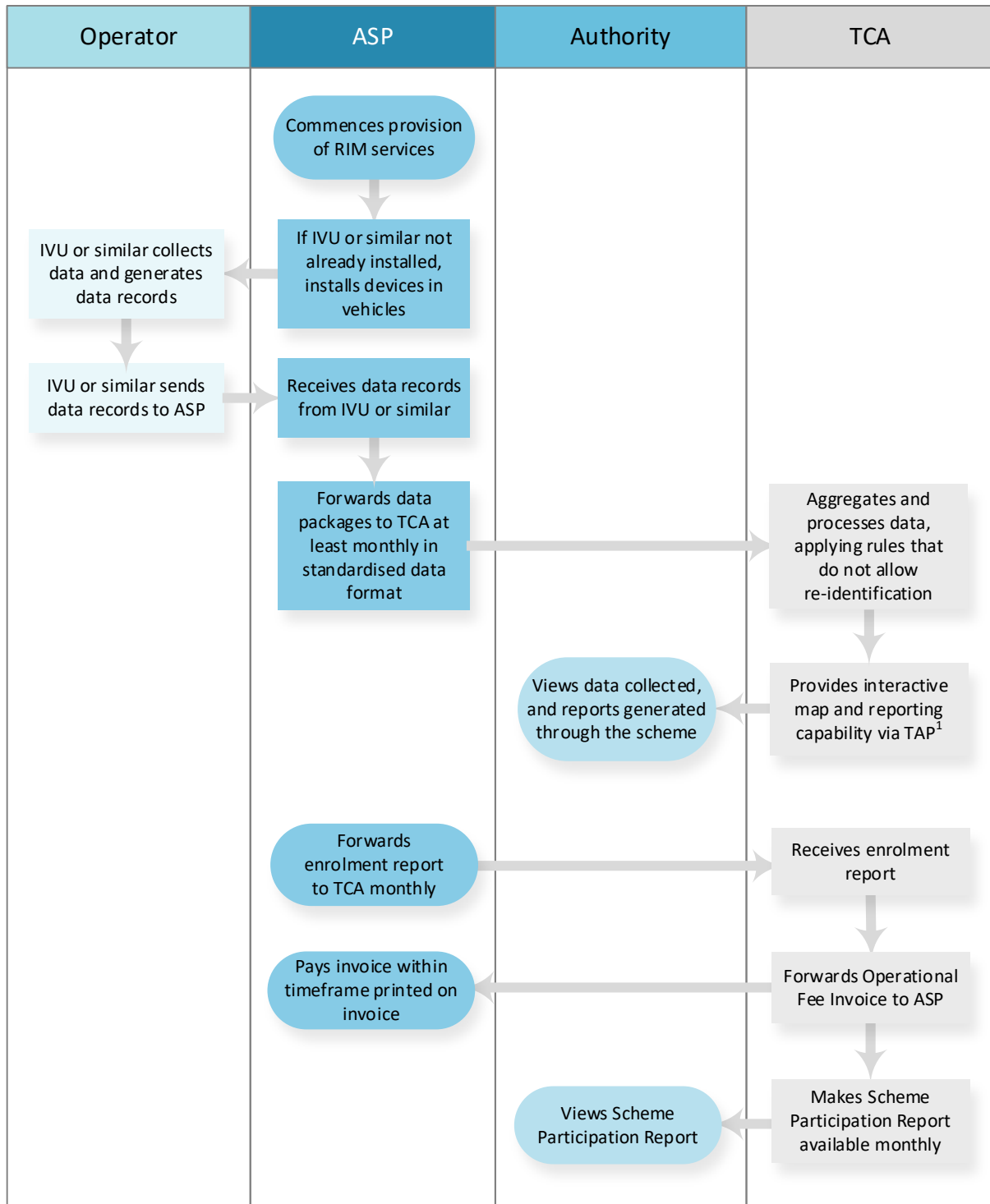


Figure 3 outlines the key actions related to data collection, record generation and reporting.

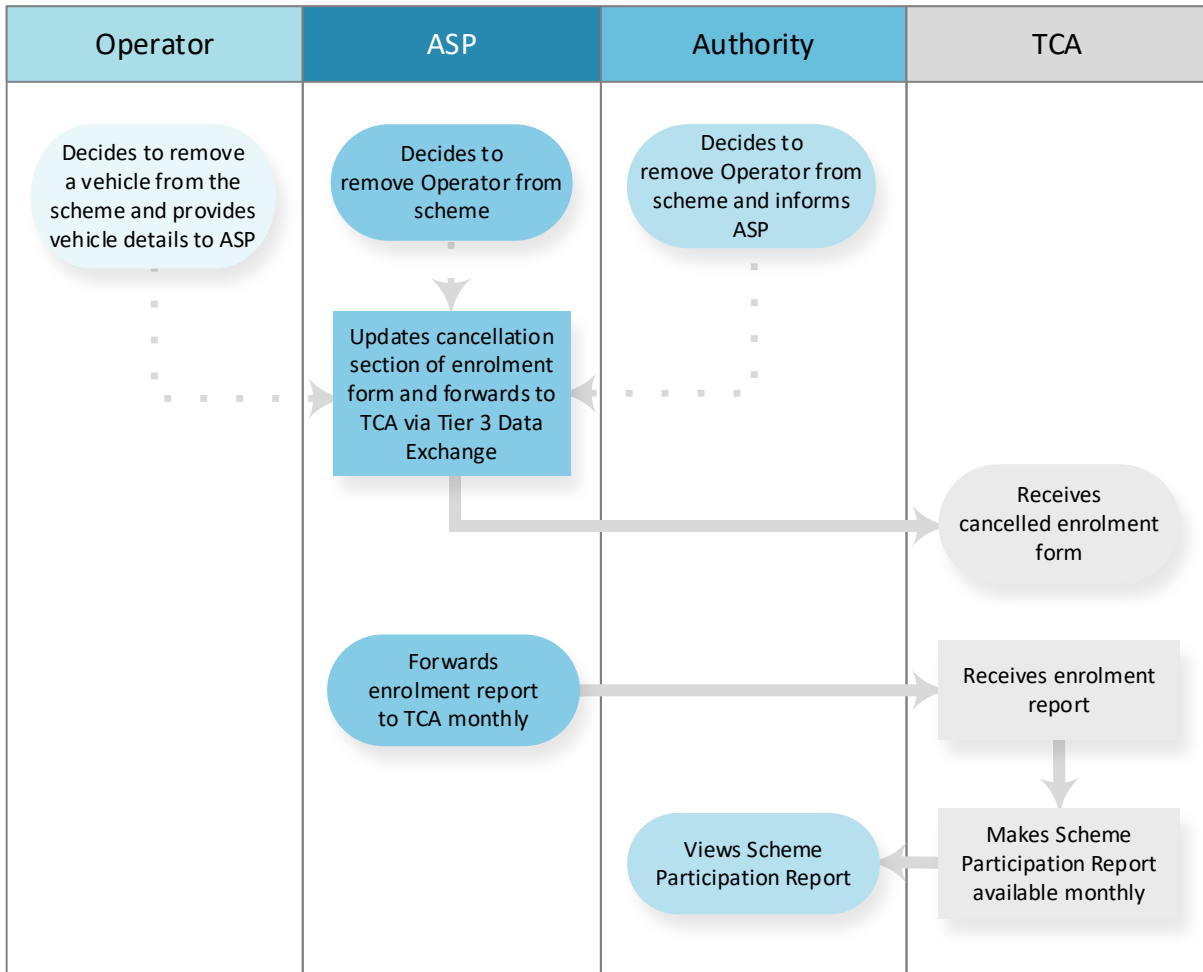
Figure 3: Reporting Processes



1. Data will be updated at least monthly.

Cancellation of scheme participation may be initiated by the Operator, TfNSW 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 RIM application;
- produce or maintain collateral, as necessary, to support the scheme. Examples include the provision of current versions of:
 - *Road Infrastructure Management Functional and Technical Specification;*
 - *Telematics Business-to-Business Data Exchange Functional and Technical Specification;*
 - *Telematics In-Vehicle Unit 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 to ASPs;
- ensure that TAP is set up to enable TfNSW to obtain reports generated by the scheme,;
- maintain the cloud environment and databases to support the ingestion of data from the RIM application, etc.;
- produce terms and conditions, which formalise the relationship between TCA and the ASP with regard to ASP registration;
- verify that an ASP meets requirements to provide RIM application services;
- provide registered ASPs with the Certificate of Enrolment template;
- forward Operational Fee Invoices to ASPs upon receipt of enrolment reports;
- provide TfNSW with reports outlined in 2.3e via TAP; and
- ensure the confidentiality of ASP data is maintained.

TfNSW will:

- develop necessary policy documentation required by TfNSW for the scheme;
- undertake program coordination activities related to the scheme with TCA; and
- access reports outlined in 2.2e via TAP, and review data trends and numbers of enrolled vehicles.

ASPs will:

- interact with TCA to formalise and establish the delivery mechanism for provision of data packages to TCA (including 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 application 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;
- 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 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;
- 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 TfNSW website and determine whether they meet those conditions;
- obtain the Notice from the NHVR website and ensure compliance with the Notice 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 application 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 DEFINITIONS

ACRONYMS

Acronym	Definition
ASP	Application Service Provider
FTPS	File Transfer Protocol Secure
IVU	in-vehicle unit
NTF	National Telematics Framework
TAP	Telematics Analytics Platform
SPECTS	Safety, Productivity and Environment Construction Transport Scheme
TfNSW	Transport for NSW
TO	Transport Operator
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 recognised by TCA as meeting the requirements of one of more telematics applications. This may also be the Operator.
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.
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. <i>See also jurisdiction.</i>
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, including a (unique) record number, and record date time (of data record generation), produced for a device for a data collection period.
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 1 Assurance	Self-assessment of data and no independent oversight of a telematics application.
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.
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.

Term	Definition
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 recognition of the ASP to provide application services, 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.

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: Scheme Name and Authority Code

Scheme Name (full)	Scheme Data Element Value (e.g. for enrolment form or report)	Authority Code Data Element Value
Safety, Productivity & Environment Construction Transport Scheme (SPECTS)	SPECTS	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
