

# **Proposed Extension of the Northern suburbs rail transit system from Currambine to Butler**

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**Department of Transport**

**Report and Recommendations  
of the Environmental Protection Authority**

**Environmental Protection Authority  
Perth, Western Australia  
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## **1. Introduction**

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the environmental assessment of a proposal to extend the northern suburbs rail transit system from Currambine to Butler (Figure 1). The proponent for the proposal is the Department of Transport (DoT).

The proposal was submitted as two development applications by the Western Australian Planning Commission (WAPC) in November 2000. The applications and accompanying report were referred to the EPA for consideration under Part IV of the Environmental Protection Act 1986. The EPA set the level of assessment at EPA - initiated Environmental Protection Statement (EPS) in accordance with the *Environmental Impact Assessment Administrative Procedures Amendment 1999*.

The EPA is aware that Metropolitan Region Scheme (MRS) Amendment No. 992/33 Clarkson - Butler (WAPC, 1999), included two proposals (No.'s 5 and 6) related to the proposed reservation of land for the extension of the northern suburbs rail transit system (and the Mitchell Freeway). Proposal 5 related specifically to the road and rail extension whilst Proposal 6 related only to the proposed rail car depot. Since the development applications are similar to Proposals 5 and 6 as part of this Amendment, which the EPA has formally assessed, the Environmental Reviews relating to these two proposals will be available for inspection in the Department of Environmental Protection's (DEP) library as part of this EPS assessment. A copy of the Masterplan report for the proposed extension to the northern suburbs rail transit system from Currambine to Butler will also be available in the DEP's library (Government of Western Australia, 2000).

## **2. Background**

The proposed extension of the northern suburbs rail transit system from Currambine to Butler includes the:

- extension of the railway line into the median of the future Mitchell freeway to Butler;
- development of two new stations, one at Hepburn Avenue, Greenwood (south of the existing Currambine station) and the other at Neerabup Road, Clarkson;
- relocation of the Currambine station into the median of the future Mitchell freeway;
- development of the Nowergup railcar storage and servicing depot;
- development of two railway bridges over Burns Beach Road; and
- undertaking of earthworks associated with the railway and stations.

Further details on the proposal are included in a report prepared by the Government of Western Australia which was submitted in association with the development applications (Government of Western Australia, 2000).

As discussed previously the EPA is aware that MRS Amendment No. 992/33 Clarkson - Butler included two proposals related to the proposed reservation of land for the extension of the northern suburbs rail transit system (and the Mitchell Freeway). Whilst these proposals (No.'s 5 and 6) were only for the reservation of land for the purposes of the railway (and the Mitchell Freeway), some information was included in the Amendment report on the proposed design and construction of the rail line, rail car depot and stations. The proposal referred to the EPA in the subsequent development applications is for the detailed design and construction of the rail line and associated works as described above and is not a rezoning proposal.

Amendment 992/33 was initiated by the WAPC in 1997 and referred to the EPA under Section 48A of the EP Act. The Amendment included eleven proposals for rezoning in the northwest corridor of the metropolitan region. Six of these proposals were subject to formal assessment by the EPA including the amendments associated with the extension of the northern suburbs rail

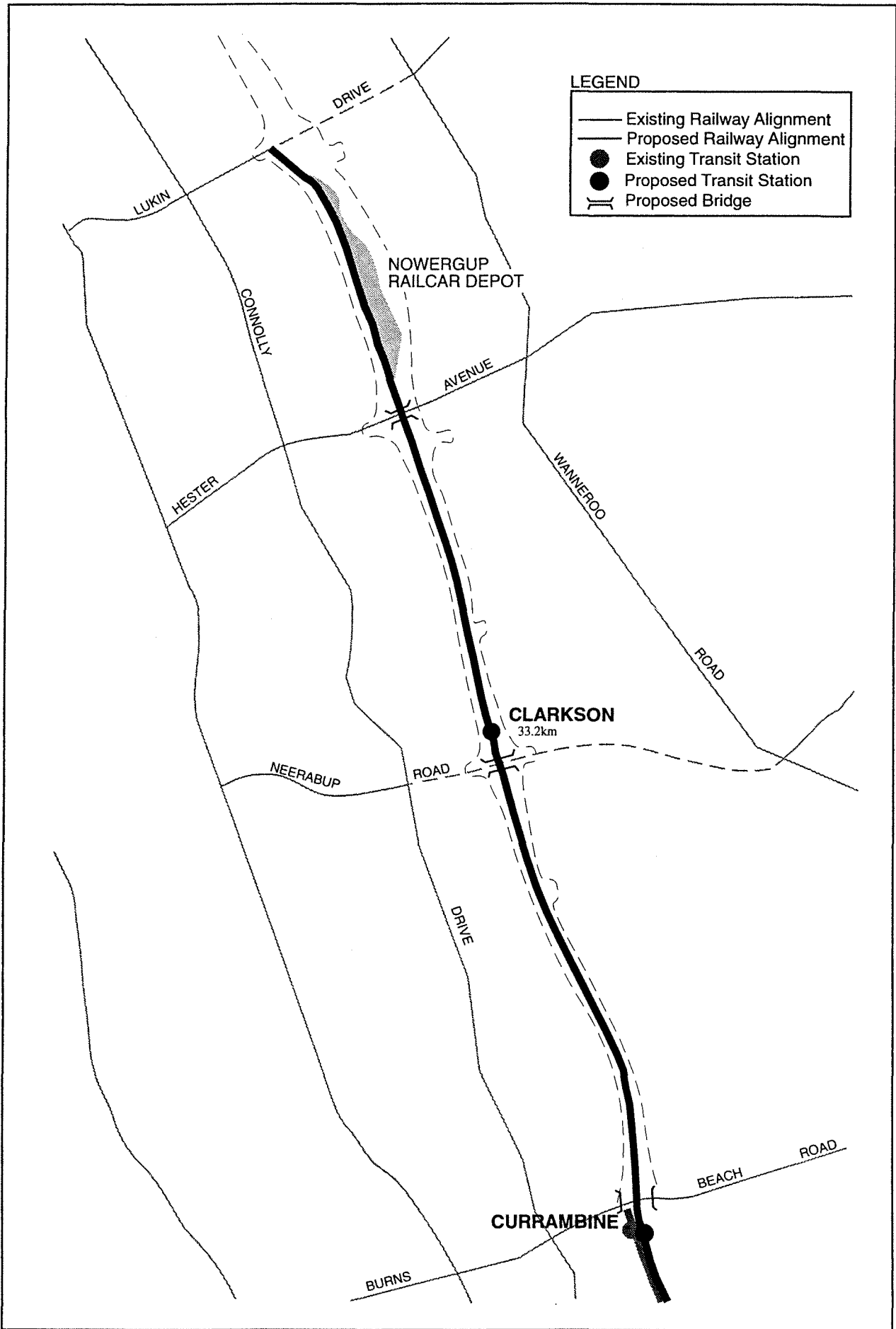


Figure 1. Northern Suburbs Transit System.

transit system. The EPA completed its assessment of the Amendment in March 2000, with its Report and Recommendations (Bulletin 971) concluding that the proposals associated with the rail (and freeway extensions) were environmentally acceptable subject to the implementation of recommended conditions (EPA, 2000).

The key environmental issues associated with the proposals for the railway extension related to impacts on the integrity and values of Neerabup National Park and the east-west linkage between Neerabup National park and the coast, as well as impacts from noise and vibration on current and future residents. The proposals described in the development applications do not raise new environmental issues beyond those assessed as part of the Amendment.

### **3. EPA Assessment and advice**

The environmental assessment of MRS Amendment 992/33 is yet to be completed, as the Minister for the Environment has yet to issue a Statement of Conditions in relation to the Amendment. Consequently the MRS Amendment has yet to be placed before Parliament.

The DoT is seeking to commence the construction of the rail transit system ahead of the completion of the MRS Amendment, with a view to construction beginning in early 2001. Statutory approvals for the construction proposal are, therefore, being sought via development applications to the WAPC. With respect to the development applications the EPA is of the view that the assessment approach should be transparent and consistent with the approach undertaken in the assessment of the proposal as part of the MRS Amendment. In particular, the application of Environmental Conditions to the proposals consistent with those recommended by the EPA in Bulletin 971, was seen as desirable. In order to ensure that these principles were addressed, the assessment of the proposal via an EPA initiated EPS under Section 38 of the EP Act was seen as the most appropriate means of dealing with the assessment as this would allow the EPA to recommend conditions to the Minister via Section 44 of the EP Act to be applied to the proposal.

This approach will also not contradict the Section 48A process undertaken for the assessment of the proposal via MRS Amendment 992/33, as that assessment is yet to be completed. Accordingly, the proposal to construct the railway extension is not yet “a proposal under an assessed scheme” within the definitions of the EP Act and can be assessed via Section 38 of the Act.

As the proposals associated with the extension of the railway were subject to detailed assessment through the EPA’s consideration of MRS Amendment 992/33, and the proposal now being considered has not changed, further assessment of the issues associated with the construction of the railway is not considered necessary. Therefore, it is appropriate that the EPA identifies the same relevant environmental factors and the EPA recommends to the Minister that the same set of conditions previously recommended for the relevant proposals in its assessment of MRS Amendment 992/33 be applied to the proposal. The DoT has committed to fulfilling these conditions prior to the commencement of construction and has advised that substantial progress toward fulfilling them has already been made.

In the EPA’s assessment of the extension of the northern suburbs rail transit system as part of the MRS Amendment, the following environmental factors were considered relevant:

- vegetation - loss of regionally and locally significant vegetation;
- System Six - potential direct and indirect impacts on Neerabup National Park; and
- Terrestrial fauna - vegetation and habitat fragmentation.

These factors were considered relevant in the context of the potential impact which the rail transit system could have on the integrity and values of Neerabup National Park and the east-west linkages between Neerabup National Park and the coast.



Based on the assessment of these factors, the EPA proposed a set of environmental conditions and procedures which should be adopted if the proposal is implemented (Appendix 4 EPA Bulletin 971).

The EPA is aware that three appeals were lodged in relation to its report and recommendations in Bulletin 971. Issues raised in the appeals included:

- requests for the EPA to strengthen its recommended environmental conditions to minimise the potential impact of the railway on significant bushland;
- nominated internal noise levels to be met to comply with conditions relating to Noise and Vibration Management Plans are not realistically achievable; and
- there are also implications for other sites along planned extensions to the Perth Urban Rail Network if 35 dB (A)  $LA_{eq}$  is adopted in the conditions.

The DEP has provided advice to the Minister with respect to these appeals under Section 106 of the EP Act (refer Appendix 2). However, the Minister has not yet made a decision on these appeals. In preparing this report to the Minister, the EPA acknowledges that there is a further opportunity for the previous appellants to appeal against the EPA's recommendations within this Bulletin. The EPA recognises, however, that the Minister's determination of any appeals and conditions relating to this assessment will necessitate issues raised in appeals against Bulletin 971 related to this proposal to be resolved.

The EPA endorses its conditions recommended in its previous Bulletin 971 in the relation to the proposed extension of the northern suburbs rail transit system. These conditions are detailed in Appendix 3 and involve the preparation and implementation of the following management plans for both the railway alignment and the railcar depot.

- Vegetation and fauna management plan;
- Construction management plan; and
- Noise and vibration management plan.

The EPA also reiterates its position as stated in Bulletin 971 that the proposed additions into Neerabup National Park are critical to the acceptability of the proposed extension to the northern rail transit system and the Mitchell Freeway. Therefore, the EPA is of the view that the rationalisation of Neerabup National Park's boundary should proceed as a matter of priority as described in the WAPC's Environmental Review documents for the Amendment (WAPC, 1999a and 1999b).

#### **4. Conclusions**

The EPA has concluded that the proposed extension to the northern suburbs rail transit system is capable of being implemented in an environmentally acceptable manner such that the EPA's objectives can be met, provided there is satisfactory implementation by the proponent of the conditions and the proposed modifications to the boundaries of Neerabup National Park. Documentation relating to the proposed extension of the rail system will be available for viewing in the DEP's library as discussed previously.

## 5. Recommendations

The EPA considers that the proposal can be managed in an environmentally acceptable manner and provides the following recommendations to the Minister for the Environment:

1. That the Minister notes that this report follows a decision by the EPA to set a level of assessment as EPA - initiated EPS because:
  - The proposal by the Department of Transport was consistent with proposals previously assessed by the EPA as part of MRS Amendment No. 992/33;
  - The EPS process was considered to be transparent and consistent with the approach undertaken in assessing Amendment No. 992/33; and
  - The application of Environmental Conditions to the proposal which were consistent with those recommended by the EPA in Bulletin 971 was desirable.

The EPA also noted that this approach would not contradict the Section 48A process undertaken for the assessment of the proposal via MRS Amendment 992/33, as that assessment is yet to be completed through the delivery of a Ministerial Statement for the Amendment. Accordingly, the proposal to construct the railway extension is not considered “a proposal under an assessed scheme” within the definitions of the EP Act, and that this can be assessed via Section 38 of the Act.

2. That the Minister notes that the EPA has concluded that the EPA’s objectives can be met, provided there is satisfactory implementation by the proponent of the recommended conditions as set out in Appendix 2.
3. That the Minister imposes the conditions and procedures recommended in Appendix 3 of this report.
4. That the Minister note the EPA’s view that the rationalisation of Neerabup National Park’s boundary should proceed as a matter of priority.



## **Appendix 1**

### **References**

- Environmental Protection Authority (2000). *Metropolitan Region Scheme Amendment No. 992/33 Clarkson - Butler, Wanneroo*. Bulletin 971.
- Government of Western Australia (2000). *Northern Suburbs Transit System - Currabine to Butler Extension. Interim Master Plan June 2000, Currabine to Clarkson*. Produced by the Department of Transport, June 2000, Perth WA.
- Western Australian Planning Commission (1999). *Metropolitan Region Scheme Amendment No. 992/33 Clarkson - Butler - Amendment Report*. Western Australian Planning Commission, September 1999, Perth WA.
- Western Australian Planning Commission (1999a). *Environmental Review - Metropolitan Region Scheme 992/33 Proposal 5: Reservation of the proposed Mitchell Freeway Transportation Corridor for Primary Regional Roads to enable future proposed extensions to the Mitchell Freeway and Northern Suburbs Railway; the reservation of land for Railways for the proposed Clarkson Railway Station near Neerabup Road and possible station near Hester Avenue; and land surplus to Freeway requirements being transferred from Rural/Parks and Recreation to the Urban zone*. Western Australian Planning Commission, September 1999, Perth WA.
- Western Australian Planning Commission (1999b). *Environmental Review - Metropolitan Region Scheme 992/33 Proposal 6: The Reservation for a Railcar Stowage and Servicing Depot*. Western Australian Planning Commission, September 1999, Perth WA.

## **Appendix 2**

**DEP's advice to the Minister on appeals lodged under Section 106 of the  
Environmental Protection Act with respect to EPA Bulletin 971**



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MINISTER FOR THE ENVIRONMENT

Your Ref            00/24  
Our Ref             RS001/8  
Enquiries           Stacey Harley

APPEAL NO:        00/24            AGAINST:    EPA's report and recommendations

APPELLANT:        Quinns Rock Environmental Group  
                          PO Box 27  
                          QUINNS ROCK WA 6030

RESPONSIBLE AUTHORITY:    Western Australian Planning Commission  
    469 Wellington St  
    PERTH WA 6000

PROPOSAL:        Metropolitan Region Scheme No. 992/33 Clarkson-Butler, Wanneroo  
                          (1139)

**DECISION-MAKING**

**AUTHORITIES:**    Minister for Planning

I refer to your request under Section 106 (a) of the Environmental Protection Act 1986, for my report on the above appeal.

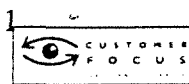
The Department provides the following advice in relation to appeals on Proposals 2 to 6 within Metropolitan Region Scheme (MRS) No. 992/33 Clarkson- Butler. This appeal has also raised grounds relating to Proposal 1 and as discussed with the Appeals Convenor this will be provided in a separate report.

**1. Ground:**

Proposal 2 - Remnant vegetation on Pt Lot 17 Clarkson has conservation value and should be reserved 'Parks and Recreation' to enhance the east-west link from Neerabup National Park to the coast. The Environmental Protection Authority (EPA) has not adequately considered this issue. Public Open Space can offer an opportunity to protect bushland but it is often affected by demand for active and passive recreation uses.

**Advice:**

Major surveys of the floristics of bushland areas have been undertaken as part of the Draft Perth's Bushplan process to determine the regional significance of bushland in the Perth Metropolitan Area. The portion of the proposal area within Neerabup National Park, approximately 10 ha, is recognised as being regionally significant and is currently reserved for the purposes of conservation of flora and fauna (WAPC, 1999). This area was identified as part of Bushplan Site No.383, however it will be separated from the



remainder of Neerabup National Park by the Proposal 5 which will allow for the future northern extension of the freeway and the railway. The excision of this area for this proposal will decrease the area of Cottesloe - Central and South Vegetation Complex proposed for protection by 0.3% (WAPC, 1999).

The remainder of the site contains vegetation that is not considered regionally significant but it does contain locally significant vegetation in the occurrence of a small area of Community type 29b which was recognised by Gibson et al (1994) as 'unreserved' or 'poorly reserved'. The other community types present within Lot 17 are considered 'well reserved'. However, clearing for development may reduce the width of the significant contiguous bushland linkage between remnant vegetation at Burns Beach and Neerabup National Park. The loss of vegetation of significance will be minimised through identification of significant areas of remnant vegetation in a Environmental Management Plan which shall include:

'retention of good quality remnant vegetation in public open space reserves giving consideration to the reservation status of the vegetation communities in the proposal area and the aim to strengthen the east-west linkage from Neerabup National Park to the coast.'

It is agreed that Public Open Space is often placed under pressure by recreational needs. Both the Department of Environmental Protection (DEP) and the Department of Conservation and Land Management have input into the preparation of the plan which is to the requirements of the Western Australian Planning Commission (WAPC). The DEP would aim to maximise retention of remnant vegetation and anticipate that the plan would identify recreational POS areas and address indirect impacts on conservation areas.

**Recommendation:**

That this ground of appeal be dismissed.

**2. Ground:**

No proposal number - The proposed 'Public Purposes' reservation of Pt Lot 17 should have been assessed in the EPA's report and recommendations. The proposed reservation exceeds the area approved for the landfill facility and includes regionally significant bushland identified in draft Perth's Bushplan. New information on the environmental/conservation values the area has come from various studies since the EPA's previous assessment in 1985.

**Advice:**

Major Metropolitan Region Scheme (MRS) Amendment 992/33 Clarkson-Butler contains eleven proposals for rezoning and reservation in the north-west corridor of the metropolitan region. The amendment was referred to the EPA in May 1997. Of the eleven proposals, six were considered by the EPA to have the potential to significantly affect the environment and level of assessment was set at Environmental Review in June 1997 (refer to plan of the amendment - Figure 1).

The proposal to transfer the Tamala Park Refuse Disposal Facility from 'Rural' zone to 'Public Purposes (Special Use) Reservation was not one of six proposals identified by the EPA to have the potential to significantly affect the environment. It was listed in the Instructions on the amendment under the heading "Proposal in the scheme not considered to have significant preliminary environmental factors". There were four appeals on the Instructions for this amendment, one was from the Quinns Rock Environmental Group. There were no appeals received which requested the EPA to more fully assess the impacts of this particular proposal. However, an appeal from Water Corporation was upheld which removed the proposal from the section 'Proposals in the scheme not considered to have significant preliminary factors to within another section 'Proposals in the scheme previously assessed by the EPA'.

Since the release of the Instructions in 1998 draft Perth's Bushplan has been released which does indicate there is regionally significant vegetation surrounding the existing facility. Any future expansion of the landfill facility would therefore require referral to the Environmental Protection Authority under Section 38 of the Environmental Protection Act and impacts on the vegetation would be considered as part of that process.

**Recommendation:**

That this ground of appeal be dismissed.

**3. Ground:**

Proposal 3 - The proposed section of Neerabup Road between the Mitchell Freeway and Wanneroo Road would have an unacceptable impact on Neerabup National Park and associated bushland. The proposed reservation is opposed on the basis that the road would:

- sever the National Park and proposed additions at its widest extent. The southern part of the Park provides a large area of habitat which is important to maintain the ecological integrity of the park in the long term;
- involve clearing of remnant vegetation identified as regionally significant and disturbance of adjoining vegetation through road works and edge effects. The road has the potential to diminish "the Park's habitat size, quality, vegetation condition and species richness." (WAPC, 1999b);
- fragment fauna habitat in the enlarged Park. The Environmental Review recognises that kangaroos are likely to be seriously affected by the segregation by the road;
- impact on fauna movement in the Park which is significant given its potential corridor function and its value in retaining habitat on the Spearwood Dunes;
- impact on the open space and landscape values and recreational amenity of the Park, including the Yaberoo Badger Heritage Trail.

Neerabup Road should not be reserved. The EPA's findings and recommended environmental condition are not justified.

**Advice:**

Proposal 3 would require the excision of less than 2 ha from the existing Neerabup National Park for the extension of Neerabup Road and Hester Avenue through to Wanneroo Rd. The remaining land for the proposed roads is Unallocated Crown Land and freehold land (Lot 14), which is proposed to be reserved for 'Parks and Recreation' by this Amendment. It is intended that the balance of Lot 14, approximately 102 ha, will be added to Neerabup National Park as it contains vegetation in excellent condition.

The proposed Neerabup Road reservation crosses Neerabup National Park and Lot 14 in the southern area of the Park where Neerabup National Park (with its future additions) is generally wider than the northern sections. The EPA identified that the most significant issue relating to this proposal is the impact on fauna populations which will result from habitat fragmentation and barriers to fauna movement created by the road.

Given the potential impacts the EPA wrote to the National Parks and Nature Conservation Authority (NPNCA) as the vestee of Neerabup National Park for assistance and guidance on the environmental acceptability of likely impacts resulting from the implementation of Proposals 2 to 6.

In particular the EPA sought advice on:

1. previous NPNCA agreements or decisions regarding the WAPC proposals including any conditions that these agreements or decisions were subject to;
2. an overall assessment of the conservation values of areas being lost and gained, in particular:
  - a) details of the vegetation types of each of the areas being proposed to be added to Neerabup National Park as well as those being removed, including details on the condition of the vegetation and the occurrence of any significant flora;
  - b) a break up of how much of each vegetation type is to be lost and gained following implementation of the amendment;
  - c) details of the potential impacts of the proposals on the long term viability of fauna populations within Neerabup National Park;
  - d) the potential management implications of the proposals, both positive and negative; and
3. any comments the NPNCA has regarding the proposed management measures put forward by the WAPC.

The EPA received a response from the NPNCA following their meeting dated 11 February 200 where the amendment was considered. NPNCA has supported the proposal but considers that there are issues in relation to fauna movement. The NPNCA has stated that it would support the need for further research into the alternatives such as fauna overpasses and request that future services crossing the Park are consolidated into the two east west road corridors as proposed.

On the basis of the NPNCA advice the EPA has resolved to support the Neerabup Road reservation provided that the design and construction of the road is referred to the EPA for assessment under Section 38 of the Environmental Protection Act. The referral under Section 38 would allow the EPA to more conclusively assess the potential impacts of the road on fauna movement and park management, which are still significant concerns.

The EPA is of the view that the design of any road through Neerabup National Park would have to be of an exceptional environmental standard and that the above issues can be managed through the design of the road. However, should a design be referred to the EPA which does not address the EPA's concerns, particularly in relation to habitat fragmentation, then there is still the possibility that the road may be deemed environmentally unacceptable by the EPA. If the proposal is formally assessed by the EPA under Section 38, then opportunities would exist for the public to input into the assessment of the project.

**Recommendation:**

That this ground of appeal be dismissed.

**4. Ground:**

Proposal 5 - More stringent environmental conditions should have been set to reduce the environmental impact of the Mitchell Freeway and Northern Suburbs Railway on significant bushland. Draft Perth's Bushplan and other studies have noted the importance of the area in retaining a transect of bushland from the coast inland linking with Neerabup National Park and bushland further east on the Gnangara Mound. More stringent conditions are warranted including:

- 1) detailed design to minimise the width of the freeway and rail easement in order to minimise clearing and disturbance;
- 2) use of locally indigenous plant species in revegetation works;



- 3) provisions to facilitate faunal movement and reduce roadkills in the design and management of the transport corridor;
- 4) ensuring design, construction works and management of transport corridor is required to reduce environmental impact and seeking to enhance maintenance of conservation values; and
- 5) the referral of detailed design to the EPA for further environmental assessment.

**Advice:**

The EPA has recommended two conditions aimed at minimising the impacts of Proposal 5 on Neerabup National Park. These conditions relate to the preparation of management Plans and are shown below:

“4-1 Vegetation and Fauna Management Plan

4-1-1 Prior to commencement of site works the Responsible Authority shall require preparation of a Vegetation and Fauna Management Plan for the alignment for Mitchell Freeway and Northern Suburbs Rail System to ensure the protection and management of biodiversity in Neerabup National Park that may be affected directly or indirectly by development of the proposal area.

This Plan shall include:

1. further flora survey work between Burns Beach Road and Hester Avenue to identify populations of Declared Rare Flora or Priority taxa;
  2. targeted flora survey for *Acacia benthamii* and *Eucalyptus argutifolia* within Neerabup National Park and designation of appropriate management measures;
  3. provision for revegetation of cleared or degraded areas within and adjacent to the amendment area;
  4. a weed control program;
  5. a dieback management plan including dieback survey within the proposed alignment;
  6. a fauna survey for scheduled and priority fauna species, to be undertaken along and adjacent to the proposed alignment to delineate usage of sites within the project area;
  7. relocation of individual scheduled and priority fauna if their ranges lie within or overlap the area of the proposed alignment;
  8. investigation into the alternatives for facilitation of fauna movement across each alignment;
  9. monitoring of fauna movement across each alignment; and
  10. allocation of responsibilities and timing for the implementation of the Vegetation and Fauna Management Plan.
- 4-1-2 The above Environmental Management Plan shall be implemented in accordance with the provisions of the Plan, to the requirements of the Responsible Authority on advice of the Department of Environmental Protection and the Department of Conservation and Land Management.

## 4-2 Construction Management Plan

4-2-1 Prior to the finalisation of detailed design plans for the proposed freeway and/or railway, whichever occurs first, the Responsible Authority shall require preparation of a Construction Management Plan to ensure the protection and management of biodiversity in Neerabup National Park.

This Plan shall include:

1. management of drainage incorporating best practice Water Sensitive Design principles, in consultation with the Water and Rivers Commission, which considers the implications to existing vegetation and groundwater quality from both sumps and altered surface hydrology to minimise potential for waterlogging and infiltration of pollutants to groundwater;
2. investigation for the presence of caves during clearing for construction and management of discovery;
3. investigation for the presence of subterranean fauna within any cave or karst system encountered in areas cleared or cut during construction, and designation of appropriate management measures on advice of the Department of Environmental Protection;
4. the erection of exclusion fencing of the alignment area as designated by the 'extent-of-works' prior to any clearing for construction, paying particular attention to retaining as many mature trees as possible;
5. control of the use of lighting along the alignment to assist in the reduction of road deaths of nocturnal terrestrial fauna species and provide a safe environment for road and rail users;
6. compliance with appropriate dust, noise and vibration standards and guidelines during construction; and
7. allocation of responsibilities and timing for implementation."

The EPA believes that the issues raised by the Appellant numbered 1 to 4 in the Appeal ground can be covered by the two conditions. All four issues should be discussed and considered in the preparation of these plans. The EPA believes that the issues raised by the Appellant in the Appeal ground can be covered by the two conditions. In particular conditions 4-1-1-3, 4-1-1-8, 4-2-1-4, and 4-2-1-5 are directly related to the Appellant's points. However, it is not seen as necessary to modify the conditions on the basis that the Responsible Authority has already specified in the Environmental Review document that (WAPC, 1999d):

"Severance of both the north and south linkage between the remnant vegetation in coastal regions and that present within Neerabup National Park is unavoidable, however, the width of the reservation will be minimised at these points as far as possible."

"Clearing of vegetation will be minimised by limiting clearing to that which is absolutely essential through the demarcation by the proponent of a limit of works prior to the commencement of site works and by limiting access and track development through the erection of fencing. The amount of vegetation cleared will follow the detailed design and construction plans (yet to be developed). Areas with intact vegetation will not be disturbed if outside the limit of works. Large trees close to the limit of works will be identified by the proponent prior to clearing and fenced with temporary fencing to protect them from accidental damage."

"Areas to be rehabilitated shall be seeded or planted with native species of local provenance."

"The potential for fauna underpasses on the alignment will be investigated by the proponent in consultation with CALM and the DEP prior to the detailed design phase of the freeway or railway. Underpasses will be installed where appropriate, as determined by further investigation and engineering capability"

Point 5 in the Appellant's ground is that the proposed construction of the freeway/rail proposals should be referred to the Environmental Protection Authority under Section 38 of the Environmental Protection Act. The DEP considers that environmental impacts of the freeway and railway extensions can be managed through the recommended conditions and further assessment under Part IV of the Act is not warranted.

**Recommendation:**

That this ground of appeal be dismissed.



(Dr) Bryan Jenkins  
CHIEF EXECUTIVE OFFICER

-16 APR 2000

References

Gibson, N., Keighery, B., Keighery, G., Burbidge, A. and Lyons, M. (1994) *A Floristic Survey of the Southern Swan Coastal Plain*. Report prepared by Department of Conservation and Land Management and Conservation Council Western Australia for the Australian Heritage Council.

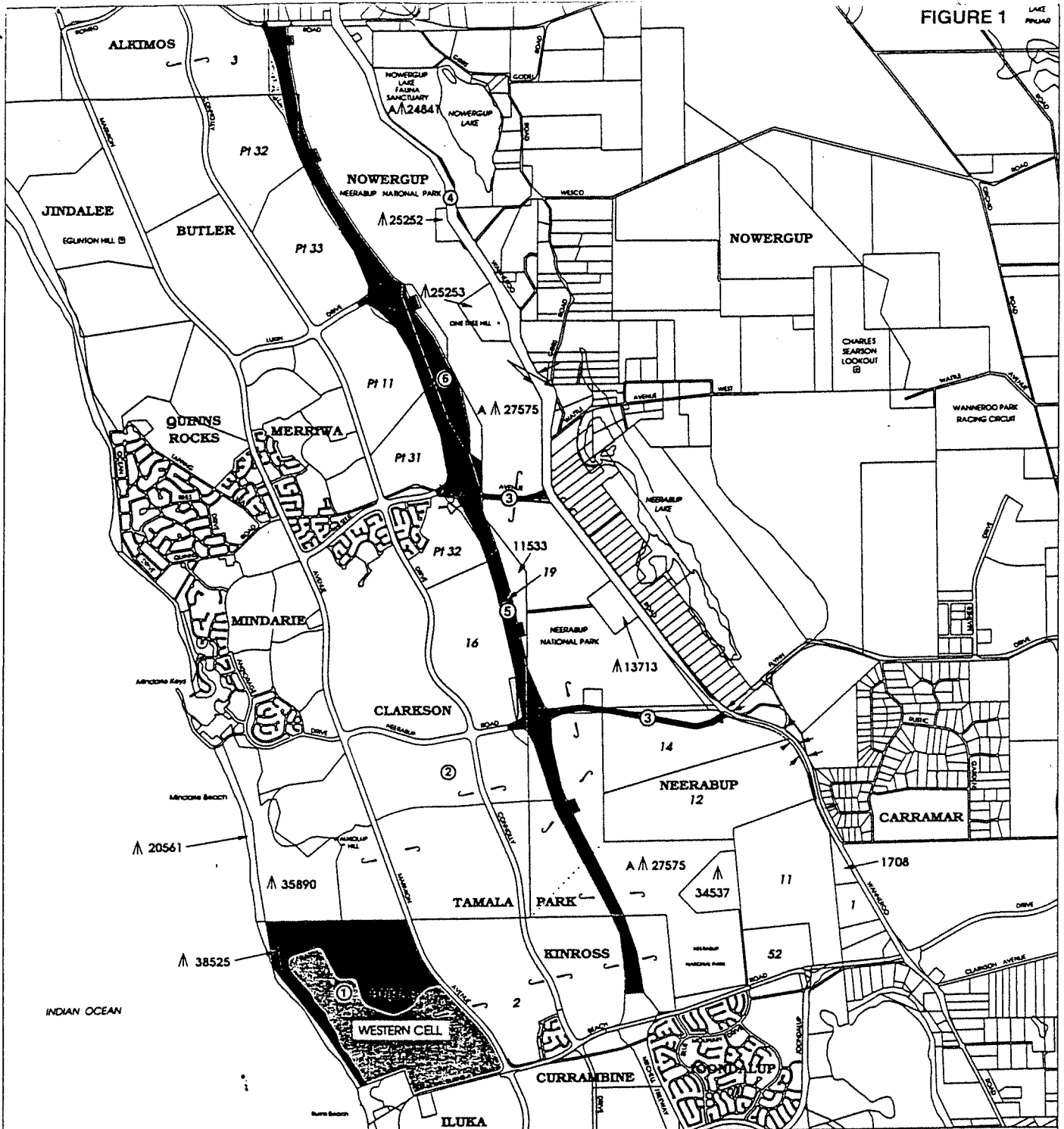
Western Australian Planning Commission (1999) . *Environmental Review - Metropolitan Region Scheme 992/33 Proposal 2: The rezoning of the Northern Portion of Lot 17 Marmion Ave, Clarkson from the Rural zone to the Urban Deferred zone*. Western Australian Planning Commission, September 1999, Perth WA.

Western Australian Planning Commission (1999b) *Environmental Review - Metropolitan Region Scheme 992/33 Proposal 3: The Reservation of Two Proposed East-west District Distributor Roads between the Mitchell Freeway and Wanneroo Road for Other Regional Roads*. Western Australian Planning Commission, September 1999, Perth WA.

Western Australian Planning Commission (1999c) *Metropolitan Region Scheme Amendment No 992/33 Clarkson-Butler - Environmental Review Summary Report*. Western Australian Planning Commission, September 1999, Perth WA.

Western Australian Planning Commission (1999d) *Environmental Review - Metropolitan Region Scheme 992/33 Proposal 5: Reservation of the proposed Mitchell Freeway Transportation Corridor for Primary Regional Roads to enable future proposed extensions to the Mitchell Freeway and Northern Suburbs Railway; the reservation of land for Railways for the proposed Clarkson Railway Station near Neerabup Road and a possible station near Hester Avenue; and land surplus to Freeway requirements being transferred from Rural/Parks and Recreation to the Urban zone*. Western Australian Planning Commission, September 1999, Perth WA.

FIGURE 1



**PROPOSALS FORMALLY ASSESSED BY THE EPA INCLUDED IN PROPOSED MAJOR MRS AMENDMENT 992/33 - CLARKSON-BUTLER AS MODIFIED BY WAPC ON 14 SEPTEMBER 1999**



WESTERN AUSTRALIAN PLANNING COMMISSION



SCALE 1:60000

**PROPOSED:**

**LEGEND**

- ① PROPOSAL NUMBER
- URBAN ZONE
- URBAN DEFERRED ZONE
- RURAL ZONE
- PARKS & RECREATION RESERVATION
- PUBLIC PURPOSES (SU & WSD) RESERVATION
- OTHER REGIONAL ROADS RESERVATION
- PRIMARY REGIONAL ROADS RESERVATION
- RAILWAYS RESERVATION



Until recently the WHO had recommended a level of 35 dB (A)  $L_{Aeq}$  for night time in bedrooms. This has previously been adopted in assessments by the EPA, and included in Ministerial Conditions of approval for specific development proposals (eg Marlston Hill redevelopment Bunbury, and Albany foreshore redevelopment). The WHO has recently amended its guideline level to 30 dB (A)  $L_{Aeq}$ , however, the DEP considers that 35 dB (A)  $L_{Aeq}$  is consistent with levels experienced in urban areas and should not result in unacceptable sleep disturbance. The DEP therefore recommends that 35 dB (A)  $L_{Aeq}$  should be targetted in cases where transport infrastructure is being developed in advance of urban development. As the proposed amendments for the freeway and railway route alignment are largely within undeveloped areas, the DEP considers 35 dB (A)  $L_{Aeq}$  appropriate in this circumstance.

The Herring Storer Acoustics (HSA) report prepared for the Environmental Review predicts night time (2200 – 0700)  $L_{Aeq}$  noise levels for both the freeway and railway extensions, assuming the 9- hour night time  $L_{Aeq}$  level is 4 dB (A) below the 24 - hour  $L_{Aeq}$  value. This is based on other measurements along the Mitchell Freeway. The HSA analysis also allows 10 dB (A) reduction for exterior to interior transmission through open windows.

The report indicates (Table 2, Attachment 1) that rail noise levels will exceed the 35 dB (A) criterion by 6 dB (A) on the western side of the reservation north of Moore Drive and by 1 dB (A) in three other locations.

In terms of road traffic, however, the reports finds that the 35 dB (A) criterion is exceeded at all 7 assessed locations. The exceedances range from 6 to 16 dB (A) (Table 2, Attachment 1).

When road and rail noise levels are combined, the result is the same for road only. This is because the predicted  $L_{Aeq}$  noise levels for road traffic are 10 dB or more above those for rail (Table 2, Attachment 1).

The DEP considers the recommended condition needs to be revised to provide explanation of how compliance with the 35 dB (A)  $L_{Aeq}$  should be determined.

The 35 dB (A)  $L_{Aeq}$  value can be interpreted as “windows closed”, thus allowing a 15 dB (A) difference between interior and exterior noise levels, instead of the 10 dB (A) difference allowed by HSA for “windows open”. This would be done on the basis that people living near a freeway would expect to close windows to reduce noise. If they have built a house knowing a freeway is to be developed adjacent, they could expect to have catered for this eventually if concerned. With proposed residential, the 35 dB (A) will also need to be achieved with windows closed, thus the existing houses are on the same footing. If people open their windows, the noise should not rise by more than 5 dB (A), depending on the orientation of the windows and the open area. This means the criterion could be set at 50 dB (A)  $L_{Aeq}$  outside for existing houses and 35 dB (A)  $L_{Aeq}$  inside for proposed housing. This makes a 5 dB (A) difference overall, and brings all but one area to within 6 dB (A) of compliance for the freeway and railway combined.

The night time period can be amended to end at 6 a.m. instead of 7 a.m., on the basis that the 6 – 7 a.m. traffic is at levels approaching the traffic after 7 a.m. The effect of this would be to reduce the night time (2200 – 0600)  $L_{Aeq}$  value by about 2 dB (A) compared with the 2200 – 0700 value. This reduces all areas to within 4 dB (A) for the freeway and railway combined, except one area, Currambine south of Burns Beach Road, eastern side (a barrier is already specified for the western side), where the exceedance would be 9 dB (A).

These predicted noise exceedances could be dealt with through either, or a combination of, road design materials and noise barriers, or appropriate building controls.

The DEP therefore considers that a requirement of 35 dB (A)  $L_{Aeq}$  can be reasonably met for proposals 5 and 6. However, the wording of the condition should be revised to include a note specifying that an allowance of 15 dB (A) should be applied for the

difference in noise level from exterior to interior of houses and the  $L_{Aeq}$  be determined over 8 hours from 2200 to 0600 hours.

**Recommendation:**

That Conditions 4-3-1 and 5-3-1 be amended by including a note specifying that an allowance of 15 dB (A) should be applied for the difference in noise level from exterior to interior of houses, and the  $L_{Aeq}$  be determined over 8 hours from 2200 to 0600 hours.

**2. Ground:**

There are also implications for other sites along planned extensions to the Perth Urban Rail Network if 35 dB (A)  $L_{Aeq}$  is adopted.

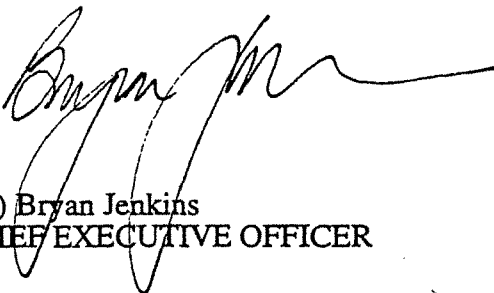
**Advice:**

In the present case, the rail noise emissions could be made to meet the criterion. This is largely because the railway passes along the centre of the Freeway, providing a buffer of about 100 m to the nearest house. In other extensions, for example the Perth – Mandurah railway, only a part of the railway runs along the Kwinana Freeway, and other sections would be much closer to houses. Other railways may also carry more trains at night time, further increasing the  $L_{Aeq}$  levels. Therefore, additional measures may be required in other proposals to achieve a criterion of 35 dB (A)  $L_{Aeq}$ .

However, the issue at hand is the criterion which should be applied to these proposals and in the present case, the DEP considers 35 dB (A)  $L_{Aeq}$  is appropriate. Other future proposals would be considered on their merit.

**Recommendation:**

That this ground of appeal be dismissed.



(Dr) Bryan Jenkins  
CHIEF EXECUTIVE OFFICER

-6 APR 2000



The road traffic  $L_{Aeq,2200-0700}$  is also 4 dB(A) less than the  $L_{Aeq,24hr}$  based on previous measurements alongside the Mitchell Freeway.

Thus, combining Table 6 of 7872-99027-3 with Table 2 of 7968-99027-3 and converting the values to  $L_{Aeq,9hr}$  results in the following noise levels.

TABLE 2 - CALCULATED  $L_{Aeq,9hr}$  FOR VARIOUS SCENARIOS AT CLOSEST RESIDENCES

Scenario	Currumbine				Kinross	Clarkson		Previous Acceptable Level
	North of Moore Drive		South of Burns Beach Road (BB)		North of BB	South of Neerabup	North of Neerabup	
	East	West	East	West #	West	West	West	
1	41	51	46	44	46	41	46	60/65
2	56	51	61	56	56	51	56	60
3	56	56	61	56	56	51	56	-

Note: # Includes noise barrier as per latest design.

Scenarios are defined as follows:

1. Rail only -  $L_{Aeq,9hr}$  noise levels.
2. Road traffic only -  $L_{Aeq,9hr}$  noise levels.
3. Rail and road traffic -  $L_{Aeq,9hr}$  noise levels.

Similar noise contours as previously produced, have again been produced for the above scenarios.

## DISCUSSION

*(all based on +10 dB(A) for windows open)*

Noise emissions from rail only generally meet the requirements of the EPA Bulletin 971 for the Option 5 design (within 1 dB(A)) except on the west side of the Freeway, north of Moore Drive. At this location, noise emissions exceed by 6 dB(A). — *consistent with finding of March 99.*

Noise from road traffic is up to 15 dB(A) in excess of the EPA criteria although meets the requirements of the Main Roads 'Noise Level Objectives'.

To reduce the noise levels by 15 dB(A), a 7.5 metre high barrier is required. To obtain a 10 dB(A) noise reduction, a 4.5 metre high barrier is required and to achieve a noise reduction of 5 dB(A), a 2 metre high barrier is required. This is based on calculations at the residential area south of Burns Beach Road.

Therefore, if the EPA criteria is to be met, a barrier in a similar location to that proposed in the south of Burns Beach Road residential area, is required for the length of the extension ranging in height from 2 metres to 7.5 metres.

A 7.5 metre high barrier would be a major structural undertaking in terms of foundation design and materials of construction, and likely to be a prohibitive cost imposition. Also, such a high wall would affect the residents amenities in other ways (apart from noise reduction) such as interference of air flow, lighting and visual appearance.



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MINISTER FOR THE ENVIRONMENT

*Your Ref* 00/30  
*Our Ref* RS001/8  
*Enquiries* Stacey Harley

APPEAL NO: 00/30 AGAINST: EPA's report and recommendations

APPELLANT: Conservation Council of Western Australia  
City West Lotteries House  
2 Dehli St  
WEST PERTH WA 6005

RESPONSIBLE AUTHORITY: Western Australian Planning Commission  
469 Wellington St  
PERTH WA 6000

PROPOSAL: Metropolitan Region Scheme No. 992/33 Clarkson-Butler, Wanneroo  
(1139)

**DECISION-MAKING**

AUTHORITIES: Minister for Planning

I refer to your request under Section 106 (a) of the Environmental Protection Act 1986, for my report on the above appeal.

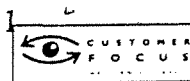
The Department provides the following advice in relation to appeals on Proposals 2 to 6 within Metropolitan Region Scheme (MRS) No. 992/33 Clarkson- Butler. This appeal has also raised grounds relating to Proposal 1 and as discussed with the Appeals Convenor this will be provided in a separate report.

**1. Ground:**

Proposal 3 - The reservation of land for Neerabup Road across Neerabup National Park is unacceptable. The road will sever the draft Perth's Bushplan area at one of its widest points and where the bushland is in very good condition. It will degrade the bushland and impact on wildlife with more road kills. The road reservation should be opposed, environmental measures proposed are second best ways of tackling major environmental impacts.

**Advice:**

Proposal 3 would require the excision of less than 2 ha from the existing Neerabup National Park for the extension of Neerabup Road and Hester Avenue through to Wanneroo Rd. The remaining land for the proposed roads is Unallocated Crown Land and freehold land (Lot 14), which is proposed to be reserved for 'Parks and Recreation'



by this Amendment. It is intended that the balance of Lot 14, approximately 102 ha, will be added to Neerabup National Park as it contains vegetation in excellent condition.

The proposed Neerabup Road reservation crosses Neerabup National Park and Lot 14 in the southern area of the Park where Neerabup National Park (with its future additions) is generally wider than the northern sections. The Environmental Protection Authority (EPA) identified that the most significant issue relating to this proposal is the impact on fauna populations which will result from habitat fragmentation and barriers to fauna movement created by the.

Given the potential impacts the EPA wrote to the National Parks and Nature Conservation Authority (NPNCA) as the vestee of Neerabup National Park for assistance and guidance on the environmental acceptability of likely impacts resulting from the implementation of Proposals 2 to 6.

In particular the EPA sought advice on:

1. previous NPNCA agreements or decisions regarding the Western Australian Planning Commission (WAPC) proposals including any conditions that these agreements or decisions were subject to;
2. an overall assessment of the conservation values of areas being lost and gained, in particular:
  - a) details of the vegetation types of each of the areas being proposed to be added to Neerabup National Park as well as those being removed, including details on the condition of the vegetation and the occurrence of any significant flora;
  - b) a break up of how much of each vegetation type is to be lost and gained following implementation of the amendment;
  - c) details of the potential impacts of the proposals on the long term viability of fauna populations within Neerabup National Park;
  - d) the potential management implications of the proposals, both positive and negative; and
3. any comments the NPNCA has regarding the proposed management measures put forward by the WAPC.

The EPA received a response from the NPNCA following their meeting dated 11 February 200 where the amendment was considered. NPNCA have supported the proposal but considers that there are issues in relation to fauna movement. The NPNCA have stated that they would support the need for further research into the alternatives such as fauna overpasses and request that future services crossing the Park are consolidated into the two east west road carriages as proposed.

On the basis of the NPNCA advice the EPA has resolved to support the Neerabup Road reservation provided that the design and construction of the road is referred to the EPA for assessment under Section 38 of the Environmental Protection Act. The referral under Section 38 will allow the EPA to more conclusively assess the potential impacts of the road on fauna movement and park management, which are still significant concerns.

The EPA is of the view that the design of any road through Neerabup National Park will have to be of an exceptional environmental standard and that the above issues can be managed through the design of the road. However, should a design be referred to the EPA which does not address the EPA's concerns, particularly in relation to habitat fragmentation, then there is still the possibility that the road may be deemed environmentally unacceptable by the EPA. If the proposal is formally assessed by the EPA under Section 38, then opportunities will exist for the public to input into the assessment of the project.

**Recommendation:**

That this ground of appeal be dismissed.

2. **Ground:**

Proposal 5 - The proposal cuts through Neerabup National Park and severs the important east -west link from Neerabup National Park to the Burns Beach bushland. The width of the Mitchell Freeway transportation corridor should be reduced and design and construction works required to maintain some ecological east-west linkage. Stronger environmental conditions are required to reduce the impact of the freeway, including minimising road width, retention of vegetation and revegetation of disturbed areas, fauna underpasses and overpasses, and signs, lighting or fencing to reduce road kills.

**Advice:**

The EPA has recommended two conditions aimed at minimising the impacts of Proposal 5 on Neerabup National Park. These conditions relate to the preparation of management Plans and are shown below:

“4-1 Vegetation and Fauna Management Plan

4-1-1 Prior to commencement of site works the Responsible Authority shall require preparation of a Vegetation and Fauna Management Plan for the alignment for Mitchell Freeway and Northern Suburbs Rail System to ensure the protection and management of biodiversity in Neerabup National Park that may be affected directly or indirectly by development of the proposal area.

This Plan shall include:

1. further flora survey work between Burns Beach Road and Hester Avenue to identify populations of Declared Rare Flora or Priority taxa;
2. targeted flora survey for *Acacia benthamii* and *Eucalyptus argutifolia* within Neerabup National Park and designation of appropriate management measures;
3. provision for revegetation of cleared or degraded areas within and adjacent to the amendment area;
4. a weed control program;
5. a dieback management plan including dieback survey within the proposed alignment;
6. a fauna survey for scheduled and priority fauna species, to be undertaken along and adjacent to the proposed alignment to delineate usage of sites within the project area;
7. relocation of individual scheduled and priority fauna if their ranges lie within or overlap the area of the proposed alignment;
8. investigation into the alternatives for facilitation of fauna movement across each alignment;
9. monitoring of fauna movement across each alignment; and
10. allocation of responsibilities and timing for the implementation of the Vegetation and Fauna Management Plan.

4-1-2 The above Environmental Management Plan shall be implemented in accordance with the provisions of the Plan, to the requirements of the

Responsible Authority on advice of the Department of Environmental Protection and the Department of Conservation and Land Management.

#### 4-2 Construction Management Plan

4-2-1 Prior to the finalisation of detailed design plans for the proposed freeway and/or railway, whichever occurs first, the Responsible Authority shall require preparation of a Construction Management Plan to ensure the protection and management of biodiversity in Neerabup National Park.

This Plan shall include:

1. management of drainage incorporating best practice Water Sensitive Design principles, in consultation with the Water and Rivers Commission, which considers the implications to existing vegetation and groundwater quality from both sumps and altered surface hydrology to minimise potential for waterlogging and infiltration of pollutants to groundwater;
2. investigation for the presence of caves during clearing for construction and management of discovery;
3. investigation for the presence of subterranean fauna within any cave or karst system encountered in areas cleared or cut during construction, and designation of appropriate management measures on advice of the Department of Environmental Protection;
4. the erection of exclusion fencing of the alignment area as designated by the 'extent-of-works' prior to any clearing for construction, paying particular attention to retaining as many mature trees as possible;
5. control of the use of lighting along the alignment to assist in the reduction of road deaths of nocturnal terrestrial fauna species and provide a safe environment for road and rail users;
6. compliance with appropriate dust, noise and vibration standards and guidelines during construction; and
7. allocation of responsibilities and timing for implementation."

The EPA believes that the issues raised by the Appellant in the Appeal ground can be covered by the two conditions. They are issues which the Department of Environmental Protection would assume would be discussed and considered in the preparation of these plans. However, it is not seen as necessary to specify these requirements in the conditions on the basis that the Responsible Authority has already specified in the Environmental Review document that (WAPC, 1999):

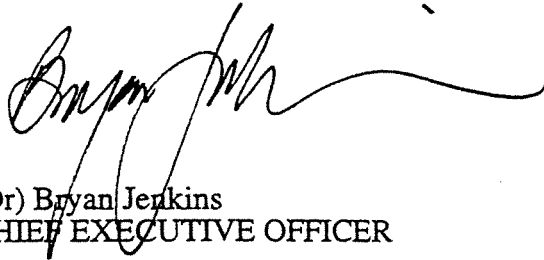
"Severance of both the north and south linkage between the remnant vegetation in coastal regions and that present within Neerabup National Park is unavoidable, however, the width of the reservation will be minimised at these points as far as possible."

"Clearing of vegetation will be minimised by limiting clearing to that which is absolutely essential through the demarcation by the proponent of a limit of works prior to the commencement of site works and by limiting access and track development through the erection of fencing. The amount of vegetation cleared will follow the detailed design and construction plans (yet to be developed). Areas with intact vegetation will not be disturbed if outside the limit of works. Large trees close to the limit of works will be identified by the proponent prior to clearing and fenced with temporary fencing to protect them from accidental damage."

"Areas to be rehabilitated shall be seeded or planted with native species of local provenance."

**Recommendation:**

That this ground of appeal be dismissed.



(Dr) Bryan Jenkins  
CHIEF EXECUTIVE OFFICER

- 6 APR 2000

Reference

Western Australian Planning Commission (1999) *Environmental Review - Metropolitan Region Scheme 992/33 Proposal 5: Reservation of the proposed Mitchell Freeway Transportation Corridor for Primary Regional Roads to enable future proposed extensions to the Mitchell Freeway and Northern Suburbs Railway; the reservation of land for Railways for the proposed Clarkson Railway Station near Neerabup Road and a possible station near Hester Avenue; and land surplus to Freeway requirements being transferred from Rural/Parks and Recreation to the Urban zone.* Western Australian Planning Commission, September 1999, Perth WA.

## **Appendix 3**

### **Recommended Environmental Conditions**



Recommended Environmental Conditions

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED  
(PURSUANT TO THE PROVISIONS OF THE  
ENVIRONMENTAL PROTECTION ACT 1986)**

**EXTENSION OF THE NORTHERN SUBURBS RAIL TRANSIT SYSTEM FROM  
CURRAMBINE TO BUTLER**

**Proposal:** This proposal is to extend the northern suburbs rail transit system from Currambine to Butler. The proposal includes the development of new stations at Hepburn Avenue and Clarkson Avenue, relocation of the Currambine station into the median of the future Mitchell freeway and development of the Nowergup railcar storage and servicing depot.

**Proponent:** Department of Transport

**Proponent Address:** 2<sup>nd</sup> Floor 19 Pier Street East St Georges Terrace, Perth WA 6832

**Assessment Number:** 1363

**Report of the Environmental Protection Authority:** Bulletin 1002

The proposal to which the above report of the Environmental Protection Authority relates may be implemented subject to the following procedures and conditions:

Procedures

**1 Implementation**

- 1-1 Subject to these conditions and procedures, the proponent shall implement the proposal as documented in schedule 1 of this statement.
- 1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.
- 1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

**2 Proponent**

- 2-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal until such time as the Minister for the Environment has

exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.

- 2-2 Any request for the exercise of that power of the Minister referred to in condition 2-1 shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the proposal in accordance with the conditions and procedures set out in the statement.
- 2-3 The proponent shall notify the Department of Environmental Protection of any change of proponent contact name and address within 30 days of such change.

### **3 Commencement**

- 3-1 The proponent shall provide evidence to the Minister for the Environment within five years of the date of this statement that the proposal has been substantially commenced.
- 3-2 Where the proposal has not been substantially commenced within five years of the date of this statement, the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment will determine any question as to whether the proposal has been substantially commenced.
- 3-3 The proponent shall make application to the Minister for the Environment for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement at least six months prior to the expiration of the five year period referred to in conditions 3-1 and 3-2.
- 3-4 Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.

### **4 Compliance Auditing**

- 4-1 The proponent shall submit periodic Compliance Reports, in accordance with an audit program prepared in consultation between the proponent and the Department of Environmental Protection.
- 4-2 Unless otherwise specified, the Chief Executive Officer of the Department of Environmental Protection is responsible for assessing compliance with the conditions and procedures contained in this statement and for issuing formal written advice that the requirements have been met.
- 4-3 Where compliance with any condition or procedure is in dispute, the matter will be determined by the Minister for the Environment.

### Conditions

### **5 Vegetation and Fauna Management Plan - Railway alignment**

- 5-1 Prior to commencement of site works, the proponent shall prepare a Vegetation and Fauna Management Plan for the railway alignment for the Northern Suburbs Rail System to ensure the protection and management of biodiversity in Neerabup National Park that may be affected directly or indirectly by the proposal.

This Plan shall include:

1. further flora survey work between Burns Beach Road and Hester Avenue to identify populations of Declared Rare Flora or Priority taxa;
  2. targeted flora survey for *Acacia benthamii* and *Eucalyptus argutifolia* within Neerabup National Park and designation of appropriate management measures;
  3. provision for revegetation of cleared or degraded areas within and adjacent to the proposed railway alignment;
  4. a weed control program,
  5. a dieback management plan including dieback survey within the proposed alignment;
  6. a fauna survey for scheduled and priority fauna species, to be undertaken along and adjacent to the proposed alignment to delineate usage of sites within the project area;
  7. relocation of individual scheduled and priority fauna if their ranges lie within or overlap the area of the proposed alignment;
  8. investigation into the alternatives for facilitation of fauna movement across the alignment;
  9. monitoring of fauna movement across the alignment; and
  10. allocation of responsibilities and timing for the implementation of the Vegetation and Fauna Management Plan.
- 5-2 Prior to commencement of site works the proponent shall implement the Vegetation and Fauna Management Plan required by condition 5-1 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection and the Department of Conservation and Land Management.
- 5-3 The proponent shall make the Vegetation and Fauna Management Plan required by condition 5-1 publicly available to the requirements of the Environmental Protection Authority.

## **6 Construction Management Plan - Railway alignment**

- 6-1 Prior to the finalisation of detailed design plans for the railway, the proponent shall prepare a Construction Management Plan to ensure the protection and management of biodiversity in Neerabup National Park, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

This Plan shall include:

1. management of drainage incorporating best practice Water - Sensitive Design principles, in consultation with the Water and Rivers Commission, which considers the implications to existing vegetation and groundwater quality from both sumps and altered surface hydrology to minimise potential for waterlogging and infiltration of pollutants to groundwater;
2. investigation for the presence of caves during clearing for construction and management of discovery;
3. investigation for the presence of subterranean fauna within any cave or karst system encountered in areas cleared or cut during construction, and designation of appropriate management measures on advice of the Department of Environmental Protection;

4. the erection of exclusion fencing of the alignment area as designated by the 'extent-of-works' prior to any clearing for construction, paying particular attention to retaining as many mature trees as possible;
5. control of the use of lighting along the alignment to assist in the reduction of rail deaths of nocturnal terrestrial fauna species;
6. compliance with appropriate dust, noise and vibration standards and guidelines during construction; and
7. allocation of responsibilities and timing for implementation.

6-2 At the commencement of construction the proponent shall implement the Construction Management Plan required by condition 6-1 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

6-3 The proponent shall make the Construction Management Plan required by condition 6-1 publicly available to the requirements of the Environmental Protection Authority.

## **7 Noise and Vibration Management Plan - Railway alignment**

7-1 Prior to the finalisation of detailed design plans for the railway, the proponent shall prepare a Noise and Vibration Management Plan to ensure noise and vibration impacts do not adversely impact on existing and future residents in the vicinity of the alignment, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

This plan shall include:

1. predictions of noise levels from trains along the length of the alignment but focussing primarily on urban areas;
2. details of noise management measures to ensure compliance with an internal noise standard of 35dB(A) Leq at night between 2200 and 0700 hours;
3. procedures for monitoring the effectiveness of noise management measures once implemented;
4. further investigation to determine the potential level of vibration in adjacent urban areas and designation of appropriate controls to comply with AS 2670.2-1990: Evaluation of human exposure to whole-body vibration – Part 2: Continuous and shock induced vibration in buildings (1 to 80 Hz);
5. a complaints response procedure; and
6. allocation of responsibilities and timing for implementation.

7-2 The proponent shall implement the Noise and Vibration Management Plan required by condition 7-1 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

7-3 The proponent shall make the Noise and Vibration Management Plan required by condition 7-1 publicly available to the requirements of the Environmental Protection Authority.

## **8 Vegetation and Fauna Management Plan - Railcar depot**

8-1 Prior to commencement of site works, the proponent shall prepare a Vegetation and Fauna Management Plan for the Railcar depot to ensure the protection and management

of biodiversity in Neerabup National Park that may be affected directly or indirectly by the proposal.

This Plan shall include:

1. a comprehensive spring survey for Declared Rare and Priority Flora and designation of appropriate management measures;
  2. provision for revegetation and rehabilitation of the area and the degraded area of Neerabup National Park adjacent to the railcar depot;
  3. targeted flora survey for *Acacia benthamii* within Neerabup National Park and designation of appropriate management measures;
  4. a weed control program;
  5. dieback management plan, including dieback survey within the alignment;
  6. fire management plan;
  7. targeted fauna survey for scheduled and priority fauna species, to be undertaken in the area of the railcar depot and adjacent area to delineate usage of sites within the project area;
  8. relocation of individual scheduled and priority fauna if their ranges lie within or overlap the area of the railcar depot;
  9. investigation into the alternatives for facilitation of fauna movement across the railcar depot;
  10. monitoring of fauna movement across the railcar depot; and
  11. allocation of responsibilities and timing for implementation.
- 8-2 Prior to commencement of site works the proponent shall implement the Vegetation and Fauna Management Plan required by condition 8-2 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.
- 8-3 The proponent shall make the Vegetation and Fauna Management Plan required by condition 8-1 publicly available to the requirements of the Environmental Protection Authority.

## **9 Construction Management Plan - Railcar depot**

- 9-1 Prior to finalisation of detailed design plans for the railway alignment and railcar depot, the proponent shall prepare a Construction Management Plan for the railcar depot to ensure the protection and management of biodiversity in Neerabup National Park that may be affected directly or indirectly by the proposal.

This Plan shall include:

1. management of drainage incorporating best practice Water - Sensitive Design principles, in consultation with the Water and Rivers Commission, which considers the implications to existing vegetation and groundwater quality from both drainage structures and altered surface hydrology to minimise potential for waterlogging and infiltration of pollutants to groundwater;
2. investigation for the presence of caves during clearing for construction and management of discovery;

3. investigation for the presence of subterranean fauna within any cave or karst system encountered in areas cleared or cut during construction, and designation of appropriate management measures;
4. the erection of exclusion fencing of the area as designated by the 'extent-of-works' prior to any clearing for construction, paying particular attention to retaining as many mature trees as possible;
5. compliance with appropriate dust, vibration, light and safety standards and guidelines during construction; and
6. allocation of responsibilities and timing for implementation.

9-2 At the commencement of construction the proponent shall implement the Construction Management Plan required by condition 9-1 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

9-3 The proponent shall make the Construction Management Plan required by condition 9-1 publicly available to the requirements of the Environmental Protection Authority.

## **10 Noise and Vibration Management Plan - Railcar depot**

10-1 Prior to finalisation of detailed design plans for the railway and railcar depot, the proponent shall prepare a Noise and Vibration Management Plan to ensure noise and vibration impacts do not adversely impact on existing and future residents in the vicinity of the railcar depot.

This plan shall include:

1. predictions of noise levels from trains along the length of the alignment but focussing primarily in urban areas;
2. impact of the operation of the railcar stowage and servicing facility on noise levels;
3. details of noise management measures to ensure compliance with an internal noise standard of 35dB(A) Leq at night between 2200 and 0700 hours;
4. procedures for monitoring the effectiveness of noise management measures once implemented;
5. further investigation to determine the potential level of vibration in adjacent urban areas and designation of appropriate controls to comply with AS 2670.2-1990: Evaluation of human exposure to whole-body vibration – Part 2: Continuous and shock induced vibration in buildings (1 to 80 Hz); and
6. a complaints response procedure.

10-2 The proponent shall implement the Noise and Vibration Management Plan required by condition 10-1 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

10-3 The proponent shall make the Noise and Vibration Management Plan required by condition 10-1 publicly available to the requirements of the Environmental Protection Authority.

## **11 Construction Noise Management Plan**

- 11-1 The proponent shall prepare a Construction Noise Management Plan if work is to be undertaken outside of daylight hours. Noise levels shall comply with AS2436: Guide to Noise Control on Construction, Maintenance and Demolition Sites and the *Environmental Protection (Noise) Regulations, 1997*.  
The Plan shall include:
1. details of and reasons for construction work outside recommended hours;
  2. predictions of construction noise levels;
  3. details of noise control measures to be implemented;
  4. procedures for on site monitoring; and
  5. complaint response procedures.
- 11-2 At the commencement of construction the proponent shall implement the Construction Noise Management Plan required by condition 11-1 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.
- 11-3 The proponent shall make the Construction Noise Management Plan required by condition 11-1 publicly available to the requirements of the Environmental Protection Authority.

### The Proposal

This proposal is to extend the northern suburbs rail transit system from Currambine to Butler. The proposal includes:

- development of two new stations, one at Hepburn Avenue, Greenwood (south of the existing Currambine station) and the other at Neerabup Road, Clarkson;
- relocation of the Currambine station into the median of the future Mitchell freeway;
- the extension of the railway line into the median of the future Mitchell freeway to Nowergup;
- the Nowergup railcar storage and servicing depot;
- two railway bridges over Burns Beach Road; and
- earthworks associated with the railway and stations.

The proposed development is shown in Figure 1.