This section describes the impact of visual changes resulting from the construction and operation of the New Runway Project (NRP).

Detail is also provided on the following areas:

• How are the visual impacts assessed?
• What parts of the NRP that can be viewed from different locations around Perth Airport?
• What will be the mitigation strategies during the construction to minimise the visual impact on surrounding areas?
15.1 Introduction
This section describes the impacts of changes to the visual landscape resulting from the construction and operation of the New Runway Project (NRP).

The NRP will impact the landscape and visual appearance as a result of:
• the development of 293 hectares of land (including clearing of 129 hectares of good or better quality vegetation),
• construction and operation of the new runway, and
• installation of lighting infrastructure.

A study was undertaken to examine the existing visual appearance of the NRP area, assess the impacts of the NRP by comparing the impact of changes from different viewpoints, and identify appropriate mitigation measures.

Additional information on construction of the new runway and associated infrastructure can be found in Section 6.

15.2 Key Findings
Key findings from investigations into the landscape and visual impact of the NRP include:
• Visually, the elevated areas approximately 20 kilometres to the east of Perth and in the Darling Escarpment have the most prominent views. These rural and semi-rural areas are most likely to be impacted by any reduction in visual amenity due to the visibility of the airport. All off estate visual impacts have been assessed as negligible.
• The NRP will alter the visual amenity through airside road and fencing, runway and associated pavements and the installation of high intensity approach lighting at the northern and southern extents of the new runway.
• The operation of the NRP will result in an incremental increase in the existing overall lighting impact to the airport area and its surrounds, which already contains stand out features such as the coloured ‘Sky Ribbon’ road lighting and the Gateway WA road network, terminal lighting and lighting from the surrounding industrial and distribution precinct.

15.3 Policy Context and Legislative Framework
In general, State and local legislation are not applicable at Perth Airport. However, for the purpose of this assessment, State and local legislation and policy have been used to inform the assessment of landscape and visual impacts.

In Western Australia, National Parks are administered under the Reserves (National Parks and Conservation Parks) Act 2004. The State Department of Biodiversity, Conservation and Attractions (DBCA) is responsible for the management and implementation of the state’s conservation and environmental legislation and regulations: and focuses on the management of state forests, national parks, marine’s parks and reserves.

The National Parks within the vicinity of the estate include Kalamunda National Park, Gooseberry Hill National Park and John Forrest National Park.

15.3.1 Local Government Policy
Local policies for the areas around the estate that are considered relevant to the assessment are described in the following sections.

15.3.1.1 City of Belmont
The City of Belmont Vision document highlights the aspiration for the city to be home to a diverse and harmonious community, and thriving due to the opportunities of this unique, riverside City. Diversity is key to the City of Belmont being able to ensure it remains sustainable and has the capacity to grow with the changing environment and community expectations. The diversity in amenity (with the airport, river, horse-racing industry and major transport infrastructure) is identified as a key benefit.

The City of Belmont Landscaping Plan information sheet (December 2014) acknowledges that landscaping has the potential to improve the visual amenity and environmental sustainability of urban areas. “Landscaping should not only complement the appearance of the proposed development but also that of the surrounding land use”. The information sheet also acknowledges that native species offer many benefits including being ‘waterwise,’ low fertiliser demand, bird attraction and biodiversity. The City of Belmont encourages all new development to use native vegetation species when preparing landscaping plans.
15.3.1.2 City of Kalamunda

The Kalamunda Centre is a low scale, low density and dispersed commercial area, with Haynes Street forming the major movement and activity axis. The town centre is laid out on a traditional but irregular grid pattern, with a wide variety of lot sizes and frontages. Of particular relevance to the NRP is the acknowledgment that the topography is distinctive, providing some sites with the potential for long views over the surrounding areas. However, it is acknowledged most buildings have been designed with little consideration for the terrain.

15.3.1.3 City of Swan

The City of Swan Local Planning Scheme No.17 classifies land with a zone or reserve. Each zone has a set of objectives to assist Council with determining the appropriateness of discretionary uses and development. The northern extent of the estate is situated within the City of Swan. Industrial, residential and rural land zones extend north and east beyond the Great Eastern Highway Bypass. The objectives of these planning zones that are relevant to the landscape and visual appraisal have been captured below.

**General Rural Zone Objectives:**
- ensure the use and development of land does not prejudice rural amenities, and to promote the enhancement of rural character, and
- ensure that development and land management are sustainable with reference to the capability of land and the natural resource values.

**Residential Zone Objectives:**
- promote a residential environment in each locality consistent with the form and density of residential development permissible in the locality, so as to enhance a sense of place and community identity,
- preserve and enhance those characteristics which contribute towards residential amenity, and to avoid those forms of development which have the potential to prejudice the development of a safe and attractive residential environment,
- provide for a limited range of ancillary development compatible with the form and density of residential development, and complementary to the needs of local communities, but which will not compromise residential amenity, and
- avoid development of land for any purpose or in any manner that would detract from the viability or integrity of development in either the Strategic Regional Centre or the commercial zones.

**Industrial Zone Objectives:**
- ensure development within the zone is complementary to development in other zones and to avoid development of land for any purpose or in any manner which would detract from the viability or integrity of development in either the Strategic Regional Centre or the commercial zones, and
- ensure environmental performance of industry does not detract from the amenity of adjacent sensitive areas and conforms with any relevant environmental standards applicable to the neighbourhood.

15.3.1.4 Town of Bassendean

The Town of Bassendean Local Planning Strategy ensures a suitable interface between industrial and residential land use both in terms of visual impact and potential amenity impact resulting from land use activity.

Planning Policy No.18 Landscaping with Local Plants captures the important role landscape can play in enhancing privacy by, acting as a natural cooling system for homes, softening the built form, creating visual relief, and generally improving the aesthetic appeal of new and existing developments.

The Policy also identifies that local native vegetation can help to protect biodiversity and natural heritage values, and contribute to a ‘sense of place’ for the area. Landscaping can be a major component of urban renewal programs providing a boost for the local economy by stimulating business. Local plant themes can be incorporated into the landscaping of major roads, shopping centres, public transport routes, civic buildings and new developments.

15.3.1.5 City of Bayswater

The objective of the City of Bayswater Character Protection Areas Policy is to ensure that new development is consistent with the character, rhythm, scale and visual amenity of existing residential streetscapes. The four Character Protection Areas include Maylands North, Mount Lawley, Bedford and Baywater. The document focuses on the requirements character, context, form and massing of potential development; however, consideration should be given to the wider visual amenity and context of these character areas.

The City of Bayswater Town Planning Policy 5.1 – Landscaping, ensures that existing vegetation is maintained wherever possible and that landscape design improves the quality and amenity of built areas in commercial and industrial zones.
15.4 Methodology
15.4.1 Study Area
The study area has been defined through the preparation of a Visual Envelope Map (VEM) and includes areas within and external to the estate. Using the Geographic Information System (GIS), a VEM is generated using digital terrain data (including height information) and the three-dimensional computer aided design information associated with the NRP. This process helps to identify locations where the NRP area may be visible from. The VEM is by its nature approximate only and may exclude areas of existing intervening features such as built form, vegetation or localised variations in topography, representing the greatest extent of potential visual effect. The VEM has been reviewed and validated through an onsite field investigation. The VEM is provided in Figure 15-1.

15.4.2 Viewpoint Locations
Viewpoint locations were selected based on the terrain height identified by the VEM, to identify a range of locations from which the NRP could potentially be viewed. Eleven representative viewpoints were then selected, from which landscape and visual impacts have been assessed, and are shown in Figure 15-1.

15.4.3 Assessment of Visual Effects
The baseline conditions were identified through a process of a desktop study, field survey and a review of the relevant planning framework and policies.

A description of the existing visual conditions of the estate and surrounding study area was provided with reference to the VEM. This includes consideration of existing visual amenity and landscape character.

The visual amenity and scenic value within the study area is influenced by the topography, vegetation cover and land use.

Landscape-character assessment seeks to divide the landscape into distinct, broadly homogenous units with defining characteristics. Each character area should be distinct from an adjoining area which will be defined by a different set of key parameters. A summary of the character of the landscape is provided, with a focus on the landscape characteristics that inform the extent of potential views, for example, the landform and extent of vegetation cover that could limit views as opposed to visually open landscapes where widespread inter-visibility between communities and visual features exists.

The assessment of visual effects relates to the changes from the baseline that would arise in the composition of available views because of the NRP. The two principal factors which influence the assessment of potential effects include the sensitivity of the view point and the magnitude of the anticipated change.

The visual-impact appraisal does not directly address the specific impact of increased aircraft activity or changes in flight paths to each viewpoint.

The assessment acknowledges that Perth Airport operates 24 hours a day, seven days per week and assumes that most of the impacts arising from additional lighting and operations related to increased activities will result in an incremental change to the existing activities.

The lighting design, including High Intensity Airport Lighting (HIAL) and associated airport infrastructure lighting, will be finalised as part of the detailed design. The appraisal acknowledges HIAL will be required and be viewed in the context of existing airport lighting.
Figure 15-1 Visual envelope map
Source: Arup
15.5 Existing Condition

As outlined in the methodology, the visual study area has been defined through the preparation of a VEM to illustrate the potential extent of visibility of the NRP. The theoretical extent is based on the 3D centreline associated with the runway.

Eleven representative viewpoints were selected through a review of the sensitivity of the visual amenity and interrogation of the VEM.

15.5.1 Visual Amenity

The visual amenity and scenic value within the study area is influenced by topography, vegetation cover and land use. A summary of these key components is provided below.

15.5.1.1 Topography

The terrain of the study area is shown in Figure 15-2 Key topographical features include:

- the topography of the airport is characterised by the Swan Coastal Plain low-lying landscape that stretches west to the coastline,
- the low-lying terrain allowed distant views to the City skyline to the west,
- to the east, the topography rises sharply to the Darling Escarpment, reaching approximately 200 metres Australian Height Datum. The change in topography and forested hills provides an important backdrop in views to the east,
- local roads within the residential areas of Orange Grove, Kalamunda, Gooseberry Hill and Greenmount meander the hillside and provide intermittent views across the low-lying Swan Coastal Plains to the west, and
- to the north and west, the undulating terrain limiting distant views to localised high points.
Figure 15-2 Perth basin topography
Source: Perth Airport
15.5.1.2 Vegetation Cover
Native vegetation is shown in Figure 15-3. Key vegetation characteristics include:

- the area comprises seven vegetation community types, including Threatened Ecological Communities (TEC) and State Government and State listed priority species. The existing vegetation is relatively low lying, however the presence of vegetation limits low-level views towards the airport from adjacent roads,

- leafy suburbs extend beyond the estate to the north, east and west, with tree lined streets and vegetated parklands that reduce the visual presence of the airport and associated infrastructure, and

- to the east, the blanketed hills of the Darling Escarpment, including Kalamunda National Park, Gooseberry Hill National Park and John Forrest National Park, define the eastern extent, with occasional and intermittent views from elevated views and residential properties towards the estate.
Figure 15-3 Vegetation cover
Source: Arup
15.5.1.3 Land Uses
The airport lies to the east of Perth CBD and sits within the urban footprint of the wider city. It is surrounded by suburbs and bounded by arterial roads critical for travel and freight logistics. Directly bordering the estate is a mix of large and small-scale businesses, and logistics and distribution facilities.

Predominate land use within and around the estate includes:
• airport passenger terminals, aviation support facilities, car parks, small linear parks between buildings, and associated ground transport and commercial facilities.
• within the estate, the Air Traffic Control Tower is the tallest and most visible structure; and within the low-lying land there are several vegetated areas and wetlands including a small park with walking trails open to the public.
• the estate is bounded by important road transport routes including the Tonkin Highway, Abernethy Road and the adjacent freight train line, Kalamunda Road and the Great Eastern Highway Bypass. The mixed industrial and business areas continue to the south at Kewdale and Welshpool.
• Beyond the estate and surrounding transport routes, are the low-lying residential suburbs of Cloverdale, Redcliffe, High Wycombe, Forrestfield, and South Guildford.

The land starts to gently rise east of the estate before meeting the steeper Darling Escarpment, which is a mix of larger residential lots and national parks.

15.5.2 Landscape Character
The landscape character areas defined for the NRP are influenced by the preceding analysis of topography, vegetation cover and land use. The landscape character assessment is limited to the VEM as areas beyond this are unlikely to experience any change as a result of the NRP.

15.5.2.1 Perth Flats - Residential
The Perth Flats consists of:
• mostly one to two-storey houses on flat to slightly undulating ground with minimal views towards the airport or surrounds,
• the surrounds are largely considered landscapes, with mowed turf, high visual amenity medians and detailed garden beds,
• tall mature trees are located within suburban parklands and the occasional busy roadway, and
• the focus is on the foreground houses, gardens and medians as there are limited vistas except along long roads and streets.

15.5.2.2 Perth Scarp - Rural Residential
The Perth Scarp consists of:
• mostly two-storey houses on the western side of the Darling Escarpment,
• panoramic westwards views over the Perth flats originate from along the red gravel lined roads, and
• lookouts have been created beside roads at certain points where you will find evidence that locals or tourists have stopped to appreciate the view.

15.5.2.3 Natural Scarp - Natural Escarpment
The Natural Scarp consists of:
• uninhabited natural rocky escarpment landscape including eucalypts, dryandras and wattles in red iron-rich gravel, and
• gaps in trees and elevations.

15.5.2.4 Sandy Airport Flats - Airport Flats
The Sandy Airport Flats consists of:
• a flat industrial business precinct to the south and south east of the airport estate is undergoing visible changes including earthworks. This character area includes main arterial routes for road and rail logistics, and a mix of light industrial large and small warehouses and buildings and small businesses, and
• a small amount of contrasting natural wetland vegetated areas where nature is the main focus. There are areas of detailed landscaping along the main roadways and around the street frontage of businesses. This landscape is dominated by a background of small-to-large buildings and warehouses.
15.6 Impact Assessment
The assessment of visual effects relates to the changes that would arise in the views as a result of the NRP. The two principal factors which influence the assessment of potential effects include the sensitivity of the viewpoint and the magnitude of the anticipated change.

15.6.1 Sensitivity
Visual sensitivity refers to the nature, duration and quality of a view. To assist in the assessment of visual effects, the sensitivity of a viewpoint is considered in the broadest context, from those of national importance through to those considered to have a local visual importance. The terminology in Table 15-1 describes the visual sensitivity criteria.

<table>
<thead>
<tr>
<th>Level of Visual Sensitivity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>Heavily experienced, high-quality view to a national icon</td>
</tr>
<tr>
<td>State</td>
<td>Heavily experienced, high-quality view to a feature or landscape that is iconic to the State, e.g. views from National Parks and scenic lookouts, or views of state significance. May also be less frequently visited if the iconic visual feature is viewed from a designated viewpoint such as that included in a National Park.</td>
</tr>
<tr>
<td>Regional</td>
<td>Heavily experienced, high-quality view to a feature or landscape that is iconic to a major portion of a city or a non-metropolitan region, or an important view from an area of regional open space and regional park.</td>
</tr>
<tr>
<td>Local</td>
<td>High quality view experienced by concentrations of residents and/or local recreational users, and/or large numbers of road or rail users, e.g. expansive urban or bushland views from residential areas or local open space.</td>
</tr>
<tr>
<td>Neighbourhood</td>
<td>Views from locations where visual amenity is not a key feature or not important to the viewer; these may be lesser quality views, or where views are glimpsed. These may include views briefly glimpsed from roads, those which currently include visual detractors, places where there is no designated protection for visual amenity.</td>
</tr>
</tbody>
</table>

Table 15-1 Visual sensitivity criteria
Source: Arup

15.6.2 Magnitude of Change
Visual magnitude of change refers to the degree of change that could occur as a result of the NRP. A high magnitude of change could occur if the development contrasts strongly with the existing visual amenity. A low magnitude of change could occur if there is minimal visual contrast and a high-level of integration of form, line and scale between the proposed options and the existing environment. In this situation, the option may be noticeable but does not markedly contrast with the existing visual amenity. The terminology in Table 15-2 describes the visual magnitude of change criteria.

<table>
<thead>
<tr>
<th>Magnitude of Change</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Considerable reduction or improvement in visual amenity. Substantial part of the view is altered.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Noticeable reduction or improvement in visual amenity. Alteration to the view is clearly visible.</td>
</tr>
<tr>
<td>Low</td>
<td>No perceived reduction or improvement in visual amenity. Either the development is not visible, or if it is, the change in the view is generally unlikely to be perceived by viewers.</td>
</tr>
</tbody>
</table>

Table 15-2 Magnitude of change criteria
Source: Arup
15.6.3 Significance Criteria

Although there are no recognised standards for determining the significance of visual effect, there is a need to assign significance to this assessment so that there can be a clear and consistent means of evaluating visual effect. The significance criteria in Table 15-3 have been adapted from the generic criteria outlined in Section 8.

Table 15-4 shows how visual sensitivity and visual modification have been combined to determine significance of impacts specific to this assessment.

15.6.4 Potential Impacts

The following section summarises the key impacts and issues identified in the Visual Impact Appraisal.

15.6.4.1 Construction

The construction of the NRP has the potential to alter the visual amenity in the NRP area. The following processes will impact on the visual amenity:

- vegetation clearance,
- earthworks and transportation of materials, and
- construction access and pavement construction.

The industrial area directly adjacent to the eastern boundary of the estate will be visually impacted during construction. The area referred to in this assessment as the Sandy Airports Flats character area, is a mix of industrial, freight and transport, small businesses and the contrasting sandy wetlands. Users of this area, adjacent to the south of the estate will lose the green buffer to the airport during construction.

Visually, the elevated areas approximately 20 kilometres to the east of Perth in the Darling Escarpment have the most prominent views. These rural and semi-rural areas are most likely to be impacted by any reduction in visual amenity due to the visibility of the airport. However, the distance between the new runway and the existing runways within these views renders any visual change low or negligible.
15.6.4.2 Operation
The operation phase elements that have the potential to alter the visual amenity, (excluding the sight of aircraft on the ground or overflying) include:

- airside road and fencing,
- runway and taxiway pavement, and
- airfield lighting including the HIAL to the north and south.

Although the nature of the potential impact will vary between constructions to operation, from a construction working site to an operational runway, the assessment is anticipated to be broadly consistent, with potential for a reduction in impact as the landscape and grassed areas begin to mature and green over time, reducing the visibility of exposed earth and vertical elements such as construction equipment.

The operational impacts of the new runway will be an incremental increase in the existing overall lighting impact to the area and surrounds - which already contains stand out features such as the coloured ‘Sky Ribbon’ road lighting and the Gateway WA road network, terminal lighting and lighting from the surrounding industrial / distribution precinct.

15.6.5 Representative Viewpoint Assessment
Eleven representative viewpoints were selected to inform the visual assessment. The viewpoint assessment below identifies unmitigated effects that could arise from these viewpoint locations.

15.6.5.1 Viewpoint 1 - Airport South Precinct: Kwenda Marlark Park, corner of Tarlton Cres and Colquhoun Road
Baseline Description
Kwenda Marlark park is a 9.5-hectare rehabilitated area within the Airport South Precinct comprising of a thick scrubby heath with occasional low dense trees. The view is relatively contained, with views above low vegetation to the rising terrain in the distance. The park includes a vegetated infiltration basin that receives inflows from drainage supporting the adjacent commercial precinct and a 900-metre walk comprised of sandy trails and wooden boardwalks. Entry to the park is informal and minimal with access at the corner of Tarlton Crescent and Colquhoun Road. Once within the park, the views are directed towards the natural vegetation at eye level and below, including specially designed information signage on plant species.

Sensitivity
Kwenda Marlark Park is a small local park. It is a natural landscape that has involved local school groups in its rehabilitation and has been a place of education regarding Aboriginal heritage. It has been rehabilitated into an area that promotes flora, Aboriginal history and a place to enjoy nature. The park is of value to local community groups and would be experienced by recreational footpath users. Sensitivity is local.

Magnitude of Change
Some reduction in visual amenity will occur during and after the construction of the new runway, however the Kwenda Marlark Park will stay intact. At the boundary, the new runway will encroach into the parklands area and slightly reduce the size of the parkland. Less than 0.7 hectares of the park is within the NRP area. It is therefore assumed the new runway will be visible and may affect some of the parkland’s natural-landscape character. Where possible Perth Airport will investigate relocating the airside fence to maintain existing walking tracks. Magnitude of change is moderate.

Effect
The local sensitivity and moderate magnitude of change would result in a minor adverse effect. The impacts would be permanent in this area.

Figure 15-4 Kwenda Marlark Park, Airport South Precinct (March 2017).
Source: Arup
15.6.5.2 Viewpoint 2 - Airport South Precinct: Corner of Tarlton Crescent and Horrie Miller Drive

Baseline Description
View towards the new runway with cleared vegetation and earthworks in the foreground. The character of the area is a busy roadway within an industrial area in the Airport South Precinct. The vegetation adjacent to the cleared land currently acts as a visual buffer between the new runway and the industrial area. Views to the east extend to the Darling Escarpment.

Sensitivity
The viewpoint is situated adjacent to an industrial area and roadway with footpaths. Views would primarily be experienced from passing vehicles. Passing motorists would experience the view as a representation of the nearby Kwenda Marlark destination. Sensitivity is neighbourhood.

Magnitude of Change
Site preparation has been undertaken for further industrial development. It is anticipated that views towards the NRP would be fully or partially screened by industrial buildings, however the building will determine whether sightlines towards the new runway would be visible. For the purposes of this appraisal, it is assumed that development will be of a similar form and scale to the adjacent buildings. Magnitude of change is low.

Effect
The neighbourhood sensitivity and low magnitude of change would result in a negligible effect.

15.6.5.3 Viewpoint 3 - Kewdale Industrial Park

Baseline Description
Facing north towards the airport with Tonkin Highway and Woolworths Distribution Centre in the foreground, this is a framed view enclosed by built structures on both sides and in the distance. The view taken from the corner of Reggio and Kingscoat roads is of smaller service roads leading to a mix of large and small business and industry estates. The road verges are turfed with some feature landscaping at intersections and boundaries of estates, with intermittent lesser maintained verges of sandy turf. The framed view towards the airport is obstructed by the Woolworths Distribution Centre warehouse in the middle of the view and between this viewpoint and the new runway. The distribution warehouse dominates the horizon.

Sensitivity
Views would be experienced by local industrial users and employees in the context of existing industrial, warehouse buildings. Views towards the estate are obstructed by Tonkin Highway in the foreground and existing large distribution warehouses in the distance. Sensitivity is neighbourhood.

Magnitude of Change
It is assumed there will be no reduction or improvement in visual amenity with the construction and operation of the new runway. The airport is not visible from this area and is obstructed by the large Woolworths Distribution Centre and elevated Tonkin Highway. Magnitude of change is low.

Effect
The neighbourhood sensitivity and low magnitude of change would result in a negligible effect.
15.6.5.4 Viewpoint 4 - High Wycombe: 1000 Abernethy Road

Baseline Description
This open view is between Abernethy Road and the freight line, in an area dominated by light-industrial small and large buildings and warehouses. There are extended views across and down the railway line from Abernethy Road away from the airport towards storage, industry and vegetation buffer between the rail and the residents of High Wycombe to the east. The Air Traffic Control Tower is visible to the north west, above trees in the foreground along Abernethy Road. The tree-lined median and light-industry large and small buildings on the opposite side of Abernethy Road towards the airport allow glimpses to the Air Traffic Control Tower.

Sensitivity
Views toward the airport are obstructed by Tonkin Highway in the foreground and existing large distribution warehouses in the distance. The area is primarily business and industrial and views would be experienced by industrial employees in the context of the existing industrial, warehouse buildings. Sensitivity is neighbourhood.

Magnitude of Change
It is assumed there will be no reduction or improvement in visual amenity with the construction and operation of the new runway. Magnitude of change is low.

Effect
The neighbourhood sensitivity and low magnitude of change would result in a negligible effect.

15.6.5.5 Viewpoint 5 - Mills Road East, Martin

Baseline Description
View from a stationary point along Mills Road within an elevated eastern rural suburb of Perth facing west. Views towards the airport from accessible locations are largely limited by thickets of trees and taller natural vegetation. It is a confined view bounded by vegetation either side. The area is non-residential and within the Banyowla Regional Park. The area is natural in character punctuated by the odd building, path and road. Just below this viewpoint lies large residential plots on the lower part of the escarpment.

Sensitivity
The elevated view provides a point of interest for local motorists and cyclists using the road. Narrow vistas are possible through gaps in the trees of the flatter area of Perth City and the suburbs to the West. Sensitivity is local.

Magnitude of Change
The canopy of the parkland vegetation prevents wide vistas towards the new runway. It is anticipated that there will be no perceived reduction or improvement in visual amenity. Magnitude of change is low.

Effect
The local sensitivity and low magnitude of change would result in a negligible effect.
15.6.5.6 Viewpoint 6 - Maud Road, Maida Vale

Baseline Description
This view is experienced by rural residential properties on the east of the Darling Escarpment with extensive views west towards the city, the suburbs, the airport and the warehouses surrounding the airport. The view was taken from a suburb consisting of generally two storey houses on large allotments. The red iron rich gravel is evident on the verges of the roads. The area is suburban with focus on the more natural scenery and vistas provided by the elevation. The Air Traffic Control Tower, terminals and the adjacent commercial precinct is visible in the view.

Sensitivity
The elevated view is representative of local residential properties. Expansive views are possible over the tops of roofs and tree canopies due to the steep slope with

Magnitude of Change
The new runway would be visible in the view due to the extent of vegetation clearance. The change would be evident during construction and operation with earthworks and additional lighting. However due to the panoramic nature of the view and the distance from the airport, change would be a small component of the view and is unlikely to be perceived by the viewer. Magnitude of change is low.

Effect
The local sensitivity and low magnitude of change would result in a negligible effect.

15.6.5.7 Viewpoint 7 - Kalamunda Drive, High Wycombe

Baseline Description
This panoramic view is taken from a residential area on the east of the Darling Escarpment. Sequential views emerge while driving down from the higher points of Kalamunda Road between breaks in tall trees planted on the low side of Kalamunda Road. Two main panoramic views occur at this viewpoint:
• an encompassing view west towards the city, the large industrial warehouses near the airport and a clear view of the existing runways behind the warehouses, and
• a view consisting of the warehouses to the south of the airport and the suburbs beyond.

The suburb consists primarily of two-storey houses on large lots of land set back from the road with long driveways. The red iron-rich gravel is evident on the verges of the roads.

Sensitivity
Expansive views are possible over the tops of roofs and canopy due to the steep slope. The view includes the airport, Perth City, warehouses around the airport and the roofs of the Perth suburban sprawl and is representative of views from residential properties. Sensitivity is local.

Magnitude of Change
The NRP would be visible in the middle of the view with the City skyline in the distance. The change would be evident during construction and operation with earthworks and additional lighting. However due to the panoramic nature of the view and the distance from the airport, change would be a small component of the view and is unlikely to be perceived by the viewer. Magnitude of change is low.

Effect
The local sensitivity and low magnitude of change would result in a negligible effect.
15.6.5.8 Viewpoint 8 - Lascelles Parade Lookout, Gooseberry Hill

Baseline Description
The viewpoint sits between a natural vegetated escarpment and rural residential properties which are in the foreground but are barely visible. A small, informal, gravel pullover bay has been developed as a stopping point for those in cars to admire the panoramic view east. The lower trees and height allow for expansive views which look to the city, the airport and surrounding warehouses, and leafy suburbs in the Perth flats.

Sensitivity
The viewpoint provides high-quality views for both locals and tourists who use this lookout as a vantage point. It could be part of a scenic driving route including the Zig Zag track further north. Sensitivity is regional.

Magnitude of Change
The extent of vegetation clearance and anticipated earthworks would be noticeable in the middle of the view with vegetation in the foreground and the Perth City skyline in the distance. The magnitude is low due to the distance from the airport and other elements in the view that are of interest such as the Perth City skyline and surrounding wildlife. The warehouses and industrial precincts stand out against the contrasting green landscape of the suburbs. Magnitude of change is low.

Effect
The regional sensitivity and low magnitude of change would result in a negligible effect.

Figure 15‑11 Viewpoint 8 - Gooseberry Hill: Lascelles Parade Lookout (March 2017)
Source: Arup

15.6.5.9 Viewpoint 9 - 12 Boorabilla Way, Greenmount

Baseline Description
The location is a leafy residential area close to the John Forrest National Park. The houses are mostly two storeys on larger plots at the base of the Darling Escarpment allowing views towards Perth City, the airport, and industrial precincts seen above the mature trees. The scenic area has a focus on the natural landscape, native-style gardens and road verges where the laterite gravel is visible. The area is under the flight path, with planes departing from the airport at the time of the assessment.

Sensitivity
Elevated representative view from residential properties on the escarpment. Expansive views are possible over the tops of roofs and canopy due to the steep slope with panoramic views including the airport, Perth City, suburban sprawl of Perth, and the industrial warehouses near the airport. Sensitivity is local.

Magnitude of Change
The extent of vegetation clearance and anticipated earthworks would be visible in the middle of the view with vegetation in the foreground and the city skyline in the distance although the change in the view is unlikely to be perceived. The warehouses and industrial precincts stand out against the contrasting green landscape of the suburbs. Magnitude of change is low.

Effect
The local sensitivity and low magnitude of change would result in a negligible effect.

Figure 15‑12 Viewpoint 9 – Greenmount: 12 Boorabilla Way (March 2017)
Source: Arup
15.6.5.10 Viewpoint 10 - Aspley Road, Willetton

Baseline Description
Aspley Road undulates slightly over small hills. It lies within a neighbourhood comprising mostly of single storey homes. There are minimal views east towards the airport due to roof tops and tall eucalypts in the distance from parklands and Canning River vegetation which lies in the foreground of the airport. Small glimpses of the Darling Escarpment are possible over the tops of houses. The view is confined and framed by vegetation and houses.

Sensitivity
Representative view of residential properties and local road users. There are glimpses of the higher Darling Escarpment to the east through gaps in trees and at the top of undulating hills, but views are predominantly focused on the imminent surrounds such as houses and gardens and landscaped medians. Sensitivity is *neighbourhood*.

Magnitude of Change
It is assumed there will be no perceived reduction or improvement in visual amenity with the construction and operation of the new runway. Magnitude of change is *low*.

Effect
The neighbourhood sensitivity and negligible magnitude of change would result in a negligible effect.

Figure 15-13 Willetton: Aspley Road (March 2017)
Source: Arup

15.6.5.11 Viewpoint 11 - Corner of Morley Drive and Hayes Avenue, Dianella

Baseline Description
The area is a busy suburban road close to the Mt Yokine Reservoir which sits on the top of a small hill. The slightly elevated viewpoint allows vistas south east towards the Swan River and the airport, down Morley Drive. Houses are predominantly two storeys with naturally landscaped road medians and verges. There were no clear sightlines of the airport or Air Traffic Control Tower and the views are confined by trees and houses.

Sensitivity
There are glimpses of the lower Perth suburban flats and industrial warehouses of the airport through gaps in trees, but views are predominantly focused on the imminent surrounds such as houses and the roads. Sensitivity is *neighbourhood*.

Magnitude of Change
Views towards the airport from this viewpoint are not clear enough for a noticeable change to be perceived. Views may be captured from surrounding houses on the upper storey however the distance from the airport, and having the terminals between this point and the new runway make the magnitude negligible. There is no perceived reduction or improvement in visual amenity with the construction and operation of the new runway. Magnitude of change is *low*.

Effect
The neighbourhood sensitivity and low magnitude of change would result in a negligible effect.

Figure 15-14 Dianella: Corner of Morley Drive and Hayes Avenue (20 kilometres North West of the Airport) (March 2017)
Source: Arup
15.7 Mitigation

Standard mitigation measures will be implemented during the design, construction and operational phases to minimise impacts and risks to landscape and visual.

During the construction phase of the NRP, site hoarding may minimise visual impacts to neighbouring areas. Workers will also seek to minimise light spill and glare associated with construction lighting by ensuring the layout of the construction site minimises visual impacts where possible.

The design of the runway will consider the visual impact of airfield and approach lighting to visual amenity and will ensure compliance with the safety regulations. Perth Airport will also investigate moving the airside fence adjacent to walking tracks in Kewenda Marlark to minimise the project’s impacts. Also, over time, as grass matures, the landscape of the runway should soften the edge of the NRP area.

15.8 Summary of Impacts

A summary of the impacts on landscape and visual and an impact risk assessment is provided in Table 15-5.

15.9 Conclusion

Visual impacts from the NRP will be derived not only from the runway itself, but from the clearing of vegetation, the runway light system and construction activities. These impacts will vary from day to night.

Through the use of publicly accessible viewpoints around the airport the visual impacts of the NRP on local residents, workers and road users has been considered.

Overall the visual impact is low from the majority of viewpoints assessed.

<table>
<thead>
<tr>
<th>Impacting process</th>
<th>Impact detail</th>
<th>Initial assessment</th>
<th>Residual Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape and visual impacts during construction</td>
<td>Loss of visual amenity due to: vegetation clearing, earthworks, transport of materials, and construction Site hoarding where necessary minimise light spill and glare, and layout of construction site</td>
<td>Minor (Adverse (Viewpoint 1)), Negligible (Viewpoints 2-11)</td>
<td>Medium (Viewpoint 1) Airside fence position will be considered during design to minimise impact on walking trails Low Low</td>
</tr>
<tr>
<td>Landscape and visual impacts during operation - day</td>
<td>Loss of amenity from permanent; airside road and fencing, runway and taxiway pavement, and airfield lighting including the HIAL to the north and south Landscaping following construction Directional lighting where feasible</td>
<td>Minor adverse (Viewpoint 1), Negligible (Viewpoints 2-11)</td>
<td>Medium (Viewpoint 1) Airside fence position will be considered during design to minimise impact on walking trails Low</td>
</tr>
<tr>
<td>Landscape and visual impacts during operation - night</td>
<td>Increased visibility of aircraft lights during flight and an increase in runway lighting and approach lighting Design completed as per safety standards</td>
<td>Negligible</td>
<td>Likely No additional mitigation measures identified</td>
</tr>
</tbody>
</table>

Table 15-5 Summary of impacts, risks and mitigation measures - landscape and visual

Source: Perth Airport