04 Visual impact assessment

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4.1 Visual impact assessment methodology

This visual impact assessment has been completed in accordance with the *Guideline for landscape character and visual impact assessment* (Transport for NSW, 2023a). There are a series of steps to the visual impact assessment which have been outlined below.

Representative visual receivers and viewpoints

Potential visual receivers were identified at various locations in the study area forming the basis for assessment of the visual impacts of the proposal. Factors which are taken into account when selecting the viewpoints are proximity to the proposal, number of visual receptors at each location and the type of visual receiver.

Assessment of visual impact at operation

The assessment of visual impacts assesses the impact of the proposal at operation on the view available to visual receptors. It assesses how changes to the context or character of views due to new works within the view, will impact the surroundings of groups or individuals.

The impact has been measured based on the sensitivity to change of the visual receptors at each viewpoint, and the magnitude of change likely to occur. The sensitivity and magnitude have been assessed as high, moderate, low or negligible. These ratings are then combined using the matrix (Table 4-1), to determine an overall 'significance of visual effects' rating.

Significant impacts are considered to be those with an overall high or high-moderate rating.

Sensitivity of each viewpoint is based on:

- the occupation or activity of the people experiencing that view
- the extent to which their attention may be focused on that view
- the value attached to the view e.g. heritage assets.

The magnitude of change is based on:

- the size or scale of the change with regard to the loss or addition of features, degree of integration of new features in the existing conditions etc.
- the geographical extent of the view e.g. angle of view, distance of view
- the duration and reversibility of the visual impacts.

A qualitative assessment rating also assigns a rating to the change in the views seen by receptors. This is a professional judgement which assesses whether the visual impacts are beneficial, neutral or adverse from each viewpoint. This is based on whether the changes would impact the quality of the visual experience of visual receptors, given the nature of the existing views. The qualitative assessment rating is secondary to the overall impact rating, hence, a low change in views from a viewpoint with an adverse rating for example, still remains a minor change.

		High	Moderate	Low	Negligible
	High	High	High-moderate	Moderate	Negligible
	Moderate	High-moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Table 4-1 Significance of visual impacts rating matrix

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4.2 Visibility and viewpoints

Visual receivers have been considered in terms of the views of the proposal they are likely to obtain. Consideration was given to key vantage points where there is particular interest in the view.

Based on analysis of the existing environment, different types of sensitive visual receivers were identified, and viewpoint locations selected for assessment. Both the Northern and Southern zones were determined to have very limited visual catchments due to existing mature vegetation restricting views to and from Wakehurst Parkway and of the surrounding areas.

Visual receivers were identified based on:

- proximity of the receivers to the proposal, as the most affected visual receivers are anticipated to be located closest to the proposal, unless located at an elevated vantage point
- type of receiver, as different viewer types would have different perceptions of the change. For example residents with extended viewing times are more sensitive than motorists traveling at speed along a road.

Based on the analysis of sensitive visual receivers and the existing landscape and visual environment, the following representative locations for assessment were identified:

Northern zone

VP01 - Wakehurst Parkway westbound carriageway at Elanora Road
VP02 - Wakehurst Parkway eastbound carriageway at Mirrool Street
VP03 - Residential view of Wakehurst and Mirrool Street intersection

Southern zone

VP04 - Wakehurst Parkway southbound south of Dreadnought Road
VP05 - Wakehurst Parkway northbound at Dreadnought Road
VP06 - Dreadnought Road near the Oxford Falls Peace Park
VP07 - C3 SYD view east of Wakehurst Parkway
VP08 - View west from the Oxford Falls Grammar School playing fields
VP09 - Wakehurst Parkway northbound view towards Dreadnought Road
VP10 - Wakehurst Parkway northbound view after Oxford Falls Road

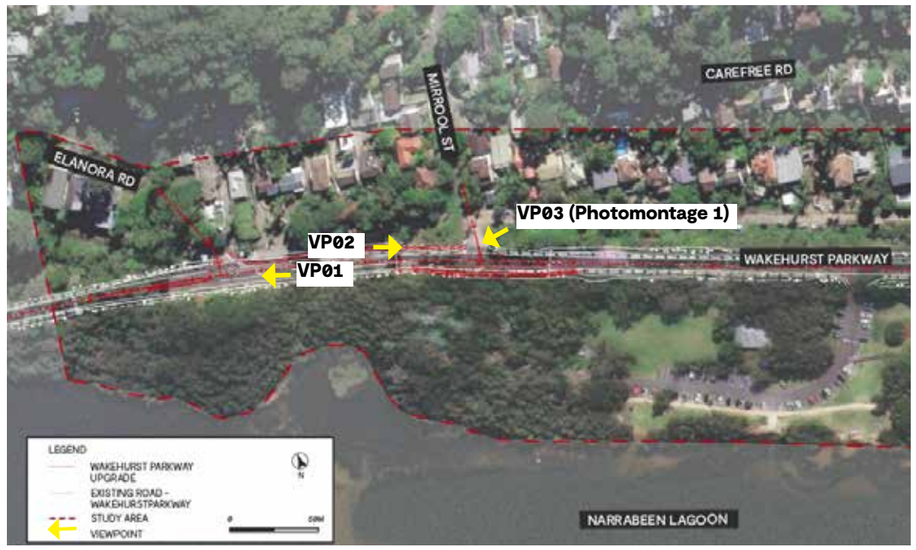

Figure 4-1 Northern zone viewpoint locations plan

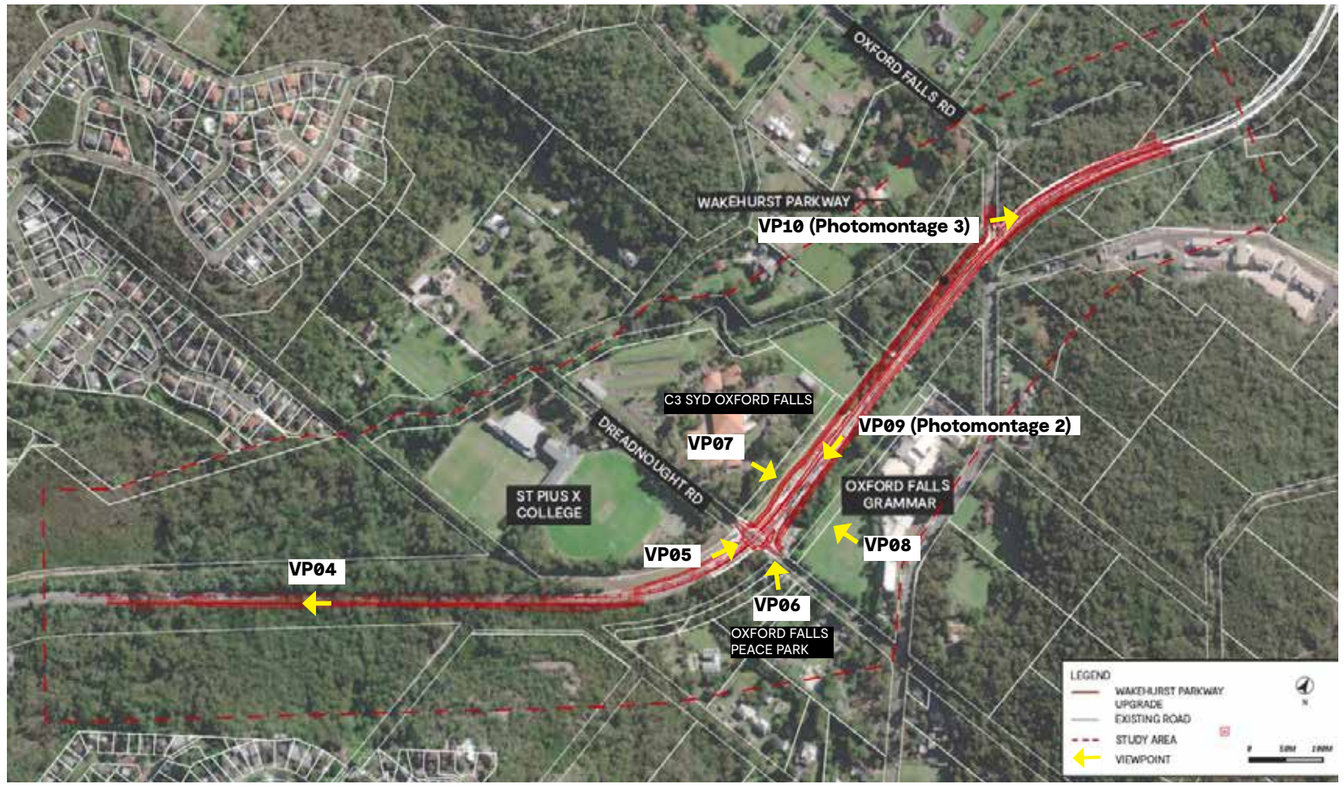

Figure 4-2 Southern zone viewpoint locations plan

4.3 Viewpoint assessment

Viewpoint 1 (VP01)

Criteria	Comments
Location and view	Wakehurst Parkway viewing west from the westbound carriageway to the Elanora Road intersection.
Visual receiver type	Drivers and passengers in vehicles driving at approximately 70km/h on Wakehurst Parkway.
Description of existing view	The view is of a suburban road with dense vegetation framing and overhanging the corridor and in the surrounding areas. There are strong natural and urban visible elements in generally equal proportion. Urban elements include paved lanes and shoulders with a continuous metal, safety barrier. Overhead powerlines and street lighting located along the northern verge are prominent features along with driveway entries and residential boundary fences. Trees and vegetation from the adjacent reserve, streets, local bushland and planting from private gardens, including exotic species such as Banana (*Musa* spp.) trees are visible and contribute to a semi-natural landscape setting.
Anticipated change to view	• Minimal changes associated with the Elanora Road intersection upgrade such as a new central median, line marking and signage • New footpath and turf along the northern verge between existing driveways
Sensitivity to change	Low Anticipated visual receivers are primarily motorists using Wakehurst Parkway, Elanora Road and driveways accessing these roads. The duration of viewing would typically be short. Visible overhead utilities, road elements such as safety barriers and mixed exotic species reduce reduce the sensitivity rating.
Magnitude of change	Negligible Although changes may be visible, they are relatively minor in the context of a paved arterial road with carriageways and turn lanes that are congruous with the existing view.
Assessment rating	Negligible There are both urban and natural landscape elements that define the visual aspects and the existing landscape has the capacity to absorb the relatively minor changes that would be visually consistent in the semi-suburban setting.

Table 4-2 Visual impact assessment summary VP01

VP01 - Wakehurst Parkway westbound carriageway at Elanora Road

4.3 Viewpoint assessment

Viewpoint 2 (VP02)

Criteria	Comments
Location and view	Wakehurst Parkway viewing northeast near the northbound carriageway and residential driveway access points towards the Mirrool Street intersection.
Visual receiver type	Drivers and passengers in vehicles entering and along Wakehurst Parkway.
Description of existing view	The view is of a semi-rural road with tree canopy and vegetation framing and overhanging the road corridor. The vegetation comprises a mix of native and exotic species with dense vegetation at the middle and ground levels preventing views of the surrounding landscape. A continuous w-beam safety barrier separates the westbound carriageway from Bilarong Reserve.
Anticipated change to view	• Changes associated with road widening to accommodate a passing lane and a new left turn lane into Mirrool Street with line marking, signage and vegetation clearing in the verge • New footpath, driveway entries, tree planting and turf between driveways in the northern verge area
Sensitivity to change	Low Anticipated visual receivers are primarily motorists and pedestrians along using Wakehurst Parkway with short duration of views. Sensitivity is lowered due to the informality of the northern verge and driveways including mixed exotic and native planting and overhead utilities.
Magnitude of change	Low An additional turn lane and adjacent removal of verge vegetation would be visible. The widening of pavement in the shoulder area is generally considered minor as it is an widening of the existing road.
Assessment rating	Low Changes to the road corridor are considered to provide a positive contribution through clearer delineation of the northern road shoulder and landscaped verge comprising kerbing, turf and trees. Impacts associated with the removal of roadside vegetation would be isolated to the foreground verge and absorbed by the surrounding vegetation.

Table 4-3 Visual impact assessment summary VP02

VP02 - Wakehurst Parkway eastbound carriageway before Mirrool Street

4.3 Viewpoint assessment

Viewpoint 3 (VP03)

Criteria	Comments
Location and view	Wakehurst Parkway and Mirrool Street intersection from nearby properties including one and two story dwellings near the intersection along an existing unnamed local access road. Some views are looking down towards the intersection from a higher elevation.
Visual receiver type	Residents accessing the front of their properties including garages and garden areas, filtered views from inside dwellings or external balconies on upper levels of dwellings may be possible.
Description of existing view	Views are generally indirect or filtered by trees and vegetation unless at ground level and consist of a "T"-intersection with adjoining paved access road, overhead utilities, lighting, road signs and turfed verges. The intersection is framed by surrounding dense, low and mid-level vegetation and mature tree canopy.
Anticipated change to view	• Removal of vegetation near the edge of the road at the intersection in the verge area • Road widening including a new left hand turn lane into Mirrool Street and passing lane • Driveway connections along the northern verge area • New path connection to Mirrool Street
Sensitivity to change	Low Sensitivity is reduced as views include an arterial road, intersection and overhead infrastructure. Views are short term as they are potentially from the street, balconies, gardens, garages and are likely indirect or filtered.
Magnitude of change	Low Tree and vegetation removal from the edge of the road is visible as are low level intersection upgrades from the additional pavement area and a new safety barrier.
Assessment rating	Low The proposal would provide a clearer delineation of the road and verge areas. Tree and vegetation removal would not impact the overall view that consists of a heavily vegetated corridor from the adjacent surrounding bushland.

Table 4-4, Visual impact assessment summary VP03

VP03 - Southwest view of the Wakehurst Parkway and Mirrool Street intersection

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4.3 Viewpoint assessment

Viewpoint 3 (VP03)

VP03 - Photomontage of the southwest view of the Wakehurst Parkway and Mirrool Street intersection

4.3 Viewpoint assessment

Viewpoint 4 (VP04)

Criteria	Comments
Location and view	View is south of Dreadnought Road looking southwest from the Wakehurst Parkway southbound carriageway.
Visual receiver type	Drivers and passengers in vehicles driving at approximately 80km/h on Wakehurst Parkway.
Description of existing view	Dual lane carriageway with narrow shoulders in both directions. View includes the southbound lane widening to two lanes about 200m past the viewpoint. The road is contained on both sides by dense, mostly low and mid-story vegetation with tree canopy appearing above as well as low rock cutting walls. A transmission tower can also be seen in the distance.
Anticipated change to view	• Widening of the southbound carriageway to accommodate an additional lane • Vegetation removal and rock cutting reduction in the southbound shoulder area
Sensitivity to change	Low Motorists are traveling along an arterial road at a high speed along a road corridor with their main focus on the road itself.
Magnitude of change	Low Road widening, rock and vegetation removal along one side of the road.
Assessment rating	Low Changes are limited to one side of the carriageway where sensitivity of visual receivers is assessed as Low.

Table 4-5 Visual impact assessment summary VP04

VP04 - View southwest down Wakehurst Parkway after Dreadnought Road

4.3 Viewpoint assessment

Viewpoint 5 (VP05)

Criteria	Comments
Location and view	Wakehurst Parkway view north from the northbound carriageway to the Dreadnought Road intersection.
Visual receiver type	Drivers and passengers in vehicles driving at approximately 80km/h on Wakehurst Parkway.
Description of existing view	The view is of the approach to the Wakehurst Parkway Dreadnought Road intersection. The road is wide and prominent as it accommodates additional turning lanes. Other urban components include traffic signals, overhead powerlines with wire stays, signs, filtered views of Oxford Falls Grammar School buildings and an open concrete channel along the shoulder edge. Dense bushland vegetation and tree canopy is a main element with the view as it frames the edge of the southbound carriageway and the horizon with a low hill in the background.
Anticipated change to view	• Widened road corridor with new left turn lane • Traffic lights relocated • Landscape verges with turf, trees and planting • New central planted median • Bus shelters and footpaths north of the intersection • Low landscape walls and planting • Street lighting and road signage
Sensitivity to change	Low Motorists have short viewing times unless stopped at the intersection. Sensitivity is considered Low due to a range of elements in the road corridor including drains, fencing, utilities, signs, traffic lights and school buildings. The vegetation in the middle ground includes exotic species visually incongruous with the surrounding landscape reducing the sensitivity related to it.
Magnitude of change	Low Changes are as associated with the widened pavement and tree and vegetation removal central in the view. More of the Oxford Falls Grammar campus would be opened up to the view although this may be perceived as a positive outcome from increased visual connectivity. The vegetated hills in the view have the capacity to absorb the foreground tree and vegetation removal in the short term while the new landscape planting establishes.
Assessment rating	Low The proposal would increase the urban aspects of the view from additional road width and infrastructure however the changes are generally consistent with the current view and the visual amenity could be considered positive from a more visually unified landscape.

Table 4-6 Visual impact assessment summary VP05

VP05 - Northbound view from Wakehurst Parkway of the intersection of Wakehurst Parkway and Dreadnought Road

4.3 Viewpoint assessment

Viewpoint 6 (VP06)

Criteria	Comments
Location and view	Oxford Falls Peace Park viewing northwest towards Wakehurst Parkway and the Dreadnought Road intersection.
Visual receiver type	Visitors to Oxford Falls Peace Park
Description of existing view	Views from the park are filtered from trees in the foreground as well as a low sandstone wall along the park boundary. The foreground also includes grassed areas, a pathway, flagpole and memorial as part of the park. An informal car park in the road reserve is visible on the other side of Dreadnought Road as well as Wakehurst Parkway and low buildings as part of the C3 Sydney in the background.
Anticipated change to view	• Visible elements are likely to include some road widening and landscape batter planting treatments along the southbound Wakehurst Parkway carriageway • Removal of informal car parking along Dreadnought Road replaced with new trees and grass
Sensitivity to change	Low Visual receivers in the park are temporary visitors with short viewing times. Views are generally contained within the park from the boundary wall and existing trees.
Magnitude of change	Negligible Generally minor changes associated with the upgrade of Wakehurst Parkway including an additional turn lane and new landscaping in the middle to background of the view.
Assessment rating	Negligible Removal of the informal car parking and replacement with new landscape treatments will positively contribute to the view. Changes are congruous with the existing visual environment.

Table 4-7 Visual impact assessment summary VP06

4.3 Viewpoint assessment

Viewpoint 7 (VP07)

Criteria	Comments
Location and view	C3 SYD Oxford Falls external areas such as car parking areas and landscaped grounds.
Visual receiver type	Visitors to the C3 facility and workers at a distance of approximately 50m.
Description of existing view	The foreground view consists of car parking areas and large areas of open lawn with trees. Wakehurst Parkway is in the centre of the view with a portion of the informal parking area outside Oxford Falls Grammar School visible, along with low vegetated hills in the background.
Anticipated change to view	• Wakehurst Parkway is widened in this location to two southbound lanes, a central planted median and two northbound lanes with bus bays and shelters on both sides of the road • New footpaths are located on both sides of the road linking Wakehurst Parkway and the Dreadnought Road intersection • New turf and trees along the verge areas • A low sandstone, block retaining wall is located in the foreground however the wall faces Wakehurst Parkway so is likely not visible
Sensitivity to change	Low Visual receivers are temporary visitors and workers with short viewing times accessing buildings from car parking areas. Their attentions are focused on the activities within the facility rather than Wakehurst Parkway.
Magnitude of change	Moderate There are direct views of the existing vegetation removal in the road reserve opening views of the Oxford Falls Grammar school campus. Replacement tree planting in the same location would however generally offset the removal. The existing vegetation consists of native and exotic species that reduce the rating to Moderate. The widened road is at a similar level and would not be a prominent feature.
Assessment rating	Moderate-Low Tree and vegetation removal would result in visual impacts however the impacts would be offset by new landscape including tree planting in the road reserve. New elements in the view would contribute to an increase in the urban character of the area although this could potentially be perceived as a positive visual impact. Visual connectivity between campuses would increase.

Table 4-8 Visual impact assessment summary VP07

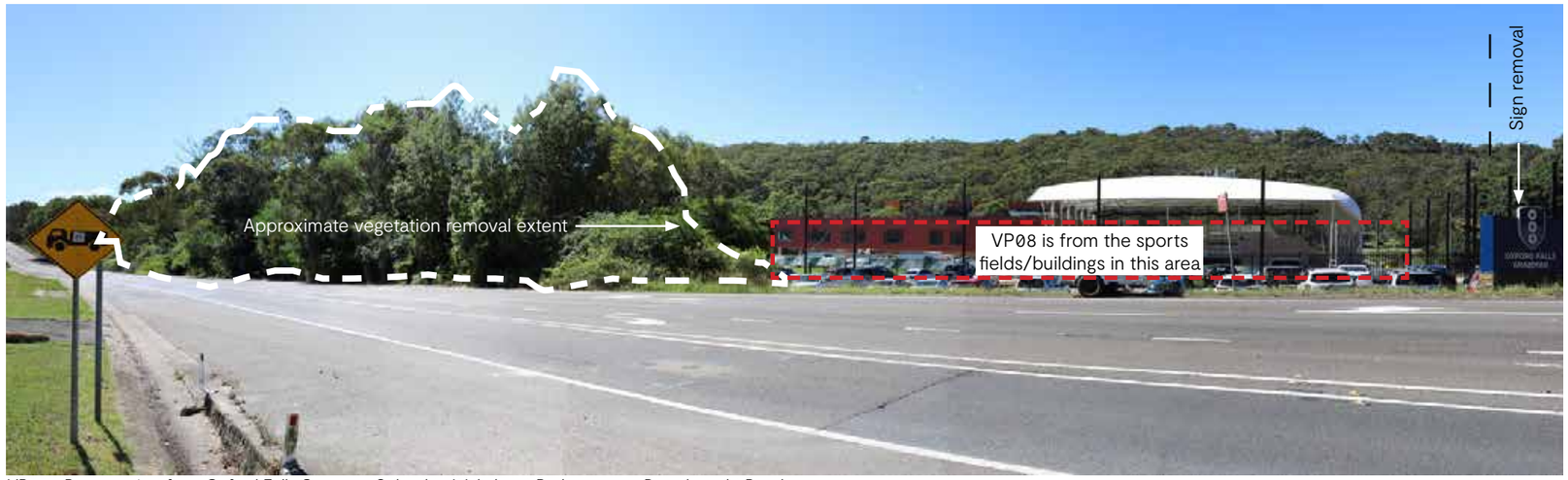
VP07 - View southeast of Wakehurst Parkway towards Oxford Falls Grammar School and Dreadnought Road

4.3 Viewpoint assessment

Viewpoint 8 (VP08)

Criteria	Comments
Location and view	Views are from the sports fields or elevated covered sports fields and an education facility building with first level windows at a distance of approximately 50-80m.
Visual receiver type	Students, teachers, visitors and workers at the school buildings and sporting fields.
Description of existing view	Views comprise semi-urban development with Wakehurst Parkway and the Dreadnought Road intersection and overhead utilities and power poles comprising built elements within the view. Filtered views of roofs in the surrounding area, including at the C3 Sydney property would also be evident. The view contains bushland in the surrounding areas forming a continuous canopy as well as foreground vegetation screening Wakehurst Parkway approximately 50m north of the Dreadnought intersection.
Anticipated change to view	• Views of Wakehurst Parkway would be opened in the foreground and north to the creek area. Visible elements include the widened road with new turning lane, planted batters, turf and trees, new bus bays and shelters, a planted and concrete central median and footpaths on both sides of the road. • Landscape treatments at the Dreadnought Road intersection including low landscape walls and the removal of the Oxford Falls Grammar School sign from the road reserve • New trees and landscape planting in the road reserve
Sensitivity to change	Low Visual receivers include students, teachers, workers and visitors to the school and sports fields are short term visual receptors focused on activities at the school.
Magnitude of change	Low Removal of trees and vegetation would be the most significant impact however impacts would be offset by new tree planting in grass areas and planted batters.
Assessment rating	Low The changes are congruous with the existing view apart from foreground tree and vegetation removal. The rating is Low as the vegetation comprises generally low quality vegetation from exotic weed species.

Table 4-9 Visual impact assessment summary VP08



VP08 - Reverse view from Oxford Falls Grammar School to Wakehurst Parkway near Dreadnought Road

4.3 Viewpoint assessment

Viewpoint 9 (VP09)

Criteria	Comments
Location and view	Wakehurst Parkway view south from the southbound carriageway towards the Wakehurst Parkway Dreadnought Road intersection.
Visual receiver type	Drivers and passengers in vehicles driving at approximately 80km/h on Wakehurst Parkway.
Description of existing view	The view consists of Wakehurst Parkway in the foreground as it rises, curves and disappears to the southwest beyond the intersection. There are a number of urban components including traffic signals, overhead powerlines with wire stays and general signage. Dense vegetation and tree canopy are prominent visual elements framing the view of Wakehurst Parkway. A low vegetated hill contains views to the immediate area.
Anticipated change to view	• Widened road corridor • Landscaped verges with turf, trees and planting • New, dedicated turning and cycle lanes • Central planted or concrete median • Bus shelter and bay, low landscape walls • Street lighting and road signage
Sensitivity to change	Low Motorists have short viewing times as they move at speed along the corridor. The natural aspects of the view are counterbalanced by strong urban elements such as residential development, signs, traffic lights, power poles and overhead wires. Road edges are undefined with chainwire fencing and exotic, overgrown vegetation also visible and contributing to a Low rating.
Magnitude of change	Moderate Changes are predominantly associated with the widened road in the foreground and removal of trees and vegetation along the eastern edge of Wakehurst Parkway currently preventing views towards Oxford Grammar School and areas further east.
Assessment rating	Moderate-Low The view contains both urban and landscape elements and therefore has capacity to absorb the changes. The proposal could be perceived as a positive visual outcome through a clearer delineation of the road and landscape and better overall visibility of the adjacent landscape and uses contributing to improved legibility for motorists.

Table 4-10 Visual impact assessment summary VP09

VP09 - Northbound view from Wakehurst Parkway of the Wakehurst Parkway Dreadnought Road intersection

4.3 Viewpoint assessment

Viewpoint 9 (VP09)

Photomontage of VP09, Northbound view from Wakehurst Parkway of the Wakehurst Parkway Dreadnought Road intersection

4.3 Viewpoint assessment

Viewpoint 10 (VP10)

Criteria	Comments
Location and view	Northbound view from the intersection of Wakehurst Parkway and Oxford Falls Road.
Visual receiver type	Drivers and passengers in vehicles driving northbound at approximately 80km/h on Wakehurst Parkway.
Description of existing view	Two lane carriageway with narrow shoulders on both sides bending to the east. Dense vegetation from native bushland frames and terminates the view with tree canopy in the background appearing above the foreground vegetation. A low rock cutting is visible along the northbound lane shoulder.
Anticipated change to view	• Road widening to accommodate a new turn lane into Oxford Falls Road • A cut sandstone wall of varying heights to 6m and a safety barrier along the base would be visible along the southbound lane • Revegetation and a safety rail located at the top of the sandstone wall would potentially be visible.
Sensitivity to change	Low Visual receptors are motorists with short viewing times traveling at relatively high speeds or temporarily stopped at the intersection. Sensitivity is tending towards moderate due to the natural aspect of the view however the bushland is continuous and there are no significant landmark features visible.
Magnitude of change	Low The new sandstone cut retaining wall would be noticeable however congruous with existing low sandstone walls at this location.
Overall significance of impact	Low Changes would be noticeable but consistent with the existing overall road corridor landscape that contains rock cutting walls and dense surrounding vegetation.

Table 4-11 Visual impact assessment summary VP10

VP10 - Northbound view of Wakehurst Parkway just north of Oxford Falls Road

4.3 Viewpoint assessment

Viewpoint 10 (VP10)

Photomontage of VP10, Northbound view of Wakehurst Parkway just north of Oxford Falls Road

05 Summary and mitigation

05 Summary and mitigation

5.1 Summary of visual impacts

Viewpoint assessment ratings are assessed as being low or negligible apart from VP07 and VP09 where it is assessed as Moderate-low. The low to negligible ratings are generally attributed to:

- the proposal elements being congruous with the existing visual environment
- the surrounding bushland and landscape having a high capacity to visually absorb the changes, including tree and vegetation removal
- the lack of visual receivers with high sensitivity ratings such as residents in dwellings
- the sensitivity to change being assessed as low due to short viewing times from motorists, students, visitors and workers.

Many of the visual changes from the proposal would contribute to an improved local, urban visual environment from clearer articulation of the road, shoulders and verges as comprised of upgraded paving, kerbing, linemarking and new landscape planting.

The assessment ratings for VP08 and VP09 are Moderate-low as the magnitude rating was assessed as Moderate primarily due to trees and vegetation removal in the foreground of the view. These ratings however are tending towards Low as new replacement trees, grass and planting is proposed and would mitigate impacts in the views.

Viewpoint	Sensitivity	Magnitude	Assessment rating
VP01	Low	Negligible	Negligible
VP02	Low	Low	Low
VP03	Low	Low	Low
VP04	Low	Low	Low
VP05	Low	Low	Low
VP06	Low	Negligible	Negligible
VP07	Low	Moderate	Moderate-low
VP08	Low	Low	Low
VP09	Low	Moderate	Moderate-low
VP10	Low	Low	Low

Table 5-1 Visual impact assessment summary

5.2 Construction

During the construction stage, construction traffic would likely access proposal sites via Wakehurst Parkway utilising the side grassed verge areas north of Dreadnought Road, west of the northbound carriageway. Parking for construction workers would likely be in road verge areas or nearby streets.

The main construction activities would include site establishment, vehicle movement, and preparation for operation, which would include the following main visual components:

- earth-moving equipment for civil works within the proposal site
- earthworks including foundations and trenches
- movement of trucks, forklifts, excavators, and 50 tonne mobile crane
- stockpiles of excavated materials
- construction compound including a site office and amenities
- laydown areas.

Visual impacts from the construction of the proposal are expected to be Low. Although the identified activities are likely to be visible from surrounding locations, there are no visual receivers identified with a high sensitivity rating.

5.3 Mitigation strategies

The impact assessment ratings in Table 5-1 rely on the incorporation of mitigation strategies embedded within the concept design to assist in reducing visual impacts. These strategies, led by the urban design objectives, include a range of measures to ensure best practice and sustainable outcomes are achieved. Proposals include:

- the use of local, natural materials such as sandstone
- planting and revegetation utilising native species suited to the local conditions
- working with the local geology and soils such as sandstone cutting walls
- avoiding the use of shotcrete in sandstone cutting walls where possible and, only where shotcreting is required, minimising its use and adapting its colour to match the local geology
- retaining trees and native vegetation where practicable and replanting with seed collected from locally endemic species.