HEALESVILLE – KOO WEE RUP ROAD
PAKENHAM BYPASS TO SOUTH GIPPSLAND HIGHWAY

EES REFERRAL FORM

Version: December 2009

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	**VicRoads**
Authorised person for proponent:	**Duncan Elliott**
Position:	**Regional Director Metropolitan South East Region**
Postal address:	**Private Bag 4 Mount Waverley Victoria 3149**
Email address:	**ducan.elliott@roads.vic.gov.au**
Phone number:	**9881 8000**
Facsimile number:	**9887 7590**
Person who prepared Referral:	**Tony Hillman**
Position:	**Senior Strategic Planning Engineer**
Organisation:	**VicRoads**
Postal address:	**Private Bag 4 Mount Waverley Victoria 3149**
Email address:	**tony.hillman@roads.vic.gov.au**
Phone number:	**9881 8078**
Facsimile number:	**9887 7590**
Available industry & environmental expertise:	VicRoads has staff experienced in road planning, construction and environmental management. Consultants have been engaged to undertake studies of flora and fauna, cultural heritage, agriculture, drainage, geotechnical issues and social impacts.

2. Project – brief outline

Project title:
Healesville-Koo Wee Rup Road, Pakenham Bypass to South Gippsland Highway

Project location:
Healesville-Koo Wee Rup Road between the Pakenham Bypass at Pakenham and the South Gippsland Highway at Koo Wee Rup. The full length of the project is in the Shire of Cardinia. A Locality Plan is shown in **Attachment A**.

Short project description:
The project is the future development of Healesville-Koo Wee Rup Road as a high standard inter-regional route between the Pakenham Bypass and the South Gippsland Highway. The project includes a bypass of Koo Wee Rup.

3. Project description

Aim/objectives of the project

The future development of the route is to provide for the safe and efficient movement of inter-regional traffic. A bypass of Koo Wee Rup will improve the amenity of the town centre with the removal of through traffic.

Background/rationale of project

In 2004/05 VicRoads completed a strategic study of the Healesville-Koo Wee Rup Road corridor between Pakenham and Koo Wee Rup. A plan of the corridor is shown in **Attachment B**. This study concluded that the route performed an inter-regional function linking two major highway corridors - the Princes Freeway and the South Gippsland Highway.

The key findings of the strategic study were as follows:

- Healesville-Koo Wee Rup Road is to be developed as a high standard inter-regional route between the Princes Freeway and the South Gippsland Highway.
- Further planning for Healesville-Koo Wee Rup Road between the Pakenham Bypass and the South Gippsland Highway is to be on the basis that this route will be developed in the long term to freeway standard, with a limited number of widely spaced interchanges with no intermediate access connections.
- Planning for the route will include the investigation of a bypass of Koo Wee Rup.

The Government's *Meeting Our Transport Challenges (May 2006)* includes an action to secure reservations for future transport infrastructure to protect these corridors and make the delivery of these projects faster, more timely and cost effective when they are required. One of the five possible future road corridors explicitly listed in this plan was the connection between Pakenham and the South Gippsland Highway.

The Government's *Casey-Cardinia Growth Area Framework Plan (August 2006)* identifies a proposed transport network to provide for the transport needs of the growth area. The plan identified Healesville-Koo Wee Rup Road as a possible freeway between the Pakenham Bypass and the South Gippsland Highway. It noted that interchange locations are subject to further investigation but are likely to be spaced at approximately three kilometres.

The Government's freight network strategy, *Freight Futures (2008)*, identifies Healesville-Koo Wee Rup Road as part of the Principal Freight Network. Through this strategy the Government has identified a freight network to be protected and prioritised for investment.

The *Port of Hastings Land Use and Transport Access Strategy (August 2009)* recommends improvements to Healesville-Koo Wee Rup Road with a local bypass of Koo Wee Rup to provide a regional access corridor for future freight movements between the Port of Hastings and Gippsland. The strategy identifies a freight corridor along Tyabb-Tooradin Road, Baxter-Tooradin Road, South Gippsland Highway and Healesville-Koo Wee Rup Road (including a bypass of Koo Wee Rup) to connect to the Princes Freeway.

The strategic importance of the route for long distance regional travel increased following the completion of the Pakenham Bypass in December 2007. Traffic counts taken before and after the opening of the Pakenham Bypass indicated a 40% increase in total traffic on the route. The increase in the truck component of traffic was significantly higher at 60%. The truck traffic using the route includes semi-trailers carrying stock, sand trucks and B doubles. Tourist buses travelling to and from Phillip Island are also reported to be using this route.

With the opening of the Pakenham Bypass, Healesville-Koo Wee Rup Road has become part of a popular route between the Melbourne metropolitan area and South Gippsland. The increase in traffic results from drivers choosing to use this route to reduce travel times and minimise freight transport costs. The shift of traffic has relieved parallel routes such as the South Gippsland Highway through Cranbourne and Berwick-Cranbourne Road/Clyde-Five Ways Road.

Healesville-Koo Wee Rup Road is currently a two-lane two-way road linking a four lane freeway with a four lane divided highway. For inter-regional traffic using this route, Healesville-Koo Wee Rup Road represents a lower level of service with few overtaking opportunities, delays through the township of Koo Wee Rup and direct access to adjacent properties.

As well as carrying through traffic, the road caters for local traffic generated by the developing Pakenham South industrial precinct and farming activities along the route. This traffic consists of cars, trucks and slow moving farm machinery. The recent increase in through traffic on Healesville-Koo Wee Rup Road has made it more difficult for this local traffic to access the road.

The route also passes through the commercial centre of the Koo Wee Rup township with parking on both sides of the street and a high level of pedestrian activity. The queuing of traffic at a T intersection in the commercial centre of town, limits the ability to access on-street parking and the high level of truck traffic results in noise and air quality impacts in the shopping area. Trucks passing through the town have to stop at two T intersections to negotiate the turning movements. The local community has reported increased noise impacts in the residential areas of the town with the rise in truck traffic.

There is a need to upgrade the route over time to ensure that it functions as an effective inter-regional route and provides relief to other parallel routes in the region within the Casey urban growth area. The upgrading of the route is also needed to minimize the impacts of increasing through traffic on the safety and amenity of the local community.

Main components of the project

The initial development of the route involves a bypass of Koo Wee Rup and the duplication of the existing road between the Pakenham Bypass and Manks Road. Concept plans of the proposed initial development are shown in **Attachment C**.

The longer-term development of the route involves the conversion of the route to freeway standard. This includes a new link to the Pakenham Bypass, the construction of interchanges and the provision of alternative access to adjoining properties. Concept plans of the proposed longer-term development are shown in **Attachment D**.

Ancillary components of the project

Nil

Key construction activities:

The main construction activities will be civil and structural works associated with the duplication of an existing road to provide two carriageways and the construction of a town bypass on a new alignment. This includes some clearing of vegetation, earthworks, drainage works, pavement construction, bridgeworks, landscaping, fencing, signing and the installation of traffic control measures.

Key operational activities:
☐ No ☒ Yes

The main operational activity will be the ongoing road maintenance by VicRoads including the maintenance of roadsides, drains, road pavement and bridges.

Key decommissioning activities (if applicable):

Not applicable

Is the project an element or stage in a larger project?
☒ No ☐ Yes

Is the project related to any other past, current or mooted proposals in the region?
☐ No ☒ Yes

The strategic importance of the route for carrying long distance regional travel has increased following the completion of the Pakenham Bypass in December 2007.

4. Project alternatives

Brief description of key alternatives considered to date

The first phase of the planning study involved the identification of issues and constraints along the corridor to inform the development of initial concept options. For most of the route between Pakenham and Koo Wee Rup, the investigation of options favoured upgrading the road on the existing alignment where possible. This approach makes use of the existing asset and allows for upgrading to be more easily staged over time.

At the northern end of the route, past land development along Healesville-Koo Wee Rup Road either side of the Pakenham Bypass has made allowance for future widening on the western side of the existing road. For this reason, the proposal for upgrading the route between the Pakenham Bypass and Deep Creek involves duplication on the western side of the existing road.

The existing curved alignment between Deep Creek and Ellett Road was identified as a section of the road to be realigned to improve the safety of the route. An option was developed to improve the horizontal alignment of the road over this length.

There is a large drain on the western side of the existing road south of Ellett Road that presents a significant constraint to road widening. South of Ballarto Road, previous planning for the road has created a 20m wide Public Acquisition Overlay on the east side of the existing road reserve. An option was developed to duplicate the road on the eastern side.

A number of alignment options for a bypass of Koo Wee Rup were considered in the first phase of the study based on previous planning work and known constraints. This early work concluded that a bypass alignment to the west of the town would best service the dominant through traffic demands. A bypass alignment to the east of the town would not service the movement of traffic between Healesville-Koo Wee Rup Road to the north and the South Gippsland Highway to the west. Furthermore, a bypass to the east of the town would involve a longer length of new road construction and include significant bridging over Yallock Creek.

The first phase of the study developed initial concept options for further investigation. These concept options are shown in **Attachment E**.

The options for the initial upgrading of the route include two alignment options for a bypass of Koo Wee Rup.

A concept for the longer-term conversion of the route to freeway standard was also developed. This generally involved the construction of interchanges at major cross roads and new access roads to provide alternative access to properties. At the northern end of the route, a further option was developed involving a new freeway link to connect to the Pakenham Bypass.

The concept options were placed on public display in September 2007 to seek comments from the community. The feedback received from the community assisted VicRoads to further develop the options and detailed investigations were undertaken to assess their potential impacts and benefits. Based on the outcomes of this work, VicRoads selected a preferred option for the future development of the route in November 2009.

Brief description of key alternatives to be further investigated:

No alternatives to be further investigated.

5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:

No ancillary activities or further project stages excluded.

6. Project implementation

Implementing organisation:

VicRoads.

Implementation timeframe:

To be determined by the State Government. Funding for the initial upgrading of the route will be considered once the planning process is completed.

Proposed staging:

It is expected that the initial upgrading of the route would be staged over time, with a bypass of Koo Wee Rup included as an early stage of works.

The timing of the longer-term conversion of the route to freeway standard will depend on the rate of land development and traffic growth in the corridor.

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

☐ No ☒ Yes

General description of preferred site:

The preferred initial development of the route generally follows the existing road between the Pakenham Bypass and Manks Road. The existing road is generally a two-lane, two-way rural road except for a short urban section through the industrial area of Pakenham South.

Most of the route between Pakenham and Koo Wee Rup passes through low lying land that was formerly the Koo Wee Rup Swamp. The swamp was drained in the late 19th and early 20th centuries to allow farming of the area. The excavated material from the drainage works was used to provide embankments for roads in the area including Healesville-Koo Wee Rup Road. One of the drains, McGregors Drain, runs along the western side of the route for much of its length.

At the southern end of the route the preferred site for a bypass of Koo Wee Rup is to the west of the township. The proposed bypass alignment leaves Healesville-Koo Wee Rup Road at Manks Road and crosses Railway Road, the disused South Gippsland railway line and the Bunyip River drains before connecting to Rossiter Road. The Bunyip River drains consist of five parallel drains - McGregors Drain, McDonalds Drain, North West Catch Drain, Bunyip River Drain and Southern Boundary Main Drain.

The preferred longer-term development of the route to freeway standard involves the construction of interchanges at Hall Road, Ballarto Road, Manks Road, Rossiter Road and the South Gippsland Highway. The interchanges include freeway ramps which will increase the land affected by the proposal at these locations. At the northern end of the route, a new freeway link will leave Healesville-Koo Wee Rup Road south of Deep Creek and swing to the north-west to cross McGregor Road and connect to the Pakenham Bypass east of Toomuc Creek.

The longer-term proposal also includes alternative access roads in some locations. These are mainly frontage roads that run parallel to the main carriageway and connect to interchanges.

Site area

The site area includes a widening of the existing Healesville-Koo Wee Rup Road reservation between Pakenham and Koo Wee Rup, a new reservation for a bypass of Koo Wee Rup and a reservation for the longer-term freeway connection to the Pakenham Bypass.

Route length and width

The existing road between the Pakenham Bypass and the South Gippsland Highway is approximately 15 km in length. The existing road reservation is 20-30 m wide over most of this length.

The section of the road between the Pakenham Bypass and Deep Creek (approximately 2 km) is generally in a future urban area and will not be converted to freeway standard in the longer-term. The required widening of the existing reservation over this length is expected to be in the order of 20-30 m on the west side.

The section of the road between Deep Creek and Manks Road is in a rural environment and will be developed to freeway standard in the future. It is expected that a total road reservation width in the order of 80-100 m will be required over this length. Where the road is to be realigned between Deep Creek and Ellett Road (approximately 3 km), the existing road reservation will need to be widened by this amount on the east side. Where the existing road will be duplicated between Ellett Road and Manks Road (approximately 5 km), the required widening of the existing road reservation is expected to be in the order of 40-50 m.

The bypass of Koo Wee Rup will require a new road reservation over a length of approximately 4 km between Manks Road and the South Gippsland Highway. The required width of this reservation is expected to be in the order of 100 m.

The longer-term freeway connection to the Pakenham Bypass will required a new road reservation over a length of approximately 4 km. The required width of this reservation is expected to be in the order of 100 m.

When the route is converted to freeway standard in the longer-term, the road reservation will need to be widened in the vicinity of the interchanges to accommodate the freeway ramps. Additional road reservations will also be required for the alternative access roads. These are expected to be in the order of 20 m wide.

Current land use and development:

The current land use in the corridor is shown in **Attachment F**.

The northern end of the route is within the Urban Growth Boundary where land is designated for employment purposes. An existing industrial estate on the east side of Healesville-Koo Wee Rup Road incorporates the Victorian Livestock Exchange. The SouthEast Business Park is located on the west side of Healesville-Koo Wee Rup Road between the Pakenham Bypass and Greenhills Road and extends through to McGregor Road. Access to these existing developments is provided by a signalised intersection on Healesville-Koo Wee Rup Road at Livestock Way/SouthEast Boulevard. Other land zoned Urban Growth Zone has been identified for future industrial development.

The Pakenham Sewage Treatment Plant is located on the east side of Healesville-Koo Wee Rup Road just north of Deep Creek and has direct access to Healesville-Koo Wee Rup Road.

O'Connor's abattoir is located on the east side of Healesville-Koo Wee Rup Road just south of Deep Creek and has direct access to the road. The abattoir processes cattle which are trucked in from Victoria and interstate. The abattoir supplies both domestic and export markets.

Within the district surrounding the study area there are 280 hectares of land producing fresh vegetables. This produce supplies both domestic and export markets. This is the main asparagus production area in Australia, producing over 70% of Australia's asparagus. The asparagus growing area is centred around Manks Road to the west of Healesville-Koo Wee Rup Road. A large vegetable packing shed on the south-east corner of Healesville-Koo Wee Rup Road and Ballarto Road is one of the businesses that take produce from the growers in the district and prepare it for transport to markets.

Other farming activities along the route, including poultry farms and horse training facilities, also have direct access to Healesville-Koo Wee Rup Road.

Description of local setting:

Pakenham Bypass to Greenhills Road

This section of the route passes through the developing industrial area of Pakenham as described above. The existing road is a two-lane, two-way road with a reservation width of generally 20m. The road has recently been widened at Livestock Way as part of works associated with the development of SouthEast Business Park. The design of the interchange with the Pakenham Bypass has allowed for the future duplication of the road to the west.

Greenhills Road to Bunyip River Drains

This section of the route passes through rural farming land. Over this length there are about 40 properties with direct access to the road. Livestock, grazing and vegetable growing are the main agricultural production industries. The most desirable soils for vegetable production are generally on the west side of the road. In other areas the soils are prone to water logging and less suitable to regular cropping. The Pakenham sewerage treatment works, export abattoir, vegetable packing shed and farming properties access this section of the route.

The existing road is a two-lane, two-way rural road. The reservation width is generally 20m to 30m over most of the length but increases to 50m in places because of the location of a large drain.

Bunyip River Drains to South Gippsland Highway

The current alignment passes through the township of Koo Wee Rup over a length of 2kms with delays to through traffic and impacts on the amenity of the town. The proposed bypass of the town traverses farming land to the west of the town.

Planning context:

Municipal Strategic Statement

The Municipal Strategic Statement in the Cardinia Planning Scheme deals with the road network and identifies Healesville-Koo Wee Rup Road as a regional arterial road. Clause 21.07-2 includes the following statement about such major roads in the municipality.

The State highways and regional arterial roads perform an important function in the movement of people and freight, including tourist traffic. It is therefore critical that Council, through land use and transport planning, seeks to maximise the efficiency, safety and visual outlook of these roads. Ribbon commercial development along these roads should be avoided, and commercial activities such as service stations should be limited to strategic nodes preferably within township areas. Access to State highways and regional arterial roads should be minimised, and the location and design of any access should have regard to the efficient and safe movement of traffic along the road. The rural outlook of such roads, particularly on key tourist routes, should be protected.

Zoning

The zoning of land along Healesville-Koo Wee Rup Road between Pakenham and Koo Wee Rup is shown in **Attachment G**. At the northern end of the route, the road is within the Urban Growth Boundary (UGB) where land is either currently zoned Industrial or Urban Growth Zone. Between Ballarto Road and Manks Road, the road passes through land designated as Special Use Zone to protect land of high agricultural quality for horticulture and other farming activities. All other land along the route is designated as Green Wedge Zone.

Urban Growth Boundary

In accordance with *Melbourne 2030*, an interim UGB was put in place in late 2002. The southern boundary of the UGB was generally along the Pakenham Bypass with the exception of the industrial land on the east side of Healesville-Koo Wee Rup Road which included the existing industrial estate at Livestock Way.

Adjustments were made to the interim UGB in November 2003 which expanded the industrial land to the south of Pakenham. This included land on the west side of Healesville-Koo Wee Rup Road bounded by the Pakenham Bypass to the north, Greenhills Road to the south and McGregor Road to the west. On the east side of Healesville-Koo Wee Rup Road the UGB was also extended further south to Greenhills Road. At the same time the UGB around the Koo Wee Rup township was introduced.

Following recommendations of the Committee for Smart Growth, the State Government amended the UGB in the Casey-Cardinia Growth Area in November 2005. This resulted in additional land to the south of the Pakenham Bypass being included in the UGB. On the west side of Healesville-Koo Wee Rup Road the UGB was extended to the south of Greenhills Road to just north of Deep Creek. Land on the west side of McGregor Road was also included in the UGB.

Public Acquisition Overlay

There is a 20m wide Public Acquisition Overlay (PAO) on the east side of Healesville-Koo Wee Rup Road between Ballarto Road and McDonalds Drain.

On the west side of the Koo Wee Rup township there are 20m wide PAOs adjacent to an unused road reserve between McDonalds Drain and Rossiter Road, and along the south side of Rossiter Road to the South Gippsland Highway.

Land Subject To Inundation Overlay

A Land Subject to Inundation Overlay applies to the whole length of the Healesville-Koo Wee Rup Road corridor south of Greenhills Road, including the Koo Wee Rup township.

This area is within the Koo Wee Rup Flood Protection District managed by Melbourne Water. The majority of land adjacent to the route is subject to flooding as a result of drain overflows, and the estimated 100 year ARI flood depth is approximately 300 mm above the existing ground level. In the area between the Bunyip River drains and Rossiter Road, the estimated flood depth is approximately 700 mm.

Local government area:

The full length of the route is within the Shire of Cardinia.

8. Existing environment

Overview of key environmental assets/sensitivities in project area and vicinity:

Flora and Fauna

As part of the strategic study for the Healesville-Koo Wee Rup Road corridor, a desktop review of potential flora and fauna values was undertaken. This noted that since the drainage of the Koo Wee Rup Swamp just after European settlement, indigenous vegetation has been extensively cleared and replaced with exotic species. Six plant communities were recorded within or around the study area – Swamp Scrub, Swampy Woodland, Swampy Riparian Woodland, Wetland Formation and Exotic Vegetation. Small fragmented remnants of indigenous vegetation were found to occur throughout the study area. A later desktop study for the proposed longer-term freeway connection to the Pakenham Bypass also recorded a degraded vestige of Plains Grassland in this area.

The desktop review identified the potential occurrence of significant species in the study area and recommended further targeted surveys. The main findings of the targeted flora and fauna surveys are summarised below.

Aquatic Fauna Survey

- No threatened aquatic fauna was captured in the waterways between the Pakenham Bypass and the South Gippsland Highway.
- The migratory Australian grayling is known to use the Bunyip River and to pass through the study area. This species is listed as *Vulnerable* under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* and *Threatened* under the *Flora and Fauna Guarantee (FFG) Act 1988*. Continued fish passage for this species is of a high priority.
- Although the Dwarf Galaxias (listed under the EPBC Act 1999 and FFG Act 1988) is known to occur in nearby catchments, it has been concluded that this species does not occur in the drains within this study area.
- Bunyip River and Deep Creek are considered a high and moderate conservation value respectively, as they are important for native migratory fish passage. Other waterways are considered of moderate to low conservation value for aquatic fauna.

Rare Plant Survey

- The survey focused on the River Swamp Wallaby-grass because it was previously identified as having a moderate likelihood of occurrence south of the Pakenham Bypass and is listed as *Vulnerable* under the EPBC Act 1999. No evidence of this species was recorded and it appears very unlikely that it occurs within the study area.
- No other species listed under the EPBC Act 1999 or the FFG Act 1988 was recorded during the survey.

Southern Brown Bandicoot Survey

- Southern Brown Bandicoots were recorded in the vicinity of the Bunyip River drains and the disused railway line at the southern end of the route.
- Suitable habitat for the Southern Brown Bandicoot also exists in vegetation along the South Gippsland Highway, east of Preston Road.
- The Southern Brown Bandicoot is listed as *Endangered* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988.

Growling Grass Frog Survey

- Growling Grass Frogs have been recorded at sites along the existing road and in the vicinity of both the proposed bypass of Koo Wee Rup and the longer-term freeway connection to the Pakenham Bypass.
- The Growling Grass Frog is listed as *Vulnerable* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988.

Other Species Identified in Corridor

- A degraded vestige of Plains Grassland was recorded in the vicinity of the alignment for the longer-term freeway connection to the Pakenham Bypass. Plains Grassland is listed as *Threatened* under the FFG Act 1988.
- The Swamp Skink was recorded in Estuarine Flats Grassland and Coastal Saltmarsh near the South Gippsland Highway crossing of Cardinia Creek. The Swamp Skink is listed under the FFG Act 1988.

Western Port Bay

- The drains in the study area flow into Western Port Bay.
- Western Port Bay is a Ramsar site and is protected under the EPBC Act 1999.

Properties

The project will require the acquisition of land and directly affect some residences along the route. The number of houses directly affected may be in the order of 5 for the initial development of the route and a further 10 may be affected by the longer-term development.

The project will also indirectly affect properties with changes to their existing access to and from Healesville-Koo Wee Rup Road. The initial development of the route to a duplicated road with a central median will allow left-in left-out access only for properties along the road. Some movements will require U turns at median breaks or the nearest roundabout. The longer-term development to freeway standard will no longer allow direct access to the road. New access roads will be constructed to provide alternative access to properties.

Drainage

As the route passes through land subject to flooding, the project has the potential to have some effect on flood flows. However, the new road will be designed to minimise any increase in flood levels in the area.

9. Land availability and control

Is the proposal on, or partly on, Crown land?

☒ No ☒ Yes

The following Crown land is located within the study area:

- The Deep Creek drainage reserve east of Healesville-Koo Wee Rup Road is Crown allotment 60C, Parish of Nar Nar Goon, that has been appropriated by the local Water Board.
- A parcel of land (0.25ha) on the east side of Healesville-Koo Wee Rup Road south of Hall Road is Crown allotment 42A, Section J, Parish of Koo Wee Rup.
- A parcel of land (0.25ha) on the east side of Healesville-Koo Wee Rup Road south of Ballarto Road is Crown allotment 30A, Section J, Parish of Koo Wee Rup.

Current land tenure:

The properties abutting Healesville-Koo Wee Rup Road between the Pakenham Bypass and Manks Road are in private ownership apart from the following parcels of land:

- The Pakenham sewerage treatment works on the east side of Healesville-Koo Wee Rup Road just north of Deep Creek is on land owned by South East Water.
- The Deep Creek drainage reserve west of Healesville-Koo Wee Rup Road is owned by Melbourne Water.
- A small parcel of land on the north-east corner of Healesville-Koo Wee Rup Road and Ellett Road is owned by Telstra and houses the Pakenham South Exchange.
- A 20m wide strip of land along the south side of Ellett Road is owned by Melbourne Water.
- A 20m wide strip of land on the east side of Healesville-Koo Wee Rup Road south of Ballarto Road is owned by the Shire of Cardinia.
- A 20m wide strip of land on the east side of Healesville-Koo Wee Rup Road south of Ballarto Road is owned by the Roads Corporation.
- An 8m wide strip of land on the west side of Healesville-Koo Wee Rup Road north of Manks Road is owned by Melbourne Water.

The land affected by the proposed bypass of Koo Wee Rup at the southern end of the route is in private ownership apart from the reserve for the Bunyip River drains which is owned by Melbourne Water.

The land affected by the longer-term freeway connection to the Pakenham Bypass at the northern end of the route is in private ownership except for one property on the west side of McGregor Road which is owned by the Shire of Cardinia.

Intended land tenure:

Any land required for the project would be acquired by VicRoads.

Other interests in affected land:

The high voltage transmission lines that cross the alignment south of Greenhills Road will not be affected by the project.

Overhead power lines that run along the existing road will need to be relocated.

The Telstra Pakenham South Exchange on the north-east corner of Healesville-Koo Wee Rup Road and Ellett Road will be impacted by the project.

An oil and gas pipeline crosses the alignment of the bypass of Koo Wee Rup just south of the disused railway line.

10. Required approvals

State and Commonwealth approvals required for project components:

State approvals are required for a Planning Scheme Amendment to reserve the land required and any other environmental clearances under the *Planning and Environment Act 1987.*

The project will be referred to the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999.*

Have any applications for approval been lodged?

☒ No ☒ Yes

Approval agency consultation:

The project has been discussed with the Department of Planning and Community Development, Shire of Cardinia and Melbourne Water.

Other agencies consulted:

The project has also been discussed with South East Water, Telstra, Southern Rural Water and SP AusNet.

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

Overview of potentially significant environmental effects:

- Impact on the habitat of the Southern Brown Bandicoot which is listed as *Endangered* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988. The Southern Brown Bandicoot has been recorded in the vicinity of the Bunyip River drains and the disused railway line. The proposed alignment for a bypass of Koo Wee Rup has the potential to cause loss and fragmentation of habitat for the Southern Brown Bandicoot in these areas. The concept design for the bypass includes bridging of both the drains and the disused railway line. Any impact on habitat will be minimised in the design of bridging and the implementation of an environmental management plan during construction.

- Impact on the habitat of the Growling Grass Frog which is listed as *Vulnerable* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988. The Growling Grass Frog has been recorded in dams and drainage lines along the corridor. The potential impact of the project would be the loss and fragmentation of habitat for the Growling Grass Frog. Considering the broad distribution of Growling Grass Frog habitat in the corridor, it is likely there will be some impact on this habitat. Any impact will be mitigated during detailed design and implementation of an environmental management plan during construction.

- Impact on the Bunyip River which is considered to have a high conservation value as it is important for native migratory fish passage. Whilst not found in the field survey, the migratory Australian grayling is known to use the Bunyip River and to pass through the study area. This species is listed as *Vulnerable* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988. Continued fish passage for this species is of a high priority. Any impact would be minimised in the design of bridging and the implementation of an environmental management plan during construction.

- Impact on Deep Creek which is considered to have a moderate conservation value as it is important for native migratory fish passage. Any impact would be minimised in the design of bridging and the implementation of an environmental management plan during construction.

- Impact on water quality in the drains through sediment or toxicant runoff from the project during construction and the ongoing operation of the road. Impacts will be minimised by the implementation of an environmental management plan during construction and incorporation of water sensitive design treatments for stormwater runoff from the road.

- Impact on properties. The project will require the acquisition of land along the route which will include future industrial land within the Urban Growth Boundary at Pakenham, agricultural land and farm properties. The development of the route to freeway standard in the long term may affect access to many of the properties that have direct access from Healesville-Koo Wee Rup Road. Alternative access roads would need to be provided at some locations to provide alternative access to affected properties.

- Noise impacts on residents of farm properties near the route during construction and the ongoing operation of the road. Noise impacts will be minimised by meeting the requirements of the EPA guidelines and the VicRoads traffic noise policy.

- Impact on flood flows. The new road will be designed to minimise any increase in flood levels in the surrounding area. Further hydraulic modelling will be undertaken to determine future flood levels and the required waterway area of drainage crossings.

- Visual impacts of earthworks and structures associated with the project. A landscape plan will be prepared to minimise the visual impact of the project.

12. Native vegetation, flora and fauna

Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?

☐ NYD ☐ No ☒ Yes

What investigation of native vegetation in the project area has been done?

A preliminary assessment of the potential impact on native vegetation has been undertaken based on a desktop analysis only. This analysis includes assumptions about the extent of native vegetation and the final design of the road upgrade.

What is the maximum area of native vegetation that may need to be cleared?

Native vegetation in the corridor is now largely confined to road reserves, creeks and drainage lines. Considerable areas of remnant vegetation occur along the Bunyip River drains at the southern end of the corridor.

The preliminary desktop assessment indicates that the maximum area of native vegetation impacted by the project may be in the order of 14 hectares. This assessment includes the longer-term development of the route to freeway standard.

It is noted that much of the impact on native vegetation is associated with the construction of interchanges in the longer-term. The impact of the initial development of the route is estimated to be well under 10 hectares.

How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?

☒ N/A

Which Ecological Vegetation Classes may be affected? (if not authorised as above)

☐ NYD ☒ Preliminary assessment completed.

A large proportion of the native vegetation within the study area will be part of the Swamp Scrub and Tall Marsh (new wetland EVC 2006) Ecological Vegetation Communities. Other EVCs that may potentially occur within, or adjoining, the study area include Plains Grassland, Plains Grassy Woodland, Swampy Woodland, Swampy Riparian Woodland, Mangrove Shrubland, Coastal Saltmarsh and Estuarine Flats Grassland.

Small patches of remnant Swamp Scrub and Swampy Woodland/Swampy Riparian EVCs have been mapped within the project area. Plains Grassland EVC may also occur in the project area. These EVCs are endangered in the Gippsland Bioregion and Plains Grassland (South Gippsland) is listed as *Threatened* under the FFG Act 1988.

Have potential vegetation offsets been identified as yet?

☒ NYD ☐ Yes

Other information/comments?

Nil.

NYD = not yet determined

Flora and fauna

What investigations of flora and fauna in the project area have been done?

Desktop reviews of potential flora and fauna values were undertaken which identified the potential occurrence of significant species in the study area and recommended further targeted surveys. Targeted surveys were undertaken for aquatic fauna, Southern Brown Bandicoot, River Swamp Wallaby-grass and Growling Grass Frog.

The findings of these surveys are provided in the following reports:

- *Healesville-Koo Wee Rup Road, Flora and Fauna Issues, Desktop Review, Ecology Australia Pty Ltd, 22 July 2005*
- *Investigative Survey of Aquatic Fauna, Healesville-Koo Wee Rup Road Corridor (Pakenham Bypass to South Gippsland Highway), Streamline Research Pty Ltd, December 2005*
- *Healesville-Koo Wee Rup Road, Southern Brown Bandicoot Survey, Ecology Australia Pty Ltd, 16 January 2006*
- *Healesville-Koo Wee Rup Road, Rare Plant Survey Focusing on Amphibromus Fluitans, Ecology Australia Pty Ltd, 23 February 2006*
- *Healesville-Koo Wee Rup Road Upgrade, Growling Grass Frog Surveys, Ecology Australia Pty Ltd, 27 February 2006*
- *Healesville-Koo Wee Rup Road - Pakenham Bypass, Alternate Connection, Desktop Review of Flora and Fauna Values, Ecology Australia Pty Ltd, 7 January 2008.*
- *Healesville-Koo Wee Rup Road Upgrade: Growling Grass Frog and Swamp Skink Survey, Ecology Australia Pty Ltd, 13 June 2008*
- *Healesville-Koo Wee Rup Road Upgrade – Southern Brown Bandicoot Surveys, Ecology Australia Pty Ltd, 11 August 2008*
- *Healesville-Koo Wee Rup Road Upgrade – Preliminary Native Vegetation Assessment, Ecology Australia Pty Ltd, 13 November 2008*

Have any threatened or migratory species or listed communities been recorded from the local area?

☐ NYD ☐ No ☒ Yes

The Southern Brown Bandicoot has been recorded in the vicinity of the Bunyip River drains and the disused railway line which are crossed by the proposed bypass of Koo Wee Rup. Suitable habitat for the Southern Brown Bandicoot was also identified in vegetation along a section of the South Gippsland Highway which is not affected by the proposed bypass alignment. The Southern Brown Bandicoot is listed as *Endangered* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988.

The Growling Grass Frog has been recorded at sites along the corridor between the Pakenham Bypass and the South Gippsland Highway. The Growling Grass Frog is listed as *Vulnerable* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988.

No threatened aquatic fauna was captured in the waterways between the Pakenham Bypass and the South Gippsland Highway. The migratory Australian grayling is known to use the Bunyip River and to pass through the study area. This species is listed as *Vulnerable* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988.

Although the Dwarf Galaxias (listed under the EPBC Act 1999 and FFG Act 1988) is known to occur in nearby catchments, it has been concluded that this species does not occur in the drains within this study area.

The River Swamp Wallaby-grass was previously identified as having a moderate likelihood of occurrence south of the Pakenham Bypass. This species is listed as *Vulnerable* under the EPBC Act 1999. No evidence of this species was recorded and it appears very unlikely that it occurs within the study area.

A degraded vestige of Plains Grassland was recorded in the vicinity of the alignment for the longer-term freeway connection to the Pakenham Bypass. Plains Grassland is listed as *Threatened* under the FFG Act 1988.

The Swamp Skink (listed under the FFG Act 1988) was recorded in Estuarine Flats Grassland and Coastal Saltmarsh near the South Gippsland Highway crossing of Cardinia Creek. This area is not affected by the project.

If known, what threatening processes affecting these species or communities may be exacerbated by the project?

Loss of habitat through clearance of vegetation and impact on dams, creeks and drains. Fragmentation of habitat and creation of barrier to movement/migration.

Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?

☒ NYD ☒ No ☒ Yes

The Southern Brown Bandicoot has been recorded in the vicinity of the Bunyip River drains and the disused railway line. The proposed alignment for a bypass of Koo Wee Rup has the potential to impact on the habitat of the Southern Brown Bandicoot in these areas. The concept design for the bypass includes bridging of both the drains and the disused railway line. Any impact on habitat will be minimised in the design of bridging and the implementation of an environmental management plan during construction.

The Growling Grass Frog has been recorded in dams and drainage lines along the corridor. Considering the broad distribution of Growling Grass Frog habitat in the corridor, it is likely there will be some impact on this habitat. Any impacts will be mitigated during detailed design and implementation of an environmental management plan during construction.

The Australian grayling is known to use the Bunyip River and to pass through the study area. The proposed bypass of Koo Wee Rup crosses the Bunyip River and any impact would be minimised in the design of bridging and the implementation of an environmental management plan during construction.

Is mitigation of potential effects on indigenous flora and fauna proposed?

☒ NYD ☒ No ☒ Yes

Mitigation measures will be considered during the design phase of the project and a project environmental management plan will be prepared.

Other information/comments?

Nil.

13. Water environments

Will the project require significant volumes of fresh water?
☐ NYD ☒ No ☐ Yes

Will the project discharge waste water or runoff to water environments?
☐ NYD ☐ No ☒ Yes

Stormwater from the project will discharge into roadside drains which will then discharge into watercourses such as Deep Creek, Bunyip River and other drains in the area. All these drains eventually flow into Western Port Bay. The roadside drains will be designed in accordance with water sensitive design principles.

Are any waterways, wetlands, estuaries or marine environments likely to be affected?
☐ NYD ☐ No ☒ Yes

The project crosses Deep Creek, McGregors Drain, McDonalds Drain, North West Catch Drain, Bunyip River Main Drain, Southern Boundary Main Drain and Koo Wee Rup South Main Drain. Any direct impacts on these waterways will be minimised during the design phase of the project. Impacts on water quality will be minimised by the implementation of an environmental management plan during construction and incorporation of water sensitive design treatments for stormwater runoff from the road.

Are any of these water environments likely to support threatened or migratory species?
☐ NYD ☐ No ☒ Yes

Bunyip River is known to support the migratory Australian grayling which is listed as *Vulnerable* under the EPBC Act 1999 and *Threatened* under the FFG Act 1988.

Although the Dwarf Galaxias (listed under the EPBC Act 1999 and FFG Act 1988) is known to occur in nearby catchments, it has been concluded that this species does not occur in the drains within this study area.

Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?
☐ NYD ☐ No ☒ Yes

All the drains that cross the proposed alignment of the project eventually flow into Western Port Bay which is a listed Ramsar site. Impacts on water quality in the drains will be minimised by the implementation of an environmental management plan during construction and incorporation of water sensitive design treatments for stormwater runoff from the road.

Could the project affect streamflows?
☐ NYD ☐ No ☒ Yes

Further hydraulic modelling will be undertaken to determine future flood levels and the required waterway area of drainage crossings.

Could regional groundwater resources be affected by the project?
☐ NYD ☐ No ☒ Yes

Some groundwater tables are high or perched in the area. However, the proposed new roads will be constructed on embankment fills.

Could environmental values (beneficial uses) of water environments be affected?
☐ NYD ☒ No ☐ Yes

Impacts on water quality will be minimised by the implementation of an environmental management plan during construction and incorporation of water sensitive design treatments for stormwater runoff from the road.

Could aquatic, estuarine or marine ecosystems be affected by the project?
☐ NYD ☐ No ☒ Yes

The project may affect Bunyip River and Deep Creek which provide for native migratory fish passage. Any impact would be minimised in the design of bridging and the implementation of an environmental management plan during construction.

All the drains that cross the proposed alignment of the project eventually flow into Western Port Bay which is a listed Ramsar site. Impacts on water quality in the drains will be minimised by the implementation of an environmental management plan during construction and incorporation of water sensitive design treatments for stormwater runoff from the road.

Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?
☒ No ☐ Yes

Is mitigation of potential effects on water environments proposed?
☐ NYD ☐ No ☒ Yes

Any impacts on water environments will be minimised by the appropriate design of bridging, the implementation of an environmental management plan during construction and the incorporation of water sensitive design treatments for stormwater runoff from the road.

Other information/comments?

Nil.

14. Landscape and soils

Landscape

Has a preliminary landscape assessment been prepared?
☒ No ☐ Yes

Is the project to be located either within or near an area that is:

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**
  ☐ NYD ☐ No ☒ Yes

The proposed bypass of Koo Wee Rup is located near a Landscape Significance Overlay which covers land between the South Gippsland Highway and Western Port Bay.

- **Identified as of regional or State significance in a reputable study of landscape values?**
  ☐ NYD ☒ No ☐ Yes
- **Within or adjoining land reserved under the *National Parks Act 1975* ?**
  ☐ NYD ☒ No ☐ Yes
- **Within or adjoining other public land used for conservation or recreational purposes ?**
  ☐ NYD ☒ No ☐ Yes

Is any clearing vegetation or alteration of landforms likely to affect landscape values?
☒ NYD ☐ No ☐ Yes

Is there a potential for effects on landscape values of regional or State importance?
☒ NYD ☐ No ☐ Yes

Is mitigation of potential landscape effects proposed?
☐ NYD ☐ No ☒ Yes

A landscape concept plan will be prepared for the project.

Other information/comments?

Nil.

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?
☐ NYD ☐ No ☒ Yes

The project is located in low lying and poorly drained areas consisting of alluvial and swamp deposits. The near surface in-situ clays are highly likely to be soft and of low bearing strength. Some ground settlement will occur during the construction of new roads on embankment fills.

Are there geotechnical hazards that may either affect the project or be affected by it?
☐ NYD ☒ No ☐ Yes

Other information/comments?

Nil.

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation?

☐ NYD ☐ No ☒ Yes

The construction of the project could generate significant volumes of truck traffic for the supply of fill and pavement materials.

Since the opening of the Pakenham Bypass, the road has become a more important inter-regional route carrying long distance regional traffic. The current average weekday traffic volume varies from approximately 10,000 vehicles per day at the northern end to approximately 5,000 vehicles per day at the southern end. The percentage of truck traffic using the route is in the order of 15%.

The upgrading of the road may attract some additional inter-regional traffic from parallel routes. Preliminary traffic modelling has been undertaken to provide an estimate of future operational traffic volumes along the route. The predicted 2031 daily traffic volumes are shown in the table below.

Location	Predicted 2031 Daily Volumes
Pakenham Bypass to Greenhills Rd	40,000 – 50,000
Greenhills Rd to Ballarto Rd	25,000 – 35,000
Ballarto Rd to Manks Rd	15,000 – 25,000
Koo Wee Rup Bypass	10,000 – 20,000

Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?

☐ NYD ☐ No ☒ Yes

There is a potential for traffic disruption during construction. This will be minimised as far as practicable by the use of traffic management plans which will include the advance warning of traffic management measures.

There is a potential for a reduction in air quality due to dust during construction. Impacts will be reduced by implementing dust control measures such as stabilising disturbed soil through watering or sowing, undertaking rehabilitation of disturbed areas as soon as possible, limiting works on days that dust is likely to be a significant problem and the use of defined haul routes.

There is potential for noise impacts on residents of farm properties near the route during construction and the ongoing operation of the road. Noise impacts will be minimised by meeting the requirements of the EPA guidelines and the VicRoads traffic noise policy.

There is potential for visual impacts from earthworks and structures associated with the project. Visual impacts will be minimised by implementing a landscape plan for the project.

Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?

☐ NYD ☒ No ☐ Yes

A preliminary assessment of potential air quality impacts has indicated that no SEPP intervention levels would be exceeded by the project.

Noise impacts will be minimised by meeting the requirements of the EPA guidelines and the VicRoads traffic noise policy.

Impacts on water quality will be minimised by the implementation of an environmental management plan during construction and incorporation of water sensitive design treatments for stormwater runoff from the road.

Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?

☒ NYD ☒ No ☒ Yes

The project will require the acquisition of land and directly affect some residences along the route. The number of houses directly affected may be in the order of 5 for the initial development of the route and a further 10 may be affected by the longer-term development.

The project will also indirectly affect properties with changes to their existing access to and from Healesville-Koo Wee Rup Road. The initial development of the route to a duplicated road with a central median will allow left-in left-out access only for properties along the road. Some movements will require U turns at median breaks or the nearest roundabout. The longer-term development to freeway standard will no longer allow direct access to the road. New access roads will be constructed to provide alternative access to properties.

Are non-residential land use activities likely to be displaced as a result of the project?

☒ NYD ☒ No ☒ Yes

The project will require the acquisition of land along the route which includes future industrial land within the Urban Growth Boundary at Pakenham, agricultural land and farm properties. The initial development of the route will mainly affect the operation of farming activities. The longer-term development of the route will also affect the operation of a poultry farm, a vegetable packing shed and a horse training facility.

Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?

☒ NYD ☒ No ☒ Yes

Compensation for any adverse effects on landowners will be considered as part of the land acquisition process.

Is mitigation of potential social effects proposed?

☒ NYD ☒ No ☒ Yes

Mitigation measures will be considered at the preconstruction planning stage through consultation with property owners and the wider community.

Other information/comments?

Nil.

Cultural heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?

☒ No
☒ Yes

The relevant indigenous organisations have been informed of the cultural heritage surveys undertaken by a specialist consultant.

Representatives from the Boon Wurrung Foundation Ltd, Bunurong Land Council Aboriginal Corporation and Wurundjeri Tribe Land and Compensation Cultural Heritage Council have been present during cultural heritage field surveys.

What investigations of cultural heritage in the project area have been done?

A desktop assessment of cultural heritage values was undertaken along the corridor in the first phase of the planning study. The assessment reviewed known Aboriginal and historical sites and identified areas of potential significance. A further desktop review was undertaken for the longer-term freeway connection to the Pakenham Bypass at the northern end of the route.

Field surveys have been undertaken to assess two alignment options for a bypass of Koo Wee Rup and the longer-term freeway connection to the Pakenham Bypass.

The findings of these surveys are provided in the following reports:

- *Healesville-Koo Wee Rup Road Corridor Project, Cultural Heritage Desktop Assessment, Andrew Long & Associates, 7 November 2005.*
- *Healesville-Koo Wee Rup Road, Aboriginal & Historical Cultural Heritage Values, Supplementary Desktop Review, Andrew Long & Associates, 7 January 2008.*
- *Koo Wee Rup Bypass Options, Cultural Heritage Report – Standard Assessment, Andrew Long & Associates, 2 December 2008.*
- *Healesville-Koo Wee Rup Road: Alternative Freeway Connection to the Pakenham Bypass, Cultural Heritage Report – Standard Assessment, Andrew Long & Associates, 19 December 2008.*

Is any Aboriginal cultural heritage known from the project area?

☐ NYD ☐ No ☒ Yes

There are areas within the study area that are classified as areas of cultural heritage sensitivity and would require a mandatory Cultural Heritage Management Plan when affected by road construction. These areas are generally along waterways or in the area of the former Koo Wee Rup swamp. Landforms within these areas that have been subject to significant ground disturbance may no longer be considered sensitive subject to further investigation.

Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?

☐ NYD ☒ No ☐ Yes

There are no registered cultural heritage sites in the project area.

There is no land in the project area that is covered by a Heritage Overlay in the Cardinia Planning Scheme. McGregors Drain has been recorded by the *Cardinia Shire Heritage Study (1996).*

Is mitigation of potential cultural heritage effects proposed?

☐ NYD ☐ No ☒ Yes

A Cultural Heritage Management Plan will be prepared for the project.

Other information/comments?

Nil.

16. Energy, wastes & greenhouse gas emissions

What are the main sources of energy that the project facility would consume/generate?

- [x] Electricity network.
- [x] Natural gas network.
- [x] Generated on-site.
- [x] Other.

What are the main forms of waste that would be generated by the project facility?

- [x] Wastewater.
- [x] Solid chemical wastes.
- [x] Excavated material.
- [x] Other.

What level of greenhouse gas emissions is expected to result directly from operation of the project facility?

- [x] Less than 50,000 tonnes of CO_2 equivalent per annum
- [x] Between 50,000 and 100,000 tonnes of CO_2 equivalent per annum
- [x] Between 100,000 and 200,000 tonnes of CO_2 equivalent per annum
- [x] More than 200,000 tonnes of CO_2 equivalent per annum

Greenhouse gas emissions from vehicles using the route are an indirect result of its operation. It is expected that the upgrading of the route would reduce greenhouse gas emissions due to better road operating conditions on a duplicated road and a bypass of Koo Wee Rup.

17. Other environmental issues

Are there any other environmental issues arising from the proposed project?

- [x] No
- [x] Yes

18. Environmental management

What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects?

☒ Siting:

The assessment of options has included the comparison of environmental impacts. The preferred alignment option has been selected to minimise the potential adverse environmental effects of the project.

☒ Design:

The design of the project will incorporate measures to minimise or manage the potential adverse environmental effects. This will include the design of bridging to minimise the impact on vegetation and stream flow, the design of embankments to minimise visual impact, the design of drainage to minimise impact on water quality and flooding, and the design of noise attenuation measures, where required, to minimise noise impacts on residents.

☒ Environmental management:

An environmental management plan will be prepared for the project in accordance with *VicRoads Environmental Management Guidelines*. This plan will address all environmental and social issues raised in the planning process to provide guidance for the design, construction and operational phases of the project.

The environmental management plan will include:

- Requirements for environmental management during each phase of the project;
- Any specific legal/legislative requirements to be complied with;
- Responsibilities for implementing the elements of the environmental management plan;
- Required standards to be met;
- Identification of potential risks and processes for the management of these;
- Identification of external notification and reporting requirements; and
- Monitoring programs during construction and ongoing operation to ensure environmental objectives are achieved.

The contractor will be required to have an accredited environmental management system.

☒ Other:

Nil.

19. Other activities

Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?

☒ NYD ☒ No ☒ Yes

20. Investigation program

Study program

Have any environmental studies not referred to above been conducted for the project?

☐ No ☒ Yes

The following studies have also been conducted for the project:

- A study was undertaken to provide an overview of the agricultural activities in the corridor. Refer - *Healesville-Koo Wee Rup Road, Pakenham Bypass to South Gippsland Highway, Agricultural study, John Gallienne, August 2006.*
- A study was undertaken to provide an overview of the drainage issues in the corridor. Refer – *Healesville-Koo Wee Rup Road Duplication Project, Preliminary Drainage Investigation Report, GHD, November 2006.*
- A preliminary geotechnical study was undertaken for the corridor. Refer – *Geotechnical Study – Koo Wee Rup Corridor between Pakenham Bypass and South Gippsland Highway, GeoPave, February 2008.*
- Noise measurements were taken at a number of residences in the corridor. Refer – *Healesville- Koo Wee Rup Road Planning Study, Existing Traffic Noise Levels, Bassett Consulting Engineers, 26 March 2009.*
- Preliminary hydraulic modelling was undertaken to assess options for a bypass of Koo Wee Rup. A report on this work is currently being finalised.

Has a program for future environmental studies been developed?

☐ No ☒ Yes

It is proposed to undertake a more detailed native vegetation survey for the preferred option.

A further cultural heritage field survey is also planned for the section of the route between Deep Creek and Manks Road.

Consultation program

Has a consultation program conducted to date for the project?

☐ No ☒ Yes

Regular meetings have been held with Council officers throughout the planning study for the project.

An information bulletin was released in March 2007 to advise the community of the planning study.

Concept options were put on public display in September 2007 to seek feedback from the community. Letters were sent to landowners in the study area and an information bulletin was distributed to advise the community of the public display. Information sessions and landowner interviews were held to discuss the options with the community.

A preferred option was announced in November 2009. Again letters were sent to landowners in the study area and an information bulletin was distributed to advise the community.

The information bulletins are provided in **Attachment H**.

Has a program for future consultation been developed?
× NYD × No × Yes

The future consultation program will depend on the outcome of this referral for a decision on the required assessment process.

Authorised person for proponent:

I, DUNCAN ELLIOTT, REGIONAL DIRECTOR – METROPOLITAN SOUTH EAST,

confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature _____

Date 24/12/09

Person who prepared this referral:

I, TONY HILLMAN, SENIOR PLANNING ENGINEER,

confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature A. Hillman.

Date 23/12/09

ATTACHMENTS

Attachment A	-	Locality Plan
Attachment B	-	Corridor Plan
Attachment C	-	Preferred Option - Initial Development
Attachment D	-	Preferred Option - Longer-Term Development
Attachment E	-	Display Plans - Concept Options
Attachment F	-	Land Use
Attachment G	-	Zoning
Attachment H	-	Information Bulletins