

# 15. Air Quality

The Air Quality Assessment examined the potential effects of the Project on air quality considering the requirements of and compliance with the State Environment Protection Policy (Air Quality Management) and identified strategies for management of effects of dust on sensitive receptors during construction.

The Project would result in generation of dust from construction activities and gaseous pollutants due to traffic movements during operation. Air quality impacts from construction are expected to extend beyond the construction corridor with slightly greater effects noted to the north of the road than to the south due to meteorological behaviour. Construction dust has a predicted impact zone extending no further than 375 metres (m) from the southern edge of the construction zone and 395m from the northern edge of the construction zone. Management measures, including dust suppression techniques and keeping construction vehicles to well defined haul routes, are expected to result in low to negligible impacts from construction dust.

As there are already vehicles travelling along the existing Western Highway, there are already vehicle emissions being emitted in the study area. It is expected that the increase in operational emissions from the Project would be negligible. As such the risk of impacts from vehicle emissions during operation of the Project is expected to be negligible.

In addition, the assessment found that operational emissions and construction dust are not expected to affect domestic water supplies and all of the assessed air pollutants from vehicles using the road are predicted to be below the Intervention Level for Air Quality Management used in Victoria.

Option 1 and Option 2 are very similar from an air quality impact perspective however, Option 2 has the least potential number of sensitive receptors located within the construction dust impact zone that would require additional dust management control to minimise impact (42 potential sensitive receptors for Option 2 compared with 47 for Option 1).

## 15.1 EES Objectives

The EES objective relevant to the Air Quality Assessment is:

- *To minimise air emissions, noise, visual, landscape and other adverse amenity effects, during the development and operation of the proposed duplicated highway to the extent practicable.*

This chapter discusses the air quality of the Project area, the potential impacts from the Project on this aspect of the environment, and the management measures recommended for implementation to minimise these impacts. More specifically, this chapter:

- Characterises ambient air quality (in terms of dust) and identifies sensitive receptors in the study area.
- Identifies and assesses potential effects of road construction activities on sensitive receptors due to an increase in dust or other emissions.
- Identifies recommended measures to avoid, mitigate and manage any potential effects, including any relevant techniques or methods to be used during construction to manage dust and odour and any residual effects.
- Addresses relevant requirements of the State Environment Protection Policy (Air Quality Management) and State Environment Protection Policy (Ambient Air Quality) and any implications for the Project.

This chapter is based on an Air Quality Impact Assessment report completed by GHD Pty Ltd (2012f), which is included in Technical Appendix L.

## 15.2 Study Area

The air quality assessment study area is the same as the Project area, which encompasses a corridor extending up to 1500m to the north and south of the existing Western Highway (refer to Figure 15-1).

## 15.3 Methodology

The State Environment Protection Policy for Air Quality Management (SEPP (AQM)) requires road projects to be assessed under Part D of Schedule C, which includes modelling of emissions to air from proposed transport corridors. These models require definition of the emissions (including physical characteristics), dispersion meteorology and levels of background (ambient) pollutants of the Class-1 indicators and so-called 'air-toxics'.

Therefore, to assess the air quality environment within the study area, the following tasks were completed:

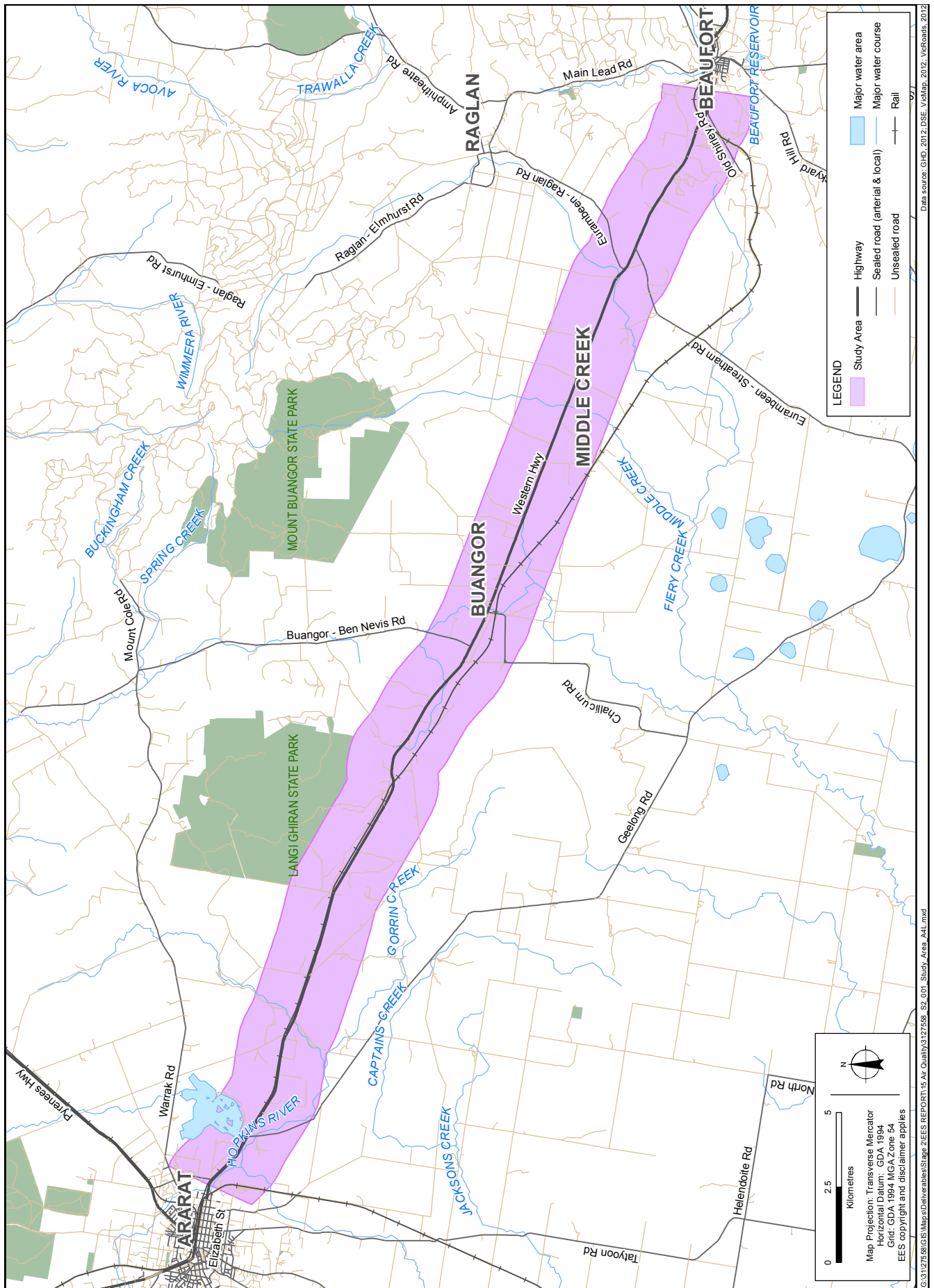
- A review of existing climatic data (temperature, wind and rainfall) and ambient air quality.

- Modelling of both construction and operation emissions to determine the impact of dust and vehicle emissions on the local environment. Construction activity emissions were modelled using the Environment Protection Authority (EPA) approved model AUSPLUME v6.0, while predicted line source emissions from vehicle emissions were modelled using AUSROADS.
  - Consideration of potential impacts upon air quality during construction and operation of the Project.
- A detailed description of the assessment methodology is included in Technical Appendix L.



*Western Highway, Box's Cutting*





**Figure 15-1 Air Quality Study Area**

## 15.4 Legislation and Policy

The legislation and government policies relevant to air quality are shown in Table 15-1.

**Table 15-1 Relevant air quality legislation and government policies**

Legislation/Policy	Description
<b>National</b>	
National Environmental Protection (Air Quality) Measure (AQ NEPM)	<p>AQ NEPM defines the Commonwealth requirements for national standards for criteria air pollutants in Australia. These aim to establish protection levels for exposure to selected air pollutants. The six key air pollutants relevant to a road project are:</p> <ul style="list-style-type: none"> <li>Carbon monoxide</li> <li>Sulphur dioxide</li> <li>Lead</li> <li>Ozone</li> <li>Nitrogen dioxide</li> <li>Particulate matter</li> </ul>
National Environment Protection (Air Toxics) Measure (Air Toxics NEPM)	<p>The Air Toxics NEPM establishes 'monitoring investigation levels' for five air toxics:</p> <ul style="list-style-type: none"> <li>Benzene</li> <li>Formaldehyde</li> <li>Benzo(a)pyrene as a marker for Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>Toluene</li> <li>Xylenes</li> </ul>
<b>State</b>	
<i>Transport Integration Act 2010</i>	<p>Part 2, Division 2, Section 10 of the Act outlines the transport objectives relating to environmental sustainability. These are:</p> <p>'The transport system should actively contribute to environmental sustainability by:</p> <ul style="list-style-type: none"> <li>Protecting, conserving and improving the natural environment;</li> <li>Avoiding, minimising and offsetting harm to the local and global environment, including transport-related emissions and pollutants and the loss of biodiversity;</li> <li>Promoting forms of transport and the use of forms of energy and transport technologies which have the least impact on the natural environment;</li> <li>Improving the environmental performance of all forms of transport and the forms of energy used in transport.</li> </ul>
<i>Environment Protection Act 1970</i>	<p>Air quality in Victoria is managed by the <i>Environment Protection Act 1970</i> (EP Act); and the relevant State environment protection policies created under Section 16 of the Act:</p> <ul style="list-style-type: none"> <li>State Environment Protection Policy (Air Quality Management) 2001 – SEPP (AQM); and</li> <li>State Environment Protection Policy (Ambient Air Quality) 1999 – SEPP (AAQ).</li> </ul>
State Environment Protection Policy (Air Quality Management) 2001  SEPP (AQM)	<p>Construction dust emissions and operational vehicle emissions (gases and particulates) would be managed by, and would need to comply with, the provisions of this policy which has been developed under the provisions of the EP Act (mentioned above).</p> <p>The criteria against which vehicle emissions from road corridors are to be assessed are referred to in Clause 40 of the policy – "Management of Large Line and Area-Based Sources of Emissions".</p> <p>Sub-clause (1) states that the Environment Protection Authority (EPA Victoria) 'will develop protocols for environmental management' (PEMs) for large line sources such as road projects. A PEM for road construction and operation has yet to be finalised. In the interim, EPA Victoria has adopted the Intervention Levels (defined by Schedule B of SEPP (AQM) to apply to specific roadway projects.</p> <p>Background air pollutant levels are required by the SEPP (AQM) for use in modelling of emissions from the Project. These background values are used as a basis for existing air pollution levels along the Project area and are added to overall predicted values within the model to be compared against the SEPP (AQM) intervention levels.</p>
State Environment Protection Policy (Ambient Air Quality) 1999  SEPP (AAQ)	<p>SEPP (AAQ) (developed under the EP Act) adopts the requirements of the Air Quality NEPM and operates in conjunction with SEPP (AQM).</p> <p>The SEPP (AAQ) is concerned with ambient air quality in Victoria and outlines seven environmental indicators that require measurement and reporting for compliance against State objectives and goals (concentrations within the ambient air shed) and which must be taken into consideration when proposing any changes to the environment, such as this current Project.</p>



## 15.5 Existing Conditions

For a road project, air quality considerations include potential emissions from both the construction phase and operational phase. The prevailing meteorology and climate affects both the generation of emissions and the dispersion of generated gases and particulates. Ambient air quality needs to be defined, as background levels are required in the modelling assessment of potential impacts (for both construction and operation).

### 15.5.1 Meteorology

Three weather monitoring stations were identified as having climate data relevant to the study area: Ballarat airport, Westmere and Ararat Prison.

#### Climate

The entire study area from Beaufort to Ararat can be classified as having a 'temperate' climate with 'no dry season (warm summer)'. Extreme values in temperature ('hot days' and 'frost days') occur more frequently at Ararat than at Ballarat.

#### Rain

In the study area, the wettest months occur in late winter to early spring. There is a clear pattern of higher rainfall and frequency in the Ballarat area (694 millimetres (mm) annual average rainfall at Ballarat airport) decreasing north-west to Ararat (594mm annual average rainfall at Ararat Prison). This has implications for the Project, because over an extended construction period (greater than the annual cycle), wet weather contingencies may be required. However, less construction dust generation would be expected at the south-eastern end (Beaufort) compared to the north-western end (Ararat) of the study area.

#### Wind

Annual average wind directions for the study area are predominately from the north. The prevailing wind direction from the north switches to the south and south-south-east during summer. Winds are lightest during autumn with the highest proportion of strong winds during winter.

#### Atmospheric Stability

Atmospheric stability describes the capacity of a pollutant such as gases, particulate matter, or odour to disperse into the surrounding atmosphere upon release, and is a function of the amount of turbulent energy in the atmosphere. For a road project, the two primary concerns are:

- Dust from construction activity; and
- Gases and particles from vehicle emissions.

These above points need to be assessed for their environmental impacts at sensitive receptors (such as dwellings), which are located away from the sources such as those associated with construction activity and vehicle emissions on an operating road.

The study area is represented by Westmere's atmospheric stability class (site representative) being predominately 'neutral' for well over half the time with 'stable' conditions for a little less than a quarter of the time. Neutral atmospheric conditions generally occur during the day or night with stronger winds, or during periods of total cloud cover, or during the twilight periods.

Stable atmospheric conditions occur in the absence of strong gradient winds, and mostly on nights with clear skies. They are often associated with ground-based radiation forced temperature inversions and are sometimes associated with frost, mist or fog. Mechanically generated dust emissions from road construction plant would have a larger extent of impact under these stable conditions.

### 15.5.2 Ambient Air Quality

The nearest air quality ambient measurement to the Project is at Ballarat, which is affected by urbanised and industrial sources. Therefore, for a rural area remote from these sources, the background ambient air quality values are assumed to be zero, except for particulate matter (dust levels are generally elevated in a rural environment due to agricultural activities such as ploughing, vehicle travel on unsealed roads etc).

#### Particulate Matter Less than 10 Microns (PM<sub>10</sub>)

Particulate matter as assessed in Schedule B of SEPP (AQM) is concerned with the respirable size fractions of less than 10 micron (one micron equals one millionth of a metre). For background PM<sub>10</sub> measurements, EPA Victoria had two monitoring data campaigns (2002/2003 and 2005/2006) at Ballarat which provided similar measurements. Considering Ballarat is the closest monitoring site to the Project, the 70<sup>th</sup> percentile of the background air pollutant level (16.9 micrograms per cubic metre (µg/m<sup>3</sup>)) from the 2002/2003 air monitoring campaign for particulate matter has been adopted.

#### Particulate Matter Less than 2.5 Microns (PM<sub>2.5</sub>)

For the respirable particle fraction of PM<sub>2.5</sub>, it is assumed that a background PM<sub>2.5</sub> level can be based on a ratio to the background PM<sub>10</sub> level, which is discussed above. However, even with well documented studies involving co-located instruments, the ratio has been shown to vary 'depending on season and location, and can range from 0.3 to 0.9' (NPEC, 2002) across a range of conditions within Australia. Since the study area is remote from urban populations involving high emission contributions from vehicle and other industrial uses, the ratio of PM<sub>2.5</sub> to PM<sub>10</sub> used in this report is at the lower estimate of 30 per cent from the NEPC research. The adopted PM<sub>2.5</sub> background level for the Project is therefore set at 5.1 µg/m<sup>3</sup>.

## 15.6 Impact Assessment

Modelling of both construction and operation emissions was carried out to determine the impact of dust and vehicle emissions on the local environment within the study area. Vehicle emissions were modelled using the line source model AUSROADS while predicted point source emissions from construction activities were modelled using AUSPLUME V6.0.

### 15.6.1 Key Issues

The construction and operation of the Project would result in generation of dust from construction activities and gaseous pollutants due to traffic movement. However, dust management protocols and environmental management measures would be required to minimise impact during construction. In addition, operational emissions are already present along the existing highway and any future increases in emissions are likely to be negligible. The Project is considered to have benefits of decreased vehicle emissions (including Greenhouse Gas emissions) per vehicle kilometre travelled due to:

- Lower travel times
- Improved gradients
- Less need for changing speeds.

### 15.6.2 Impact Pathways

Five pathways were chosen based on potential impacts from the construction and operation stages of the Project. Pathways are summarised as follows:

- Construction emissions impact on an individual sensitive receptor.
- Construction emissions impact on a local area (community).
- Construction/operational emissions deposit on residential housing that drain into domestic water supplies (i.e. tank water).
- Construction emissions deposit on agricultural/horticultural businesses at an individual sensitive receptor location.
- Operation of the Western Highway generates air emissions from vehicular traffic.

### Construction Emissions

An indication of the impact of dust downwind of a road construction project can be estimated by modelling dust sources along a linear construction site. Consideration needs to be given to a number of factors:

- Type of equipment
- Typical usage pattern
- Duration of construction activities
- Meteorological behaviour.

The modelling was carried out using the AUSPLUME v6.0 dispersion model to predict the PM<sub>10</sub> dust

impact on health. It is found that if this key element is used as the dominant indicator of downwind impact, then amenity issues due to dust fall out would also be controlled.

For a worst case scenario, the modelling was focused on the two 'dustiest' construction phases, which are:

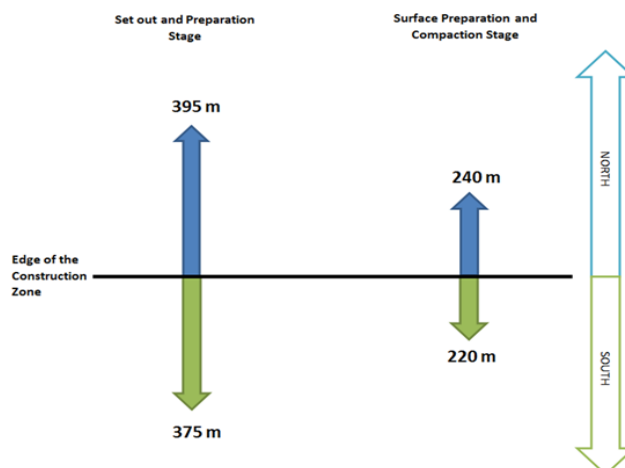
- Set out and preparation stage of the road corridor (earthworks); and
- Surface preparation and compaction stage (pavement preparation).

Two models were run to give indicative dust impacts to the north and south side of both alignments Option 1 and 2. A single indicative alignment orientation was chosen as the bearing from the two ends of the Project.

Construction impacts to air quality are expected to extend beyond the construction corridor with slightly greater effects noted to the north of the road than to the south due to meteorological behaviour. Construction dust has a predicted maximum impact zone of 375m from the southern edge of the construction zone and 395m from the northern edge of the construction zone. Any potential sensitive receptors (such as dwellings) located within the construction dust impact zone would require the specified additional dust management controls to minimise impacts on amenity. Figure 15-2 shows the construction dust impact zone, within which further dust management controls would be required during the road construction.

Residential and commercial premises are considered to be sensitive locations with regard to health and amenity impacts due to dust. The maximum construction footprint comes close to a number of potential sensitive receptors. Technical Appendix L tabulates the potential sensitive receptors located within the construction dust impact zone for Option 1 and Option 2:

- Option 1 – 47 Potential Sensitive Receptors
- Option 2 – 42 Potential Sensitive Receptors.



**Figure 15-2 Predicted Impact Zone from PM<sub>10</sub> Construction Dust for Mitigation Needs**



## Operational Emissions

The predicted operational emissions were modelled based on the fleet emissions inventory provided by EPA Victoria, which comprised a matrix of emission data based on:

- Year (2011 and 2021)
- Vehicle type (car, truck, petrol, diesel, LPG etc)
- Speed (10 kilometres per hour (km/h) increments from 10 to 110km/h).

Operational emissions comprise of air contamination from the motor vehicle exhaust which could be expected to contribute to the local air shed in the near field, where isolated residential sensitive receptors are present. AUSROADS was used to model a line-source representative of the alignment options of the Project to predict the emission factors for each of the following constituents:

- Carbon monoxide
- Oxides of nitrogen
- PM<sub>10</sub>
- PM<sub>2.5</sub>
- Benzene
- 1,3 Butadiene
- Formaldehyde
- Toluene
- Xylenes
- PAH (particle bound)

These constituents are the relevant key air pollutants from the AQ NEPM and relevant air toxics from the Air Toxics NEPM, as outlined in Section 15.4.

These air quality indicators were modelled to provide an understanding of near field effects on sensitive receptors. NO<sub>2</sub> was the closest to the SEPP (AQM) intervention level, and PM<sub>10</sub> and PM<sub>2.5</sub> are over the

differing averaging period of 24 hours rather than over a 1-hour averaging period (see Table 15-2).

Based on the predicted per cent compliance of each constituent, with their associated intervention levels for both north and south sides of the alignment options, all pollutant levels were well below the intervention levels set out in SEPP (AQM) Schedule B, at 30m distance from the edge of the 'outer traffic lane'. Therefore, operational air quality impacts are expected to be no more than minor. Modelling compliance with SEPP (AQM) revealed that overall, assessed air pollutants from vehicles are predicted to be below the Intervention Level at the edge of the outer road lane.



*Western Highway looking east*

**Table 15-2 Intervention Levels for year 2015, 2025 and 2040 – West of Buangor**

Constituent	Percentage of Intervention Level (%)						
	West of Buangor 2015		West of Buangor 2025		West of Buangor 2040		Intervention Level SEPP (AAQ)
	North of Alignment	South of Alignment	North of Alignment	South of Alignment	North of Alignment	South of Alignment	
CO	0.36	0.33	0.33	0.30	0.42	0.38	33222 µg/m³
NO2	4.67	4.26	4.22	3.84	5.34	4.86	263 µg/m³
PM10	29.57	29.30	28.86	28.73	29.05	28.88	60 µg/m³
PM2.5	15.81	15.49	15.01	14.83	15.25	15.03	36 µg/m³
PAH (particle bound)	0.02	0.02	0.01	0.01	0.01	0.01	0.5 µg/m³
Benzene	0.40	0.37	0.29	0.26	0.37	0.34	75 µg/m³
1,3 Butadiene	0.03	0.03	0.02	0.02	0.03	0.03	110 µg/m³
Formaldehyde	0.58	0.53	0.49	0.45	0.63	0.57	15 µg/m³
Toluene	0.02	0.02	0.02	0.01	0.02	0.02	1880 µg/m³
Xylenes	0.01	0.01	0.01	0.01	0.01	0.01	2080 µg/m³

Note: Percentage Intervention Levels are the predicted values for each constituent plus the background pollution already present, divided by the associated SEPP AAQ intervention level multiplied by one hundred to give a percentage.

Note: The predicted values above were at 30m distance from the 'outer lane' of the road alignment.



Domestic Water Supplies

Construction and operational emissions are not expected to affect domestic water supplies from roof water collection. Operational emissions from roadways are principally gaseous and these are unlikely to deposit on roofs as the environmental fate of a gas being converted to an aerosol that then deposits on a roof is a slow atmospheric process, and therefore has a limited local impact. Particulate emissions from trucks (diesel engines) are in the very fine, below PM<sub>2.5</sub> range. Therefore, there are negligible sources of coarse particulates in the operational phase (road pavement dust and poorly tuned cars are the only probable sources) and to the extent that these types of operational emissions are present, they are unlikely to increase above the existing levels from traffic on the Western Highway.

15.6.3 Comparison of Options

The operational air quality impacts of each option are similar. In relation to construction air quality impacts, which was discussed in Section 15.6.2,

Option 2 has the least potential number of sensitive receptors located within the construction dust impact zone that would require additional dust management control to minimise impact (42 potential sensitive receptors for Option 2 compared with 47 for Option 1).

15.7 Risk Assessment

An environmental risk assessment was undertaken on the Projects options to identify key environmental issues associated with the construction and operation of the Project. The methodology for this risk assessment has been described in Section 4.2. A risk assessment report that explains the process in detail and contains the complete Project risk register has also been included as Technical Appendix Q.

Table 15-3 shows a summary for air quality of:

- The impact pathways identified
- A description of the consequence.

Table 15-3 Air Quality Risks

Risk No.	Impact Pathway	Consequence Description
A1	Construction emissions impact on individual sensitive receptor	Exceedance of SEPP (AQM) within a small localised area affecting a sensitive receptor; Aeolian transport and deposition potentially affecting human health, flora, fauna, visual and social aspects, and water quality.  The impact zone for construction dust where an exceedance of the SEPP (AQM) may occur (and therefore the "recommended controls" should be carried out to reduce risk at individual sensitive receptors) can be described by the following areas: <ul style="list-style-type: none"><li>▪ North of the Project, a line of up to 395m from the edge of the construction zone and running parallel to the boundary.</li><li>▪ South of the Project, a line of up to 375m from the edge of the construction zone and running parallel to the boundary.</li></ul>
A2	Construction emissions impact a local area (community) such as: <ul style="list-style-type: none"><li>▪ McKinnon Lane, Beaufort</li><li>▪ Woodnaggerak/Middle Creek Road community, Middle Creek</li><li>▪ Buangor township, between Andersons/Gravel Route Roads, Buangor</li><li>▪ Geelong Road community, Ararat</li></ul>	Exceedance of SEPP (AQM) within a local area; Aeolian transport and deposition potentially affecting human health, flora, fauna, visual and social aspects, and water quality.  The impact zone for construction dust where an exceedance of the SEPP (AQM) may occur (and therefore the "recommended controls" should be carried out to reduce risk at sensitive receptors) can be described by the following quadrants surrounding Buangor: <ul style="list-style-type: none"><li>▪ North of the Project, a line of up to 395 m from the edge of the construction zone and running parallel to the boundary.</li><li>▪ South of the Project, a line of up to 375m from the edge of the construction zone and running parallel to the boundary.</li></ul>
A3	Construction/operational emissions deposit on residential housing that drain into domestic water supplies (i.e. tank water).	Exceedance of 2004 Australian Drinking Water Guideline (ADWG) for residential rainwater tanks along the alignment used for residential water supply.
A4	Construction emissions deposit on agricultural/horticultural businesses at an individual sensitive receptor locations	Potential detrimental effects on agriculture/horticulture, in particular vineyards and olive groves within 200m (buffer) of the construction activity.
A5	Operation of the Western Highway generates air emissions from vehicular traffic	Exceedance of SEPP (AQM).

## 15.8 Environmental Management Measures

VicRoads has a standard set of environmental management measures which are typically incorporated into their construction contracts for road works and bridge works. These measures have been used as the starting point for the assessment of construction related risks and described in detail

in Chapter 21 (Environmental Management Framework). In some instances, additional Project specific environmental management measures have been recommended to reduce risks.

Management measures specific to each identified air quality risk, and the residual risk rating after these environmental management measures have been applied, are outlined in Table 15-4.

**Table 15-4 Air Quality Environmental Management Measures and Residual Risk**

Risk No.	Environmental management measures	Residual risk
A1	Comply with section 1200.07 Air Quality of the VicRoads contract specification. In the impact zone for construction dust where an exceedence of the SEPP (AQC) may occur the following additional mitigation measures would be implemented: <ul style="list-style-type: none"> <li>Implement methods and management systems (including continuous air monitoring) to maintain air quality during construction consistent with State Environmental Protection Policy (Air Quality Management) intervention levels for particulates and EPA Best Practice Environmental Management - Environmental Guidelines for Major Construction Sites (1996).</li> <li>Implement a dust management protocol as described in Technical Appendix L, including minimising land disturbance by using a staged approach and rehabilitating cleared areas promptly, applying dust suppression measures and keeping vehicles to well-defined haul roads, limiting vehicle speed and sealing haul roads and other exposed areas by means of concrete or paving where necessary.</li> </ul>	Negligible
A2	As per Risk A1 Dust deposition gauges would be used to judge effectiveness of the CEMP, and evaluate implementation of further controls such as halting works under certain conditions.	Low
A3	As per Risk A1 Where concerns are raised by land owners and if warranted, sensitive receptors with rain water supplies would be encouraged to have 'first' flush devices' installed between the water runoff and tank	Negligible
A4	Implement a dust management protocol as described in Technical Appendix L, including minimising land disturbance by using a staged approach and rehabilitating cleared areas promptly, applying dust suppression measures and keeping vehicles to well-defined haul roads, limiting vehicle speed and sealing haul roads and other exposed areas by means of concrete or paving where necessary.	Negligible
A5	Air quality issues during operation would be identified through public liaison and complaints received. Management measures would be implemented as required.	Negligible

### 15.8.1 Residual Risks

Following implementation of the recommended mitigation measures there are not expected to be any significant impacts. The overall risk to air quality is negligible.

## 15.9 Conclusion

Construction of the Project would result in generation of dust. During operation gaseous pollutants would be generated due to traffic movements.

Air quality impacts from construction are expected to extend beyond the construction corridor with slightly greater effects noted to the north of the road than to the south due to meteorological behaviour. Construction dust has a predicted maximum impact zone of 375m from the southern edge of the construction zone and 395m from the northern edge of the construction zone. Impacts from construction dust are expected to be low to negligible due to the

proposed management measures including dust suppression techniques and keeping construction vehicles to well defined haul routes.

As there are already vehicles travelling along the existing Western Highway, there are already vehicle emissions being emitted in the study area. It is expected that the increase in operational emissions from the Project over those attributable to the current highway would be negligible. As such the impacts from vehicle emissions during operation of the Project are expected to be negligible.

The assessment found that operational emissions and construction dust are not likely to impact domestic water supplies and all of the assessed air pollutants from vehicles using the road are predicted to be below the Intervention Level for Air Quality Management used in Victoria.

Option 1 and Option 2 are very similar from an air quality impact perspective, however, Option 2 has the least potential number of sensitive receptors



located within the construction dust impact zone that would require additional dust management control to minimise impact (42 potential sensitive receptors for Option 2 compared with 47 for Option 1).

