



S2-FGJV-LOG-PLN-0009

SNOWY 2.0 SEGMENT FACTORY – TRAFFIC MANAGEMENT PLAN

Approval Record			
Document preparation, review and approval		Name in print	Signature
Prepared by	Environmental Advisor	E. Porter	
Reviewed by	Environmental Coordinator	N. Jones	
Verified by	Environmental Manager	L. Jenkins	
Approved by	Project Director	A. Betti	

Document Revision Table		
Rev.	Date	Description of modifications / revisions
A	19.12.2019	Issued to Snowy Hydro for review
B	13.02.2020	Revised to address Snowy Hydro comments on Rev A. Issued for agency review.
C	08.03.2020	Revised to address agency comments. For issue to DPIE.
D	06.04.2020	Revised to address TfNSW comments to DPIE. For issue to DPIE.
E	09.04.2020	Revised to address DPIE comments. For issue to DPIE
F	28.08.2020	Updated for operation
G	06.05.2021	Updated for operation including SMRC consultation responses. For issue to DPIE

Chris Buscall
Environment Manager
Snowy Hydro Limited
2 Monaro Highway
Cooma, NSW, 2630

02/06/2021

Dear Mr Buscall

**Snowy 2.0 Segment Factory (CSSI-10034-PA-36)
Traffic Management Plan**

I refer to the revised Traffic Management Plan which was submitted in accordance with condition 10 of Schedule 3 of the approval for the Snowy 2.0 Segment Factory (CSSI-10034).

The Department has carefully reviewed the document and is satisfied that it meets the conditions of approval.

Accordingly, the Planning Secretary has approved the Traffic Management Plan (Revision G, 6 May 2021). Please ensure that the approved plan is placed on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Daniel Martin at daniel.martin@dpie.nsw.gov.au

Yours sincerely



Iwan Davies
A/Director
Energy Assessments

As nominee of the Planning Secretary

CONTENTS

ABBREVIATIONS AND DEFINITIONS	4
1. INTRODUCTION	6
1.1. Overview.....	6
1.2. Background	6
1.3. Approved project	7
1.4. Management System	8
1.5. Purpose	8
1.6. Consultation Summary	8
2. ENVIRONMENTAL REQUIREMENTS	10
2.1. Legislation	10
2.2. Conditions of Approval	10
2.3. Revised Environmental Management Measures	13
2.4. Licences and Permits	13
2.5. Guidelines.....	13
3. EXISTING ENVIRONMENT	15
3.1. Existing Road Network.....	15
3.2. Key Intersections.....	20
3.3. Seasonal Traffic Variation	20
3.4. Performance Based Standards Vehicles	20
4. TRAFFIC ASPECTS AND IMPACTS.....	22
4.1. Environmental Aspects and Impacts.....	22
4.2. Construction Traffic Volumes	22
4.3. Operational Traffic Volumes.....	22
4.4. Traffic and Transport Impacts	23
4.4.1. Traffic and Transport Impacts - with PBS Vehicles	23
4.5. Public Transport	24
4.6. Emergency Vehicles.....	24
4.7. Environmental Risk Assessment.....	24
5. TRAFFIC MANAGEMENT MEASURES	25
5.1. Road and Intersection Upgrades.....	28
5.2. Fog, Ice and Snow	28
5.3. Traffic Control Plans.....	28
5.4. Scheduling.....	29
5.5. Dilapidation Report.....	29
5.6. Heavy Vehicle and Over-Dimension Vehicle Management	30
5.6.1. Vehicle Movement Plans and Heavy Vehicle Haulage Routes	30
5.6.2. Pedestrian Safety.....	31
5.6.3. Drivers Code of Conduct and Fatigue Management	31
5.6.4. Over-size and Over-mass (OSOM) Vehicles	31
5.6.5. Heavy Vehicle Recovery or Salvage	32
5.6.6. Dangerous Goods.....	32
5.6.7. Heavy Vehicle National Law	33
5.7. In-Vehicle Monitoring Systems.....	33
5.8. Weed and Hygiene Control	33
5.9. Traffic Incidents	33

6. TRANSPORT AND TRAFFIC MONITORING PROGRAM	34
6.1. Monitoring and Reporting	34
7. COMPLIANCE MANAGEMENT	35
7.1. Training.....	35
7.2. Inspections	35
7.2.1. Vehicle Inspections	36
7.3. Traffic Working Groups	36
7.4. Review and Auditing.....	37
7.5. Reporting.....	37
APPENDIX A – DRIVERS CODE OF CONDUCT	38
APPENDIX B – APPROVED HEAVY VEHICLE HAULAGE ROUTES	41

TABLE OF TABLES

Table 1-1: Consultation undertaken for this plan.....	9
Table 2-1: Conditions of Approval relevant to traffic, transport and access.....	10
Table 2-2: Revised environmental management measures relevant to traffic, transport and access	13
Table 3-1: Regional and local roads utilised for Segment Factory works	16
Table 3-2: Key intersections utilised for Segment Factory construction and operation	20
Table 4-1: Project aspects and impacts relevant to traffic.....	22
Table 4-2: Average and peak daily one-way traffic movements during operation without use of PBS vehicles	Error! Bookmark not defined.
Table 4-3: Average and peak daily one-way traffic movements during operation with use of PBS vehicles...	23
Table 5-1: Traffic management measures.....	27
Table 6-1: Traffic monitoring parameters and frequency	34
Table 7-1: Traffic management inspections	35
Table 7-2: Traffic management audits.....	37

TABLE OF FIGURES

Figure 3-1: Segment Factory location (EIS, EMM).....	18
Figure 3-2: Segment Factory location in local context (EIS, EMM).....	19
Figure 3-3: Indicative layout of PBS vehicles	21

ABBREVIATIONS AND DEFINITIONS

Acronym	Definition
ADG code	Australian Code for the Transport of Dangerous Goods by Road and Rail
CoR	Chain of Responsibility
DCC	Drivers Code of Conduct
DPIE	NSW Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
Segment Factory EIS	<i>Environmental Impact Statement – Proposed Segment Factory</i>
EMS	Environmental Management Strategy
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
Future Generation	Future Generation Joint Venture
Future Generation-PMS	Project Management System
GHS code	Globally Harmonised System of Classification and Labelling of Chemicals National Codes of Practice
HVNL	Heavy Vehicle National Law
ISO	International Standards Organisation
IVMS	In Vehicle Monitoring Systems
KNP	Kosciuszko National Park
NEM	National Electricity Market
NPW Act	<i>NSW National Parks and Wildlife Act 1995</i>
NPW Regulation	<i>NSW National Parks and Wildlife Regulation 2009</i>
NPWS	NSW National Parks and Wildlife Service
OEH	NSW Office of Environment and Heritage
OSOM	Over-sized Over-mass
PEP	Project Execution Plan
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REMMs	Revised environment management measures
RMS	Roads and Maritime Services
RTS or Submissions Report	<i>Segment Factory Response to Submissions</i>
SDS	Safety Data Sheet
SMRC	Snowy Monaro Regional Council
SSI	State significant infrastructure
SVC	Snowy Valleys Council
TCG	Traffic Control Group
TGP	Traffic Guidance Plans
TfNSW	Transport for NSW

Acronym	Definition
TMC	Traffic Management Centre
TMP	Traffic Management Plan (this Plan)
TTLG	Traffic and Transport Liaison Group
UN number	United Nations numbers for Dangerous Goods transportation
VMP	Vehicle Movement Plans

1. INTRODUCTION

1.1. Overview

Snowy Hydro Limited (Snowy Hydro) is constructing a pumped hydro-electric expansion of the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), called Snowy 2.0. Snowy 2.0 is being built in two stages: Exploratory Works (which has commenced) and Snowy 2.0 Main Works.

Snowy 2.0 is a pumped hydro-electric project that will link the existing Tantangara and Talbingo reservoirs through a series of new underground tunnels and a hydro-electric power station. Most of the project's facilities will be built underground, with approximately 27 kilometres of concrete-lined tunnels constructed to link the two reservoirs and a further 20 kilometres of tunnels required to support the facility. Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs.

Snowy 2.0 will increase the generation capacity of the Snowy Scheme by an additional 2,000 MW, and at full capacity will provide approximately 350,000 MWh of large-scale energy storage to the National Electricity Market (NEM). This will be enough to ensure the stability and reliability of the NEM, even during prolonged periods of adverse weather conditions.

WeBuild (formerly Salini Impregilo), Clough and Lane have formed the Future Generation Joint Venture (Future Generation) and have been engaged to deliver both Stage 2 of Exploratory Works and Snowy 2.0 Main Works. To support the construction of these projects, a precast concrete segment factory is required to be established to enable the concrete segments that line the tunnel to be manufactured.

This plan has been prepared for the Snowy 2.0 Segment Factory.

1.2. Background

The Segment Factory is required to manufacture precast concrete segments exclusively to line the tunnels being excavated for Snowy 2.0 Exploratory Works and Main Works. The construction and operation of the Segment Factory is essential for the efficient completion and realisation of Snowy 2.0. The Segment Factory will operate the production and transportation approximately 14,500 precast reinforced concrete tunnel rings (containing 130,500 segments) to be exclusively used on the Snowy 2.0 project.

The Segment Factory is located on industrial-zoned land in the south-eastern corner of Polo Flat, an industrial zoned area located to the east of Cooma. The operational facility will contain a concrete batching plant, a warehouse building for the manufacture of precast concrete segments (the precast building), uncovered storage areas for raw material and segments, vehicle parking areas and associated offices and workshops.

An environmental impact statement has been prepared for Snowy 2.0 Segment Factory (*Environmental Impact Statement - Proposed Segment Factory* (Segment Factory EIS)) to assess the impact of the project on the environment.

The Segment Factory EIS was submitted to Department of Planning, Industry and Environment in September 2019 and was publicly exhibited between 10 October 2019 and 6 November 2019. A total of 33 submissions were received, including 26 from the public and six from NSW government agencies and one from Snowy Monaro Regional Council. Of the 26 public submission, 22 related to Snowy 2.0 Main Works rather than the segment factory. In December 2019, the response to submissions was prepared (*Segment Factory Response to Submissions*) (Submissions Report or RTS). Following consideration of this document and the Segment Factory EIS, approval was granted by the Minister for Planning and Public Spaces on 31 March 2020, through issue of Infrastructure Approval SSI 10034.

The Segment Factory EIS was prepared to assess the impact of these works on the environment, and included an assessment of traffic impacts within chapter 5.2 – Transport and Appendix F.

The Segment Factory EIS identified that the main traffic issues were related to traffic movements for the operation of the Segment Factory resulting in increased congestion on main and local roads along the main route to the project site. Additional issues addressed in the EIS included road closures and the potential need for road upgrades to accommodate heavy vehicles and large machinery.

1.3. Approved project

Construction of the Snowy 2.0 Segment Factory (Segment Factory or project) includes, but is not limited to:

- demolition and removal of buildings on southern part of the site, and removal of the decommissioned communications tower;
- installation of temporary fencing and security measures as well as any necessary construction environmental management measures;
- confirmation of all utility services and any affected services which were relocated or required to be made safe to allow construction to proceed;
- clearing and removal of topsoil and vegetation (excavated topsoil excavated was stockpiled on site for later use);
- earthworks, including:
 - cut and fill to establish a level area for the pads;
 - trenching to install services (power, water and communications);
- laying concrete for the precast building;
- laying of asphalt or concrete for all internal roads; and
- laying of cement soil for all other areas, including the storage areas;
- construction of primary access roads in the unmade road corridor and connection to Polo Flat Road;
- pavement strengthening works on Polo Flat Road from the intersection with the Monaro Highway to the site access road;
- upgraded intersection of Polo Flat Road and the Monaro Highway;
- installation of temporary traffic signals at the intersection of Snowy Mountains Highway and Bombala Street; and
- construction of all buildings (precast building, offices, workshops and guardhouse), concrete batching plant, carparks, and associated facilities.

The operation of the Segment Factory will include the fabrication of precast tunnel segments utilising steel moulds. Key elements in the fabrication of the precast tunnel segments will include carousel production cycle, curing of segments, repair works, packer placement, quality control, and precast tunnel segment handling and transport.

The concrete batch plant is located on the southern portion of the site and will include a conveyor system, cement and silo slags and adjacent aggregate and sand storage areas for mixing to form concrete prior to insertion into steel moulds.

1.4. Management System

The overall environmental management system for the Segment Factory is described in the Environmental Management Strategy (EMS).

This Traffic Management Plan (TMP or plan) forms part of Future Generation's environmental management framework as described in the EMS.

Ongoing revisions to this plan will occur in accordance with Section 1.7 of the EMS, and as required by condition 2 of schedule 4 of the Infrastructure Approval. Circumstances requiring a review, and if necessary, revision of this plan include submission of incident reports or audit reports, approval of modifications to the conditions of Approval and directions of the Planning Secretary under condition 2 of schedule 4.

1.5. Purpose

This TMP has been prepared to address the requirements of the Infrastructure Approval (SSI-10034) (the Approval) issued for Snowy 2.0 Segment Factory on 31 March 2020, the Segment Factory EIS, and the revised environmental management measures (REMMs) within the Submissions Report.

The purpose of this plan is to describe how traffic is to be managed during construction and operation of Snowy 2.0 Segment Factory. It outlines the control measures that are to be implemented to minimise the potential impacts from traffic generation on the surrounding community and environment.

The key objective of the TMP is to ensure that traffic related impacts are minimised and within the scope permitted by the conditions of Approval. To achieve this objective, Snowy Hydro and Future Generation will:

- ensure appropriate measures are implemented during construction and operation of the Segment Factory to minimise traffic impacts for public road users;
- ensure appropriate measures are implemented to address the revised environmental management measures provided within Table 2-2;
- ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 2 of this Plan; and
- ensure vehicles transporting products from the Segment Factory to the Exploratory Works and Main Works sites comply with protocols to minimise the risk of spreading weeds from the site.

Specific on-site management measures identified in this plan will be incorporated into site documents where relevant. These site-specific documents will be prepared for construction and operation activities of the Segment Factory and will detail the management measures which are to be implemented on the ground. Segment Factory personnel will be required to undertake works in accordance with the mitigation measures identified in the site-specific documents.

1.6. Consultation Summary

In accordance with schedule 3, condition 10 of the Approval, the TMP is to be prepared in consultation with;

- Transport for NSW (TfNSW); and
- Snowy Monaro Regional Council (SMRC).

On 14 February 2020, the initial plan was issued to TfNSW and Snowy Monaro Regional Council (SMRC). Additionally, a workshop with stakeholders was held on 21 February 2020 regarding the content of the management plans.

Consultation undertaken is summarised in Table 1-1.

Table 1-1: Consultation undertaken for this plan

Date	Consultation	Outcomes
14 February 2020	TMP submitted for consultation to TfNSW and SMRC.	There were no comments received in writing regarding the TMP.
21 February 2020	Agency briefing with EPA, TfNSW and SMRC.	Relevant comments raised on the TMP have been addressed in this plan.
19 March 2020	Traffic Transport Liaison Group Meeting.	Project wide discussion of Traffic and Transport management.
29 October 2020	TTLG Meeting.	Status update of works.
17 December 2020	TTLG Meeting.	Noted to have regular meetings even quarterly not monthly.
6 February 2021	Consultation with SMRC.	Recent comments raised on the TMP have been addressed in this plan.
19 March 2021	Consultation with TfNSW	Recent comments raised on the TMP have been addressed in this plan.

2. ENVIRONMENTAL REQUIREMENTS

2.1. Legislation

Legislation relevant to traffic and transport management includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act);
- *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation);
- *Roads Act 1993*;
- *Dangerous Goods (Road and Rail Transport) Act 2008*;
- *Road Transport Act 2013*;
- *Transport Administrations Act 1988*;
- *Road Rules 2014*; and
- *National Parks and Wildlife Act 1974* (NPW Act)

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the EMS.

2.2. Conditions of Approval

The conditions relevant to traffic, transport and access are presented in Table 2-1.

Table 2-1: Conditions of Approval relevant to traffic, transport and access

Condition	Requirement	Where addressed
Schedule 3 Condition 1	<p>The Proponent must complete the following road works (see figure in Appendix 2) to the satisfaction of Council:</p> <ul style="list-style-type: none"> (a) construct the site access road and its intersection with Polo Flat Road as a basic right (BAR) turn treatment and basic left (BAL) turn treatment prior to commencing operation; (b) pavement strengthening works on Polo Flat Road from the Monaro Highway intersection to the site access road prior to transporting concrete segments from the site; <p>These works must comply with the relevant requirements in the Austroads Guide to Road Design (as amended by TfNSW supplements).</p> <p>If there is a dispute in the scope of the pavement strengthening works, then either party may refer the matter to the Planning Secretary for resolution.</p>	Section 5.1
Schedule 3 Condition 2	<p>Prior to transporting concrete segments from the site, the Proponent must install temporary traffic signals at the Snowy Mountains Highway/Bombala Street intersection to the satisfaction of TfNSW.</p>	Section 5.1
Schedule 3 Condition 3	<p>The Proponent must do the following to the satisfaction of Council:</p> <ul style="list-style-type: none"> (a) prepare a dilapidation survey of Polo Flat Road, in accordance with guidelines and standards established by Austroads: <ul style="list-style-type: none"> • prior to the commencement of any construction works; • within 2 months of the cessation of operation; (b) rehabilitate and/or make good any development-related damage to Polo Flat Road: <ul style="list-style-type: none"> • identified during the carrying out of construction and/or operation if it could endanger road safety, as soon as possible 	Section 5.5

Condition	Requirement	Where addressed
	<p>after the damage is identified, but within 7 days at the latest; and</p> <ul style="list-style-type: none"> identified in the dilapidation survey carried out following the cessation of operations within 2 months of the completion of the survey, unless Council agrees otherwise. <p>If there is a dispute in the scope of any remedial works or the implementation of these works, then either party may refer the matter to the Planning Secretary for resolution.</p>	
Schedule 3 Condition 4	Unless the Planning Secretary agrees otherwise, the Proponent must only use Performance Based Standards (PBS) vehicles to transport concrete segments from the site.	Section 3.4
Schedule 3 Condition 5	All heavy vehicles associated with the development must use the designated heavy vehicle routes in Cooma, including the Monaro Highway, Polo Flat Road and the Snowy Mountains Highway (see the figure in Appendix 3)	Section 5.6.4 Approved Heavy Vehicle Haulage Routes Drivers Code of Conduct
Schedule 3 Condition 6	Heavy vehicles associated with the development must not use the southern end of Polo Flat Road containing the timber rail bridge, between Sale Yards Road and the Monaro Highway.	
Schedule 3 Condition 7	<p>The Proponent must:</p> <p>(a) not receive raw material deliveries by heavy vehicles to the site between the hours of 10pm and 5am;</p> <p>(b) ensure that the development does not generate more than:</p> <ul style="list-style-type: none"> 175 heavy vehicle movements during the day and evening; and 45 heavy vehicle movements transporting finished segments from the site during the night on the public road network; <p>(c) ensure that the length of any vehicles (excluding over-dimensional vehicles) used for the development does not exceed 27 metres; unless the Planning Secretary agrees otherwise.</p>	Section 5
		Section 5
		Section 5 Section 5.6
Schedule 3 Condition 8	<p>The Proponent must keep accurate records of the number of heavy vehicles entering or leaving the site for the duration of the development.</p> <p><i>Note: The Proponent is required to obtain relevant permits under the Heavy Vehicle National Law (NSW) for the use of over-dimensional vehicles on the road network</i></p>	Section 5 Section 5.6
Schedule 3 Condition 9	<p>The Proponent must:</p> <p>(a) minimise the road traffic noise of the development;</p> <p>(b) construct all internal roads on site as all-weather roads;</p> <p>(c) provide sufficient parking on site for all vehicles, and ensure vehicles associated with the development do not park on the surrounding public road network;</p> <p>(d) ensure all vehicles are loaded and unloaded on site, and enter and leave the site in a forward direction; and</p> <p>(e) ensure all heavy vehicles leaving the site are in a clean condition, and do not track dirt onto the public road network or spread weeds into the Kosciuszko National Park</p>	Drivers Code of conduct Noise Monitoring and Management Plan
		Section 5
		Section 5
		Section 5 Section 5.8
Schedule 3 Condition 10	Prior to the commencement of construction, the Proponent must prepare a Traffic Management Plan for the development in consultation with TfNSW and Council, and to the satisfaction of the Planning Secretary. This plan must include:	This plan

Condition	Requirement	Where addressed
	(a) a schedule for avoiding peak traffic periods and conflicts with other road users, including: <ul style="list-style-type: none"> minimising potential for conflict with peak winter traffic, school buses and other motorists as far as practicable; scheduling haulage vehicle movements to minimise convoy length or platoons; a traffic management system for managing over-dimensional vehicles; 	Section 5.4 Section 5.6
	(b) measures to maintain road safety and network efficiency, including: <ul style="list-style-type: none"> temporary traffic controls, including detours and signage; measures to minimise the cumulative traffic impacts of the development and the Snowy 2.0 Main Works project; measures to maintain safety for other road users and pedestrians in the Cooma town centre; heavy vehicle salvage plans or protocols, including measures to inform road users of any incidents, delays and/or alternative routes; details of any employee shuttle bus service and measures to encourage employee use of this service; responding to any emergency repair or maintenance requirements; and responding to local climate conditions that may affect road safety; 	Section 5.3 Section 5.4 Section 5 Section 5.6.5 Section 5 Section 5.6.5 Section 5.2
	(c) measures to minimise noise from development-related traffic, including but not limited to: <ul style="list-style-type: none"> limits on truck engine braking on Polo Flat Road and through Cooma; notifying the local community about development-related traffic impacts; procedures for receiving and addressing complaints from the community about development related traffic and noise; 	Section 5.6.3 Drivers Code of Conduct Section 5.6.2 and Section 7.3 Community and Stakeholder Engagement Plan
	(d) a driver's code of conduct that addresses: <ul style="list-style-type: none"> travelling speeds; driver fatigue; procedures to ensure that drivers adhere to the designated heavy vehicle routes; procedures to ensure that drivers implement safe driving practices; and 	Section 5.6.3 Drivers Code of Conduct
	(e) a program to ensure drivers working on the development receive suitable training on the code of conduct and any other relevant obligations under the Traffic Management Plan;	Section 5.6.3 and Section 7.1
	(f) measures to minimise dirt and weeds being tracked onto the public road network. Following the Planning Secretary's approval, the Proponent must implement the Traffic Management Plan.	Section Error! Reference source not found.
Schedule 3 Condition 13 (b)	Prior to commencing operation, the Proponent must prepare a Noise Monitoring Plan for the development, to the satisfaction of the Planning Secretary. This plan must include: <ul style="list-style-type: none"> (b) procedures for receiving and addressing complaints from the community about development related noise, including road traffic noise 	Noise Monitoring and Management Plan Community and Stakeholder Engagement Plan

2.3. Revised Environmental Management Measures

Environmental safeguards and management measures are included in Section 6 of the EIS. During preparation of the Submissions Report, revised environmental management measures were developed and included in Appendix C.

The revised environmental management measures relevant to this plan are listed in Table 2-2 below.

Table 2-2: Revised environmental management measures relevant to traffic, transport and access

Impact	Reference	Revised Environmental Management Measures	Where addressed
Traffic controls	TRA01	Traffic controls would be implemented during the construction of the intersection of the access road with Polo Flat Road.	Section 5.1 Section 5.3
Community notification	TRA02	Community consultation, notifying communities, visitors and emergency services would be undertaken for any disruptions to traffic and access restrictions required by the project.	Section 5.6.2 Section 7.3 Environmental Management Strategy
Management plan	TRA03	The EMS would set out guidelines, general requirements and procedures to be used when construction and operational activities impact on existing traffic arrangements.	Sections 5-7
Dilapidation survey	TRA04	A dilapidation survey will be completed before the project commences. A subsequent dilapidation survey will be carried out at completion of the project and impacts to the road pavement will be rectified.	Section 5.5
Weed Management	BIO05	A weed wash-down station would be constructed and operated at a suitable location on the site. Wash-down of vehicles will be completed before and after any movements on site to prevent the spread of weeds during the construction phase	Section 5.8

2.4. Licences and Permits

Environment Protection Licence (EPL) 21419 has been issued for the Segment Factory for the scheduled activity of Concrete Works as defined under the POEO Act. The EPL details conditions which must be complied with when undertaking the scheduled activity.

The Segment Factory EPL will require variation once construction works are complete, and prior to commissioning the Segment Factory, in order to establish conditions pertinent to operation.

Road occupancy licences will be obtained as required from the relevant road authority.

2.5. Guidelines

The main guidelines, specifications and policy documents relevant to this plan include:

- *Roads and Maritime Services (RMS) QA Specification G10 – Traffic Management;*
- *RMS Traffic Control at Worksites Manual (Version 6, 2020);*
- *Road Occupancy Manual (Roads and Maritime Services (RMS)), 2015;*
- *Additional Access Conditions Oversize and overmass heavy vehicles and loads (RMS, May 2019)*
- *Australian Standard 1742 Parts 1 to 14 Manual of Uniform Traffic Control Devices;*
- *Australian Standard 1742.3-2009 Traffic control devices for works on roads;*

- AGTM 02-08 *Guide to Traffic Management Part 2: Traffic Theory*, 2015;
- AGTM 06-07 *Guide to Traffic Management Part 6: Intersections and Crossings – General*, 2013;
- AGRD 04-09 *Guide to Road Design Part 4: Intersections and Crossings – General*, 2009;
- AGPT05-11 *Guide to Pavement Technology Part 5: Pavement Evaluation and Treatment Design*, 2011.

3. EXISTING ENVIRONMENT

A Traffic and Transport Assessment (included within Appendix F of the Segment Factory EIS) was undertaken to determine the potential traffic and transport impacts for the project.

The Segment Factory is located within Cooma, the largest town within the Monaro region. The town is served by the Snowy Mountains Highway and Monaro Highway, highways that function as main roads through the town centre with links to the wider road network.

The location of the Segment Factory and the local and regional road networks are shown in Figure 3-1 and Figure 3-2.

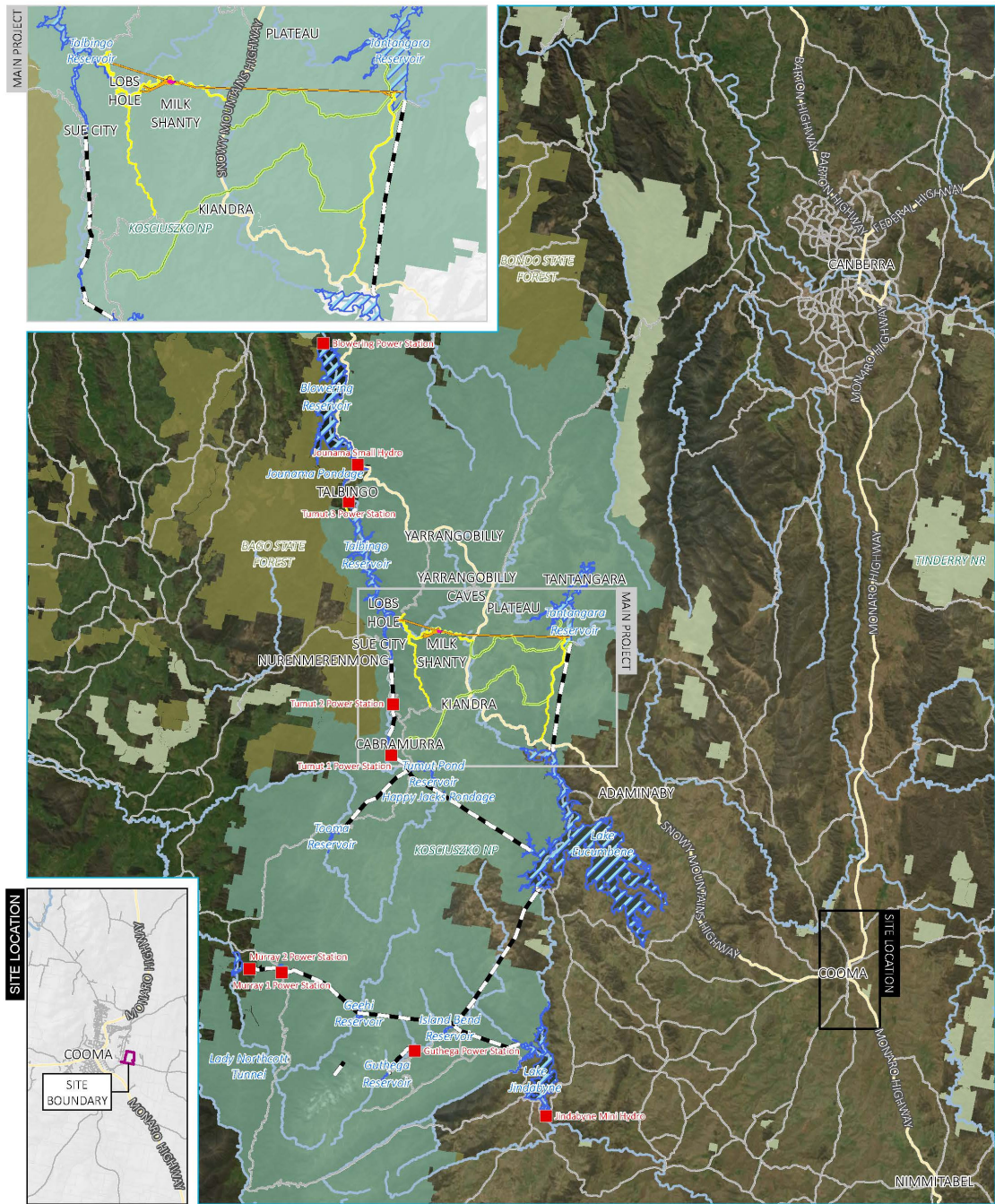
3.1. Existing Road Network

The Snowy Mountains and Monaro Highways will be the main transport routes utilised by project generated traffic during both the construction and operational phases of the Segment Factory. Table 3-1 lists the roads being used during the construction and operation of the Segment Factory, including those for the transportation of segments to the KNP, their general locality and the authority they are allocated to.

Table 3-1: Regional and local roads utilised for Segment Factory works

Name	Description	Location	Authority
Snowy Mountains Highway	Characteristics of Monaro Highway include: <ul style="list-style-type: none"> • 333 km state highway connection between Hume Highway at Mount Adrah and Princes Highway at Stony Creek • two-lane two-way for the majority of its alignment, with sign posted speed limits between 60 km/h to 100 km/h • passes through Tumut and Cooma and functions as a town centre main road in both locations • provides access to Selwyn Snow Resort for vehicles travelling from either Tumut or Cooma 	Cooma Region	TfNSW
Monaro Highway	Characteristics of Monaro Highway include: <ul style="list-style-type: none"> • 285 km long north-south highway connecting Canberra and Cooma where it joins the Snowy Mountains Highway at the intersection of Monaro Highway (Snowy Mountains Highway) / Bombala Street in Cooma • two-lane, two-way highway with road width varying from between 7.4 to 10.3 m • speed limit varies between 50 km/h and 100 km/h and includes 40 km/hr school zones • generally an approved 25/26 m B-Double route apart from a section of road between Murray Street and Snowy Mountains Highway which is not permitted to carry B-Double vehicles 	Cooma Region	TfNSW
Polo Flat Road	Characteristics of Polo Flat Road include: <ul style="list-style-type: none"> • 4 km long fully sealed road, connecting Monaro Highway to the north and the Snowy Mountain Highway to the south; • road width varies from between 6.0 to 8.6 metres with speed limit capped at 80 km/h within the industrial area; • there is a railway bridge on Polo Flat Road near its intersection with Baron Street, with low clearance of 4.1 metres; • Polo Flat Road is an approved 25/26 m B-Double route. 	Cooma Region	SMRC
Saleyards Road	Characteristics of Saleyards Road include: <ul style="list-style-type: none"> • 209 m long fully sealed road, connecting Snowy Mountains Highway to the south and Polo Flat Road to the north • two-lane two-way local road with a road width varying from 10 m to 13 m • provides a bypass route from Monaro Highway to Polo Flat Road for heavy vehicles more than 4.1 m in height • Saleyards Road is an approved 25/26 m B-Double route 	Cooma Region	SMRC
Yareen Road	Characteristics of Yareen Road include: <ul style="list-style-type: none"> • 1.6 km long fully sealed local road, connecting Monaro Highway to the west and Polo Flat Road to the east • road width varies from 7.3 to 8.8 m with a speed limit of 60 km/h • Yareen Road is an approved 19 m B-Double route with travel conditions: no travel is permitted between 7:00 am to 9:00 am and 3:00 pm to 5:00 pm on school days 	Cooma Region	SMRC

Name	Description	Location	Authority
Link Road	Characteristics of Link Road include: <ul style="list-style-type: none"> • two-lane road between Goat Ridge Road to the west and Snowy Mountains Highway (B72) to the east • provides the connection between Cabramurra and the Snowy Mountains Highway with a speed limit ranging between 80 km/h to 45 km/h • during snow season, traffic volumes along the road increase due to the nearby Selwyn Snow Resort, which is accessible via the Link Road and Kings Cross Road intersection 	Within the KNP	NPWS
Tantangara Road	Characteristics of Tantangara Road include: <ul style="list-style-type: none"> • local road running in a north-south direction from the Snowy Mountains Highway to Tantangara Reservoir • two-lane two-way road with a speed limit of 100 km/h generally as there is no speed limit posted • general trafficable width of at least 6 m on most sections • sections of the road surface have frequent corrugations and loose gravel. Large potholes which retain water are also present on many sections • all intersections are of a basic T-junction and lack additional turning lanes and other traffic capacity or safety improvements. • Tantangara Road is currently not an approved B-Double route 	Within project boundary	NPWS
Lobs Hole Ravine Road	Characteristics of Lobs Hole Ravine Road include: <ul style="list-style-type: none"> • northern section (which will be used for at least emergency use) is 23 km long, single lane and gravel • southern section of Lobs Hole Ravine Road is approximately 14 km of narrow, single lane, unsealed road linking between Link Road to the future project worksite within the Lobs Hole-Ravine Reserve • road has narrow sections along cliff edges and the road width varies from 3.0 to 4.6 m • existing road alignment will be substantially widened to dual lane in each direction and reconstructed for use by the project construction traffic • internal intersections are proposed to be of a basic T-junction • Lobs Hole Ravine Road is not an approved B-Double route 	Within project boundary	NPWS



Source: EMM (2019); FGJV (2019); Snowy Hydro (2019); DFSI (2017); GA (2011); LPMA (2011)

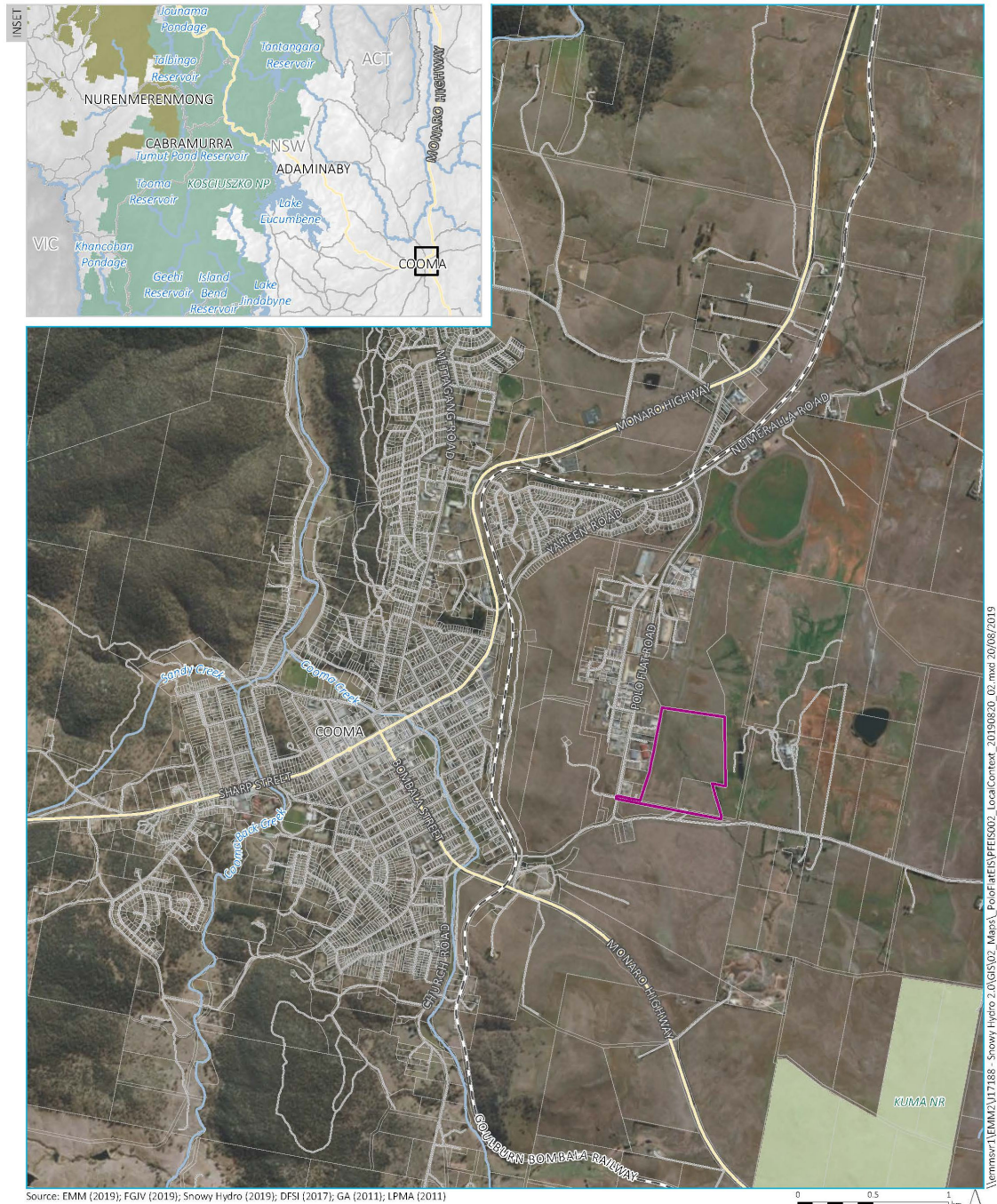
KEY

- | | | |
|--|---|---|
| Site boundary | ■ Existing power station | — Main road |
| — Snowy 2.0 project elements | — Existing pipeline tunnel | — Local road or track |
| — Utilities | ■ Scheme storage | — Watercourse |
| — Tunnels, portals, intakes | Kosciuszko National Park | NPWS reserve |
| ■ Power station | State forest | |
| — Permanent roads and surface infrastructure | | |

Location of the project area

Snowy 2.0
Water Assessment
Proposed Segment Factory

Figure 3-1: Segment Factory location (EIS, EMM)



KEY

- Site boundary
- Rail line
- Main road
- Local road or track
- Watercourse
- Cadastral boundary
- NPWS reserve

Location of site in local context

Figure 3-2: Segment Factory location in local context (EIS, EMM)

3.2. Key Intersections

Table 3-2 lists the key intersections being utilised for the construction and operation of the Segment Factory.

Table 3-2: Key intersections utilised for Segment Factory construction and operation

Cooma / Polo Flat	Within Kosciuszko National Park
Monaro Highway / Yallakool Road	Link Road / Lobs Hole Ravine Road
Monaro Highway / Polo Flat Road (north end)	Snowy Mountains Highway / Link Road
Monaro Highway / Saleyards Road (south of Polo Flat Road)	Snowy Mountains Highway / Tantangara Road
Monaro Highway (Snowy Mountains Highway) / Bombala Street	
Snowy Mountains Highway / Vale Street	
Snowy Mountains Highway / Kosciuszko Road	
Monaro Highway/Yareen Road (potential for residents from Joule Ridge)	

3.3. Seasonal Traffic Variation

Due to the vicinity of resorts within the Snowy Mountains to the study area, significant seasonal variations in visitors and associated traffic on the road network exist. For example, existing traffic volumes on Link Road have indicated pre-Covid-19 peaks in the month of July (13,608 vehicles, which is more than double the average monthly traffic volume (5,935 vehicles) across the year).

The main roads within Cooma and the major corridors of Snowy Mountains Highway and Kosciuszko Road towards the Adaminaby / Kiandra and Jindabyne / Thredbo areas, experience significantly increased daily and peak hourly traffic volumes during the summer mountain bike riding and winter peak snow season periods, as well as on organised events, weekends, public holiday, and school holiday periods.

3.4. Performance Based Standards Vehicles

For the purposes of transporting segments from the Polo Flat Segment Factory to the Exploratory and Main Works sites, Future Generation will use Performance Based Standards (PBS) vehicles. These vehicles include three articulated trailers which would hold three times the number of segments compared to a regular semi-trailer (nine segments compared to three). An indicative layout of the PBS vehicles is provided in Figure 3-3.

During the interim period of manual segment production prior to a fully operational automated pre-cast system, standard HVs carrying 3 segments per load will be used to progress segment transport. Throughout this period the volume of segments produced for transport to site does not meet the need for PBS vehicles. As such the volume of daily trucks will be significantly less than the 175 daily allowance. In addition, in the event that the PBS require maintenance or are not roadworthy, standard HVs carrying 3 segments per load will be used to progress segment transport.

At no time will the number of vehicle movements exceed the 175 day and evening movements or 45 night movements as detailed in Schedule 3 Condition 7.

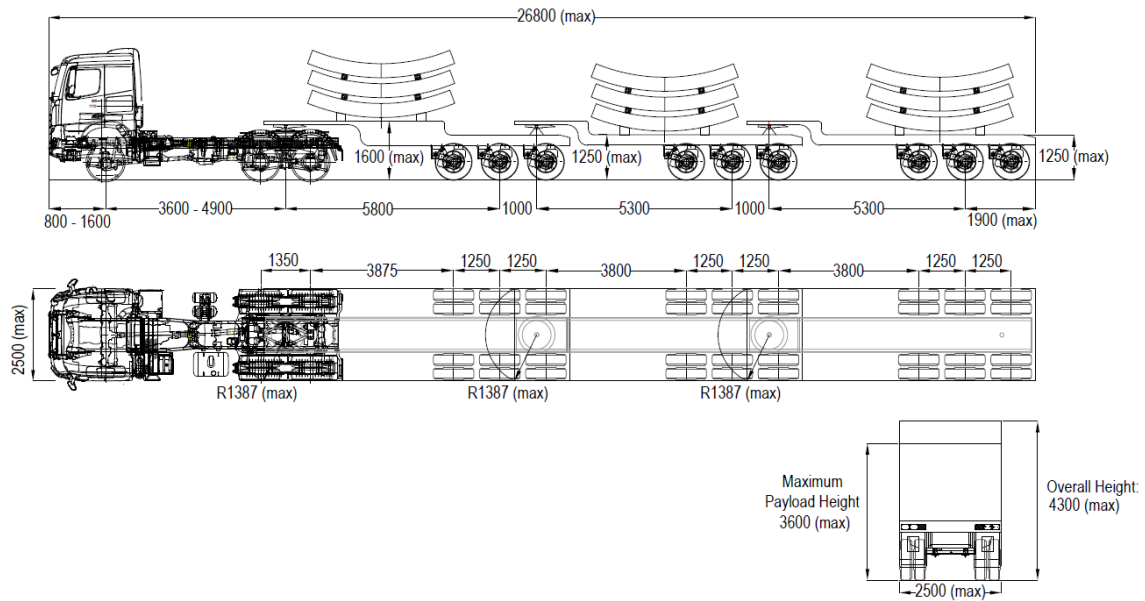


Figure 3-3: Indicative layout of PBS vehicles

4. TRAFFIC ASPECTS AND IMPACTS

4.1. Environmental Aspects and Impacts

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental Management Systems). The relationship of aspects and impacts is one of cause and effect.

Key aspects of the project that could result in environmental impacts from traffic are identified in Table 4-1. The extent of these impacts will depend on the nature, extent and magnitude of construction activities and their interaction with the natural environment (Column 2). This is further exacerbated by environmental factors (Column 3).

Key aspects of the project that may result in impacts to traffic, transport and access include:

- transport of equipment and materials to site establishment;
- transport of goods for the operation of the Segment Factory;
- transport of the manufactured precast concrete segments from the site; and
- travel of workforce to and from the Segment Factory.

The EIS determined in Section 5 that the key traffic issues for the Segment Factory related to traffic movements for the operation of the Segment Factory resulting in increase of congestion on main and local roads. Additional issues addressed in the EIS included road closures and the potential need for road and intersection upgrades to accommodate heavy vehicles and machinery.

Table 4-1: Project aspects and impacts relevant to traffic

Environmental Aspects (Construction activities that may impact traffic)	Environmental Impacts	Environmental Factors (Conditions)
The transport of plant, equipment and materials The transport of the manufactured precast concrete segments Operation of segment facility Increased light and heavy vehicle movements via Cooma and KPN.	Traffic queuing and increased travel times Noise and vibration Air quality (dust generation, green gas emissions) Reduced access to public facilities – Campgrounds and other KNP facilities, tracks and trails Damage to the road by construction heavy vehicles	Road standard Temporary imposed road operation conditions Intersection type and number Existing traffic volumes Time of day dependency Weather related issues (e.g. snow and ice) Season

4.2. Construction Traffic Volumes

Construction vehicle movements will be made up of a combination of construction worker's light vehicles and heavy vehicles transporting equipment, building and construction materials, waste, and fill material if required.

4.3. Operational Traffic Volumes

Operational vehicle movements will comprise light vehicles (worker's vehicles and service vehicles) and heavy vehicles required for the transportation of the main inputs for the segments (primarily aggregate, sand, cement and steel rebar) and for the transportation of the segments from the site to the Exploratory and Main Works sites.

4.4. Traffic and Transport Impacts

The EIS and RTS reviewed a worst-case traffic and transport scenario for the purpose of determining potential cumulative traffic and transport impacts for the Segment Factory and Main Works. The worst-case scenario comprised:

- the 'With Project' scenario;
- during the construction stage of Main Works (as the amount of additional traffic to be generated during the operational stage would be less than the levels of traffic generated during the construction stage of the Main Works);
- assessing the cumulative impact of both the Segment Factory and the Main Works;
- using the busiest year for the project – 2022; and
- with and without PBS vehicles.

It was determined that the level of daily increase of light and heavy vehicles as a result of the Segment Factory will not have any significant impacts to the capacity of the road network given the network is currently operating at very low volume/capacity ratios with significant amount of spare capacity.

4.4.1. Traffic and Transport Impacts - with PBS Vehicles

The use of PBS vehicles for the transportation of segments was approved by the planning secretary in the Infrastructure Approval for the Segment Factory on 31 March 2020. It is anticipated that traffic movements associated with the project would be markedly reduced. Average and peak daily one-way traffic movements during operation of the Segment Factory, utilising PBS vehicles are provided in Table 4-2.

Table 4-2: Average and peak daily one-way traffic movements during operation with use of PBS vehicles

Road network	Average daily light vehicle movements	Average daily heavy vehicle movements	Peak daily light vehicle movements	Peak daily heavy vehicle movements
Monaro Highway (east of Polo Flat Road north towards Canberra)	8	26	13	42
Monaro Highway (west of Polo Flat Road south towards Cooma)	78	12	98	22
Polo Flat Road (north)	75	39	97	64
Polo Flat Road (south)	105	0	133	0
Monaro Highway (south of Polo Flat Road towards Bombala)	8	0	13	0
Snowy Mountains Highway (west of Bombala Street towards Adaminaby)	8	12	15	22
Tantangara Road	5	6	8	11
Link Road	5	6	8	11
Total	292	101	385	172

4.5. Public Transport

There are no regular mass transport systems currently in operation within the vicinity of the Segment Factory works. No impact will result from activities associated with the Segment Factory works.

4.6. Emergency Vehicles

Access for emergency vehicles will be unaffected as there are no plans to close any of the roads to emergency vehicles.

4.7. Environmental Risk Assessment

The environmental aspects and impacts for traffic and transport are further considered within Appendix A3 of the EMS. This includes a risk assessment process. The risk assessment is based on (1) the likelihood of an impact occurring as a result of the aspect; and (2) the consequences of the impact if the event occurred.

5. TRAFFIC MANAGEMENT MEASURES

A range of environmental requirements and control measures are identified in the Segment Factory EIS, RTS and the Approval. Safeguards and management measures will be implemented to avoid, minimise or manage traffic impacts. Specific safeguards and management measures to address potential traffic impacts of the project are identified in Table 5-1.

Traffic and transport impacts of the construction and operation of the Segment Factory will be managed in coordination with the Snowy 2.0 project as a whole. Management will include the development and implementation traffic management plans for OSOM movements, traffic controls plans, the approval and regulation of heavy vehicle movements and haulage routes, and clear, regular communication to the community about traffic impacts. Management of traffic is dominated by the management of heavy vehicles transporting segments to the Exploratory and Main Works sites and returning.

To minimise impacts the following management measures will be applied:

- Segment Factory construction and operational supply materials will be delivered in full loads where practicable;
- all heavy vehicles associated with the development must use the designated heavy vehicle routes in Cooma, including the Monaro Highway, Polo Flat Road and the Snowy Mountains Highway (see Appendix B);
- heavy vehicles associated with the development must not use the southern end of Polo Flat Road containing the timber rail bridge, between Sale Yards Road and the Monaro Highway;
- segments will be transported for use using PBS vehicles (unless the Planning Secretary agrees otherwise) and in full loads wherever possible;
- project heavy vehicles will be loaded and unloaded on site, and enter and leave the site in a forward direction;
- the Segment Factory will not receive raw material deliveries by heavy vehicles to the site between the hours of 10 pm and 5 am;
- the Segment Factory will limit movements of heavy vehicles to:
 - 175 heavy vehicle movements during the day and evening; and
 - 45 heavy vehicle movements transporting finished segments from the site during the night on the public road network;
- the length of any vehicles (excluding over-dimensional vehicles) used for the development will not exceed 27 metres;
- records of the number of heavy vehicles entering or leaving the site each day, evening and night, for the duration of the development will be kept.
- project vehicles will leave the sites in a clean condition to ensure vehicles do not track dirt onto public roads and weeds being tracked into the Kosciusko National Park;
-
- delivery driver inductions will discuss convoying and techniques to avoid this behaviour;
- the delivery of materials and transport of segments will be planned and scheduled to minimise the impact during peak traffic periods;
- traffic control plans will be developed for haulage routes and key intersections. Traffic routes will be in accordance with the Approval;
- all drivers will be required to adhere to the Drivers Code of Conduct provided in Appendix A;

- dedicated and demarcated parking areas for light and heavy vehicles will be provided and vehicles associated with the development will not park on the surrounding public road network;
- where workers are travelling to and from the Pacific Hill accommodation camp, dedicate shuttle buses will be provided on a regular basis; and
- internal roads will be constructed as all weather purpose roads.

Table 5-1: Traffic management measures

ID	Measure / Requirement	When to implement	Responsibility	Source document
General				
PF_TRA01	Traffic controls would be implemented during the construction of the intersection of the access road with Polo Flat Road.	Construction	Future Generation	REMM TRA01
PF_TRA02	Community consultation, notifying communities, visitors and emergency services would be undertaken for any disruptions to traffic and access restrictions required by the project.	Pre-construction / construction / operation	Future Generation	REMM TRA02
PF_TRA03	A weed wash-down station would be constructed and operated at a suitable location on the site. Wash-down of vehicles will be completed before and after any movements on site to prevent the spread of weeds during the construction phase	Construction / operation	Future Generation	REMM BIO05

5.1. Road and Intersection Upgrades

The following road and intersection works will be undertaken to allow for the construction and operation of the Segment Factory and the transport of segments from Polo flat to the KNP:

- construction of the site access road and its intersection with Polo Flat Road as a basic right (BAR) turn treatment and basic left (BAL) turn treatment prior to commencing operation;
- pavement strengthening works on Polo Flat Road from the Monaro Highway intersection to the site access road prior to transporting concrete segments from the site; and
- installation of temporary traffic signals at the intersection of Snowy Mountains Highway and Bombala, to the satisfaction of TfNSW.

These upgrades will comply with the Austroads Guide to Road Design (as amended by RMS supplements) and will be carried out to the satisfaction of the relevant roads authority.

5.2. Fog, Ice and Snow

Local climate and weather conditions in the project area such as fog, storms, and snow present potential safety concerns to road users during construction. All employees will be inducted and made aware of potential weather impacts on road used. Risks will be assessed daily by monitoring weather forecasts. The impacts will be managed by including weather forecasts and relevant management strategies in daily planning.

Management measures will include speed reductions, use of fog lights during periods of low visibility, cessation of works, grading and salting (by others) for snow removal and advising suppliers of potential adverse weather and likely site shutdowns. Future Generation would ensure there is appropriate training for such conditions. If required project specific snow chain fitting bays will be provided on project specific roads.

Table 3-1 lists the roads being used for the construction and operation of the Segment Factory, and the authority they are allocated to, during winter periods these authorities will be responsible for winter maintenance (ploughing, salting etc.).

5.3. Traffic Guidance Plans

Specific Traffic Guidance Plans (TGPs) will be developed for all construction and operational activities that affect traffic conditions and the safety of road users. They will be developed progressively during construction and operation in accordance with the Roads and Maritime publication Traffic Control at Works Sites Manual and the Australian Standard AS1742-2002 Manual of Uniform Traffic Control Devices.

Where required TGPs will be developed in consultation with the relevant road authority which includes TfNSW, NPWS and Snowy Valleys and Snowy Monaro Regional Councils. The emergency services will be notified prior to the implementation of traffic changes to ensure that they are aware of the potential impacts that may affect emergency responses.

The TGPs will establish the specific management measures to be implemented to ensure the safety of road users and to maintain efficient road network operations. They will include:

- the traffic control devices to be installed in advance of the works which may include cones, barriers, signs, traffic controllers and temporary traffic signals;
- additional advisory signs or speed restrictions to be installed where necessary;
- road occupancy requirements and approvals;
- road speed reductions required for the safety of the public and workers; and

- traffic management inspection and maintenance requirements.

TGPs will consider traffic movements during both the NSW and ACT public holidays.

5.4. Scheduling

In order to limit cumulative impacts on the road network and impacts to local residents and pedestrians, scheduling of vehicle movements to avoid peak traffic periods and conflicts with other road users will be implemented. Scheduling will act to:

- minimise potential for conflict with organised events, peak seasonal traffic, school buses and other motorists as far as practicable; and
- scheduling haulage vehicle movements to minimise convoying or platoons.

Scheduling will look to avoid adverse impacts to local traffic from 12pm Friday to 6am the following Monday during the operational period or 6am Tuesday following a public holiday.

To help prevent project traffic impacting non-project traffic across the road network, layup areas at Polo Flat, Rock Forest, the Link Road turn around and Main Works project sites will be established. Allocated security and logistics personnel at key site entry points and layup areas will work to communicate and direct the layup and flow of traffic. Where queuing into project sites impacts the road network, layup areas will be informed to hold or stagger project vehicles until clearance is given.

Traffic queues will aim to not exceed 250 metres measured along a single lane in any direction or 5 minutes. Where queues exceed this, vehicles will pull over, where safe and feasible to do so, to enable normal traffic volumes resume.

Project staff will be made aware of the need to report any impacts on the road network so that reactive measures can be implemented.

In advance of OSOM deliveries, OSOM permits will be sought. The issuing of these permit will take into consideration the scheduling of OSOM movements to minimise cumulative impacts on the road network.

Scheduling requirements will be included in driver inductions, the DCC and will be reiterated through pre-starts. Additional scheduling management is provided in Section 5.6.1.

5.5. Dilapidation Report

Prior to commencement of construction, a road dilapidation report will be prepared in accordance with Austroads guidelines and a completed report provided to the satisfaction of the relevant road authority(s).

The road dilapidation report will be submitted to the relevant road authority prior to commencing construction and/or decommissioning works. The report will capture the current condition of the road surface on the relevant sections of Polo Flat Road.

Within two months of the cessation of operations of the project, a dilapidation survey of Polo Flat Road will occur in conjunction with Snowy Monaro Regional Council, and a report will be prepared. The report will give consideration to any damage as a result of general road usage (under equivalent pre-development conditions and heavy vehicle volumes).

Should assessed damage be deemed to have been caused by project traffic such damage will be assessed against the initial dilapidation report and where agreed, repairs will be completed in consultation with the relevant road authority.

5.6. Heavy Vehicle and Over-Dimension Vehicle Management

During the procurement, tendering and on boarding of all Future Generation and contracted heavy vehicle drivers, drivers will be made aware of the strict requirements of the project approval and expectations regarding haulage routes and driver conduct.

5.6.1. Vehicle Movement Plans and Heavy Vehicle Haulage Routes

Vehicle Movement Plans (VMPs) will be developed for both external and internal roads. VMPs will be used to communicate approved heavy haulage routes, travel directions, permitted intersection turning movements and approved parking and layup areas (areas used to queue trucks prior to entry to site). VMPs are to be presented diagrammatically to allow for clear communication with the workforce. VMPs will be progressively developed during construction and updated as conditions change.

The designated heavy vehicle and over-dimension vehicle haulage routes to be used during the operation of the Segment Factory are included in Appendix B. Heavy vehicle routes to and from construction sites have been prepared with the objectives being to minimise impacts to local roads and maximise the utilisation of State and regional roads where feasible and reasonable.

Should the use of any local roads be required for heavy vehicles during construction that are not identified in this TMP, approval from Snowy Hydro must be obtained and consultation with the road authority must be undertaken. Justification must be provided as to why the use is necessary and they are to be included in the VMP once approval is granted for their use.

Where an emergency requires, non-project listed roads, including local roads may be used by light vehicles and heavy vehicles only where safe to do so and authorised by the relevant authorities.

Lay-up areas for heavy vehicles, if needed, will be suitably positioned to ensure safe exit and entry to the roadway. If lay-up areas are determined to be required, Future Generation will comply with all requirements in planning and constructing the lay-up and the TMP will be reviewed to determine if an update is required, or if additional approvals are required. Heavy vehicle parking, idling and queuing on public roads will be minimised where practicable particularly within Cooma.

Heavy vehicle parking, idling and queuing on public roads will be minimised where practicable particularly within the regional towns of Tumut, Talbingo, Adaminaby and Cooma. The impact of heavy vehicles from convoys and congestion through local townships during peak traffic periods are to be mitigated through the following initiatives:

- segment transport will be scheduled the day prior and staggered to prevent vehicles queuing. As much as possible, deliveries will be arranged so they travel at an ordered distance allowing for a steady entry into Link Road without the need to queue;
- heavy vehicle movements and deliveries will be scheduled to occur such that heavy vehicle travel during peak periods through Cooma and Tumut, defined as between 8:00am and 9:30am and between 4:00pm and 5:30pm, or during organised events will be avoided where practicable;
- heavy vehicle movements and deliveries will be scheduled to occur such that travel through Cooma, Tumut, and along the Monaro Highway will avoid peak seasonal traffic times such as Friday and Sunday afternoons, long weekends, and organised events where practicable;
- particular care will be given to avoid the need for heavy vehicle travel through school zones such as that adjacent the Snowy Hydro office in Cooma during school zone operating hours;
- the Drivers Code of Conduct (DCC) requires drivers to pull over when safe to do so should excessive queuing occur on single lane roads; and
- heavy vehicles will aim to travel staggered from one another when in transit in order to minimise delays to non-construction vehicle movements. This will be managed by:

- scheduling of vehicle movements;
- drivers will communicate via radio to aim to maintain distance between each heavy vehicle; and
- any OSOM escort vehicles will be used to coordinate staggered movements.

At all times heavy vehicle drivers will be required to obey the road rules which includes covering of loads when in transit to and exit from the project site.

5.6.2. Pedestrian Safety

In order to manage pedestrian safety through local townships, the following initiatives have and will continue to be implemented:

- community awareness campaigns; and
- notification of road closures and interruptions.

5.6.3. Drivers Code of Conduct and Fatigue Management

The safety of workers and road users is of paramount importance to Snowy Hydro and Future Generation, and the fit and proper behaviour of drivers is directly related to establishing and maintaining a high safety standard. Further, all drivers involved in the project must comply with the legal obligations whilst operating vehicles.

To assist in achieving safe outcomes during construction and operation, a DCC has been developed and is included in Appendix A. The purpose of the DCC is to minimise the impact of individual behaviours of drivers related to the project on all users of the public roads that Future Generation will be utilising as including user safety. The DCC outlines acceptable behaviour for all vehicle drivers in connection with the project.

Prior to involvement in the project all vehicle drivers will be required to have read the DCC and acknowledge their compliance with it throughout their involvement in the project. The expectations of the DCC will be established in the project induction and will be reiterated through pre-starts.

Heavy vehicle haulage routes will be communicated to haulage contractors during the procurement stage and requirements of the Drivers Code of Conduct, route use and compliance included in their contracts.

The DCC includes an element of fatigue management. This includes the requirements for drivers on the project to manage their fatigue, be suitably rested and for operators of heavy vehicles to comply with the Chain of Responsibility (CoR) legal requirements under the *National Heavy Vehicle Law (Heavy Vehicle (Adoption of National Law) Act 2013)*. The fatigue management standards including those outlined in the Chain of Responsibility will be consistent with the standards outlined in the Fatigue Management Plan.

5.6.4. Over-size and Over-mass (OSOM) Vehicles

The designated haulage routes to be used during the operation of the Segment Factory by OSOM vehicles are included in Appendix B.

All heavy vehicles associated with the development must use the designated heavy vehicle routes in Cooma, including the Monaro Highway, Polo Flat Road and the Snowy Mountains Highway.

The Snowy Mountains Highway will serve as the main transport route to and from the project during construction and operation and provide access for OSOM vehicles required to deliver large indivisible objects. The Snowy Mountains Highway is classed as a Limited Access Location for the

purpose of OSOM transport and requires a specific permit to be obtained in advance of travel for vehicles exceeding 2.5m in width and/or 19m in length.

In advance of OSOM deliveries, Future Generation (or sub-contractor) will apply for an OSOM permit through the Nation Heavy Vehicle Regulator (NHVR) Portal. This will capture all relevant information point of origin, route and destination.

The purpose of the OSOM permit will be to check and approve that the vehicle type, load limit and haul route (consistent with the routes detailed above) are suitable under OSOM requirements. Notice of the OSOM deliveries will be provided to the community and relevant stakeholders as required on a case-by-case basis based on the potential impact. This will be reviewed and undertaken by the Logistics and Community teams. OSOM travel will occur under the conditions of permit once granted.

5.6.5. Heavy Vehicle Recovery or Salvage

If, in the unexpected event of an accident of a project related vehicle on a public road, requiring recovery or salvage, the Police and road authority would be notified, and Police control the accident scene for first response and or investigation. Any ultimate salvage operation would need to be coordinated through these agencies as Future Generation are not authorised to immediately commence a salvage or tow operation which would likely involve emergency TGP's for road closures, use of cranes and or other equipment.

In the event of a simple breakdown without incident/accident Future Generation would have access to both an on-call workshop service truck (best case – repair and recommence journey) or on-call HV tow service (worst case – tow back to base) for any project owned heavy vehicles. Future Generation subcontractors would be required to have a plan for the same (on road emergency plan).

Where vehicle recovery is required on site the Construction Manager will prepare a recovery plan with relevant project disciplines where required.

5.6.6. Dangerous Goods

Transport of chemicals, hazardous materials and other dangerous goods will comply with the following principles:

- dangerous goods are assigned UN numbers and proper shipping names;
- dangerous goods are transported in accordance with their hazard classification and their composition;
- reactive materials will not be transported in the same consignment;
- dangerous goods will be packaged in accordance with their classification criteria and the packaging will be intact prior to acceptance for transport or delivery at the project site;
- dangerous goods will be properly labelled as per the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code) or the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) National Codes of Practice (GHS Code) prior to acceptance for delivery to the project site;
- chain of custody and consignment documentation, including SDS, will be available for the duration of the transport and presented prior to acceptance of the dangerous goods at site; and
- emergency response plans for the containment and clean-up of hazardous substances will be in place prior to shipment of the material.

Refer to the Australian Code for the Transport of Dangerous Goods by Road and Rail, Edition 7.5. August 2017 for further information.

5.6.7. Heavy Vehicle National Law

Persons involved in the loading of vehicles for road transport must ensure that the vehicle is not overloaded. It is noted that the recent changes to Chain of Responsibility provisions within the Heavy Vehicle National Law (HVNL) make all persons who may influence the mass of a vehicle or its load responsible for compliance with the HVNL.

5.7. In-Vehicle Monitoring Systems

To internally monitor compliance with road rules, speed limits and transit hours, In-Vehicle Monitoring Systems (IVMS) will be installed in project light vehicles to monitor vehicle usage and speed.

IVMS performance will be internally monitored on a monthly basis and will be enforced across Future Generation personnel through an IVMS Performance Management Procedure which will deduct points from personnel based on the level of violation committed. Once a person reaches zero all driving privileges are revoked for 30 days.

5.8. Weed and Hygiene Control

In order to minimise the risk of any weeds originating from the site entering the KNP or elsewhere, a wash-down station will be constructed and operated upon entry / exit to the site. Wash-down of vehicles will be completed before and after any movements on site to prevent the spread of weeds during the construction phase. For vehicles moving between the Segment Factory and the KNP, additional weed and hygiene controls will be implemented in accordance with Exploratory and Main Works controls.

The entire site has been constructed with a hardstand finish and a sealed access road to remove the risk of dirt being tracked onto the public road network. Additionally, during operation of the Segment Factory any residual dust collected while on site will be removed at the wash-down on exiting the site.

5.9. Traffic Incidents

Traffic incidents may occur within Snowy 2.0 project areas or external to project areas.

In the event of a traffic incident within project sites:

- safety and environment related traffic incidents within the bounds of project areas will be managed in accordance with the EMS and the Health and Safety Management Plan and the associated incident and emergency reporting procedures;
- depending on the type and severity of the incident this may include notification to the Department in writing for incidents defined under the Approval, notification to the NPWS where required under the Deed of Agreement of Lease and notification to the EPA for pollution related incidents. Snowy Hydro or Future Generation would notify the Department in writing immediately after they become aware of the incident on site.

In the event of a traffic incident external to project sites, but within project roads as described in Table 3-1, relevant authorities will be notified.

If a traffic incident were to occur external to project roads defined in Table 3-1, TfNSW and / or the local council nearest to the incident will be notified.

6. TRANSPORT AND TRAFFIC MONITORING PROGRAM

6.1. Monitoring and Reporting

Across the Snowy 2.0 project, monitoring will be undertaken to confirm that satisfactory traffic, transport and access outcomes are achieved. The parameters and frequency of monitoring is provided in Table 6-1.

All monitoring will be internally recorded and the findings will be discussed with the Snowy 2.0 Traffic Control Group (TCG) and a Traffic and Transport Liaison Group (TTLG). This includes discussions relating to network interruptions which may occur from the Segment Factory heavy vehicles.

Table 6-1: Traffic monitoring parameters and frequency

Site Location	Parameters	Type	Frequency
All	Congestion impacts to level of service, convoys and driver conduct	Inspection	Refer to Section 7.2
All	Road conditions, safety and traffic signage	Inspection	Refer to Section 7.2
IVMS Monitoring			
Internal/External	Internal/External	Internal/External	Internal/External
Drivers Code of Conduct Monitoring Program			
All	Any breach of obligations by law including speeding	Observations and reports from transporter or law enforcement	Quarterly
N/A	Licensed to operate the vehicle	Desktop review of driver qualifications	
All	Any breach of the Project's Vehicle Movement Plans (VMP)	Observations and safety incident reports	
All	Any breach of Chain of Responsibility requirements including fatigue management requirements	Desktop review of CoR records	
All	Operating the vehicle in a suitable manner to the road, fauna and weather conditions	Observations and safety incident reports	
All	Inappropriate reporting and safety precautions are undertaken in the event of a fauna strike	Observations and environment incident reports	
N/A	Failure to notify Future Generation personnel that the status of an individual's ability to legally drive changes	Safety reports	
All	Failure to operate a vehicle in a manner that is inconsiderate or dangerous to the public without justifiable reason	Observations, safety incident reports and reports from transporter or law enforcement	

7. COMPLIANCE MANAGEMENT

7.1. Training

All site personnel will undergo the Future Generation site induction training relating to traffic issues. The induction training will address elements related to traffic including:

- existence and requirements of this TMP;
- relevant legislation;
- roles and responsibilities for traffic management;
- light vehicle routes to and from site;
- arrangements for transport of workers to site;
- on-site and between site radio protocols;
- traffic, transport and access mitigation and management measures; and
- procedures to be implemented in the event of an incident (e.g. traffic accidents).

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in traffic, transport and access management. Examples of training topics include:

- vehicle movement plans – approved heavy vehicle haulage routes, safe entry and exit and other access restrictions;
- driver behaviour and the drivers code of conduct for heavy vehicles;
- delivery driver's induction which will include safe protocols to be followed whilst travelling on internal and external roads. The briefing will reinforce posted speed limits, advisory speeds and historic high accident points on winding sections of road;
- driving in snow and during icy conditions; and
- driver fatigue awareness training.

7.2. Inspections

Inspection of traffic, transport and access management measures will be undertaken regularly, with attention being made to those areas that interface with the public and affecting public safety. Additional inspections may be undertaken in accordance with the Future Generation Traffic Control Plans. Table 7-1 details the inspection and monitoring regime. All inspections will be internally recorded, and the findings will be discussed with the Snowy 2.0 TCG and a TTLG.

Table 7-1: Traffic management inspections

Inspection	Frequency	Action	Reporting	Responsibility
Road closures	Weekly	Inspection of signage and road closure delineation when road closure is in place	Traffic inspection report	Future Generation
Cooma	Monthly during heavy vehicle or over-dimension vehicle use	Inspection of heavy vehicle and over dimension vehicle routes for construction related convoys, congestion or level of service impacts during peak traffic periods	Traffic inspection report	Future Generation

Traffic management inspections will be coordinated by Future Generation and will occur as required in accordance with Table 7-1.

In addition, effectiveness of the implemented management measures will be monitored in accordance with the Section 9 of the EMS. This includes monitoring through the implementation of a regular program of environmental inspections. Weekly environmental inspections are intended to:

- provide for surveillance to ensure that safeguards are being implemented;
- identify where problems might be occurring;
- identify where sound environmental practices are not being implemented; and
- facilitate the identification and early resolution of problems.

Any non-conformances identified through the inspection process will be managed in accordance with Section 8 of the EMS. Any non-conformance which may form a non-compliance or incident as defined in the Infrastructure Approval will be reported to DPIE in accordance with Section 7 and Section 8 of the EMS. Findings will also be discussed in the Snowy 2.0 TCG and TTLG where required.

7.2.1. Vehicle Inspections

Inspections of project vehicles will be undertaken to ensure project vehicle specifications and mobilisation requirements are met. This will include evidence of weed and speed inspections and in vehicle monitoring systems (IVMS) where required.

7.3. Traffic Working Groups

A traffic working group, in the form of the Traffic and Transport Liaison Group (TTLG) will operate throughout the life of the project. The TTLG will enable high-level notification to all stakeholders of project transport management including but not limited to logistics planning for upcoming changes and revision of existing traffic arrangements. The Traffic and Transport Liaison Group will be held on a regular basis and will include, but not be limited to representatives from::

- Snowy Hydro;
- Future Generation
- TfNSW;
- SMRC and SVC;
- NSW Police;
- NPWS;
- Destination NSW; and
- DPI&E.

The purpose of the working group will be to ensure:

- effective communication and operation around Snowy Mountains;
- road safety;
- road users are informed of increased traffic / heavy vehicles in the region; and
- road users are informed of roadworks being undertaken.

7.4. Review and Auditing

Review of the TMP will be undertaken through a Traffic Control Group (TCG) and a Traffic and Transport Liaison Group (TTLG). These review groups will be coordinated by the Future Generation Logistics and Traffic Manager.

Audits, inspections and monitoring will be internally recorded and the findings and outcomes will be reported to the TCG, TTLG and any other relevant agencies.

Audits will be undertaken to assess the effectiveness of traffic, transport and access management measures, compliance with this TMP, the Driver Code of Conduct, the conditions of Approval, EIS, RTS and other relevant approvals, licences and guidelines. Specific traffic related auditing is identified in Table 7-2. Auditing includes audits of driver fatigue management and over-size or over-mass permits.

All other audit requirements, including independent audits, are detailed in Section 9.3 of the EMS.

Table 7-2: Traffic management audits

Road	Site location	Parameters	Type	Frequency
Internal/External	All	Driver fatigue	Audit	3 monthly audit of work rosters and delivery schedules
External	All	OSOM Permits	Audit	3 monthly audit of deliveries under OSOM permit
External	All	Driver conduct and transport route use	Review	Monthly review of traffic related complaints

7.5. Reporting

Future Generation will report to Snowy Hydro and other agencies as required on traffic management issues related to the project. This includes notification in relation to traffic incidents which adversely impact on traffic flow associated with the project.

Reporting will include monthly internal project reports and incident and audit reports, as required by the conditions of Approval. Reporting requirements and responsibilities are documented in Section 9.4 of the EMS.



APPENDIX A – DRIVERS CODE OF CONDUCT

Drivers Code of Conduct – General

All drivers involved in the construction and operation of the Segment Factory are to comply with this Drivers Code of Conduct. By reading the attached you acknowledge your obligations and accept your responsibility with regards to the safe and legal operation of vehicles at all times whilst working on this project.

Drivers obligations

- 1) Drivers MUST at all times:
 - a) adhere to all of the obligations required by law;
 - b) be licensed to operate the vehicle;
 - c) drive at no more than the legal speed limit including those imposed by the project;
 - d) comply with all construction and roadwork signs and Vehicle Movement Plans (VMPs);
 - e) take the necessary and/or prescribed rest breaks so that operation of the vehicle is not affected by fatigue;
 - f) operate the vehicle free from the effects of drugs and alcohol;
 - g) adhere to approval haulage routes and the project imposed speed limits; and
 - h) ensure that vehicles are operated safely and with a high degree of care and attention.
- 2) Drivers moving between the Segment Factory and the Snowy 2.0 Exploratory and Main Works sites, must travel via Polo Flat Road, Monaro Highway, Snowy Mountains Highway, Tantangara Road, Link Road and Lobs Hole Ravine Road;
- 3) Drivers must not use the southern end of Polo Flat Road between Sale Yards Road and the Monaro Highway due to the presence of a low railway bridge.
- 4) Vehicles will be operated in a manner that is suitable to the road and weather conditions including consideration for the potential for encountering wildlife.
- 5) In the event of any potential fauna strike, drivers are to:
 - a) ensure their personal safety;
 - b) notify their supervisor who MUST in turn notify the Future Generation environmental staff or Site Foreman / Superintendent.
- 6) There shall be no littering either onsite or whilst operating on the roads. Rubbish is to be disposed of in appropriate bins.
- 7) Drivers are to notify their employer or operator immediately should the status or conditions of their driver's licence change in any way.
- 8) Drivers are to avoid, where possible the use of engine braking on Polo Flat Road and on Cooma local roads.
- 9) Drivers are to give due consideration to the public at all times. This includes:
 - a) behaving and driving professionally at all times;
 - b) responding courteously if approached by members of the public and directing them to the community contact number.

Additional requirements for heavy vehicles or over-dimension vehicles

In addition to the general driver requirements all heavy or over-dimension vehicle drivers involved in the construction and operation of the Segment Factory are to comply with the additional requirements related to heavy vehicles.

- 1) Drivers MUST at all times:
 - a) adhere to their Chain of Responsibility requirements;
 - b) ensure the heavy vehicle is operated within its legal mass and dimension limits;
 - c) adhere to any permit to travel requirements;
- 2) Drivers are to take regular rest breaks to manage fatigue and breaks of no less than the minimum periods prescribed by the National Heavy Vehicle Regulator. For solo drivers with no Basic Fatigue Management accreditation this means:
 - a) For the first 11 hours a maximum of 10 hours work time with 60 minutes rest in blocks of 15 continuous minutes
 - b) A maximum work time of 12 hours in 24 hours with 7 continuous hours of stationary rest
- 3) Drivers are to give due consideration to the public at all times. This includes:
 - a) laying up in approved locations only. Stopping on unformed road shoulders is not permitted;
 - b) not queuing or idling on local roads. Deliveries are to be staggered to allow steady entry into site and to avoid queuing on public roads;
 - c) adhering to the approved heavy vehicle routes and approved turn movements;
 - d) covering loads on transit to and from the project site;
- 4) Convoys and congestion can have a large impact on the local community and motorists and are of particular concern to Snowy Hydro. Drivers are to avoid forming convoys where other road users are limited in vehicle movements by no-break in heavy vehicles. Convoys will be limited during travel and avoid travel during peak periods through Cooma:
 - a) deliveries are to be scheduled to occur such that heavy vehicle travel through Cooma is avoided where practicable during the peak traffic periods;
 - b) drivers are required to pull over and allow traffic to pass when safe to do so should excessive queuing occur on single lane roads; and
 - c) heavy vehicles will aim to travel staggered from one another when in transit in order to minimise delays to non-construction vehicle movements.



APPENDIX B – APPROVED HEAVY VEHICLE HAULAGE ROUTES

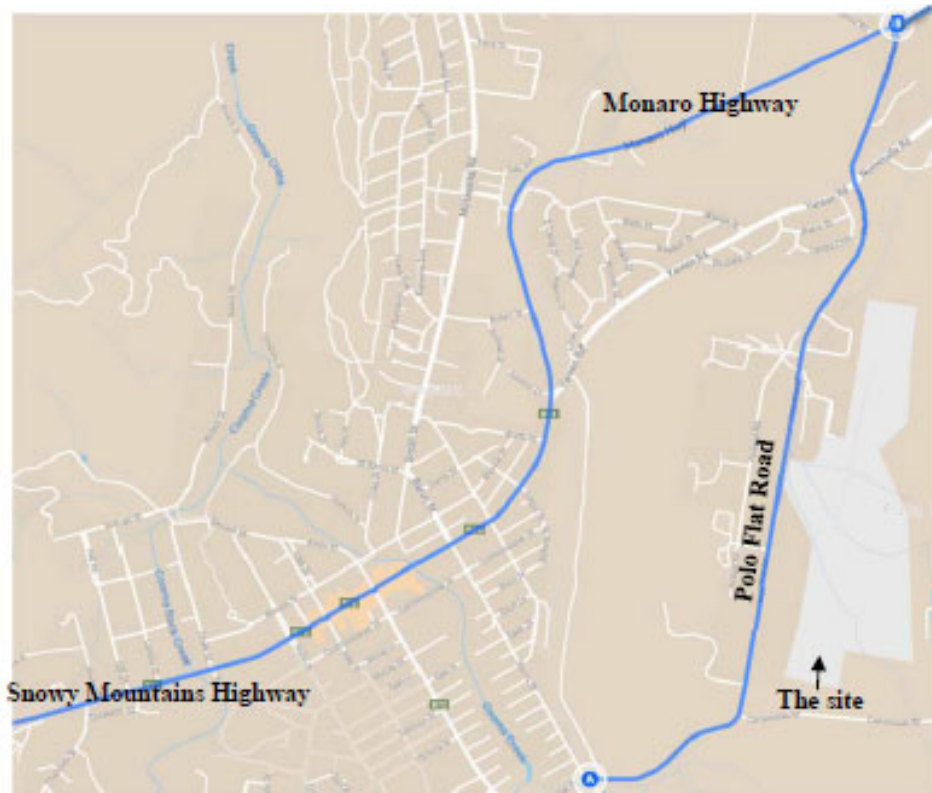


Figure B-1: Route through Cooma

