



City of Nedlands

## **Technical Services Reports**

**Committee Consideration – 11 February 2021**  
**Council Resolution – 25 February 2021**

### **Table of Contents**

| Item No. |  | Page No. |
|----------|--|----------|
| TS01.21  | Integrated Transport Strategy and Precinct Plan Transport Impact Assessments – Budget Request..... | 2        |
| TS02.21  | Railway Road / Aberdare Road Intersection Upgrade.....   | 9        |

|                |  |
|----------------|--|
| <b>TS01.21</b> | <b>Integrated Transport Strategy and Precinct Plan<br/>Transport Impact Assessments – Budget<br/>Request</b> |
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| <b>Committee</b>  | 11 February 2021                       |
| <b>Council</b>  | 25 February 2021                       |
| <b>Applicant</b>  | City of Nedlands                       |
| <b>Employee Disclosure under section 5.70 of the Local Government Act 1995 and section 10 of the City of Nedlands Code of Conduct for Impartiality.</b> | Nil.                                   |
| <b>Director</b>   | Jim Duff – Director Technical Services |
| <b>CEO</b>  | Mark Goodlet                           |
| <b>Attachments</b>  | Nil.                                   |
| <b>Confidential Attachments</b>   | Nil.                                   |

## Executive Summary

The purpose of this report is to request Council approval for additional funds of \$145,000 in 2020/21 and \$50,000 in the 2021/22 financial year, to develop the City-wide Integrated Transport Strategy (ITS) and Transport Impact Assessments (TIA) for the Broadway, Waratah Avenue and Town Centre Precinct Plans in accordance with the Western Australian Planning Commission (WAPC) guideline.

The ITS will articulate the City's long-term transport network aspirations and assist in informing the potential need and timing of future infrastructure upgrades. The ITS provides an integrated approach that guides future transport planning, project prioritisation for mitigation strategies required to address identified transport issues. It can also be used as an advocacy tool with Government or Developers to provide a strong nexus between infrastructure upgrades, their timing and future funding responsibilities.

The ITS underpins several of the City's planning strategies including the local area precinct planning for Waratah, Broadway and the Town Centre. A TIA will be prepared for each of the precinct areas to identify the network performance and future infrastructure upgrade requirements. The TIAs provide the necessary traffic and transport inputs required under Draft State Planning Policy (SPP) 7.2 – with Council noting the precinct design for Waratah, Broadway and Town Centre as high priority projects.

Development of the ITS and supplementary precinct TIA's enables the City to identify and predict the timing of potential mitigation measures or infrastructure upgrades associated with proposed developments. This approach provides an important nexus between the City's Precinct Plans, Integrated Transport Strategy and potential Developer Contribution Plan (DCP).

## Recommendation to Council

### Council

- 1. instructs the CEO to commence the development of the Integrated Transport Strategy and Transport Impact Assessments for the Broadway, Waratah Avenue and Town Centre Precinct Plans.**
- 2. approves budget allocation of \$145,000 in the 2020/21 and \$50,000 in the 2021/22 financial year to engage a consultant to deliver the Integrated Transport Strategy and the Transport Impact Assessments for the Broadway, Waratah Avenue and Town Centre Precinct Plans.**

## Discussion/Overview

### Background

The ITS will identify and articulate the City's long-term transport aspirations and assist in informing the potential need and timing of any infrastructure upgrades. The ITS provides an integrated approach that guides future transport planning and can be used as advocacy tool with Government or Developers to provide a strong nexus between infrastructure upgrade requirements, their timing and funding responsibilities.

The ITS considers:

- identification of constraints in current and planned road capacity, using LPS3 growth projections.
- Identification of measures to upgrade and improve the regional and local road connections to facilitate safe and efficient vehicle movement and reduce congestion.
- Identification of measures to upgrade and improve public transport connections and facilities to reduce congestion.
- Promotion of the use of active transport and reduce the reliance on private vehicle transport.
- Measures to create a safe environment for pedestrians and cyclists.
- Network Capacity
  - Road Hierarchy
  - Restricted Access Vehicle designated routes and
- Network Safety
  - Plan to address identified network safety concerns
  - Existing and future network improvements
  - LATMP
- Road user behaviour
  - Public Transport - Road/ Rail/ Marine/ Other
  - Active Transport -On-Road and Off-Road Shared Paths / Cycleways / Footpaths / Recreational Paths Formal & Informal

The City is currently developing a City-wide traffic model that provides information on the existing and future traffic network performance. The City-wide traffic model will be used to test development scenarios to ensure the need and timing of infrastructure upgrades is accurately captured in the ITS, Asset Management Plan and Long-term Financial plan.

### Planning and Strategic Framework

Figure 1 overleaf provides an overview of where an ITS sits within the planning framework:

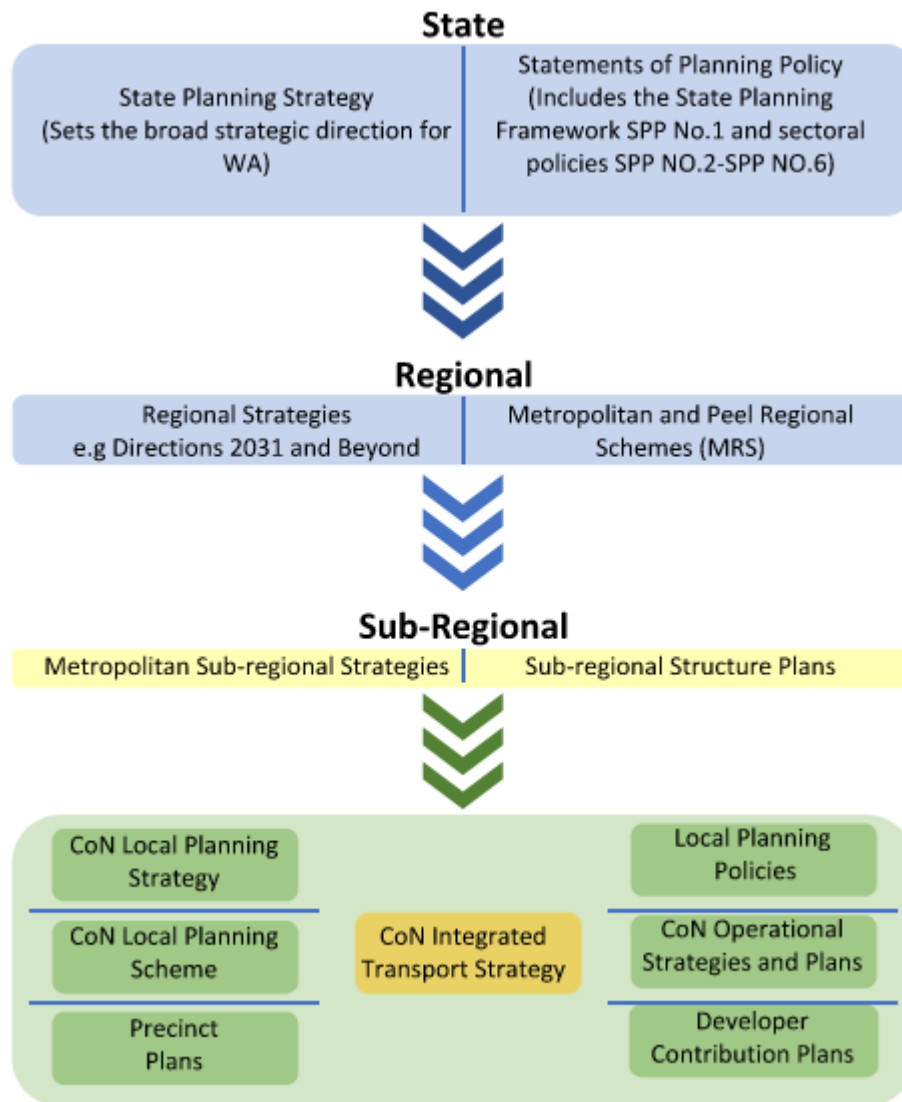


Figure 1 – The relationship of an Integrated Transport Strategy to the planning framework

The ITS is intended to underpin a variety of the City’s Strategic and Operational plans including the Strategic Community Plan, Corporate Business Plan, Local Planning Policies, Asset Management Plan and Lon-term Financial Plan (LTFP). The ITS also provides strategic direction and justification for transport planning decisions and will assists when responding to the community on transport or traffic enquiries.



## **Developer Contributions Plan**

Given the increased in development associated with the adoption of LPS3 Council provided direction to Administration in October 2020 to commence work on a Developer Contribution Plan (DCP). The DCP will identify a range of infrastructure projects that developers will be required to contribute to when developing within the City. The combination of City-wide traffic modelling and ITS provides a strategic link between developer contributions for infrastructure upgrades. The ITS will also support the City's strategic approach when negotiating with Federal and State Government to fund future infrastructure upgrades.

## **Traffic Impact Assessments for Precinct Plans**

Council has identified the Waratah, Broadway and Town Centre Precincts as high priority projects, with future work to be undertaken within the transition zones for Stirling Highway and Hampden Village and Hollywood East precincts. Individual precinct TIA's will be undertaken to determine future trip generation based on the City's built form modelling outputs. These outputs will then be used to test a range of development scenarios to identify potential impacts on the movement network and any consequential upgrade requirements.

The TIAs are required to address the 'Movement' element of the Precinct Plan as indicated on the draft *SPP 7.2 Precinct Design Guidelines*. The TIAs will be developed in accordance with the *WAPC Transport Impact Assessment Guidelines volume 2*.

A total of six TIAs have been identified to be developed to support each Precinct Plan comprising the Broadway Precinct, Waratah Precinct, Town Centre Precinct, Stirling Highway East and West Precinct, Hampden Road and Hollywood East Precinct and Residential Transition Area Precinct. The Precincts are shown on Attachment 1 – Growth and Transition Areas.

The TIAs for Stirling Highway East and West Precinct, Hampden Road and Hollywood East Precinct and Residential Transition Area Precinct will be undertaken in financial year 2021/22. Council approval to fund these TIAs will be requested as part of the 2021/22 Budget approval process.

## **Cost Estimate**

Administration prepared the following order of cost estimate:

- Integrated Transport Strategy

The ITS needs to be developed in accordance with the *WAPC 'Guideline for the preparation of Integrated Transport Plans*, focusing on the following breakdowns:

- Review the existing data, establishment of goals and objectives and identification of needs, issues, and opportunities
- Identification of current and desired future infrastructure and services
- Assessment of alternative options
- Identification of targets/deliverables and feasibility & affordability assessment
- Implementation and delivery plan
- Monitoring and evaluation plan

- Transport Impact Assessment for Precinct Plans

In conjunction with the development of the ITS, six TIAs supporting the precinct areas need to be delivered. The reports are required to address the 'Movement' element of Precinct Plan as indicated on the *SPP 7.2 Precinct Design Guidelines*. The TIAs will also be in accordance with the *WAPC Transport Impact Assessment Guidelines volume 2, Planning Schemes, Structure Plans, and Activity Centre Plans* focusing on the following breakdown.

- Existing situation
- Internal transport network
- External transport network
- Integration with the surrounding area
- Analysis of internal and external transport networks

The cost estimate is as follows:

1. ITS – Collation of available data and one major round of consultation with the stakeholders. Fee estimate \$50,000 (excl. GST).
2. Additional modelling using the City-wide model to support ITS scenarios and measures. Fee estimate \$20,000 (excl. GST).
3. Three Precinct Plan TIAs in accordance with WAPC guidelines with the majority of modelling undertaken as indicated above. Fee estimate \$75,000 (excl. GST), \$25,000 for each precinct.
4. A contingency of \$50,000 to allow for the above order of magnitude cost estimate.

The cost estimate to complete the ITS and three TIAs is \$195,000. However, only three of the six TIAs are planned to be completed this financial year. Council approval to fund the remaining three TIAs will be requested as part of the 2021/22 budget approval process.

### **Schedule**

The estimated schedule is as follows:

Feb 2021: Council Approval

March 2021: Advertise and evaluate RFT

April 2021: RFT Council approval

May - August 2021: ITS research, collation of data, stakeholder consultation, and the city-wide traffic model scenario developments

September 2021: Development of TIAs based on the scenarios identified from the first three months work and additional localised testing using either city-wide model or any other traffic modelling software.

- October 2021: Final TIAs (following the City's review and amendments) and a draft ITS for the City's review.
- November 2021: Final ITS
- December 2021: Council review of ITS
- February 2022: Council approval of ITS

## **Risk**

In the absence of an Integrated Transport Strategic that provides a clear nexus between need and potential developer contributions the City will continue to deliver sub-optimal outcomes in terms of developer contributions towards community or transport related infrastructure. A DCP must have a clear nexus between need and funding responsibility. The ITS will assist in providing the linkage between the City's LPS3 and provides a suitable link to the future DCP.

## **Consultation**

Consultation with the key stakeholders such as the (UDIA) representing Developers, Department of Transport, Main Roads WA and Public Transport Authority, as well as a community consultation will be undertaken as part of the development of the ITS.

## **Strategic Implications**

### **How well does it fit with our strategic direction?**

The Strategic Community Plan includes the following objectives:

- Promote a movement network that foremost enables mobility, and particularly encourages non-car modes.
- Locate land uses (particularly higher density residences) and transport networks in a way that maximises efficiency.

The development of the ITS and TIAs will provide a framework for State and local governments, key stakeholders, and the community to work collaboratively together, guiding investment into the future and outlining further investigative tasks required to support development of the transport network.

### **Who benefits?**

A successful ITS will outline a series of initiatives and investments that will help residents, workers, and visitors to the City.

### **Does it involve a tolerable risk?**

The ITS and TIA developments are considered to reduce the risk of developing policies and plans with issues and problems.

### **Do we have the information we need?**

Administration currently do not have sufficient information to develop the ITS and TIAs for Precinct Plans. Therefore, Administration requests additional budget to engage a consultant to develop the Integrated Transport Strategy and the priority Transport Impact Assessments.

### **Budget/Financial Implications**

An estimated of \$145,000 in 2020/21 and \$50,000 in the 2021/22 financial year, to engage a consultant to develop both the ITS and three TIAs in support of the priority Precinct Plans. The Administration intends to commence the RFT for the project in March 2021, given the urgent and immediate development pressures being faced city wide.

### **Can we afford it?**

The Integrated Transport Plan is not specifically provided for in the Long-Term Financial Plan. However, the Integrated Transport Plans and Traffic Impact Assessments for the Precinct Plans are considered essential by the Administration to satisfy the transport objectives outlined in the Strategic Community Plan and LPS3.

### **How does the option impact upon rates?**

Cost savings will be identified in the 2020/21 budget. Funding \$50,000 will be required in the 2021/22 financial year will be subject to Council's consideration as part of the 2021/22 budget process to minimize potential impact on rates.

### **Conclusion**

The Administration require additional budget funding of \$195,000 to commence development of the Integrated Transport Strategy and the Transport Impact Assessments for the priority Precinct Plan areas to provide adequate supporting documentation for the Precinct Plans. The ITS and TIAs for Precinct Plans will guide the development of the Developer Contribution Plan.

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| <b>TS02.21</b> | <b>Railway Road / Aberdare Road Intersection Upgrade</b> |
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|   |   |
|---|---|
| <b>Committee</b>  | 11 February 2021  |
| <b>Council</b>  | 25 February 2021  |
| <b>Applicant</b>  | City of Nedlands  |
| <b>Employee Disclosure under section 5.70 of the Local Government Act 1995 and section 10 of the City of Nedlands Code of Conduct for Impartiality.</b> | Nil.  |
| <b>Director</b>   | Jim Duff – Director of Technical Services   |
| <b>Attachments</b>  | 1. Western Power Concept Design Report<br>2. MRRG and City of Subiaco Design Funding Approval<br>3. Concept Civil Works Design<br>4. Aberdare Road Land Availability Map<br>5. Key Stakeholder Endorsements |
| <b>Confidential Attachments</b>   | Nil.  |

## Executive Summary

Council approved progressing the intersection upgrade concept design to detailed construction drawings at the October 2019 Council meeting. Further design work has revised the construction cost estimate from \$1,500,000 to \$4,005,669, predominantly due to underestimated Western Power service relocation costs, 20% contingency and 40% Administration overheads. The cost for detailed design has consequently also increased from the 2018/19 MRRG Road Improvement design project value of \$112,500 to \$345,000.

MRRG and the City of Subiaco have committed to their contribution of the additional design funding in December 2020, comprising \$155,000 and \$38,750, respectively.

This report seeks Council approval for additional municipal funds of \$38,750 to finalise the design of the Railway Road / Aberdare Road intersection upgrade.

## Recommendation to Committee

### Council:

1. approves an additional \$38,750 in the City's 2020/21 budget to finalise the design for the Railway Road / Aberdare Road intersection upgrade.

2. upon completion of the design, approves the CEO to submit an MRRG Road Improvement or Black Spot Funding Application in 2021/22 for construction in 2022/23 and 2023/24.
3. upon MRRG funding approval for construction in 2022/23 and 2023/24, agrees to consider including construction of the project in the 2022/23 and 2023/24 budgets for a total project cost of \$4,005,669, comprising two thirds MRRG \$2,503,543, one sixth City of Subiaco \$625,886 and one sixth City of Nedlands (incl. 40% Administration overhead) \$876,240.

## Discussion/Overview

### Background

Railway Road and Aberdare Road are two busy distributor roads carrying over 18,000 vehicles per day. The intersection has recorded a significant number of accidents within the last 5 years. The data is dominated by same lane rear crashes (38) on Aberdare Road and thru-right crashes (12) making up around 90% of all accidents. The number of accidents makes this intersection a strong candidate for Black Spot funding to improve safety at this intersection.

The initial investigation was undertaken by the City of Subiaco in 2014. This resulted in State Government funding two design options that were finalised in 2016. The first option included road widening to the southern side of Aberdare Road. This option was not supported by the City of Nedlands based on the removal of significant trees. An alternative option was developed that would necessitate the relocation or protection of major overhead and underground utility services that would far exceed the available budget.

### Construction Cost Estimate

Council approved progressing the intersection upgrade concept design to detailed construction drawings at the October 2019 Council meeting. Further design work has revised the construction cost estimate from \$1.5m to \$4.0m predominantly due to underestimated Western Power service relocation costs, 20% contingency and 40% Administration overheads. The revised cost estimate comprises civil works \$1.3m, service relocations \$2.25m (Western Power \$1.4m, Water Corporation \$0.6m, ATCO \$0.15m and Telstra \$0.1m) and MRWA signals, signs and line-marking \$0.2m.

The Western Power Concept design report is provided in Attachment 1. The Western Power costs comprise LV distribution relocation, transmission pole relocation and other unforeseen pilot cable and optical fibre telecommunications relocation. The Western Power Option 2 ±50% cost estimate is \$1.4m. This has increased from the October 2019 cost estimate of \$270,000. The October 2019 estimate was based on transmission pole relocation costs determined in design work undertaken in 2016.

### Design Progress

The signals, signs and linemarking design has progressed to 85%. The detailed civil design has progressed to 50%, pending final pavement level design. Geotechnical

investigation has been completed to inform the pavement design. Western Power, ATCO, Water Corporation and Telstra service relocation detailed design has not commenced. The lighting design contract has been awarded to Powerlyt and is yet to commence. Project final design completion is expected 30 June 2021.

## **Design Funding**

In 2018/19 design funding was approved for \$112,500 to improve the Railway Road / Aberdare Road intersection. The funding comprised two thirds MRRG \$75,000, one sixth City of Subiaco \$18,750 and one sixth City of Nedlands \$18,750.

In December 2020 MRRG approved additional design funding for \$232,500 comprising two thirds MRRG \$155,000, one sixth City of Subiaco \$38,750 and one sixth City of Nedlands \$38,750 (Refer Attachment 2 – MRRG and City of Subiaco Design Funding Approval). The City of Subiaco has provided written approval in November 2020 to fund the additional \$38,750 (Refer Attachment 2 – MRRG and City of Subiaco Design Funding Approval). Despite the increased project cost estimate the MRRG BCR ratio remains reasonable at 8.0.

The Western Power quote to proceed with detailed design is \$133k. The balance of the additional \$232,500 is planned to proceed with detailed design for the remaining design tasks which are essentially detailed pavement / civil design and Water Corporation service relocations.

Council approval is requested for additional municipal funds of \$38,750 to finalise the design of the Railway Road / Aberdare Road intersection upgrade.

## **Proposed Design**

The concept design is provided in Attachment 3 to demonstrate the design features. The design is a result of discussions with the City of Subiaco, Main Roads WA, Public Transport Authority and Department of Transport. The design is focused on optimising safety and efficiency based on future traffic demand.

The key features of the design are:

- Provision of a dual protected right turn lane for northbound traffic on Railway Road.
- Construction of additional lane capacity within the intersection on Aberdare Road.
- Removal of the existing on-road cycle lanes with construction of off-road shared paths (both sides) to improve safety and amenity.
- Re-alignment of the intersection to improve sightlines for drivers, pedestrians and cyclists.

The traffic model developed for the proposed modification indicates that the overall intersection performance is expected to improve. These improvements are summarised in Table 1.

Table 1 – Expected Intersection Improvements

|  | <b>Current</b> | <b>Opening Year</b> |
|--|----------------|---------------------|
| Delay - Passenger Car Units per hour (AM Peak) | 41             | 28                  |
| Delay - Passenger Car Units per hour (PM Peak) | 46             | 32                  |
| Aberdare Road westbound queue length           | 161m           | 33m                 |
| Railway Road northbound queue length           | 128m           | 49m                 |

The intersection realignment will improve sight lines and encourage lower speeds within Aberdare Road as a result of the modified configuration. The proposed road configuration aligns with the Metropolitan Region Scheme (MRS) with the remaining section of land scheduled to be dedicated as road reserve in March 2020 (refer to Attachment 4). The design also integrates with any duplication of traffic lanes within Aberdare Road.

The proposed shared path facilities forms part of the Long-Term Cycle Network creating an important link to the hospital precinct, nearby schools and parks. The final alignment of the shared path is subject to further detailed investigation to minimise any adverse impact on the existing trees.

The road safety improvements will reduce the number and severity of accidents. The modifications will also reduce congestion and driver frustration which should have a positive effect on driver behaviour across the City's road network.

### **Acquisition of Railway Reserve**

The provision of an extra northbound lane on Railway Road will require acquisition of Railway Reserve. Preliminary discussions with the Public Transport Authority (PTA) have indicated their support for future transfer of land to the City.

### **Tree Relocations and Removals**

A number of trees will need to be removed within the City of Nedlands as outlined in Table 2 with the majority of trees impacted being within the City of Subiaco.

Table 2 – Estimated Number of Tree Removals / Relocations

| <b>Local Government Authority</b> | <b>Type of Trees</b>          | <b>Qty</b> | <b>Officer comments</b>   |
|-----------------------------------|-------------------------------|------------|---|
| <b>City of Nedlands</b>           | Semi-Mature Corymbia maculate | 5          | <b>Railway Road – Western verge</b><br><br>The five trees proposed for removal are along Railway Road within 2m of the existing carriageway. The trees are semi |



|                        |  |   |   |
|------------------------|--|---|---|
|                        |  |   | <p>mature, exhibit good health and vigour, range in height from 11-15m, and have canopy spread of approximately 10m. The canopy spread on the eastern side, extends over the carriageway by approximately 5 m.</p> <p>The removal of these trees is required to enable the creation of protected right turn lanes on Railway Road to help reduce the number of right-angle crashes.</p> <p>New plantings will be undertaken to replace the trees removed.</p> |
| <b>City of Subiaco</b> | Semi-Mature <i>Cassia fistula</i>        | 1 | <b>Aberdare Road - North Eastern Corner</b><br><br>New plantings will be undertaken to replace the trees removed.   |
|                        | Semi-Mature <i>Acacia saligna</i>        | 1 |   |
|                        | Young <i>Liquidamber styraciflua</i>     | 1 |   |
|                        | Young <i>Eucalyptus torquate</i>         | 1 | <b>Aberdare Road – Northern verge</b><br><br>The trees in Aberdare Road are growing under power lines and will not have the potential to develop to mature specimens before they will be pruned back. The canopy cover created by these trees is limited and an improved canopy cover could be achieved if the corresponding number of trees were planted in alternative locations.   |
|                        | Mature <i>Eucalyptus leucoxylon</i>      | 1 |   |
|                        | Semi-Mature <i>Eucalyptus torquate</i>   | 3 |   |
|                        | Senescent <i>Agonis flexuosa</i>         | 3 |   |
|                        | Semi-Mature <i>Melaleuca lanceolata</i>  | 2 |   |
|                        | Semi-Mature <i>Schinus molle</i>         | 1 |   |
|                        | Semi-Mature <i>Corymbia calophylla</i>   | 1 |   |
|                        | Young <i>Agonis flexuosa</i>             | 1 |   |
|                        | Semi-Mature <i>Eucalyptus grandis</i>    | 2 |   |
|                        | Semi-Mature <i>Eucalyptus botryoides</i> | 2 |   |
|                        |  |   | <b>Railway Road – Western verge</b><br><br>The loss of canopy cover from these trees will be replaced with tree planting in alternative sites.  |

## **Key Relevant Previous Council Decisions:**

Ordinary Meeting of Council 22 October 2019, Item TS20.19.

### *Council:*

- 1. Supports progressing the concept design to detailed construction drawings for Black Spot funding submission, provided the City of Subiaco endorses the project;*
- 2. To include the Railway Road/Aberdare Road intersection improvement project as part of the 2021/22 budget, provided the City of Subiaco endorses the project;*
- 3. Approves the tree removal as detailed in Table 2 within the City of Nedlands to facilitate construction; and*
- 4. That any trees not shown orange on the plan which require removal require Council approval.*

## **Consultation**

Administration has worked collaboratively with the City of Subiaco, Main Roads Western Australia (MRWA), Public Transport Authority (PTA), the Department of Transport (DoT) and the Metropolitan Cemeteries Board in relation to the development of the design.

To date, the Administration has received written endorsement for the design by MRWA, PTA and DoT (Refer to Attachment 5). MRRG and the City of Subiaco have provided written approval for the additional design funding in December 2020 and November 2020, respectively (Refer to Attachment 2).

## **Strategic Implications**

### **How well does it fit with our strategic direction?**

The Strategic Community Plan includes the Value of Easy to get around; We strive for our City to be easy to get around by preferred mode of travel, whether by car, public transport, cycle or foot.

The Strategic Community Plan includes the following priorities:

- Maintain investment in roads, footpaths, cycle ways and drainage.
- Improve connectivity for pedestrians and cyclists on all paths and on roads.

The Railway / Aberdare intersection upgrade will improve the efficiency of the signalised intersection reducing congestion and will improve safety for drivers, pedestrians and cyclists.

## **Who benefits?**

All users of the intersection will benefit from the upgrade which will result in:

- Reduced crashes.
- Reduced traffic congestion
- Improved safety for cyclists and pedestrians using the off road shared paths.

## **Does it involve a tolerable risk?**

Implementation of the project will reduce the City's risk profile by addressing historic crash statistics and improving road safety.

There is some financial risk with all road construction projects. The City has established project management practices to mitigate the risk of exceeding project budget.

## **Do we have the information we need?**

Yes, there is sufficient information to proceed with completion of detailed design and progress to project construction.

## **Budget/Financial Implications**

An additional \$38,750 is required in the City's 2020/21 budget to finalise the design for the Railway Road / Aberdare Road intersection upgrade.

Upon MRRG funding approval for construction, the 2022/23 and 2023/24 budgets will require municipal funding of \$876,240. The total project cost will be \$4,005,669, comprising two thirds MRRG \$2,503,543, one sixth City of Subiaco \$625,886 and one sixth City of Nedlands (incl. 40% Administration overhead) \$876,240.

## **Can we afford it?**

How well does the option fit within our Long Term Financial Plan? What do we need to do to manage the costs over the lifecycle of the asset / project / service?

With appropriate capital works prioritisation the project can be delivered within the Long Term Financial Plan. Project delivery costs can be managed through the City's established project management practices.

## **How does the option impact upon rates?**

Nil, provided the project is prioritised in the capital works planning and budgeting process to be delivered within the constraints of the Long Term Financial Plan.

## **Conclusion**

In conclusion, Administration has worked collaboratively with the City of Subiaco, Main Roads WA, utility providers and funding agencies to reach agreement on the design and shared funding model for the proposed works at the intersection of Railway Parade/Aberdare Road. This report now seeks Council's approval to proceed with the project.

# City of Nedlands – 447 Railway Road TX & Streetlight Relocation - Works Planning Report (Enquiry Phase)

Project: CS015013

**Preliminary Assessment: 21 July 2020**

## Document Release Information

|                        |   |
|------------------------|---|
| <b>Customer name</b>   | City of Nedlands  |
| <b>Project name</b>    | 447 Railway Road – Transmission & Streetlight relocation                                  |
| <b>Document number</b> | 52638754  |
| <b>Document title</b>  | CS015013 - Works Planning Report (Enquiry Phase) – City of Nedlands TX and Streetlight RL |
| <b>Revision status</b> | 01  |
| <b>Revision Date</b>   | 21/07/2020  |

**Western Power**  
**ABN 18540492861**

## Approvals and Endorsements

| Action      | Name             | Title                                    | Signature | Date       |
|-------------|------------------|--|-----------|------------|
| Written by  | Mark Montemayor  | Transmission Team Leader                 |           | 21/07/2020 |
| Written by  | Brett Gooden     | Senior Asset Strategy Engineer           |           | 21/07/2020 |
| Written by  | Francois Pieters | Distribution Design Engineer             |           | 21/07/2020 |
| Endorsed by | Emily Saxey      | Senior Project Development Specialist    |           | 21/07/2020 |
| Approved by | Tony Law         | Customer Project Development Team Leader |           | 21/07/2020 |

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This report presents a preliminary assessment of network relocation options associated with the City of Nedlands’s 447 Railway Road – Transmission & Streetlight relocation (“the City of Nedlands’s Project”).

All options presented, including any corresponding assumptions, inclusions, or exclusions, are subject to change, and WP further reserves the right to withdraw or add options in its absolute discretion. WP consents to this document (EDM reference: 52638754) being released by the City of Nedlands to its contractor(s) (and their respective personnel) who are under a duty of confidence for the purpose of obtaining a preliminary understanding of WP network relocation options associated with the City of Nedlands’s Project.

The City of Nedlands accepts full responsibility for any unauthorised disclosure of this report by its contractors.

# Report Objectives

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The objective of this report is to:

- specify the City of Nedlands’s requirements
- identify network issues that need to be addressed to meet the City of Nedlands’s requirements
- identify options to meet the City of Nedlands’s requirements
- provide a cost and contribution estimate

The works planning report has been developed to address applications for relocations, private parallel generator connections less than 10MW and major capital distribution load connections.

# Acronyms

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|       |  |
|-------|--|
| AS    | Australian Standards                     |
| ADSS  | All-Dielectric Self-Supporting           |
| CBD   | Central Business District                |
| CMD   | Contract Maximum Demand                  |
| Dx    | Distribution                             |
| EPR   | Earth Potential Rise                     |
| HWL   | High Wide Load                           |
| KVA   | Kilo-volt-ampere                         |
| LGA   | Local Government Authority               |
| OPGW  | Optical Ground Wire                      |
| SCADA | Supervisory Control and Data Acquisition |
| Tx    | Transmission                             |
| WA    | Western Australia                        |
| WP    | Western Power                            |

# Table of contents

---

|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>City of Nedlands Requirements</b>       | <b>5</b>  |
| 1.1      | Summary of City of Nedlands Requirements   | 5         |
| 1.2      | City of Nedlands Location                  | 6         |
| <b>2</b> | <b>Preliminary Assessment</b>              | <b>7</b>  |
| 2.1      | Summary of Preliminary Assessment Findings | 7         |
| 2.1.1    | Summary of Distribution Assessment         | 7         |
| 2.1.2    | Summary of Transmission Assessment         | 7         |
| 2.2      | Distribution Assessment                    | 7         |
| 2.2.1    | Distribution Assessment                    | 7         |
| 2.2.2    | Distribution Scope of Works                | 9         |
| 2.2.3    | Conditions                                 | 13        |
| 2.2.4    | Distribution Studies and Assumptions       | 13        |
| 2.2.5    | Exclusions                                 | 14        |
| 2.3      | Transmission Assessment                    | 15        |
| 2.3.1    | Transmission Network Constraints           | 15        |
| 2.3.2    | Transmission Options                       | 15        |
| 2.3.3    | Scope Inclusions                           | 17        |
| 2.3.4    | Scope Exclusions                           | 17        |
| 2.4      | Telecommunications Assessment              | 17        |
| 2.4.1    | Telecommunications Assessment              | 17        |
| 2.4.2    | Exclusions                                 | 18        |
| 2.5      | Estimate of Delivery Timeframe             | 19        |
| 2.6      | Estimate of Cost and Customer Contribution | 19        |
| 2.6.1    | Cost Estimate for Distribution Work        | 19        |
| 2.6.2    | Cost Estimate for Transmission Work        | 20        |
| 2.6.3    | Cost Estimate for Telecommunications Work  | 20        |
| 2.6.4    | Total Cost Estimate                        | 20        |
| 2.7      | Assumptions and Constraints                | 20        |
| <b>3</b> | <b>Scoping Assessment</b>                  | <b>22</b> |
| <b>4</b> | <b>References (internal use only)</b>      | <b>23</b> |



# 1 City of Nedlands Requirements

## 1.1 Summary of City of Nedlands Requirements

**Table 1:** Summary of City of Nedlands Requirements

|   |  |                            |               |
|---|--|----------------------------|---------------|
| <b>Customer Name:</b>   | City of Nedlands   |                            |               |
| <b>Project Name:</b>  | 447 Railway Road – Transmission & Streetlight relocation   |                            |               |
| <b>Application Number / Ref.:</b>                             | CS015013   |                            |               |
| <b>Project Number (DQM):</b>                                  | N/A  | <b>Project # (Ellipse)</b> | N0488192 OPEX |
| <b>Application (EDM#):</b>                                    | 52381107   |                            |               |
| <b>Customer requirement:</b>                                  | The City of Nedlands is upgrading the intersection at Railway Road and Aberdale Road including the realignment of the intersection with new traffic lanes. Paths near the intersection will also be upgraded. Western Power is required to consider relocation options as per the proposed layout design provided by the City of Nedlands. |                            |               |
| <b>Supply Requirement:</b>                                    | N/A  |                            |               |
| <b>Load:</b>  | N/A  |                            |               |
| <b>Existing CMD:</b>  | N/A  |                            |               |
| <b>Proposed Additional CMD:</b>                               | N/A  |                            |               |
| <b>Total CMD:</b>   | N/A  |                            |               |
| <b>Site / Location (PID):</b>                                 | 447 Railway Road , Shenton Park 6008   |                            |               |
| <b>Existing NMI:</b>  | N/A  |                            |               |
| <b>Required in-service date:</b>                              | TBC  |                            |               |
| <b>Special Requirements: (e.g. service level/reliability)</b> | N/A  |                            |               |

The City of Nedlands has requested that Western Power (WP) undertake a Desktop Assessment of the works required to relocate Western Power’s streetlights and Transmission assets to facilitate the City of Nedlands’s project, which includes the realignment of the intersection with new traffic lanes. Paths near the intersection will also be upgraded. Western Power is required to consider relocation options as per the proposed layout design provided by the City of Nedlands.

The City of Nedlands has provided Western Power with a proposed design and has requested relocation options and an impact assessment on Western Power’s Distribution and Transmission assets for their proposal.

## 1.2 City of Nedlands Location

The City of Nedlands site of development is at the intersection of Railway Road and Aberdale Road, Shenton Park WA. Figure 1 below shows the project site location.

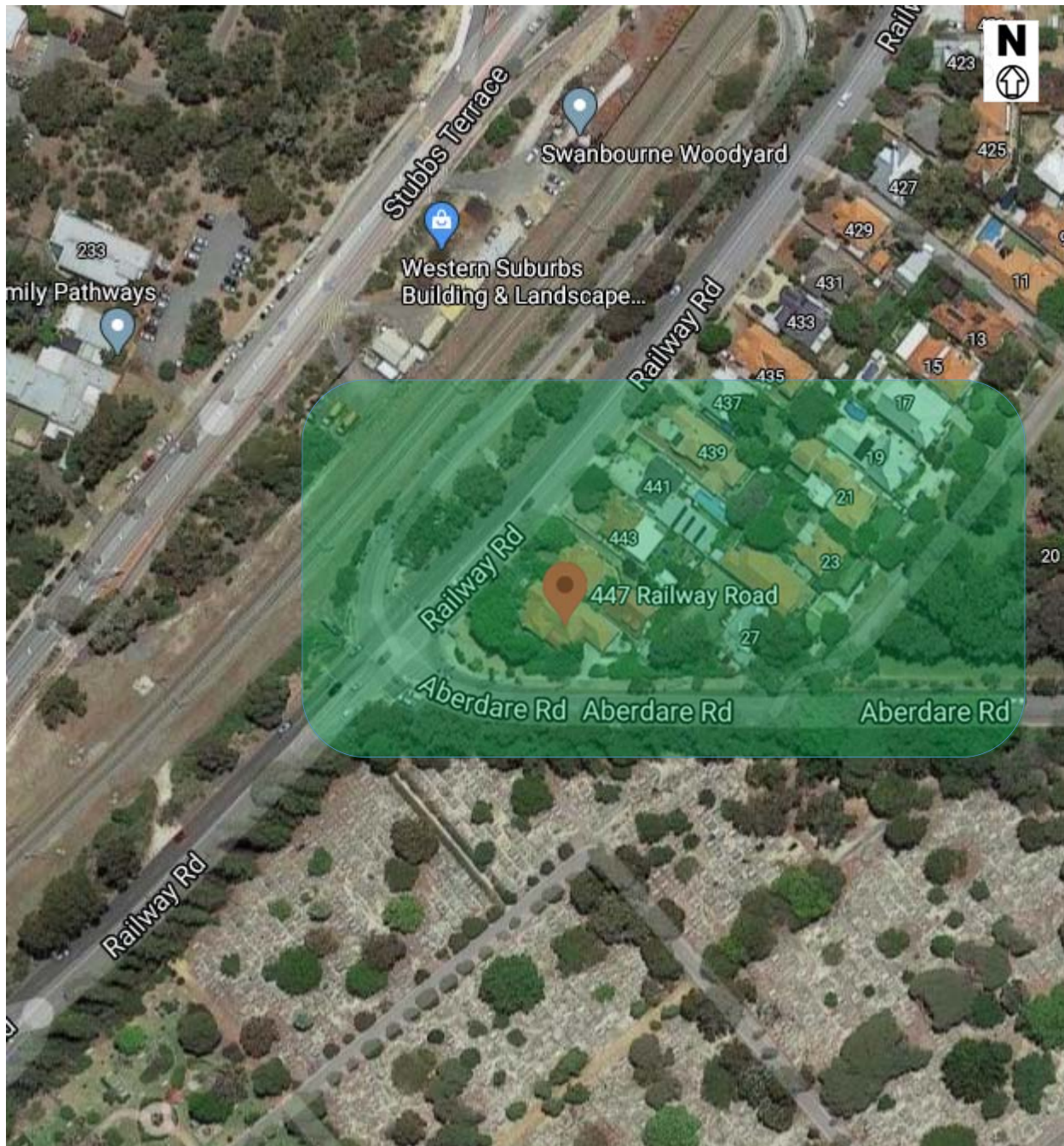


Figure 1: Site image of intersection of Railway Road and Aberdale Road, Shenton Park WA



## 2 Preliminary Assessment

### 2.1 Summary of Preliminary Assessment Findings

#### 2.1.1 Summary of Distribution Assessment

The intersection of Railway Road and Aberdare Road is surrounded by Western Power Low Voltage (LV) networks providing electricity connections to numerous Western Power consumers and streetlights. The City of Nedlands proposes to undertake civil works in areas that will trigger the removal/relocation of some Western Power assets as highlighted in this report.



Figure 2: Proposed Civil Works

#### 2.1.2 Summary of Transmission Assessment

The high level scope of works for this project is the widening of Aberdare Road and the upgrade of the intersection with Railway Road. The transmission lines assessed include the WT-MTE 71 (66kV) line which crosses over the intersection and along Aberdare Road. The Western Power assessment has found modification to these lines are required based on the drawings provided by City of Nedlands. The options presented to the City of Nedlands includes the relocation of at least 4 poles and the possible modification of a further 2 poles if required based on detailed design. For more details see Section 2.3.

## 2.2 Distribution Assessment

### 2.2.1 Distribution Assessment

To facilitate the City of Nedlands's proposed civil works and to maintain Western Power's existing network configuration, some OH/UG network assets need to be removed/relocated in compliance with Western Power's distribution design standards.

The re-configuration of the LV networks (Figures 4-7) is required to maintain the existing electricity connections to WP consumers to suit the City of Nedlands's proposed civil works.

To meet the City of Nedlands requirements, Western Power proposes to perform the distribution works prior to the start of the civil works. Figure 3 displays an overview of the Western Power scope of works split across 3 main areas.

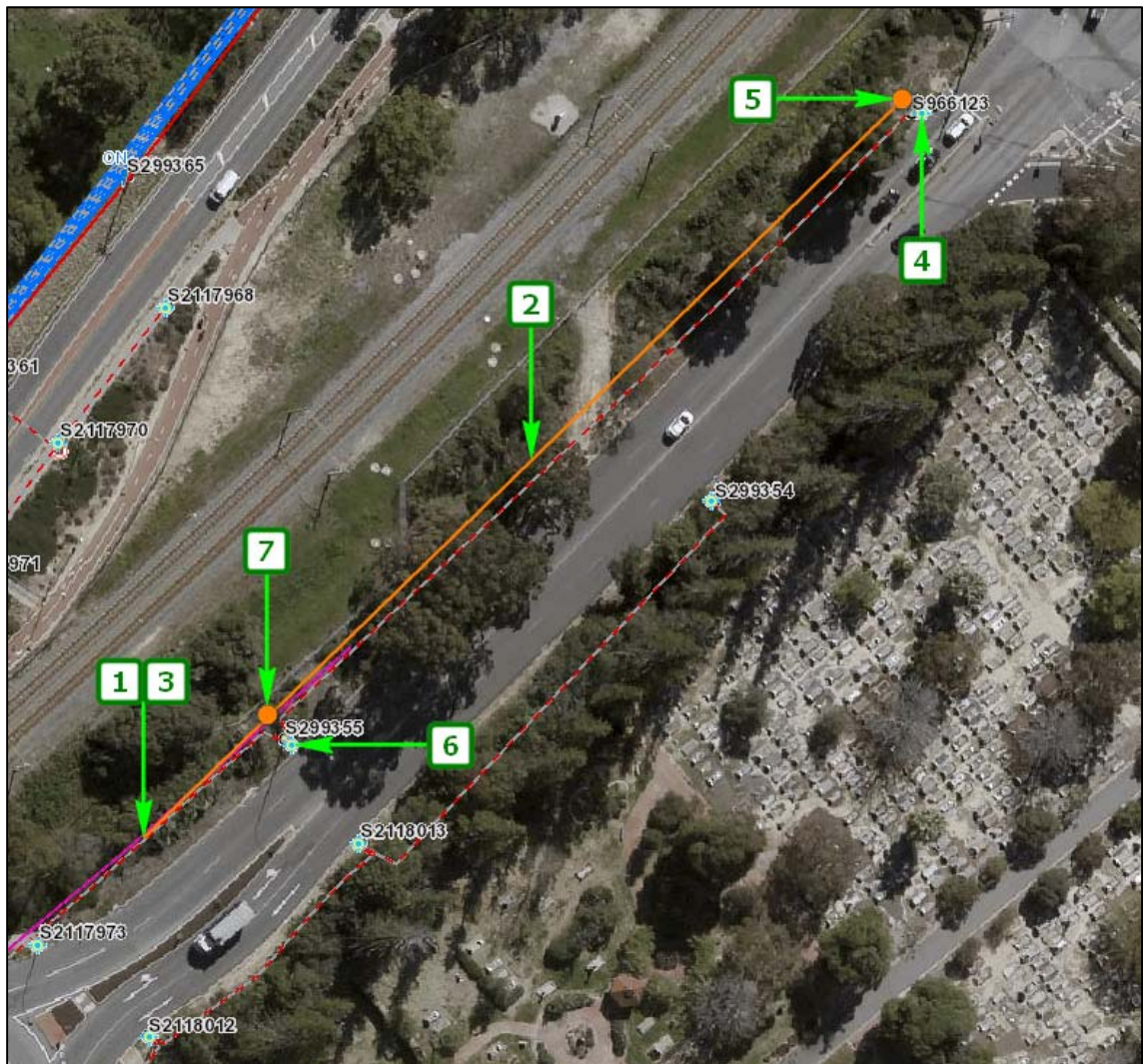


**Figure 3** Overview of Figures



## 2.2.2 Distribution Scope of Works

Figure 4 below shows the proposed LV works on Railway Road.



**Figure 4:** LV Works on Railway Road

### Scope of Works

1. Cut and abandon existing 16LV cable
2. Install new 16LV cable (approximately 150m) in the standard alignment (as defined by the new road reserve boundary)
3. Straight joint (1) existing 16LV cable to new 16LV cable
4. (a) Cut existing 16LV cable at base of streetlight S966123  
(b) Remove streetlight S966123
5. Install new streetlight and connect to new 16LV cable
6. (a) Cut existing 16LV cable at base of streetlight S299355  
(b) Remove streetlight S299355
7. Install new streetlight and connect to new 16LV cable

Figure 5 below shows the **proposed LV works** on the Corner of Railway Road and Aberdare Road (part 1).



**Figure 5:** LV Works on the Corner of Railway and Aberdare (Part 1)

#### Scope of Works

1. (a) Cut existing 16LV cable at base of streetlight S8131853  
(b) Remove streetlight S8131853
2. (a) Cut existing 16LV cable at base of streetlight S8131852  
(b) Remove streetlight S8131852
3. (a) Cut existing 16LV cables on both sides of streetlight S8131851  
(b) Remove streetlight S8131851  
(c) Straight joint (1) the existing 16LV cables
4. (a) Cut and abandon existing 16LV cable at the base of pole S299345  
(b) Remove pole S299345
5. Cut and abandon existing 240LV cable
6. (a) Cut and abandon existing 25LV cable at the base of UMS pit S8136204  
(b) Remove UMS pit S8136204
7. (a) Cut and abandon existing 16LV cable at the base of pole S299342  
(b) Remove pole S299342



Figure 6 below shows the **proposed LV works** on the Corner of Railway Road and Aberdare Road (part 2).



**Figure 6:** LV Works on the Corner of Railway and Aberdare (Part 2)

#### Scope of Works

1. (a) Install new 16LV cable (approximately 10m) from existing 16LV cable to new streetlight location  
(b) Straight joint (1) existing 16LV cable to new 16LV cable  
(c) Install new streetlight and connect to new 16LV cable
2. (a) Install new 16LV cable (approximately 10m) from existing 16LV cable to new streetlight location  
(b) Straight joint (1) existing 16LV cable to new 16LV cable  
(c) Install new streetlight and connect to new 16LV cable
3. (a) Install new 16LV cable (approximately 25m) from existing pillar S8131807 to new streetlight location  
(b) Install new streetlight and connect to new 16LV cable
4. (a) Install new 16LV cable (approximately 25m) from first new streetlight to second new streetlight  
(b) Install new streetlight and connect to new 16LV cable

5. (a) Install new 240LV cable (approximately 120m) in the standard alignment (as defined by the new road reserve boundary)  
(b) Straight joint (2) existing 240LV cables to new 240LV cable
6. (a) Install new 25LV cable (approximately 4m) from new 240LV cable to new UMS pit location  
(b) Install new UMS pit and connect to new 25LV cable  
(c) Tee joint (1) new 25LV cable to new 240LV cable
7. (a) Install new 16LV cable (approximately 70m) from existing pillar S2167314 to new streetlight location  
(b) Install new streetlight and connect to new 16LV cable

Figure 7 below shows the **proposed LV works** on Briggs Street.



**Figure 7: LV Works on Aberdare Road**

#### Scope of Works

1. (a) Cut and abandon existing 16LV cable at base of pole S299335  
(b) Remove pole S299335
2. (a) Install new 16LV cable (approximately 10m) from existing 16LV cable to new streetlight location  
(b) Straight joint (1) existing 16LV cable to new 16LV cable  
(c) Install new streetlight and connect to new 16LV cable
3. Disconnect (and abandon) existing 25LV cable from pillar S2167314
4. Remove pillar S2243091 and pole S299312
5. Install new 25LV cable (approximately 85m) from pillar S2167314 to new pillar location
6. Install new pillar and connect to new 25LV cable
7. (a) Install new 16LV cable (approximately 10m) from new pillar to new streetlight location  
(b) Install new streetlight and connect to new 16LV cable



### 2.2.3 Conditions

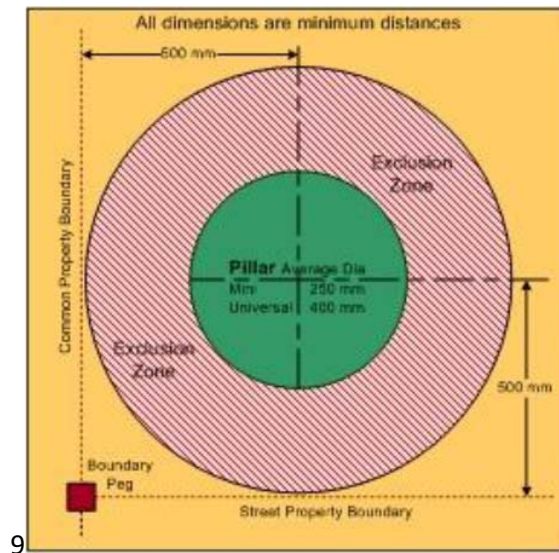
A design solution will be subject (but not limited) to the following conditions:

1. LGA must agree to the permanent removal/relocation of the affected streetlights in this project.
2. Affected customers must agree to have new streetlights installed in front of their property.
3. All new cables will be installed in poly pipe.
4. The owner of the mini-pillar (PID: S2243091) must agree to have their point of supply altered and must provide a preferred location for the new pillar.
5. The City of Nedlands will obtain the required approvals for the road reserve boundary to be redefined.

### 2.2.4 Distribution Studies and Assumptions

Based on the scope of work drawing ([Railway Aberdare DWG13.dwg](#)) provided by the City of Nedlands, it is anticipated that:

1. The new streetlight locations have been assumed for the purpose of this high-level assessment. Should the City of Nedlands wish to proceed with a detailed assessment, it is the City of Nedland's responsibility to complete a lighting study and inform Western Power of the exact locations.
2. All new cables will be installed in Western Power's standard alignment (as defined by the new road reserve boundaries).
3. The proposed design solution is based on desktop information only and is subject to detailed design investigation.
4. All asset locations shown in this report (Figures 4-7) are indicative only.
5. No other connection requests and changes to network conditions occur prior to the formal application for this connection.
6. No obstacles will impact on Western Power scope of works.
7. The cable installation is proposed to be in Western Power's standard alignment as per utilities code of practice i.e. 0-500mm from property boundary and at standard depth of 850mm deep from the finished ground levels in accordance with the Western Power UG Cable Installation Manual (UCI), unless specified otherwise by Western Power.
8. Installation of all underground cables & new poles is based on all ground conditions being sandy. Additional costs will be applicable should the ground conditions be different (rock, limestone or granite etc.).
9. The works will be completed within outage periods authorised by Western Power.
10. City of Nedlands are responsible to arrange for the physical removal of all redundant, abandoned Western Power cabling at no cost to Western Power.
11. City of Nedlands are responsible for any temporary lighting.
12. City of Nedlands is responsible for all civil works.
13. No allowance has been made for any Civil and/or Structural engineering works.
14. Any cost to acquire land for Western Power assets will be borne by the City of Nedlands.
15. New pillar locations must satisfy the exclusion zone requirements. For more information, please refer to the WADCM section 12.5.3. Link: <https://westernpower.com.au/media/3072/wa-distribution-connections-manual-20161014.pdf>



**Figure 8: Pillar Exclusion Zone**

16. City of Nedlands are responsible for all the electrical works downstream from the Western Power point of connection. The City of Nedlands is responsible to organise the installation and termination of consumer mains for the affected consumers.
17. With reference to Figures 4 - 7, the existing assets shown below will not be impacted by the civil works and can remain in their current location:



**Figure 9: Unaffected Assets**

### 2.2.5 Exclusions

This report has not taken the following items into consideration:

- Site visit
- Dial Before You Dig
- Earth Potential Rise / Low Frequency Induction assessment
- Environmental assessment (high level desktop only)



- Network Planning assessment
- Transmission scope of works
- City of Nedlands scope of works
- Streetlight design
- PTA, Local Council and Main Roads approvals
- Western Power crews working overtime (usually required for work near a commercial lot)
- Noise management plan (requested by the LGA when contractors work overtime)
- Any costs associated with any of the above items
- Costs associated with granite or rocky ground

## 2.3 Transmission Assessment

### 2.3.1 Transmission Network Constraints

The scope of works for this project is the widening of Aberdare Road and the upgrade of the intersection with Railway Road. The transmission lines assessed include the WT-MTE 81 (132kV) line which crosses over the intersection and along Aberdare Road. The ground/road clearance of the line has been assessed as well as the impact of roads construction on the nearby poles. The clearance assessment was based on the current maximum vehicle height of the intersection.



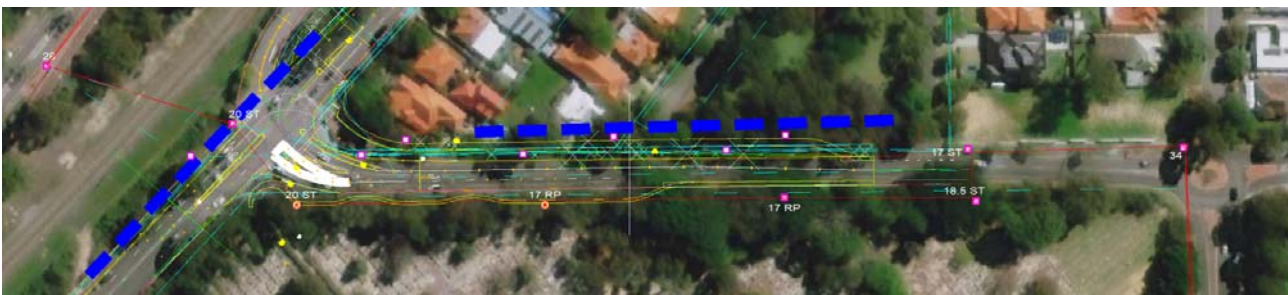
**Figure 10:** The impacted section of line (WT-MTE 81) due to the construction proposed by City of Nedlands

### 2.3.2 Transmission Options

The existing Poles 29-32 have been assessed to clash with the proposed design and require the replacement and relocation.

#### 2.3.2.1 Option 1

The proposed line route will change to the southern side of Aberdare Road until the intersection of John Street. This option requires Poles 29, 33 and 34 to be replaced due to the increased structural loading that the line relocation will introduce to the poles. This is in addition to the 4 new poles required along Aberdare Road.



**Figure 11:** The proposed solution to the construction proposed by City of Nedlands

### Transmission Constraints

The clearance to the traffic lights at the intersection of Railway Road and Aberdare Road will need to be assessed during the scoping phase with a drawing supplied by the City of Nedlands in MGA 94 Zone 50 format with all heights to Australian height datum. The locations of the traffic lights will need to be marked to determine the maximum allowable height. Which will be confirmed by the design engineer, as a reference the current estimated maximum traffic light height is ~6m, assuming the intersection level is not affect by the construction works.

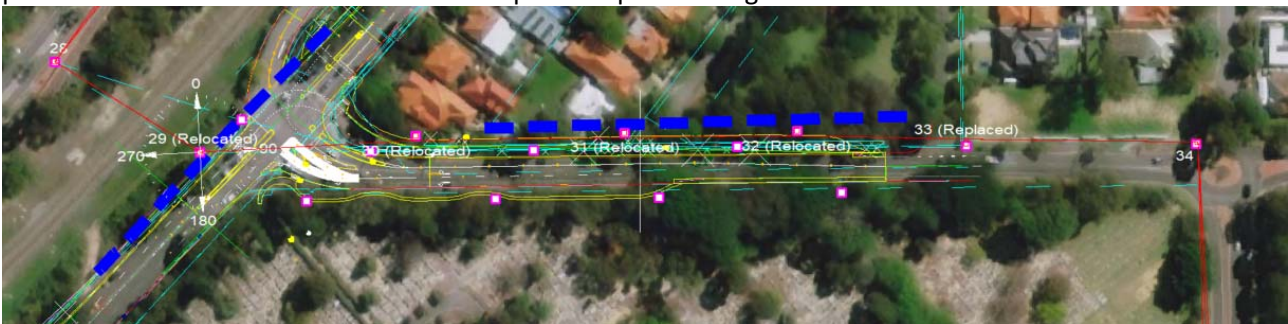
The exact location of the new poles is to be determined during the detailed design, and subject to potholing of the proposed locations. The cemetery owner will also need to be contacted by the City of Nedlands during the detailed design to coordinate the creation of an easement along the northern edge of the property boundary. The outage for this option will be much shorter because construction can begin on the new alignment whilst the line remains in service.

### Transmission Assumptions

- Ground clearances were assumed as per Lidar Data
- Impact of the intersection relocation was assessed per the drawing ([Railway Aberdare DWG13.dwg](#)) provided by the City of Nedlands.

#### 2.3.2.2 Option 2

The proposed line route will remain on the northern side of Aberdare Road. This option requires Poles 29 and 33 to be replaced due to the increased structural loading that the line relocation will introduce to the poles. This is in addition to the 3 relocated poles required along Aberdare Road.



**Figure 12:** The proposed solution to the construction proposed by City of Nedlands

### Constraints

The clearance to the traffic lights at the intersection of Railway Road and Aberdare Road will need to be assessed during the scoping phase with a drawing supplied by the City of Nedlands in MGA 94 Zone 50 format with all heights to Australian height datum. The locations of the traffic lights will need to be marked to determine the maximum allowable height. Which will be confirmed by the design engineer, as a reference the current estimated maximum traffic light height is ~6m, assuming the intersection level is not affect by the construction works.

The exact location of the new poles is to be determined during the detailed design, and subject to potholing of the proposed locations. The two property owners along Aberdare Road will also need to be contacted by the City of Nedlands during the detailed design to coordinate the creation of an easement along the southern edge of the property boundary. The outage for this option will be longer because construction cannot begin on the existing alignment whilst the line remains in service.

### Assumptions

- Ground clearances were assumed as per Lidar Data
- Impact of the intersection relocation was assessed per the drawing ([Railway Aberdare DWG13.dwg](#)) provided by the City of Nedlands

### 2.3.3 Scope Inclusions

The following are included in Western Power's scope estimate:

- Engineering and Design
- Project liaison and management
- Line crew for construction and reconductoring works
- Traffic management
- Removal of redundant transmission assets

### 2.3.4 Scope Exclusions

The following are excluded from Western Power's scope estimate:

- Obtaining of any approvals - route, easements (including registration), environmental or heritage, local government, landowners, etc.
- Geotechnical investigation
- Environment Assessment and mitigation cost (E.g.: Acid sulphate etc.)
- EPR mitigation (if required)
- Community engagement
- Clearing of vegetation
- Costs associated with the preparation and registration of easements (WP will require an easement to be registered over the relocated underground section if the cable alignment lie on the private property.)
- Allowance for potential adverse latent conditions
- Road safety audit and the installation of any mitigation measures resulting from the audit e.g. safety barriers
- Dewatering for installation of poles
- Access road construction
- Any proposed new retaining wall is to be constructed by the City of Nedlands (not Western Power). The City of Nedlands is to submit their proposed retaining wall design to Western Power for review prior to construction to ensure that it meets Western Power's requirements for maintenance access.

## 2.4 Telecommunications Assessment

### 2.4.1 Telecommunications Assessment

Based on the information provided, Western Power is unable to fully evaluate the risk or ascertain the relocation requirement for our pilot cable and optical fibre infrastructure that has been identified as present within the project area. It is also observed that the optical fibre conduit crossing Railway Road is not present on the drawings provided by the City of Nedlands. An overview of the telecommunications considerations has been provided in **Figure 13**.

Planning approvals may present a challenge as the work area intersects a rail notification area and includes both the City of Nedlands and City of Subiaco. Timing is dependent on the project interdependencies and any ENAR notification requirements. Advanced notice and early planning participation are recommended to ensure streamlining of coordination efforts. Scenario 2 (details below) increases both planning and construction durations.





- Engagement of environmental and planning approvals consultant
- Network Planning assessment
- Transmission scope of works
- City of Nedlands scope of works and detailed excavation/final surface levels
- PTA, Local Council and Main Roads approvals
- Contractor estimates
- Western Power crews working overtime (usually required for work near a commercial lot)
- Noise management plan (requested by the LGA when contractors work overtime)
- Raising/lowering of pit levels and nearby conduit
- Excavation method (trenching/directional drilling)
- Vegetation clearing
- Any costs associated with any of the above items
- Costs associated with granite or rocky ground
- Costs associated with removal and disposal of redundant assets
- Costs associated with independent telecommunications construction or as-built drawings
- Costs associated with dewatering or disposal of contaminated soils
- Community engagement

## 2.5 Estimate of Delivery Timeframe

The estimated delivery timeframe for the transmission work is listed in Table 1.

**Table 1:** Summary of Estimated Delivery Timeframes of project

| Work                  | Work Detail             | Estimated number of weeks |
|-----------------------|-------------------------|---------------------------|
| Initiation            |                         | 6                         |
| Scoping               |                         | 12                        |
| Planning              | Design                  | 12                        |
| Long Lead Procurement | Procurement             | 8                         |
| Execution             | Construction Tender     | 8                         |
|                       | Electrical Construction | 8                         |
| <b>TOTAL</b>          |                         | <b>46</b>                 |

*NOTE: Timeframes could increase by 4 weeks if Designs need to be outsourced.*

## 2.6 Estimate of Cost and Customer Contribution

The cost estimates have been developed based upon the assumption that this project will be executed as a Major Works Project.

### 2.6.1 Cost Estimate for Distribution Work

As summarised in Table 2, the estimated Customer contributions for the distribution streetlights work, including Tax Recovery Charge<sup>1</sup> of 13.9%, is \$228,294.79

**Table 2:** Summary of Estimated Customer Contribution for Dx Work

| Work  | A0 Estimate      |
|---|------------------|
| Distribution works (prior to start of civil works)                          | \$196,561        |
| Estimated Customer contribution (±50%, including 13.9% Tax Recovery Charge) | <b>\$228,294</b> |

<sup>1</sup> <https://westernpower.com.au/faqs/taxation>

## 2.6.2 Cost Estimate for Transmission Work

As summarised in Table 3, the estimated customer contributions for the transmission work:

**Table 3** Summary of Estimated Customer Contribution for Transmission Work

| Work   | Option 1         | Option 2         |
|--|------------------|------------------|
| Estimated cost ( $\pm 50\%$ ) of Tx work   | \$455,001        | \$391,903        |
| <b>Estimated Customer contribution</b> ( $\pm 50\%$ , including 13.9% Tax Recovery Charge) | <b>\$528,457</b> | <b>\$455,173</b> |

## 2.6.3 Cost Estimate for Telecommunications Work

As summarised in Table 4, the estimated customer contributions for the transmission work:

**Table 4:** Summary of Estimated Customer Contribution for Telecommunications Work

| Work   | Scenario 1<br>(Minor) | Scenario 2<br>(Extensive) |
|--|-----------------------|---------------------------|
| Estimated cost ( $\pm 50\%$ ) of Telecommunications work                                   | \$81,250              | \$593,750                 |
| <b>Estimated Customer contribution</b> ( $\pm 50\%$ , including 13.9% Tax Recovery Charge) | <b>\$92,544</b>       | <b>\$676,281</b>          |

## 2.6.4 Total Cost Estimate

The estimated customer contributions for the transmission work, including Tax Recovery Charge of 13.9%, is summarised in Table 5 below:

**Table 5:** Summary of Total Estimated Customer Contribution

| Work   | Option 1           | Option 2           |
|--|--------------------|--------------------|
| Estimated cost ( $\pm 50\%$ ) of Dx work   | \$228,294          | \$228,294          |
| Estimated cost ( $\pm 50\%$ ) of TX work   | \$528,457          | \$455,173          |
| Estimated cost ( $\pm 50\%$ ) of Telecommunications work ( <b>Scenario 2</b> )             | \$676,281          | \$676,281          |
| <b>Estimated customer contribution</b> ( $\pm 50\%$ , including 13.9% Tax Recovery Charge) | <b>\$1,433,032</b> | <b>\$1,359,748</b> |

## 2.7 Assumptions and Constraints

The scope of works and the estimate are based on the assumptions and constraints listed below:

- The proposed design solution estimated cost (non-binding) is based on desktop information only and is subject to a detailed design investigation.
- The identified scope of works is subject to a DBYD investigation. If assets cannot be installed or relocated to the preferred location, then the scope of works may drastically change.
- Installation of all underground cables & new poles is based on clay ground conditions. If the ground conditions are found to be sand or rocky, then the project cost will be higher than the above presented cost.
- If the underground cables are to be installed inside the private properties, then for personnel and asset protection, an easement over the title will be required.



- The locations of ground mounted Western Power assets shown in this study, such as the HV switchgear site, pillars and new pole locations are indicative only.
- Any cost to acquire land for Western Power assets will need to be borne by the City of Nedlands.
- No reinstatement of Asphalt, concrete paving, brick paving or lawn/reticulation has been included.
- Environmental studies have not been undertaken for the purpose of this report.
- No provision has been made for temporary generators or for the provision of temporary power for critical Customers such as Customers on life support equipment and for all other affected Customers.
- No provision has been made for additional safety requirements outside the standard WP safety practices.
- No other connection requests and changes to network conditions prevail prior to a formal application for this connection.
- EPR (Earth Potential Rise) assessment has not been undertaken for the purpose of this report.
- The City of Nedlands will provide a CAD in MGA50, GDA94 format prior to commence design work.
- The City of Nedlands will design streetlights and will provide precise streetlight location, type and quantities.
- High Wide Load (HWL) assessments are not considered in this WPR.

### **3 Scoping Assessment**

---

*Upon request, Western Power will undertake a Scoping Assessment to develop a scoping design and estimate, including an indicative customer capital contribution, for the proposed customer works.*

**James Cresswell**

---

**From:** SORAINE Stewart (LGRPC/A) <stewart.soraine@mainroads.wa.gov.au>  
**Sent:** Thursday, 17 December 2020 11:39 AM  
**To:** Wayne Mo  
**Cc:** Metropolitan Regional Road Group; FERNANDO Trisette (Con); James Cresswell  
**Subject:** FW: 21114360 MRRG\_Variation\_Request\_Railway Aberdare Shenton bus bridge design.pdf  
**Attachments:** MRRG\_Variation\_Request\_Railway Aberdare Shenton bus bridge design.pdf

Good morning Wayne,

The attached variation seeking additional MRRG funding has been approved.

The additional funds will be provided from the 2020/21 Road Improvement program increasing the State's contribution as per below.

| <b>Program</b>            | <b>Improvement</b>   | <b>2018/19</b>  |                                |
|---------------------------|--|-----------------|--------------------------------|
| <b>Canning</b>            | <b>21114360 -- IMP-19-Nedlands-Aberdare Rd-Aberdare Rd/Railway Rd/Shenton Park Bus Bridge - Remove existing signalised intersection and install roundabout</b> |                 |                                |
|                           |  | <b>Original</b> | <b>Revised Total Variation</b> |
| <b>MRRG Funding</b>       |  | <b>75.000</b>   | <b>230.000 155.000</b>         |
| <b>LG Contribution</b>    |  | <b>37.500</b>   | <b>115.000 77.500</b>          |
| <b>Total Project Cost</b> |  | <b>112.500</b>  | <b>345.000 232.500</b>         |

---

**From:** Wayne Mo <[wmo@nedlands.wa.gov.au](mailto:wmo@nedlands.wa.gov.au)>  
**Sent:** Wednesday, 21 October 2020 5:12 PM  
**To:** Metropolitan Regional Road Group <[MRRG@mainroads.wa.gov.au](mailto:MRRG@mainroads.wa.gov.au)>  
**Cc:** SIEGERT Kathryn (PM/A) <[kathryn.siegert@mainroads.wa.gov.au](mailto:kathryn.siegert@mainroads.wa.gov.au)>; FERNANDO Trisette (Con) <[trisette.fernando@mainroads.wa.gov.au](mailto:trisette.fernando@mainroads.wa.gov.au)>; James Cresswell <[jcresswell@nedlands.wa.gov.au](mailto:jcresswell@nedlands.wa.gov.au)>  
**Subject:** 21114360 MRRG\_Variation\_Request\_Railway Aberdare Shenton bus bridge design.pdf

Hi Trisette and Kathryn  
 Here is the formal request for the above  
 Regards

## James Cresswell

---

**From:** James Hambly <jamesh@subiaco.wa.gov.au>  
**Sent:** Monday, 19 October 2020 4:50 PM  
**To:** Wayne Mo  
**Cc:** James Cresswell; Rama Sritharan; Alan Millard  
**Subject:** RE: Railway Aberdare Bus Bridge Project update

Hi Wayne,

I can confirm that the City of Subiaco agrees to the below. I would just note that submission for construction in May 2021 could be ambitious given WP's 50 week design timeframe but if they (and other service providers) can give a firmer quotes for works by then to give the necessary certainty for our Councils and MRRG around construction costs then Subiaco will be fine with this approach otherwise we submit in the following round. I think it should be enough to advise that you will resubmit once construction costs are better known from service companies and this will either be made May 2021 or 2022 as the shifting cost is MRRG's primary concern in relation to this project.

Regards,  
James

**James Hambly | Manager Transport & Infrastructure Development**

City of Subiaco | PO Box 270 | Subiaco WA 6904  
☎ 9387 0960 | 📠 9237 9200 | ✉ [jamesh@subiaco.wa.gov.au](mailto:jamesh@subiaco.wa.gov.au) | 🌐 [www.subiaco.wa.gov.au](http://www.subiaco.wa.gov.au)  
🌱 Think before you print

---

**From:** Wayne Mo <wmo@nedlands.wa.gov.au>  
**Sent:** Monday, 19 October 2020 4:26 PM  
**To:** James Hambly <jamesh@subiaco.wa.gov.au>  
**Cc:** James Cresswell <jcresswell@nedlands.wa.gov.au>  
**Subject:** Railway Aberdare Bus Bridge Project update

Hi James

Can you provide confirmation that:

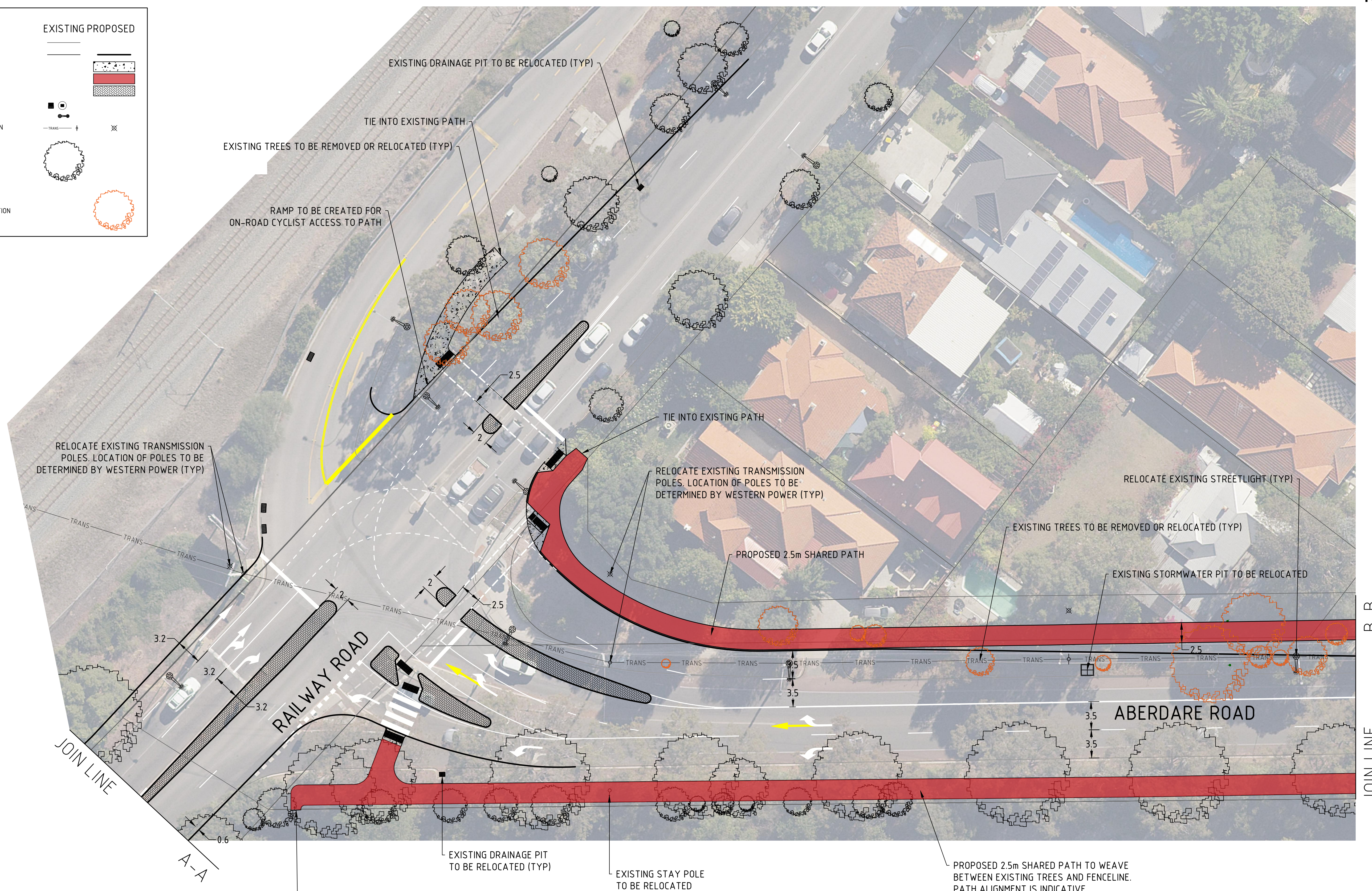
1. The City of Subiaco agrees to seek additional funding from the MRRG group to the value of
  - i. \$3,450,000 x 10% = \$345,000 minus the value already spent \$112,500 = **\$232,500**
  - ii. \$232,500 will be split **\$38,750 Nedlands (subject to Council approval), \$38,750 Subiaco, \$155,000 MRRG**
  - iii. City of Nedlands will submit a variation to the current project to enable the project design to be completed this financial year 2020/2021
2. The City of Nedlands will withdraw the Road Improvement construction of the project for 2021/2022 and resubmit for construction 2022/2023 in May 2021

I need this ASAP so I can update MRRG immediately  
Regards



**LEGEND:**

|                         |                      |
|-------------------------|----------------------|
| PROPERTY BOUNDARY       | ---                  |
| KERB                    | ---                  |
| CONCRETE                | [Pattern]            |
| RED ASPHALT             | [Red Box]            |
| FAUX BRICK PAVING       | [Pattern]            |
| DRAINAGE PIT            | [Symbol]             |
| STREETLIGHT             | [Symbol]             |
| OVERHEAD TRANSMISSION   | TRANS                |
| TREE                    | [Tree Symbol]        |
| TREE REMOVAL/RELOCATION | [Orange Tree Symbol] |



**CONCEPT ONLY**

- NOTES:**
1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  2. REFER TO DRAWING R-2018-28-02-E FOR LANE CONFIGURATION ON RAILWAY ROAD AND ABERDARE ROAD.
  3. REFER TO DRAWING R-2018-28-03-E FOR TYPICAL CROSS SECTION.
  4. POSITION OF SOUTHERN SHARED PATH IS INDICATIVE.

**NOTICE TO CONTRACTOR**

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L:\FWP Forward Works Programmes\2018\28 Railway Aberdare Intersection\Design\Railway Aberdare Intersection - Double right into Aberdare - REV E.dwg 16/8/2019 - 4:39pm

| REV. No. | REVISION NOTES   | DRAWN | CHECKED | DATE | SCALE:     | DESIGNED: | CHECKED / DATE: |
|----------|--|-------|---------|------|------------|-----------|-----------------|
| A        | ISSUED TO CITY OF SUBIACO FOR COMMENT                            | I.C.  |         |      | 1: 250 @A1 | I. CHIANG |                 |
| B        | AMENDED DESIGN FOLLOWING MAIN ROADS WA COMMENT                   | I.C.  |         |      |            |           |                 |
| C        | NEW DESIGN FOR DOUBLE RIGHT TURN FROM RAILWAY INTO ABERDARE ROAD | I.C.  |         |      |            |           |                 |
| D        | CHANGED LANE LINEMARKING AND DEFINED EXTENTS OF THE PROJECT      | I.C.  |         |      |            |           |                 |
| E        | AMENDMENTS TO LINEMARKING AND PATH                               | I.C.  |         |      |            |           |                 |

COUNCIL MINUTES: \_\_\_\_\_ APPROVED / DATE: \_\_\_\_\_

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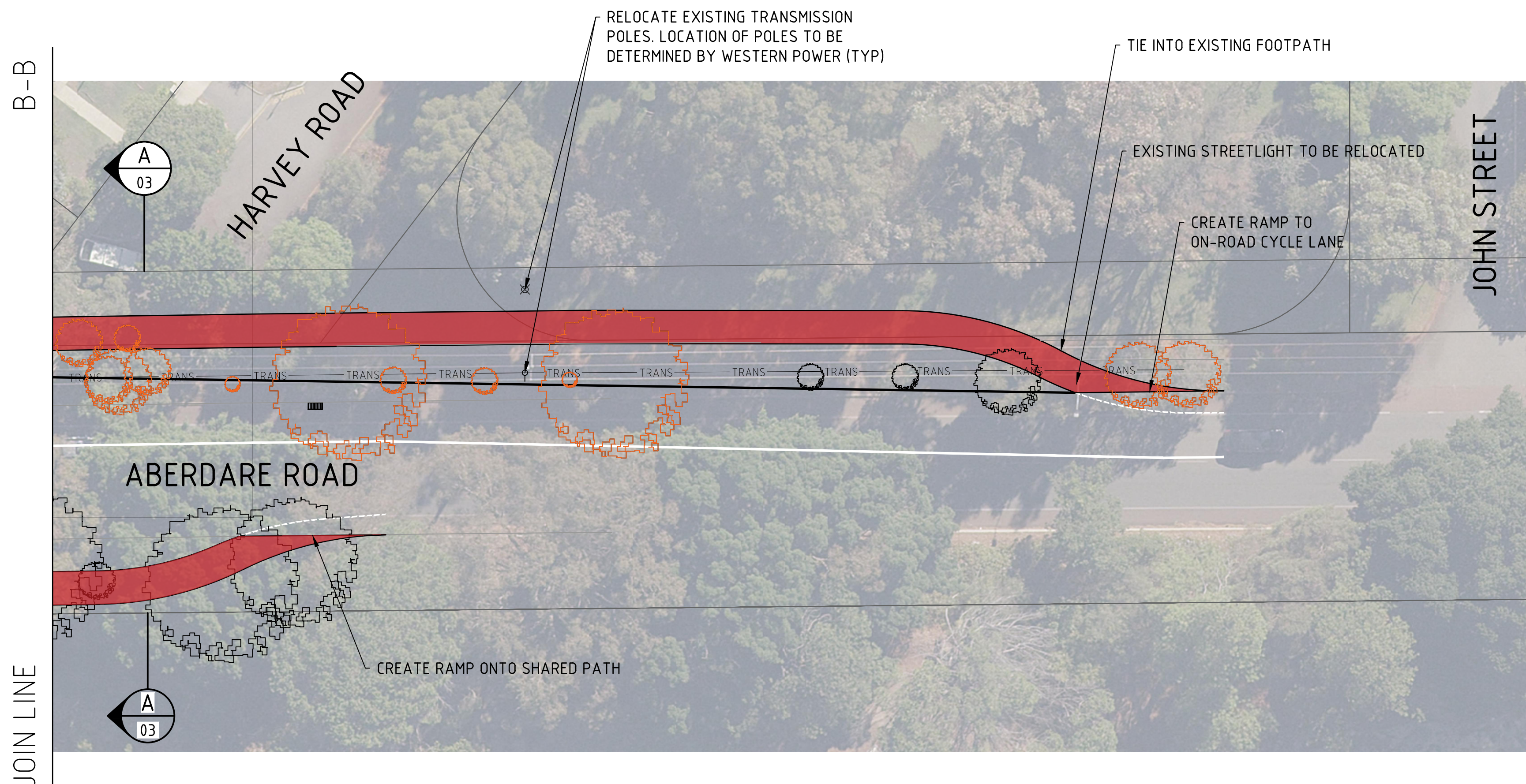
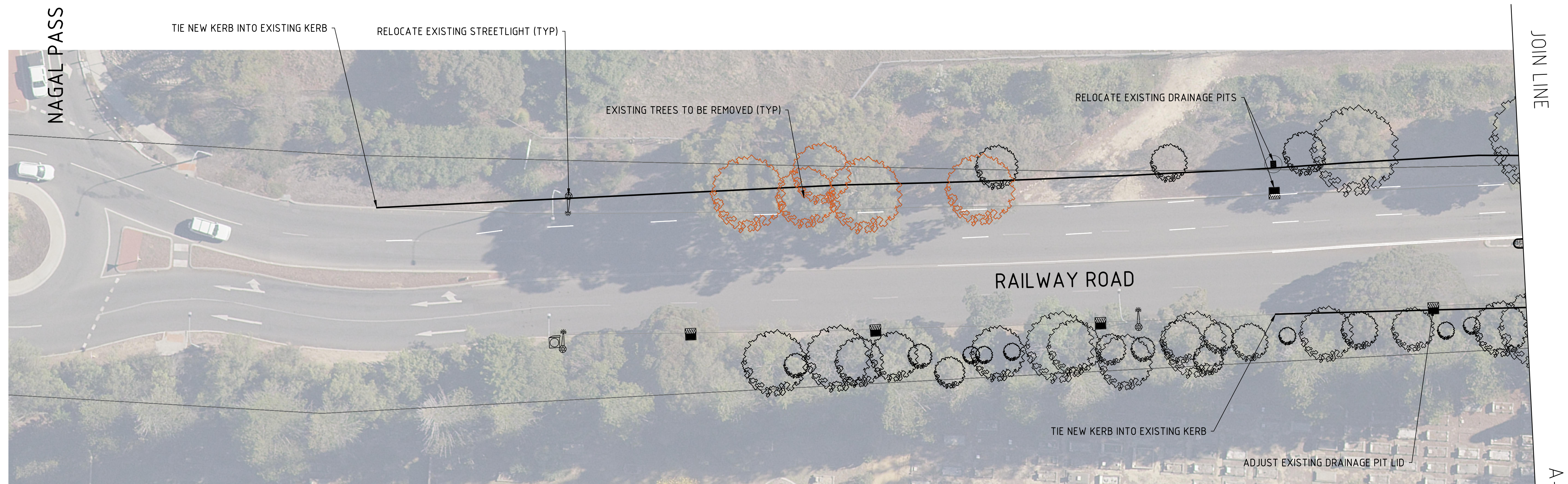


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 Email: council@nedlands.wa.gov.au  
 www.nedlands.wa.gov.au

|   |                        |
|---|------------------------|
| TITLE: RAILWAY/ABERDARE INTERSECTION<br>DOUBLE RIGHT INTO ABERDARE OPTION |                        |
| <b>A1</b>   | DWG NO: R-2018-28-01-E |
|   | SHEET 1 OF 3           |

SCALE: 1: 250





| LEGEND:                 |     |
|-------------------------|-----|
| PROPERTY BOUNDARY       | --- |
| KERB                    | --- |
| CONCRETE                |     |
| RED ASPHALT             |     |
| FAUX BRICK PAVING       |     |
| DRAINAGE PIT            |     |
| STREETLIGHT             |     |
| OVERHEAD TRANSMISSION   |     |
| TREE                    |     |
| TREE REMOVAL/RELOCATION |     |

**CONCEPT ONLY**

- NOTES:**
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - REFER TO DRAWING R-2018-28-01-E FOR LANE CONFIGURATION RAILWAY ROAD AND ABERDARE ROAD INTERSECTION.
  - REFER TO DRAWING R-2018-28-03-E FOR TYPICAL CROSS SECTION.

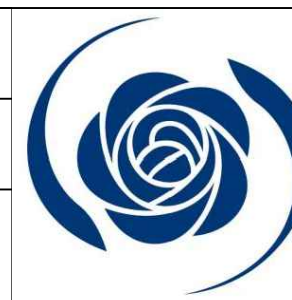
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L:\FWP Forward Works Programmes\2018\28 Railway Aberdare Intersection\Design\Railway Aberdare Intersection - Double right into Aberdare - REV E.dwg 16/8/2019 - 4:39pm

| REV. No. | REVISION NOTES   | DRAWN | CHECKED | DATE |
|----------|--|-------|---------|------|
| A        | ISSUED TO CITY OF SUBIACO FOR COMMENT                            | I.C.  |         |      |
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| E        | AMENDMENTS TO LINEMARKING AND PATH                               | I.C.  |         |      |

|  |                     |                  |
|--|---------------------|------------------|
| SCALE: 1:250 @A1   | DESIGNED: I. CHIANG | CHECKED / DATE:  |
| COUNCIL MINUTES:   | DRAWN: I. CHIANG    | APPROVED / DATE: |
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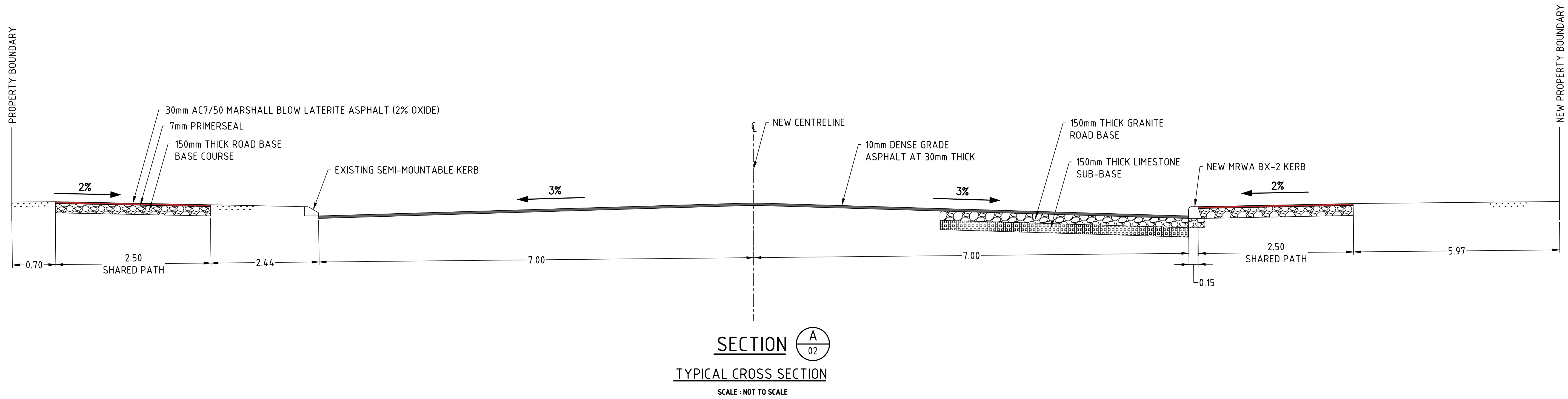


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|   |                                     |
|---|-------------------------------------|
| TITLE: RAILWAY/ABERDARE INTERSECTION<br>DOUBLE RIGHT INTO ABERDARE OPTION |                                     |
| SIZE: <b>A1</b>   | DWG NO: R-2018-28-02-E SHEET 2 OF 3 |

SCALE: 1:250





**SECTION A**  
**TYPICAL CROSS SECTION**  
 SCALE: NOT TO SCALE

**CONCEPT ONLY**

- NOTES:**
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  - REFER TO DRAWING R-2018-28-02-E FOR LANE CONFIGURATION ON RAILWAY ROAD AND ABERDARE ROAD.
  - REFER TO DRAWING R-2018-28-01-E FOR LANE CONFIGURATION AT RAILWAY ROAD AND ABERDARE ROAD INTERSECTION.

**NOTICE TO CONTRACTOR**

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L:\FWP Forward Works Programmes\2018\28 Railway Aberdare Intersection\Design\Railway Aberdare Intersection - Double right into Aberdare - REV E.dwg 16/8/2019 - 4:39pm

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|          |  |       |         |      | COUNCIL MINUTES:  | DRAWN:    | APPROVED / DATE: |
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**TITLE: RAILWAY/ABERDARE INTERSECTION  
 DOUBLE RIGHT INTO ABERDARE OPTION**

**A1** DWG NO: R-2018-28-03-E SHEET 3 OF 3

SCALE: 1: 250



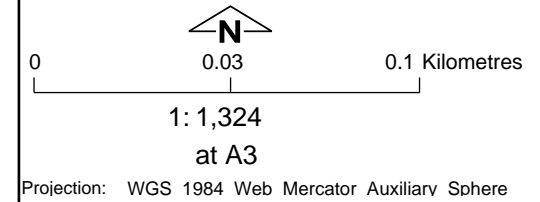
**Legend**

- Cadastre (View 1)
-  Region Scheme Boundary
  -  Region Scheme Zones and Reserves
  -  Other regional roads
  -  Public purposes - hospital
  -  Public purposes - special uses
  -  Railways
  -  Urban



**Land requirements Aberdare Road. Smyth Road to Railway Parade**

**DPLH BUSINESS USE ONLY**



**Notes:**  
The data that appears on the map may be out of date, not intended to be used at the scale displayed, or subject to license agreements. The map should only be used in matters related to Department of Planning, Lands and Heritage business.

Map was produced using DPLH's InQuery.



**Subject:** Railway Road / Aberdare Road, Shenton Park - Endorsement of Stage 2

**Date:** Friday, 16 August 2019 3:09:55 PM

---

## **ENDORSEMENT OF TRAFFIC SIGNALS STAGE 2 TSAP – RAILWAY ROAD / ABERDARE ROAD, SHENTON PARK**

I refer to your submission seeking endorsement for Traffic Signals at the above location. Main Roads Western Australia wishes to advise you that endorsement **is granted** for the modifications of traffic signals subject the following:

- Removing the right filtering movement from Railway Road to Aberdare Road
- Introduction of double right movement from Railway Road to Aberdare Road
- Left turn lane length on Aberdare Rd increased
- New additional eastbound lane along Railway Road. Endorsed lane allocation: Thru, shared thru & right, right

MRWAs' [Traffic Signal Approval Policy](#) (TSAP) has recently been updated to reflect current practice, which now includes a three-stage process. This endorsement reflects Stage 2 of this process. Please refer to the policy to ensure that all necessary documentation is provided for Stage 3. Main Roads will check 100% design drawings to ensure requirements of Stage 2 endorsement are incorporated. Submissions for Stage 3 approval shall contain:

1. Traffic Signal drawing in LMA format (100% design. Refer to Appendix 2 of TSAP)
2. Pavement marking and signs drawing in LMB format (100% design)

Written approval and stamped final design drawings will be issued to the applicant via the Works by Others process. This approval shall only remain valid for a period of **two years** from the date of notification. Please note that should the final submission fail to reflect the agreed Stage 2 endorsement with regard to modelling, phasing and geometry then updated traffic models will need to be re-submitted to substantiate changes. Under no circumstances shall any work commence on site without Main Roads final approval.

I trust that this is satisfactory, however if you require any further information please do not hesitate to contact me on 9323 6137. In reply, Please quote file reference number **03/7119**.

Kind Regards

**Maryely Rueda**  
TRAFFIC SERVICES COORDINATOR (DATM)  
Network Operations  
**p:** +61 9323 6137 | **m:** +61 0428 113 761  
**e:** [Maryely.Rueda@mainroads.wa.gov.au](mailto:Maryely.Rueda@mainroads.wa.gov.au)  
**w:** [www.mainroads.wa.gov.au](http://www.mainroads.wa.gov.au)

**From:** [Merritt, Gary](#)  
**To:** [Irene Chiang](#)  
**Cc:** [Cox, Simon](#); [Piggott, Lom](#); [Ellis, Duncan](#); [Walliss, Kim](#)  
**Subject:** RE: Railway Road Aberdare Road intersection - PTA requirements and future plans  
**Date:** Wednesday, 21 August 2019 2:20:38 PM

---

Irene

The attached concept design for Railway Road and Aberdare Road intersection will meet Transperth operational requirements and therefore the Public Transport Authority has no objection to the current concept design.

Let me know if need anything else.

Regards  
Gary

**Gary Merritt**  
**Service Development Manager**  
**Transperth | Transperth Regional & School Bus Services**  
Level 1, Public Transport Centre, West Parade, Perth 6000  
Tel: (08) 9326 2598 M : 040 747 6487  
Email: [gary.merritt@pta.wa.gov.au](mailto:gary.merritt@pta.wa.gov.au) | Web: [www.transperth.wa.gov.au](http://www.transperth.wa.gov.au)



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---

**From:** Irene Chiang [mailto:[ichiang@nedlands.wa.gov.au](mailto:ichiang@nedlands.wa.gov.au)]  
**Sent:** Friday, August 16, 2019 4:38 PM  
**To:** Merritt, Gary  
**Cc:** Cox, Simon; Piggott, Lom; Ellis, Duncan  
**Subject:** RE: Railway Road Aberdare Road intersection - PTA requirements and future plans

Hi Gary

Please find attached updated plans with the bus movements for comment.

Regards

Irene Chiang  
Design Engineer



---

**From:** Merritt, Gary <[Gary.Merritt@pta.wa.gov.au](mailto:Gary.Merritt@pta.wa.gov.au)>  
**Sent:** Tuesday, 13 August 2019 8:57 AM  
**To:** Irene Chiang <[ichiang@nedlands.wa.gov.au](mailto:ichiang@nedlands.wa.gov.au)>  
**Cc:** Cox, Simon <[Simon.Cox@pta.wa.gov.au](mailto:Simon.Cox@pta.wa.gov.au)>; Piggott, Lom <[Lom.Piggott@pta.wa.gov.au](mailto:Lom.Piggott@pta.wa.gov.au)>; Ellis, Duncan <[Duncan.Ellis@pta.wa.gov.au](mailto:Duncan.Ellis@pta.wa.gov.au)>

**Subject:** RE: Railway Road Aberdare Road intersection - PTA requirements and future plans

Irene

Thanks for the screenshot of the bus movements. I will be happy to provide approved once we receive a copy of the final plans showing the bus movements. I have attached the Indemnity Form that you will need to complete to gain access to the site.

Regards  
Gary

**Gary Merritt**  
**Service Development Manager**  
**Transperth | Transperth Regional & School Bus Services**  
Level 1, Public Transport Centre, West Parade, Perth 6000  
Tel: (08) 9326 2598 M : 040 747 6487  
Email: [gary.merritt@pta.wa.gov.au](mailto:gary.merritt@pta.wa.gov.au) | Web: [www.transperth.wa.gov.au](http://www.transperth.wa.gov.au)



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---

**From:** Irene Chiang [<mailto:ichiang@nedlands.wa.gov.au>]  
**Sent:** Thursday, August 08, 2019 2:38 PM  
**To:** Merritt, Gary  
**Cc:** Cox, Simon; Piggott, Lom; Ellis, Duncan  
**Subject:** RE: Railway Road Aberdare Road intersection - PTA requirements and future plans

Hi Gary,

As discussed, the two-way bus movement is maintained through the intersection. Please refer to attached screenshot of the bus movements. We only tested the movements for Austroads long rigid bus as it was found to have the most constrained movement.

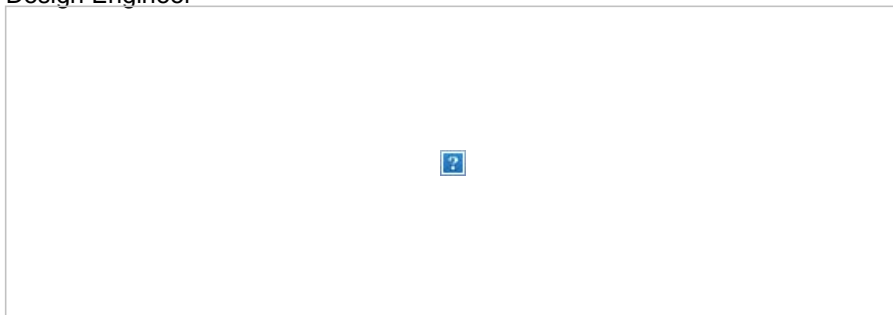
I will send through a copy of the plans with bus movements when available. I've just got some feedback from Main Roads which will result in minor tweaks to the linemarking.

If PTA are satisfied with the design, can you please provide something to us in writing confirming PTA's support for the concept design and support for the City's acquisition of railway reserve for the project?

Happy to discuss any further queries you may have.

Regards,

Irene Chiang  
Design Engineer



---

**From:** Merritt, Gary <[Gary.Merritt@pta.wa.gov.au](mailto:Gary.Merritt@pta.wa.gov.au)>  
**Sent:** Wednesday, 7 August 2019 11:46 AM  
**To:** Irene Chiang <[ichiang@nedlands.wa.gov.au](mailto:ichiang@nedlands.wa.gov.au)>  
**Cc:** Cox, Simon <[Simon.Cox@pta.wa.gov.au](mailto:Simon.Cox@pta.wa.gov.au)>; Piggott, Lom <[Lom.Piggott@pta.wa.gov.au](mailto:Lom.Piggott@pta.wa.gov.au)>; Ellis, Duncan <[Duncan.Ellis@pta.wa.gov.au](mailto:Duncan.Ellis@pta.wa.gov.au)>  
**Subject:** RE: Railway Road Aberdare Road intersection - PTA requirements and future plans

Irene

Sorry for the delay in responding.

The attached plan appears to reduce the access for buses to the bus bridge to a single lane at the intersection and therefore would not be supported by the PTA. While the bus bridge over the railway is only a single lane, buses operate across the bridge in both directions. The two lane bus access at the intersection needs to be maintained to allow the two way bus operations over the bridge.

Give me a call if you wish to discuss.

Regards  
Gary

**Gary Merritt**  
**Service Development Manager**  
**Transperth | Transperth Regional & School Bus Services**  
Level 1, Public Transport Centre, West Parade, Perth 6000  
Tel: (08) 9326 2598 M : 040 747 6487  
Email: [gary.merritt@pta.wa.gov.au](mailto:gary.merritt@pta.wa.gov.au) | Web: [www.transperth.wa.gov.au](http://www.transperth.wa.gov.au)

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---

**From:** Irene Chiang [<mailto:ichiang@nedlands.wa.gov.au>]  
**Sent:** Friday, August 02, 2019 4:29 PM  
**To:** Merritt, Gary  
**Subject:** RE: Railway Road Aberdare Road intersection - PTA requirements and future plans

Hi Gary,

Further to our conversation on the 25 July 2019, please find attached the latest concept drawings for the intersection. We plan to take this design to both City of Subiaco and City of Nedlands Council in September for support to progress the concept design for BlackSpot funding.

Are you able to provide something to us in writing confirming PTA's support for the concept design and support for the City's acquisition of railway reserve for the project?

We are also still waiting for further information from PTA's Lands Department on the process for acquiring railway reserve.

Kind Regards,

Irene Chiang  
Design Engineer

cid:image002.jpg@01D54949.7E0D78B0



---

**From:** Irene Chiang

**Sent:** Wednesday, 3 July 2019 1:58 PM

**To:** Merritt, Gary <[Gary.Merritt@pta.wa.gov.au](mailto:Gary.Merritt@pta.wa.gov.au)>

**Subject:** Railway Road Aberdare Road intersection - PTA requirements and future plans

Dear Gary,

The City is proposing to upgrade the Railway Road/Aberdare Road intersection to address traffic issues at the intersection. Following discussions with Main Roads and the City of Subiaco, we are currently looking to provide extra capacity to aid intersection efficiency through additional lanes on both Aberdare Road and Railway Road (see attached concept drawing). In particular, the additional lane on Railway Road will require PTA land.

The City would like to meet with you to discuss any requirements and future plans you may have for this location. Can you please advise when you would be available for a meeting either next week or the week after?

Regards,

Irene Chiang  
Design Engineer

cid:image003.jpg@01D54949.7E0D78B0



**From:** [Neville, Bronwyn](#)  
**To:** [Irene Chiang](#)  
**Cc:** [Stone, Danielle](#)  
**Subject:** RE: Railway Aberdare Shared Path  
**Date:** Friday, 16 August 2019 1:05:52 PM

---

Hi Irene

Thanks for the updated concept designs for the Aberdare / Railway shared path and intersection.

DoT's preference would be to connect the shared path from Railway road to Smyth road to tie into the existing concrete path. However if there is insufficient space in the verge without removal of multiple established trees, the eastern extent shown in the designs is suitable.

Regards  
Bronwyn

**Bronwyn Neville**  
**Transport Planner | Urban Mobility | Department of Transport**  
Level 8, 140 William Street, Perth WA 6000  
Tel: (08) 6551 6810 | Fax: (08) 6551 6492  
Email: [Bronwyn.Neville@transport.wa.gov.au](mailto:Bronwyn.Neville@transport.wa.gov.au) | Web: [www.transport.wa.gov.au](http://www.transport.wa.gov.au)

[Dept. of Transport](#)



---

**From:** Irene Chiang [mailto:[ichiang@nedlands.wa.gov.au](mailto:ichiang@nedlands.wa.gov.au)]  
**Sent:** Friday, 9 August 2019 11:27 AM  
**To:** Neville, Bronwyn <[Bronwyn.Neville@transport.wa.gov.au](mailto:Bronwyn.Neville@transport.wa.gov.au)>  
**Cc:** James Cresswell <[jcresswell@nedlands.wa.gov.au](mailto:jcresswell@nedlands.wa.gov.au)>  
**Subject:** Railway Aberdare Shared Path

Hi Bronwyn,

Please find attached the most up to date concept design for the intersection.

We have discussed the cycling options you have previously suggested to us with Main Roads. The outcome of our discussions is summarised below:

- Removal of crossing on the northern side of intersection and install new crossing on the southern side – Main Roads have confirmed that this would improve the efficiency of the intersection. However, Main Roads would only support one crossing on either the north or the south but not both. We believe that the existing crossing is along the pedestrian/cyclist desire line and that relocation of this crossing may result in hazardous pedestrian/cyclist behaviour.
- Cycle head start on Aberdare Road – Providing a separate cyclist head-start signal would reduce the efficiency of the intersection. We considered just providing the bicycle head-start without the signal but this would result in insufficient space for buses and reduced storage capacity on Aberdare Road.
- Ed Rose has reviewed the design along with Traffic Services (Maryely Rueda) and indicates support for the current design with minor modifications to the splitter island on Aberdare Road

Given the above, is there anything you would like us to explore? If not, would you be able to provide us written endorsement for the concept design by the end of next week (16 August 2019) so that we can progress this through our Council?

If you would like to discuss this project, I'm happy to organise a meeting or discuss over the phone.

Kind Regards,

Irene Chiang  
Design Engineer

cid:image001.jpg@01D543A5.A4DE8910



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