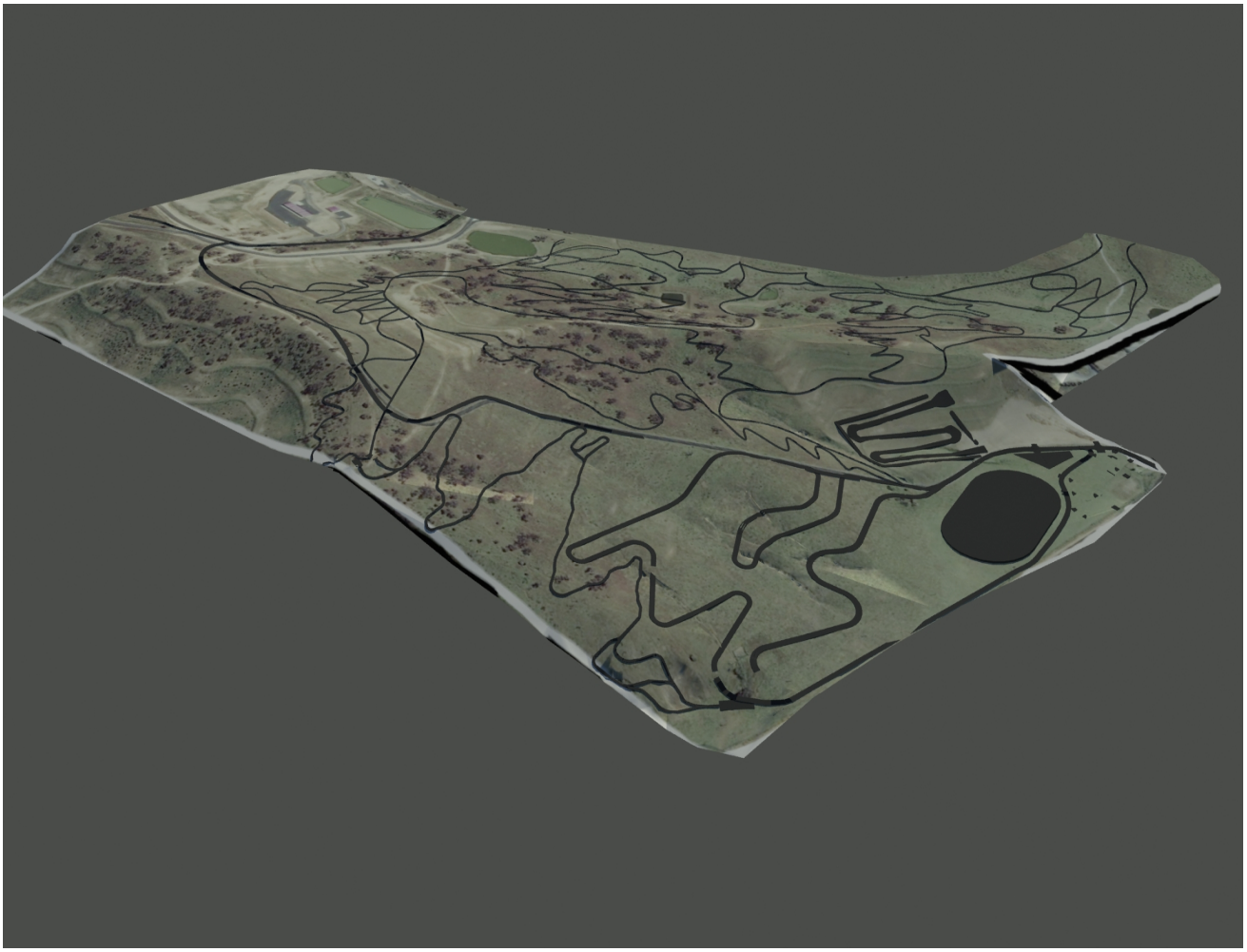
Bathurst Bicycle Park Feasibility Study

July 2012

Final Report

Bathurst Regional Council



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SGL GROUP

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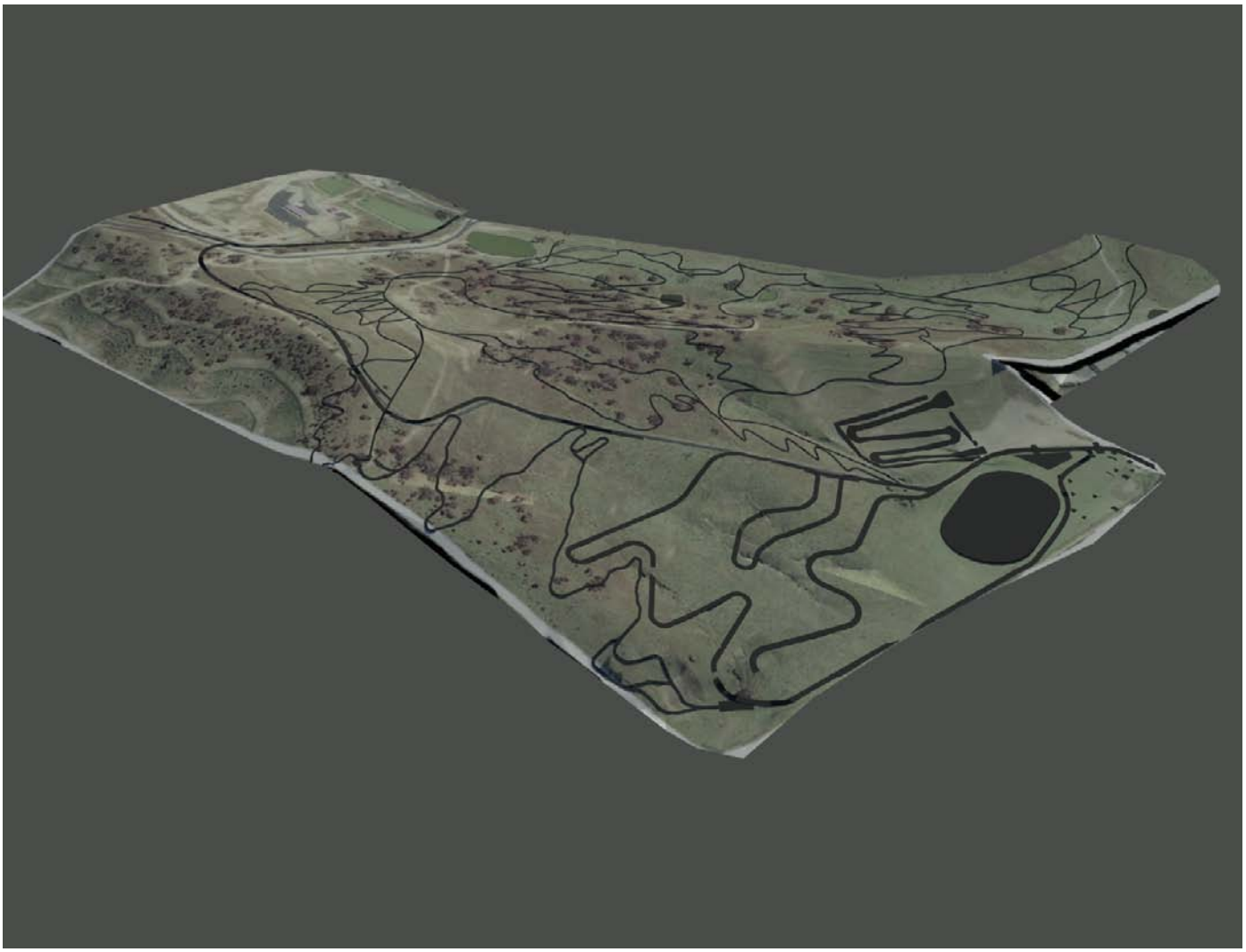

Prepared by: Kym Shilton & Brian Mott

In association with: Cox Architects, Aurecon Group and Mr. Stephen Hodge

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GLOSSARY

ARTC – Australian Track Corporation Ltd
IMBA – International Mountain Bike Association
UCI – International Cycling Union
RTA – Road Traffic Authority

1 INTRODUCTION

SGL were commissioned by Bathurst Regional Council, together with a panel of specialist bicycle code adviser's, including Stephen Hodge of Cycling Australia, Cox Architects and Aurecon Civil Engineers to undertake a Feasibility Study for the proposed Bathurst Bicycle Park.

A considerable amount of work had already been completed, in terms of facility concept, layout and business planning, which the biking fraternity were generally supportive and funding of up to $5million was allocated to the projects in Council's forward capital works budget, subject to more detailed planning.

Bathurst Regional Council had held preliminary discussions with the various bicycle clubs and groups in Bathurst, through the Bathurst Regional Council Bike Committee, whom had agreed to a new multi-disciplinary bike facility development, with a minimum facilities to be included the following:

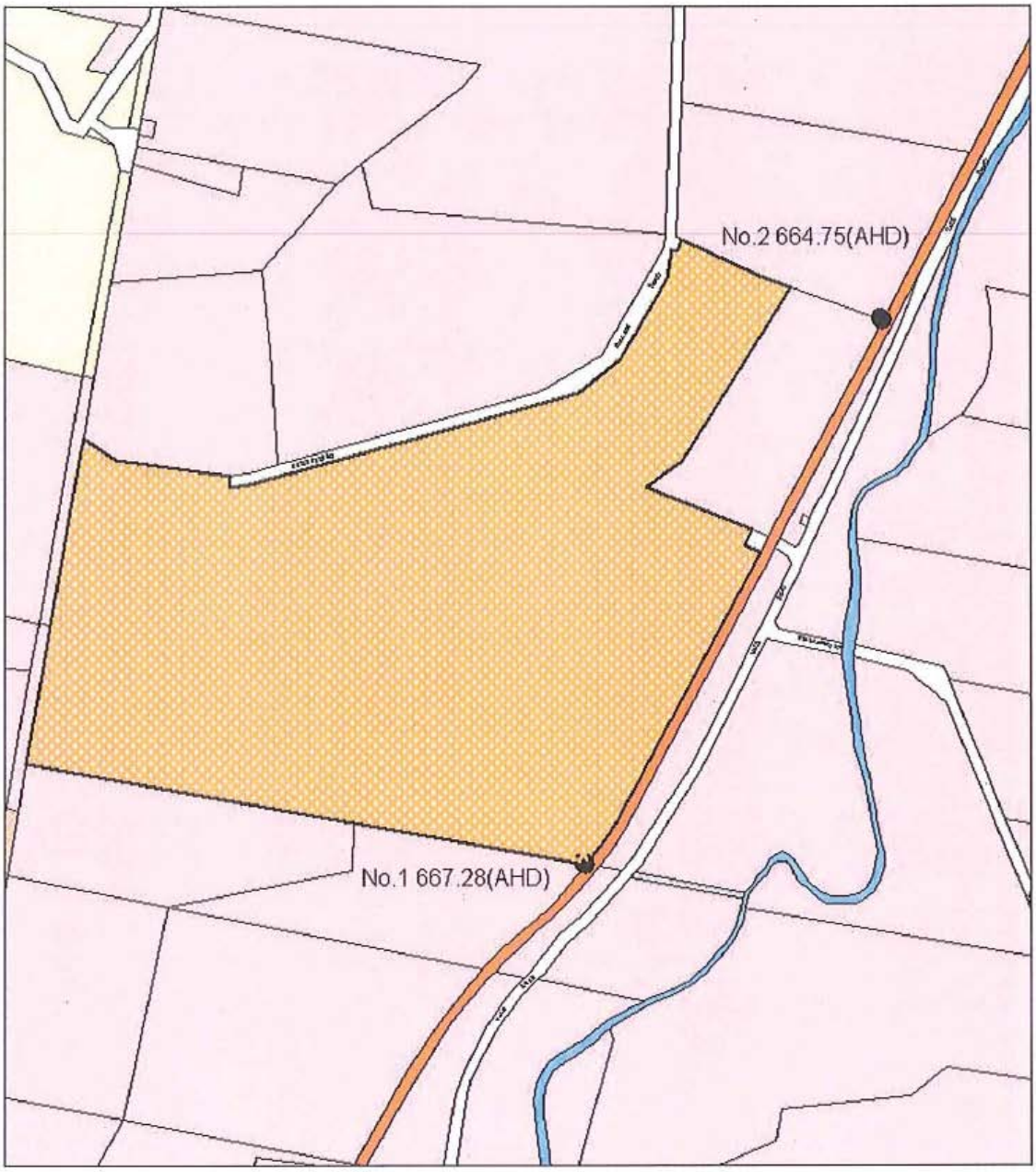
- 333.33 metre outdoor velodrome (complete with training lighting)
- Criterium long course
- Criterium short course
- BMX track
- Mountain bike downhill course
- Mountain bike cross country course
- Junior education course
- Club house and Amenities Building (500 square metres minimum)
- Sealed car park

Council and the various clubs & groups through the committee considered 16 potential locations for proposed Bicycle Park, and after a preliminary assessment process agreed to a 79.4 ha Council owned property (Lot 20 DP 1119593), in South Bathurst. The site has dual frontage to both College Road and the Western Railway Corridor, with access from Vale Road via a controlled rail crossing. A site location map is provided below.

Council's Engineering Department prepared preliminary layout plans and site assessments and the various local clubs and groups, represented by the CB Bugs organisation, had prepared a preliminary Business Plan for the Bicycle park.

As such the SGL consultant team were commissioned to:

- Review proposed facility component mix and suitability for intended use, identified demand and compliance with various sport specifications
- Review layout and design in light of intended use and sport specifications
- Assess the suitability of the proposed site for the Bicycle Park facilities taking account of civil and environmental engineering issues, neighbourhood issues (being located adjacent to rock crushing plant) and intended use
- Provide a Traffic Assessment report, suitable to enable the Roads Traffic Authority and State Rail Authority to assess the proposal.
- Provide cost estimates based on revised facility specifications, concept design & technical assessments.



BATHURST REGIONAL COUNCIL

NORTH

FLOOD LEVELS 378 COLLEGE ROAD, ORTON PARK

Disclaimer

Bathurst Regional Council expressly disclaims all liability for errors or omissions of any kind whatsoever, or any loss, damage or other consequence which may arise from any person relying on information comprised in this Plan.

Note: The colours on this Plan do not indicate land use zones under the Bathurst Regional (interim) Local Environment Plan 2005.

BATHURST REGIONAL COUNCIL

Date18/09/2009

"Base Maps: © Department of Lands 2006"

2 BACKGROUND REVIEW

This section summarises the previous research & policy review undertaken for the project.. It includes:

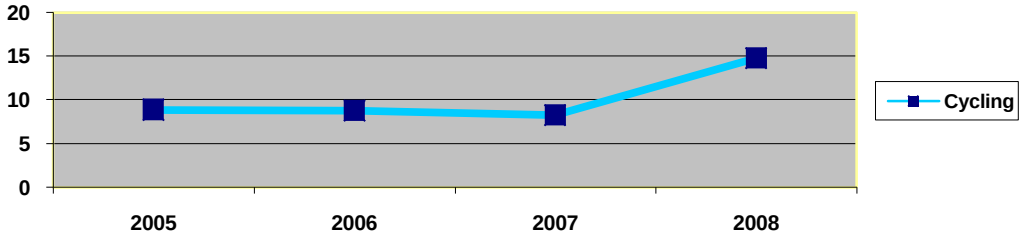
- Bicycle Participation trends
- Draft Business Case Review
- Sport Technical Specifications & Regulations

2.1 BICYCLE PARTICIPATION TRENDS

To assist in understanding the level of interest in cycling activities the consultant team have review State and National participation trends. Overall, the trends indicate cycling is a highly popular physical activity, with rising participant trends, as the following section details.

Data used in this Section has been sourced from the National Exercise, Recreation & Sport Survey conducted annually by the Australian Sports Commission. This section draws on 2005 to 2008 data, the last published year of the survey (See www.ausport.gov.au for further information).

From 2005 to 2008, NSW participation rates in cycling as a physical activity increased by 66%, or from 8.9% of total population to 14.8% total population, as the following graph highlights.



Between 2005 and 2008 Cycling was the fifth most popular physical activity in NSW, ranked behind Walking, Aerobics, Swimming and Running as the following table highlights.

PHYSICAL ACTIVITY	2005	2006	2007	2008	% CHANGE 2005-08	2008 RANK
Walking (other)	36.3	33.8	31.6	38.3	+6	1
Aerobic/fitness	18.5	18.7	19.8	23.2	+25	2
Swimming	16.4	15.4	13.8	16.1	-5	3
Running	7.1	7.5	7.3	10.2	+44	4
Cycling	8.9	8.8	8.3	9.9	+11	5
Golf	7.6	7.5	5.6	7.7	+1	6
Tennis	9.1	7.4	6.7	7.5	-18	7
Walking(bush)	7.0	5.0	6.2	7.1	+1	8
Football (outdoor/ soccer)	5.6	5.9	5.9	7.0	+25	9
Touch Football	3.2	4.0	3.6	5.0	+56	10

Participation in cycling activity grew by 11% between 2005 and 2008, and anecdotal evidence suggests this trend has continued to 2009/10.

From 2005 to 2008 other activities that also grew strongly including Touch football, Running, Outdoor Football(soccer) and Aerobics/fitness.

Compared to National trends, participation in cycling was lower in 2008 in NSW (9.9%), compared to the national average (11.6%) and ranked fourth, as the following table highlights.

PHYSICAL ACTIVITY	RANK	NSW 2008	RANK	AUST 2008
Walking (other)	1	38.3	1	39.2
Aerobic/fitness	2	23.2	2	23.5
Swimming	3	16.1	3	14.5
Running	4	10.2	5	9.9
Cycling	5	9.9	4	11.6
Golf	6	7.7	6	7.1
Tennis	7	7.5	7	6.8
Walking(bush)	8	7.1	8	6.4
Football (outdoor/ soccer)	9	7.0	9	5.2
Touch Football	10	5.0		
Netball			10	3.9

Other participation data indicates:

- Generally males participate at a greater level than females in cycling activities (14.8% males to 5.3% female, based on NSW 2008 results)
- Regional communities (50.4%) participate in regular physical activity (ie weekly) at a slightly higher rate than Capital City communities (48.7%).

DEFINITIONS –

Cycling – includes Track, Road, BMX & Mountain Biking. Does not include triathlon, that is recorded separately.

'Any physical activity' is physical activity for exercise, recreation or sport. It includes activities that were organised by a club, association or other type of organisation, and activities that were non-organised. It excludes activities that were part of household or garden duties, or work.

Participation - relates to persons aged 15 years and over who participated in physical activity for exercise, recreation and sport over a 12-month period prior to interview in 2008

Regular Participation – For any group, the regular participation rate is the number of persons who participated in the activity at least three times per week on average expressed as a percentage of the population in the same group

2.2 BATHURST BIKE PARK DRAFT BUSINESS CASE

The CB Bugs Bike Club, a representative organisation of all the Bathurst based bike clubs and associated clubs have developed a draft business plan for the proposed Bike Park. A summary of the Plan is provided below. A copy of the report can be found in Appendix 5.

The plan identified the following

- Key stakeholders & User groups
- Facility components required, as listed in Section one of this report.
- Potential In-kind support available to assist in the development & funding of the facility (Est. $500,000)
- Historical & Current significance of Cycling to Bathurst Community (Bathurst cycling club oldest continuously operating club in Australia – celebrated 125 years in 2009)
- Current club memberships and trends, across each discipline (ie Track, Road, Mountain Biking, BMX)
- Existing Facility Issues & Impacts of sports development & club viability including but not limited to:
    - Lack of compliance with contemporary venue standards
    - Safety of competitors & spectators
    - Limitation of level of participation due to facility constraints, limiting club development/viability
    - Limited ability to attract events that raise level of local competition opportunity & sports tourism growth/yields and economic impact
    - Increasing asset maintenance costs

- Cycling Participation Trends Community Benefits of Cycling including but not limited to:

    - Enhanced Level of Competition & Regional Professional Success
    - Tourism Development – Event development, visitation & yield
    - Leveraging/enhancing reputation of Mt Panorama Speed Racing
    - Healthy Active Communities
    - Economic Impact of Cycling – growth in cycling participation, cycling retail & major events

- Identified potential external funding sources being Federal Governments Bicycle Infrastructure Program, Healthy Communities Funding
- Identified project constraints – particularly site constraints, political support & external funding requirements

2.3 BIKE SPORT TECHNICAL SPECIFICATIONS & REGULATIONS

The consultant team have undertaken a detailed review of the relevant sport technical specifications and regulations to assist in the review of preliminary concept design prepared by Council's Engineering department and in the development of the revised facility functional brief and concept development sought in future stages.

A summary of the relevant regulations and specifications can be found in Appendix 8.

3 SITE & TECHNICAL ASSESSMENT

This Section outlines the site ownership, management, capabilities and constraints that may impact on the future development of the proposed bike park facility. Specifically the Section identifies:

- Site Location,
- Ownership, Management & Zoning
- Size & Characteristics
- Existing Infrastructure & potential Development Impacts

3.1 SITE LOCATION & ACCESS

The proposed site is located approximately 5km south of the centre of the Bathurst CBD on Vale Road. Access off Vale Road is across the Western Railway Corridor via a controlled Rail crossing. A future alternate access to the site could be achieved off College Road which provides frontage to the North of the site, subject to design layout and capital cost constraints.

Implications/Recommendations

Future development of the site should consider both Vale road & College road entry points, due to the issues associated with Vale road entry across rail crossing & joint access road with industrial neighbour using heavy vehicles and the type of bike park users – ie bikes, pedestrians, children etc.

3.2 OWNERSHIP, MANAGEMENT & ZONING

The site (Lot 20 DP 1119593) is owned and managed by Bathurst Regional Council and zoned 1A (General Rural Zone). It is currently used for rural purposes, under usage agreement for horse agistment.

Implications/Recommendations

Future development of the Bike Park is likely to be allowable under the current zoning subject to Development Consent approval.

3.3 SITE SIZE & TOPOGRAPHY

The site is approximately 79.4 ha, with low lying flood plain to the east and south east of the site rising to west toward Mt Panorama.

The lowest point of the site is at 664m and this is at the entry off Vale Road at the north east corner. The highest point of the site is 744m which represent a fall of 80m and this is halfway along the western adjacent the waste management centre and within the reserve on the site.

A 70m fall is evident along the southern boundary as falls from it from its highest section in the west toward Mount Panorama down toward its lowest section at the junction to the eastern boundary next to Vale Road. From the southern corner of the western boundary the site climbs from the 734m level at the southern corner to its highest point of 744m midway and then drops back to 714m at its northern end. The site boundary along the North West follows

College road and drops from 714m down to 684m. Along the stepping north east boundary the site drops gently down from the 684m to meet Vale Road at the bottom of the site 664m.

Implications/Recommendations

The site size & topography is suitable to accommodate most of the facility components required (subject to addressing flooding & geology constraints).

The site is less suitable for mountain biking, particularly cross country, due to the size and topography of the site. The site lends itself to the development of mountain bike facilities primarily focussed on junior and regional competition and recreational use. It is unlikely to provide the interesting environment, challenging gradients nor length of track required for the highest levels of national & international elite competition.

Future cross country mountain bike course design will need to accommodate a number of switch-backs to ensure appropriate length of course (12-15 km), interest & physical challenge.

Future expansion potential of the site will be limited, particularly for Mountain biking, unless adjacent Council owned land &/or trails linking the site to Mt Panorama are considered.

3.4 GEOLOGICAL CONDITIONS

Bathurst Council currently has no geotechnical information regarding existing ground conditions of the site. A recommendation has been made with regards to geotechnical investigations.

The site lies to the south of Bathurst town centre, and is bounded to the west and east by two natural creeks. The minor creek to the west is closest to the site, and the floodplain of this creek may encroach onto the project site (dependent on topography, etc.).

Based on the 1:100,000 scale Geology map of the area, the site is expected to be underlain by Bathurst Granite. The granite rock may be overlain at the surface by a mantle of weathered granite and/or alluvial soils. There may be thicker alluvium towards the west in the proximity of the creek.

If the site lies on higher ground (eg a ridge between the two creeks) then it may be reasonable to expect a shallow soil cover (<1.5m deep) above weathered, but competent, granite bedrock. Fresh granite is a hard material and will not be easy to excavate without blasting or rock-breaking equipment.

The alluvial soils will almost certainly be easy to work to form the berms for the velodrome. The long term stability of these berms will depend on the type of material, and the depth and type of the underlying soils.

Implication/Recommendation

A geotechnical investigation needs to be completed on the site to confirm the profile of the soils on the site.

3.5 NATURAL ATTRIBUTES & NATIVE VEGETATION

Although, historically used for rural agricultural activities, the site contains some sparse remnant native vegetation, predominantly on the Western/North Western slopes of the site. These native vegetation communities have been identified as predominantly Box – Red Gum Woodland, with some willow-riparian vegetation, of degraded status, under Bathurst Regional Council's Native Vegetation Management Plan.

Although not identified as "significant" vegetation under the plan, the site borders significant vegetation sites identified on Mt Panorama, and thus an opportunity exists to maintain & enhance the remnant vegetation onsite through the bike park development, as well as strengthen riparian links to the more significant Mt Panorama communities, as identified in the vegetation management plan strategy directions.

A map indicating native vegetation on-site, sourced from the Bathurst Vegetation Management Plan is provided below.

The site also contains natural wetlands and waterways which assist in the management of flood events, provide water sources and habitat for native species. Any future development on site will need to take into consideration natural landscape features and future layout plans have sought to address these issues.

Implications/Recommendations

The desktop review of the geology of the area and anecdotal evidence suggests the soils on the western slopes of the site are shallow and unstable. This presents a challenge to design, development & maintenance of the mountain bike track, that should be considered as the project progresses to detailed design & development. It is anticipated their will be additional development & ongoing costs associated with the track as a result.

It is recommended that native vegetation re-habilitation & site control works are carried out as a priority to stabilise the area, before mountain bike track works begin. It is anticipated vegetation cover will also enhance the amenity & interest of the course, and contribute to Council's Native Vegetation Management strategy.

3.6 IMPACTS ON EXISTING INFRASTRUCTURE

Aurecon Australia were commissioned to conduct an assessment of the likely impacts of the proposed development on existing infrastructure. Key issues raised by Council Officers and stakeholders Included:

- Flood Plain
- Vale Road & Western Railway Line Crossing
- Site Infrastructure & Services

The following outline the findings of this study and address the key issues raised by Council. The Section should be read in conjunction with the Aurecon Engineering Assessment Report attached in Appendix 1.

3.6.1 Flood Plain Impacts

Aurecon found no threat to the development site from the Vale Creek 100 year flood levels, with the proposed club house shown on the original & revised concept layout plans (Section 8) more than 500mm above the 100 flood level. Please refer to main Aurecon report for details of findings.

Implications & Recommendation

The following recommendations and/or observations were made, which whilst considered as part of the studies concept design, layouts and preliminary cost planning (Section 8), should be further considered during detailed design & development stages.

- Carparking and Velodrome areas should be constructed and drainage provided so that there is less than 300mm of inundation for a 100 year storm event. It is essential that overland flow paths or sufficient drainage is provided to eliminate build up of trapped water in these areas.

- Due to predictions of potential increased frequency & severity of storms, it is suggested it would be prudent to treat the current flood levels conservatively and adopt a greater margin of safety to building floor levels and infrastructure where practical to do so, to be addressed during the detailed design phase.

3.6.2 Vale Road Impacts

Vale Road is currently an Road Traffic Authority (RTA) asset two way single carriageway road with 100 km/h limit. The existing access to the Omya Southern Site to the north of the subject site is a simple rural property access.

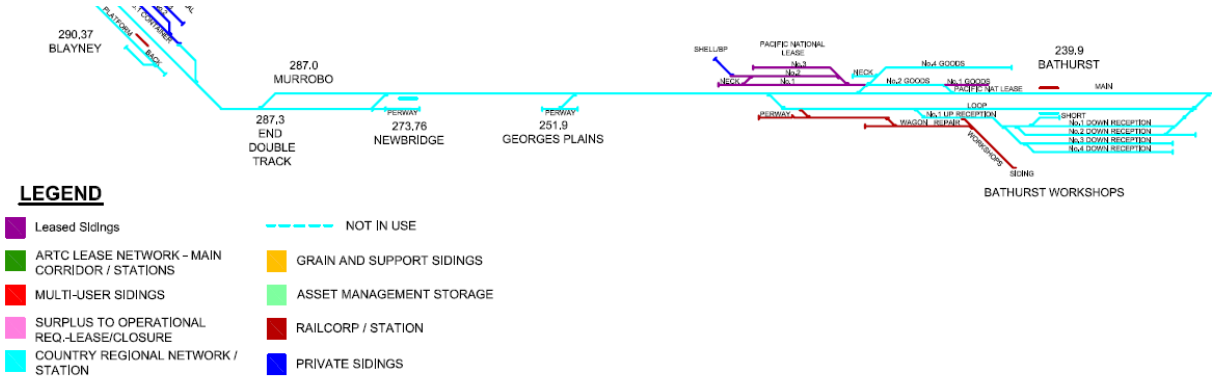
Implications/Recommendations

There are no direct civil impacts shown to Vale Road other than expected signage for the site on concept layout plans.

Based on the traffic impact study assumptions & findings, final feasibility layout plans and initial advice from the RTA, a Type CH right turn treatment in accordance with 4.5.6 will be required. The RTA is in the process of providing further pre-DA comments for Council. Please refer to Appendix 9 for preliminary written advice, provided 9th August 2010.

3.6.3 Western Railway Level Crossing Impacts

There is an existing un-gated active level crossing within the access road to the site and Omya Southern Site. The rail forms part of the Country Regional Network (CRN) between Bathurst and Georges Plains and is a single un-electrified line only. It is operated by ARTC and forms part of the leased network.



Extract of Country Regional Corridor Diagram 2 ©ARTC

Implications/Recommendations

ARTC have advised that no new level crossings are to be considered on their network.

ARTC has indicated that use of the existing level crossing may be possible but this may be subject to an upgrade. The nature of any improvements to the level crossing will be dependent on the authority managing the traffic over it, in this instance Bathurst Council.

It should be noted that in nearby Bathurst, this railway has many passive level crossings which would be subject to greater traffic demands however this is not an indication that that the sites access will not require an upgrade to and controlled crossing.

It is our view that an upgrade to a controlled crossing may be warranted to the reasonably high traffic volumes in specific time period (two hour windows), however, consultation must be undertaken with ARTC during the design development to ascertain the level of upgrade (if required) on the crossing.

ARTC are in the process of responding formally, however their response will be considered in the next stage of the design process.

3.6.4 Western Railway Line Development Constraints

Clause 86 of the State Environmental Planning Policy (Infrastructure), which limits excavations to a depth of less than 2m deep within 25m of the rail corridor boundary.

The development constraint has been considered in the development of the study concept design, layouts and preliminary cost planning (Section 8), however should be further considered during detailed design & development stages.

3.6.5 Gas Pipeline

Intersecting the site approximately 150m parallel to the sites southern boundary is a High Pressure Gas pipe line assumed to be owned by APA Group.

The pipeline has a 20m wide easement. The layout proposed in this study (Section 8) has taken account of the easement, to ensure major & permanent infrastructure is off the easement, however, the layout plans still sees the easement traversed up to nine times, 6 times via mountain biking track &/or existing site access road, and three times via the short & long-course criterium tracks.

Initial discussions with Mr Peter Rushby at East Australian Gas Pipeline Pty Ltd (a subsidiary of APA group) indicated that the type of facilities proposed over the easement are feasible and likely to be approved, subject to certain development conditions to ensure protection and future access to the pipeline asset. Exact conditions cannot be determined until a site assessment is undertaken to confirm pipeline onsite status and the exact nature of future infrastructure and usage is made known to East Australian Gas Pipeline Pty Ltd.

Conditions likely to be imposed by East Australian Gas Pipeline Pty Ltd with regards to any proposals within the easement may involve concrete slab protection or zero cutting into the existing topography. They may require their asset to be more extensively marked or even fenced off where possible.

Further, written advice was provided to Council, by Fiona Douglas, Lands Supervisor APA Group, on the 20th August (refer Appendix 9), indicated the following final approval requirements:

- Ensure all the relevant risks are identified under Reg 55 of the SEPP Infrastructure legislation in conjunction with AS2885.
- All costs associated with and subsequently arising from the risk assessment are met in full by your Council.
- A guarantee that APA Group will be indemnified against any losses arising from the subject development.

Implications/Recommendations:

The following future actions are recommended as project detailed design & development proceeds.

- Re-location of the pipeline should not be considered as this is not likely to be supported by the asset owner, nor practical and may be very expensive and time consuming.

- All engineering designs within the vicinity of the pipeline and its 20m wide easement will require further consultation with the asset owner as detailed design & planning progresses. As a first step, Council should make a "dial before you dig" enquiry, which will see the asset owner undertake a site visit (can be same day process), to ascertain exact site conditions and recommended development measures to protect the pipeline and ensure Eastern Pipelines future access. (Dial before you Dig number is 1800 623 121 or 02 6382 8222, Control Centre Young. Likely Eastern Gas Pipeline contact person is Alan Sell)

- The design levels and intrusion into the existing topography on the easement should be reduced or eliminated if possible.

- Consideration would need to be made with regards to the location of site related services, especially drainage lines to avoid impacts within the easement (usually allowable under the pipeline).

- Undertake a risk assessment in accordance with Reg 55 of the SEPP Infrastructure legislation in conjunction with AS2885.

- Consultation with APA/Eastern Pipe Line Pty Ltd should be with the common goal that no adjustments to this service should be considered.

3.6.6 Internal Access Road

The existing internal access road links to a Lot-DP 249642, to the west of the site (Council Waste Management Centre) which is primarily served via a dedicated public road known as College Road. The internal sealed road will form, in -part, the criterium course(s) and the nature of this access will be affected, especially during events.

Implications/Recommendations

Council will need to assess whether that access road is required at all times and for what purposes, as access both in terms of time & type of vehicle will be affected.

3.6.7 Dam

There is an existing dam on the low point of the site (north east corner) which may have is capacity reduced as part of the works. The reduction in capacity of this dam and significant increase in hard surface area is likely to result in the increase provision of on-site storage detention basins elsewhere on the site.

Implications/Recommendations

Due to site size & topography constraints & required level of carparking by Council, the current layouts offer little opportunity to provide additional area for sedimentation basins or on-site storage detention, and should be further considered, along with car parking requirements, during detailed design & development stages.

3.6.8 Over head electricity & Other Services

There are a number of over head electricity poles on the site which are part of the local grid that may need to be relocated as part of the proposal. At least one pole is directly affected by the car park with others potentially affected due to regrading for the velodrome.

It is unclear if there are any other services within the site; however this will need to be investigated during detailed design stage.

PLEASE NOTE: Optical fibre cabling was also mentioned as an issue in the Aurecon report, due to the location of the linear car park, in preliminary concept designs, however revised concept plans (Section 8) completed for this study have removed the linear car park, in favour of alternate car park locations.

3.6.9 Proposed Earthworks

A majority of the tracks and access roads require minimal earthworks with the geometry following the existing terrain. The velodrome will require significant earthworks to form the banked curves and it would be desirable if this was obtained from the site. In the absence of geotechnical data regarding the site, it is unclear if soils would be suitable as general fill.

Implications/recommendations

A significant amount of engineered fill would be required to form the car parking and access roads. This would probably have to be imported for the base and base course layers.

Typically RTA specifications could be adopted with regards to the use of materials on site and materials imported to form the road works or velodrome.

3.7 CONCLUSIONS & RECOMMENDATIONS OF SITE & TECHNICAL ASSESSMENT

Based on the information provided, the following conclusions can be made:

- The site can accommodate all of the desired bike park facility components, and associated infrastructure, however expansion potential is limited.

- The size, topography and amenity of the site dictate that the mountain bike facilities are likely to be suitable for junior, regional and recreational use only, subject to significant capital investment and/or access to additional land area and/or trail links through to Mt Panorama. Stakeholders & users indicate this is the type of facility demanded in the region.

- Re-habilitation and enhancement of remnant native vegetation will be an important aspect of the development for environment and sustainability purposes, but also to enable the site to support mountain biking facilities that provide adequate amenity for users & to minimise ongoing operational costs

- Preliminary investigations indicate the particular development constraints identified and impacts on existing infrastructure can be managed within reasonable time & cost implications, subject to more detailed assessments undertaken before & during the detailed design & development phases.

Recommendations

The following recommendations for the site can be made based on the information provided, to be considered in future detailed planning & development stages:

- Further consultation with RTA with regards to access requirements from Vale Road during the design development stage incorporating any pre DA comments they may have
- Consultation with Jemena with regards to the High Pressure Gas Line to ascertain limits of engineering works within the easement in order to eliminate any possible diversion works.
- Consultation with ARTC with regards to increased traffic across the passive rail crossing and any associated treatment that may be required to satisfy Councils traffic Engineers
- Consideration of site and overland drainage arrangements, retention and outfall to the system.
- Detailed geotechnical information will be required in order to ascertain the existing site conditions and enable further engineering advice on the suitability of existing site materials for use in bulk earthworks.
- Investigate opportunities and prioritise vegetation restoration, enhancement and site control activities.

3.8 ENVIRONMENTAL HEALTH & SAFETY IMPACTS OF SITING ADJACENT TO OMYA PLANT

To assist in understanding the potential health & safety issues surrounding the co-location of the Bathurst Bike Park adjacent to the Omya Australia Rock Crushing Plant preliminary discussions were held with the Environmental Protection Authority.

Key issues of concern raised by Council officers and stakeholders Included Air Quality and Noise Pollution

Preliminary discussions with Andrew Helms, Regional Operations Officer, responsible for the Bathurst Regional Council Area indicates:

- The product generated by the plant is calcium carbonate (limestone), has a low hazard status, being rated as non-hazardous substance according to the Criteria of NOHSC and Non Dangerous Good according to the Australian Dangerous Goods Code.

- General health advice provided in the products Material Safety Data Sheet indicates limestone powder particles may cause irritation to the skin and eyes. Prolonged and repeated exposure may cause irritation to the respiratory system. Dust exposure standards apply.

- The plant operates under a Environmental Protection License, and has held the license without a major incidence for many years

- Current license allows for 24 hour operation. Omya also has a mine license which the plant license is linked to in terms of future capacity.

- Plant has facility design & operational practices in place to minimise dust, as required for safely handle the material for OH&S of plant workers. Plant operations where dust is likely to be generated are generally enclosed & sealed within a building.

- A condition of the plants licence is to ensure action is taken to mitigate against undesirable neighbour impacts, such as noise or dust.

- Issue of noise has been raised by neighbours in the past, but it has been found to be within ambient noise levels and compliant with standards. Current neighbours are of a greater distance to the plant, than the proposed Bathurst Bike Park. Noise may be an issue at discreet times, during certain plant processes. However, the noise generated at these times is still likely to be within standards required for a public facility, which are less stringent than for places of residence.

- Peak plant operations & favourable prevailing winds are also likely to lessen plant impacts on the bike park amenity.

- Current plant security, should be adequate to prevent inadvertent or intentional access to the plant site, however, this will need to be further reviewed during detailed planning & development stages of the project.

Implications/Recommendation

As the project progresses to more detailed design & development phases it is suggested official advice be sought from the EPA to confirm preliminary advice and determine future

requirements and or actions that should be taken by Council/and or the Plant Operator, to ensure the two facilities can operate effectively & safely in the future.

4 TRAFFIC FEASIBILITY REPORT

Aurecon Australia were commissioned by SGL to conduct a feasibility traffic impact assessment of the proposed development, that would be sufficient to enable the Road Traffic Authority, State Rail Authority & Council to make an assessment of potential traffic impacts and management directions.

This Section provides a summary of the key issues and recommendations of the Aurecon report. It should be read in conjunction with the main Aurecon report - Feasibility Traffic Impact Assessment Appendix 2

Key areas to be addressed by the assessment, as detailed in the project brief included:

(a) Impact on road safety
(b) Impact of traffic noise
(c) Annual Average Daily Traffic (AADT) volumes and historical trends
(d) Peak period traffic volumes
(e) Adjacent road network traffic capacity
(f) Parking provisions appropriate to the development, to enable multi disciplinary events to be run concurrently
(g) Traffic generation and trip distribution of the proposed development
(h) Safety and efficiency of internal road network
(i) Pedestrian access
(j) Cyclist access to Bathurst

Key issues of concern raised by Council officers & stakeholders included:

- Road & traffic impacts resulting from access off Vale Road,
- Great Western Railway Crossing issues
- Potential impact and/or conflict with Omya Southern Pty Ltd Plant Operations; through joint access via the public roadway into the north eastern corner of the site

The study addressed these issues and was conducted using the Road Traffic Authorities "Guide to Traffic Generating Developments" guidelines and using best available information publically available and as provided by Council.

4.1 STUDY KEY FINDINGS

Based on the information provided, the following conclusions were made by Aurecon:

- Bathurst Regional Council wishes to investigate the feasibility of constructing the Bathurst Bicycle Park to be used by a number of local clubs to hold training, competitions and educational courses.
- Access to the site would be provided from Vale Road using the existing access road to the adjoining mineral processing plant and from College Road via a new access.

- Vale Road is a two-way two-lane State Road with an AADT of 3155, with peak hour volumes of approximately 360 vehicles (two-way) in both morning and afternoon/evening peaks.
- Lagoon Road is a two-way two-lane rural road with an AADT of 485, with a morning peak hour volume of approximately 50 vehicles and an afternoon/evening peak hour volume of approximately 60 vehicles.
- The BBP will hold local, regional and major events, with some events run simultaneously (depending on the event).
- It is estimated the local events would generate 196 vehicles, regional events 298 if individually run, 504 vehicle if two events are held, and 516 vehicles if a major event was held. The proposed parking provision will cater for a major event.
- It is estimated that traffic generated by the site would arrive over a two hour period in the morning (258 vehicles per hour) and depart over a three hour period in the afternoon/evening (172 vehicles per hour).
- Based on assumptions with the existing traffic conditions, the Level of Service at the intersection of Vale Road and the access road will not change.
- The peak hour traffic generation for the site is unlikely to coincide with the existing peak periods on the surrounding road network.
- The majority of the traffic generated by the site would travel to and from Bathurst.
- The internal design means that event planning will be required to manage vehicle, cyclists and pedestrian movements when the criterium course is being used.
- Experienced cyclists are likely to ride in groups to the BBP.

4.2 STUDY RECOMMENDATIONS

Based on the information provided, the following study recommendations have been made by Aurecon:

- An event management plan should be developed to manage vehicle, cyclist and pedestrian movements.
- Event managers are to be made responsible for the advertising of College Road as the main access for the proposed BBP.
- Widen the pavement on Vale Road and mark a bicycle lane between the BBP and Bathurst to provide cyclists with a safer alternative.
- Investigate whether the speed limit on Vale Road should be reduced to 80km/h between the BBP and Bathurst.
- Install signs on Vale Road to inform motorists of cyclist activities, and to also give cyclists directions.
- Undertake a Road Safety Audit during the design stages to identify any possible road safety aspect and enable mitigation or assessment within the design.
- Undertake an assessment of the intersection of Vale Road and the access road and determine if new traffic controls are required for the increase in traffic.
- Undertake a noise assessment during the design development stage to ascertain existing "base case" road traffic noise for the purpose of establishing noise exposure levels using ambient background measurements.

5 STAKEHOLDER CONSULTATION

This section summaries the stakeholder consultation undertaken by the SGL project team in developing the feasibility study. SGL conducted a workshop with the various bicycle clubs & groups, council officers & project representative elected members and stakeholder interviews with key individuals and organisation representatives

5.1 FOCUS GROUP WORKSHOP

Bike clubs, potential users and stakeholders were invited to a workshop held in March 2010, to determine current issues, future needs, visions and opportunities. The following indicates attendees and summarises the results of the workshop.

Please Note – the session included extensive discussion on facility development design issues. These have been summarised and incorporated as design development directions in Section 7 of this report.

a) Attendees

Peter Navin (Manager Recreation), Chris Marshall – (commuter cyclist & Greening Bathurst member), Darren Sturgiss (Manager Technical Services), Doug Paterson (Director Engineering Services), Ian North (BRC Deputy Mayor), Greg Westman (BRC Councillor), Mark Winsor CB Bugs), Patrick Forman (BCCAN, CSU), Gary Taunton, (Chairman CB Bugs, B&B Event/Sports Tourism).

b) Project Scope

- Investigate site constraints & appropriateness
- Refine Design
- Capital Cost Estimates

It was noted business & operational plans are not part of the project scope.

c) Vision & Objectives

- Base for Cycling Development – particularly Juniors
- Provide an anchor venue for development of cycling events (eg. 2 week festival of cycling)
- Provide a facility for everybody to use – able to be used for junior development and technical enough for pros
- Growth in bike tourism opportunities – Area becomes known as bike tourism destination

d) Current Issues

Lack of/Poor Quality of current facilities

- Current Track Cycling club's facilities can't run events – facility capacities have resulted in club putting ceiling on participants
- BMX Venue, until recently had no toilets/amenities

- Cycling on roads – OH&S Issues
- MTB – No designated areas and other MTB courses being shut down in region

High Demand/Levels of participation in Cycling (anecdotal)

- Bathurst highly active community, large number of participants in cycling across all codes (Tri-athlon 120 members, BMX 50 members, Cycling Club 150 + members, MTB)

- Long standing tradition of cycling in Bathurst (oldest track club in NSW), high level of elite performance success

- Growing interest in cycling for recreation, commuter, outdoors (ie MTB)

- Club Membership
  - BMX 40-50 members, avg size club in region 100-130

- Event Attendance
  - Criterium/Kermesse, 40-50 PP per event (400 – 450 pp per day)
  - BMX - Regional 300-400 p day, State 700 per day
  - Bathurst to Blayney ride - growing in popularity
  - Festival of Cycling - 2 weeks – being launched soon

Environment & Sustainability – need to re-focus off-road cycling from other highly significant nature reserves (ie Boundary Road Reserve)

e) Future Needs & Opportunities

Facilities Required

- Central amenities & Spectator Facilities
- Large hall for club activities/presentation,
- Meeting rooms for education – Auscycle
- Club Offices,
- Shelter – windbreak/climate,
- Undercover marshalling area (central),
- Bike workshop area(s),
- Pro facilities,
- Storage,
- Café/Catering facilities
- Temporary infrastructure for major events.

Environmental Sustainability Issues - endangered ecological community (box) re-hab first, soil stability – site control, re-vegetation required as primary criteria – solar, waste use/ water harvesting – wetlands – hydrology expertise required.

f) Potential Usage & Events

Cycle Events

- Velodrome – High level junior wheel races – bush wheel races – juniors worlds

- Criterium/Kermesse - juniors to very elite (international/national) Clubs, Open, Juniors.

- BMX – regional (300-400)/open events – state title (700), international events,

- Cross - MTB – up to 10 km – 8 hr -24 hr events (highland fling)
- Down – MTB – local club – state series....
- Road Cycling – Bathurst to Perthville & College Road make accessible
- School education program – ride to school
- Cross country running – runners/walkers/schools
- High Performance – road/criterium
- Cycle challenge – to encourage overnight stay – tourism (black, red, green)

Development of regional cycle tourism destination & high yielding packages

- Already several quality NPWS areas including - Falls – Oberon – Blayney – Lithgow...Regional Mountain Bikes (Seven Steynes)
- Strong Regional Clubs & Events
- High Profile Athletes from region

g) Future Management

Council Officer's advised new facilities likely to be owned and maintained by Council, managed by Club(s) and/or Committee

Night time lock-up arrangement – not publically accessible 24/7

A group member identified potential opportunity to re-classify site as a Nature Reserve.

h) Future Development Staging

Current proposed budget of $5 million, Stage 1

Priorities

1. Getting park open and functioning as a bike centre with program spaces for BMX, Hill Climb, Down Hill and Cross Country (Mountain Bike), entry/ exit and some central amenity such as a multi-functional club house
2. Cater for those disciplines whose facilities are at risk or no longer useable.
3. Criterium and Velodrome (velodrome track is reported to be breaking up and criterium reportedly has the largest number of participants in Bathurst)

i) Other Issues

Education & Awareness – cycling taking off/car etiquette

Need to ensure facility acessible by road – Bathurst to Bike Centre, via Vale & College Road

Evolving business environment

Potential Funding Sources - COAG - Payments for Health Outcomes

5.2 KEY STAKEHOLDER INTERVIEWS

Those individuals or stakeholders who were unable to attend the focus group workshop or had a direct interest in the project were also consulted, via phone interview.

GRAHAM WHEELER, BATHURST TRIATHLON CLUB

Current Membership

- 120 members, juniors 50

Future Usage

- Juniors 5- 14 yrs, up to 18 yrs.
- Off season use, training – du-athlon competition
- Competition 25-50 participants and at least one parent.

Future Facility Needs

- Club will generally utilise same facilities as the bike club users have indicated.
- Water !!

TONY ALLEN, FORMER AUSCYCLE FRANCHISEE

AUSCycle

- Cycle Australia currently seeking exclusive accredited course for cycling, and for course to be compulsory for all road users.
- Instructor requires minimum of $60 per hour to make program viable.
- Offers Child to Adults Road Safety & Skills Program

Potential School Usage

Road Safety & Skills and Sports Development Programs
Weekday usage, complimenting other users usage patterns
Future constraint is likely to be cost associated with transporting children to park and the fact that cycling safety & skills is a non-compulsory school program

Facility Requirements

- Flat Education circuit, as well as other facilities
- Secure Area with no road traffic
- Under cover area with seating,
- Amenities
- Teaching rooms

ASHLEY BLAND, GREENING AUSTRALIA

Unfortunately, Mr Bland was unable to be contacted during the consultative phase of the project, however a representative of Greening Bathurst was in attendance at the focus group workshop, which allowed some input from this group, which have been incorporated into the studies key findings & facility development phases.

BRIAN ARMSTRONG, OMYA AUSTRALIA Pty Ltd, BATHURST PLANT MANAGER

A phone discussion was held with Mr Armstrong, followed by circulation of the draft concept plans for review, to which a written response, via email was received. A copy of the full written response is provided in Appendix 3. The following summarise key points raised within the Oyma Australia Pty Ltd submission:

- Omya Australia are supportive of the concept of a Bike Park for Bathurst

Key constraints/issues of concern include:

- Safety aspects of placing a community recreational facility immediately next door to an industrial complex and bikes & private vehicles sharing the access to the site with heavy vehicles, as well as other light vehicles, contractors etc, in an already difficult & restrictive access point
- Concerns that development of access to a Bike Park would limit the future use of the rail access to the Omya factory.
- Implications for the amenity at the facility positioned very close to the factory and its access (ie noise pollution)
- The flooding and drainage issue and its potential to damage facilities should be recognised and considered in the capital and running cost of the proposed facility.
- Security of the proposed site is an issue due to its isolation from town.
- Suggest if development is to go ahead on the site, that consideration be given to a buffer zone around the Omya Plant
- Consideration to alternative sites should be given – potential site being the Old Sale Yards
- Concerned that insufficient consideration has been given to first and foremost community safety, and secondly the amenity of such a facility for its users.

ANDREW HELMS, REGIONAL OPERATIONS OFFICER, EPA

(Please refer to Section 3.8, Health & Safety Impacts of siting adjacent Omya Plant)

5.3 SUMMARY OF STAKEHOLDER CONSULTATION

In summary the stakeholder consultation indicates the following:

- There is a lack of or the condition of existing cycling facilities is aged & of a poor standard, which is impacting participation, club activities & viability
- There is a need & willingness on behalf of all bike club representatives to work together and move to a single multi-purpose venue to ensure minimal capital cost of new facilities & ongoing operational costs
- There is strong support amongst bike groups & users for the Vale Road site

- There has been a considerable amount of work completed in terms of facility needs, careful consideration of the site issues, followed by the development of a reasonably robust concept layout plan

- There is a long tradition of cycling in the region, participation in cycling sports and recreational activity is growing. As such, demand for both competitive as well as recreational/commuter facilities is growing

- The key issues that will need to be addressed at the site are access, flooding, environmental sustainability and amenity

- Further consultation & consideration of the issues raised by Omya Australia Pty Ltd, during the detailed design & development phases of the project will be required in order to adequately address concerns raised and to maintain good relations for the future.

6 SUMMARY OF KEY FINDINGS

This Section summarises the key Study findings, based on the previous research, sport facility technical reviews, stakeholder consultation & site assessments.

Strong History, Increasing Demand

- There is a long tradition of cycling in the region, participation in cycling sports and physical activity is growing as demonstrated by growing National & State participation trends (See Section 2). As such, demand for both competitive as well as recreational/commuter facilities is growing.

Poor Quality/High Cost of Existing Facility Provision

- Current cycling facilities are spread across the city, are aged and becoming increasingly difficult and expensive to maintain. Further, facilities are no longer meeting local club needs and sporting standards, impacting safety, participation numbers, event attraction and club viability.

Willingness of local Clubs & Stakeholders to work together

- There is a willingness on behalf of all cycling clubs and stakeholders to work together to establish a multi-sport, multi-use bike centre model. This willingness is out of a recognition that a multi-use facility is likely to result in each clubs being able to achieve a higher quality of facility, that otherwise might not be achievable, at a reduced capital cost and for ongoing operational viability benefit. In SGL's experience a willingness of effected clubs & stakeholders to work together is a key determinate of success.

Site capable of accommodating development

- Whilst there are some technical issues associated with the site, which will need further more detailed investigation as facility development planning progresses, preliminary investigations undertaken for the study, indicate the site is capable of accommodating the desired development and the technical issues are not insurmountable within reasonable cost implications. Key technical issues that will need to be addressed include:
    - geotechnical conditions,
    - access – particularly Vale Road entry and rail level crossing

- neighbourhood impacts, particularly implications for Omya Australia operations
- vegetation management
- Other services (ie gas pipe line)

The study has identified alternative facility design & management strategies that seek to address or at least minimise the impact of identified technical constraints.

- From a usage perspective, the site is technically capable of accommodating the desired development, junior to intermediate level competition and events. However, it must be noted, that the site lacks the size, topography and amenity that would enable it to deliver highest level sports events & competition. This is particulary true of the proposed Mountain Biking components

- Further, due to the size of the site, future facility expansion is limited.

Future Development Components

Local Clubs & Stakeholders identified the following priority key components and requirements.

- Central amenities & Spectator Facilities
- Large hall for club activities/presentation,
- Meeting rooms for education – Auscycle
- Club Offices,
- Shelter – windbreak/climate,
- Undercover marshalling area (central),
- Bike workshop area(s),
- Pro facilities,
- Storage,
- Café/Catering facilities
- Temporary infrastructure for major events
- ESD & Vegetation/Wetlands Restoration & Management

7 FACILITY DESIGN DEVELOPMENT DIRECTIONS

Prior to this study, Council's Engineering Department had prepared preliminary layout plans together with long sections of the various circuits and tracks. These Site and Lay out Plans are labelled EN9702 and provided in Appendix 4. Similarly, the CBBugs had prepared a draft business overview, which also provides the basis for design, future use and management.

These plans are used as the basis for the preparation of comments on the site and the development of the functional design brief (See Section 8). In addition the design team undertook a site inspection and reviewed the proposed lay-out in the site context. The inspection was followed by the focus group workshop with the project's major stakeholders, to seek a better understanding of project vision, short and long term objectives, proposed utilisation and the drivers of the initial design.

As such, the following Sections should be read in conjunction with the draft layout plan prepared by Council (Appendix 4) and the draft business overview prepared CBBUGS (Appendix 5).

7.1 FACILITY OBJECTIVES

The following facility objectives were identified through consultation with users and key stakeholders.

- Provide a base for Cycling development in Bathurst
- Provide a facility for everybody to use – which is able to be used for junior development and technical enough for professional cyclists
- Provide an anchor venue for development of cycling events
- Encourage the development of the region as a bike tourism destination, growth in bike tourism visitation and yield
- To provide multi-use and quality facilities at an affordable capital cost, to minimise ongoing operational costs and support local club viability

7.2 KEY DESIGN DRIVERS/ CONSIDERATIONS

The following summarise the key design drivers or considerations that have been taken into consideration in developing the Facility Functional Brief (Section 8), inform conceptual design & cost planning.

1. Common and shared amenity located close to major entry and exit and capable of servicing all program areas, especially finish, staging areas of program spaces.
2. Maximise benefits of existing site topography.
3. Minimise overall development cost.
4. Use some of existing internal road for criterium circuit.
5. Be able to view entire site from one location.
6. Current proposed entry uses major road to access site and provides prominent front outlook.
7. Desire to place BMX and Velodrome close to amenity and major car park.
8. Location over gas lines is minimal for kermesse circuit.
9. Down-hill mountain bike needs to utilise the major hill on site.
10. Able to cut BMX into lower incline section of entry hill.
11. Place velodrome and major portion of criterium circuit on flat section.
12. The mountain bike cross-country circuits can be determined once other design considerations are agreed.
13. College Road could provide an alternative access way for cyclists.

14. Design based on likely local/ regional utilisation with space to cater for bigger event and other large spectator/ participant activities.

15. Program areas to be designed with grass roots users in mind, rather than to international event standards (egs incline of velodrome track and bmx track)

A range of secondary and more detailed design considerations were also identified as identified in the following section.

7.3 OTHER CONSIDERATIONS

Other considerations indicated by stakeholders as important in informing design included:

a) Seeking to enhance Bathurst's reputation as a major cycling centre with the Bicycle Park as a major feature of the promotion along with activities which will use the Bicycle Park such as a Regional Cycling Week run in conjunction with Blayney to Bathurst event.

b) A number of cycling group's future is at risk because of issues with access to suitable venues.

c) The velodrome is to be a central feature of the Park with a desire to attract high level junior wheel races and large carnival style events.

d) Desire to have wide sweeping track of 333m with banks inclined at approximately 12 degrees.

e) Criterium circuit to be capable of hosting all levels and having 30 competitors on circuit at a time with capacity to cater for up to 70 riders in some activities.

f) Seeking to minimise width of paved area and incline at bends in criterium circuit. High profile criteriums would continue to be run around streets of Bathurst.

g) Seeking to attract major regional BMX events involving up to 700 riders. Current club has 40 BMX riders.

h) The project provides numerous positive environmental outcomes including:

i) Refocus cycling away from sensitive areas

j) Opportunity to incorporate solar and water harvesting initiatives

k) Soil protection initiatives

l) Plant remnant native vegetation as part of development

m) Need Marshalling areas for all disciplines, with some space under cover.

n) Interest in having businesses (eg bike hire/ bike repair)/ related activities that add to viability on-site

Further general design discussion by stakeholders and the design team are provided in Appendix 6.

8 FACILITY DEVELOPMENT COMPONENTS

The background research, consultation, review of industry regulations and facility trends indicate that the following priority facility components should be considered subject to favourable feasibility study outcomes and acceptable and achievable, planning and development assessments and capital costs:

Bike Sports Components

- 333.33 metre outdoor velodrome (complete with training lighting)
- Criterium short course
- Criterium long course (Kermesse)
- BMX track
- Mountain bike downhill course
- Mountain bike cross country course
- Junior education course (Flat surface)

Support Facilities & Amenities

- Central Club House, incorporating:
  - Amenities
  - Large Function Space
  - Smaller Meeting Spaces
  - Catering Facilities
  - Storage
  - Workshop/Pro Shop Areas
- Car parking (min 500), including sealed car park/Marshalling Area
- Access for Car/Bikes/Service/Pedestrian/Public Transport to site – Via College & Vale Roads
- Maintenance Equipment/Temporary Equiptment Storage

Environmental Sustainability & Site Amenity

- Vegetation Re-habilitation/Enhancement & Site Landscaping for Amenity
- ESD Initiatives
- Site Drainage/Storm Water Retention Basins & Water Storage

A description of each of these facility components, area schedules & relationships have been further detailed and defined in the following section.

8.1 FUNCTIONAL FACILITY BRIEF

The project team developed a Functional Facility Brief, drawing on the Bathurst Regional Council's Engineering Department preliminary layout plan, stakeholder input and in consultation with the projects Specialist Cycle Sports Facility Advisor – Mr Stephen Hodge and Council Officers.

Peak Sporting Representative Organisations were also consulted as required (eg BMX Australia, Cycle Australia, IMBA) to gain input into specific aspects of design or where clarification of facility regulations was required.

The function brief details facility objectives, key users, relationships and area schedules has been developed to guide future conceptual design & layout. The brief has been developed using relevant sports facility regulations, similar facility trends and standards and have been used to guide future conceptual design & layout and capital cost planning assumptions. The following table provides approximate activity component take up areas.

Bathurst Regional Council

Bathurst Bicycle Park

FACILITY COMPONENTS AND AREA SCHEDULE 2010

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
Access and Egress	Entry	▪ Competition ▪ Spectators ▪ Events ▪ Training ▪ Programs ▪ Emergency Services	▪ Provide entry areas capable of hosting events and training ▪ Provide emergency access for other amenity on site	▪ Enable ease of movement to all program areas and amenity on site ▪ Ensure workable access/ egress throughout site	▪ Impact of train track and crossing ▪ Movement of vehicles in and out of adjoining concrete crushing site	▪ 900 metre or 920 metre track ▪ Radius of 70 metres ▪ Track widened to 15.2 metres ▪ Length of track to be reduced if required to fit into foot-print	
	Exit	▪ Competition ▪ Spectators ▪ Events ▪ Training ▪ Programs ▪ Emergency Services	▪ As above	▪ Access arenas from existing amenity	▪	▪ Meet required standards but reliant on space once established	

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
	Circulation Spaces and car parking	▪ As above	▪ Safe ▪ Cater for movement across program spaces ▪	▪ Pedestrian paths within the bicycle path must be clearly distinguishable throughout ▪ the facility. Conflicts between pedestrians and automobiles and between pedestrians and ▪ transit vehicles should be minimized. (and between all of above and cyclists??) ▪ Vehicle circulation within the park- should generally encourage the ▪ inbound access movement, bringing inbound vehicles on-site quickly and conveniently to ▪ prevent on-street backups at key entrances and reduce on-street congestion. ▪ Two-way circulation is generally preferred to one-way circulation within the lot. This will ▪ reduce confusion on the part of patrons and reduce the potential for drivers to circulate in the wrong direction in a one-way aisle. Two-way circulation is typically associated with 90- ▪ degree parking stalls, which provide a more flexible circulation and parking configuration but ▪ can also lead to increased parking conflicts between backing vehicles	▪ wide/ entry point ▪ easy turning circle and drop off areas ▪ cater for bus and large trailer entry and turn around ▪ ease of circulation and movement	Parking would have to cater for 200 cars for larger events, but overflow areas to approximately 500 cars would have to be planned for. On top of that a corporate parking area for official cars/medical first aid would be required which has a direct connection to the events, and similarly a team parking area or set-up spot	

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
Program Spaces	Velodrome	▪)	▪	▪ Access to change amenity ▪ Cycling Australia states that The markings shall be: ▪ 1. A black line, 4cm wide known as the 'measuring line' to be marked at a constant distance of 20cm from the inside edge of the track. This line shall be marked every five metres and numbered every ten metres. ▪ 2. A red line, 4cm wide, known as the 'sprinters line' to be marked at a constant distance 90cm from the inside edge of the track, including the width of the line. ▪ 3. A blue line, 4cm wide, known as the 'stayer's or safety line' to be marked approximately one third of the track width from the inside edge of the track ▪ Retain capacity of infield to service events with warm up, officials, team meeting areas and potentially corporate catering at major events. ▪ Training Standard lighting ▪ Include tunnel which enters infield in rear end of front straight	▪ UCI requires: ▪ A rideable area sky-blue in colour known as the "blue band" to be provided along the inside edge of the track. The width of this band must be at least 10% of the width of the track and its surface ▪ must have the same properties as of the track ▪ Immediately inside the blue band a prepared and marked safety zone. The combined width of the blue band and the safety zone to be at least 4 metres ▪ Within the track centre areas must be provided for riders to change and warm up, as well as waiting areas near the pursuit and finish lines ▪ The outside edge of the track must be surrounded by a safety fence to protect riders and spectators. ▪ It must be stable and solidly mounted, with an overall height of at least 90 cm. The inside part must be completely smooth and unbroken to a height of at least 65 cm above the track. It must present no protrusions or projecting parts. ▪ At the places where the area outside the track is at a level 1.5 metres or more below the outside edge of the track surface, additional protective measures (nets, panels, etc.) must be provided to ▪ reduce the risks resulting from riders accidentally leaving the track. ▪ The colour of the outside fencing must contrast clearly with that of the track. ▪ Any gates provided in the outside fencing must open outwards and be fitted with simple and reliable child safety catches	▪ Length of the track 333.33 m ▪ Radius of bends 1 25-35 m ▪ Width 7-9 m ▪ The inner edge of the track to consist of two curves connected by two parallel straight lines. ▪ The entrance and exit of the bends to be designed so that the transition is gradual. ▪ The banking of the track to be determined by taking into account the radius of the curves and the maximum speeds achieved in the various disciplines	

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
	Closed Short Circuit Criterium Racing Course Opportunities for further Road Race options	▪	▪	▪	▪ Cycling Australia states that: ▪ A criterium is a circuit race held on a circuit of not less than 800m and not more than 3km and ▪ must have a minimum width of 6 metres, except for the finishing straight, which shall be a minimum of 8 metres wide for the last 200 meters at least before the finish line (unless approved by the CA Technical Commission). ▪ The course must be closed to all traffic except for the officials' vehicles. ▪ The surface should be smooth and quality surface that should satisfy the requirements of all riders	▪ The circuit should be between 900m and 1.2km, thus providing some flexibility in configuration of program spaces on the site. ▪ The Circuit should offer good levels of adhesion and a wide safe surface (preferably 8m, possibly slightly more in certain parts-finishing straight) with the Criterium Cycling Circuit to be suitable for all levels and abilities of rider from beginners through to elite; mixture of fast flat cycling combined with some more technically challenging corners with circuit options and easy grades at either end. ▪ Preferable to have Criterium circuit with a central flat paved area joining front and rear portions of the track to add versatility and potential use for the venue. It can be used to divide the circuit into two separate tracks, as a base for set up of event infrastructure or marshalling area for competitors or used as a skills training area.	
	Closed Long Circuit Kermesse Road Racing Course	▪	▪	▪	▪	▪ 2km added to criterium circuit	

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
	BMX Track	▪	▪	▪ An area where the riders may congregate between races shall be established and clearly marked close to the track's staging area ▪ Close to the starting hill a staging area consisting of ten staging lanes numbered 1 to 10 shall be established, where riders shall assemble in accordance with the instructions given by the staging officials ▪ An area shall be established close to the staging area for the inspection of bicycles, installation of timing transponders and riders' equipment ▪ Spectator area to accommodate major events, natural amphitheatre. ▪ Shelter over the start hill. ▪ Main straight to face the north or south. ▪ Signage space or billboard to advertise events, sponsors, safety notices and rules of track use. ▪ Adequate site drainage to minimize erosion and damage	▪ The initial straight shall be a minimum of 40 metres in length. ▪ It is recommended that the bottom of the front side of the first obstacle in the initial straight shall be located not less than 35 metres from the starting gate nor less than 20 metres from the point of curvature of the first turn. ▪ The first turn may go in either direction and shall be banked to a degree which allows safe entry and exit for riders of all ages at race speeds. ▪ At the first turn, the track shall be a minimum of 6 metres wide measured along a straight line extending from its surface at the inner radius to the top of the berm at its outer radius. ▪ All obstacles on the track must be constructed with the safety of all riders, regardless of age, in mind. Consideration must be given to the abilities of the youngest riders in competition when designing obstacles intended to present special challenges to older competitors. On the first straight the minimum distance between two obstacles shall be 10 metres. An obstacle is defined by its front and back slope and can be a single obstacle, double, triple or multi-jump as well as a 4-pack, 5-pack or multi-pack. ▪ The track is to be enclosed by a perimeter fence which shall not be located at any point closer than 2 metres from the ▪ competition course.	▪ The track to be of a compact closed looped design, forming a circuit where length measured along its centre line is not less than 300 metres nor greater than 400 metres. ▪ The track must be a minimum of 10 metres wide at its start and may not taper to a width of less than 5 metres at any point along its course. ▪ The starting hill must accommodate a track width of at least 10 metres and be at an elevation at least 1.5 metres above the grade of the first straight. ▪ The initial incline extending from the starting gate to level grade must be at least 12 metres in length ▪ The starting gate shall be a minimum of 8 metres in width ▪ The gate shall have a height of at least 50 cm, with no greater angle than 90 degrees with the slope of the ramp which supports the bicycles' wheels when they are in their starting position. ▪ The track shall have a minimum of 3 turns. ▪ The track shall be a minimum of 5 metres wide throughout each turn. ▪	

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
	Mountain Bikes Downhill Course	▪	▪	▪	▪ The start area must be at least 1 meter and no more than 2 meters wide ▪ The finish area must be at least 6 meters wide. ▪ There must be a braking area of a minimum 50 m after the finish line. ▪ This area must be free of obstacles.	▪	
	Mountain Bikes Cross Country Circuit	▪	▪	▪	▪ As far as possible, the course for cross-country, four cross and downhill events must be totally separate from that of all other events organised on the same site. ▪ The start zone for a cross-country event (massed start events) must: be at least 8 metres wide for at least 50 metres before the start line and • be at least 8 metres wide for at least 100 metres after the start line; • be on a flat or uphill section of the course. ▪ The first narrowing after the start must allow riders to pass through together easily. ▪ The finish zone for a cross-country event (massed start event) must: be at least 4 metres wide for at least 50 metres before the finish line; and• be on a flat or uphill section of the course	▪ The circuit for an Olympic format cross-country event shall be between 5 km and 9 km in length. Ideally it shall be in the form of a cloverleaf. ▪ 12 km of tracks of which there are 6 kms of challenging continuous track capable of hosting state/regional championships ▪ The course must be marked every kilometre by a sign indicating the distance remaining to the finish line. ▪ The course for a cross-country race should include a variety of terrain such as road sections, forest tracks, fields, and earth or gravel paths, and include significant amounts of climbing and descending. ▪ Paved or tarred/asphalt roads should not exceed 15% of the total course.	

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
	Multi Purpose Club House and Amenities Block Spectator Seating	▪ Club Functions ▪ Competition ▪ Team sports ▪ Schools ▪ Health and fitness ▪ Events ▪ Social ▪ Trade displays ▪ Functions ▪ Entertainment ▪ Precinct Users	▪ Shared clubroom and social space for tenant sports ▪ Flexible space integrated with external amenity to enable to gear up and down, registration functions for activities in precinct ▪ Provide multi-use timber floor area suitable for classes and functions. ▪ Major revenue area ▪ Environmental Sustainable Design	▪ Storage area to have direct access internally to spaces and externally access to delivery points and program space (most of the stored gear is for external use such as signs, witches hats, bikes, BBQs etc) ▪ Enable sharing of space	▪ Kitchen/ catering area of approx 40 square metres ▪ Provide dedicated spaces for each club to display key notices and honour boards etc ▪ Kitchenette with servery to multipurpose and external users ▪ Provision of acoustic treatment to limit sound breakout ▪ Split rooms using moveable sound proof walls. ▪ Consider two story development, using topography of land, provide undercover social/event servicing space ▪ Design & Budget Allowance for ESD Initiatives	▪ 400 square metres of multi-function space with unisex change and competition and spectator toilet amenity of 100 square metres ▪ Incorporates a minimum of 3 outward opening storage areas providing a total of 75 square metres of storage ▪ Building to have access and outlook to velodrome, bmx and criterium areas ▪ Remaining 225 square metres to include movable walls with one large space or 4 smaller event servicing/ meeting areas of approx 40 sq metres ▪ Provide spectator seating for 200 overlooking velodrome	

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
Reconfiguration considerations	Change major entry to College Road entering approximately 200m north east of rail crossing Move velodrome and club house/ amenity approx 40 metres to west of draft plans Reduce criterium size and move eastern section 30 metres to west Push car park further into overflow area	▪	▪ Improve utilisation of site and operational viability ▪ Avoid access/ egress pinch points ▪ Allow for ease of construction of additional amenity and program spaces	▪	▪	▪	
Access & Support Facilities	Carparking & Access	▪ Spectators ▪ Public Transport Operators ▪ Participants ▪ Clubs/Officials	▪ Priviate Vehicle Access ▪ Large Vehicle/Bus Drop Off ▪ Bike/Pedestrian Access ▪ Disabled Access	▪	▪ Internal Ingress/Egress ▪ Separate Entry/Exit ▪ Early Turnout ▪ Bus/Large Vehicle Holding & turning areas ▪ Bike/Pedestrian Access ▪ Disabled Access ▪ Where possible use existing access infrastructure	See draft Council plans & specs. Replicate equivalent as minimum.	TBC

ACTIVITY AREA	FACILITY COMPONENTS	TARGET MARKETS	FACILITY OBJECTIVES	FUNCTIONAL RELATIONSHIPS	OTHER FEATURES TO CONSIDER	AREA SCHEDULES	TOTAL AREA (m^2)
	Plant & Equipment Storage	▪ Maintenance Contractors	▪ Maintenance Equipment Onsite Storage capacity (some lockable space) ▪ Track Landscaping materials ▪ Site Environmental works	▪ Access through central amenity area	▪	100 sqm building allowance, plus landscape material area surround	TBC
	Landscaping, Amenity & Play areas	▪ Families & Children ▪ Spectators & Officials ▪ Club Functions	▪ Quality Landscaping around central amenities, shade, seating/tables, bbq/picnic areas etc ▪ Playground Area ▪ Adequate shade for officials & spectators to have shade in & around track areas	▪ Amenities & Play Areas adjoining Central Amenity Space	▪ Amenity & Play Areas Safety fenced/Supervision Viewing Lines ▪ Shade for officials/spectators not to interfere with key site lines (ie officials,spectator/media)	TBD	TBD

(Please note - client advised seperate rooms required for each club in central amenities facility in final draft stage. It is anticipated this will reduce the flexiability of use of the facility and opportunities to host meetings and functions &potential income streams, unless size of facility increased to provide both types of space.)

9 CONCEPTUAL DESIGN & LAYOUT

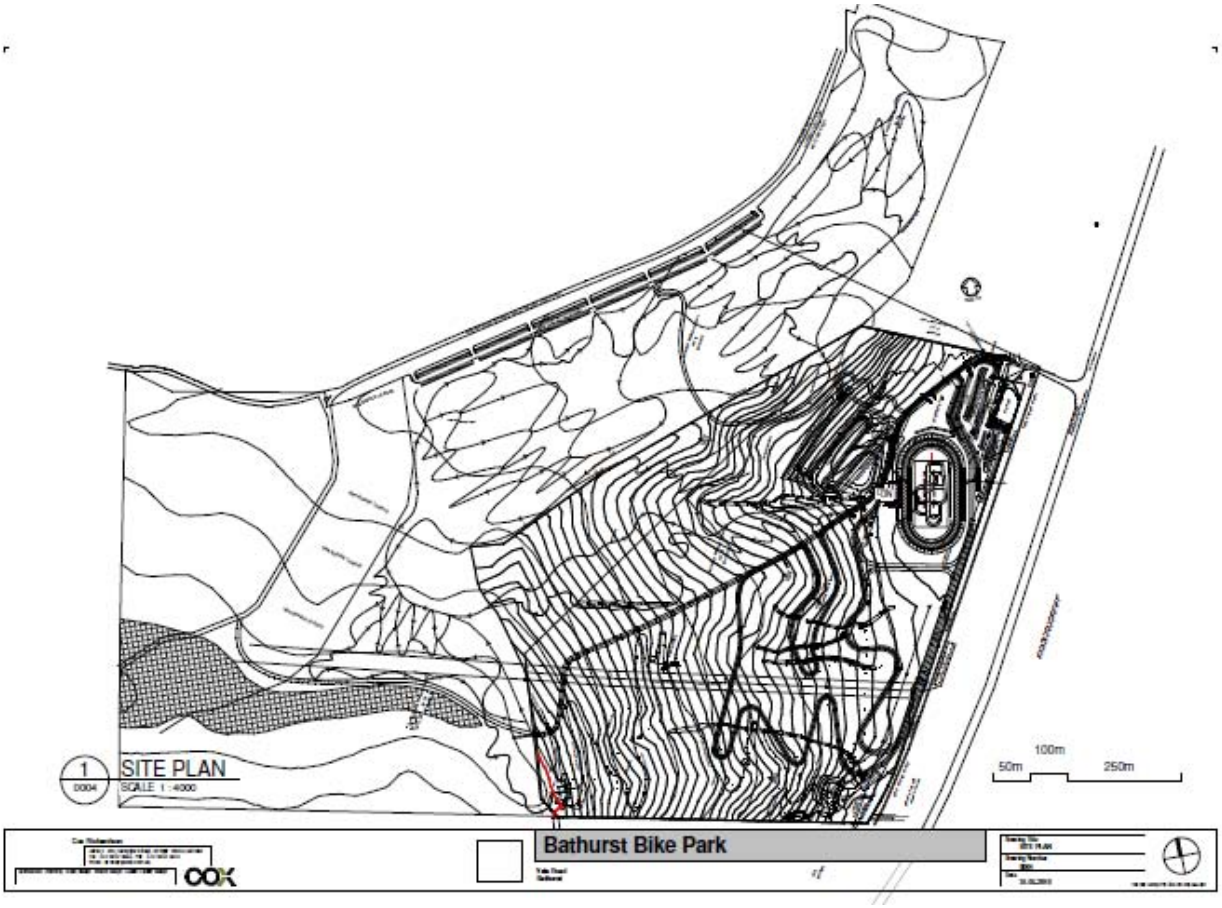
Cox Architects worked with the project consultant team to develop a revised conceptual site layout plan and central club facilities & amenities. Much of the original design intent has been kept with the main changes related to access & car parking, facility orientation and component technical specifications to meet relevant sporting regulations & codes.

The site has proven particularly difficult due to the site size, topography & small area of level land and flood plain levels, limited safe access points, neighbour impacts and dissection by the High Pressure Gas Pipeline and which has limited the range of feasible layout options to achieve desired functionality and to meet capital cost constraints.

The initial layout plans were reviewed by the project team, project engineers, cost planners and the client project manager and narrowed to a preferred concept layout plan.

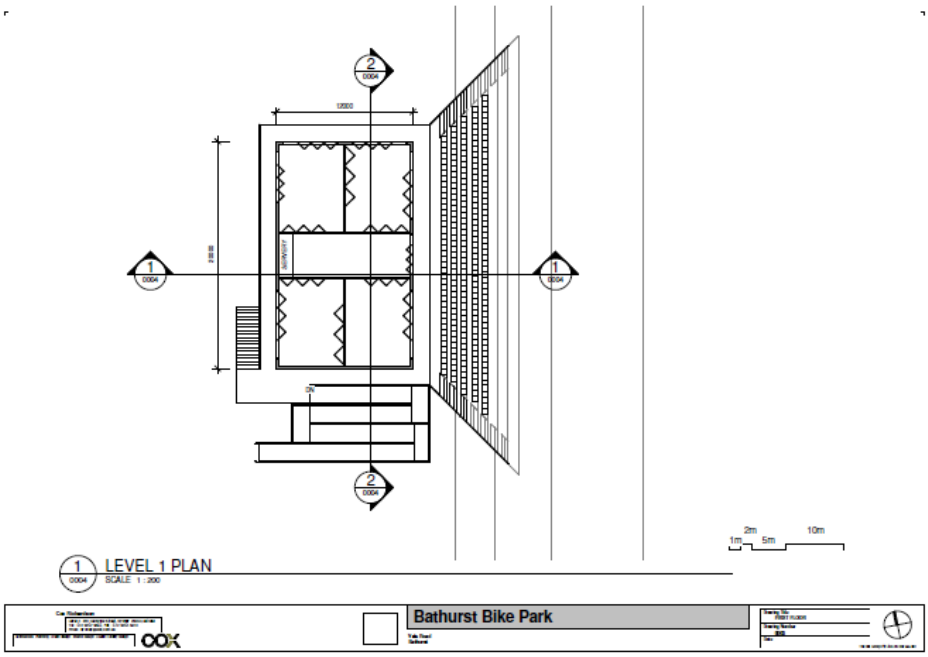
This Section presents the final preferred layout plans, developed to minimise facility & site development works, building envelopes, capital costs & ongoing operational costs, in line with Council's parameters. They also seek to maximise site potential for functionality, access and attractiveness. The plans are presented on the following pages.

BATHURST BIKE PARK – SITE CONCEPT LAYOUT DIAGRAM

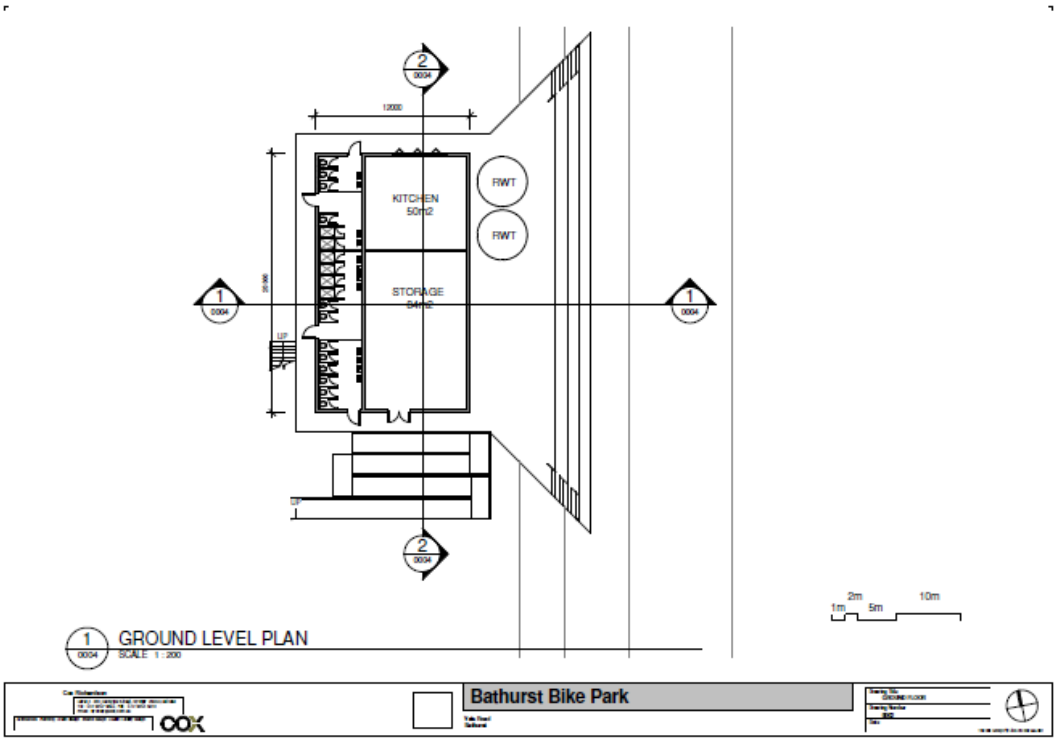


CENTRAL CLUB HOUSE & AMENITIES BUILDING LAYOUT PLANS

FIRST FLOOR

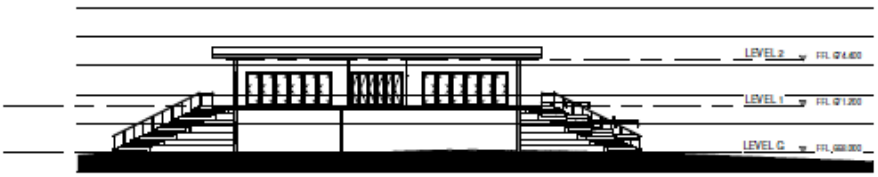


GROUND FLOOR

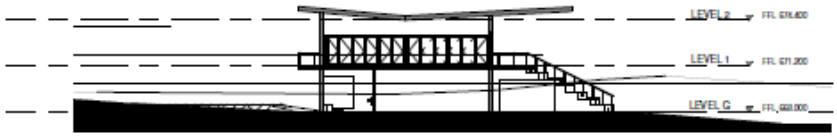


CENTRAL CLUB HOUSE & AMENITIES BUILDING PERSPECTIVES

SECTIONS



2 Section 2
SCALE 1 : 200



1 Section 1
SCALE 1 : 200

Bathurst Bike Park

10 CONCEPT FEASIBILITYCAPITAL COST ESTIMATE

The architectural team have worked with Davis Langdon quantity surveyors to develop an indicative order of cost for the proposed redevelopment based on current building and development costs for such facilities and:

All works occurring as a single construction development, starting 2nd Quarter 2011

- Estimated costs as at 2nd Quarter 2010, then escalated to construction start/completion dates
- Includes a range of nominated allowances as detailed design, fittings, finishes and features are not completed at this pre-design phase.

Estimated costs do not include the following:

- Significant staging of the works is excluded.
- The cost impact of any town planning issues is excluded.
- Achievement of a specific Green Star rating is excluded.
- Traffic management costs are excluded.
- Hazardous materials removal
- Excavation in rock
- Specialist equipment
- PA Systems, Specialist track lighting, etc
- Playground equipment
- Significant Re-vegetation/Rehabilitation Works
- GST
- Furniture Fit-out & Equipment
- Information technology & communications
- AV Equipment
- Kitchen Fitout
- Sliding/Operable walls
- Retaining walls within the site
- Entry road modifications (ie Vale or College roads, rail crossing)

These estimated costs are therefore provided as a budgeting guide only and as Council moves into more detailed design, can confirm site conditions & services, exact funding and staging timelines then the capital cost estimates should be revisited and updated.

The total estimated indicative pre design capital costs for proposed new Bike Park development are summarised in the following table on the next page. Detailed capital cost estimates can be found in Appendix 7.

10.1 SUMMARY CAPITAL COST ESTIMATE SCHEDULE

The total project cost estimate is built up as follows;

Scope	Total $
Construction Works	
New Clubroom & spectator seating	1,376,000
Velodrome and Lighting	1,391,000
Kermesse Long Course Track	475,000
Criterium Short Course Track	280,000
Mountain Bike Downhill Course	68,000
Mountain Bike Cross Country	486,000
BMX Race Track	698,000
Bicycle Education Training	101,000
Carparking at South	544,000
Carparking at College Road	682,000
External Works	413,000
Sub Total – Building Cost	**6,513,000 00**
Design Contingency (5%)	325,000
Construction Contingency (8%)	547,000
Prolongation Contingency (1%)	73,000
Sub Total – Project Contingencies	**946,000**
Total Construction Cost	**7,459,000**
Project Costs	
Headworks, Fees and Authority Charges	149,000
Consultant's Fees 10 %	760,000
Engineering Report Impact Allowance	400,000
Sub Total – Project Costs	**1,309,000**
Escalation Allowance	
Escalation To Construction Start (2nd Qtr 2011)	351,000
Escalation From Tender To Completion (2nd Qtr 2012)	218,000
Sub Total – Escalation Allowance	**570,000**
Total End Cost	**9,340,000**

The proposed Bike Park development concept sees a concept-design estimated cost, in 2010 dollars of $8.770 Million, escalating to $9.340 Million at completion, based on a 2011 start date & 12 month construction period.

Based on SGL's experience of similar outdoor recreational facility developments, it is SGL's belief that the cost estimates are conservative (in line with the current level of feasibility analysis), and there are likely to be areas of significant cost savings, as detailed design & development progresses, final project staging & development timeframes are set and project delivery mechanisms are identified.

Key areas of potential savings identified by the project team include:

- Final determination of level of car parking provision required,
- Final determination on need & priority of particular sport facility components (ie Long or Kermesse course)
- Development of MTB tracks (could be locally developed, thus reduce cost),
- Level contingencies & consultant fees (In SGL's experience professional fees for outdoor facilities generally lower. Similarly Council may undertake project management in-house &/or self build some components)
- Cost escalation periods due to inexact timeframes/staging approach etc.

11 STAGED DEVELOPMENT PLANNING

In line with Council management direction the consultant team has developed a three staged development plan and assessed the implications for capital cost of the centre.

The staging plan has been developed by the project team, with the following criteria in mind:

- ensure the facility can be developed within Council capital budget constraints,
- development of bike facilities in line with ability to deliver & open facility as soon as possible,
- prioritise high need facility components,
- minimise duplication of facility re-development and construction costs
- minimise construction works, timeframes and the associated impact on the Centres future operations.

It is envisaged Council would develop the proposed facilities in three stages, at one year time intervals and subject to the availability of capital, the success of previous stage developments & more detailed business planning and feasibility at the time of implementation.

The staged development plan presented, incorporates the following sequential development stages as presented in the table on the following page, together with capital cost estimates for each stage.

STAGE	COMPONENTS	TIMING	$ COST ESTIMATE
ONE	Club Rooms Ground Floor Only BMX track & Spectator Areas Veledrome Education Centre Vale Rd Entry Carpark MTB-Cross Country (Stage 1) MTB-Downhill	2011	$6,518,000
TWO	Clubrooms First Floor Spectator Areas Short Course Road Track MTB-Cross Country (Stage 2)	2012	$1,299,000
THREE	Long Course Road Track College St Carpark & Access Track	2013	$1,699,000
	TOTAL STAGED DEVELOPMENT COST		**$9,516,000**

Each stage includes escalation to commencement and during construction resulting in a greater total project cost based on the staging of the works. This total cost is $9,516,000, an additional of $176,000 compared to complete build approach.

Staged concept design plans for are presented on the following page.

PLEASE NOTE: Dependent on further consultation with the RTA, ARTC, neighbours and final determination on access & car parking requirements, the project team envisage, it is likely College Street car park may be built as a priority.

STAGED DEVELOPMENT LAYOUT PLAN

12 STUDY CONCLUSIONS

This feasibility study has included the following project elements:

- Review previous studies & preliminary planning
- Site Assessment
- Key User & Stakeholder Consultation
- Facility Design & Functional Brief
- Conceptual Design Development
- Traffic Impact Assessment
- Infrastructure Impact Assessment
- Capital Cost Estimation
- Staged Development Planning

The feasibility study indicates the facility:

- is achievable on the site, subject to the outcomes of further specific consultation with key infrastructure owners and further more detailed site condition & impact studies (ie geology, services, traffic assessment)
- will meet the facility objectives, likely usage and needs/requirements of local users & sport regulations to meet anticipated level of competition & event attraction to Bathurst (ie Junior & Regional Competition, Bicycle Tourism).
- However, is likely to cost more than preliminary capital cost estimates developed by Council's Engineering Department, and current Council allocated budget (ie $5 million)
- The capital cost contained in this report is conservatively estimated, in line with current feasibility level analysis, at up to $9.5 million based on staged development and outsourced procurement approach.
- Council Officers have indicated it is likely the project can be self-project managed, which may reduce capital cost significantly, dependent on final design, timing & all inclusive costs.
- Further user group, stakeholder & Council consultation will be required and decisions will need to be made regarding facility component priorities, Capital cost contributions and funding strategy.
- Similarly, ongoing management & operational costs have not been considered as part of this study, however, should be considered as the project progresses to further more detailed planning and analysis.

13 STUDY RECOMMENDATIONS & NEXT STEPS

The Consultant Team recommends Bathurst Regional Council review, consider and adopt the following project recommendations and actions:

NO	RECOMMENDATION	ACTIONS
1	Confirm Facility Development Directions & Conceptual Design as preferred Development Model & Concept Design as basis for future more detailed facility design, development and operational planning	
2	Commission appropriately skilled facility planning, development & design team to undertake further more detailed design &	

NO	RECOMMENDATION	ACTIONS
	development planning.	
3	Develop an appropriate communication strategy, to ensure the community, facility users and stakeholders are aware of Council direction and appropriately involved as project progress.	**3a)** Continue to work with existing Industrial neighbour (Omya Australia Pty Ltd) to identify strategies to mitigate and or/reduce potential development impacts **3b)** Continue to work with Bicycle committee as representative body for key user groups **3c)** Seek official advice from EPA regarding environmental health & safety impacts
4	Undertake further more detailed site assessments and consultation with asset owners as design development planning progresses as recommended by the project team engineers	**4a)** Undertake detailed geological survey **4b)** Investigate & development site vegetation management plan, taking into account future bike park development **4c)** Investigate & develop Drainage, Retention & Outfall requirements
5	Undertake further more detailed traffic impact assessments as design development progresses as recommended by the project team engineers	**5a)** Undertake a Road Safety Audit **5b)** Undertake an assessment of the intersection of Vale Road and the access road and determine if new traffic controls are required for the increase in traffic **5c)** Undertake a noise assessment to ascertain "base case" road traffic noise **5d)** Continue to consult with Railway Authority (ARTC) and RTA to confirm access requirements from Vale & College Roads, Rail Crossing requirements. **5e)** Confirm access & car parking requirements, to inform further detailed design & development planning
6	Develop site vegetation & wetlands restoration and management plan	Work with existing specialist interest groups and relevant agencies to develop plans

NO	RECOMMENDATION	ACTIONS
7	Undertake more detailed business, management & operational planning to confirm usage, likely management structure and determine ongoing operational costs to Council and opportunities for improvement.	**7a)** Subject to findings of business & management planning, develop legal instrument to govern usage, roles & responsibilities, commercial opportunities and income/fees of multi-use/multi-user group facility
8	Develop project funding strategy & investment prospectus	In addition to existing Council allocations, consider external options for funding including: • Bicycle Infrastructure Funding • Natural Resource Management Funding • Health Funding Options • Sport & Recreation Facility Funding • User Group Contributions • Sponsorship

APPENDIX 1

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Engineering Report
Bathurst Bicycle Park

SGL

Report ref:
208010
2 August 2010
Revision 3

aurecon

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Rev No	Date	Revision details	Typist	Author	Verifier	Approver
0	11 May 2010	Draft report	RD	RD	KH	JFW
1	27 May 2010	Final report	RD	RD	KH	JFW
2	30 June 2010	Incorporation of Council Comments	RD	RD	KH	JFW
3	2 August 2010	Incorporation of Council Comments	RD	RD	KH	JFW

Contents

1. Introduction

Bathurst Regional Council is investigating the feasibility of constructing a bicycle park to be used by a number of local clubs to hold training, competitions and educational courses. Aurecon were commissioned by Cox Richardson to prepare a Traffic Report for the development of the Bathurst Bicycle Park (BBP) as part of the feasibility study. The analysis and assessment of the proposed development is detailed in the following sections of this report.

2. Existing conditions

The proposed location of the BBP is located approximately 5km south of the centre of the Bathurst CBD on Vale Road. It is currently owned by Bathurst Regional Council and is being used for rural purposes.

3. Proposed development

The present proposal of the BBP plans to cater for the various bicycle clubs and groups around Bathurst. It is proposed that as a minimum, the following facilities are provided:

- 333.33m outdoor velodrome
- Criterium long course
- Criterium short course
- BMX track
- Mountain bike down-hill course
- Mountain bike cross country course
- Junior education course
- Club house and amenities building
- Sealed car park

The proposed plan is shown in Appendix A.

4. Impacts on existing infrastructure

4.1 Infrastructure

The impact on existing infrastructure appears to be concentrated to the north eastern corner of the site and its eastern boundary with Vale Road

An internal sealed road will form, in-part, the Criterium long course and the nature of this access will be affected, especially during events. This access road links to a lot-dp to the west which is primarily served via a dedicated public road known as College Road.

4.2 Vale Road

Vale Road is currently an RTA asset managed by its western region based in Parkes.

It is a two way single carriageway road with 100 km/h limit, 3.5m lanes and 0-500mm shoulders.

The existing access to the Omya Southern Site to the north of the subject site is a simple rural property access. There are no direct civil impacts currently shown to Vale Road on the concept plans other than expected signage for the site.

Due to the change of use of this intersection and increase in traffic, an initial assessment has been undertaken with regards to the turning movements against opposing traffic as follows

Traffic Report Information - Section 2.2 and 4.3

- Traffic generation was calculated based on information provided by the client on the number of participants and likely vehicle generation by each type event.
- There are three types of events, Local, Regional and Major. A Major event will occur a limited number of times a year, holding one type of activity.
- Based on the information provided by the client, the expected maximum number of vehicles generated by the site would be 516 vehicles. This would occur during a major event.
- Information provided by Council indicated that Vale Road had a weekday peak traffic volume of 360 vehicle (bidirectional) for both AM and PM peaks.
- The weekend peak traffic volume was 300 vehicle (bidirectional).
- In the traffic report, SIDRA Intersection was used to determine the Level of Service (LOS) for the access on Vale Road, assuming that all vehicles came from Bathurst.
- It assumed a 70/30 split in traffic volumes for vehicles travelling on Vale Road for both AM and PM peaks (assuming 70 split travelling towards Bathurst during the AM peak and away from Bathurst in the PM peak).
- The SIDRA analysis assumed that the arrival of vehicles to the Bathurst Bike Park would be split evenly over a 2 hour period during the AM period (256 vehicles) and a 3 hour period over the PM period (172 vehicles), with travel to and from Bathurst.
- The LOS A did not change with the increase in traffic movements due to the BBP.

Additional Analysis

- Further breakdown to the traffic numbers based on the assumption a split between Vale Road and College Road (based on parking provision).
- This breakdown will mean that during major events, approximately 212 vehicles to arrive to the site from Vale Road. Over a two hour period during the AM period, 106 vehicles will access the site from Vale Road per hour.
- Assuming the 70/30 split, it can be assumed that approximately 75 vehicles will be turning right at this intersection.
- The opposing traffic at this intersection during the AM weekday peak is assumed to be 252 vehicles.
- However the likelihood of a Major event occurring during Weekday, with the AM peak on Vale Road coinciding with the arrival of vehicles to the site is low; however, it is still likely that it will require a CH treatment outside these periods.

In accordance with figure 4.5.12 of the RDG, a turning volume of 75 VPH against an oncoming volume of 252 VPH requires the installation of a Type CH right turn treatment in accordance with 4.5.6 of the RDG

The RTA is in the process of providing pre-DA comments

The RTA's contact for further consultation is:-

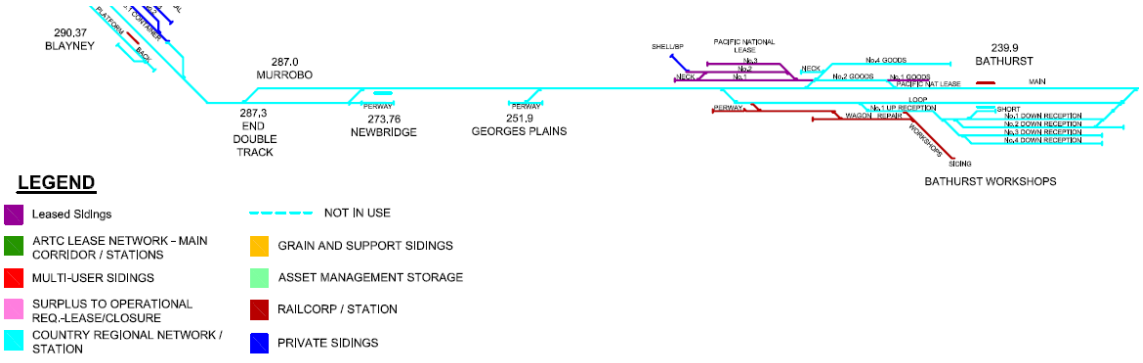
(02) 6861 1688

Land_use_western@rta.nsw.gov.au

Roads and Traffic Authority
Road Safety and Traffic Management
51-55 Currajong Street
Parkes
NSW 2870

4.3 Level Crossing

There is an existing un-gated active level crossing within the access road to the site and Omya Southern Site. The rail forms part of the Country Regional Network (CRN) between Bathurst and Georges Plains and is a single un-electrified line only. It is operated by ARTC and forms part of the leased network.



Extract of Country Regional Corridor Diagram 2 ©ARTC

ARTC have also advised that no new level crossings are to be considered on their network.

ARTC has indicated that use of the existing level crossing may be possible but this may be subject to an upgrade. The nature of any improvements to the level crossing will be dependent on the authority managing the traffic over it, in this instance Bathurst Council.

It should be noted that in nearby Bathurst, this railway has many passive level crossings which would be subject to greater traffic demands however this is not an indication that that the sites access will not require an upgrade to and controlled crossing.

It is our view that an upgrade to a controlled crossing may be warranted to the reasonably high traffic volumes in specific time period (two hour windows), however, consultation must be undertaken with ARTC during the design development to ascertain the level of upgrade (if required) on the crossing.

ARTC are in the process of responding formally, however their response will be considered in the next stage of the design process.

ARTC's contact for further consultation is:-

Michael Irons

(02) 6939 5467

mirons@artc.com.au

ARTC
PO Box 2159
Wagga Wagga
NSW 2650

4.4 Dam

There is an existing dam on the low point of the site (north east corner) which may have is capacity reduced as part of the works. The reduction in capacity of this dam and significant increase in hard surface area is likely to result in the increase provision of on-site storage detention basins elsewhere on the site.

The current layouts offer little area reserved for sedimentation basins or on-site storage detention

4.5 Gas Pipeline

Intersecting the site approximately 150m parallel to the sites southern boundary is a High Pressure Gas pipe line owned by APA. It is proposed to cross this at six locations as follows

- Downhill Track x 2
- Criterium long course x 2
- Criterium short course

All engineering designs within the vicinity of the pipeline and its 20m wide easement will require consultation with the asset owner. Re-location of the pipeline is not an option that should be considered as this is not likely to be supported by the assess owner, nor practical and may be very expensive and time consuming.

There are likely to be conditions imposed by APA with regards to any proposals within the easement which may involve concrete slab protection or zero cutting into the existing topography. They may require their asset to be more extensively marked or even fenced off where possible

For this reason the design levels and intrusion into the existing topography on the easement should be reduced or eliminated if possible.

Consideration would need to be made with regards to the location of site related services, especially drainage lines to avoid impacts within the easement.

Consultation with APA should be with the common goal that no adjustments to this service should be considered.

APA contact for further consultation is:-

Level 19, HSBC Building
580 George Street
Sydney NSW 2000

PO Box R41
Royal Exchange NSW 1225

02 9693 0000
02 9693 0093
feedback@pipelinetrust.com.au

4.6 Services

4.6.1 Optic fibre

The linear car park adjacent to Vale Road appears to traverse an existing buried Optic Fibre cable for most of its length. It is likely that the asset owner will require relocation of this cable to soft ground to ensure it is equally as accessible as currently enjoyed. Where it is not practical to relocate the optic fibre, the asset owner may request plant protection be required depending on the asset depth. Both options are likely to add a significant cost to the project

4.6.2 Over head electricity

There are a number of over head electricity poles on the site which are part of the local grid that may need to be relocated as part of the proposal. At least one pole is directly affected by the car park with others potentially affected due to regrading for the velodrome.

4.6.3 Other services

It is unclear if there are any other services within the site; however this will need to be investigated during detailed design stage.

5. Earthworks (desktop review)

5.1 Proposed Earthworks

A majority of the tracks and access roads require minimal earthworks with the geometry following the existing terrain. The velodrome will require significant earthworks to form the banked curves and it would be desirable if this was obtained from the site.

In the absence of geotechnical data regarding the site, it is unclear if soils would be suitable as general fill.

A significant amount of engineered fill would be required to form the car parking and access roads. This would probably have to be imported for the base and base course layers.

Typically RTA specifications could be adopted with regards to the use of materials on site and materials imported to form the road works or velodrome.

5.2 Geotechnical information

Bathurst Council currently has no geotechnical information regarding existing ground conditions of the site. A recommendation has been made with regards to geotechnical investigations.

The site lies to the south of Bathurst town centre, and is bounded to the west and east by two natural creeks. The minor creek to the west is closest to the site, and the floodplain of this creek may encroach onto the project site (depending on topography, etc.).

Based on the 1:100,000 scale Geology map of the area, the site is expected to be underlain by Bathurst Granite. The granite rock may be overlain at the surface by a mantle of weathered granite and/or alluvial soils. There may be thicker alluvium towards the west in the proximity of the creek.

If the site lies on higher ground (eg a ridge between the two creeks) then it may be reasonable to expect a shallow soil cover (<1.5m deep) above weathered, but competent, granite bedrock. Fresh granite is a hard material and will not be easy to excavate without blasting or rock-breaking equipment.

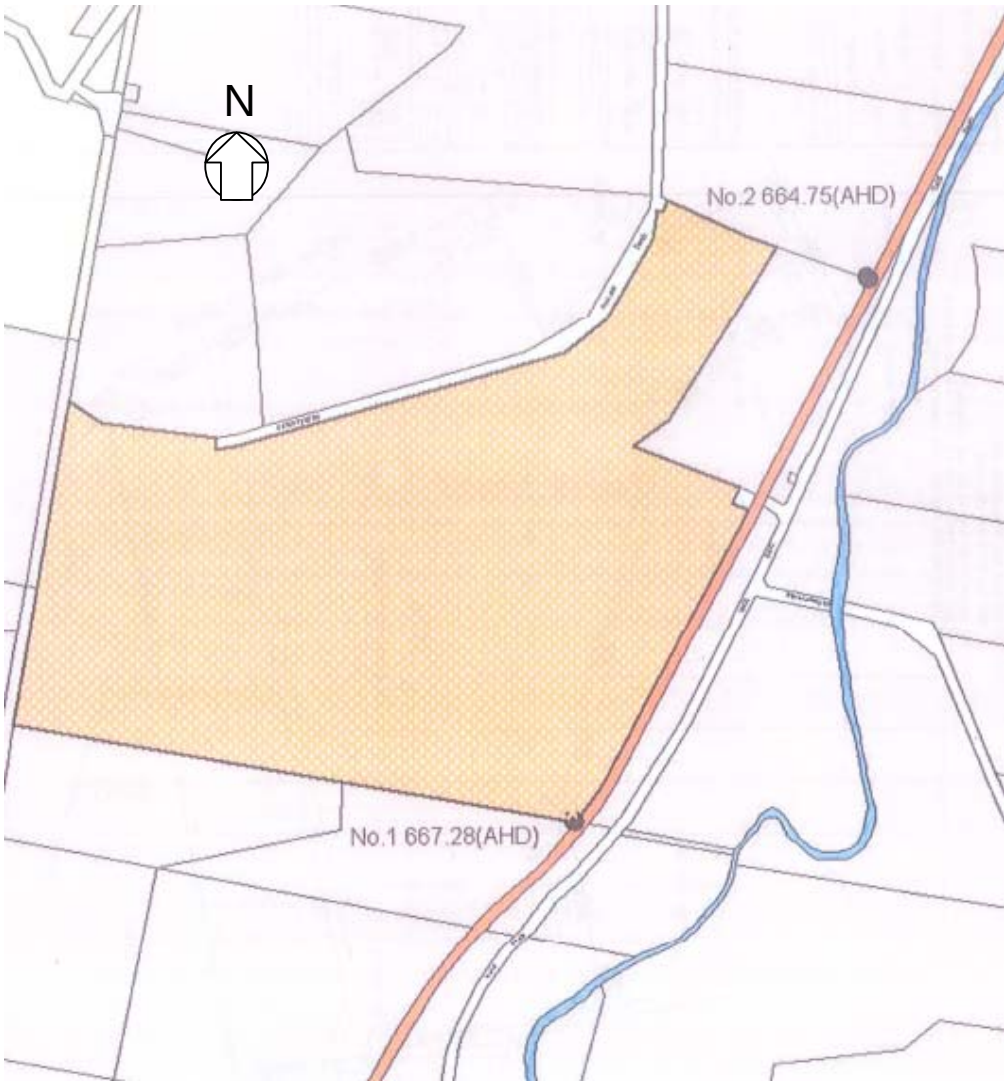
The alluvial soils will almost certainly be easy to work to form the berms for the velodrome. The long term stability of these berms will depend on the type of material, and the depth and type of the underlying soils. A geotechnical investigation needs to be done on the site to confirm the profile of the soils on the site.

6. Impact on flooding (desktop review)

6.1 Methodology

A local waterway known as Vale Creek flows past the development site approximately 300 metres to the south-east. A “flood levels” map was provided by Bathurst Regional Council indicating the 100 year flood levels at 2 locations as shown in Figure 1. The levels provided show a 100 year flood level of 667.28m AHD at the south-east corner of the site and 664.75m AHD at a location to the north east of the property (refer to Figure 1: Flood Levels Map).

Figure 1: Flood Levels Map



From the information provided, flood levels were interpolated for selected locations along the development site (refer to Appendix A: Key Development Locations). As a development requirement, all habitable buildings are required to have a minimum floor level at least 500mm above the 100 year flood level. It was determined that uninhabitable development areas may be permitted to fall below the 100 year flood level but should have a maximum inundation depth of 300mm to ensure that such areas remain trafficable.

Applying a minimum clearance of 500mm above the 100 year flood level for buildings (the club house and amenities building) and a maximum inundation depth of 300mm in the remaining developed areas (the car park and velodrome) the minimum recommended design levels for the development were calculated. The minimum recommended design levels are indicated in Table 1: Recommended Design Levels.

We have also been advised that when the area floods, the presence of the rail embankment between the site and Vale Creek means that it does take some time for the water to drain away. It is therefore worth checking the basis of the council information and examining drainage paths as part of the final development to assess whether some enhancements could be incorporated that hastened the drainage of the area, thereby increasing amenity.

6.2 Result

A desktop review of the local area reveals no threat to the development site from the 1 in 100 year flood level. As shown in Table 1 the existing ground levels at the proposed site are above the minimum recommended design levels.

Table 1: Recommended Design Levels

ID*	Location description	100yr flood level (m AHD)	minimum design level (m AHD)	Existing ground level (m AHD)	Above minimum design level (Y/N)	Height above minimum design level (m AHD)
1	SW end of carpark	667.14	666.84	669.57	Y	2.73
2	SW end of velodrome	666.44	666.14	666.80	Y	0.66
3	SW end of club house	666.30	666.80	669.22	Y	2.42
4	NE end of club house	666.21	666.71	667.84	Y	1.13
5	NE end of velodrome	666.06	665.76	666.76	Y	1.00
6	widening of car park	666.06	665.76	666.75	Y	0.99
7	NE end of car park	665.78	665.48	667.75	Y	2.27

*** For key locations refer to Appendix A: Key Development Locations**

If the development design requires 'cutting' into the existing ground, it may be necessary to review the impact of flooding if the design levels drop below the minimum recommended design levels.

Climate change has been predicted to increase the frequency and intensity of storms in the near future. Although it is difficult to quantify the possible changes as a consequence of climate change, it would be prudent to treat the current flood levels with some conservativism and adopt a greater margin of safety to building floor levels and infrastructure where practical to do so.

7. Conclusion and recommendations –

7.1 Conclusion

Based on the information provided, the following conclusions can be made:

- There are a number of identified impacts on existing infrastructure including, optic fibre, overhead electrical wiring, dam and sealed access track through the site
- There are a number of potential impacts on infrastructure including but not limited to, High Pressure Gas Main, Intersection at Vale Road, Level Crossing
- In the absence of any geotechnical information, It should be assumed at this stage that a significant amount of import fill material would be required to construct the velodrome and associated infrastructure
- There are specific requirements for the floor levels of any building to deal with the flood levels as provided in Table 1.

7.2 Recommendations

The following recommendations for the site can be made based on the information provided:

- Further consultation with RTA with regards to access requirements from Vale Road during the design development stage incorporating any pre DA comments they may have
- Consultation with APA with regards to the High Pressure Gas Line to ascertain limits of engineering works within the easement in order to eliminate any possible diversion works.
- Consultation with ARTC with regards to increased traffic across the passive rail crossing and any associated treatment that may be required to satisfy Councils traffic Engineers
- Consideration of site and overland drainage arrangements, retention and outfall to the system.
- Detailed geotechnical information will be required in order to ascertain the existing site conditions and enable further engineering advice on the suitability of existing site materials for use in bulk earthworks.
- Detailed examination of the flood information from the council and the drainage of the site after a flood should be undertaken at the next stage of the project.