



**STATE AND COMMONWEALTH OFFSET PROPOSAL**

**Toodyay Road Widening SLK 12.75 to 40.3**

**March 2018**

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# OFFSET PROPOSAL SUMMARY

**Project location:** Toodyay Road in the Shire of Toodyay.

## **Project background and purpose**

The Wheatbelt has been identified as having some of the most dangerous roads in Western Australia, with Toodyay Road recognised as one of the most dangerous roads in the Wheatbelt Region.

In the Wheatbelt Region, 144 people were killed and 836 people hospitalised over a period of 5 years (2011 to 2015). Of the 144 deaths, 54 (37.5%) involved hitting roadside vegetation (48 trees and 6 shrubs). The Wheatbelt has a fatal crash rate of 37 fatalities / 100,000 persons in the population, 5 times the State average and 8 times the National rate. With 3.2% of the population, the Wheatbelt contributes to only 2.0% of total recorded crashes in WA but 7.2% of serious crashes and 16.9% of all fatal crashes. A person is 8 times more likely to die if involved in an accident on a Wheatbelt road than the rest of WA.

Toodyay Road was ranked as the highest risk route in WA. The Wheatbelt section of Toodyay Road has a crash rate which is 5 times the State average (Road Safety Commission, 2015).

For the Wheatbelt section of Toodyay Road, a total of 50 crashes with 16 Killed or Seriously Injured (KSI) crashes were recorded over the last 5 years (2011 to 2015). The 16 KSI crashes included:

- 1 fatal and 1 serious injury crash with vehicles turning at intersections.
- 1 fatality resulting from falling from a vehicle in a collision between turning vehicles at an intersection.
- 2 fatal and 1 serious injury head on collisions.
- 9 serious injury run off road crashes and then hit object (almost 70% hit a tree).
- 1 serious injury rear end crash.

Main Roads Wheatbelt Region is proposing to improve the safety of Toodyay Road as a result of these serious safety concerns. This project will involve the widening of a section of the road from approximately SLK 12 to SLK 40, with realignments to remove substandard curves that impair driver vision. The project will also include:

- passing lanes
- culvert extensions and additions
- intersection upgrades
- road realignments where required to provide passing opportunities, remove dangerous curves and improve sightline distances.

Bridges may also be converted to culverts, depending on availability of funding.

## **Project impacts:**

Total clearing for this project is 54.87 ha of native vegetation, in an envelope that is 158.32 ha in size.

The key clearing assessment items for this project include:

- Up to 33 ha of foraging habitat for Carnaby's Cockatoo to be cleared.
- Up to 29.5 ha of foraging habitat for Baudin's Cockatoo to be cleared.
- Up to 6 ha of foraging habitat for Red-tailed Black Cockatoo to be cleared.
- Up to 1360 potential breeding trees for Black Cockatoo species and 94 hollows to be cleared.
- Up to 32.5 ha of Chuditch habitat to be cleared.

- Clearing of three Priority flora species, *Grevillea candolleana* (Priority 2), *Boronia scabra* subsp. *condensata* (Priority 2) and *Hibbertia montana* (Priority 4).
- Up to 1.573 ha of wetland vegetation and 1.965 ha of riparian vegetation.
- 38.5 ha of the vegetation to be cleared is within an extensively cleared landscape.

**Offset proposal:**

The offset proposal is for the acquisition of 150 ha in the Shire of Toodyay to mitigate significant residual impacts associated with the project activities. The offset proposal was developed using the EPBC Offset Calculator Tool (2012) to determine the area of the offset required in hectares. The acquired land will be added to Department of Biodiversity, Conservation and Attractions (DBCA) conservation estate and will also be placed under a Conservation Covenant to be managed in perpetuity for conservation.

## 1 ROAD PROJECT DESCRIPTION

Main Roads Wheatbelt Region is proposing to improve the safety of Toodyay Road as a result of these serious safety concerns. This project will involve the widening of a section of the road from approximately SLK 12 to SLK 40, with realignments to remove substandard curves to improve driver sight lines. The project will also include:

- passing lanes
- culvert extensions and additions
- intersection upgrades
- road realignments where required to provide passing opportunities, remove dangerous curves and improve sightline distances.

Bridges may also be converted to culverts, depending on availability of funding.

### 1.1 Location

The project area is located on Toodyay Road between SLK 12.75 to SLK 40.30, within the Shire of Toodyay (Figure 1).

MGA reference: 50

#### **Toodyay Road at SLK 12.7**

433553°38'37.4651"E 6491885°1'25.8379"N

#### **Toodyay Road at SLK 40.14**

450275°19'46.317"E 6508438°19'9.6069"N



**Figure 1 – Toodyay Road Project area**

## 2 MEASURES UNDERTAKEN TO AVOID AND MITIGATE CLEARING IMPACTS

### 2.1 Avoidance measures

The project has been modified several times to minimise clearing as far as possible, and Main Roads has made every effort to protect environmental features during project development, including:

- An entire population of *Hibbertia montana* (Priority 4) was to be removed for the project (1770 plants). The design has been amended to retain 60% of the individuals at this location. No more than 792 *H. montana* will be removed for the project in total.
- A number of Priority flora were identified adjacent to the road in the project envelope. The design has attempted to 'weave' in between populations of Priority flora and Black Cockatoo trees, where safety allows (See Figure 2.4). The envelope was modified and Priority flora clearing has been minimised where possible. The number of *Grevillea candolleana* plants that were to be removed for the project was reduced from 13 to 10, which accounts for 3.6% of this species recorded in the spring survey. A total of 37 *Boronia scabra* subsp. *condensata* P2 plants were to be removed for the project. This has been reduced to 10 plants, and accounts for 3.11% of this species recorded in the spring surveys.
- The project was amended to avoid removing any vegetation associated with the Morangup Nature Reserve. No direct impacts to the reserve will result from this project.
- The locations of potential breeding trees for Black Cockatoos identified in the spring survey were provided to the designers, and changes made to the design to minimise the number of trees to be removed.
- One known Black Cockatoo breeding tree was observed to be in use during the spring survey in 2015. This tree shall be avoided, with no known nesting trees to be impacted by the proposal.
- Main Roads owns a parcel of land (R 430; SLK 26) which was identified as Eucalypt woodland in Good condition (Keighery, 1994), and dieback free. Drainage control was implemented to reduce the risk of dieback infestation at this location. Further, Main Roads is liaising with the local government to assess whether an old school on this parcel of land meets the criteria to be included in the municipal register. Main Roads is proposing to include this block into the adjacent landowner's holdings, and to place a conservation covenant on it.
- The project was surveyed for dieback infestation, and the project design was modified to include drainage along protectable features such as the Morangup Reserve, to prevent water runoff from the road that could potentially result in dieback contamination and spread.
- No clearing shall be undertaken for site offices or laydown areas. The project will utilise existing cleared areas for these facilities.
- Three dams around SLK 32.7 (east of Sandplain Road and Salt Valley Road) are known to be used by fauna in the local region, including birds. The project has been modified to prevent impacts to one of the three dams, the others will be reconstructed. The impacts to this location have been minimised as far as possible during concept design.
- Following consultation with the Whadjuk and Ballardong Aboriginal groups, Main Roads is investigating the viability of waterway improvements along the road where works are conducted, including potential for planting riparian vegetation to reduce sedimentation. This will be dependent upon final design and the width of the road reserve at these locations, as well as the condition of adjacent vegetation.
- Three waterways were originally to be impacted by the project. The project design has been changed, with batters steepened, in order to prevent construction in river beds and modifications to waterways at these locations.



- Chuditch was identified as a species potentially impacted by the project. A detailed survey was undertaken in late 2016. No Chuditch were observed and no indirect evidence of Chuditch was found in the project area. Up to 32.5 hectares (ha) of potential Chuditch habitat will be cleared for the project.
- Where possible, driveways and other access points were provided in already cleared locations, subject to safety of access.
- A number of offset options were considered for this project, including the revegetation of the roadside corridor to replace fauna linkages removed for the project. Unfortunately this was not considered a viable offset option as the road corridor is not able to be placed under a Conservation Covenant due to its long linear nature that is subject to edge effects.
- Moving the road was also considered, to reduce the amount of native vegetation to be cleared. This was not considered feasible due to landowner and stakeholder issues, as well as budgetary constraints. The widening of Toodyay Road is costing an average of \$880,000 per kilometre, the realignment sections are in excess of \$2.8 million per kilometre. Realignment is not considered feasible for this road length.

### 3 OFFSET PROPOSAL REQUIREMENTS

#### 3.1 State Offset

##### 3.1.1 Assessment against Ten Clearing Principles

The project is considered to be at variance to Principles a), b), e), and f), and may be at variance to h).

The assessments of principles found to be at variance are included below. The following table also summarises the offset required as defined by the EPBC Offset Calculator (Refer to Section 4 and Appendix A).

**Table 1 - Offsets for Toodyay Road Widening**

Factor	Area of vegetation at variance with 10 Clearing Principles	Proposed Offset (if required)
At variance to Clearing Principle (a) - Native vegetation should not be cleared if it comprises a high level of biological diversity.	Up to 33 ha of foraging habitat for Carnaby's Cockatoo to be cleared Up to 29.5 ha of foraging habitat for Baudin's Cockatoo to be cleared Up to 6 ha of foraging habitat for Red-tailed Black Cockatoo to be cleared Up to 1360 breeding trees for Black Cockatoo species and 94 hollows to be cleared. Up to 32.5 ha of Chuditch habitat to be cleared. Clearing of three Priority flora species.	Main Roads is proposing to acquire 150 ha in the Shire of Toodyay, which will be added to DBCA managed estate and be placed under a Conservation Covenant to be managed in perpetuity for conservation. (Refer to Section 4 for details)
At variance with Clearing Principle (b) - Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	Up to 33 ha of foraging habitat for Carnaby's Cockatoo to be cleared Up to 29.5 ha of foraging habitat for Baudin's Cockatoo to be cleared Up to 6 ha of foraging habitat for Red-tailed Black Cockatoo to be cleared Up to 1360 breeding trees for Black Cockatoo species and 94 hollows to be cleared. Up to 32.5 ha of Chuditch habitat to be cleared.	
At variance with Clearing Principle (e) - Clearing of Under-represented vegetation types	38.5 ha of vegetation in an extensively cleared landscape will be cleared for the project.	
At variance to Clearing Principle (f) – clearing of native vegetation growing in, or in association with, an environment associated with a watercourse or wetland.	Up to 1.57 ha of wetland vegetation and 1.97 ha of riverine vegetation will be cleared for this project.	A specific offset is not considered required for this clearing principle.
May be at variance with Clearing Principle (h) – Impacts to a conservation reserve	No clearing proposed.	

##### 3.1.2 Assessment Against State Offset Principles

According to the Environmental Offsets Policy, released by the Western Australian Government (2011), environmental offsets are to be used as a last resort measure, after due consideration of avoidance and mitigation measures.

In this context, the assessment and decision making process in regard to offsets are underpinned by the following principles:

**1. Environmental offsets will only be considered after avoidance and mitigation options have been pursued.**

<b>Comments</b>	All strategies to avoid and mitigate environmental impacts have been explored and implemented as per Section 2.1.
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**2. Environmental offsets are not appropriate for all projects.**

<b>Comments</b>	Environmental offsets are required when clearing is at variance with one or more of the biodiversity related clearing principles (principles a- f and h) and a significant residual impact remains (Department of Water and Environmental Regulation (DWER), 2014). The project is at variance with principles a), b), e), and f), and may be at variance to h). Despite mitigation measures, in accordance with the Government of Western Australia's Offset Policy (Government of Western Australia, 2011), this project will have a significant residual impact. An environmental offset is therefore considered appropriate.
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**3. Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value being impacted.**

<b>Comments</b>	Main Roads believes that the proposed offset area represents a cost-effective solution that is proportionate to the environmental value being impacted by the project.
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**4. Environmental offsets will be based on sound environmental information and knowledge.**

<b>Comments</b>	The proposed physical offset property was surveyed in Spring 2016. Please refer to Appendix B. More recent consultation with DBCA has identified suitability of the site as an offset for the Toodyay Road widening project.
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**5. Environmental offsets will be applied within a framework of adaptive management.**

<b>Comments</b>	The proposed offset area will be added to the conservation estate and will be managed by DBCA in accordance with advances in environmental knowledge and understanding.
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**6. Environmental offsets will be focussed on longer term strategic outcomes.**

<b>Comments</b>	The physical offset location adjoins Clackline Nature Reserve and will therefore become part of a larger managed conservation area; achieving a long term strategic outcome. In addition, the property will secure inclusion of additional native vegetation of mostly Excellent condition into conservation estate in the Wheatbelt region, which has historically been extensively cleared.
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**3.2 Commonwealth Offset**

The project was determined by the former Commonwealth Department of the Environment (now the Department of the Environment and Energy (DotEE)) to be a 'Controlled Action' due to impacts on listed Threatened species and communities.

Specifically, the project will have the following impacts on federally listed species:

- Up to 33 ha of foraging habitat for Carnaby's Cockatoo to be cleared
- Up to 29.5 ha of foraging habitat for Baudin's Cockatoo to be cleared
- Up to 6 ha of foraging habitat for Red-tailed Black Cockatoo to be cleared
- Up to 1360 potential breeding trees for Black Cockatoo species and 94 hollows to be cleared.
- Up to 32.5 ha of Chuditch habitat to be cleared.

### 3.2.1 Assessment against Commonwealth Offset Principles

Offsets are defined as measures that compensate for the residual adverse impacts of an action on the environment. Where appropriate, offsets are considered during the assessment phase of an environmental impact assessment under the EPBC Act. The proposed offset has been assessed against the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy 2012.

#### 1. Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matter.

<b>Comments</b>	<p>Suitable offsets must improve or maintain the viability of the protected matter in comparison to the status quo, if the action was not undertaken or the offset provided.</p> <p>The physical offset location will add to a larger managed conservation area, achieving a long term strategic outcome. The site to be placed into the conservation estate is currently vegetated and relatively undisturbed. An overall improved conservation outcome is expected as the site will be placed under a conservation covenant which will protect it from being disturbed, whereas the site is currently part of an agricultural property that is up for sale.</p> <p>In addition, acquisition of the additional land and protection by a conservation is considered to be an improvement on the status quo for the following reasons:</p> <ul style="list-style-type: none"> <li>• Land in the project area is linear in nature and subject to edge effects from the road. Alternatively, land placed in conservation covenant as part of the offset is in Very Good to Excellent condition, and non-linear, resulting in better quality habitat and improved management outcomes.</li> <li>• The land to be placed in conservation covenant as an offset is adjacent to other vegetation in good condition, as well as watercourses and known foraging or breeding habitat for Black Cockatoos and/or Chuditch.</li> <li>• The land would be part of an overall strategic offset for the region, resulting in better habitat connectivity and the protection of other environmental values that are not specifically impacted by the project.</li> </ul>
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#### 2. Suitable offsets must be built around direct offsets but may include other compensatory measures.

<b>Comments</b>	The offset proposed for this project has been built around a direct offset, in that a parcel of land will be acquired and added to the DBCA managed conservation estate.
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#### 3. Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter

<b>Comments</b>	A suitable offset has been provided for the impacts resulting from this project, based on the EPBC Offset Calculator which uses the International Union for Conservation of Nature data on the probability of annual extinction for different categories of threatened species.
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#### **4. Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter**

<b>Comments</b>	<p>The size and scale of an offset required for each impact is determined by the:</p> <ul style="list-style-type: none"><li>• Level of statutory protection that applies to the protected matter.</li><li>• Specific attributes of the protected matter, or its habitat, being impacted.</li><li>• Quality or importance of the attributes being impacted with regard to the protected matter's ongoing viability.</li><li>• Permanent or temporary nature of the residual impacts.</li><li>• Level of threat (risk of loss) that a proposed offset site is under.</li><li>• Time it will take an offset to yield a conservation gain for the protected matter.</li><li>• Risk of the conservation gain not being realised.</li></ul> <p>The above factors are included in the EPBC offset calculator.</p>
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#### **5. Suitable offsets must effectively account for and manage the risks of the offset not succeeding**

<b>Comments</b>	<p>The purchase of appropriate offset land and placement in conservation covenant is not considered to be at significant risk of failure. If the proposed offset land is not available for purchase, an alternative will be identified.</p>
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#### **6. Suitable offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs**

<b>Comments</b>	<p>The land proposed for purchase will be private property and not part of an existing offset, scheme or program.</p>
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#### **7. Suitable offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable**

<b>Comments</b>	<p>The proposed offset site has been identified in consultation with DBCA to obtain the best strategic and scientifically robust outcomes. Purchase of the proposed offset land can be initiated as soon as this offset proposal is approved. The proposed offset is considered the most efficient and effective option given the constraints associated with the purchase of small areas of land in the Wheatbelt.</p>
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#### **8. Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.**

<b>Comments</b>	<p>The proposed offset site has been identified in consultation with DBCA to obtain the best strategic outcomes. The land will be added to the existing DBCA conservation estate and managed by DBCA, which has practical and long standing experience as land managers.</p>
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#### 4 PHYSICAL OFFSET PROPOSED

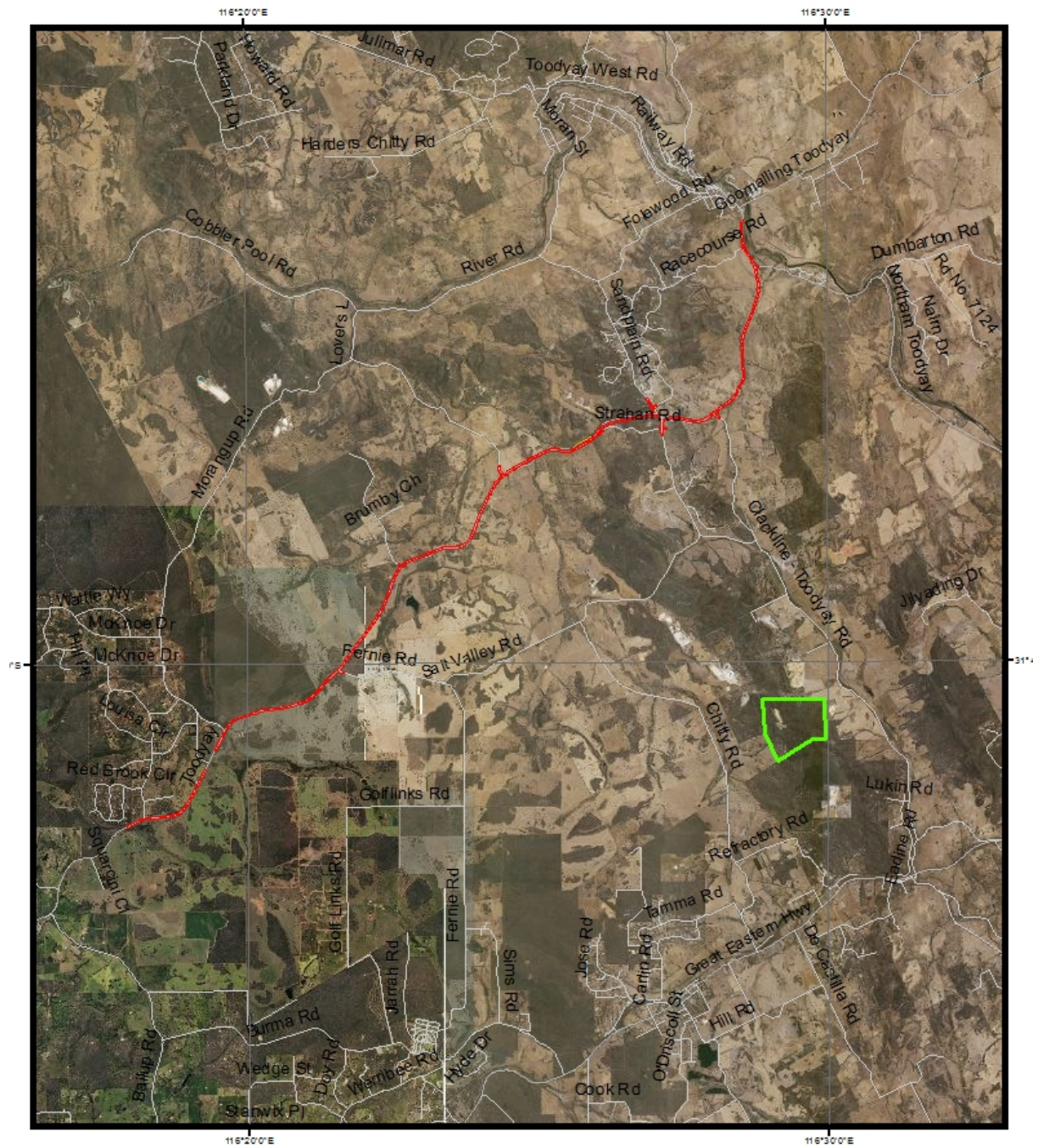
Main Roads has been in consultation with Alex Errington from the Department of Biodiversity, Conservation and Attractions (DBCA) in relation to a potential offset site for the project. DBCA has identified a suitable property that is currently for sale, located in the Shire of Toodyay, less than 10 km from the project area. Approximately 210 ha is currently available, and Main Roads intends to use 150 ha of this for the purposes of offsetting the residual impacts of this project (Figures 2 and 3). Pending approval of this offset proposal, DBCA will negotiate acquisition of the land, which will be added to the DBCA conservation estate and placed under a conservation covenant to be managed in perpetuity for conservation.

The biological survey undertaken across an area including but larger than the proposed offset location (AECOM, 2017; Appendix B) identified:

- The majority of the native vegetation was determined to be in Excellent condition.
- The site provides suitable foraging and breeding habitat for Carnaby's Cockatoo and the Forest Red-tailed Black Cockatoo.
- Although the survey scope did not specifically include surveying for potential Baudin's Cockatoo, the desktop fauna assessment identified two recent records of this species in the vicinity of the offset site and that suitable habitat was present.
- The site supports a population of the Priority 3 flora species *Eremaea blackwelliana* and it is likely that the site supports the Priority 4 species *Hibbertia montana*.

Additional advice received from DBCA confirms the existence of recent records of Carnaby's Cockatoo, Forest Red-tailed Black Cockatoo, Baudin's Cockatoo and Chuditch in the vicinity of the proposed offset site (Appendix C). DBCA advice further indicates that the offset site would provide suitable Baudin's Cockatoo food sources although it questions the regular use of either the Toodyay Road project area or the proposed offset site by the species.

Based on the outcomes of the biological survey and DBCA advice, the proposed offset site is considered to represent a desirable 'like for like' option to offset the residual impacts of the Toodyay Road project.



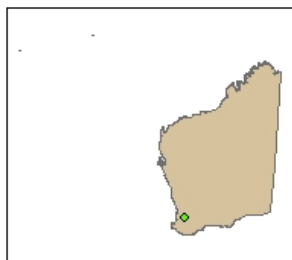
**Legend**

- Toodyay Road Envelope
- Proposed offset site
- Roads




0 0.751.5 3 Kilometers  
 1 cm = 1,326 meters




**Figure 2 – Location of proposed offset site in relation to Toodyay Road widening project**



**Legend**

-  DBCA Legislated Lands and Waters
-  Proposed offset site
-  Roads

0 0.42685 1.7 Kilometers  
  
 1 cm = 663 meters



**Figure 3 – Location of proposed offset site**



## 5 JUSTIFICATION FOR OFFSET PROPOSAL

The EPBC Offset Calculator Tool was used to evaluate project impacts for biodiversity clearing principles (principles a-f, h) with significant residual impacts in accordance with the requirements of the WA Environmental Offsets Guidelines (Government of Western Australia, 2014). A summary of the inputs into the EPBC offset calculator for the proposed offset is provided in Table 2 and a copy of the EPBC Offset Calculator tool worksheet is included as Appendix A.

**Table 2 -Summary of inputs into offset calculator (Carnaby’s Black Cockatoo)**

Offset Calculator Input	Input Value Carnaby’s Black Cockatoos
Extent of impact	33 ha
Quality of impacted area	5 – the majority of the project is in Degraded Condition.
Time over which loss is averted	20 years - The value of 20 is assigned here as using a conservation covenant has an “in-perpetuity” lifespan.
Start quality of offset	Input 8 – Vegetation condition of the offset site is mostly ‘Excellent’ (refer to Appendix B)
Future quality/value without offset	Input 8 - Vegetation condition of the offset site is mostly ‘Excellent’
Future quality/value with offset	Input 8 - Vegetation condition of the offset site is mostly ‘Excellent’
Time until ecological benefit/time horizon	1 year - The time until ecological benefit is the estimated time that it will take to provide the habitat benefit to the offset. It is estimated that it will take up to 1 year for the land to be purchased and placed into a conservation covenant.
Risk of loss without offset	Input 30% - The value of 30% is assigned indicating a moderate risk of loss without the offset.
Risk of loss with offset	Input 10% - It is not possible to completely remove all risk associated with the loss of offset.
Confidence in result-	Input 90% - High degree of confidence as the land is proposed to be placed under a conservation covenant and managed by the DBCA, an agency with significant vegetation management experience.
Start area	A start area of 150 ha has been input into the calculator as an offset for Carnaby’s Black Cockatoo habitat.
Total % of land offset	103.12%

## 6 OFFSET CONDITION MILESTONES

**Condition Milestone 1** – Main Roads shall provide documentary evidence to the CEO of DWER that the offset site has been purchased and that a Conservation Covenant placed over the land described.

**Timeframe for Completion:** Within 12 months of approval

## 7 CONCLUSION

Main Roads considers the offset proposal for the acquisition of 150 ha of land to be suitable to offset the impacts proposed within the project area.

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## APPENDIX A – EPBC ACT OFFSET CALCULATOR RESULTS

## APPENDIX B – BIOLOGICAL SURVEY REPORT FOR PROPOSED OFFSET SITE

## APPENDIX C – DBCA ADVICE