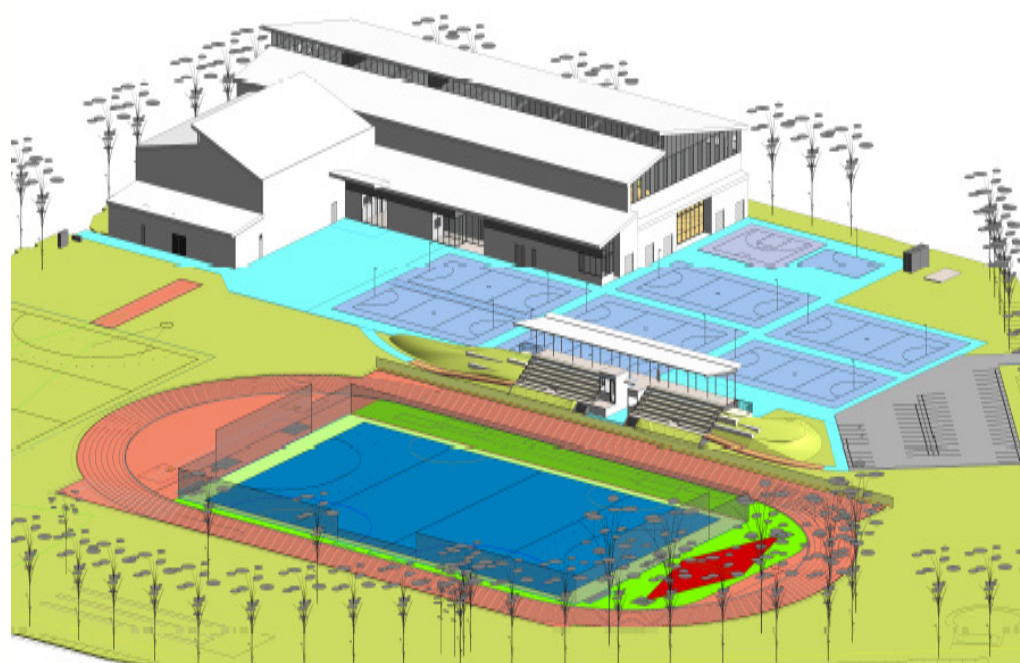


Traffic Impact Assessment

Griffith Regional Sports Precinct West End Sports Oval Development



August 2020

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1. Introduction / Development Context

This Traffic Impact Assessment (TIA) relates to the traffic impacts of the proposed upgrade to the “West End Sports Oval” facility. The proposal will promote fitness and increased sporting activity in the Griffith Local Government Area (LGA). The “West End Sports Oval” is located approximately one (1) kilometre west of Banna Avenue, which is Griffith’s Main Street and is located within the Central Business District (CBD). The site has an area of approximately 6.44 hectares and is situated predominantly within residential land.

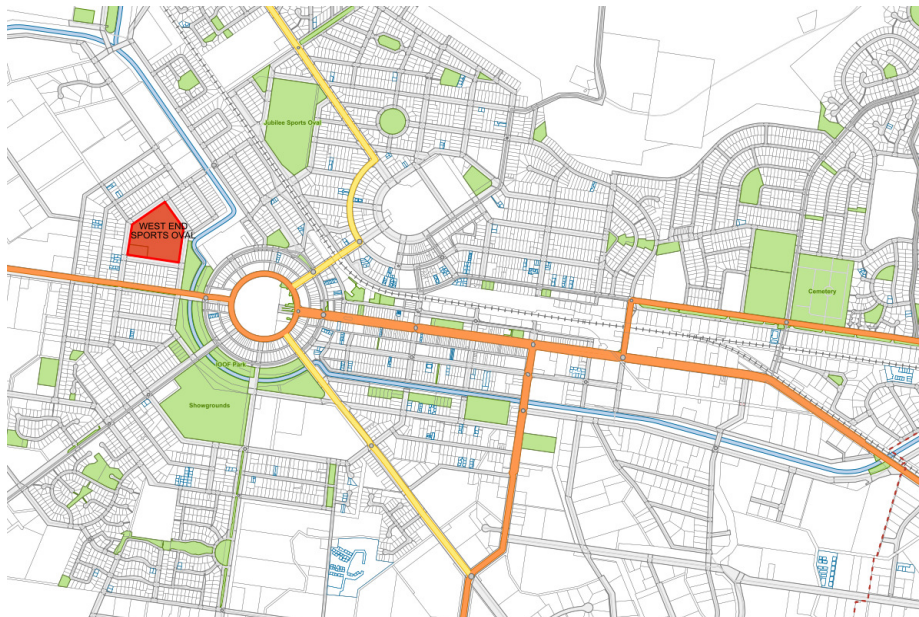


Figure 1 – West End Sports Oval Locality Plan

The existing site consists of; a basketball stadium (2 courts), hockey field, cricket pitch, grassed athletics running track, children’s playground, canteen/amenities building (to be demolished), an informal car park and Council’s Parks and Gardens Work Depot (to be demolished).

The proposed upgrade, when fully developed will consist of; a new basketball stadium (additional 5 courts), seven (7) new outdoor netball courts, new canteen/amenities building with new administration control area & associated support spaces, new synthetic athletics track, new hockey pitch and a new grandstand for seating of 1000 people.

The West End Sports Oval upgrade has also proposed to include a formalised car park in the north-eastern portion of the allotment which will cater for approximately fifty-three (53) parking spaces.

2. Existing Road Network

There are several existing roads surrounding the proposed development site including; Merrigal Street, Merrowie Street and Yarrabee Street. The priority access to that precinct is via Griffin Avenue (the Kidman Way) which intersects Yarrabee Street and Merrigal Street.



Figure 2 – Existing Site Layout

Merrigal Street is a two (2) lane, two (2) way bitumen sealed road with a combination of gravel and sealed shoulders along the southern side of the road between Day Street and Yarrabee Street and kerb and gutter along the northern side of the road surrounding the subject allotment. Merrigal Street is constructed with kerb and gutter on both sides of the road between Day Street and Merrowie Street surrounding the subject allotment. Merrigal Street is classified as a “collector road” as it provides a network for direct connection to residential precincts to the west of Griffith. Merrigal Street has a speed limit of 50km/h along the frontage of the subject allotment and allows for vehicles up to short combination b-doubles (19 metres) to travel under higher mass limits (57.5 tons)

Merrowie Street is a two (2) lane, two (2) way bitumen sealed road with a combination of kerb and gutter, gravel and sealed shoulders along the northern side of the road between Yarrabee Street and Merrigal Street. The southern side of Merrowie Street has kerb and gutter along the entire street. Merrowie street is classified as an “urban access road” as it provides access to residences in the immediate locality. Merrowie Street has a speed limit of 50km/h along the frontage of the subject allotment and allows for general access vehicles including semi-trailers up to 19 metres in length.

Yarrabee Street is a two (2) lane, two (2) way bitumen sealed road with a combination of gravel and sealed shoulders along its western side (adjacent to the subject allotment) between Merrowie Street and Merrigal Street. The eastern side of the road sustains kerb and guttering from Merrigal Street to Ellimo Street with unsealed shoulders from Ellimo Street to Griffin Avenue. The street is classified as an “urban access road” as it provides access for residences in the immediate locality. Yarrabee Street has a speed limit of 50km/h along the frontage of the subject allotment and allows for general access vehicles including semi-trailers up to 19 metres in length.

3. Traffic Volumes

Council conducted a traffic count along Merrigal, Merrowie and Yarrabee Streets in August 2020 which indicated the following:

The average daily traffic count for Merrigal Street was 1337 vehicles per day with 3.82% of these vehicles classified as heavy vehicles. The average AM peak was approximately 108 vehicles per hour and the average PM peak was approximately 140 vehicles per hour.

The average daily traffic count for Merrowie Street was 194 vehicles per day with 4.1% of these vehicles classified as heavy vehicles. The average AM peak was approximately 17 vehicles per hour and the average PM peak was approximately 38 vehicles per hour.

The average daily traffic count for Yarrabee Street was 387 vehicles per day with 5.2% of these vehicles classified as heavy vehicles. The average AM peak was approximately 37 vehicles per hour and the average PM peak was approximately 50 vehicles per hour.

4. Impact Assessment

The subject allotment is currently serviced by an existing gravel accessway, which is approximately five (5) metres wide located off Merrigal Street. The accessway provides connection to an informal gravel car park located within the West End Sports Oval site. The average daily traffic volumes identified in section 3 of this report confirm that there is low traffic volumes along Merrowie Street and Yarrabee Street and moderate volumes of traffic along Merrigal Street.

The impacts of the post-developed West End Sports Precinct will primarily be related to an increase in parking and traffic movements particularly along Merrigal Street and Merrowie Street. This increase in parking and traffic movements in surrounding streets will be evident when major events take place on weekends and sporting carnivals.

To estimate the traffic generated by the proposed development, reference is made to the RTA's *Guide to Traffic Generating Developments*. According to the RTA's *Guide to Traffic Generating Developments* the most likely category that the proposed development could be classified as is a “Gymnasium”. The calculations are as follows;

Rates:

- Metropolitan Sub Regional Areas
- Daily Vehicle Trips = 45 trips per 100m² of Gross Floor Area
- Evening Peak Hour Vehicle Trips = 9 trips per 100m² Gross Floor Area

Due to the existing hockey field and cricket pitch located at the oval, these will not be incorporated into the calculations for the traffic generation rates and will be considered as negligible. Therefore the anticipated increase in traffic generation likely to be associated with the new stadium and netball courts is calculated below;

Calculations:

- Daily Vehicle Trips $= 45 \times (\text{Development Area}/100\text{m}^2)$
 $= 45 \times 70.19$
 $= 3158.55$
- Evening Peak Hour Vehicle Trips $= 9 \times (\text{Area}/100\text{m}^2)$
 $= 9 \times 70.19$
 $= 631.71 \approx 632$ two way vehicle trips

The traffic volumes above are significantly high due to the proposed use of the indoor facility within metropolitan (capital/large city) sub regional areas. It is to be noted that maximum capacity of the facility will be infrequent and may be only ever seen on one off occasions for major sporting events. Therefore it is considered that the traffic associated with infrequent large sporting events contributes to a relatively small portion of the traffic generated in the area and will not cause significant traffic or parking congestions on a continuous basis.

The proposed development also includes the demolition of Council's Park and Gardens Depot. The traffic generated as part of the existing operations of Council Parks and Gardens depot will be removed from the site. Therefore, this will see a decline in traffic volumes particularly on weekdays and improve the amenity for residents in the immediate locality. This reduction in traffic volumes would be approximately 100-200 vehicle movements per day.

Further to this, to ensure that the impact of this development can be sustained within the locality, reference can be made to Council's *Engineering Guidelines – Subdivisions and Standards 2008*. In accordance with Table 1 – Road Standards for the Urban Street Network it is identified that collector roads having a traffic volume between 1000 vehicles and 3000 vehicles require a carriageway width of 11 metres.

An assessment of Merrigal Street identifies that the carriageway width of this road is 12.7 metres with kerb and gutter along both sides of the road between Griffin Avenue and Day St. The width of the road provides opportunity for kerb side parking on both sides of the road and continues to maintain a minimum lane width of 3.75 metres. Therefore, it is considered that there is sufficient

road width to accommodate the traffic generated as part of the subject development.

Turning treatments are to be assessed based on the Austroads Guide to Road Design – Part 4: Intersection and Crossings Figure A.10 (b) which details the warrants for the basic, auxiliary and channelised intersection treatments off major roads. Detailed below is Figure A.10(b).

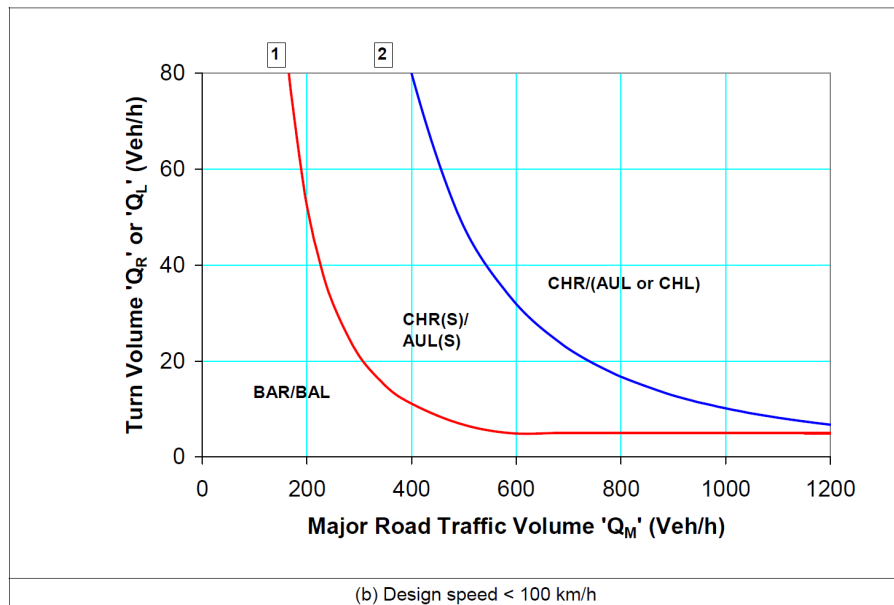


Figure 3 - Austroads Guide to Road Design - Part 4: Intersections and Crossings - Figure A.10(b): Warrants for Turn Treatments on the Major Road at Unsignalised Intersections - Design Speed < 100km/h

Based on the above figure it is identified that the intersections surrounding the West End Sports Oval are required to incorporate BAR/BAL intersection treatment.

However, Merrigal Street and Merrowie Street have been constructed as Collector Roads in accordance with Council's *Engineering Guidelines – Subdivision and Development Standards*. The collector road width requires a minimum carriageway width of eleven (11) metres from invert of kerb to invert of kerb. The infrequent nature of large sporting events contributes to a relatively small portion of the traffic generated in the area. Therefore, it is considered that the surrounding streets provide sufficient carriageway width to cater for the traffic generated from the development as such intersection treatment is not required.

5. Road Safety

5.1 Crash Data

There have been seven (7) crashes in the immediate locality along surrounding streets including Merrigal Street, the intersection of Merrigal Street and Griffin Avenue and the intersection of Yarrabee Street and Griffin Avenue in the past five (5) years. As Griffin Avenue is classified as a state road, the crashes at the intersection of Griffin Avenue and Merrigal Street will be considered by Transport for New South Wales (TfNSW). These crashes may be investigated and treated under the TfNSW Blackspot Funding programme.

The crash located along Merrigal Street on the northern boundary of the subject allotment was recorded as a non-casualty (tow away) accident where the driver left the road and hit a roadside object. Therefore, it is considered that conflict between the vehicle and traffic associated with the use of the site had no impact upon this crash.

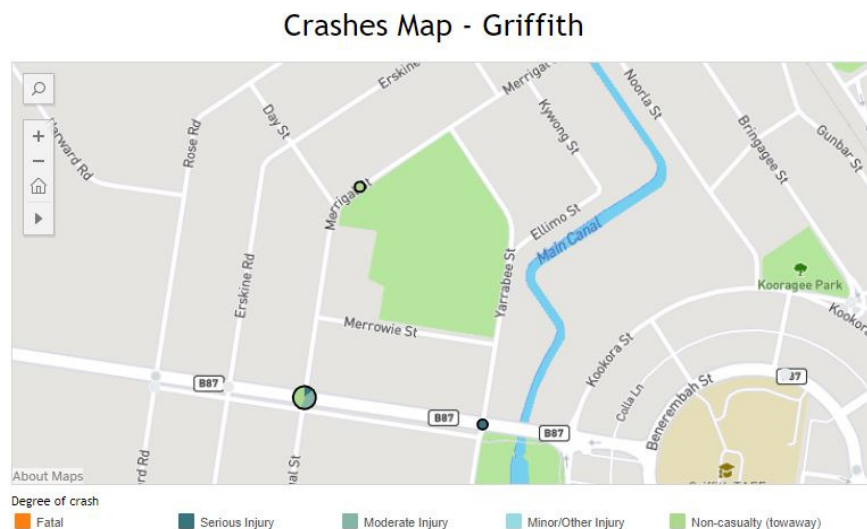


Figure 4 – Transport for New South Wales – Crash Map - Griffith

5.2 Sight Distance

The existing speed limit along Merrigal Street, Merrowie Street and Yarrabee Street is 50km/h. The minimum Safe Intersection Sight Distance (SISD) as specified in the *Austroads Guide to Road Design Part 4A* for a design speed of 60km/h with a reaction time of 1.5 seconds is 114 metres. The Safe Intersection Sight Distance requirement has not been achieved at the accessway of the proposed car park. As such, it is recommended that the existing accessway is to be removed and relocated to the north-eastern end of the proposed car park to ensure sight distance requirements are satisfied in accordance with the Austroads Publications.



Figure 5 – Sight Distance Exiting Existing Accessway

Sight distance requirements have been satisfied in each direction for the intersection of Merrigal Street and Merrowie Street, Day Street and Merrigal Street, Merrigal Street and Merrowie Street, and Yarrabee Street and Merrowie Street surrounding the subject allotment.

6. Parking, Internal Layout, and Circulation

There is currently a large informal car park located on the site to service the West End Sports Oval. The informal car park has capacity to hold approximately 80 cars however there are dust, amenity and safety issues associated with the informal layout and operation of the car park particularly within its residential locality. From observations, the informal car park not fully occupied by the existing operations of the site.

The proposed development consists of formalising the car park to accommodate approximately fifty three (53) spaces on-site including two (2) disabled spaces. The formalisation of the car park will increase the safety at this location, as it will ensure drivers adhere to road rules within the site. The formalisation of the car park will improve visibility and increase efficient use of the car parking spaces. This is a significant improvement especially for the safety of parents and children associated with sporting activities when accessing the car park. In addition to the proposed formalised parking spaces, there is approximately thirty nine (39) existing ninety (90) degree parking spaces located along Merrowie Street as well as ample opportunity for parking in the surrounding streets adjacent to the kerb and gutter.

It has been identified on the architectural plans that informal parking exists around the boundary of the subject allotment, which will cater for over two-hundred (200) vehicles. The informal ninety (90) degree parking will cater for overflow requirements associated with large events. A portion of

the informal parking spaces can be formalised with future stages of development on the subject allotment.

It is proposed that approximately fourteen (14) of the ninety (90) degree parking spaces located adjacent to the northern side of Merrowie Street be re-linemarked to provide for a bus zone. Associated bus zone signage can be erected according to conditions of consent for the development application if required.

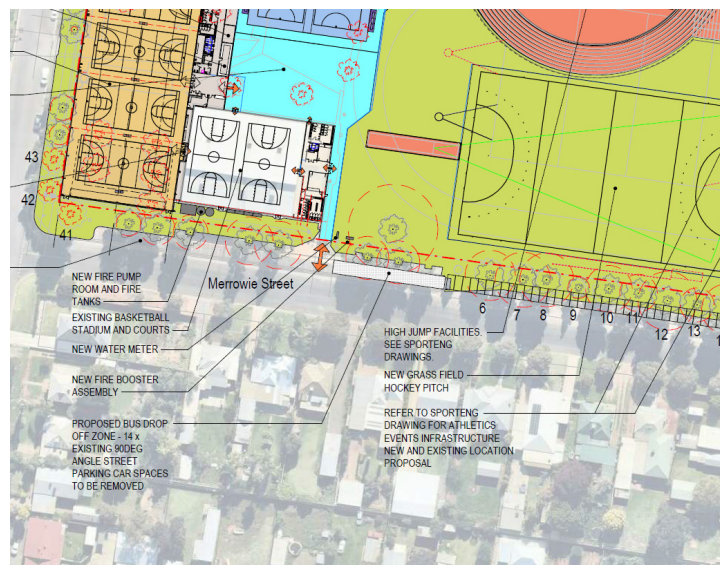


Figure 6 – Approximate Location of Proposed Bus Zone along Merrowie Street

Overflow parking for buses can also be facilitated on Council's road reserve located on the eastern side of Yarrabee Street between Griffin Avenue and Merrowie Street as identified in the figure below.



Figure 7 – Overflow Parking on Eastern Side of Yarrabee Street for Buses and Cars

Loading and unloading arrangements are to be made available within the proposed car park for the largest size vehicle accessing the development.

The proposed car park will also incorporate accessible footpaths that will provide suitable and safe access to the facilities, which will also be a significant improvement to the site.

Construction plans will be submitted detailing compliance with Australian Standard 2890 and Council's Development Control Plans. These requirements will ensure that the internal layout and circulation of the off-street car park will be satisfactory for vehicles associated with the proposed development.

7. Pedestrian and Cyclists

There are a limited amount of pedestrian facilities located around the West End Sports oval. There is approximately ninety (90) metres of 2.5 metre wide footpath located adjacent to the ninety (90) degree parking spaces along Merrowie Street.

The development will include concrete paths and walkways to facilitate suitable access between the basketball stadium, netball courts, amenities buildings and the car park. These walkways will ensure suitable access for pedestrians within the site.

The need for bicycle parking will exist within the site to provide a safe and compliant site accessible for all user groups. Bicycle rails will be provided north of the existing basketball stadium. The design and location of the bicycle provisions will be in accordance with AS2890 and will be further outlined in detailed design prior to construction.

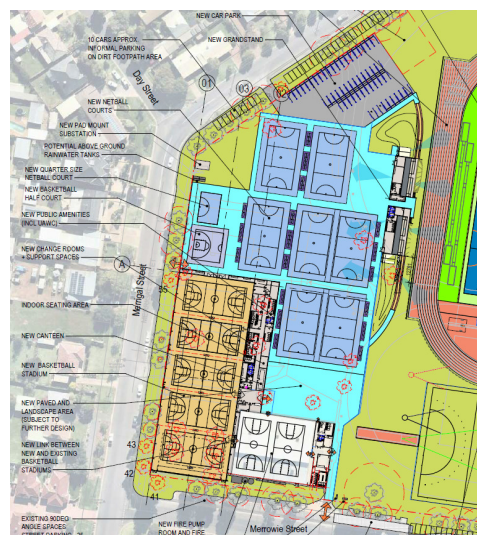


Figure 8 – Linking Paths Through Site for Pedestrians

The *Griffith Pedestrian and Bicycle Strategy – 2018* identifies several paths which are proposed to be located surrounding West End Sports Oval, linking to the Griffith Central Business District and other nearby pedestrian generators and attractors. These include;

- 2.5 metre wide shared path on the eastern side of Merrigal Street between Merrowie Street and Yarrabee Street surrounding the subject allotment.
- 1.2 metre wide footpath along the northern side of Merrowie Street between Merrigal Street and Yarrabee Street surrounding the subject allotment.
- 1.2 metre wide footpath along the western side of Yarrabee Street between Merrowie Street and Merrigal Street surrounding the subject allotment.

As such, it is recommended that the above pedestrian facilities are prioritised within Council's strategy to cater for the future needs of the proposed sporting development and are constructed when funding is available.

8. Public Transport

Griffith Buslines currently provides a bus service along Merrigal Street and Yarrabee Street surrounding West End Sports Oval for both school drop off and pick up services. There are no service providers for a public bus route surrounding the oval.

Currently there are no formal bus stops located around the oval. Buses informally drop off and pick up students along Merrowie Street when required for events associated with school athletic carnivals. It has been proposed that a bus zone is created along Merrowie Street to cater for buses associated with large sporting events and school carnivals. As such a public bus service would have the opportunity to utilise this bus zone in future.

It is considered that through the development of the formalised car parking facility and associated parking arrangements surrounding the subject allotment that the provision for public transport is suitable for the development.

9. Emergency Service Access

Emergency Service access will be required for Fire, Ambulance and Police services. It has been identified that a new fire pump room and water tanks will be required to be installed adjacent to the southern boundary of the site along Merrowie Street. Access to the fire room and tanks will be required to be maintained at all times. Access onto the site by ambulance vehicles may be required at time of illness and/or injury and will be provided through the proposed car park and onto the site. Therefore, it should be requested that an Emergency Management Plan be submitted to Council to ensure access is available at all times on the site. This plan will identify any further requirements (i.e. additional laybacks or driveways surrounding the site) in addition to the car parking provisions identified on the submitted plans. The Emergency Management Plan is to take into consideration statutory and recommended requirements by Fire, Ambulance and Police services.

10. Conclusions and Recommendations

The proposed development will remain consistent in its nature catering for major sporting events. As the proposed development will continue to cater for sporting events, albeit that at infrequent times, the events may be of a larger scale, it is unlikely to have any adverse effects on access or traffic in the immediate locality.

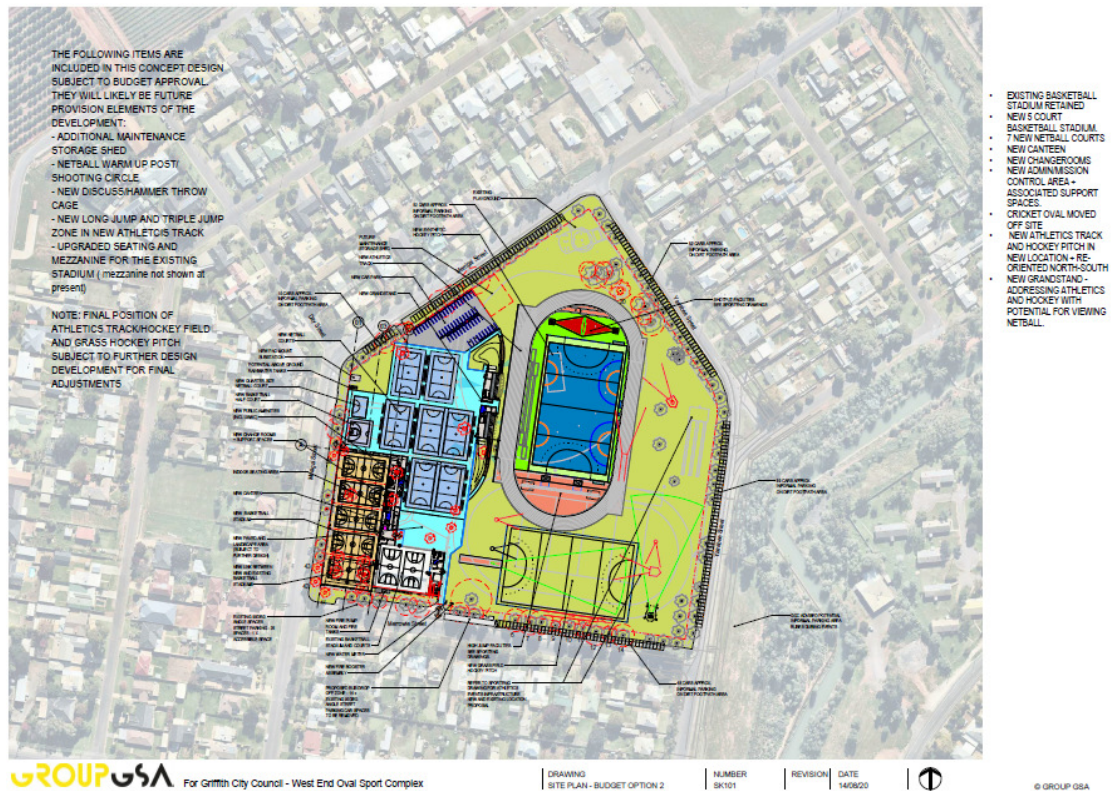
The size of the allotment has been designed to hold sporting events of a large scale. These sporting events are particularly held on weekends outside of peak hour traffic volumes therefore there will be little impact on the surrounding locality.

The below recommendations outlined in the report are summarised below;

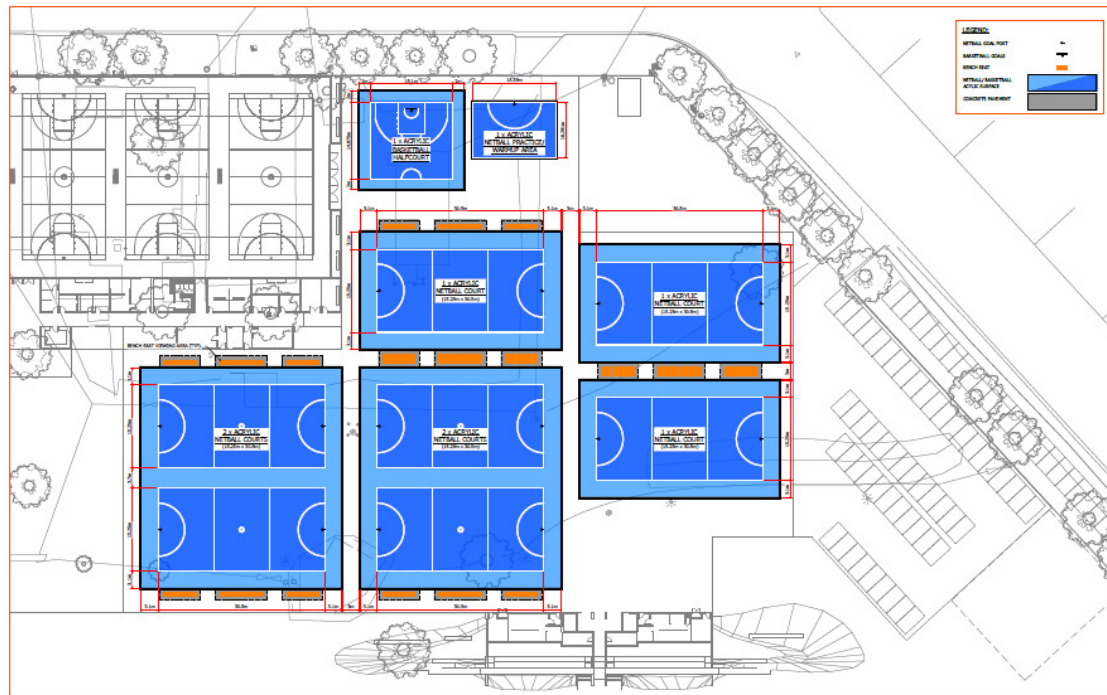
- To minimise public amenity issues the proposed car park is to be a sealed surface.
- The proposed car park will formalise and informal and non-compliant parking lot. This car park is to be line marked in accordance with AS2890.
- The proposed car park will increase safety in comparison to the existing onsite gravel car park.
- Relocation of the existing car park access to comply with sight distance requirements outlined in the Austroads Publications.
- Relocation and reconstruction of the accessway to ensure two-way movement is available for the largest size vehicle accessing the site.
- Provide formalised parking around the site as part of stage two future development of the site
- Prepare an Emergency Management Plan for the site.
- Investigate during detailed design what pavement can be retained and what needs to be fully reconstructed.

Appendices

Appendix A – Plan of Proposed Expansion



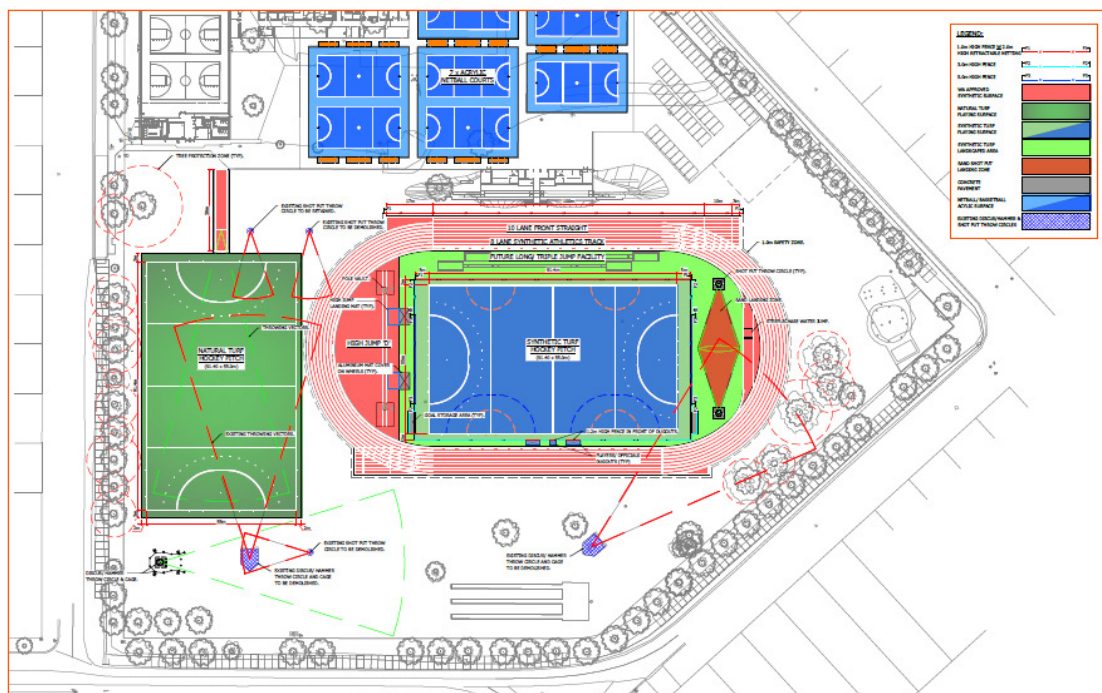




SPORTENG™ PROJECT: WESTEND OVAL PRECINCT

PROJECT NO: 10611-00	SKETCH TITLE: CONCEPT DESIGN - SHEET 2 OF 2
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SPORTENG™ PROJECT: WESTEND OVAL PRECINCT

PROJECT NO: 10611-00	SKETCH TITLE: CONCEPT DESIGN - SHEET 1 OF 2
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