Attachment 3: Flemington Bridge Station Shared Path Model Interchange Report

FLEMINGTON BRIDGE RAILWAY STATION
SHARED PATH MODEL INTERCHANGE LINK

PREPARED FOR:
MOONEE VALLEY CITY COUNCIL

AUGUST, 2011
OUR REFERENCE: 13155R7688
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APPENDICES

Appendix A: Pedestrian and Bicycle Surveys
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Appendix C: Concept Plans

<table>
<thead>
<tr>
<th>Revision No.</th>
<th>Comment</th>
<th>Prepared By</th>
<th>Approved By</th>
<th>Date Approved</th>
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<td>V1</td>
<td>Draft</td>
<td>A. Lai</td>
<td>R. Thomson</td>
<td>01/08/2011</td>
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<td>A. Lai</td>
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<td>A. Lai</td>
<td>R. Thomson</td>
<td>05/10/2011</td>
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LIMITATION: This report has been prepared on behalf of and for the exclusive use of Traffic Group’s client, and is subject to and issued in connection with the provisions of the agreement between Traffic Group and its client. Traffic Group accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.
1 INTRODUCTION

Traffic Group was engaged by the Moonee Valley City Council to investigate the improvement of the pedestrian and cycling links in the vicinity of the Flemington Bridge Railway Station, including upgrading the access between the railway station, nearby tram stops, existing shared paths and surrounding land use. This report presents the existing site issues, the outcomes of the data collection and consultation activities, discussion of the potential path alignment options including likely difficulties with their construction and impacts on the surrounding community. This report also includes recommendations in relation to the preferred treatments.

2 BACKGROUND INFORMATION

2.1 Bicycle Victoria Correspondence

Bicycle Victoria made a formal request to the Moonee Valley City Council in December 2010 to “resolve the difficulty of negotiating the tight hairpin bends on the Capital City Trail ramps” as it passes the Flemington Bridge Railway Station. In addition, Bicycle Victoria also requested Council consider listing the improvement to the tight hairpin bends as a priority project to be actioned in conjunction with VicTrack who has been undertaking remedial work at the railway station.

2.2 Moonee Ponds Trail Road Safety Audit

The shared path audit of the Moonee Ponds Creek Trail has identified the Flemington Bridge Railway Station as one of the key sites which have noticeable safety issues to path users. The audit pointed out a number of safety issues at this site, including:

- Obscured destination signage with graffiti,
- Obstructed sight distance by the foliage at the base of the pedestrian ramp,
- Narrow ramp for two-way movement,
- Unclear priority for shared path users, and
- Existing hazards to path users including trees and redundant bollards and the column at the kerb ramp transition from the Flemington Road bicycle lane.

The audit also provided recommendations to improve the above issues. In the shorter term, it was recommended to trim the surrounding vegetation, upgrade the existing signage and re-limnark the junction to provide a clear indication of priority and alignment of the paths. In the longer term, it was recommended to consider widening the existing ramp to the northern Flemington Bridge platform or construct a new bridge to the Capital City Trail which starts from the Moonee Ponds Creek Trail approximately 50 metres north of Racecourse Road.

3 EXISTING CONDITIONS

The Flemington Bridge Railway Station is located on the southwest side of Flemington Road immediately to the northwest of the Boundary Road intersection in Flemington. An aerial photograph depicting the railway station and the existing shared path connection is presented in Figure 1.
Figure 1: Aerial Photograph

The Moonee Ponds Creek Trail meets with the Capital City Trail at the Flemington Bridge Railway Station, connected via an access ramp of 1.8 metres in width and an approximate 11% gradient on the northern side of the railway line. This ramp also provides direct access to the outbound railway platform. Currently, the Capital City Trail users have to negotiate two tight hairpin bends on the access ramps in order to connect to the Moonee Ponds Creek Trail, as shown in Figure 1.

The Capital City Trail in the vicinity of the Flemington Bridge Station is provided as an overpass across Flemington Road parallel and adjacent to the railway tracks. Currently, cyclists have to travel in a loop to go underneath Flemington Road and use the Flemington Road footpath which acts an additional shared path across the Moonee Ponds Creek.

3.1 Access to Railway Station

Both the citybound and outbound platforms are elevated and are not visible from the streets. To provide access to the railway platforms, access ramps are provided on both sides of the railway line.

On the northern side of the railway tracks, two access ramps are provided to the outbound platform with one up from Flemington Road which has a width of 1.8m and a grade of 11.5%, and the other down from the Capital City Trail.

On the southern side of the railway tracks, an access ramp to the citybound platform is provided up from Flemington Road which has a width of 1.8m and a grade of 11.5%.

Currently, there is no direct access to Racecourse Road from the railway platforms.
Trams and buses also run past the Flemington Bridge Railway Station. Exclusive tram lanes are provided along Flemington Road for the Route 59 tram service which operates between Airport West and the CBD seven days a week. There are two tram stops for route 59 which are in close proximity to the railway station. Stop 22 is located to the southeast of the intersection at Boundary Road/Clytlink Off Ramp. The walking distances from Stop 22 to the access ramps at the railway station are approximately 70m for the citybound platform and 120m for the outbound platform.

Stop 23 is located at the Flemington Community Centre to the northwest of the CityLink Bridge. The walking distances from stop 23 to the access ramps at the railway station are approximately 300-330m for the citybound platform and 250-260m for the outbound platform.

Tram route 57 also operates along Flemington Road and Racecourse Road seven days a week. The closest tram stop to the railway station is located at the Boundary Road intersection, which is approximately 190m from the ramp to the citybound platform and 190m from the ramp to the outbound platform.

In addition to trams, bus route 479, which operates between Sunbury and the CBD on weekends, also runs past the Flemington Bridge Railway Station.

### 3.2 Trail Destinations

**The Moonee Ponds Creek Trail** is approximately 25km in length, which starts at Docklands and follows Moonee Ponds Creek to Woodlands Homestead and Melbourne Airport. Key destinations along the trail for recreational path users include the Boeing and Charles Kingsford Smith ULM reserves near Essendon Airport, Jacana wetlands in Jacana, the Broadmeadows Valley Park in Broadmeadows, Willowbrook Reserve in Westmeadows and the Woodlands Historic Park next to Melbourne Airport.

The trail follows the Tullamarine Freeway, for much of the route up to Essendon Airport. After Bell Street it leaves the Tullamarine Freeway and heads north on the east side of Essendon Airport through a series of parks, including the Boeing and Charles Kingsford Smith ULM reserves. Passing under a large trestle bridge, the trail soon arrives at the Western Ring Road and the Western Ring Road Trail next to Melbourne Airport.

**The Capital City Trail** is a 32km loop that runs through central Melbourne, through the municipalities of Yarra, Melbourne and Moonee Valley. The trail uses the same path as the Main Yarra Trail up to Dights Falls, where it continues, using the same path the Merri Creek Trail and the former Inner Circle Railway alignment, as part of its loop around the city.

The key destinations along the trail include the Melbourne Zoo, the Melbourne Aquarium, Como Historic House and Garden, Federation Square, the Collingwood Children’s Farm and the Abbotsford Convent.

### 3.3 Title Boundaries

A map showing the title boundaries of the VicTrack land, City of Melbourne land and City of Moonee Valley land in the vicinity of the Flemington Bridge Railway Station are presented in Figure 2.
4 PEDESTRIAN & CYCLIST SURVEYS

Pedestrian and cyclist surveys were undertaken by Traffix Group to record the existing pedestrian and bicycle volumes at the key path junctions during the AM and PM peak periods. In addition, tram surveys were undertaken to record the number for passengers boarding and alighting from the outbound trams at stops 22 and 23 and also what direction passengers walked after departing the stops.

In addition to the above surveys, previous bicycle count surveys undertaken by Bicycle Victoria were reviewed to determine the bicycle usage of the existing shared paths surrounding the Flemington Bridge Railway Station.

4.1 Pedestrian and Bicycle Surveys

The pedestrian and bicycle surveys were undertaken during the AM peak between 7:00am and 9:00am on Thursday 16th June 2011 and during the PM peak between 4:00pm and 6:30pm on Wednesday 22nd June 2011. The number of pedestrian and bicycle movements were recorded at four key path junctions at the Flemington Bridge Railway Station, including:

- Moonee Ponds Creek Trail/Flemington Road (under the CityLink Bridge),
- Moonee Ponds Creek Trail/Flemington Road/Access Ramp to Outbound Platform,
- Hairpin intersection between Access Ramp to Outbound Platform and Capital City Trail, and
- Access Ramp to Citybound Platform/Boundary Road/Flemington Road.
Based on the survey results, the AM peak hour was identified as 7:30am-8:30am and the PM peak hour as 5:00pm-6:00pm. The key movements during the AM and PM peak hours are presented in Figure 3 and Figure 4 respectively.

**AM Peak Hour (7:30am-8:30am)**

![Diagram](image)

**Figure 3: AM Peak Key Movements**

- The bicycles that used the existing shared paths surrounding the Flemington Bridge Railway Station outnumbered the pedestrians significantly during the AM Peak.
- The majority of bicycles were observed to travel southwest bound using the Capital City Trail as well as the Moonee Ponds Creek Trail.
- Of the 124 southwest bound bicycles, more than half approached from the Capital City Trail and accessed the Moonee Ponds Creek Trail via the two hairpin turns at the outbound platform access ramp.
- A relatively small number of pedestrians (18) were observed to leave from the outbound platform.
- A larger number of pedestrians (25) and bicycles (68) were observed to turn right from the Moonee Ponds Creek Trail onto Flemington Road under the CityLink Bridge.
- The dominant pedestrian movement was observed to be the right turn movement from the Flemington Road north approach at the ramp access to the citybound platform.
PM Peak Hour (5:00pm-6:00pm)

Figure 4: PM Peak Key Movements

- The bicycles that used the existing shared paths surrounding the Flemington Bridge Railway Station outnumbered the pedestrians considerably during the PM Peak.
- The majority of bicycles were observed to travel northeast bound to the Capital City Trail using the outbound platform access ramp.
- Of the 105 northeast bound bicycles, more than half (62) accessed the Capital City Trail via the two hairpin turns at the outbound platform access ramp.
- The number of pedestrians (54) leaving from the outbound platform increased significantly compared to the AM Peak.
- High volumes of pedestrians (50) and bicycles (69) were recorded in the Flemington Road northwest bound direction, with almost half of the path users turning left onto the Moonee Ponds Creek Trail.

The full results of the pedestrian and bicycle surveys are presented in Appendix A.

4.2 Tram Surveys

The tram surveys were undertaken during the PM peak period between 4:00pm and 6:00pm on Wednesday 22nd June 2011. The purpose of the trams was to record the number for passengers boarding and alighting from the outbound trams at the two tram stops that are in close proximity to the Flemington Bridge Railway Station. The surveys also recorded what direction passengers walked after departing the stops.
The key findings of the tram surveys are as follows:-

- The PM peak hour was identified to be 4:45pm-5:45pm.
- During the PM peak hour, it was observed that most passengers (29) alighted at tram stop 22 to the southeast of Boundary Road/CityLink Off Ramp.
- Of the alighting passengers at stop 22, the majority walked to the northeast side of Flemington Road.
- Only 3 passengers alighted at stop 23 near the Flemington Community Centre and all travelled to the north after alighting.
- More than half of the boarding passengers (18) caught a tram at stop 22.

The detailed results of the tram surveys are presented in Appendix B.

4.3 **Super Tuesday Bike Count 2011**

The Super Tuesday Bike Count was undertaken between 7:00am and 9:00am on Tuesday 1st March 2011 to measure bike commuter flows at 21 sites in Moonee Valley City Council.

The bike count showed that the ramp to Platform 2 Flemington Bridge, the Capital City Trail overpass, the Moonee Ponds Creek Trail and Mount Alexander Road was the busiest commuter route in the Moonee Valley municipality, with a total of 255 riders in the 2-hour periods. The major flow of riders (186) was recorded travelling south-west across the overpass. This result shows similar pattern as the bicycle survey undertaken by Traffix Group which indicated that the majority of bicycles headed southwest bound from the overpass to the Moonee Ponds Creek Trail.

4.4 **Super Sunday Recreational User Count**

The Super Sunday Count was undertaken between 11:00am and 3:00pm on Sunday 21st November 2010 to observe and record the usage and movements of recreational users along the Capital City Trail. The surveys showed that the riders were the most prominent user group (approximately 80% of all users) at Flemington Bridge Railway Station on the Capital City Trail. The majority of riders were observed to travel southwest towards Docklands.

5 **CONSULTATION**

Trafrix Group has consulted a number of stakeholders during the development of options to improve the shared path links at the Flemington Bridge Railway Station. The list of stakeholders consulted and their comments are presented in Table 1.
## Table 1: Stakeholders' Comments on Option Development

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sam De</strong>&lt;br&gt;City of Melbourne</td>
<td>- Ensure that the citybound access ramp is not too steep as the existing grade of other ramps is already 11%.</td>
</tr>
</tbody>
</table>
| **Neil Hutchison**<br>Program Manager, Sustainable Transport Programs, Community and Place Division, Department of Transport | - Extension of the ramps on the northern side towards the creek would create a better continuation of the capital city trail and in combination with keeping the existing ramp would segregate cyclists from pedestrians.  
- The main concern would be the interaction of cyclists and pedestrians at the station exit. It is very narrow and the current hairpin turn makes cyclist slow down, while the direct extension would need to be designed to reduce cyclists speed or create sufficient space.  
- The southern connection is considered less important as it does not have to cope with through cycling traffic.                                                                 |
| **Katie Miller**<br>President, Flemington Association                     | - Supports direct access to Racecourse Road from the station and bridge over Flemington Road.                                                                                                               |
|                                                                             | - Caution was expressed about the gradient of the proposed new ramps.                                                                                                                                 |
| **Brigid Issac**<br>Team Leader Recreation Planning, Parks Victoria       | - The hairpin at the ramp is an area of danger and conflict given the severity in angle and narrow width of the hairpin bend.                                                                                  |
|                                                                             | - Suggests the width of the ramp be increased to match that of the existing trail (3.0m) and provide adequately for cyclists, pedestrians and other users.                                                   |
|                                                                             | - The removal of the bends may increase the speed of cyclists and could potentially cause conflict with other users, particularly around the station. There may be opportunity within the proposal to allow for provision of treatments to slow the cycling speed or provide for separation of cyclists and other users at this point. |
| **Daniel Mustata**<br>Team Leader Network Improvements, VicRoads          | - Proposal would have little impact on the arterial road network.                                                                                                                                         |
|                                                                             | - A reasonably good design in terms of connectivity of the shared path.                                                                                                                                 |
| **Sue Lowther**<br>Manager, Third Party Access & Licensing – Rail Group, VicTrack | - VicTrack is not in a position to provide advice on this project at this point of time as the land is under the control of Metro Trains Melbourne.                                                              |
|                                                                             | - Council are more than aware of the complexities surrounding the proposal for the upgrade of this bridge and were looking to contact the Department of Transport directly.                                         |
|                                                                             | - VicTrack and the Department of Transport have been invited to a meeting on 19th September to discuss this issue.                                                                                           |
Flemington Bridge Railway Station
Shared Path Model Interchange Link

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<tr>
<td>Asset Services, Melbourne Water</td>
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- Melbourne Water does not object to the proposal provided that:-
  - Disturbance to bed and banks of the creek and vegetation is kept to a minimum.
  - A clear span bridge/crossing design should be adopted.
  - Detailed construction plans, a detailed site environmental management plan, a site specific reinstatement plan are submitted.
  - A legally binding agreement is entered into between Melbourne Water and the owner for liability and maintenance purposes.

NB: Comments from CityLink to be provided shortly.

6 COMMITTED PROJECTS

A Travancore Transport Improvement project is planned for tram route 59 along Mt Alexander Road, Travancore under the VicRoads’ 'Think Tram' Program. The proposed works of the project include:-

- Removal of tram stop 22 at the Boundary Road/CityLink Off Ramp intersection.
- Upgrade of tram stop 23 at the Fleming Community Centre to platform tram stops.
- Widening of Mt Alexander Road at Debnys Park to provide a separate space for trams.
- Installation of a separate and long right turn lane for right turning vehicles from Mt Alexander Road into Boundary Road.
- Installation of new tram tracks.

The Travancore Transport Improvement concept design is supported by City of Moonee Valley following Council led community consultation held in 2009. Construction is planned over three stages during the period October 2011-March 2012.

7 OPTIONS CONSIDERED

Based on the background information, survey results and stakeholders’ comments, the main objectives identified for the proposed options are:-

- To provide improved connection between the outbound platform access ramp and the Moonee Ponds Creek Trail,
- To provide a link between the Moonee Ponds Trail Creek Trail and Debnys Park, and
- To provide a link between the inbound platform access ramp and Racecourse Road.

Multiple options were considered to meet the above project objectives. The options considered and the associated issues of each option are presented in Table 2.
<table>
<thead>
<tr>
<th>Objective</th>
<th>Option</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
</table>
| Improved connection between outbound platform access ramp and Moonee Ponds Creek Trail | 1) New path on south side of path junction then under outbound platform access landing structure. | - Avoids hairpin bends.  
- Gentle gradient and shorter path.  
- Provides direct access to Racocourse Road.  
- No conflicts with pedestrians accessing the station. | - Path needs to go beneath existing building or pedestrian ramp.  
- Metro Trains does not have any plan to make changes to the existing building.  
- Large amount of vegetation along the proposed path requires removal. |

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<thead>
<tr>
<th>Objective</th>
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<th>Cons</th>
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</table>
| Improved connection between outbound platform access ramp and Moonee Ponds Creek Trail | 2) New ramp to southwest off the end of the outbound platform access landing. | - Provides access to Moonee Ponds Creek Trail  
- Avoids hairpin bends.  
- Provides direct access to Racocourse Road.  
- Minimal change in layout of existing structure. | - Conflict between bicycles and pedestrians alighting from the trains.  
- May not achieve required gradient with length available to Racocourse Road.  
- Narrow width of existing path section between path junction and station entrance.  
- Large amount of vegetation along the proposed path requires removal.  
- Ramp starts from higher position compared to other options and hence long ramp is required. |

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<thead>
<tr>
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<th>Pros</th>
<th>Cons</th>
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| Improved connection between outbound platform access ramp and Moonee Ponds Creek Trail | 3) Extend the ramp from the northern side of the hairpin intersection at the outbound platform landing access to the Moonee Ponds Creek Trail. | - Provides access to Moonee Ponds Creek Trail thus avoiding hairpin bends.  
- Provides direct access to Racocourse Road.  
- Minimal change in layout of existing structure  
- Smaller gradient through a direct line of travel. | - Additional approach introduced to hairpin intersection. (Rt B is expected that less bicycles will negotiate a hairpin turn.)  
- Cyclists required to zigzag across existing ramp to station causing conflicts with pedestrians.  
- Large amount of vegetation along the proposed path requires removal. |
### Table 2: Options Considered (Cont’d)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Option</th>
<th>Pros</th>
<th>Cons</th>
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</thead>
</table>
| Link between Moonee Ponds Creek Trail and Delneys Park | 1) Install bridge close to Mt Alexander Road | - Provides a new access from Racecourse Road through the Delneys Park access Road.  
- An alternative and quicker north-south link on Moonee Ponds Creek Trail to avoid existing loop on shared path adjacent to Mt Alexander Road.  
- Shorter path for cyclists traveling from the north of Moonee Ponds Creek Trail to Capital City Trail. (NB: Bicycle surveys showed that the number of cyclists undertaking this movement is very small.) | - Location of bridge requires balance of sufficient vertical clearance, impact on hydrological capacity of Moonee Ponds Creek, convenience to the path users and ramp gradient, bridge length.  
- Steeper path gradient.  
- Longer bridge length. |
| 2) Install a bridge at the end of the new ramp to connect to the northern side of the Moonee Ponds Creek Trail. | | | |

### Table 2: Options Considered (Cont’d)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Option</th>
<th>Pros</th>
<th>Cons</th>
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</table>
| Link between inbound platform access ramp and Racecourse Road. | 1) Extend the inbound platform access ramp to southwest through to Racecourse Road. | - Provides direct access to inbound platforms from Racecourse Road.  
- Does not require modifying structural features under station to allow path through.  
- Improvement in security with multiple access points to station. | - Large amount of vegetation along the southern side of the railway line requires removal. |
8 FUNDING SOURCES

8.1 Stakeholders’ Recommendations

The stakeholders provided comments on the funding sources during the initial consultation. Table 3 below presents the stakeholders’ comments in relation to the approaches to the possible funding sources.

Table 3: Stakeholders’ Comments on Funding Sources

<table>
<thead>
<tr>
<th>Stakeholder</th>
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<tbody>
<tr>
<td>Sam De City of Melbourne</td>
<td>- VicTrack should most likely be the funding source.</td>
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<td></td>
<td>- Some funding may be allocated for the proposal after the Manager of engineering services, Geoff Robertson, reviews the plans and proposal but more detailed design is needed.</td>
</tr>
<tr>
<td>Neil Hutchison Program Manager, Sustainable Transport Programs, Community and Place Division, Department of Transport</td>
<td>- To gain full approval, support is required from Public Transport Division (PTD) as well as Metro trains, provided that the construction feasibility is determined and some options are developed first.</td>
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<tr>
<td></td>
<td>- There is only one option through Parks Victoria as part of the Metropolitan Trail Network (MTN). Although the shared path link is on the VicRoads Principle Bicycle Network (PBWN), that relates more to its MTN status.</td>
</tr>
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<td>- Suggested that the project would not be a priority and PTD might not have funding allocated for this type of project, unless it becomes a bigger issue with higher cyclist numbers.</td>
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<tr>
<td></td>
<td>- Funding can be sought and opportunities such as federal funding do appear from time to time, but often require detail plans for delivery that are approved by all stakeholders so that is the most important starting point.</td>
</tr>
<tr>
<td>Brigid Issac Team Leader Recreation Planning, Parks Victoria</td>
<td>- As the subject section of trail does not fall within Parks Victoria estate, Parks Victoria’s comments relate to the section of trail being a part of the Metropolitan Trail Network (MTN), in which Parks Victoria has a key interest and role.</td>
</tr>
<tr>
<td></td>
<td>- This is through the strategic planning for the network through Linking People and Spaces 2002, delivery of sections of the network that are on Parks Victoria estate and over the last 10 years through providing matching funding grants to Councils for delivery of the MTN on land they manage, through the Parks Victoria MTN Grants Program.</td>
</tr>
<tr>
<td>Sue Lownher Manager, Third Party Access &amp; Licensing – Rail Group, VicTrack</td>
<td>- VicTrack is not in a position to provide advice on this project at this point of time as the land is under the control of Metro Trains Melbourne.</td>
</tr>
<tr>
<td>Daniel Mustata Team Leader Network Improvements, VicRoads</td>
<td>- At the moment, there are no plans to fund this project from VicRoads’ Bicycle Program in 2012/2013.</td>
</tr>
</tbody>
</table>

NB: Comments from CityLink to be provided shortly.
8.2 Local Area Access Program (LAAP)

The Local Area Access Program (LAAP), launched by the Department of Infrastructure in 2006, also provided funding application guidelines. The LAAP was a four-year program delivered from 2006/07 through to 2009/10, with funding awarded each year.

The overall objectives of the LAAP were to:

- implement place-based projects that will provide practical local access improvements in walking, cycling and public transport environments,
- obtain a better understanding of local access needs and responses, through an assessment of the effectiveness of local initiatives and their impact on travel behaviour,
- promote the learning obtained from demonstration projects, and
- assist Councils and local communities engage with local access issues.

All Victorian Councils were eligible to apply for the LAAP project funding. Costs per project were expected to range from $10,000 through to $300,000. It is understood that the LAAP was a four-year program delivered from 2006/07 to 2009/10. Therefore the Flemington Bridge proposal is unlikely to get funding through the LAAP.

9 RECOMMENDED TREATMENTS

Consultation with stakeholders in relation to the proposals has been undertaken. In general, it was agreed that:

- The hair-pin bends on the access ramp to the outbound platform create a safety hazard to path users,
- The extension of the ramps on the northern side towards the creek would create a better continuation of the Capital City Trail,
- The direct extension proposals should allow for provision of treatments to slow the cycling speed or provide for separation of cyclists and other users at this point,
- Gentle gradient should be provided on any new or extended ramp,
- Direct access to Racecourse Road from the station and bridge over Flemington Road is beneficial, and
- The width of the outbound platform access ramp should be provided to match that of the existing trail (3.0m).

Based on the stakeholders’ comments in relation to the existing site conditions and proposals to improve the shared path link at the Flemington Bridge Railway Station, three treatments have been developed to incorporate the above comments and are presented in the following sections.

Note that the ‘Drawing No.’ presented in the following sections refer to the concept plans as presented in Appendix C attached to this report. For an overall plan which presents all the recommended treatments, please refer to Drawing No. GRP10135-00.
9.1 Outbound Platform Connection

On the north-western side of the railway station, a new ramp is proposed to extend from the hairpin intersection prior to the outbound platform access to connect to the Moonee Ponds Creek Trail. The ramp is proposed to be 3m wide with a gradient of 1 in 14 (approximately 7%) with 1.2m landings at a spacing of 9m to comply with the DDA requirements. The concept plans of the final proposal are presented in Drawing No. GRP13155-01 to GRP13155-06.

- GRP13155-01 presents the conceptual view from the north-west towards the proposed ramp on the outbound platform.
- GRP13155-02 presents the conceptual view from the north-east towards the proposed ramp on the outbound platform.
- GRP13155-03 presents the conceptual view of the proposed ramp, looking up from the Moonee Ponds Creek Trail.
- GRP13155-04 presents the conceptual view of the eastern end of the proposed ramp where it would descend from the existing path junction towards the west.
- GRP13155-05 presents the conceptual view of the declining section of the proposed ramp towards the Moonee Ponds Creek Trail.
- GRP13155-06 presents the south-western end of the proposed ramp looking towards the north-east from its intersection with the Moonee Ponds Creek Trail.

9.2 Moonee Ponds Creek Crossing

On the north-western side of the railway station, a bridge is proposed to provide a link between the Moonee Ponds Creek Trail and Debnays Park at the end of the extended ramp. The concept plans of the proposed bridge crossing are presented in Drawing No. GRP13155-09 and GRP13155-10.

- GRP13155-09 presents the conceptual view of the proposed bridge crossing across the Moonee Ponds Creek from the north-east.
- GRP13155-10 presents the conceptual view of the proposed bridge crossing across the Moonee Ponds Creek from the south-west.

9.3 Inbound Platform Connection

On the south-eastern side of the railway station, a new ramp of the same width of the existing ramp (1.8m) is proposed to extend from the inbound platform access landing to Racecourse Road. The concept plans of the new ramp on the citybound platform are presented in Drawing No. GRP13155-07 and GRP13155-08 in Appendix C.

- GRP13155-07 presents the conceptual view from the south looking up towards the end of the existing platform access where the new ramp would commence.
- GRP13155-08 presents the conceptual view of the start of the proposed ramp looking towards the south-west from the end of the existing platform access.

9.4 Next Steps

A 3D feature survey is recommended to be undertaken of the affected area such that detailed plans can be drawn up to precisely adjudge the project feasibility and illustrate the final proposal.
Appendix A

Pedestrian and Bicycle Surveys
Appendix B
Tram Surveys
Appendix C
Concept Plans
Flemington Bridge Tram Passenger Counts
Wednesday 22nd June 2011
PM Period and PM Peak Hour

Legend
Direction passengers leave Tram
- Alighting passengers over 2 hour survey period
- Alighting passengers within the Peak Hour Period
- Boarding passengers over 2 hour survey period
- Boarding Passengers within Peak Hour

Time Period between 4:00pm – 6:00pm
Peak Hour Period between 4:45pm – 5:45pm

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## Debneys Park: Large Playspace (MVCC in association with Heart Foundation)

### Key Design Features:
- Consulted through the Heart Foundation and Moonee Valley City Council
- Designed for ages 8-12 years
- Designed to replicate the scale of City Link
- Feature Entrance to Racecourse Road
- Provide an inviting access between Mount Alexander Road and Racecourse Road
- Promotes connection to natural elements by spatially addressing the Moonee Ponds Creek
- Addresses both the edge of the Estate and access to the surrounding community
- Is a Large Playspace as per the MVCC Playspace Plan
- Creates visual interest when viewed from the towers

### Key Elements:
**Approximately 20,845sqm including:**
- Hard court (standard basketball court size) and feature landform ‘amphitheatre’, with rubberised surface and rock holds
- Mound with concrete snake run, concrete bowl, seating mounds, feature ramp, retaining walls, seating plats, rock holds and ropes.
- Embankment Slide
- Dome net with Slide
- Bloq Climbing Structure
- Large Hexagonal Net
- Kompan ‘Large Cableway’ with platform

### Key Constraints:
- Access from Racecourse Road and Mount Alexander Road
- To be integral to the park setting (not adjacent housing estate) to promote regional use.
- Located away from roads, carparks.

### Key Stakeholders:
- Moonee Valley City Council
- Local Community.
- Target consultation for 8-12 year olds from community

- Debneys Meadows Primary School
- Flemington Neighbourhood Renewal
- Department of Human Services
- Heart Foundation
- Play Australia
# Debneys Park: Moonee Ponds Creek Revegetation

- Condition of Moonee Ponds Creek post CityLink construction

## Key Design Features:
- Improved interface between Moonee Ponds Creek and Debneys Park through the removal of cyclone fence.
- Use of native plants to re-establish creek embankment and adjacent landform.
- Reformed water detention basin from City Link with feature rockwork and planting.
- Creation of visual interest through strong visual forms achieved by using different surface treatment.
- Visually open up park to Creek corridor through uplifting lower branches of trees and shrubs and provision of low planting.
- Improvement to Moonee Ponds Creek shared path through widening pathway in sections.
- Retention and integration of Memorial Planting.

### Key Elements:
**Approximately 6,000sqm including:**
- 5,900 shrubs and groundcovers
- 40 Mature Trees

### Key Constraints:
- Establishing plants with limited light and water access.
- Access to site and enabling maintenance requirements.
- Could be seen as ‘back of house’ so continuing a positive interface.
- Ensuring views through to the Creek Corridor.
- Ensuring Creek health and embankment stabilisation with planting.

### Key Stakeholders:
- Friends of Moonee Ponds Creek
- Moonee Valley City Council
- Local Community
- Flemington Neighbourhood Renewal
- Department of Human Services
- Melbourne Water
- City of Melbourne
- City Link
Debneys Park: Community Centre

Council commissioned the "Flemington Community Centre Community Infrastructure Needs Assessment" to inform the submission to East West Link proposal.

- Over 76,000 attendees annually (for formal activities, not including drop-ins or immunisation)
- Attendees at the community centre are from the Flemington Estate and from the surrounding areas.
- Used for English classes, childcare, activities as well as community

**Key Design Features:**
- Constructed in late 1960s, modified and updated a number of times with last significant update following CityLink construction in late 1990s
- Accessible and engaging for intergenerational and multicultural uses
- Promotes both formal and informal gathering
- Only Council operated Community Centre in the municipality
- Promotes integration between public housing estate residents and wider neighbourhood
- Connects with infrastructure and facilities in Park – playground, carpark, tennis courts, circuit path

<table>
<thead>
<tr>
<th>Key Elements: Existing approximately 1,263 sqm including:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Four separate classrooms, one of which houses the computer room</td>
</tr>
<tr>
<td>• An art room</td>
</tr>
<tr>
<td>• A large community hall with stage</td>
</tr>
<tr>
<td>• Commercial kitchen</td>
</tr>
<tr>
<td>• Occasional childcare room that supports programs</td>
</tr>
<tr>
<td>• Seven individual office spaces</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Single Storey - 2295sqm</td>
</tr>
<tr>
<td>• Double storey – 1200sqm</td>
</tr>
<tr>
<td>• Plus outdoor area including dedicated playspace</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Constraints:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Building structure solid, however surface outdated and deteriorating</td>
</tr>
<tr>
<td>• Childcare room requires attached external playground</td>
</tr>
<tr>
<td>• All classrooms undersize for current and future requirements</td>
</tr>
<tr>
<td>• Commercial kitchen too small to run training programs</td>
</tr>
<tr>
<td>• Storage ad hoc and does not meet specific requirements</td>
</tr>
<tr>
<td>• Facilities for staff are inadequate for current and future demand</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Stakeholders:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Moonee Valley City Council</td>
</tr>
</tbody>
</table>

| - Flemington Neighbourhood Renewal |
| - Existing User Groups |
- Local Community

**Debneys Park: Carpark**

![Carpark Image]

**Key Design Features:**
- Access from Mount Alexander Road
- Integrated traffic lights and tram stop resolution

**Key Elements:**
- Approximately 2200 sqm including:
  - Tree planting
  - Retention of mature trees
- 34 car spaces
- 5 disabled car spaces

**Key Constraints:**
- Close to Mt Alexander Road access
- Maintain distance from Creek Corridor and Playspace

**Key Stakeholders:**
- Friends of Moonee Ponds Creek
- Moonee Valley City Council
- Local Community
- Flemington Neighbourhood Renewal
- Department of Human Services
- VicRoads (access to Mt Alexander Road)
- PTV (adjacent Super Stop)
Debneys Park: Sports Pavilion

Key Design Features:
- Robust materials
- ESD features
- Complement to existing amenity

Key Elements:
Approximately 295sqm including:
- 175sqm building/120sqm undercover
- Home and away change rooms and player amenities
- Public toilets
- Umpires room
- Internal equipment store x 3
- Kitchen/servery and associated storage
- Cleaners store
- Covered external viewing area
- As per the Moonee Valley City Council Sports

- Acoustic separation between rooms
- Solid core doors
- SALTO electronic key system throughout
- Robust external finishes and materials
- Vandal resistant security lighting
- Completed in accordance with BCA, DDA, Statutory Authorities and Australian Standards

Key Constraints:
- Proximity to sports field
- Any new pavilion would require to be built as per minimum standards as outlined in the MVCC Pavilion Redevelopment Plan 2014
- No net loss of open space
- Proximity to and size of car parking available

Key Stakeholders:
- Moonee Valley City Council
- Local Community
- Schools
- Sports Clubs including:
  - Flemington Eagles Soccer Club
  - Parkville Panthers Soccer Club
  - North Lions Soccer Club
  - Moonee Valley Cricket Club

- Flemington Neighbourhood Renewal
# Debneys Park: Tennis Courts

## Key Design Features:
- Close to Mount Alexander Road
- Hard court surface
- Available for public use

## Key Elements:
- 2 no. tennis courts (asphalt surfacing)
- Each court consistent with full sized court enclosure (36.6m x 18.3m as per International Tennis Federation requirements)
- Fencing
- Nets

## Key Constraints:
- Proximity to public toilets
- Ability to be multi-use
- No net loss of open space
- Proximity to car parking

## Key Stakeholders:
- Moonee Valley City Council
- Local Community
- Schools

- Flemington Neighbourhood Renewal
Debneys Park: Mens Shed

**Key Design Features:**
- Owned by DHS, operated by Council, on Estate to attract older, isolated men
- Utilised existing unused facility since late 2012, significant refurbishment underway mid 2014
- Adjacent to Community garden provides active surveillance and possible program connections

<table>
<thead>
<tr>
<th>Key Elements</th>
<th>Key Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic fit out with shelves and workbenches</td>
<td>Shipping container adjacent for secure tool storage following multiple break ins</td>
</tr>
<tr>
<td>Running water being added 2014</td>
<td>Two open roller doors great for larger events</td>
</tr>
</tbody>
</table>

**Key Constraints:**
- No access to toilets, spill out space, pergola
- Small – limits potential participant numbers
- In early stages of programming – potential demand unknown

**Key Stakeholders:**
- Moonee Valley City Council
- Department of Human Services
- Flemington Neighbourhood Renewal
# Debneys Park: Sports fields

![Image of Debneys Park soccer field]

## Key Design Features:
- Close to Pavilion and Community Centre
- Complies with Football Federation Victoria and Cricket Victoria standards
- Accessible to the local community, and is used for formal and informal recreation

## Key Elements:
- 2 no. soccer pitches MVCC recommend length range 90 - 105m and width range 50 - 68m to accommodate venue classes A to Junior.
- Sports field lighting to Australian Standards 50 lux.
- Centre synthetic cricket wicket
- Fencing
- Removable goal posts in sleeves

## Key Constraints:
- Lack of proximity to public toilets
- Lack of proximity to pavilions
- Any removal would represent a loss of open space – contrary to Minister’s Approval Decision Condition of no net loss of open space.
- Lack of proximity to and availability of adequate car parking

## Key Stakeholders:
- Moonee Valley City Council
- Local Community
- Schools
- Sports Clubs including:
  - Flemington Eagles Soccer Club
  - Parkville Panthers Soccer Club
  - North Lions Soccer Club
  - Moonee Valley Cricket Club
  - Flemington Neighbourhood Renewal
- Department of Human Services
Debneys Park: Junior Playspace (DHS land)

Key Design Features:
- Close to Estate, in particular meeting room at base of 120 Racecourse Rd
- Complies with relevant standards
- For Junior Play

Key Elements:
- BBQ and picnic facilities
- Feature Boat Play item
- Seating

| • Fencing       |
| • Playspace Mound to reflect Senior Playspace |

Key Constraints:
- Proximity to 120 Racecourse Road
- Designed in consultation with Stakeholders
- Sun access

Key Stakeholders:
- Moonee Valley City Council
- Local Community

| • Flemington Neighbourhood Renewal |
| • Department of Human Services |


### Debneys Park: Debney Meadows Playspace (leased Council land)

**Key Design Features:**
- Proximity to Debney Meadows Primary School
- For Intermediate Play
- Classified as a Minor Playspace

**Key Elements:**
- Combination Unit with assorted elements
- Barrier to delineate school area
- Feature Seating and Paving Area

**Key Constraints:**
- Proximity to Debneys Meadows
- Utilised as an extension to the school and specifically leased for that purpose.

**Key Stakeholders:**
- Moonee Valley City Council
- Local Community
- Debney Meadows Primary School
- Department of Human Services
# Debneys Park: Community Garden (leased Council land)

<table>
<thead>
<tr>
<th>Key Design Features:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Close to Housing Estate</td>
</tr>
<tr>
<td>• Good solar access</td>
</tr>
<tr>
<td>• Interface with the playspace and creek corridor</td>
</tr>
<tr>
<td>• All garden beds are raised due to contaminated soil.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Elements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 119 raised garden plots each 2 x 1 m long</td>
</tr>
<tr>
<td>• 2 Communal Herb Gardens</td>
</tr>
<tr>
<td>• Undercover area with seating</td>
</tr>
<tr>
<td>• Chicken Yard</td>
</tr>
<tr>
<td>• 2 water tanks</td>
</tr>
<tr>
<td>• 2 Compost areas 4 x 1m long</td>
</tr>
<tr>
<td>• Garden Shed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Constraints:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Solar access</td>
</tr>
<tr>
<td>• Soil Conditions</td>
</tr>
<tr>
<td>• Proximity to Estate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Stakeholders:</th>
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</thead>
<tbody>
<tr>
<td>• Moonee Valley City Council</td>
</tr>
<tr>
<td>• Local Community</td>
</tr>
<tr>
<td>• Cultivating Communities</td>
</tr>
<tr>
<td>• Department of Human Services</td>
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Horsham Catalyst research and evaluation – final report
Summary of findings – August 2016

Project overview
This report is based on a three-year evaluation of sustainably-designed public housing in Horsham, north-west Victoria, owned by the department. It found that sustainable housing initiatives can improve financial, health, social and wellbeing outcomes for disadvantaged Victorians.

The four new two-bedroom, single-storey ‘catalyst’ houses (pictured below) were completed in April 2012 and tenants moved in the following month. Highly-sustainable construction methods and materials were trialled.

Added environmental features in the new houses included: improved insulation and double glazing, shared access to rainwater tanks plumbed into the houses, plus solar heating and hot water systems (gas-boosted). The buildings achieved an average NatHERS rating of 8.9 stars. (The Nationwide House Energy Rating Scheme - NatHERS - is a star system recognised by state and federal governments to set the thermal performance requirements of a residential building. The scale is from 0 (worst) to 10 (best) stars.)

The department commissioned RMIT University to research and evaluate the new sustainable housing in the north-west of the state, a region noted for climate extremes. A three-year evaluation between April 2013 and October 2015 compared the four dwellings with seven one and two-bedroom 6-star ‘control’ houses, built nearby in 2011. Unlike typical housing research, a mixed methods approach paired technical temperature and metering data with resident and stakeholder interviews.

Cost analysis
The research team employed a cost-benefit analysis and non-traditional life cycle methodology. The latter revealed financial and resource impacts over the project’s life, rather than just relating to construction costs. This is important in the context of public housing, where dwellings are commonly built, owned and managed by the department and used to house vulnerable people.

The added outlay for all the environmental elements in each upgraded unit was $75,800. However, the researchers noted the same results could, in other circumstances, be achieved for half the additional capital cost based on other low-carbon, sustainable housing projects.
Due to the high capital cost for the building envelope, the researchers estimate only one catalyst home would achieve ‘payback’ based on high energy price projections – and none at low energy prices – using a traditional cost-benefit approach. However, financial benefits to residents proved to be significant (see below), and resale value could be up to $40,000 higher per home.

When the whole-of-life value of each sustainable building element / technology was analysed, the two most cost-effective options were found to be solar panels and a rainwater tank plumbed into the house.

**Benefits of adding more environmental features in housing**

The benefits of more sustainable housing include reduced utility bills, improved household comfort and health, support of industry and construction innovation and reduced greenhouse gas emissions across the life of the home.

**Household findings**

A clear relationship was found between the department’s trial housing and improved financial, health, social and wellbeing outcomes for these households compared with the control households studied in Horsham.

Specifically, residents in the low-carbon houses:

- had lower utility consumption and bills than in their previous dwellings;
- could more easily pay their utility bills, meaning less stress on their budget;
- used these utility savings to spend on things that improved their quality of life, such as a holiday or clothing;
- were more comfortable and healthy inside during extreme weather (despite not having air conditioning);
- had fewer reported hospital trips;
- had improved circumstances, life and neighbourhood satisfaction and overall wellbeing.

| Catalyst households were on average $1,000 a year better off due to lower utility consumption costs (including solar feed-in tariff) than the control households. |

**Quotes from residents:**

*We’ve had minus 4 to minus 5 degrees [outside] and it’s never been below 15 degrees [inside] when we’ve got up in the morning [winter]*

*In summer I would sit down at the supermarket, you know, because it was cool...[now] I can stay home and veg out!*

*I do go clothes shopping on occasion now instead of thinking, “Oh God, I have to go and lay-by that”*

*Look, I haven’t paid any off my power bill in six months and I’m still in credit.*

While highly-satisfied with their upgraded homes, these residents had useful suggestions such as:

- place ceiling fans in bedrooms and make it easier to reverse fan direction;
- some lighting, bathroom ventilation and internal door improvements;
- provide a shade cover for the pergola and use native plants.

**Environmental performance**

Overall, the low-carbon homes performed substantially better than the control homes against a standard industry practice (SIP) model for overall utility consumption, environmental performance and thermal comfort.

Horsham Catalyst research and evaluation - final report - summary of findings
The low-carbon catalyst households:

- bought 45 per cent less electricity than the control households in Horsham and 73 per cent less than the SIP;
- used 22 per cent less water than the control households and 30 per cent less than the SIP;
- had 40 per cent less CO₂ emissions from power use than the control houses and 63 per cent less than the SIP;
- were comfortable 10 per cent more of the time in living areas and 7 per cent more of the time in bedrooms compared to the control houses (based on the European adaptive thermal comfort standard).

In extreme heat, advantages were magnified. In January 2013, as temperatures topped 41°C, one control house with air conditioning was 16.6°C hotter inside than the coolest catalyst house with no air conditioning (see below).

Of interest, the study found most households did not want to change habits such as turning off power at the socket to maximise energy use savings. Similarly, some residents did not take advantage of added features in their homes designed to give them cost-free improvements in their comfort.

Recommendations for new public housing

The department’s new housing aims to be durable and low-maintenance, with low construction and operating costs. Should funding become available, significant environmental, economic and social benefits could be achieved from high-quality, sustainably-designed housing. Economies of scale also could lower costs and payback times.

Specifically, the RMIT research team recommends:

Design and construction

Improve the benefit to tenants and the environment by using low-risk construction methods and technologies at an 8-star building envelope rating (rather than the catalyst 9-star), and invest in larger solar panel systems per home. The design of new and refitted dwellings could have dedicated spaces to be warm or cool in extreme weather.

Develop a larger trial based on the catalyst homes to explore ways to lower capital costs across dwelling types.

Horsham Catalyst research and evaluation - final report – summary of findings
Maintenance

Maintain and monitor sustainability building elements and technologies for optimum operating efficiency.

Tenant-department relationship

Engage tenants in home sustainability strategies with tailored, in-person advice, such as when they move in. Focus efforts on interested tenants.

Evaluation, process improvement and data management

Undertake non-traditional cost benefit analysis. Commission mixed method evaluations to understand the complete story of life cycle costs and benefits of housing activities. (Note, the full report contains interview guides that are available for use by others in housing evaluation projects).

Even now, these department homes rank among Australia's leading sustainable housing developments. Some other 9-star and 10-star developments have emerged, but most new construction is in the 6 to 7-star range.

This report joins an emerging body of research into Australian sustainable, affordable housing developments. By documenting health, comfort, household finance and wellbeing impacts, there are lessons here that are relevant to government and housing organisations that are mandated to improve the circumstances of low-income Victorians.

* * * *


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