Feasibility Study Report for Provision of Improved Pedestrian and Cyclist Access Across Merri Creek, Northcote

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Executive Summary

Darebin City Council, on behalf of Darebin and Moreland City Councils, engaged pitt&sherry to undertake a feasibility study for improved pedestrian and cyclist access across the Merri Creek in the reach between Beavers Road and Arthurton Road, Northcote. The study was commissioned in response to concerns raised by local residents with the safety of pedestrians and cyclists using the existing Arthurton Road Bridge. This report documents the feasibility study and findings. This report is intended to be the initial stage to determine the requirements and options.

The purpose of this report was primarily for the following:

- Confirm the requirements
- Who are the users and beneficiaries
- Establish the constraints and issues
- Develop the most suitable solutions to address the requirements

An extensive stakeholder consultation process has taken place, with a meeting of internal and external stakeholders occurring on 22 March 2016. The Merri Creek Bridge Group played an instrumental role in obtaining feedback from key stakeholders and the wider community through an online survey. The professional approach and dedication of Juliet Hall and Helen McDonald of the Merri Creek Bridge Group is acknowledged.

The study focused on two possible alternatives for improving pedestrian and cyclist access over the Merri Creek. One option is to construct a new shared use bridge in the vicinity of Beavers Road, Northcote and Kingfisher Gardens, Brunswick. The second option is to upgrade the existing Arthurton Road Bridge to improve the level of service provided by existing infrastructure.

Through the stakeholder consultation process it became clear that there was a strong preference from the community for a new pedestrian and cyclist bridge located away from busy roads and congestion. Support for this option was received from external stakeholders including bicycle user groups, Friends of Merri Creek, CERES, the Croxton School Council and BIGBANG studio. A greater emphasis was therefore placed on confirming the feasibility of the new crossing, including performing a site feature survey.

Whilst there are a number of site constraints in the vicinity of Beavers Road and Kingfisher Gardens, including high voltage transmission lines, underground services, vegetation and restrictions around flood levels, the findings of this investigation indicate that a new bridge crossing is feasible. The cost of construction is estimated to be in the order of $2.16 million.
1. Introduction

1.1 Background

Darebin City Council engaged pitt&sherry to conduct a feasibility study for improved pedestrian and cyclist access across the Merri Creek in Northcote within the reach between Beavers Road and Artherton Road. Residents of Darebin and Moreland City Councils have raised concerns in relation to the safety of pedestrians and cyclists using the existing Artherton Road Bridge (refer Figure 1 and Figure 2). A number of community groups have called for the provision of a new pedestrian and cyclist bridge located away from busy roads. In response Council engaged a specialist consultant to undertake a feasibility study and stakeholder consultation.

Figure 1: Location of Artherton Road Bridge, Northcote

Figure 2: Existing Conditions at Artherton Road Bridge
1.2 Project Goal
The goal of the feasibility study is to produce a report highlighting key findings such as:
- Stakeholder consultation outcomes
- Cultural and environmental assessment
- Bridge investigation
- Concept design
- Preliminary cost estimates
This is the first stage to determine what is needed and to identify solutions to address the functional requirements.

1.3 Scope of Work
The scope of the feasibility study was limited to the following services:
- Consultation with internal and external stakeholders regarding their needs and desires for pedestrian and cyclist access across the Merri Creek within the vicinity of Arthurton Road, Northcote
- Reporting back to Darebin and Moreland councils on the outcome of the community consultation, preferably identifying if a new crossing is required and the proposed location for such
- Examine the engineering feasibility of potential crossing options at the preferred location. The investigation shall include consideration of various bridging options and estimated construction costs
- A feature survey of the new bridge site, if required
- Identification of potential external funding sources for any proposed new crossing

1.4 Methodology
This feasibility study was carried out in the following key stages:
- Stakeholder Consultation
- Environmental Assessment
- Cultural Heritage Assessment
- Bridge Investigation and Concept Design
- Feasibility Study Report

1.4.1 Stakeholder Consultation
A key aspect of the feasibility study was to understand and consider the needs and desires of the various project stakeholders. A list of potential stakeholders is provided in Section 2. Our proposed approach to internal and external stakeholder consultation was as follows:

1. Meeting with internal stakeholders
pitt&sherry met with representatives from Darebin and Moreland City Councils at Darebin City Council’s offices. This meeting was organised to discuss the project in general.
2. **Brief external stakeholders and meeting invitation**

*pitt&sherry* contacted all potential stakeholders over phone and documented their opinions and views on the existing challenges related to the use of Arthurton Road Bridge and for new shared user path. A briefing document was issued to the various stakeholders outlining background information and project objectives plus invitation to stakeholder meeting.

3. **Meeting and interviews with internal and external stakeholders**

A meeting was held to allow internal and external stakeholders to provide input into study. All stakeholder issues were documented and reported on. A summary of the stakeholder meeting and feedback from telephone discussions is provided in Appendix A.

4. **Council to confirm site(s) to be considered further**

Post meeting with internal and external stakeholders, another meeting was organised with internal stakeholders, where *pitt&sherry* provided a review of the stakeholder consultations and preliminary investigations on the preferred site. As an outcome, preferred site(s) was confirmed and *pitt&sherry* conducted further investigation.

5. **Survey organised by an external stakeholder**

External stakeholders organised a survey to gather more information from the local community on the current issues related to the Arthurton Road Bridge and new shared user path. Outcomes of the survey are provided in Appendix B.

6. **Progress meeting with internal stakeholders**

A meeting was held at Darebin City Council’s offices to give a progress report on the concept bridge crossing(s) and discuss any outstanding issues prior to submitting the Draft Feasibility Study Report.

**1.4.2 Environmental Assessment**

In order to identify any environmental factors that could potentially prevent approval of a structure at the selected location a desktop environmental assessment was conducted. The desktop assessment included:

- Review of any relevant Council or publically available documents that pertain to the area (for example reports, maps and management plans such as the Merri Creek and Environ Strategy 2009-2014)
- Review of relevant databases including the Victorian Biodiversity Atlas
- A review of relevant heritage registers and a review of available information to determine the potential for any heritage sites within the area
- Given the potential for significant Aboriginal heritage associated with the Merri Creek area a preliminary due diligence assessment was undertaken
- A summary of any potential issues was prepared for inclusion in the feasibility report

The summary includes recommendations for specific site studies (if any) that might be required to facilitate project approvals.
1.4.3 Cultural Heritage Assessment

The collection and review of relevant documentation for the project included:

- A review of the relevant heritage registers and the collation of information pertaining to any heritage sites located within the study area and immediate surrounds
- 1:25 000 maps of the study area
- Relevant reports documenting the outcomes of previous heritage studies in the vicinity of the study area
- Ethno-historic literature for the region
- References to the land use history of the study area
- GIS Information relating to landscape units present in the study area
- Geotechnical information for the study area, including soil and geology data
- Historic title deed searches for the study area.

The heritage information obtained was reviewed with the purpose of undertaking a gap analysis of the investigations carried out within the study area, and creating an audit of the recorded heritage values present in the study area.

Information generated through the audit gap analysis has been presented in a succinct Due Diligence report. The report includes relevant maps and photos, and presents recommendations for any further works that may be required. The report is structured as follows:

- An executive summary
- Project Description
- Aims of the Due Diligence investigation
- A description of the methodological approach adopted for this project
- A review of previous heritage studies undertaken in the region
- A review of registered Aboriginal sites that occur within or in the general vicinity of the study area
- Summary of key heritage issues, opportunities and constraints
- An outline of any further heritage investigations that may be required to facilitate the development
- An outline of any further approvals/referrals that may be required
- Appropriate maps and photos

1.4.4 Bridge Investigation and Concept Design

After the Council’s confirmation for the preferred crossing site for new bridge, a more detailed investigation was carried out and included below mentioned activities. Council also advised that any future bridge must be a landmark structure and preliminary designs shall reflect this.

- Site visit by **pitt&sherry** bridge engineers
- Conducted online Dial Before You Dig search to identify services potentially impacted
- Review of regional geological maps to understand the likely subsurface conditions
- Investigate options for bridge grade, alignment, materials and structural form
- Engage a surveyor to undertake feature survey of the preferred site for new bridge
• Prepare general arrangement CAD drawing of bridge concept
• Consider the advantages and disadvantages of the various options available
• Prepare preliminary cost estimates and identify potential external funding sources

1.4.5 Draft Feasibility Study Report

Based on the outcomes of stakeholder’s consultation, environmental assessment, cultural heritage assessment and bridge investigation and concept design, a feasibility study report is presented to council. The report also outlines project constraints such as topography, land use and titles, flooding, current services in study area and discusses alignment options, alternative bridge materials and form, estimated costs and possible funding sources. A Draft report, including concept drawings and recommendations, is submitted to Council for review and comment. Following receipt of written comments from Council pitt&sherry will issue a Final report.

1.5 Study Zone

Feasibility study area for this study begins from Arthurton Road Bridge to approximately 300m North of Merri Creek, as shown in Figure 3. The study area for new pedestrian bridge is highlighted in red and determined by Council and pitt&sherry post stakeholders consultation. Study area highlighted in yellow also discusses the current issues with Arthurton Road Bridge.

After deciding the study area for new shared use bridge, pitt&sherry representatives visited the site and did further investigation and advised council to engage a surveyor for a feature survey. The survey was organised to pick up the levels of existing topography and services in the study area. The main reasons behind deciding this study area for new shared use bridge are as follows:

• East/west connectivity to Northcote is only possible via Beavers Road
• Possible connection to Brunswick side is close to Kingfisher Gardens, because of the available open space and minimum vegetation. It is challenging to connect new pedestrian bridge further downstream, due to the presence of public facility, such as CERES

The area near the end of Beavers Road has been rezoned from industrial to a residential growth zone and as such an influx of new residents is expected to be living the vicinity of the pedestrian bridge study area in the future.
Figure 3: Study Zone for Improved Pedestrian and Cyclist Access
2. Existing Facilities

2.1 Merri Creek Trail

The Merri Creek Trail starts at Dights Falls near where the Merri Creek and Yarra River meet. The trail follows the creek, with most of the path right next to the creek. Along the way it passes Coburg Lake Reserve, the Brunswick Velodrome and CERES Community Environment Park. The Merri Creek Trail is 21 km long and joins the Western Ring Road Trail in the north and in the south it meets the Yarra River Trail and the Capital City Trail. This path is mostly used by cyclists and pedestrians.

2.2 Arthurton Road Bridge

The Arthurton Road Bridge is a VicRoads asset built circa 1953. It is a three span structure with an overall deck length and width of around 34.2 m and 12.8 m respectively. The superstructure comprises of precast concrete I beams with a cast-in-place reinforced concrete deck. Whilst a detailed assessment of this structure has not been carried out as part of this study, bridges of this type and age are generally found to have adequate capacity for vehicles operating at current General Mass and Higher Mass limits.

There is a 1.8m wide footpath located on either side of the deck. The carriageway width is 8.5m between kerbs and currently accommodates two 1.0m wide bike lanes and two marked traffic lanes each approximately 3.2m wide. Drainage pits are located along the kerb at the ends of the structure within the marked bike lanes. The bridge barriers are approximately 1.0m high and would not meet current standards for road traffic barriers.

The Arthurton Road Bridge is part of the VicRoads Principal Bicycle Network (PBN) and is on a designated Bicycle Priority Route (BPR), as shown in Figure 4. The PBN is a network of proposed and existing bicycle routes that provide access to major destinations in the Melbourne metropolitan area. BPRs are a subset of the PBN. These routes have been identified as providing priority access for cyclists into key destinations in a way that complements and supports the requirements of VicRoads “SmartRoads” framework.

![Figure 4: Road Use Hierarchy – City of Darebin](image-url)
3. Stakeholder Consultation

3.1 Project Stakeholders

The essential element of a feasibility study is to engage and consult key shareholders. This practise helps in determining the needs, expected outcomes, whether or not to continue with the proposed project or other possible options. In this case, consultation with shareholders is done to identify their desires for shared pedestrian access across Merri Creek within the vicinity of Arthurton Road, Northcote. For appropriate and valuable consultation, it is important to systemically identify the stakeholders. For this study, Council identified a number of internal and external stakeholders and a list was made available to pitt&sherry, as shown in respective sections.

3.1.1 Internal

Key internal stakeholders participating in the feasibility study were:

- City of Darebin
- City of Moreland

3.1.2 External

Key external stakeholders participating in the feasibility study were:

- CERES
- Melbourne Water
- Beavers Road businesses
- Kingfisher Gardens residents
- Merri Creek Bridge Group
- Brunswick Residents Network
- Merri Creek Management Committee
- State Government
- Victoria Walks
- Bicycle Victoria
- Moreland Bicycle User Group
- Darebin Bicycle Users Group
- VicRoads
- Sumner Estate Residents Group
- Batman Park Residents Group
- Croxton Special School
- Brunswick East Primary School
- Aboriginal Community Elders Services
- Brunswick Cycling Club
3.2 Consultation Process

Stakeholder’s consultation for this study was conducted in two stages:

- Consulting stakeholders over phone
- Community consultation session

To consult stakeholders over phone, a consultation form was prepared outlining the key topics and issues. This form was populated based on the opinions and views of the stakeholders. A list of the topics and issues discussed are provided in Table 1. All the conversations with consulted stakeholders were recorded and documented in a tabular format, as shown in Appendix A.

Table 1: Topics discussed with external stakeholders

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Topic / Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Why do you need access? Access to open space/CERES</td>
</tr>
<tr>
<td>2</td>
<td>Users</td>
</tr>
<tr>
<td>3</td>
<td>Demand/Frequency</td>
</tr>
<tr>
<td>4</td>
<td>Connections required/Point of destination</td>
</tr>
<tr>
<td>5</td>
<td>Security/Safety</td>
</tr>
<tr>
<td>6</td>
<td>Desired outcomes</td>
</tr>
<tr>
<td>7</td>
<td>Aesthetics</td>
</tr>
<tr>
<td>8</td>
<td>Interim Measures</td>
</tr>
</tbody>
</table>

Afterwards, an invitation letter was sent to all the stakeholders, outlining background information of the study and purpose of organising Community Consultation Session. This session was held 22 March 2016 at CERES in Brunswick East. During the session, a presentation was delivered to the stakeholders discussing current problems and possible options of the new shared user path. The stakeholder session was attended by the Council representatives as well to provide valuable context and local knowledge. This session provided an opportunity to exchange the views and information about the feasibility study.

One of the stakeholders, Merri Creek Bridge Group showed interest in recording the opinions of local community people and opted to organise the survey. Following section discusses the key survey outcomes and how it was organised. After the community consultation session, a few stakeholders forwarded their ideas via email on their respective organisation’s letterhead. These evidences are provided in Appendix C. Stakeholders also shared their opinions prior to the community consultation session, such as, possible location of the new bridge within the study zone.

3.3 Merri Creek Bridge Group Survey

At the community consultation session, the Merri Creek Bridge Group actively participated in the group discussion and shared some valuable suggestions and objectives. One of the discussion and concern was to document the opinions of community people in relation to the study. However, recording the opinions of local community people was not part of the assignment; therefore, Helen McDonald and Juliet Hall, representatives of Merri Creek Bridge Group, opted to coordinate a survey to gauge the intentions of people that reside and work in the community.
A survey template was prepared by them and sent to Darebin and Moreland Councils and **pitt&sherry** for review and feedback. Council provided comments and made some suggestions before it was sent out to community by Merri Creek Bridge Group. The survey was made available online 29 April 2016 asking for feedback on whether people would use a new bridge over the Merri Creek, proposed to run between Beavers Road Northcote and Kingfisher Gardens, East Brunswick. They survey was left open for three weeks and closed 20 May 2016. A total of 587 responses were received. Distribution of this survey included via email to the Merri Creek Bridge Group mailing list, and via the Facebook pages of CERES, the Merri Creek Bridge Group and Brunswick East Primary School.

Survey participants were asked questions such as:

- In a typical week, how often do you drive or travel in a car over the Merri Creek via Arthurton Road Bridge?
- How likely would you be to use active transport more often (walk, cycle, scoot) if a new bridge was built in the location pictured above?
- If there was a new bridge built for cyclists and pedestrians in the location detailed on the map, would that change how often you would drive or travel in a vehicle over the Arthurton Road Bridge?

Key outcomes of the survey include:

- There are a lot of concerns about safety of the Arthurton Road/Blyth St corridor – 58 comments about safety concerns were submitted as part of the survey
- The responses to this survey give a clear indication that people would use a new bridge, and for many, they would increase their active travel (92.5% of respondents) and use the car less often, or stop driving all together (64.6% combined). New people would start using active travel, including many who are currently driving – so the bridge has potential to build healthier communities
- A new bridge means essential ‘short trips’ to school, to friends and family living locally, to cafés and shops, could be traversed actively rather than by car
- Safe and effective infrastructure in sensible locations is the foundation to encouraging active transport, and there is a range of evidence by VicHealth about infrastructure supporting good health outcomes

The survey organised by the Merri Creek Bridge Group was conducted in a professional manner and received a significant community response. The summary of survey findings prepared by Helen McDonald was concise and informative. A copy of the survey and summary of survey findings prepared by the Merri Creek Bridge Group are included in Appendix B.

### 3.4 Brunswick East Primary School Enrolment Data

The Merri Creek Bridge Group was granted access to Brunswick East Primary School (BEPS) enrolment data. The information made available listed the eldest child in each family enrolled at BEPS. Based on this data the Merri Creek Bridge Group prepared a summary of the residential locations of City of Darebin families who attend BEPS, divided into four zones closest to a proposed bridge located near the end of Beavers Road.

The data showed that there are 319 families with children attending BEPS, with approximately 460 students in total. 54 families, and at least 73 students, reside within Darebin and therefore need to cross the Merri Creek when travelling to and from BEPS. The summary prepared by Helen McDonald on behalf of the Merri Creek Bridge Group is included in Appendix D.
3.5 Super Tuesday Annual Bike Counts

3.5.1 City of Darebin

The City of Darebin provided data from the 2014, 2015 and 2016 Super Tuesday bicycle counts. The sites included Arthurton Road/Woolhouse Street and Normanby Avenue/Merri Creek Trail.

The number of cyclists potentially crossing Arthurton Road Bridge, based on east/west travel along Arthurton Road and travel along Arthurton Road (west of Woolhouse Street) to/from Woolhouse Street, were:

- 161 total between 7:00am and 9:00am with 96 during peak hour in 2014
- 132 total between 7:00am and 9:00am with 81 during peak hour in 2015
- 129 total between 7:00am and 9:00am with 81 during peak hour in 2016

The Arthurton Road/Woolhouse Street counts do not include cyclists travelling along Goldsmith Grove or Winifred Street and therefore the number of riders crossing the Arthurton Road Bridge is likely to be greater than the figures above.

3.5.2 City of Moreland

The City of Moreland provided data from the 2014 and 2016 Super Tuesday bicycle counts. The sites included Arthurton Road/Merri Creek Trail.

The data indicated that the total number of cyclists crossing the Arthurton Road Bridge was:

- 172 total between 7:00am and 9:00am in 2014
- 203 total between 7:00am and 9:00am in 2016
4. Site Information

4.1 Flooding

4.1.1 Melbourne Water Advice

A representative from the City of Darebin requested flood level information for the Merri Creek in the vicinity of Beavers Road. Melbourne Water subsequently advised that the creek flood levels at location of Beavers Road are as follows:

- 34.35m AHD for 1% Annual Exceedance Probability (AEP) event (i.e. 100-year flood)
- 31.80m AHD for 10% AEP event

Melbourne Water advised that the flow velocity at this location is 2.5m/s and recommended that the bridge be built above the 1% AEP level if possible. It was clarified that the advice was preliminary only and subject to change.

Melbourne Water generally requires the following for new bridge crossings:

- A spanned bridge crossing must be above the 1 in 100 ARI
- Allow at least 600mm freeboard to the underside of the bridge beam, unless otherwise agreed with Melbourne Water
- For maintenance purposes, the underside of major bridges must be set with a minimum vertical clearance height of 3m unless otherwise agreed to
- Bridge abutments must be setback at least 5m from the top of bank, unless otherwise agreed. The amount of setback required depends on the waterway profile and size of the waterway. The 5m setback is required because of possible erosion of the waterway banks over time

4.1.2 Planning Overlay

The Department of Environment, Land, Water and Planning’s ‘Planning Maps Online’ tool shows that the study area falls under a Land Subject to Inundation Overlay, as shown in Figure 5 below.

![Figure 5: Land Subject to Inundation Overlay](image-url)
4.2 Geology

An extract from the Geological Survey of Victoria’s 1:31,680 scales “Melbourne and Suburbs” map (Figure 6) indicates that the subsurface conditions within the study area comprise Quaternary age basalts, or by inference soil derived from the weathering of this rock. This is consistent with the fact that the CERES site was originally quarried for bluestone and then turned into a landfill site and information shown on the original Arthurton Road Bridge drawings, made available by VicRoads, that show the structure is supported by piles driven into ‘tough pipe clay’. A site geotechnical investigation has not been undertaken as part of this feasibility study.

![Study Zone Subsurface Conditions](image)

Figure 6: Study Zone Subsurface Conditions
4.3 Utilities

Utilities potentially impacted by the project have been investigated through an online Dial Before You Dig (DBYD) enquiry. The DBYD search extends along Merri Creek from south of Arthurton Road north to Albion Street. The following organisations were automatically contacted via the DBYD system:

- APA Group Networks
- AusNet Transmission Group
- Citipower
- Melbourne Water
- Moreland City Council
- NBN Co
- Optus
- Telstra
- Yarra Valley Water

DBYD information, including plans, received from each authority was reviewed by pitt&sherry. Additional information regarding proposed sewer works was also obtained from Melbourne Water. A summary of utility services expected in the project area is provided in the following sections.

4.3.1 Potential Impacts on New Shared Use Bridge

AusNet plans show High Voltage Electrical Transmission Assets on the western side of the creek in the vicinity of Kingfisher Gardens (refer Figure 7). pitt&sherry contacted AusNet and received the following advice:

- Minimum clearance to transmission lines shall be 7.5 metres vertically from any part of the bridge and 6 metres horizontally
- During construction all plant will need to remain at least 6 metres from the overhead lines
- Construction work near the transmission lines will require a Permit to Work to be issued by AusNet Services office

The presence of these transmission lines will have a significant impact the number of viable bridge configurations as well as pier locations and deck levels.

Melbourne Water DBYD plans indicate that sewer mains run in a north/south alignment along the eastern side of the creek. Additional Melbourne Water information supplied to pitt&sherry by Darebin City Council shows that the sewer main rehabilitation works are scheduled. A plan showing proposed augmentation/decommissioning works is included in Appendix E. pitt&sherry contacted Melbourne Water and received the following advice:

- Minimum clearance around Melbourne Water assets is to be 5 metres
- An application needs to be submitted for Melbourne Water written approval

The underground sewer pipes will influence where bridge abutments and piers may be located on both sides of the Merri Creek.
4.3.2 Potential Impacts on Arthurton Road Bridge Upgrade

City of Darebin plans show drainage pipes either side of Arthurton Road discharging into the Merri Creek (refer Figure 8). Similarly, the City of Moreland DBYD information shows drainage assets on the western side of the bridge. These assets may influence on the location of any additional substructure elements, should the bridge be widened.

Whilst not shown on any of the DBYD plans, a site visit by pitt&sherry engineers identified existing lighting on the Arthurton Road Bridge (refer Figure 9). If safety improvements were to be made to the bridge then it is likely that the existing utility poles would need to be relocated.
Figure 8: Stormwater Drainage Adjacent to Arthurton Road Bridge

Figure 9: Existing Lighting on Arthurton Road Bridge
5. Environmental Assessment

5.1 General

The proposed options for the bridge are located within both the City of Darebin and the City of Moreland. Planning Scheme zoning and associated environmental overlays are shown in Figure 10.

The areas are designated as a Public Park And Recreation Zone with the exception of roads which are designated Neighbourhood Residential Zone-Schedule 1 and an area of land to the south of Beavers Road (west side) which is zoned UFZ Urban Floodway Zone.

Environmental overlays are as follows:

- An Environmental Audit Overlay (EAO) applies to areas east of Beavers Road. This overlay applies only to development for sensitive use and therefore doesn't apply to the development of a pedestrian bridge
- An Environmental Significance Overlay Schedule 1 (ESO Schedule 1) applies to areas adjacent to Merri Creek from the Golf Course south to past Arthurton Road. ESO Schedule 1 states that a planning permit is required to remove, destroy or lop any vegetation (including scattered trees). An exemption may apply if vegetation to be removed is non native and revegetation is planned
- An ESO Schedule 1 also applies to the area to the west of creek from Blyth St (Arthurton) through to Kingfisher Gardens
- An Erosion Management Overlay (EMO) applies to areas in vicinity of Blyth St and Kingfisher Gardens. A planning permit will be required for works requiring cut and fill. Exemptions apply if minor cut and fill only

The environmental overlays are not considered a constraint for development at either site as a planning permit would be required in any case and the factors covered by the overlays would be required as part of best practice to ensure that impacts to the creek, potential threatened species and native vegetation were minimised.

The area is considered to be a biosite of Regional Significance (Merri Creek and Environs Strategy 2009 – 2014).
Figure 10: Planning Scheme and Overlays
5.2 Victorian Biodiversity Atlas Search Results

A search of the Victorian Biodiversity Atlas database indicated the following:

- One record of *Macquaria australasica* (Macquarie Perch) just to the south of Artherton Road - listed as threatened in accordance with Section 10 of the *Flora and Fauna Guarantee Act 1988*. This species is also listed as Endangered under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). One of the main threats is changes in habitat caused by river siltation.

- One record of *Alcedo azurea* (Azure kingfisher) in the Kingfisher Gardens/Beaver Road area of Merri Creek – listed as Near Threatened on the Victoria Advisory List. This species is usually found in association with aquatic habitats such as well vegetated streams where waters are slow flowing. They are usually found in shady and often overhanging vegetation.

- Two records of *Phalacrocorax varius* (Pied Cormorant) in the Kingfisher Gardens/ Beaver Road area of Merri Creek – listed as Near Threatened on the Victoria Advisory List. This species is found throughout mainland Australia in marine habitats including estuaries, harbours and bays. It is also found in mangroves and on large inland wetlands in eastern Australia.

The location of these recorded is indicated in Figure 11.

The *Flora and Fauna Guarantee Act 1988* (FFG Act) is the key piece of Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes.

Victoria Advisory Lists are maintained by the Department of Environment and Primary Industries and are based on technical information and advice obtained from a range of experts. The information in these lists may be of use in a range of planning processes, and serve to increase community awareness of threatened species. These advisory lists are not the same as the Threatened List established under the FFG Act. There are no direct legal requirements or consequences that flow from inclusion of a species in advisory lists, although they are afforded some protection through Victoria's Native Vegetation Management Framework.

5.3 Matters of National Environmental Significance

Under the Federal EPBC Act an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

A database search using the EPBC protected matters search tool indicates that a number of protected species have the potential to occur in the area. The majority of these species are migratory and or/would be considered to use the area for opportunistic feeding and would therefore be unlikely to be significantly impacted by the project.

Three threatened ecological communities are listed as having the potential to occur in the area:

- Grassy Eucalypt Woodland of the Victorian Volcanic Plain
- Natural Temperate Grassland of the Victorian Volcanic Plain
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

No records of these communities occurring in this specific part of Merri Creek have been sited.

As well as *Macquaria australasica* (Macquarie Perch), a number of other listed fish species were also noted as having the potential to occur in the area. It is considered that measures to prevent...
sediment from impacting on Merri Creek which would be required to mitigate potential impacts to Macquarie Perch would also be relevant for these fish species.

5.4 Clearing of Native Vegetation

The removal of native vegetation is primarily regulated by the Victoria Planning Provisions. The Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines (the Guidelines) outline how impacts on Victoria’s biodiversity are assessed when an application to remove native vegetation is lodged. The Guidelines are an incorporated document in all Victorian planning schemes.

Vegetation clearing for this development will require a vegetation clearing permit to be submitted along with the planning application. Preliminary investigations indicate the clearing would most likely be considered to be Low Risk.

An offset would need to be proposed for any cleared vegetation. Given the nature of the site and the ongoing revegetation efforts in the Merri Creek area an onsite offset might be considered appropriate:

- Improvement in the condition of existing vegetation with ongoing management and protection using an appropriate security arrangement
- Revegetation with ongoing management and protection using an appropriate security arrangement

5.5 Recommendations

The following environmental management recommendations are made with respect to the proposal:

- Minimise vegetation disturbance where possible. If vegetation is to be cleared a permit will be required in accordance with the Permitted clearing of native vegetation – Biodiversity Assessment Guidelines. Clearing is likely to be assessed as Low Risk with approval sought as part of the planning permit process. Offsetting any clearing including revegetation / landscaping with suitable native species will be required
- Removal of non native vegetation and replacement with native species is in keeping with current management planning for the area
- Minimise ground disturbance to avoid potential for sediment displacement to Merri Creek. Sediment management planning will need to be proposed in accordance with the principals and practices described in Construction Techniques for Sediment Pollution Control (EPA 1991) and Environmental Guidelines for Major Construction Sites (EPA, 1996)
- Referral of the project under the EPBC Act would be necessary if the project is likely to have a significant impact on Macquaria australasica (Macquarie Perch). The significance of any impacts could be determined once a conceptual design and associated impact mitigation and management requirements are defined (for example the potential for any sediment to enter the creek system)
Figure 11: Locations of recorded Threatened Species identified in database searches
6. Cultural Heritage Assessment

Preliminary heritage due diligence advice was prepared for both bridge location options by Cultural Heritage Management Australia in May 2016 (refer Appendix F). The report indicates that further assessment will be required for both bridge location options prior to submission of a planning application, however the Arthurton Road Bridge option would most likely have fewer Cultural Heritage requirements.

6.1 General Requirements

The requirements for further assessment are contingent on the location and type of construction. Activities considered to be High Impact in areas that are not considered to have been subject to prior Significant Ground Disturbance will require a higher level of assessment.

The Aboriginal Heritage Regulations 2007 define High Impact activities. Minor works on or over existing infrastructure are not considered to be high impact. New infrastructure (e.g. walking tracks longer than 100m) are considered to be High Impact activities. The development length includes ancillary areas, such as temporary parking zones for machinery and extent of any disturbance.

Significant Ground Disturbance is defined as disturbance of the topsoil or surface rock layer of the ground or a waterway by:

- Machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping
- Deep ripping in turn means the ploughing of soil using a ripper or subsoil cultivation tool to a depth of 60 centimetres or more

According to the Victorian Aboriginal Heritage Register (VAHR), specific information with regards to registered Cultural Heritage Places may only be accessed by a suitably qualified person, via a valid Cultural Heritage Management Plan (CHMP) number. A CHMP is a written report, prepared by a Cultural Heritage Advisor, containing the results of an assessment of the potential impact of the proposed activity on Aboriginal cultural heritage. It outlines measures to be taken before, during and after an activity in order to manage and protect Aboriginal cultural heritage in the activity area. The CHMP requires specific details of the proposed project and activities to be conducted. A CHMP does not currently exist for this project.

A VAHR search is to be completed prior to the Planning Application in order to confirm there are no registered Cultural Heritage Places in the proposed area. In the absence of a CHMP an application should be prepared. The application should include the exact location of the proposed Area in terms of Property ID, a geographically referenced map (north arrow, scale and co-ordinate location) and proof of development and reference to heritage consultant completing the project.

6.2 Option 1: New Shared Use Bridge at Beavers Road

It is probable that there are registered Aboriginal Cultural Heritage Places in the Beavers Road / Kingfisher Gardens area.

If there is a registered place within the vicinity of the area, the preparation of a CHMP and/or completion of a cultural heritage permit, is required. A CHMP is generally the preferred option. If there is no registered Cultural Heritage Place within the Activity Area, it is likely that a CHMP may be still required if the activity is determined to be High Impact.

An exemption for prior Significant Ground Disturbance is unlikely. Common knowledge and publically available information do support the inference that most of the proposed area comprises prior significant ground disturbance. However this evidence mainly refers to the upper banks and not the Merri Creek sides, which are likely to be also affected by the proposed construction.
A field inspection of the ground surface and historical research may serve to add weight that the full extent of the area has undergone significant ground disturbance and a CHMP is not required; even if the activity is determined to be high impact. If proof for significant ground disturbance is not sufficient for whole of the proposed area, a CHMP is mandatory if the proposed Activity is determined to be a high impact activity.

If a CHMP for this area becomes mandatory the level of assessment required (desktop, standard or complex) would be determined according to the standards set out in the Aboriginal Heritage Regulations 2007 and in consultation with the Registered Aboriginal Parties (RAP) for the proposed area (the Wurundjeri).

There is some evidence for European or historic artefact scatters in the vicinity of Beavers Road and these may remain on less developed Creek sides or on edges of the bank. The potential to identify historical values within the area is therefore low to medium and the recommendation is for a field survey to confirm the absence of any historic features in the locality. This should be completed via consultation with Heritage Victoria.

### 6.3 Option 2: Upgrade Arthurton Road Bridge

Based on the preliminary assessment by CHMA, the Arthurton Road Bridge area is considered to comprise prior significant ground disturbance and therefore is not considered an area of Aboriginal cultural heritage sensitivity under the Aboriginal Heritage Act 2006.

A further field inspection of the ground surface and historical research may serve to confirm that the full extent of the area has undergone significant ground disturbance and therefore does not require a CHMP. Final proof of this significant ground disturbance - in the form of a short due diligence report - is to accompany any Application for Planning Approval.

At this stage it seems unlikely that there are any registered Aboriginal cultural heritage sites within the Arthurton Road Bridge area. If however, there is a registered place within the area proposed to be disturbed, the preparation of a CHMP and/or completion of a cultural heritage permit, are required. A CHMP is generally the preferred option.

There is no recommendation for a voluntary CHMP.

A VAHR search is to be completed prior to the Planning Application in order to confirm there are no registered Cultural Heritage Places in the proposed area. This application should include the exact location of the proposed Area in terms of Property ID, a geographically referenced map (north arrow, scale and co-ordinate location) and proof of development and reference to heritage consultant completing the project.

There is sufficient evidence that prior ground disturbance would have also destroyed any European or historical cultural heritage in the Arthurton Road Bridge area. The potential to identify historical values within the area is therefore low and there is no recommendation for further assessment.
7. Bridge Investigation and Concept Design

Following stakeholder consultation two options for improved pedestrian and cyclist access over Merri Creek were selected for further investigation. These are a new shared use bridge located near the end of Beavers Road and widening of the existing Arthurton Road Bridge. These options are discussed in further detail in the following sections.

7.1 Option 1: New Shared Use Bridge at Beavers Road

Concept design drawings for a new pedestrian and cyclist bridge have been prepared and are included in Appendix G. The following sections describe how the current concept has been developed.

7.1.1 Alignment

In the early stages of the feasibility study the Merri Creek Bridge Group looked at multiple alignment options and received input from other stakeholders including CERES. This work assisted pitt&sherry in understanding the needs of the community. The Merri Creek Bridge Group prepared the following map (Figure 12) which illustrates some of the alignment options considered.

![Diagram of alternative shared use bridge alignments](image)

Figure 12: Alternative Shared Use Bridge Alignments

Through the consultation process CERES indicated that they were not in favour of a new bridge meeting at CERES (pale blue and green options), however they were in favour of the bridge and wished to pursue the alignments slightly to the north of CERES (red and dark blue options).

The Merri Creek Bridge Group indicated a preference for good connectivity between Beavers Road and the Merri Creek Trail. As such the dark blue option was favoured as the bridge would sit at a lower level than the red option linking Beavers Road with Kingfisher Gardens.

Following stakeholder consultation the dark blue alignment was selected for further investigation for the following reasons:

- Beavers Road to Merri Creek Trail (which then links to Albion Road) was the preferred east-west cycling route. Kingfisher Gardens was not considered to be a safe thoroughfare
- A lower level bridge is expected to result in the shortest span length thus reducing the cost of bridge construction.

- Key stakeholders objected to alignment options providing a more direct link between Beavers Road and CERES.

The concept bridge crossing was subsequently located approximately 50m north of Beavers Road. A path, constructed on a narrow strip of council owned land (Figure 13), will therefore be required to connect Beavers Road with the eastern end of the structure. A bend will be required to lead on to the bridge which will then span over the Merri Creek before hitting the bank on the western side. A new curved section of path will then be required to connect to the existing path approximately 25m north of Kingfisher Gardens, which then links to the Merri Creek Trail.

On the western side of the creek there is a clearing in the vegetation in the vicinity of underground sewer assets. In order to minimise the potential impact on existing vegetation the concept alignment passes through this clearing (Figure 14). Substructure elements will need to maintain minimum clearances to existing underground assets on either side of the creek.

In order to link the new structure with the Merri Creek Trail a curved path will need to be constructed on an existing vegetated slope (Figure 15). The treatment of how the new path will connect to the existing path will require special consideration during design to ensure that the right of way is clearly distinguished.
Underground sewer assets
To Merri Creek Trail

Figure 14: Concept Alignment of Shared Use Bridge

Merri Creek Trail
Public Park and Recreation Zone

To Merri Creek Trail

Figure 15: Concept Path Alignment – Moreland Side

To Beavers Road
Indicative Bridge Alignment

To Kingfisher Gardens (gradient around 10%)

To Beavers Road
Indicative Path Alignment

Existing vegetation

Public Park and Recreation Zone

pitt&sherry ref: ML15374M001 rep 16P Rev01.docx/MH/CM/AS/pg
7.1.2 Gradient

AS1428.1 Design for Access and Mobility specifies that for walkways shallower than 1 in 33 (3% grade) landings are not required. This requirement is referenced in the Austroads Guide to Road Design (AGRD) Part 6A: Pedestrian and Cyclist Paths, which also states that where there is any likelihood that disabled persons will use a shared path the preferred approach is to use the flattest practicable gradient. AGRD Part 6A includes the following chart (Figure 16) illustrating the desirable uphill gradients for ease of cycling.

![Desirable Uphill Gradients for Ease of Cycling](chart.jpg)

Figure 16: Desirable Uphill Gradients for Ease of Cycling (AGRD Part 6A – Figure 7.1)

The gradient of the concept alignment is approximately +1.0% from Beavers Road to the eastern bridge abutment and then maintains a constant fall of -2.7% until the new path matches in with the existing path just north of Kingfisher Gardens. These grades were adopted to minimise earthworks associated with the new paths either side of the bridge, to eliminate the need for landings on the structure and to meet the existing path north of Kingfisher Gardens below the steepest section of that path.

The section of existing path that would link the proposed new works to the Merri Creek Trail is estimated to be around 100m in length, with short segments having a gradient of approximately 5%. The distance from where this existing path intersects the Merri Creek Trail to Albion Street is around 180m, with short segments (less than 20m in length) having a gradient estimated to be around 7%.

7.1.3 Horizontal Curvature

Where a path location is not constrained by topography or other features then straights and large radius curves are desirable. AGRD Part 6A provides guidance on the minimum radii of horizontal curves. The minimum radii are dependent on the design speed and path superelevation (if any). The minimum curve radius is 10m for a design speed of 20 km/hr with no superelevation.

Minimum curve radii for a 20 km/hr design speed have been adopted for the concept alignment in order to minimise the potential impact on vegetation near the eastern end of the bridge and to minimise the amount of cut and retaining wall extent/height where the structure will meet the existing slope on the western side of the creek.
7.1.4 Bridge Geometry

A longitudinal section was produced along the concept alignment based on the feature survey data. A constant grade of approximately 2% was drawn from the end of Beavers Road all the way to the point where the new path will tie in with the existing path to the north of Kingfisher Gardens. The approximate length of structure was then determined based on the existing and proposed surface levels. This assessment indicates that the total structure length will be in the order of 100m.

VicRoads Cycle Notes 21 (2011) provides advice concerning widths of off-road shared use paths. The recommended minimum width for a recreational and urban commuter path is 3.0m. This width allows a clearance of 1.0m between path users when passings or meetings occur. It also allows passings and meetings to occur simultaneously without the need for users to move off the path. The design concept adopts a minimum clear width of 3.0m on the structure.

A viewing platform could be incorporated into the design as an additional feature. This would allow people to enjoy the views of the creek environment from an elevated level whilst being clear of any through traffic crossing over the bridge. Having a platform project out from the main span would add a deal of complexity to the bridge design. A more practical alternative would be to locate viewing areas at pier locations where the supporting structure can more readily be accommodated.

7.1.5 Form of Construction

In order to reduce the construction impact on the environment and possible increase in flood levels it is desirable to minimise the number of piers. As the overall structure length will be in the order of 100m relatively long spans will be required. Steel trusses and box girders typically span up to around 60 while cable-stayed and suspension bridges may span upwards of 40m and 70m respectively.

The longer spanning forms of construction are advantageous in that substructure elements may be placed well clear of the creek. A suspension bridge would consist of a main span and two side spans supported by main cables and hangers, with a tower either side of the creek. Minimum clearances to the high voltage transmission lines on the western side of the creek could not be achieved with this form of construction.

For cable-stayed spans up to around 100m a single pylon on one side of the main span can be used. By placing a single pylon on the eastern side of the creek the minimum clearances to the transmission lines can be met. A pylon could potentially be located in a clearing where there is relatively good access for construction equipment.

A cable-stayed bridge is considered to be the most appropriate form of construction for the site and has been adopted for this study. The position of the pylon and the ratio between the main span and back span lengths will influence the length of the main span and need for additional pier(s) and approach span(s) on the western side of the creek. For the purposes of this study it has been assumed that one approach span will be required.

7.1.6 Materials

The components of a cable-stayed bridge will typically include piles, pile caps, abutments, piers, pylon, cables, main beams, crossbeams, joists, decking, bracing and barriers. The choice of material for each element will generally be dictated by factors such as durability, weight, strength, appearance and cost. The most common material choices for the various bridge elements are indicated in the following table. The material type selected for the purposes of this study are highlighted.
### Table 2: Material Choices for Bridge Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Steel</th>
<th>Concrete</th>
<th>Timber</th>
<th>Fibre-reinforced polymer (FRP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piles</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Pile caps</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Abutments</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piers</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Pylon</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Cables</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main beams</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crossbeams</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joists</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Decking</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Barriers</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

#### 7.1.7 New Paths

New paths will be required to link the bridge to Beavers Road and the existing path to the north of Kingfisher Gardens. The path on the eastern side of the creek is estimated to be 85m in length while the length of new path on the western side will be around 50m.

It is assumed that a 3m wide shared use concrete path will be adopted. The eastern path will closely match the existing surface level however construction of the western path will require some excavation into the existing hillside. The earthworks will require the construction of approximately 20m² of retaining wall with a maximum height of around 1m.

#### 7.1.8 Preliminary Construction Cost

A preliminary cost estimate for the new crossing, based on indicative unit rates for the main elements of the works, is presented below.

### Table 3: Preliminary Construction Cost Estimate for New Shared Use Bridge

<table>
<thead>
<tr>
<th>Element</th>
<th>Length (m)</th>
<th>Width/Height (m)</th>
<th>Area (m²)</th>
<th>Unit Rate ($/m²)</th>
<th>Cost Estimate ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminaries</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>50,000</td>
</tr>
<tr>
<td>New approach paths</td>
<td>135</td>
<td>3</td>
<td>405</td>
<td>100</td>
<td>40,500</td>
</tr>
<tr>
<td>Cable-stayed bridge</td>
<td>100</td>
<td>3</td>
<td>300</td>
<td>5,000</td>
<td>1,500,000</td>
</tr>
<tr>
<td>Viewing platform</td>
<td>5</td>
<td>2</td>
<td>10</td>
<td>5,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Retaining walls</td>
<td>50</td>
<td>0.4 (approx. average)</td>
<td>20</td>
<td>1,000</td>
<td>20,000</td>
</tr>
</tbody>
</table>

**Subtotal** 1,660,500
**Contingency** 30% 498,150
**TOTAL (Excluding GST)** $2,158,650

A more detailed construction cost estimate can be prepared at preliminary and detailed design stages to provide greater certainty as to the level of funding required for construction.

Costs associated with design, contract administration and surveillance will be additional to the construction costs indicated above.
7.2 Option 2: Upgrade Arthurton Road Bridge

The existing Arthurton Road Bridge carriageway consists of two marked traffic lanes with 1.0m wide bicycle lanes on either side. Each side of the bridge has a 1.8m wide footpath, separated from the carriageway by a 125mm high kerb. The existing barriers are approximately 1.0m high and would not satisfy current standards for containment of vehicles.

The primary safety concerns for pedestrians and cyclists crossing the Arthurton Road Bridge are the proximity to road traffic and the relatively low height of the safety barriers. One of the key community groups involved in this study are the students and families of Brunswick East Primary School and as such any upgrade of the bridge should cater for riders of varying abilities.

In order to improve safety on the bridge the deck could be widened to provide a 3.0m wide shared path on one side and the carriageway could be reconfigured to permit one wider bicycle lane. The existing railing could be replaced with barriers that comply with current code geometric and strength requirements for pedestrians, cyclists and road traffic.

The existing and possible alternative cross section of Arthurton Road Bridge is illustrated in Figure 17. New 1.4m high barriers will cater for cyclists and the 3.0m shared path would allow for much greater separation between pedestrians / cyclists and vehicles on one side of the bridge (this could be replicated on both sides at greater expense). The remaining (widened) bicycle lane would provide improved safety for confident riders who currently use the bridge.

Figure 17: Current and Possible Alternative Section at Arthurton Road Bridge
7.2.1 Preliminary Construction Cost

A preliminary cost estimate for the Arthuron Road Bridge upgrade, based on indicative unit rates for the main elements of the works, is presented below.

Table 4: Preliminary Construction Cost Estimate for Upgraded Road Bridge

<table>
<thead>
<tr>
<th>Element</th>
<th>Length (m)</th>
<th>Width/Height (m)</th>
<th>Area (m²)</th>
<th>Unit Rate ($/m²)</th>
<th>Cost Estimate ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminaries</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>30,000</td>
</tr>
<tr>
<td>Bridge widening</td>
<td>35</td>
<td>1.2</td>
<td>42</td>
<td>4,000</td>
<td>168,000</td>
</tr>
<tr>
<td>On-structure barrier upgrades</td>
<td>70</td>
<td>1.4</td>
<td>98</td>
<td>1,000</td>
<td>98,000</td>
</tr>
<tr>
<td>Off-structure barrier upgrades</td>
<td>40</td>
<td>0.7</td>
<td>28</td>
<td>750</td>
<td>21,000</td>
</tr>
<tr>
<td>Service relocations</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>50,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>367,000</strong></td>
</tr>
<tr>
<td>Contingency</td>
<td></td>
<td></td>
<td></td>
<td>30%</td>
<td><strong>110,100</strong></td>
</tr>
<tr>
<td><strong>TOTAL (Excluding GST)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$477,100</strong></td>
</tr>
</tbody>
</table>

A more detailed construction cost estimate can be prepared at preliminary and detailed design stages to provide greater certainty as to the level of funding required for construction.

Costs associated with design, contract administration and surveillance will be additional to the construction costs indicated above.

7.3 Potential External Funding Sources

VicRoads have a modest budget for bicycle priority routes such as Arthuron Road Bridge. In the FY16/17 Victorian Budget there is an allocation of $9.3M across the state to support cycling.

Towards Zero is a partnership between the Transport Accident Commission (TAC), VicRoads, Victoria Police, the Department of Justice and Regulation and the Department of Health and Human Services. Under the program the TAC offers grants of up to $25,000 to help people create and implement initiatives targeting specific road safety issues in their local area. Applications for Round 19 funding are expected to close mid-August 2016.

The above external funding sources could be pursued for either the new shared use bridge or the Arthuron Road Bridge upgrade option.
8. Options Comparison

A summary of the main advantages and disadvantages for the two options considered in this study are presented in Table 5 and Table 6.

Table 5: New Shared Use Bridge Advantages and Disadvantages

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides a safe alternative crossing for pedestrians and cyclists</td>
<td>Highest cost</td>
</tr>
<tr>
<td>Will help to remove traffic congestion for roads</td>
<td>Will require a Cultural Heritage Management Plan</td>
</tr>
<tr>
<td>Encourages active modes of transport</td>
<td>Will most likely require some environmental offsets</td>
</tr>
<tr>
<td>Has strong community support</td>
<td>Does not address safety issues for people who will continue to use Arthurton Road Bridge</td>
</tr>
</tbody>
</table>

Table 6: Road Bridge Upgrade Advantages and Disadvantages

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest cost</td>
<td>Conditions for cyclists either side of the bridge are inadequate, particularly for less experienced riders</td>
</tr>
<tr>
<td>Will improve conditions on a current Bicycle Priority Route (BPR)</td>
<td>Widening will most likely require some service relocations</td>
</tr>
<tr>
<td>Least impact from environmental and cultural heritage perspective</td>
<td>Changes not likely to result in more recreational use</td>
</tr>
<tr>
<td>VicRoads funding may be more likely given the structure is on a BPR</td>
<td>Does not offer the same level of safety as a shared use bridge situated away from busy road</td>
</tr>
</tbody>
</table>

9. Conclusion

Community groups have expressed a strong preference for a new pedestrian and cyclist bridge located away from busy roads. This option has received support from external stakeholders including the Merri Creek Bridge Group, the CERES Board, Croxton School Council and BIGBANG studio. The principal benefits of a new pedestrian and cyclist bridge located near Beavers Road include:

- Pedestrians and cyclists, including students of Brunswick East Primary School, would have a much safer alternative to the Arthurton Road Bridge, even if the current bridge was upgraded
- Darebin residents can more easily access the CERES park, facilities and sustainability programs
- A bridge would encourage more sustainable transport such as walking and cycling in the local area
- Croxton School students could make use of the facility to participate in travel training and bike education

Based on the investigations carried out to date both the new shared use bridge and upgrade of Arthurton Road Bridge options appear to be technically feasible. The construction cost for a new shared use bridge and existing road bridge upgrade are estimated to be in the order of $2.16M and $0.48M respectively.

The widening and barrier upgrade works identified for Arthurton Road Bridge do not address safety concerns associated with the network either side of the structure and therefore a new shared use bridge best addresses the requirements of the community.
Appendix A

Records of Stakeholder Consultation
Complete corridor is a problem.
Fixing Arthurton Rd Bridge only solves 50% of problem

Information on Commuters to School
No dedicated bike lane on Separation St and part of Arthurton Road
Travel behaviour towards school
Connection between St George Road and Blyth Street
Survey to locate priority route
W-E : Normanby is preferred
Cyclists data on preferred routes
Configuration leads cyclists to Arthurton Rd Bridge Harrison St
Preferred Route
Existing route: From woolhouse st to Arthurton Rd Bridge - Passing car wash
If new bridge is constructed, people from Thornbury will take proposed Beavers Rd route
Upgrading Arthurton Rd Bridge mixes community and pedestrians. Cyclists like to travel fast
Feasibility along the East side of creek from Beavers to Arthurton Rd Bridge
Arthurton Rd not good towards Nicholson St in need of safety improvements
Alternate access travelling from Brunswick to other side
New bridge must be less wobly
Travel behaviour East - West
Alignment of new shared pedestrian bridge tower
Feature for entrance to CERES
Proposed plan to convert existing commercial area into residential area
Narrow passageway across kingfisher gardens
Arthurton Rd is not the only problem
No footpaths on Stewart St

Summary of External Stakeholder Consultation Session - 22/03/2016

Interaction between pedestrians and cyclists across the Separation St from Arthurton Road Bridge
Mixing Community Cyclists with Commuting Pedestrians - Travel Fast

1. Constraints
   Connection to CERES
   Lighting to Bridge
   Information on commuters to school
   Connection between Arthurton Rd Bridge and Trial is very steep. Is it possible to fix it?
   Security concerns for CERES and Diversity
   Respect CERES culture / values / principle in design brief

   Pathway along goldsmith srove could be impactful and not feasible to destroy existing vegetation
   A new path along the Goldsmith Grove Council has easement access near Grove. A passageway is feasible. Necessary to locate exact available easement information.
   A separate shared user path next to Arthurton Rd Bridge will be feasible as well.
   Parking control measures by City of Derabin near CERES

Recommended Options
1. New shared use pedestrian bridge near Beavers Road and Kingfisher Gardens
2. Upgrade existing Arthurton Road Bridge

Current pedestrian data from Super Tuesday surveys
Hand sketch from CERES for proposed bridge locations
Sketch from Juliet Hall with possible bridge locations
Flood overlay for 100 years and contour information between Beavers Road and Kingfisher Gardens
A1 sketch highlighting stakeholders current and proposed routes
S Band: Albion St
Bicycle Priority Route Maps

Supporting Documents
Preference for a bike path on one side of creek
Appendix B

Merri Creek Bridge Group Survey
Thank you for participating in our short survey.

In response to community calls for a safer crossing over the Merri Creek, Darebin and Moreland Councils have commissioned a feasibility study. If you live, work or visit Northcote or East Brunswick, we want your feedback on whether you (or your children) would use a new bridge for pedestrians and cyclists, proposed to span Beavers Road, Northcote, to Kingfisher Gardens, (near Ceres), East Brunswick. (A map is included). This would create an alternate crossing to the busy Arthurton Road and Normanby Avenue road bridges. The survey takes around 5 minutes to complete and your answers will not be personally identified. Results will be collated by The Merri Creek Bridge Group to help inform the feasibility study. Thank you!

1. In a typical week, how often do you **drive** or travel in a car over the Merri Creek via the Arthurton Road bridge? (Count every time you cross the bridge, including return trips).
   - Once a week
   - 2-5 times a week
   - 6-9 times a week
   - 10-15 times a week
   - More than 16 times a week
   - Less often - a couple of times per month
   - Not at all

2. In a typical week, how often do you **walk or cycle** over the Arthurton Road bridge? (Count every time you cross the bridge).
   - Once a week
   - 2-5 times a week
   - 6-9 times a week
   - 10-15 times a week
   - More than 16 times a week
   - Less often - a couple of times per month
   - Not at all

3. Do you have concerns about the safety of pedestrians or cyclists crossing the Arthurton Road bridge?
   - Yes, I have concerns about safety on this bridge
   - No, I have no concerns about safety on this bridge
   - Unsure
4. In a typical week, how often do you drive or travel in a car over the Merri Creek via the Normanby Avenue bridge? (Count every time you cross the bridge).

- Once a week
- 2-5 times a week
- 6-9 times a week
- 10-15 times a week
- More than 16 times a week
- Less often - a couple of times per month
- Not at all

5. In a typical week, how often do you walk or cycle over the Normanby Avenue bridge? (Count every time you cross the bridge).

- Once a week
- 2-5 times a week
- 6-9 times a week
- 10-15 times a week
- More than 16 times a week
- Less often - a couple of times per month
- Not at all

6. If there was a new, car-free bridge over the Merri Creek between Beavers Road and Kingfisher Gardens (see map below) - how often would you use it?

- Once a week
- 2-5 times a week
- 6-9 times a week
- 10-15 times a week
- More than 16 times a week
- Less often - a couple of times per month
- Not at all
Map showing Arthuron Road and the proposed new bridge location

7. How likely would you be to use active transport more often (walk, cycle, scoot) if a new bridge was built in the location pictured above?

- Not at all likely
- Moderately likely
- Highly likely
- Completely likely
8. Where would you be travelling to or from, if you were using a new bridge between Beavers Road and Kingfisher Gardens (near Ceres)? Please select all that apply.

☐ Local schools, childcare or kindergartens
☐ Ceres
☐ Gymnasiums in Goldsmith Crescent (Twisters, Kaygees, Crossfit)
☐ Work
☐ Linking with Merri Creek bike path
☐ Visiting friends or family
☐ 96 tram on Nicholson Street
☐ Recreational walking/cycling or for fitness
☐ To access the Merri Creek
☐ Other (please specify)
9. Please specify the school, childcare centre or kindergarten you would be most often travelling to - or at least the suburb where it is located.

- Brunswick East Primary School
- Croxton School
- Northcote High School
- Other (please specify)

(Only respondents who chose 'Local schools, childcare or kindergartens' as a destination in the previous question were asked to answer this question).

10. If there was a new bridge built for cyclists and pedestrians in the location detailed on the map, would that change how often you would drive or travel in a vehicle over the Arthurn Road bridge?

- I would use car/vehicle LESS often
- I would use car/vehicle MORE often
- I would travel by car/vehicle about the same amount as currently
- I would stop travelling by car/vehicle
- Not applicable as I don't travel by car/vehicle over Arthurn Rd bridge currently

11. Please add details if you have observed safety issues or near misses on either the Arthurn Road or Normanby Ave bridges, or if you have a comment.

Almost finished... Now, a few questions about you.

12. Where do you live?

- Brunswick
- Clifton Hill
- Coburg
- East Brunswick
- Northcote
- Thornbury
- Preston
- Other (please specify suburb name)
13. If you have children, do you think they would be likely to use this bridge to ride or walk more often than they do currently? (If respondents selected 'not relevant to me' they skipped straight to question 16).

- Not relevant to me
- Yes, they would walk or ride more often
- No they would walk or ride about the same amount
- No they would walk or ride less often
14. Do you currently allow one or more of your children to walk to school without direct adult supervision?
   - Yes
   - No
   - Not relevant to me

15. Do you think a new bridge would make the route to school sufficiently safe for one or more of your children to walk to school without direct adult supervision?
   - Yes, absolutely
   - Yes, a little
   - No, I still have safety concerns
   - Unsure

16. How many people in your household, including yourself, would be potential users of a new bridge over the Merri Creek?
   - None
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6 or more

17. Which of the following options includes your age?
   - 18-29 years of age
   - 30-39 years of age
   - 40-49 years of age
   - 50-64 years of age
   - 65 years or more

Thank you for completing this survey. We really appreciate your time. The results of the feasibility study into the bridge are expected in July 2016.

For more information you can join The Merri Creek Bridge Group on Facebook or join our mailing list by emailing: merricreekbridge@gmail.com
Summary of survey findings

If a new bridge was built over the Merri Creek, would you use it?

Prepared by Helen McDonald for the Merri Creek Bridge Group
25 May 2016
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Introduction and methodology

An existing lack of infrastructure to enable pedestrians and cyclists, particularly children, to safely cross the Merri Creek has been a significant and long term concern for many local residents in Northcote. In November 2015, in response to a community campaign for a new bridge over the Merri Creek, the City of Darebin agreed to fund a feasibility study into improved pedestrian and bicycle access over the Merri Creek. The City of Moreland agreed to co-fund the study, and bridge engineering consultants Pitt & Sherry were appointed and are due to complete their report in July 2016.

At the community consultation meeting conducted by Pitt and Sherry on 22 March 2016, it was agreed that more information was needed about where users of a bridge would be travelling to and from, and how often they would use it. This would help determine whether the proposed location at the end of Beavers Road, Northcote, was suitable, or whether replication of Arthurton Road would work as a viable crossing location.

The Merri Creek Bridge Group offered to conduct a survey with its supporters to gauge intentions to use a new bridge. On 29 April, an online survey was launched asking for feedback on whether people would use a new bridge over the Merri Creek, proposed to run between Beavers Road Northcote and Kingfisher Gardens, East Brunswick.

The survey was closed three weeks later on 20 May 2016, and a total of 587 responses were received.

Distribution of this survey included via email to the Merri Creek Bridge Group mailing list, and via the Facebook pages of CERES, the Merri Creek Bridge Group, and Brunswick East Primary School. The survey is included at Attachment A.

The survey was designed and analysed by Helen McDonald, a communications and marketing consultant with The Big Picture Strategic Services, who is also a member of the Merri Creek Bridge Group. Helen can be contacted on 0401 999 152 or helenmcdonald@bigpicture.net.au
Who responded to the survey
Over a three-week period, 587 people responded to the survey. Respondents were asked to name the suburb they lived in, and 561 respondents chose to answer the question.

Where they live and age groups represented
The most common suburb of residence was Northcote (40.3%) followed by Thornbury (20%) and East Brunswick (15%). Table 1 shows the breakdown of suburbs where survey respondents live.

Once the suburbs mentioned in ‘other’ categories are analysed and included, the totals for council areas can be tallied. In total, 67.4% of survey respondents resided in suburbs in the City of Darebin, and 28.3% in City of Moreland suburbs. 1.4% resided in the City of Yarra and 1.4% resided in the City of Banyule. A further 1.4% comprises a mix of suburbs, which were mentioned no more than twice each.

Table 1 – Where survey respondents live
While the survey gathered the views of people across the adult age spectrum, most survey respondents were between the ages of 30 and 49 years (72.4% of respondents). A breakdown of ages of respondents is shown below in Table 2.

**Table 2 – Age of respondents**

How many respondents have children

560 people answered the question ‘If you have children, do you think they would be likely to use this bridge to ride or walk more often than they do currently?’ Of these, 35.9% said the question was ‘not relevant to me’ so it can be assumed that the remaining 64.1% (359 respondents) do have children.

This assumption is tested in later questions about independent travel by children; the number of respondents stays consistent with the following question about allowing children to travel independently (357 respondents), and reduces slightly to 329 respondents when asked if a new bridge would make the route to school sufficiently safe. The survey did not ask respondents to list the number of children nor their ages, although household size gives a consistent
indication that 351 respondents were probably families (comprising three or more potential ‘bridge users’, to paraphrase the question – see Table 3 following, or Attachment A shows the full survey and questions asked).

Responses also indicate that around 200 to 230 survey respondents do not have children – and therefore this survey was effective in canvassing the views of different audience segments, not just families.

**Size of household**

351 respondents (62.9%) were from households where there were three or more potential users of a new bridge. This is consistent with the number who answered the questions about children using the bridge (64.1% as detailed above). Just from the respondents to this survey alone, which are a limited sample, the bridge would be used by 1688 people.

**Table 3**

![Pie chart showing household sizes](chart)
Key findings

1. Arthurton Road bridge is used frequently by pedestrians and cyclists, and most users have safety concerns

A lot of people currently travel actively over the Arthurton Road bridge: 72.5% of survey respondents (425 respondents) are travelling actively over it each week.

29% of respondents are heavy users of the Arthurton Road bridge, using it actively between six and sixteen times per week (170 people).

Table 4
88.4% of respondents said they had concerns about the safety of pedestrians or cyclists crossing the Artherton Road bridge. (6.5% no concerns, 5.1% unsure).

These concerns are further expressed in the open-ended comments submitted later in the survey. Of the 221 responses to this question, 27 comments provided some specific details about incidents or near misses on the Artherton Road bridge and the road corridor in the vicinity of the bridge. A further 115 comments related specifically to safety concerns on the bridge.

The survey has reached a highly engaged audience, the majority of whom are already using Artherton Road to travel actively (425 people stated they walk or cycle across it between 1 and 16 times per week). As detailed later in this report, 541 respondents said they would choose active transport more often if a new, safer bridge was built at the end of Beavers Road. This shows there would be increase in use of active transport, even by those already travelling actively, if a safer crossing was available.

**Safety concerns were particularly strong amongst parents travelling with children** over the bridge, and with cyclists, many of whom choose to ride on the bridge footpath rather than in the cycling lane on the road. **This causes additional safety issues when both bikes and pedestrians meet on the narrow bridge path.**

The 221 open-ended responses to the survey question ‘Please add details if you have observed safety issues or near misses on either the Artherton Road or Normanby Ave bridges, or if you have a comment’ are summarised in the accompanying Excel spreadsheet – at Attachment B.

The responses have been grouped into the following themes, and the number below indicates the number of responses for that theme. Around 36 responses raised multiple themes and have been grouped accordingly – hence the numbers below total more than 221.

**Themes for open-ended responses about safety issues:**

- Incidents or near misses (must include some specifics) – 27 responses
- Safety concerns Artherton Rd bridge – 115 responses
- Corridor unsafe - Artherton Rd, Goldsmith Grove, Weigall Street, nearby streets – 58 responses
- Safety concerns Normanby Ave – 25 responses

---

“The footpaths that children are forced to ride along on the Artherton road bridge do not allow sufficient space to allow two way flow and often force children and adults to stop to allow passage of each other. Alternatively I have observed less confident and younger riders crash into the bridge barrier, into others or worse almost onto the road and into traffic.” Survey respondent, May 2016

“I am a confident bike rider with 20 years of accident free daily riding in the city and I still find the Artherton Rd bridge extremely scary to ride on. It’s even alarming walking on the footpath.” Survey respondent, May 2016
• Support a bridge (general messages in support) – 23 responses
• Alternative solutions to address safety – 2 responses
• No issues or safety concerns – 7 responses

2. A new, safer bridge would mean car use would decrease

60.3% of respondents said they would use the car less often if a new bridge was built between Beavers Road Northcote and Kingfisher Gardens, East Brunswick. A further 4.3% (24 respondents) said they would stop using their car altogether. (Table 5 follows).

Table 5

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would use car/vehicle LESS often</td>
<td>60.3%</td>
</tr>
<tr>
<td>I would use car/vehicle MORE often</td>
<td>10.5%</td>
</tr>
<tr>
<td>I would travel by car/vehicle about the same amount as currently</td>
<td>24.2%</td>
</tr>
<tr>
<td>I would stop travelling by car/vehicle</td>
<td>4.3%</td>
</tr>
<tr>
<td>Not applicable as I don’t travel by car/vehicle over Arthurton Rd bridge currently</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

Survey respondents were asked about the current number of trips made by car each week over the Arthurton Road; 77.9% (457 respondents) are driving or travelling as a passenger in a car between 1 and 16 times per week. (Table 6 follows).
If just the frequent road travellers are isolated, those travelling in a car between 6 and 16 times per week number 210 respondents, or 35.8% of our survey sample. They are making a minimum of 1,940 car trips per week over the Arthurton Road bridge per week – and that’s just the frequent users travelling 6-16 times per week. Add in the once or twice a week drivers and it rises to a minimum of 2,367 car trips per week. (In all calculations, the lowest estimate of trips has been used. For example, where someone has selected on the survey ‘2-5 trips’ this calculation of the number of trips counts the lowest option of 2 trips).

Given the current road usage is very high, with significant congestion on Arthurton Road, a reduction in car use would be of great benefit. A recent City of Darebin report cited 15,000 vehicle movements per day on Arthurton Road (the source was not included). Current growth in vehicle congestion would be expected to continue to increase significantly unless measures are taken to encourage active travel. Reducing the need for short trips during peak hour – such as dropping kids to school, or local work commute (detailed by many survey respondents) would help reduce the growing vehicle congestion in this busy road corridor at peak times.

Table 6

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a week</td>
<td>10.8%</td>
<td>63</td>
</tr>
<tr>
<td>2-5 times a week</td>
<td>31.1%</td>
<td>182</td>
</tr>
<tr>
<td>6-9 times a week</td>
<td>16.0%</td>
<td>94</td>
</tr>
<tr>
<td>10-15 times a week</td>
<td>13.7%</td>
<td>80</td>
</tr>
<tr>
<td>More than 16 times a week</td>
<td>6.1%</td>
<td>36</td>
</tr>
<tr>
<td>Less often - a couple of times per month</td>
<td>14.5%</td>
<td>85</td>
</tr>
<tr>
<td>Not at all</td>
<td>7.8%</td>
<td>46</td>
</tr>
</tbody>
</table>

**answered question 586**

3. More people will travel actively if a new bridge is built

92.5% of respondents (541 people) would use a new bridge at Beavers Road to walk, cycle or scoot more often. If just the highly and completely likely responses are isolated, this equates to 390 people (66.4% of respondents) who would regularly travel actively using a new bridge. This is a very strong indication that the bridge would be well utilised and would reduce car usage. It is the tip of the iceberg of potential users, given impending residential
developments at Beavers Road would be at the doorstep of a new bridge and strong growth in residential developments generally in areas adjacent to the creek.

Table 7

How likely would you be to use active transport more often (walk, cycle, scoot) if a new bridge was built in the location pictured above?

- 35.7% Not at all likely
- 25.8% Moderately likely
- 7.5% Highly likely
- 30.9% Completely likely

4. Destinations people would be travelling to or from if they used a new bridge

The top three destinations would be for recreational walking or fitness (68.7%); to CERES (64.1%) and to link with the Merri Creek bike path (61.2%). Given existing road congestion, and that parking at and around CERES on weekends is already at a premium, the option for more people to travel actively and safely to CERES would be of immense benefit. People were able to nominate multiple destinations in this answer so the percentages below do not add up to 100%.
Table 8

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local schools, childcare or kindergartens</td>
<td>23.9%</td>
<td>140</td>
</tr>
<tr>
<td><strong>Ceres</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gymnasiums in Goldsmith Crescent (Twisters, Kaygees, Crossfit)</td>
<td>64.1%</td>
<td>375</td>
</tr>
<tr>
<td>Work</td>
<td>31.3%</td>
<td>183</td>
</tr>
<tr>
<td><strong>Linking with Merri Creek bike path</strong></td>
<td>61.2%</td>
<td>358</td>
</tr>
<tr>
<td>Visiting friends or family</td>
<td>46.0%</td>
<td>269</td>
</tr>
<tr>
<td>96 tram on Nicholson Street</td>
<td>27.2%</td>
<td>159</td>
</tr>
<tr>
<td><strong>Recreational walking/cycling or for fitness</strong></td>
<td>68.7%</td>
<td>402</td>
</tr>
<tr>
<td>To access the Merri Creek</td>
<td>44.8%</td>
<td>262</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>12.0%</td>
<td>70</td>
</tr>
</tbody>
</table>

answered question 585

The ‘other’ destinations identified by 70 respondents have been analysed and sorted according to which direction they would be travelling in. The themes are as follows:

- From Brunswick East side (24). Destinations include High Street shops and doctors; Northcote Plaza; dance studios and car mechanics.
- From Northcote side (18). Destinations include Brunswick shops, Nicholson St cafes, scout hall and Roberts Reserve for cycling.
- Unspecified direction (14). Destinations include shops, cafes.
- Recreation - dog walking, exercise, etc. (10)
- Miscellaneous comments – location unclear (4)

5. The schools people would use the bridge to travel to

For those who selected schools as a destination in the previous question, they were asked to specify the school, childcare centre or kindergarten, or at least the suburb they would be crossing to. Table 9 shows the breakdown of responses from 135 people.
Table 9 – responses from 135 people

Please specify the school, childcare centre or kindergarten you would be most often travelling to - or at least the suburb where it is located.

60.7%  20.7%  16.3%  2.2%

The schools and childcare centres that were identified as destinations may be small in number, but show a diversity of locations and indicate that residents are regularly using facilities on the opposite side of the creek to where they live. The ‘other’ schools, childcare centres and kindergartens that were mentioned in 28 open-ended responses are summarised as follows:

4 responses - Merri Primary School (St Georges Road, North Fitzroy)
4 responses - Northcote Primary School (Helen St, Northcote)
2 responses - Merri Community Childcare and Kindergarten (St Georges Road, Thornbury)
2 responses - Thornbury Occasional Care (Shaftesbury Pde, Thornbury)

1 response - Fitzroy Community School, Normanby Ave Campus, Thornbury
1 response – Kinder on Mitchell Street, Brunswick
1 response – Sunrise Preschool Day Care Centre, Thornbury
1 response – Wales Street Primary School, Thornbury
1 response – Blyth street child care
6. Children and teenagers travelling independently to school

A new bridge at Beavers Road would be expected to lead to an increase in children and teenagers travelling independently. The survey results underscore anecdotal evidence that parents have major concerns with children travelling independently as a direct result of the current lack of safe crossing opportunities across the Merri Creek. In addition, the survey also highlights the broad range of destinations associated with children such as schools, gymnasiums, CERES and recreational cycling and walking which are directly relevant to the proposed bridge. A total of 311 respondents (out of 359 who are parents) agreed that their children would ride or walk more often if there was a new bridge. In the table below, total responses are included (sample 587) but if just the 359 parents are included, it means 86.6% of parents who responded to the survey would be likely to use the bridge to walk/ride more often.

Table 10

<table>
<thead>
<tr>
<th>Response Options</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not relevant to me</td>
<td>0.2%</td>
</tr>
<tr>
<td>Yes, they would walk or ride more often</td>
<td>35.9%</td>
</tr>
<tr>
<td>No they would walk or ride about the same amount</td>
<td>55.5%</td>
</tr>
<tr>
<td>No they would walk or ride less often</td>
<td>8.4%</td>
</tr>
</tbody>
</table>

1 response – Batman Park Kinder

Plus several 7 mentions of suburbs only.

1 response – Brunswick South Primary School
The survey also gauged current levels of children travelling independently. Only 96 respondents currently allow their children to travel independently (out of approximately 359 respondents who have children). While the age of children is a big determinant, so is parental perceptions of safety and risk, and it appears that only 26.7% of parents surveyed allow their children to walk without adult supervision.

Encouraging active transport to school is a key avenue for reducing the prevalence of childhood obesity by incorporating more activity into daily travel routines. It is therefore encouraging to see that a new bridge would encourage more parents to allow their children to travel independently to school. While the response rate dropped slightly (from 357 responses in table 11 to 329 responses in table 12) it shows an increase of the number of parents who would ‘absolutely’ let them travel independently to 42.9% of parents surveyed (154 parents intending to allow independent child travel, vs 96 parents currently). Another 67 agreed more mildly that the safety of the route would be improved enough to make them ‘a little’ more likely to allow their children to travel independently to school.

Table 11 – 357 responses

<table>
<thead>
<tr>
<th>Do you currently allow one or more of your children to walk to school without direct adult supervision?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>26.9%</td>
</tr>
</tbody>
</table>
Table 12

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, absolutely</td>
<td>46.8%</td>
<td>154</td>
</tr>
<tr>
<td>Yes, a little</td>
<td>20.4%</td>
<td>67</td>
</tr>
<tr>
<td>No, I still have safety concerns</td>
<td>6.4%</td>
<td>21</td>
</tr>
<tr>
<td>Unsure</td>
<td>26.4%</td>
<td>87</td>
</tr>
<tr>
<td><strong>answered question</strong></td>
<td><strong>329</strong></td>
<td></td>
</tr>
<tr>
<td><strong>skipped question</strong></td>
<td><strong>259</strong></td>
<td></td>
</tr>
</tbody>
</table>

7. Normanby Avenue findings

In the responses to the survey, use of the Normanby Avenue bridge was slightly lower than that of Arthurton Road. 340 respondents travel by car between 1 and 16 times per week over the Normanby Avenue bridge, vs 455 respondents for Arthurton Road in a week. There was also a higher number of respondents who never drive over this bridge – 112 respondents never drive over Normanby Avenue bridge vs 46 who never drive over the Arthurton Road bridge. (Table 12 follows).

The results are similarly lower for active travel – 44.5% of respondents (261 people) travel actively over Normanby Avenue bridge between one and 16 times per week. For Arthurton Road it is 72.5% (425 respondents travelling actively per week).

As with Arthurton Road, there are considerable numbers of people already travelling actively along this route, many of whom make a strong case about safety concerns, as recorded in Attachment B, where twenty-five comments were submitted in the survey about safety concerns with Normanby Avenue.

We know that parents travelling with children are willing to take more circuitous or longer routes in order to find safer paths to school. A Beavers Road bridge would mean some people would travel down Leinster Grove to the new bridge at Beavers Road, rather than head to the creek and

“**I have had many near misses as I cycle on both Arthurton and Normanby. I know people who have been knocked off their bikes on Normanby it is a real shocker. Arthurton is just as bad. Better opportunities for off-road routes are needed in many places across Melbourne, but as cycling is so strong in this area, it should be a priority.**” Survey respondent, May 2016
cross the Normanby Avenue bridge. There is consistent feedback from cyclists that they prefer and seek quiet streets to ride on, and this is also the case for parents travelling with children.

**Table 13**

<table>
<thead>
<tr>
<th>Frequency</th>
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<tbody>
<tr>
<td>Once a week</td>
</tr>
<tr>
<td>2-5 times a week</td>
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<tr>
<td>6-9 times a week</td>
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<tr>
<td>10-15 times a week</td>
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<tr>
<td>More than 16 times a week</td>
</tr>
<tr>
<td>Less often - a couple of times per month</td>
</tr>
<tr>
<td>Not at all</td>
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</tbody>
</table>

8. **Would replication of Arthurtown Road bridge solve the safety concerns raised in this survey?**

Replication of the Arthurtown Road bridge would only partially address current safety concerns. This is particularly the case because pedestrians and cyclists would still be required to negotiate a number of potentially unsafe locations to access Arthurtown Road including busy local cross streets and the industrial
precinct at Beavers Road. Local cross streets can be especially busy in peak times when parents are travelling to and from schools and children’s recreational activities. A replicated Artherton Road bridge would also not correspond to the likely ‘desire lines’ for pedestrians and cyclists given the locations for travel identified in the survey responses. In particular, a bridge at Beavers Road would provide better access for local residents to schools, the businesses and gyms on Goldsmith Grove and potentially improved access to the Merri Creek bike path and to CERES compared with Artherton Road.

Factors raised in this survey that need to be considered are:

- There are a lot of concerns about safety of the Artherton Road/Blyth St corridor – 58 comments about safety concerns were submitted as part of the survey.
- There are also concerns for pedestrian safety through Goldsmith Grove, and the footpaths east along Artherton Road which would be addressed by a Beavers Road bridge but not by a replication of Artherton Road.
- Many cyclists say they prefer using back streets
- For people who cross the Normanby Avenue bridge, this solution could be perceived as too far to travel, whereas a bridge at Beavers Road feels more like half-way.

Conclusion

The responses to this survey give a clear indication that people would use a new bridge, and for many, they would increase their active travel (92.5% of respondents) and use the car less often, or stop driving all together (64.6% combined). New people would start using active travel, including many who are currently driving – so the bridge has potential to build healthier communities.

The reduction in any car traffic should be embraced – if the view of drivers along Artherton Road were canvassed, there would be a great deal of anger about the peak-hour congestion along this important east-west corridor. ‘Rat runs’ through back streets, including Goldsmith Grove Northcote and Weigall Street East Brunswick (the latter requiring an illegal left turn) are a consequence of road congestion, which further put cyclists and pedestrians at risk.

A new bridge means essential ‘short trips’ to school, to friends and family living locally, to cafes and shops, could be traversed actively rather than by car. The frequent car users identified in this survey drive over the Artherton Road bridge 6-16 times each week and are making a combined 1,940 car trips. If all weekly drivers in this survey are included, the minimum number of car trips respondents are making each week numbers 2,367.

Safe and effective infrastructure in sensible locations is the foundation to encouraging active transport, and there is a range of evidence by VicHealth about infrastructure supporting good health outcomes.
The survey also gives voice to the safety concerns held by many about Arthurton Road and Normanby Avenue, and highlights a number of recent incidents (Attachment B). 88.4% of survey respondents are concerned about safety of pedestrians and cyclists on the Arthurton Road bridge.

With increasing numbers of students attending Brunswick East Primary School (who are zoned there as their closest school ‘as the crow flies’) there will be an ongoing need for families to cross the creek to get to school. Brunswick East Primary School (BEPS) is not a zoned school, so accepts students from outside their defined zone. However they must accept enrolments from anyone where BEPS is the closest school to where they live. Given their proximity zone includes parts of Northcote, there will continue to be students from the east side of Merri Creek for whom BEPS will always be their closest school.

These survey results provide a strong indication of intentions from those close to the Arthurton Road bridge, those who are digitally literate (the survey was only available online) and those most concerned with safety on Arthurton Road. There are still untapped audiences who would support a safer creek crossing, including many recreational walkers who use the Merri Creek trail; future residents of the new developments on Beavers Road; the senior residents of establishments like Veronica Gardens; or large numbers of people living north of Normanby Avenue.

The last word should go to a community in Northcote who has benefitted from a pedestrian bridge for decades. The people of Sumner Estate in Northcote cherish their bridge, and one resident was concerned that this survey could not possibly capture what community benefits will grow and the people who come once new infrastructure links are created. In comments accompanying her survey response, this resident said:

“What WOULD happen is that people would discover the bridge as an avenue to all sorts of things they currently don’t know they need or want. It will help BEPS kids get to school and people to travel to work on the bike more safely - and there sure should be more of that - but it's all the other stuff, the community building, facility sharing, neighbourhood extension that goes along with a bridge.

We get to Merri Creek Primary School safely along the bike track, away from cars, pollution and noise. BUT we also use the soccer ground, access Nicholson Street cafes and shops, get up to the Nicholson Street tram without having to use the Arthurton Rd bridge (which can be scary for both peds and cyclists even with a new 50km limit), visit mates on both sides of the bridge in Brunswick and Coburg. I consider the other side of the creek as part of my greater neighbourhood.”

Resident of Sumner Estate, Northcote, May 2016
Appendix C

Letters of Support for New Bridge
To whom it may concern,

On behalf of the Croxton School community, the Croxton School Council would like to express support for the proposed footbridge across the Merri Creek. Our students would benefit from a footbridge, as opposed to the current Arthurton Road traffic bridge in several ways. Many of our students participate in travel training, where they are taught to independently travel between home and school and work placements. As East Brunswick is within our zone and our students participate in a variety of work placements with CERES there are many opportunities for our students to utilise a footbridge. The current traffic bridge presents a hazard to our students who have reduced traffic safety awareness and some have reduced physical capabilities e.g. slower to respond to a traffic danger. Our students all participate in bike education. A footbridge would also be utilised by this program.

Our preference would be for a wide, flat, stable surfaced bridge, away from traffic.

We look forward to hearing of the outcome of the current process of community consultation.

Sincerely

Bev Fegan

Principal Croxton School on behalf of Croxton School Council
Mayor and Councillors  
Moreland City Council  
Locked Bag 10  
Moreland VIC 3058  

29th March 2016  

Dear Mayor and Councillors,

Re: Proposed footbridge across Merri Creek near Kingfisher Gardens, Brunswick East

I am writing on behalf of CERES Environment Park to express our support for current proposals to develop a new footbridge across Merri Creek near Kingfisher Gardens, Brunswick East. The CERES Board fully supports the initiative, subject to the suitable positioning and design of the proposed development.

CERES is an incorporated association which has stewardship of four hectares of land on the Merri Creek immediately proximate to the suggested location of the proposed footbridge. Over more than 30 years, CERES members and volunteers have transformed this land – which is owned by Moreland City Council – from derelict landfill to a beautiful park that hosts a myriad environmental demonstration and educational activities, a hub of social enterprises and a much-loved community space. CERES is a major employer within the Moreland/Darebin regions, employing 130 people and turning over in excess of $10 million per annum in the Victorian economy. More than 400 000 people visit CERES each year.

CERES believes the proposed footbridge would provide substantial new amenity to the area, which would improve community safety and wellbeing, and reduce negative environmental impacts of car-based travel. The light industrial area near Beavers Road, Northcote is being increasingly developed for medium-high density residential living. This will place new pressure on surrounding roads and transport options. The proposed footbridge would be invaluable in linking up cycling and pedestrian options along the Merri Trail that would improve local amenity and support traffic calming.

We are aware that the proposed footbridge has strong local resident support, not least because of the safe continuous path of travel it would provide for many of the students and families of Brunswick East Primary School. As a leading environmental educator of Victorian primary school students, CERES wholeheartedly supports an appropriate footbridge development that would provide a safer and environmentally sensitive path of travel for local children and their families.

CERES also believes that the introduction of a new footbridge would have positive local economic impacts, as it would provide greater mobility between East Brunswick and Northcote, allowing both local residents and CERES’ many visitors to easily move by foot and bicycle between different local business precincts in the surrounding areas.

CERES looks forward to contributing to the consultation and feasibility analysis needed to progress the proposed development. This process will be important in ensuring that resulting plans take into account the needs and interests of all who use the local area, including the CERES community.

Please do not hesitate to contact me or CEO, Cinnamon Evans, about this matter.

Yours sincerely,

Dr Jo Barraket  
CERES Chairperson  
Ph 0402 598 773
To whom it may concern,

BIGBANG studio and associated caretaker family are very excited by the possibility of a footbridge across the Merri Creek between Beavers Road, Northcote and Brunswick East. Not only will my 6.5 year old daughter and I avoid the sometimes scary path next to the busy Arthurton rd on our way to and from Brunswick East Primary School but my 30-something creative clients and their young family members will also appreciate it as a healthy alternative to the major roads that surround us.

Not only is walking and cycling a much more sustainable transport choice, it helps alleviate the frighteningly frustrated peak hour travellers in the area. Those who zoom past our warehouse (despite 15km/h signs) have been observed almost ‘taking out’ the young gymnasts (and confused parents) in the dangerous combination of ‘cutting through the back streets’ with cars parking/ rolling children out and frustrated cyclists. In fact, this traffic will increase enormously with the proposed development opposite us on Beavers road.

Of course the development would be more likely to attract potential new residents who would rather walk/ride instead of drive if they could directly access the wonderful asset the area boasts- the Merri Creek bike path. Similarly clients to both the gymnastics schools as part of 177 Beavers Road would be able to walk/ bike their children instead of driving them.

My clients include Warwick Savvas, Senior Associate, Landscape Architect, AILA Green Infrastructure Practitioner who will represent BIGBANG at the upcoming feasibility study on the 22 March. In addition BIGBANG studio hosts BlankTape, Pip Norman COUNT BOUNCE, Moshka design, Hairy Wardrobe, Critical Path Technologies, Gus Kemp photography, Carroll Karpany (original member of US MOB), Tom Chapman, Play Street Landscape, Put Your Heart Into It workshops, Babes with Spades, Vanessa van, Pop Craft, Andrew Fraser photography, Ms Marina, Cognition Content, Brave New Eco, he&eve pty ltd who built/manage BIGBANG studio and a plethora of short-term clients in our brand new photography studio. We will all benefit from a footbridge built over the creek.

Lastly, it’s worth noting that we at unit 1 have a 99 year lease on the land that touches the Merri creek (through the owners corporation of 177 Beavers Road) and as such to date have contributed 100s of hours to regenerate the wonderful bushland- it is assumed that any discussions about future development (due to easements) would include the private land owners very early on.

eRiN
Erin Veronica Ender, 6 April 2016
director/ manager BIGBANG STUDIO 0411337043 unit 1/177 Beavers rd erin@bigbangstudio.com.au
Appendix D

Brunswick East Primary School Data
Residential locations of City of Darebin families who attend Brunswick East Primary School (BEPS) – divided into four zones closest to a proposed bridge.

Zone A: 22 families; at least 31 BEPS students

Zone B: 23 families; at least 32 BEPS students

Zone C: 2 families; at least 3 BEPS students

Zone D: 7 families; at least 11 BEPS students

Based on BEPS data as at 13 May 2016. Prepared by Helen McDonald (with approved access to BEPS data) on behalf of the Merri Creek Bridge Group. Tel 0401 999 152.
Zone A
Going clockwise, this zone is bordered by Normanby Avenue, St Georges Road, Arthurton Road, and the Merri Creek.
22 BEPS families reside in this zone, with at least 31 current BEPS students.

Zone B
Going clockwise, this zone is bordered by Bell Street, St Georges Road, Normanby Avenue and the Merri Creek.
23 BEPS families reside in this zone, with at least 32 current BEPS students.

Zone C
Going clockwise, this zone is bordered by Normanby Avenue, High Street, Separation Street and St Georges Road.
2 BEPS families reside in this zone, with at least 3 current BEPS students.

Zone D
Going clockwise, this zone is bordered by Arthurton Road, High Street, Westbourne Grove/Northcote High and the Merri Creek.
7 BEPS families reside in this zone, with a minimum of 11 current BEPS students.

A note about the data
The database from which this information has been extracted only lists the eldest child in each family enrolled at BEPS. Details of siblings were included where these were known, and in cases where it was unclear if there were siblings, households were presumed to have only one child enrolled at BEPS. While the number of families listed is precise, the number of students is a minimum estimate. Each family’s address was manually checked on a map to determine which zone they were in and whether they were close enough to potentially travel actively to school.
TOTALS

54 families and at least 73 BEPS students ranging from Prep to Grade 6, residing in zones close to a proposed new bridge over the Merri Creek at Beavers Road, Northcote. In total, there are 319 families at Brunswick East Primary School, and approximately 460 students.

Key findings from BEPS enrolment data:

Commuting to Brunswick East Primary School for families living in the City of Darebin means crossing the Merri Creek. While a number of families in the zones on the map above regularly travel actively to school, there are many who choose to travel by car either all or some of the time. This means up to 54 families are driving across either the Artherton Road or the Normanby Avenue bridges every weekday to and from school. Children can be dropped at school between 8.45am and 9am; in the afternoon school finishes at 3.30pm, although some children attend ‘after school care’ which allows pick-up until 6pm.

A significant number of families live north of Normanby Avenue, meaning replication of the Artherton Road bridge would be less suitable solution for them than a bridge half-way at Beavers Road. Some families have said they would choose to ride through back streets down to Leinster Avenue to get to a new bridge.

School zones

There will be an ongoing need for families to cross the creek to get to Brunswick East Primary School as school zoning applies ‘as the crow flies’ regardless of natural boundaries such as creeks. As shown in the map below, BEPS is the closest school for some families in Northcote and Thornbury.

While BEPS is not a ‘zoned school’, and therefore accepts students from outside their defined zone, they must accept enrolments from anyone where BEPS is the closest primary school to where they live. Given their proximity zone includes parts of Northcote and Thornbury, there will continue to be students from the east side of Merri Creek for whom BEPS will always be their closest school.
The ‘zone’ in the centre of this map shows the catchment for Brunswick East Primary School. If you live in this zone, BEPS is your closest primary school.

Source: http://melbourneschoolzones.com/
Appendix E

Proposed Melbourne Water Sewer Works
Appendix F

Preliminary Heritage Due Diligence Advice
1.0 Aboriginal Cultural Heritage

1.1 Proposed Activity and Location

Pitt and Sherry has been engaged to prepare an engineering feasibility study for a proposed pedestrian bridge in one of two Activity Area/s, located within Brunswick East and Northcote, in Victoria (Figure 1).

Proposed Activity Area 1 is located over and within 200m of Merri Creek, at the junction of Blythe Streets, Brunswick East (in the west) and the Arthuron Road Bridge, Northcote (in the east). Both are inner suburbs of Melbourne. The proposed Activity Area also lies at the boundary of two Municipalities, including the City of Darebin (Brunswick East) and the City of Moreland (Northcote).

A further potential Activity Area 2 encompasses a possible pedestrian crossing over Merri Creek between Beavers Road, Northcote and Kingfisher Gardens, Brunswick East, to the north of the Blythe/Arthuron Crossing. The west side of the Activity Area incorporates the Ceres Community Environment Park (http://ceres.org.au/wp-content/uploads/2016/02/CERES_Site_Mobility_Map.pdf, sourced 10/03/2016).

- The design for the bridge is in the early development stage, and the extent of the Activity Area and Property ID’s affected by the proposed Activity are yet to be determined.

Both proposed Activity Areas are located are dominated by the Newer Volcanics broad geomorphic unit, the proposed activity site resides within the country of the *Woi wurrung* language group (Clark, 1990) and the *Wurundjeri Willam* clan.

1.2 Implications - *Aboriginal Heritage Act 2006* and *Aboriginal Heritage Regulations 2007*

The *Aboriginal Heritage Act 2006* (*the Act*) and the *Aboriginal Heritage Regulations 2007* (*the Regulations*) provides protection for all Victorian Aboriginal Cultural Heritage Places. A key feature of the Act is the preparation of Cultural Heritage Management Plans (CHMPs), which will be required under certain circumstances for high impact activities that require statutory authorisation under the Victorian Planning Provisions.

The *Aboriginal Heritage Regulations 2007* give effect to the Act. The Regulations came into operation on 28 May 2007 and should be read in conjunction with the Act. The Regulations set out the circumstances in which a Cultural Heritage Management Plan (CHMP) is required to be prepared, and the standards for the preparation of a CHMP.

The Regulations also prescribe standards and set fees and charges.

According to the Regulations (reg 6):

A cultural heritage management plan is required for an activity if—

(a) all or part of the activity area for the activity is an area of cultural heritage sensitivity; and

(b) all or part of the activity is a high impact activity.
The Aboriginal Heritage Regulations 2007 define high impact activities (Division 5), areas of cultural heritage sensitivity (Division 3) and exemptions (Division 2).

Relevant to the proposed Activity(s) are questions whether the proposed Activity is a high impact activity, as defined by the Regulations (Division 5), and is in an area of cultural heritage sensitivity (Division 3). The regulations also list exemptions (Division 2).

The main questions to ask are:

1. Is the proposed project (the construction of a pedestrian bridge at Arthurton Street) a high impact activity? For example:
   - Is it works on, over or under an existing roadway or existing rail infrastructure (reg 12 (2) (a). If so it is a minor work and considered an exemption.
   - Is it a walking track/bicycle track longer than 100m (r. 44)? This is a high impact activity and there have been a number of CHMPs completed for pedestrian bridges (http://vincentclark.com.au/projects/connolly-avenue-pedestrian-bridge-coburg-chmp/: http://www.ipwea.com/awards2014/wyndham-city-council-wedge-sreet-pedestrian-bridge/ sourced 10/03/2016). The development length includes ancillary areas, such as temporary parking zones for machinery and extent of any disturbance.

2. Is the proposed project in an area of cultural sensitivity according to the Act? In this case, the proposed Activity land - Merri Creek - may be one or more of the following:
   - Registered Cultural Heritage Places (including archaeological sites) are areas of cultural heritage sensitivity as is land within 50m of the place unless the land has been subject to significant ground disturbance.
     - Specific information regarding the location of registered Cultural Heritage Places is held within the Victorian Aboriginal Heritage Register (VAHR), which is administered by the Office of Aboriginal Affairs Victoria (OAAV), and for specific areas, a relevant Registered Aboriginal Party (RAP, see below). VAHR information is generally accessed, by a suitably qualified person, via a valid CHMP number and/or by permission of landowner/developer. Access to the VAHR for this due diligence has not yet been granted, but see Figure 2 for possible sites at Kingfisher Gardens.
   - Waterways and land within 200m of waterways are areas of cultural heritage sensitivity unless they have been subject to significant ground disturbance. Note that both the proposed Activity Area/s are mapped as areas of cultural sensitivity (Figure 2).
     - The exemption with regards to the significant ground disturbance is described in the section below.

A simple way to check whether a Cultural Heritage Management Plan is required for a proposed activity is to use the Aboriginal heritage planning tool and follow the prompts (See - http://www.aav.nrms.net.au/aavQuestion1.aspx, sourced 10/03/2016).
Figure 1: Proposed Activity Areas
Exemption of a CHMP via Significant Ground Disturbance

With regards to the exemption via prior Significant Ground Disturbance, the definitions contained within the regulations are specific and hold that Significant Ground Disturbance means disturbance of the topsoil or surface rock layer of the ground or a waterway by (the Regulations, reg. 4):

- machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping.
- deep ripping in turn means the ploughing of soil using a ripper or subsoil cultivation tool to a depth of 60 centimetres or more.

CHMP Consultation and Evaluation

CHMPs must meet prescribed standards and be approved by OAAV or a relevant Registered Aboriginal Party (RAP; see below) before they can be used to support permit applications to local government or other agencies.

- The Act establishes the Aboriginal Heritage Council, which invites Aboriginal community groups with cultural heritage interests in particular parts of the State to become Registered Aboriginal Parties (RAPs). The RAP(s) may elect to evaluate a CHMP in place of OAAV. The RAP for the proposed Activity Area/s is the Wurundjeri Tribe Land Compensation and Cultural Heritage Council (the Wurundjeri).


Figure 2: Map of area showing areas of sensitivity (based on Planning Maps Online. http://services.land.vic.gov.au/maps/pmo.jsp#Planning%20maps%20online, sourced 10/03/2016). Note the circle forms at Kingfisher Gardens that indicate a Registered Aboriginal Heritage Place (see red arrow).
2.0 Post-Contact or Historic Heritage

2.1 Heritage Act 1995

The Heritage Act 1995 provides for the protection of all Victorian historic sites, places and objects which are at least 50 years old.

Section 127(1) of the Act states:

- A person must not knowingly or negligently deface or damage or otherwise interfere with an archaeological relic or carry out an act likely to danger an archaeological relic except in accordance with a consent issued under section 129.

2.2 Heritage Databases, Registers and Lists

A search was carried out of a number of historic registers and databases in order to determine the extent of historic sites and features in the vicinity of the study area. Agency databases searched included:

- Australian National Heritage List (NHL)
- Australian Commonwealth Heritage List (CHL)
- The Australian Heritage Database (AHD)
- Victorian Heritage Register (VHR) and the Heritage Inventory (HI)
- The Register of the National Estate (RNE)
- Australian Heritage Places Inventory (AHPI)
- The National Trust (NT)
- The Victorian Planning Schemes Online for the Cities of Darebin and Moreland

The search has not revealed any historic places on any of the above historic registers within the proposed Activity Areas. The role of these registers is discussed below.

Victorian Heritage Register (VHR) and the Heritage Inventory (HI)

According to the Victorian Heritage Register (VHR) and the main repository for information on historic archaeological sites, the Victorian Heritage Inventory (HI), there are no registered historic sites within the proposed Activity Area/s.

- A delisted (no longer registered) HI entry refers to Chinese Market Gardens (D7822-0954) on Merri Creek, at 200 Beavers Road, Northcote, just north of the additional Activity Area (http://vhd.heritage.vic.gov.au/places/result_detail/43607?print=true, sourced 10/03/2016). The listing notes that these are described as Lemon mentioned the gardens being above Beavers Road, in Northcote. One of Jones' interviewees says they "extended down through Thombury up to virtually Kendall St or Oakover Rd along the Merri Creek area"...Further, the area above Beavers Rd has two terraces, one broad and one narrow. According to Heritage Council website (http://vhd.heritagecouncil.vic.gov.au/places/43607, updated 1 July 2008 and sourced 10/03/2016): there was a small scatter of broken glass and ceramic from the 19th century. There is some potential for garden and hut remains.
Victorian Local Planning Schemes

The Victorian Local Planning Schemes set out to (planningschemes.dtpli.vic.gov.au/vpps/43_01.pdf, sourced 10/03/2016):

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To conserve and enhance heritage places of natural or cultural significance.
- To conserve and enhance those elements which contribute to the significance of heritage places.
- To ensure that development does not adversely affect the significance of heritage places.
- To conserve specifically identified heritage places by allowing a use that would otherwise be prohibited if this will demonstrably assist with the conservation of the significance of the heritage place.

According to the Planning Schemes Online website (http://services.land.vic.gov.au/maps/pmo.jsp, sourced 10/03/2016), there are no registered historic places listed on the planning schemes for the Activity Area/s. The nearest are the St Georges Road Bike Path at Hawthorn Road, Northcote, about 660m to the southeast.

Commonwealth Legislation

Heritage places of national and international significance are protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), Commonwealth legislation that provides a national framework for environment protection through a focus on protecting matters of national environmental and heritage significance and on the conservation of Australia’s biodiversity.

The National and Commonwealth Heritage Lists were established in January 2004 with an amendment of the EPBC Act. The National Heritage List is a register of places of outstanding Indigenous, historic and/or natural heritage values. The Commonwealth List is a register of important Commonwealth owned places. Heritage places can be on one or both lists. The Australian Heritage Council assesses whether or not a nominated place has heritage values against the relevant criteria and makes a recommendation to the Minister on that basis. No Merri catchment places are on either list.

The Register of the National Estate (RNE) ceased to be an active register in February 2007 and from this point onwards sites were unable to be added or removed from the list. Many places on the RNE are also included in state and local government registers, which provide sites with various level of protection.

The Register of the National Estate is no longer a statutory list. All references to the Register of the National Estate were removed from the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) on 19 February 2012.

The Register of the National Estate (RNE) is now an archive of information about more than 13,000 places throughout Australia. The list of places is accessed through the Australian Heritage Database.
3.0 Preliminary Summary with regards to Aboriginal Cultural Heritage

The following provides a brief background to the Aboriginal Cultural Heritage relevant to the proposed Activity Area/s, largely from publically available resources. Detail regarding prior heritage assessment of the proposed Activity Area/s, including information regarding the results of any recent Cultural Heritage Management Plans, can only typically be accessed in the course of a CHMP preparation, via a valid CHMP number.

While the determination for a CHMP is based on the type of activity and defined areas of sensitivity (see section 1.2 above), the summary is useful in identifying the level of investigation required (desktop, simple or complex) if a CHMP is to be prepared.

3.1 Regional studies

According to previous archaeological studies, Aboriginal occupation in the Port Phillip hinterland region dates back to at least 20,000 years. The oldest dated archaeological site is known from the river terraces at Keilor, and includes evidence for human remains, Aboriginal stone tools, as well as the presence of megafauna (Bowler, 1976, see Duncan 2001 for discussion on the implications of the megafauna/human association at the site).

The majority of Aboriginal Cultural Heritage Places in southern Victoria are located along its coast and largely comprise coastal artefact scatters and shell midden deposits that date from a period of sea level stabilization that started about 6,000 years ago. Most Aboriginal Cultural Heritage Places in the hinterland region are also probably no older than a few thousand years. These include a range of significant places such as the Mount William Axe Quarry located near Lancefield, approximately 100 km north of Melbourne (McBryde 1984) to the historical Corranderk Mission site, at Healesville (50km northeast of Melbourne).

Scarred trees are also commonly recorded (i.e. Presland, 1983).

3.2 Prior Studies of Aboriginal Cultural Heritage Places at Merri Creek

The north central region of Melbourne is the traditional land of the Wurundjeri-willam people, a clan of the Woiwurrung language group (Ellender and Christiansen 2001).

The earliest ethnographic accounts of known sources of contact between Europeans and Aboriginal people at Merri Creek was William Thomas, the Assistant Protector of Aborigines from 1839. From the 1840s, he helped to establish the Merri Creek Aboriginal School (on the peninsula of land between the Merri and the Yarra River, Dight's Falls, Abbotsford – over 3 km southeast of the proposed Activity Area/s and now covered by the Eastern Freeway - Hall, 1989, Johnson and Ellender, 1993, vol. 2). His observations provide a good understanding of the Woiwurrung speaking people at Merri Creek at the time of contact.

One of the earliest discoveries was of local Aboriginal cultural heritage was of a mound site at Donnybrook by Brough Smyth in 1887 (in Ellender, 1997b). Other early records refer to a scatter of artefacts at the Merri/Yarra confluence discovered by Hardy in 1911, and a freshwater mussel midden and artefacts near Pentridge Prison at Coburg discovered by Hanks in 1933 (Ellender, 1997a).
Presland’s 1983 survey of the Melbourne area was the first modern study to identify the Merri Creek as having archaeological potential. Since then, a number of archaeological studies of the Merri Creek corridor have shown that the creek and its vicinity were important for subsistence, movement and maintaining cultural traditions for Aboriginal people.

In 1989, and commissioned by the Merri Creek Bicentennial Committee, Roger Hall located twenty one lithic scatters (stone artefacts) and five scarred trees along the Merri Creek corridor. He concluded that the scarred trees are of ‘high regional cultural significance and at least a medium regional scientific significance’. He also suggested that the area north of Mahoneys Road, several kilometres north of the proposed Activity Area/s, and where the land is unmodified, should be considered as archaeologically sensitive. While the effective survey coverage was poor in the area, the study made recommendations with regards to the ongoing protection of surveyed sites.

Ellender’s background heritage study for the 1993/1994 Merri Creek Concept Plan Final Draft, was largely a desktop study, aimed at identifying new areas for further field survey and the protection of known sites. Proposed protection mechanisms included the re-vegetation, avoidance of disturbance and erosion at seven specific sites along Merri Creek, from Craigieburn Road to near the confluence with Central Creek (at least 10km north of the Activity Area/s). Further recommendations were made for areas of archaeological sensitivity.

Following on in the same year, Ellender (1997) completed a range of field surveys including that between Hernes Swamp and Craigieburn; again over 10 km north of the proposed Activity Area/s. In total, her work resulted in a total of sixty Aboriginal sites being registered from Hernes Swamp to the Merri Creek's confluence with the Yarra River, at Dight’s Falls. These sites include more than 40 registered artefact scatters and 20 scarred trees in the area upstream of Mahoneys Road, Campbellfield, north of the proposed Activity Area. The study made a range of recommendations about their protection, as well as with regards to cultural heritage education and future projects.

As part of the study, Ellender also investigated the area of Dight’s Falls for evidence of William Thomas’ house/Protectorate Station and the Merri Merri Aboriginal School, as well as the Donnybrook mound recorded in 1878. These sites could not be relocated, however a number of historical sites were nominated for the Register of the National Estate.

Latter archaeological studies of the Merri Creek corridor, have largely focused on the developing areas north of the proposed Activity Area/s. These include du Cros and Associates 1991 (in Ellender 1997b) study of the Craigieburn’s Malcolm and Aitken Creeks, Melbourne Water’s study of Edgars Creek, between the Kodak Bridge and the confluence of Edgars and Merri Creeks (du Cros and Associates 1996), as well as range of survey work undertaken for the Craigieburn Bypass (Vines, 1996, Newby, 1997 and Muir, 1998 and 1999). Over ten new Aboriginal archaeological sites were recorded, and the Merri Creek, particularly near Galada Tamboore at Thomastown (>5 km north of the proposed Activity Area/s) and its associated tributaries were confirmed as areas of high archaeological sensitivity. In 1998, in preparation for the Aurora development in Epping North, Biosis Research Pty Ltd, identified 13 new sites - namely artefact scatters - on the higher stony rises near Edgars Creek (in MCES 2009-2014:33). A large number of artefact scatters have been found at Campbellfield, to the north of the proposed Activity.

In 2003, The Moreland City Council (MCC 2010) commissioned TerraCulture Pty Ltd to undertake a background study of the Aboriginal archaeological sites within its municipal boundaries; including Merri Creek. The focus of the Study was the archaeological record
created by the traditional Aboriginal inhabitants of the Moreland area until 1835, the year that marked the beginnings of the permanent European settlement of the Port Phillip District.

Terraculture (in MCC 2010) argued that subsequent land use by Europeans has a profound effect on Aboriginal cultural heritage. It found that local geomorphology features aggrading terraces and floodplains associated with the waterways that can result in the burial and preservation of archaeological material. The Newer Volcanics dominate Moreland’s landscape and away from the local drainage lines soil development can be generally poor. Under these circumstances, with little opportunity for burial, archaeological material is likely to have accumulated on the surface of the ground over long time periods but with little or no depth to the deposits. As surface archaeological sites, those on Moreland’s volcanic plains would be highly vulnerable to disturbance as a result of European land use.

Terraculture also found that the potential for Aboriginal cultural heritage in the areas may have been affected by patterns of seasonal movement and settlement across the Moreland landscape; subsistence activities especially hunting and gathering; and the need to meet social and spiritual obligations. As a result, little is known about the pre-contact occupation. They also found that of Moreland’s urban areas, older suburbs such as Brunswick are more likely to retain archaeological deposits simply because 19th and early 20th Century methods of house and road construction were less destruction of the ground’s surface. Where there is a correlation between these older areas and landforms which are archaeologically sensitive, there is some chance that archaeological material has survived to the present day and could be uncovered during any redevelopment of these areas.

3.3 Aboriginal Cultural Heritage Places in the vicinity of the proposed Activity Area/s

The above provides a broad summary of the Merri Creek Catchment area available publically. Based on Figure 2, it is probable that there are registered Aboriginal Cultural Heritage Places in the vicinity of the proposed Activity Area at Kingfisher Gardens.

- However as noted above, according to the VAHR, specific information with regards to registered Cultural Heritage Places within the proposed Activity Area/s may only be accessed by a suitably qualified person, via a valid CHMP number.

Without this information, it is therefore not possible to confirm if there are any registered Aboriginal Cultural Heritage Places in the location of the Activity Area/s and/or if the area has already undergone a recent archaeological field survey.
4.0 Preliminary Summary of Post-Contact or Colonial History

Post-contact settlement of the lands of the Merri Creek corridor and catchment is comparatively well documented and has been sourced from a range of local histories and online (i.e. http://prov.vic.gov.au/publications/provenance/provenance2007/stroll-along-the-merri, sourced 100/3/2016).

More broadly, a number of related studies completed by the Merri Creek Management Committee (MCMC), provide an overview of early settlement, the growth of local industries and other land use. Included are MCMCs education kit Streets and Streams (MCMC 2000) and the subsequent MCMC 2004 (http://mcmc.org.au/index.php?option=com_content&view=article&id=272:mces-12-historical-heritage&catid=32:mces&Itemid=341, sourced 10/3/2016), as well as the recent Merri Creek Environ's Strategy 2009-2014.

Starting in 2001, both the Darebin City Council and the Moreland City Council (i.e. 2004) also adopted and/or completed heritage studies and draft heritage reviews that set out to map and plan the local heritage values. These are reflected in the Planning Scheme data. Other major sources include Ellender 1997a and 1997b and Lemon’s 1993 assessment of Edgar’s Creek.

4.1 Early History of the Melbourne Region

European history of the Melbourne region followed not long after the voyages of Bass and Flinders in 1798. Surveyors Fleming and Grimes explored the lower reaches of the Werribee River in 1802 and 1803. Also in 1802, John Murray and Mathew Flinders mapped the Port Phillip Bay coast. In 1803, a small convict settlement briefly arose and disappeared at Sorrento. Its infamous escapee, William Buckley, went on to spend 32 years living with the Wada wurrung peoples at the western end of Port Phillip Bay (see Harcourt, 2001).

Elsewhere European presence continued to be sporadic. Bass Strait sealers commenced exploiting the seal colonies along the Victorian coastline in around 1806 and establishing seasonal settlements (Townrow 1997). Hume and Hovell travelled overland to Port Phillip reaching Corio Bay in 1824, reporting favourably on the open grasslands to the north and west of the present day city of Melbourne. In 1835, John Batman founded the capital city.

European and Colonial Land Use of the Proposed Activity Area/s

Following the foundation of Melbourne, settlement in the hinterland established relatively quickly. In 1837 Robert Hoddle surveyed the area later to be known as Brunswick and Northcote, establishing High and Nicholson Streets as part of Melbourne’s grid system of street planning. Aboriginal names, Merri Creek included, were used for the creeks and rivers that formed the suburb borders.

Early land sales in the locality of Moreland for example, occurred in 1839, and included long, narrow allotments of between 90 and 140 acres, some with frontages to Merri Creek. Most were purchased by property developers, while pursuits such as farming, market gardens, industry, services and residential development, became typical of the area.

Perhaps the most consistent use of the creek corridor in the post-contact period was for quarrying. According to the Merri Creek and Environ’s Strategy Chapter 1.2 - Historical Heritage (http://mcmc.org.au/index.php?option=com_content&view=article&id=272:mces-12-historical-heritage&catid=32:mces&Itemid=341, sourced 10/03/2016):
Northcote and Brunswick had terrific clay underfoot. By the early 1860s there were 50 brickyards, with the Hoffman’s outfit employing up to 800 people. By 1865, most of the labourers in the district were working either in brick making, pottery and tile-making, or as quarrymen. By 1875 there were 41 quarries in the creek corridor.

With the Merri Creek in some places having basalt cliff exposures of 20 metres, there were points where bluestone extraction was relatively easy. In other places, such as the Wales Quarry near Albert Street, Brunswick, the digging went way deep.

The earliest quarries were situated between Heidelberg Road and the Yarra with the Melbourne Corporation Quarry operating from the 1850s at the site of the former Collingwood Tip near the end of Ramsden Street, Clifton Hill (now Quarries Park). The Collingwood Council Quarry opened in the 1880s adjacent to the Quarries Park quarry. Fitzroy Council was also reported to have opened a quarry on the site of the present-day Westfield Reserve, just south of Heidelberg Road in the 1840s. Later Heidelberg Council opened an adjacent quarry below the now MacFarlane Burnet Centre for Medical Research. The remains of a third small quarry are still evident today just south of Westfield Reserve. Other important quarries were the Wales Quarry in Brunswick (later Whelan’s Depot), the quarry that the Centre for Education and Research in Environmental Strategies (CERES) is now built on, and just to the east of the old Pentridge Stockade boundary near Coburg Lake.

The Wales Quarry was a major quarry to the south of Arthurton Road on the Brunswick side. This Ceres Quarry is clearly visible in the Metropolitan Plans of the early 20th century (1832, Figure 3), and appears to have been located within the vicinity of the second proposed Activity Area, as are a number of other quarries surrounding Beavers Road (see Figure 3, MMBV; Melbourne and Metropolitan Board of Works plan, scale 400 feet to 1 inch. no.105, Brunswick & Northcote [cartographic material], sourced 10/03/2016) To the north of the proposed Activity Area, are extensive market gardens that may relate to the Chinese gardens mentioned by the delisted HI entry above (see section 2.2 above).

The same map shows a modified bridge approach at Arthurton Road (Figure 4), supporting significant ground disturbance in this Activity Area as early as 1932. Later developments further served to totally alter this location, with the construction and reconstruction of the road and the introduction of the Merri Creek Trail on its eastern banks. This comprises a modern hard surface walking/bike trail, drainage and landscaping. To the north, the CERES complex, first constructed in the 1980s, altered the former quarry grounds to the landscaped gardens and building areas that are easily identifiable today. These cover a large proportion of the proposed Activity Area 2.

While located within relatively older suburbs, both Activity Areas appear to have had a high degree of alteration and modification in the 20th century. According to Neville Rosengren (1993) assessment and survey of local geomorphology in particular:

- there have been major realignments of Merri Creek in Northcote and Brunswick between St. Georges Road and Blyth Street, and between Albion Street and Moreland Road;
- construction of levee banks in Northcote (north and south of Arthurton Road) as a flood protection measure.
Figure 3: Quarry covered by CERES and Beaver Street. Melbourne and Metropolitan Board of Works plan, scale 160 feet to 1 inch. no.105, Brunswick & Northcote [cartographic material]. Melbourne and Metropolitan Board of Works. State Library of Victoria.

Figure 4: Arthurton Bridge. Sourced as above.
5.0 Preliminary Modelling for the Proposed Activity Area/s

Over the last 150 years, European occupation has introduced significant deliberate modifications to the morphology of many areas of the Merri Creek valley. This includes the locations of the proposed Activity Area/s. The cumulative effect of the prior developments has been a highly modified environment, even in areas where there are open spaces. As noted by Terraculture in 2003, this has severely affected the integrity of the original surface soil structure and composition. In many localities, there has been importing of soil, original surfaces have been regraded and compacted.

The impact of the disturbance is likely to affect and lessen the potential for both Aboriginal cultural heritage and historic heritage values. However, in terms of Aboriginal Cultural Heritage Values, an exemption from further assessment, via CHMP, may be granted if an area is subject to what is described as significant ground disturbance under the Act.

Section 6 discusses if the proposed Activity Area/s have been subject to significant ground disturbance, according to the Act.

5.1 Potential for Historic Heritage

The potential for historic heritage within the two proposed Activity Area/s is low. There is no documented evidence for historic sites in the vicinity of either area, other than the quarry sites at Activity Area 2 (Kingfisher Gardens and Beavers Road). The quarries appear to have been destroyed by modern development (i.e. CERES, Beavers Road).

The construction of the levees, the Merri Creek Trail and modifications to the Arthurton Bridge has meant that any historic heritage in this proposed Activity Area is likely to have been removed.
6.0 Aboriginal Cultural Heritage - Evidence for Significant Ground Disturbance at the Activity Area/s

The burden of proof that an area is not an area of sensitivity due to Significant Ground Disturbance is via the Proponent. Further, according to a note by Clause: 1 Property Planning and Development Services (http://clause1.com.au/wp-content/uploads/2014/07/Aboriginal-Cultural-Heritage_Developers_Obligations.pdf, sourced 10/03/2016):

On this matter, previous determinations of VCAT provide a valuable reference for understanding the implications. The decision of Mainstay Australia Pty Ltd v Mornington Peninsula SC & Ors [2009] (VCAT 145), for example, provides commentary on the level of inquiry required by a planning authority to determine whether significant ground disturbance has occurred. In this instance, despite the assertions of both the Permit (www.clause1.com.au 5/6). Applicant and Council that significant ground disturbance had occurred, the Tribunal found otherwise. Photographs and a land use history dating back to the 1960’s were presented at the hearing and detailed discussions took place which related to implements used in ploughing of the land and to what depth it had occurred. The Tribunal eventually found that while significant ground disturbance had occurred to part of the land through the excavation of a house site, the digging of three sewerage and drainage pits, and the excavation of two drainage pipelines, the areas affected comprised only 25% to 30% of the site and a CHMP was required for activity proposed. Other notable conclusions to be arrived at by the Tribunal were:

It is the fact of significant ground disturbance that creates an exception under the Regulations, and determines if a CHMP is not required. The actual likelihood of Aboriginal heritage existing in the area is irrelevant to this determination;

The timing of the significant ground disturbance is irrelevant. It may have occurred many years ago in the early history of European settlement in the state;

If only part of the land has been subject to past significant ground disturbance, and the remaining part is still in an area of cultural heritage sensitivity, a CHMP will still be required for the whole development activity;

The burden of proving that the land has been the subject of significant ground disturbance rests with the applicant. The planning decision maker (and, on review, the Tribunal) must feel an actual persuasion of the existence of that fact to its reasonable satisfaction. This should not be derived produced by inexact proofs or indirect inferences, and little weight should be given to a mere assertion by an applicant or landowner;

In assessing whether significant ground disturbance has occurred, there are four levels of inquiry that might commonly arise, and the assessment should be dealt with at the lowest applicable level.

These levels are:
1. common knowledge
2. publicly available records
3. further information from the applicant
4. expert advice or opinion.

6.1 Evidence for Significant Ground Disturbance at the Activity Area/s

Proposed Activity Area 1 Arthurton Road

1. Common knowledge

The site comprises a modern bridge, built over an original 19th century crossing. Both sides of the Arthurton Road Bridge have extensively modified sides and appear to have undergone recent landscaping and remodelling, with the construction of an underpasses on the western side for the Merri Creek Trail and similar construction on the eastern side. Both banks are known to have been leveed and no natural topography remains (see 2. below). Common knowledge indicates that recent construction would have employed excavation by machinery and is therefore proof that the area has undergone significant ground disturbance. Elsewhere, and based on satellite photography, the ground appears to be completely covered with modern surfaces and utilities, again supporting prior significant ground disturbance.

2. Publicly available records

Evidence by Rosengen 2003 mentions the destruction of the geomorphology in this area due to the construction of the levees, therefore supporting significant ground disturbance. 1932 mapping shows the bridge and the abutments, indicating clearly the regular modification around both banks. Rosengren also notes that there have been major realignments of Merri Creek south of Blythe Road and St George Road, to the south of the Activity Area.

Proposed Activity Area 1 Beavers Road and Kingfisher Gardens

1. Common knowledge

The majority of the site comprises land that has been completely re-landscaped in the 1980s by the CERES development, incorporating a former quarry and trail. The Merri Creek Trail is also a modern development - involving modern machinery excavation - that adds to the significant ground disturbance on the western bank of the Activity Area.

Equally the west bank at Beavers Road, also incorporates a range of historical quarries and the construction of the road and associated infrastructure and utilities is modern, and therefore would have employed machine excavation of the topsoil.

2. Publicly available records

Public plans show the presence of quarries in the location of Beavers Road and Kingfisher Gardens, within the modern Ceres complex on top of the west, as well as the east bank.
7.0 Recommendations for Further Assessment

7.1 Proposed Activity Area 1 Arthurton Road, Northcote and Blythe Streets, Brunswick East

Aboriginal Cultural Heritage

Based on the above preliminary study, several lines of inquiry (common knowledge; public records - see above) indicate that the proposed Activity Area at Arthurton Road, Northcote, comprises prior significant ground disturbance and therefore is not considered an area of Aboriginal cultural heritage sensitivity under the *Aboriginal Heritage Act* 2006.

- A further field inspection of the ground surface and historical research may serve to add weight that the full extent of the Activity Area has undergone significant ground disturbance and therefore a CHMP is not required, even if the Activity is a high impact Activity.

Final proof of this significant ground disturbance - in the form of a short due diligence report - is to accompany any Application for Planning Approval.

- There is no recommendation for a voluntary CHMP.

Note: A VAHR search is to be completed prior to the Planning Application in order to confirm there are no registered Cultural Heritage Places in the proposed Activity Area.

- In the absence of a valid CHMP number, this requires an Application to Access the VAHR ([https://applications.vic.gov.au/apps/achris/public/request-for-access/home](https://applications.vic.gov.au/apps/achris/public/request-for-access/home), sourced 10/03/2016). This application should include the exact location of the proposed Area in terms of Property ID, a geographically referenced map (north arrow, scale and co-ordinate location) and proof of development and reference to heritage consultant completing the project.

At this stage it seems unlikely that there are any registered Aboriginal cultural heritage sites within the Activity Area. If however, there is a registered place within the proposed Activity Area, the preparation of a CHMP and/or completion of a cultural heritage permit, are required. A CHMP is generally the preferred option.

Post-Contact or Historic Heritage

In terms of European or historic cultural heritage, there is sufficient evidence that prior ground disturbance would have also destroyed any historical cultural heritage in the Activity Area. The potential to identify historical values within the Activity Area is therefore low and there is no recommendation for further assessment.

7.2 Proposed Activity Area 2 Beavers Road and Kingfisher Gardens, Brunswick East

Aboriginal Cultural Heritage

Based on Figure 2, it is probable that there are registered Aboriginal Cultural Heritage Places in the vicinity of the proposed Activity Area at Kingfisher Gardens.

- According to the VAHR, specific information with regards to registered Cultural Heritage Places within the proposed Activity Area/s may only be accessed by a suitably qualified person, via a valid CHMP number.
If there is a registered place within the proposed Activity Area, the preparation of a CHMP and/or completion of a cultural heritage permit, is required. A CHMP is generally the preferred option.

If there is no registered Cultural Heritage Place within the Activity Area, it is likely that a CHMP is still required if the activity is determined to be High Impact.

- The exemption for prior Significant Ground Disturbance is less likely that for Arthurton Street. Common knowledge and publically available information do support the inference that most of the proposed Activity Area 2, at Kingfisher Gardens, Brunswick East and Beavers Road, Northcote, comprises prior significant ground disturbance. However this evidence mainly refers to the upper banks and not the Merri Creek sides, which are likely to be also affected by the proposed Activity.

- A field inspection of the ground surface and historical research may serve to add weight that the full extent of the Activity Area has undergone significant ground disturbance and a CHMP is not required; even if the proposed Activity is determined to be high impact.

If proof for significant ground disturbance is not sufficient for whole of the proposed Activity Area, a CHMP is mandatory if the proposed Activity is determined to be a high impact activity.

If a CHMP for this area becomes mandatory;

- The level of assessment required (desktop, standard or complex) will be determined according to the standards set out in the Aboriginal Heritage Regulations 2007 and in consultation with the RAP for the proposed Activity Area/s (the Wurundjeri).


**Post-Contact or Historic Heritage**

In terms of European or historic cultural heritage, there is sufficient evidence that prior ground disturbance would have also destroyed historical cultural heritage in the Activity Area. However there is some evidence for historic artefact scatters in the vicinity and these may remain on less developed Creek sides or on edges of the bank. The potential to identify historical values within the Activity Area is therefore low to medium and the recommendation is for a field survey to confirm the absence of any historic features in the locality. This should be completed via the consultation with Heritage Victoria.
8.0 Bibliography


Context Pty Ltd, 1999, Merri Creek – Historic Sites Review of Protection Status and Recommendations, report prepared for Merri Creek Management Committee Inc.


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Web Sources


Planning Maps Online;


Merri Creek Management Committee Reports

Merri Creek Management Committee (2000) Streets and Streams education kit

Legislation and Registers

*Aboriginal Heritage Act* 2006 and Aboriginal Heritage Regulations 2007

*Heritage Act* 1995

Australian National Heritage List (NHL)
Australian Commonwealth Heritage List (CHL)
The Australian Heritage Database (AHD)
Victorian Heritage Register (VHR) and the Heritage Inventory (HI)
The Register of the National Estate (RNE)
Australian Heritage Places Inventory (AHPI)
The National Trust (NT)
The Victorian Planning Schemes Online for the Cities of Darebin and Moreland

*Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act)
Appendix G

Concept Design for New Shared Use Bridge
DAREBIN CITY COUNCIL
PEDESTRIAN AND CYCLIST ACCESS ACROSS MERRI CREEK, NORTHCOTE
CONCEPT

ML15374-P1 - CONCEPT

SCALE IN MILLIMETRES - 1:1

APPROXIMATE ALIGNMENT OF PROPOSED MELBOURNE WATER SEWER REHABILITATION

REFERENCE FILES ATTACHED: ML15374-X1500

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Updated By: Gena Zelenkov

BRIDGE PLAN

EASTERN ABUTMENT

WESTERN ABUTMENT

NORTH

PYLON

PIER

PROPOSED BRIDGE

SHARED USE PATH

SHARED USE PATH

APPROXIMATE ALIGNMENT OF PROPOSED MELBOURNE WATER SEWER REHABILITATION

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