JOHN DUNN MEMORIAL PARK

BMX/CYCLE FACILITY

FEASIBILITY STUDY OCTOBER 2018

COMMON GROUND

CITY OF Armadale

Prepared by Common Ground Trails Pty Ltd for
City of Armadale, October 2018.

ACKNOWLEDGEMENTS
Common Ground Trails wishes to acknowledge the contribution of the Project Control Group, project stakeholders as well as the valuable input from stakeholders, organisation representatives, users and individuals.

The Project Control Group comprised staff from the City of Armadale from the following departments:

Technical Services - Parks, Property Services
Community Services - Youth, Recreation Services, Community Development, Community Planning.

John Dunn Memorial Park is located on the tribal lands of Nyoongar People. We acknowledge the Nyoongar People as traditional owners of the land and recognise their continuing connection to Country.

PHOTOGRAPHY
David Willcox, Megan Watson, City of Armadale

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Common Ground Trails Pty Ltd and its employees are not qualified to provide legal, medical or financial advice. Accordingly, detailed information in this regard will require additional professional consultation in order to adequately manage and maintain the facilities and reduce risk.

CITY OF Armadale

COMMON GROUND

OVERVIEW

PROPOSED SITE

CONSULTATION & ENGAGEMENT

RECOMMENDATIONS

APPENDICIES

OVERVIEW

Precedent image: Kingsley Pump and Jump Trail - City of Joondalup

INTRODUCTION

In 2013 the City of Armadale undertook a master planning exercise that investigated 12 existing community and sporting hubs within the City. Master Plans were created in the form of overarching conceptual frameworks to guide the future development of facilities as sporting and community hubs. The Master Plan for John Dunn Memorial Park identified an opportunity to revive the former BMX facility as a regional track with associated facilities.

Common Ground were engaged by the City of Armadale to undertake a more detailed feasibility study for BMX or other cycling facilities for John Dunn Memorial Park. The study included targeted community and stakeholder consultation and a regional assessment of BMX and cycling facilities to determine the best use of the available space at John Dunn Memorial Park.

METHODOLOGY

The following tasks were undertaken in preparation of this report:

Stage 1 Site context and analysis

- Research and literature review to identify supporting evidence for the need for BMX, mountain biking and wheeled sport facilities;
- Consultation with WestCycle (WA peak body for cycling) and BMX Sports WA and a needs assessment, investigating current and future demand for BMX and other cycling facilities in and around the City of Armadale;
- Review existing provision throughout the Perth region of similar standard facilities;
- Assessment of the viability of a regional BMX Facility and other cycling oriented facilities at John Dunn Memorial Park.

Stage 2 Targeted community and stakeholder engagement

- An internal project control group including planning, parks, property as well as others including youth and recreation as required. (2 meetings);
- Online survey;
- Open house session.

Stage 3 Feasibility analysis and broad concept

- Present evidence-based recommendations for appropriate community infrastructure at John Dunn Memorial Park that complements existing facilities;
- Provide recommendations and guidance for next steps to progress with a concept, detailed design and construction.

CONTEXT

BENEFITS OF CYCLING FACILITIES

Due to their ability to cater for people of all ages and families, the demand for cycle facilities is quickly growing. Cycle facilities offer the following benefits to communities:

- Cater for the growing cycling recreation activity and provide a safe and fun environment for young people to learn bike handling skills;
- Attract visitors to the local area, particularly families looking for activities on school holidays;
- Promote health and wellbeing;
- Can be built in small areas connecting with existing sporting precincts, parks, trails and even lakes, beaches and golf courses;
- If designed appropriately, can cater for a range of users, such as scooters and skateboards but only if surfaced with concrete or asphalt;
- Can create passive surveillance through use by community members in otherwise quiet or unused areas;
- Can be ridden by people of all ages, from toddlers on pedal-less balance-bikes, to teenagers, through to over-55s and older people.

PARTICIPATION

Wheeled sports have recently been shown to be growing in popularity over organised sports. Research undertaken by the ABS into Children's Participation in Sport and Physical Recreation found that participation rates for physical recreation activities such as skateboarding, bike riding and roller blading were much higher than organised sports (refer table 1). The research also indicated increasing participation rates for both males and females (refer table 2). Note data relating to skateboarding and roller blading in the years 2009 and 2012 also incorporates scooter riding.

Table 1. Comparison of organised sport vs wheeled sports.[1]

Males	No ('000)	Participation
Soccer	309.7	21.7
Bike riding	998.8	69.9
Skateboarding or roller blading	857.8	60.0
Females	**No ('000)**	**Participation**
Dancing	367.4	27.1
Bike riding	770.6	56.8
Skateboarding or roller blading	640.0	47.2

Table 2. Growth in wheel sports participation rates 2009-2012. [1]

Males	No ('000)		Participation	
	2009	2012	2009	2012
Bike riding	992.5	998.8	66.1	69.9
Skateboarding or roller blading	780.4	857.8	55.9	60.0
Females	**No ('000)**		**Participation**	
	2009	2012	2009	2012
Bike riding	721.1	770.6	54.4	56.8
Skateboarding or roller blading	562.2	640.0	42.4	47.2

Participation in BMX racing has increased dramatically since the discipline made its Olympic debut at the 2008 Beijing Games and Australia is now the second largest BMX nation in the world[2]. Membership of BMX Sports Western Australia has more than doubled since 2005 (1,156 members in 2005 2,810 members in 2017)[3]. BMX club membership in Western Australia has a young demographic, with 72% of riders under 17 [3]. BMX and pump track facilities are widely recognised as a primary gateway into cycling (in particular mountain biking) for young people, with participation building skills, physical attributes and tactical knowledge transferable to other cycling disciplines.

Mountain biking in Western Australia is growing in popularity. The Western Australian Mountain Bike Strategy identified young people as being underrepresented in mountain bike particpation[4]. Increasing availability and accessibility of different styles of trail offering different levels of technical difficulty is one of the recommendations aimed at reducing barriers to participation (ibid).

Anecdotal evidence from recently opened facilities around Perth indicates there is a need locally for more purpose designed facilities. Kingsley Pump and Jump Trail in City of Joondalup opened in 2017 and includes a pump track, jump track, and safety track. This facility is still drawing crowds especially on weekends, with people traveling large distances to visit the facility.

1. ABS (2012), Children's Participation i Cultural and Leisure Activities, Australia, 2012, code 4901.0.
2. Western Australia Strategic Cycling Facilities Review (2017)
3. BMX Sports Western Australia. (2017). 2016-2017 Annual Report.
4. Western Australian Mountain Bike Strategy 2015 - 2010 Unlocking the potential.

Precedent image: Jindowie Pump Track - Yanchep

FACILITY TYPES AND TRENDS

In order to assess the scale and type of features suitable for the facility at John Dunn Memorial Park, it is important that a sound understanding of the potential facilities/features is established. Within urban interface sites there are a range of facilities that can be developed including; BMX tracks, Pump Tracks, Jump Tracks, Skills Tracks and Safety Tracks.

BMX TRACKS

BMX tracks typically consist of a single lap track usually between 300-400m, constructed from compacted dirt and asphalt, with a start ramp and features such as tabletops, gap jumps and rhythm sections. BMX racing rewards strength, quickness, and bike handling. BMX tracks are typically used in a structured and organised setting rather than unstructured play.

PUMP TRACKS

A pump track is a scaled-down, 1-3 metre wide track that can be used for bicycle, skateboard, in-line skates and scooter riders to practice skills on a series of features, such as berms and rollers placed in quick succession. Simplistically they are scaled down BMX tracks which do not require pedaling. 'Pump' refers to the action made by riders pushing down with their arms and legs to manoeuvre the bike or board over features to maintain momentum without pedaling or pushing-off the ground. Typically, tracks can be ridden continuously, and different combinations of features can be linked to provide a varied challenge. Bike handling skills can be translated to other mountain bike tracks. Well designed pump tracks cater for all abilities, with all features being roll-able for beginners, and allowing for progression to pumping, and even jumping for more advanced riders. Riding a pump track is easy and children are typically comfortable using them within 10-20 minutes.

A well designed pump track provides enough challenges to stay attractive for years, because the rollers and berms can be combined and transitioned in different directions, creating opportunity for skilled riders to do jumps and maneuvers. Pump tracks can be made from natural soil, hardened surfaces, wood, fibreglass, concrete or asphalt. Historically pump tracks were constructed from natural soil blends and required significant ongoing maintenance. More recently, world's best practice is tending toward lower maintenance surfacing techniques and materials, such as asphalt, which are inclusive for a larger user base of wheeled-sports including skateboarding, scooters, in-line skates and non off road bikes.

JUMP TRACKS

Jump tracks typically feature series of jumps of various size and technicality in multiple lines. Provision of jumps tracks is a vital inclusion allowing for progression for young people through to adults who seek an alternate and often more challenging experience than a pump track. Jumps are developed so that they allow for progression while always keeping safety in mind. Featuring all types of jumps, including table-tops, gaps, step-ups, step-downs and hips, the aim for linking features so riders flow immediately from one to the next. Ideally, a rider will not have to brake between jumps. Well designed jump tracks offer a wide variety of challenges, from easy rollers to big jumps. A diversity of lines will allow riders to build their skills gradually and will create a park that is fun for all abilities. Typically, jump lines are arranged side-by-side in increasing difficulty, all starting at a common roll-in hill and traveling in the same direction. Jump tracks are primarily constructed of soil, however increasingly jump take offs and entire jump lines are being made from hardened surfaces, such as wood, concrete and asphalt. This significantly reduces ongoing maintenance and improves rideability.

SKILLS TRACKS

Skills tracks feature man-made technical trail features that test the skills of a rider and allow them to try features that they may encounter on trails in the region. Typical features may include log rollovers, log rides, balance planks, rock drops and other technical features. They can also incorporate street features such as rails and wall rides, or freeride stunts like ladder bridges, skinnys, teeters and drops. Importantly all features are built with progression allowing users to start small and build their confidence up to larger features. Successfully executed skills park areas feature a diverse range of materials and can look like well landscaped areas or 'nature play' areas with natural features such as timber, logs and rocks.

BIKE PLAYGROUND

Bike playgrounds include features such as tunnels, ramps, walls, and balance planks and are designed to suit a more playful riding style, incorporating tricks and highly skilled riding. Typically bike playgrounds have a more urban character, with constructed elements rather than more natural features.

SAFETY TRACK

Road and Cycle Safety Tracks makes learning road rules fun for young people on bikes and scooters. A Safety Track features a miniature road network giving real-life experiences while learning essential safety skills. Safety Tracks are designed to enable; reading traffic signals, crossing railways and school crossings, negotiating roundabouts and gutters, recognising traffic signs and line marking, and cycling on roads or footpaths. Safety tracks are typically constructed using materials and features as they would be encountered in the real world including asphalt and concrete combined with various line marking and road safety signage. To improve the enjoyment of these tracks, features like fuel stations and parking areas are included for diversity.

CHALLENGE PARK

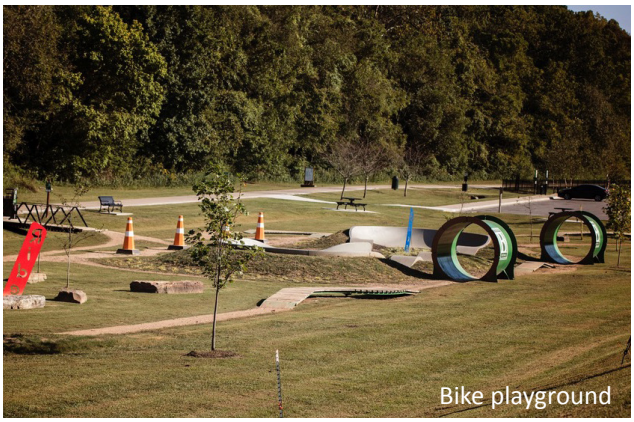
Pump, jump, skills and safety tracks are often integrated into one, larger-scale, seamless facility under the banner of challenge parks. Challenge parks are larger scaled developments featuring multiple bike related facilities and are used to improve riding skills. Their combined facilities provide an excellent entry point into bike riding while offering technical riding features for more advanced riders all within one convenient and safe location.

Challenge parks are typically developed with soft landscaping, hardscaping and site improvements turning the area into an aesthetically pleasing community hub and making them suitable for urban interface developments. Due to their offerings, challenge parks also often act as a trailhead or hub for the area's greater trail networks. Urban interface challenge parks provide significant community benefit with extensive use from youth, but also recreation enthusiasts and, when of significant scale, tourists. Such facilities have proven extremely successful nationally and internationally.


Jump track


Pump track

Safety track


Bike playground


Skills track

EXISTING FACILITIES

There are a number of existing facilities around Perth refer to figure 1 opposite and table 3 below. There is only one pump track within 10km of John Dunn Memorial Reserve highlighting the need for a BMX/cycle facility in the area.

Table 3. Existing facilities

Facility	Scale (Ha)	Surface	Local Government
BMX Track			
Balcatta	1.3	Asphalt	Stirling
Wanneroo	1.4	Asphalt	Wanneroo
Bibra Lake	3.3	Asphalt	Cockburn
Bull Creek	1.5	Asphalt	Melville
Lesmurdie	1.2	Asphalt	Kalamunda
Medina	2	Asphalt	Kwinana
Rockingham	1.5	Asphalt	Rockingham
Byford	1.1	Asphalt	Serpentine-Jarrahdale
Mandurah	0.9	Asphalt	Mandurah
Pump Track			
Kingsley	0.29	Asphalt	Joondalup
College Park	0.14	Natural	Nedlands
Calleya	0.9	Asphalt	Cockburn
Black Stump	0.12	Natural	Kalamunda
Jindowie, Yanchep	1.24	Natural	Waneroo
Baldivis	0.18	Asphalt	Rockingham
South Lake	0.09	Asphalt	Cockburn
Muchea	0.32	Asphalt	Chittering
Lake Leschenaultia	0.15	Natural	Mundaring
Wellard	0.05	Asphalt	Kwinana
Dixon Reserve Hamilton Hill	0.06	Natural	Cockburn
Perena Rocchi Reserve Yangebup	0.18	Natural	Cockburn
Maddox Estate Piara Waters	0.11	Asphalt	Armadale
Sussex Bend Lower Chittering	0.13	Natural	Chittering
Houghton Park Carramar	0.20	Natural	Wanneroo
Jump Track			
Kingsley	0.3	Natural	Joondalup
Bayswater	0.24	Natural	Bayswater
Lightening Park	0.48	Natural	Swan
Skills Track			
Goat Farm		Natural	Mundaring
Kalamunda		Natural	Kalamunda
Safety Track			
Kingsley	0.3	Asphalt	Joondalup
Reg Williams	0.3	Asphalt	Armadale

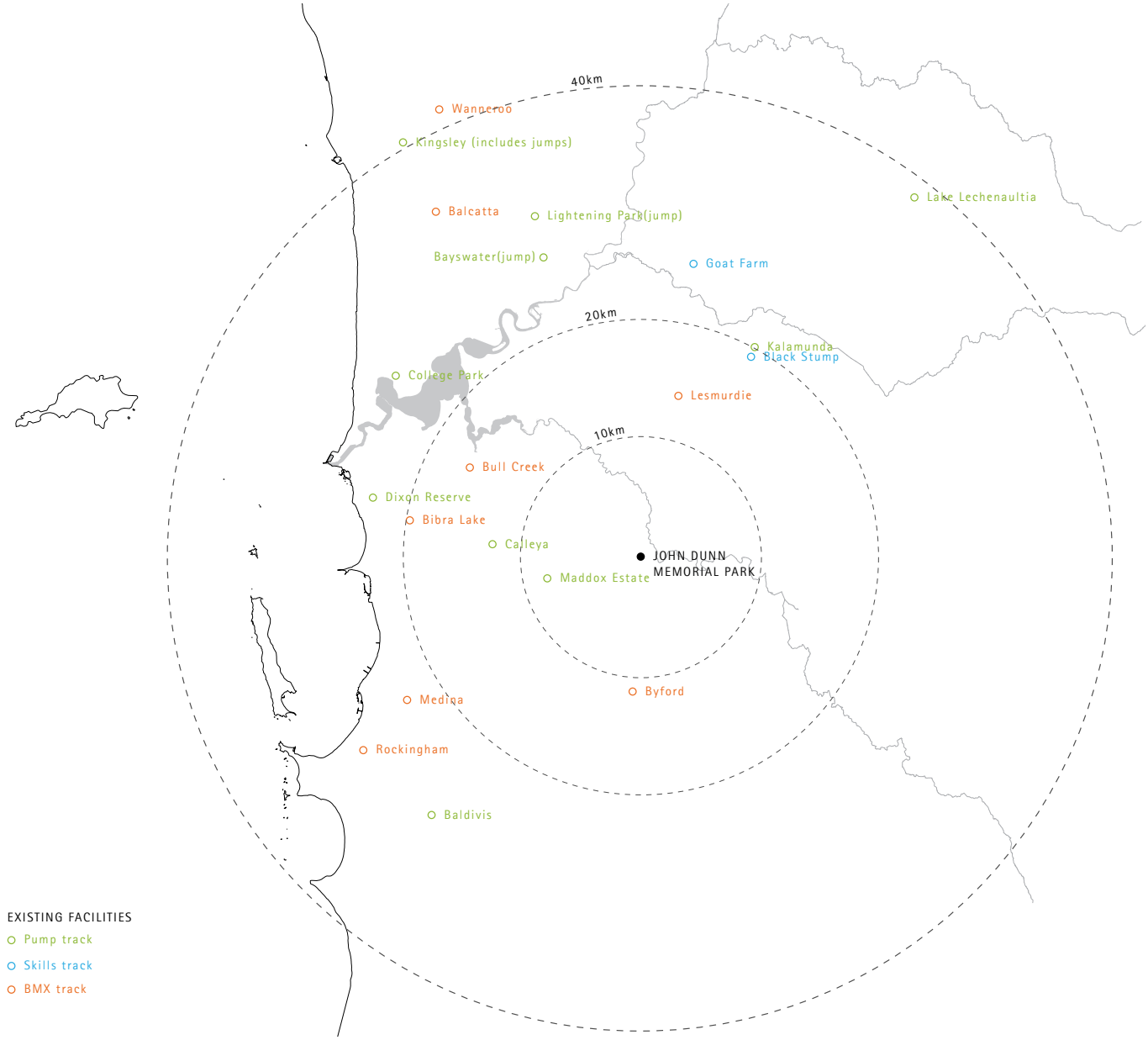


Figure 1. Existing facilities

Local precedent - Kingsley Challenge Park

International precedent - Stevie Smith Park BC Canada

THE SITE

John Dunn Memorial Park is an 11.25ha District Open Space and services a number of community uses including sports and recreation. The BMX track that was located in the eastern corner of the reserve was decommissioned in approximately 2012, amid decreasing numbers in the local BMX club. This prompted vandalism and illegal use by motorbikes. In the last 2-3 years some community members have approached the City for assistance in developing a BMX club and associated facility. Continued interest in the prospect of this type of facility in the City is an indication of the popularity and appeal that such a facility could have, if the design were encompassing of all ages and abilities and catering to different activity types.

Figure 2. Existing conditions analysis

ANALYSIS

The proposed site sits on an historic waste refuse site (given extent and type of fill is unknown a geotech survey is recommended to determine stability), there are some trees along the north western edge, otherwise the site has been cleared. The following analysis outlines the site features, refer to figure 2.

EXISTING FACILITIES

John Dunn Memorial Park currently services a number of sports and recreation uses including baseball, AFL, playground and fenced off leash dog park. The 2013 master plan proposed refurbishment of the facade of the existing pavilion and community hall and new change room facilities, a canteen and additional storage added. This work has yet to be completed. The public toilets on site were proposed to be progressively refurbished, given the recent addition of the dog park in the southern corner and the possible development of cycle facilities, relocating the toilets should be considered.

CIRCULATION

The site is accessed via Third Ave. The new carpark servicing the fenced off leash dog park will not be sufficient capacity to cater for the BMX/cycle facility as well. Consideration will need to be given to expanding the carpark and/or formalising parking along entry road. Pedestrian/cyclist access is primarily from Third Ave, with secondary access from Mimosa Ct on the southern boundary.

Pedestrian and cyclist access will need to be considered in development of the site, preferably separate from road access.

VISUAL CONNECTIONS

The proposed site for the BMX/cycle facility is elevated above surrounding neighbours, this allows views over neighbouring property from the site.

SCALE

The proposed site is approximately 1Ha. For comparison, the size of some popular sites around Perth are provided in figure 3.

Westside BMX, Balcatta **1Ha**

Kingsley Pump and Jump, Shepherds Bush **0.34Ha**

College Park Pump Track, Nedlands **0.16Ha**

Figure 3. Scale of other BMX and pump track facilities around Perth

Precedent image: Jindowie pump track - Yanchep

Comprehensive community and stakeholder engagement was carried out in order to gauge community support for the proposal and:

- **Understand the demand for BMX and other cycle facilities;**
- **Understand the values and objectives of land managers, agencies, industry organisations, community groups and surrounding neighbours;**
- **Understand the key issues impacting land managers, community groups and general trail users;**
- **Identify potential opportunities for future development;**
- **Identify funding mechanisms and management models.**

STAKEHOLDERS

A meeting with internal City of Armadale staff including representatives from Planning, Parks and Projects and Youth and Recreation was held on the 19th June. The discussion was focused on safety/security issues, environmental and maintenance considerations.

Key points from discussion included:

- Looking at the need for a Regional level BMX facility;
- The need to cater for a broad age range, and separation of skill levels;
- The success of safety tracks in other locations within the City;
- Consideration for use by motor bikes and designing features to make them undesirable for motorbikes;
- Ensuring access for all abilities, the access point from Mimosa Ct would need to be an informal/secondary access due to inability to provide DDA compliant grades, into the site;
- Consideration needs to be given to impacts on surrounding residents including sightlines and noise, was noted that noise complaints from the recently opened dog park facility have been received;
- Noted that the site is an old tip site and preference would be to import material rather than excavate;
- Consideration should be given to the idea of a MOU with a club allowing rebuildable jumps, ie providing a stockpile of dirt and an agreement with club to build and maintain the jumps;
- Toilets will need to be upgraded and potentially relocated to new carpark (noted potential to connect sewer to current location);
- Relocation of the playground to be incorporated into the BMX/cycle facility should be considered as well as inclusion of other features such as rock climbing walls and rage cages;
- Preference for additional parking to be on access road rather than expansion of new carpark;
- Recent work looking at youth recreation facilities within the City has identified the need for more youth oriented facilities;
- Use of recycled materials in base course is preferred;
- Natural shade preferred, and noted there are current plans to improve the vegetation buffer around the site.
- Use of grassed areas is possible, with irrigation currently onsite;
- Noted stormwater system onsite can be utilised for drainage solutions.

Discussions with Westcycle and BMX Sports WA outlined the need for a State level facility (requiring an 8m start ramp and minimum 1Ha area for track) centrally located in the Perth Metropolitan area. The proposed site at John Dunn Memorial Park was determined to be unsuitable for a state level facility due to the size of the available area being too small, a lack of carparking capacity for larger events and the potential impacts on surrounding neighbours including noise and visual amenity. A regional level facility would fit the site but still poses concerns regarding carparking capacity, noise and visual amenity.

Note these concerns are more prominent when considering a BMX facility owing to the more organised and structured event nature of BMX tracks (concentrated use) as opposed to pump and jump tracks where use is spread out over the day/week.

COMMUNITY

Engaging local residents involved a mail out (letter and project fact sheet) to residents within minimum 400m radius of the proposed site, a survey available online and an open house session held onsite in the John Dunn Community Centre.

SURVEY RESULTS

Following a three week long comment period 483 completed surveys were submitted. 99% of respondents supported the proposal. Engagement with social media posts regarding the facility was high indicating strong community interest in a BMX/cycle facility.

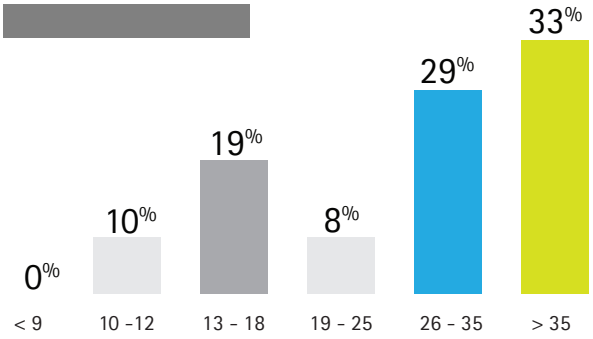
City Of Armadale Facebook post:

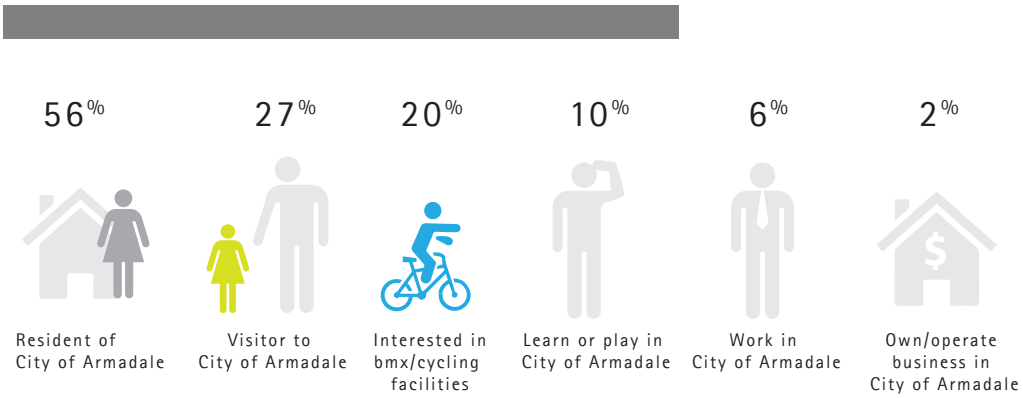
- 5,981 people reached
- 94 reactions, comments and shares

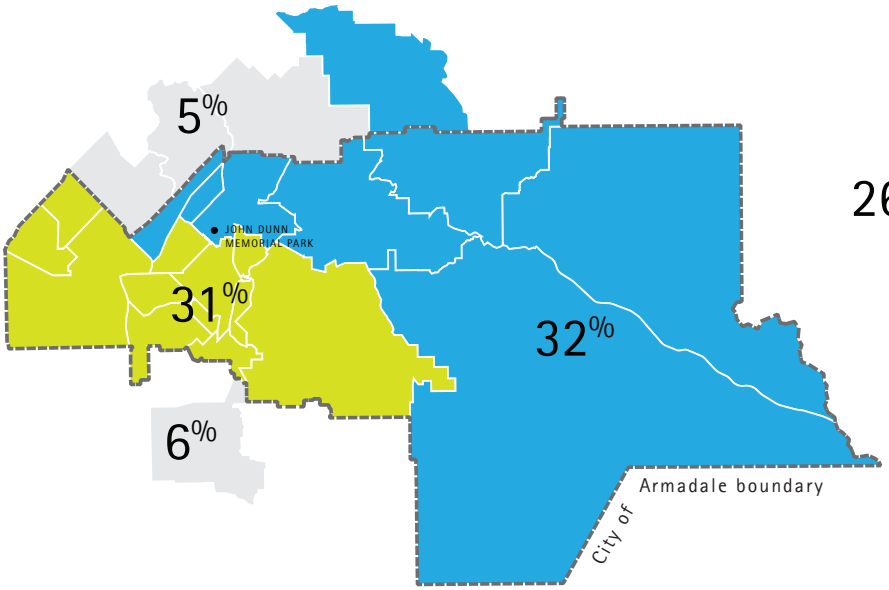
Common Ground Trails Facebook post:

- 25,264 people reached
- 721 reactions, comments and shares

Most respondents were from the City of Armadale. Majority of the responses were from parents/guardians of rider/s this was reflected in the age bracket of respondents, with 62% of respondents over 26 years of age. This is important to note in looking at the responses regarding facility and feature type where parent/guardian knowledge of rider desires might not be accurate.

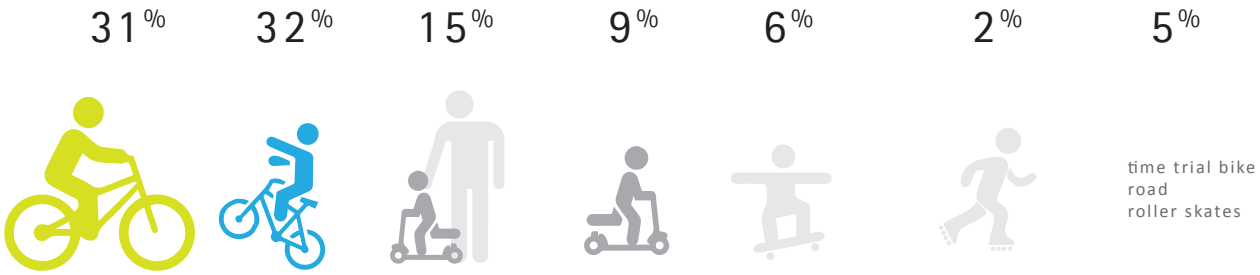






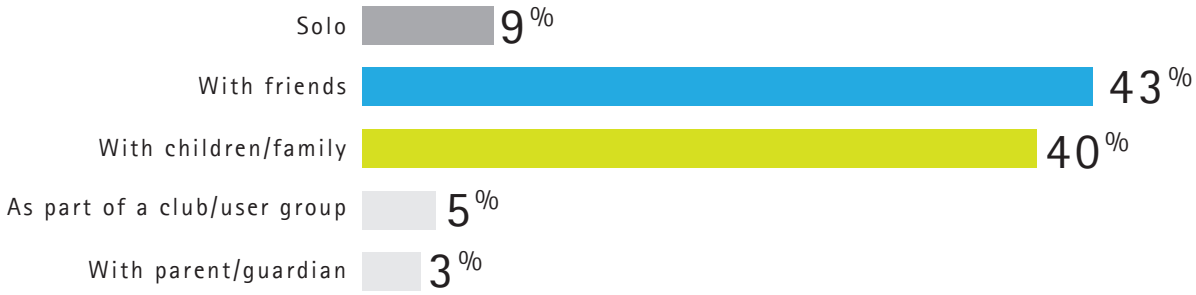
26% further afield

What do you ride?



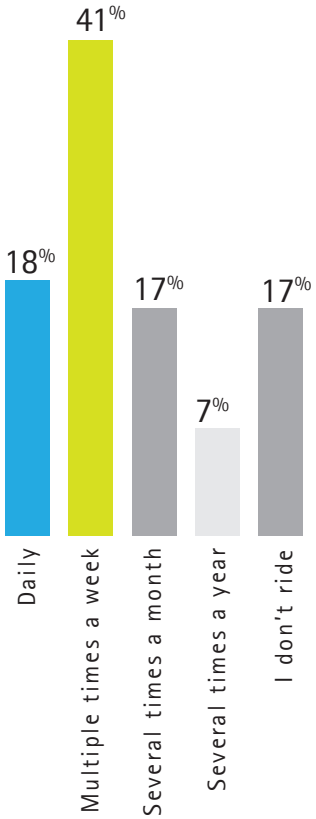
What is your skill level?

Who would you visit the BMX/cycle facility with?

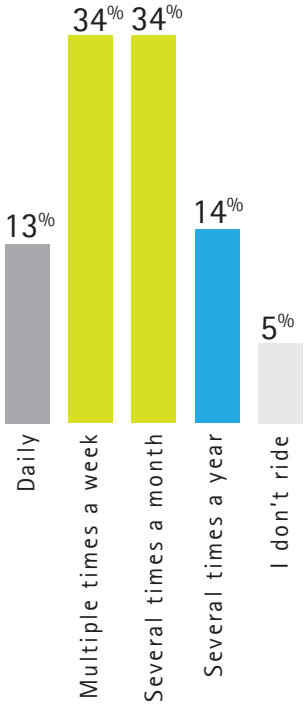


Mountain bike, and BMX were the most popular ride options and 45% of respondents rated their (or their children's) skill level as intermediate, with 8% rating beginner and 26% advanced. This has important implications for the design of the proposed facility and the need to cater for skill progression. Most respondents would visit the facility with children/family.

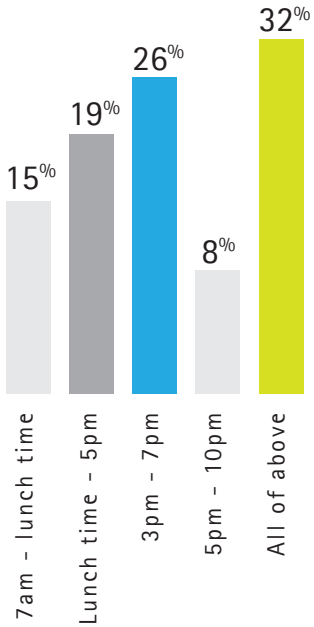
How often do you ride?



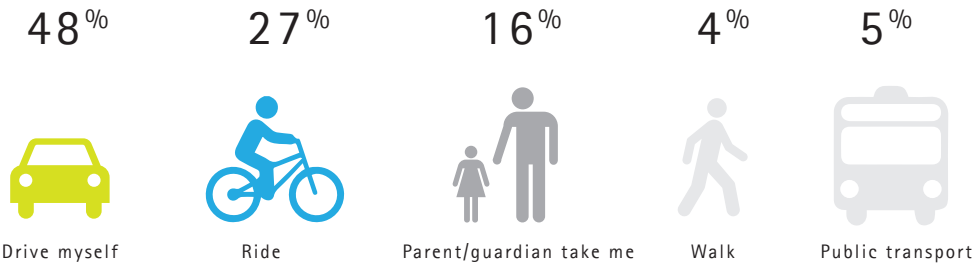
How often would you ride a facility at John Dunn?



What time of day would you ride a facility at John Dunn?



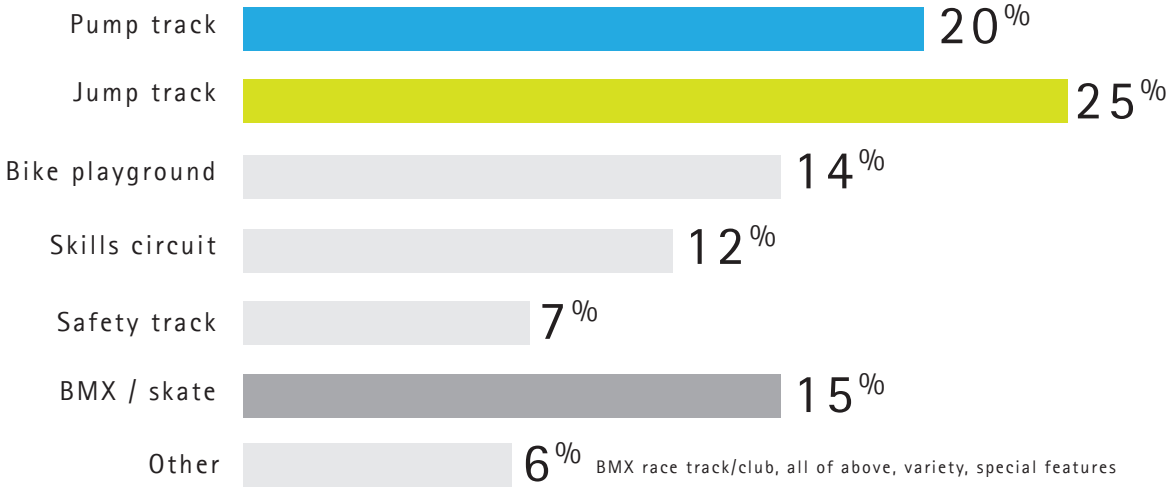
How would you get to John Dunn Memorial Park to use this facility?



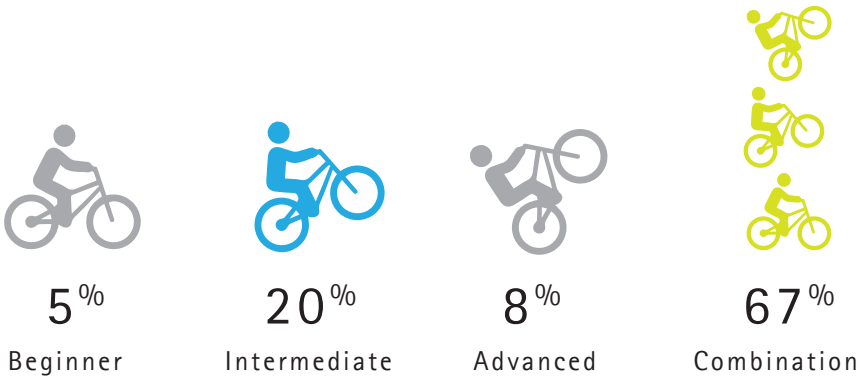
Most respondents ride multiple times a week, interestingly respondents indicated they'd ride more often if there was a facility located at John Dunn Memorial Park. 3-7pm was indicated as the most popular ride time, however respondents indicated that they like to ride at any time of the day.

Most riders would ride (27%)or drive (48%) to a bmx/ cycle facility located at John Dunn Memorial Park, indicating a strong local market and the need for a focus on improving local path networks (conflict between cyclists/pedestrians, traffic safety and access points into the park). Car parking will need to be addressed.

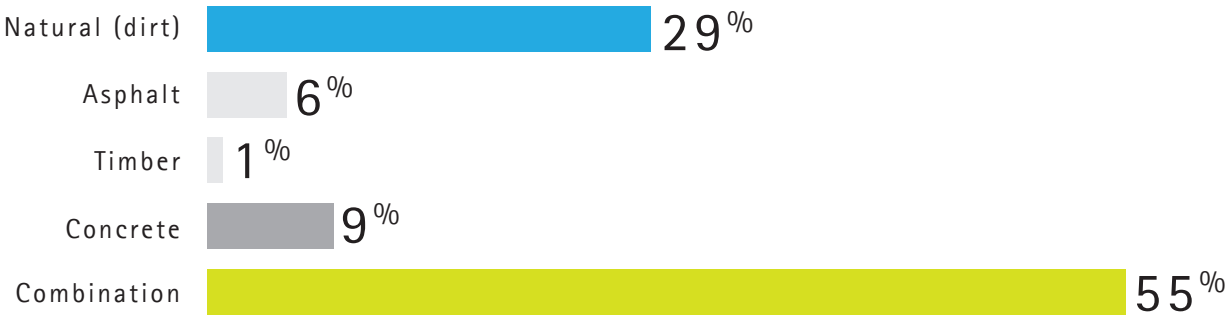
What type of facility would you like to see at John Dunn?



What skill level would you like the facility to be designed for?

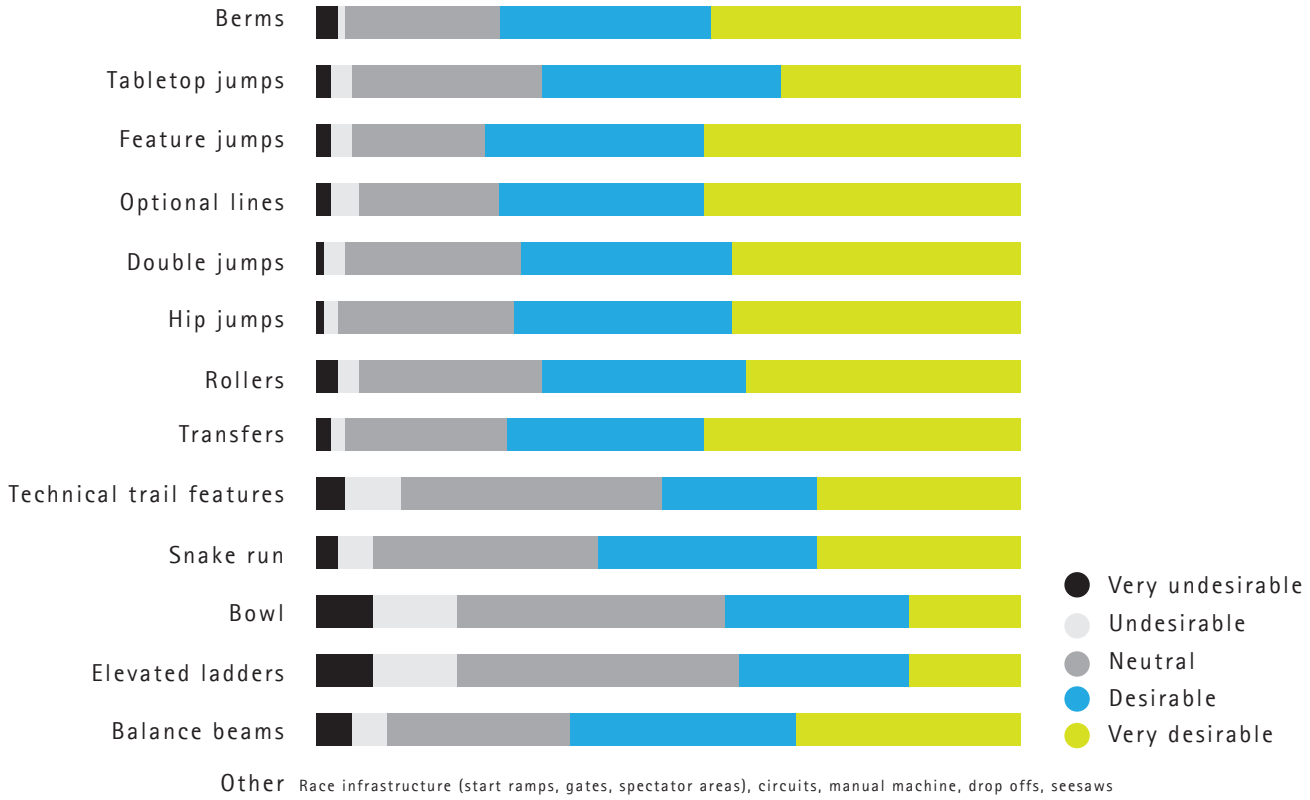


What is your preferred surface material?

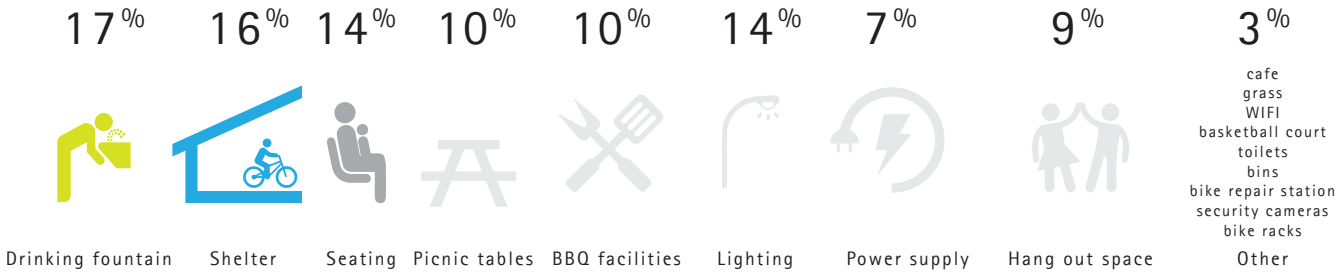


Regarding facility type participants indicated that they'd like to see a jump track (25%) pump track (20%) and BMX track (15%). Preferred surface material is natural (29%) however respondents indicated that a combination of surface materials would be most desirable (55%).

How desirable are each of the following features?



What additional activities should be provided at the BMX/cycle facility?



The most desirable feature types were berms, tabletop jumps and feature jumps. Drinking fountain, shelter, seating and lighting were considered the most desirable supporting infrastructure.

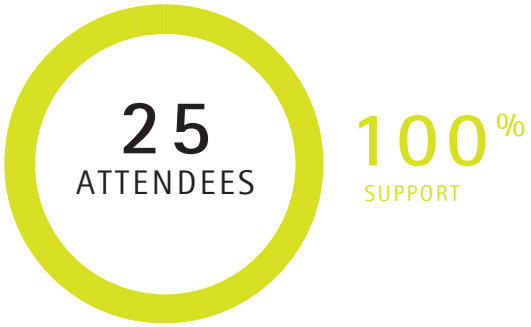
When asked where riders currently ride the most common response was Byford BMX track. Qualities of the nominated facilities that respondents noted as being desirable included:

- Located close to home;
- Diverse features and line options suited to a range of skill levels and catering for skill progression;
- Well considered design that considers riding experience and supporting facilities such as parking, BBQs, toilets;
- Regular maintenance;
- Safe place for younger children to ride away from traffic and conflicting park users;
- Appropriate scale to cater for range of users concurrently.

Where is your favourite place to ride in Perth?

OPEN HOUSE

The open house session was held between 3 and 6 pm on Thursday 6th September in the John Dunn Community Hall, this allowed community members opportunity to talk to City staff and Common Ground Staff face to face about the facility, 25 people came in over the course of the session. Discussions had mirrored the survey results with 100% of people supportive of the proposal.



Those that were supportive of the proposal were excited at the possibility of having somewhere close to ride with family and friends. Many people took the opportunity to discuss ideas for the design of the facility and features they'd like to see included. Some of the ideas discussed included:

- Providing separation between beginners and intermediate/advanced users;
- Integrating the design into the landscape with appropriate planting and retaining as many trees as possible;
- Ensuring space for parents/guardians is well located and comfortable to allow for greater passive surveillance, inclusion of a playground in close proximity;
- The need to ensure maintenance is done regularly to maintain design intent.
- Potential for club/community managed jump lines


Open house session

These ideas have been incorporated into the recommendations for the site.

Regarding the suitability of the site for a BMX track most discussions indicated agreement that the site within John Dunn Memorial Park is more suited to a pump and jump facility. Riders noted the close proximity of surrounding BMX clubs/tracks (in particular Byford) and the limited pool of local riders would mean a BMX facility would not be used to its full potential. It was also noted that the site lacks the support facilities required for a BMX track such as car parking capacity and is sited too close to residential areas and other park uses.


Open house session

While the support for the proposed cycle facility was unanimous, there were some concerns raised including:

- The need to provide toilet facilities and adequate parking;
- The potential for the facility to attract 'undesirables' particularly at night, with one resident noting this problem already exists;
- Potential need for CCTV to ensure safety of users and to deter 'undesirables';
- Existing and potential use of the facility by motorbikes;
- Design and construction will need to be mindful that the proposed site was once a rubbish tip.


Open house session

The BMX/cycle facility can be developed without adverse impacts on the current use of the site and with careful design and management address the concerns raised by the community.

Proposed site in Eastern corner of John Dunn Memorial Park

Figure 4. Preliminary concept design

DESIGN ELEMENTS

The site at John Dunn Memorial Park has an ideal layout and adequate space to cater for the broad range of opportunities offered by a challenge park. The results from the community and stakeholder consultation and investigation into the requirements for BMX facilities have suggested that while a BMX track facility could be developed it is not an ideal site for BMX due to the following identified issues:

- **Scale of site;**
- **Proximity to surrounding residents;**
- **Car parking capacity requirements;**
- **Proximity of other BMX clubs and limited rider pool.**

The site could easily accommodate a pump track, jump lines, safety track and skills track. With a focus on integrating the various elements into the landscape the following opportunities should be considered (refer figure 4).

TRAILHEAD/ENTRY ZONE
Key to the overall success of the development will be a well structured trail head. The trail head should be highly accessible and feature links to features within the site, signage for the various activities, repair station, bike racks, seating and shelter. Toilet facilities are ideally located in this zone so that visitors using the dog park can easily access. Locating a natureplay playground and bbq and picnic faciltiies in this area would enhance the experience for families.

SPECTATOR ZONE
The proposed spectator zone is located to allow for viewing areas of each of the different tracks. The area should be appropriately landscaped and include well placed seating and shelter for spectators and resting riders.

PUMP TRACK
Accessible from the trailhead a 700sqm+ pump track could weave between trees and through open space (note, a pump track of less than 500sqm results in a very repetitive experience). The pump track could feature a standard scale and junior scale track to allow users of all ages.

A mirrored track design would allow opportunity for racing without compromising the rider experience at other times. This style of racing opportunity would compliment the BMX facilities in the region, which are mostly side by side racing format.

The pump track should be constructed with an asphalt surface and incorporate grass and landscaping to the internal and surrounding areas. Asphalt surface is recommended to reduce maintenance requirements as pump tracks generally receive high volumes of repetitive use. Hardened surface also provides a more enjoyable riding experience on pump tracks. Engineered drainage systems would be required below berms, which would be approximately 1.2m high.

SKILLS CIRCUIT
Also accessed from the trailhead the skills track could feature a range of obstacles and man-made technical trail features to test the skills of a rider and allow them to try features that they may encounter on trails further afield. Features could include rock drops, rock rollers, balance beams and other technical features. The track would be built with progression allowing users to start small and build their confidence up to larger features. The track would loop around the site connecting different elements and finish back at the trailhead. Obstacles would primarily be constructed from natural materials such as rock and timber giving a 'nature play' feel to the area. Inclusion of a small bike playground area close to the trail head for young riders will enable parents/guardians to supervise. The track should be sited with sufficient buffer from the surrounding bush so as to not encourage riders to go off track.

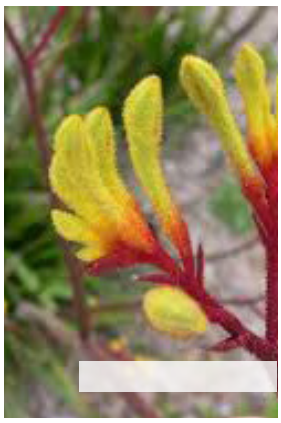
JUMP TRACK
The Jump tracks would start from the central elevated spectator zone. A minimum of 4 jump lines - beginner, intermediate, advanced and extreme should be included. At the end of the jump line a return berm and return pump or jump straight would create a better user experience with no need to peddle back to the start ramp. The site has potential to become one of WA's best jump locations with capacity to include between 8 and 10 jump lines containing a variety of styles and features.

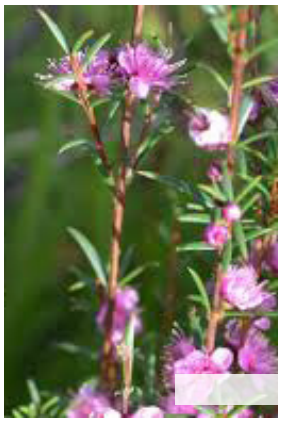
Further investigation into the construction materials for the jump tracks is required, although all jump lips could be hardened to reduce maintenance requirements. A combination of natural landings with timber, asphalt and concrete jumps would be an ideal outcome. While this preliminary design allows for straight jump lines, there is potential to develop lines with hip jumps and special features such as whale backs and step up and offs. These timber style features would create a good interface and transition between the jump track and the skills track.

There is also potential to have a few jump lines which are managed by the community, these would be dirt jumps and be modified and changed according to community preferences by the community, refer to case study on page 29.

SAFETY TRACK AND SMALL BIKE PLAYGROUND
The inclusion of a kids road and cycle safety track and a bike playground would complement the challenge parks other cycling components by providing opportunity for younger kids to ride, making the challenge park an all ages facility. Ideally these elements should be separated from the other components of the challenge park to ensure user safety. The preliminary layout shows the safety track and bike playground close to the trail head, located so that parents/guardians can keep an eye on younger kids using these facilities and the beginner pump track. The safety track should include complimentary features to those in the existing safety track at Reg Williams Reserve.

Precedent images - BMX / Cycle facility features



Precedent images - landscaping and support facilities.

LANDSCAPING
The majority of existing trees in good condition are should be retained and would provide visual break up and shade to the development. Some minor trees and shrubs in poor condition, or within the footprint of the proposed tracks, and will require removal. It is recommended that the majority of the site which is not rideable surface is soft landscaped, primarily with irrigated turf. Irrigated turf provides soft accident landing areas and a robust edge treatment which will not become dilapidated. Turf would also minimise erosion and sediment runoff in peak rainfall events. While garden beds could be mulched, finishing to the edge of the track with materials such as mulch and unfinished natural material are strongly discouraged. Longer term these materials will lead to more maintenance requirements than turf. Any planting should be carefully chosen to complement the natural character of the site, use of indigenous species where possible will help to keep maintenance to a minimum.

Hard landscaping should include paved pathways, street furniture, signage, water fountains, bike repair station and shelters. Concrete pavement is recommended surrounding the trail head, shelters and on the main pathway connecting the facilities on the site. While informal rest areas constructed from timber logs are recommended throughout the site, off the shelf street furniture including seating and picnic tables, would be beneficial surrounding some of the key family orientated areas. At least one water fountain and bottle filling station should be provided on site, which will require connection to services.

While the whole site does not require fencing, enclosure of young people specific areas such as the safety track may improve the usage of the areas by families and increase their sense of security.

LIGHTING
Lighting should be investigated further in the design development stages. It is recommended that at a minimum safety lighting be installed. Lighting for the use of the facility after sunset needs further assessment particularly in regards to impacts on surrounding neighbours. Lighting for the pump track would be an option as this area is sited at the furthest point from residents. Another option is to install lighting but only have it available for use during organised events.

SIGNAGE
New signage will be required as part of the development. Signage should incorporate the rules, risks and code of conduct for each component of the development. Refer to the Draft Western Australian Mountain Bike Guidelines for guidance regarding signage requirements.

STORMWATER
Consideration of stormwater drainage will be important particularly in using a natural surface for tracks. While the site is mostly flat with free draining sandy soil it will be important to ensure water doesn't sit on tracks and in low points such as pump track berms. A subsoil engineered drainage system will be required.

MANAGEMENT
The feedback from the community engagement indicated strong desire for a combination of surfaces. Using hardened surfaces in high wear zones such as the pump track and jump lips, is recommended, the jumps and skills track could be constructed using natural materials, with timber and concrete features. Ensuring the facility is safe and maintains the design intent, will require a thorough and regular maintenance schedule.

The riding community also expressed a strong desire for club/community managed jumps. This can be achieved by having the primary jump lines with professionally built jumps and timber/concrete features alongside a smaller area where a club or community group are provided with materials and tools to create their own jump lines. City Bike Park in Adelaide is an example of where this approach works well and has built a strong riding community. Refer to case study on page 29 for further details). Gorge Rd in Queenstown New Zealand is another example of a community lead design and managed facility.

OTHER SUPPORT INFRASTRUCTURE
As noted in the analysis of the site it will be important to consider pedestrian access to the cycle facility, from both Third Avenue and Mimosa Ct. A shared use path separated from the entry road is recommended.

Toilet would ideally be relocated closer to the trailhead, which will also service the off leash dog park. Siting and design of the toilets should be in accordance with the City of Armadale public toilet strategy.

Installation of CCTV should be considered to help manage the potential for motorbike use and 'undesirables'. Motorbike use should also be considered in the design of the jump and pump track features, making them as much as possible undesirable for motorbike use. Use of physical barriers surrounding the site is also an option, but should be used as a last resort. Passive surveillance with increased activity at the site will go some way in helping to reduce undesirable activity.


International precendent - Gorge Rd, Queenstown NZ

CASE STUDY

City Bike Park, Adelaide.

City Bike Park is located in Adelaide's CBD. Hand built and maintained by a dedicated crew of volunteers, the park is one of the best known dirt jump trail spots in Australia. This facility is a good example of how the riding community can be effectively engaged to activate and enhance public space.

Originally built in 2004, the park has been through a number of phases of redesign, coming from a competition based facility to more of an all-inclusive recreation facility with jumps to suit beginners, intermediate and advanced riders. The park has been designed, built and managed by a dedicated group of volunteers, until 2017 when the Adelaide City Council raised some concerns regarding insurance. Negotiations resulted in the volunteer crew being retained and a third party trail building company engaged for safety assessment/auditing and an operational framework put in place. Adelaide City Council provide ongoing support in the form of tools and supplies.

The success of City Bike Park is primarily due to the enthusiasm, and dedication of a few individuals within the community and also the support from the City of Adelaide. For further information on the history of City Bike Park refer to www.citydirtcrew.com.

While the level of community interest in a cycle facility at John Dunn Memorial Reserve would suggest that a similar community led jumps line could be feasible, ongoing commitment to maintan is unknown.

City Bike Park. Image source: www.citydirtcrew.com

City Bike Park. Image source: www.citydirtcrew.com

City Bike Park. Image source: www.citydirtcrew.com

MATERIAL SELECTION

Material selection will determine the ongoing management requirements and user experience. A range of surface treatments exist for various components of a challenge park. While natural materials can be more affordable and are often desired by the community, they can create significant ongoing management requirements and often fall into disrepair. Conversely hardened materials can be a larger capital investment, but typically see higher participation and far less management requirements.

Ultimately a successful facility often has a range of materials within different facility components. The following table identifies the advantages and disadvantages with each material.

	Natural Earth	Modular	Asphalt	Concrete
ADVANTAGES	• Low material cost • Involvement of local volunteers • Flexibility (layout and design can be changed any time) • Natural look and feel • Construction possible in bushland • Softer surface	• Unskilled labour • Relocatable • Suitable for bikes, skateboards, inline skate, scooters	• Moderate cost • Low maintenance, durable & sustainable • Low rolling resistance • High traction • Year round usability in any weather • Suitable for bikes, skateboards, inline skate, scooters • Consistent surface quality • Neat look & resistant against vandalism	• Durable, sustainable • Low rolling resistance • Year round usability in any weather • Surface structure choice (smooth, grippy, rough) • Colour choice • Usable for bikes, skateboards, inline skate, scooters • Resistant against vandalism • Neat look
DISADVANTAGES	• High and frequent maintenance • Only usable in good weather conditions • Suitable for off road bikes only • Susceptible to peak weather damage • Typically falls into disrepair • Often looks dilapidated	• High cost • Moderate maintenance • Highly susceptible to damage and to vandalism • Low repairability • Damage irreparable • Limited customisation	• High material cost • Abrasive surface • Skilled labour	• Very high construction cost • High material cost • Abrasive surface • Skilled labour
MANAGEMENT REQUIREMENTS	High	Medium	Low	Low
APPROPRIATE MANAGER	Volunteer Groups	Event Promoter	Local Government / Developer	Local Government / Developer
RECOMMENDED FACILITY	Dirt Jump landings, Skills Park	Relocatable Pump Track	Pump Track, Jump Tracks, Safety Track	Jump Lips
APPROPRIATE SETTING	Bushland	Temporary Sites	Urban Parkland	Urban Parkland

STAGING AND COSTS

While this preliminary design does not suggest staging, there is potential to develop the site over a number of stages. As a first step a concept plan should be developed. The concept design should consider staging and which components of the overall development should be a priority. Note, survey results indicated pump track and jumps track should be a priority. Once the concept is approved detailed design of each element can happen all at once or in stages as each element is constructed.

The table below provides a preliminary prioritisation (staging) and opinion of probable cost for each element. Refer to figure 4 on page 24 for preliminary site layout. A geotech survey should be undertaken prior to detailed design.

STAGE	ELEMENT	OPC DESIGN	OPC CONSTRUCTION	FUNDING SOURCE	NOTES
1	CONCEPT DEVELOPMENT	$30,000	N/A	External funding partnership/grant	Concept design for whole site, to determine final site layout
	GEOTECHNICAL ASSESSMENT	$5,000	N/A	External funding partnership/grant	
	TOTAL	$35,000			
2	PUMP TRACK	$20,000	$400,000 (800sqm track)	External funding partnership/grant	Surrounding landscape design separate
	TRAILHEAD	$5,000	$30,000 - $40,000	External funding partnership/grant	
	SHADE SHELTER / BBQ / PICNIC TABLES	$10,000	$200,000	External funding partnership/grant	
	TOILET	-	-	Existing Council budget provision	Decommission existing toilet and install new in location as determined in concept development.
	LANDSCAPING	-	-	Existing Council budget provision	
	TOTAL	$35,000	$640,000		
3	JUMP TRACK	$20,000	$250,000 - $300,000	External funding partnership/grant	Full featured jumps with timber features and large start mound
	SPECTATOR ZONE	$5,000	$30,000 - $50,000	External funding partnership/grant	
	SKILLS TRACK/LOOP	$5,000	$70,000 - $100,000	External funding partnership/grant	
	LANDSCAPING	-	-	Existing Council budget provision	
	TOTAL	$30,000	$450,000		
4	NATUREPLAY PLAYGROUND	$10,000	$150,000	External funding partnership/grant	Decommission existing playground
	SMALL BIKE PLAYGROUND	$5,000	$100,000	External funding partnership/grant	
	SAFETY TRACK	$5,000	$50,000 - $70,000	External funding partnership/grant	
	LANDSCAPING AND FENCING	-	-	Existing Council budget provision	
	SHARED USE PATH FROM THIRD AVENUE	-	-	Existing Council budget provision	
	TOTAL	$20,000	$320,000		

FUNDING

There are a number of potential funding options and partnerships available for facilities such as this one proposed at John Dunn Memorial Park. The following funding partners and grant opportunities are aimed at the improvement of community health, youth health, or increasing active recreational opportunities, and have potential to be supportive of a facility such as that proposed.

- Lotterywest - Community spaces outdoor www.lotterywest.wa.gov.au/grants
- Lotterywest - Trails: www.lotterywest.wa.gov.au/grants/grant-types/trails
- Sport Australia - Community Sport Infrastructure Grant: www.sportaus.gov.au/grants_and_funding/community_sport_infrastructure_grant_program
- Commonwealth Bank Staff Community Fund: www.commbank.com.au
- Department of Local Government, Sport and Cultural Industries - Youth engagement Grants Program, Community Sporting and Recreation Facilities Fund (CSRFF): www.dlgc.wa.gov.au/GrantsFunding/Pages/Youth-Engagement-Grants-Program www.dsr.wa.gov.au/funding/facilities-(csrff)
- Healthway Health Promotion Project Grants and Sport and Racing sponsorship: www.healthway.wa.gov.au
- RAC Sponsorship - Community Partnerships: www.rac.com.au
- Telstra Foundation Social Innovation: exchange.telstra.com.au

RISK MANAGEMENT

The risks to the City of Armadale with this project are mainly connected to the use of the track, rather than the construction phase. Using a contractor with experience in building similar tracks removes much of the construction risk.

Usage risks include the site being used for anti-social behaviours such as drinking; track deterioration; and physical injury to users. Anti-social behaviours can be discouraged through surveillance of the site, by other users, CCTV, or regular patrols. The risk of track deterioration can be managed by surfacing with asphalt and installing sufficient drainage systems. Physical injury to users is a moderate risk which the City of Armadale should be able to manage.

The City of Armadale already has BMX track and skate park facilities operating within the city and has public liability insurance commensurate with the risk, however riders use the tracks at their own risk and the City of Armadale is able to mitigate some of the risk by ensuring the tracks are always in good repair and fit for use.

DELIVERY

There are number of delivery methods which can be considered for the development of the proposed site. The three primary delivery methods are; professional, professional with volunteer assistance and volunteer lead. Delivery methods are often determined by location of the development and the quality of facility required. Facilities developed in urban and urban fringe are typically lead or undertaken by professional designers and contractors. Developments located in the natural landscape have a higher potential for volunteer development. The following outlines the benefits and constraints with each of the delivery methods.

PROFESSIONAL

Professional design, by industry specific designers, typically yields high quality and accurate documentation enabling competitive and accurate pricing. Professional design can be costly but typically ensures successful and highly desirable facilities. Typically professional designers will host workshops to foster community participation and ownership. Professional construction, by industry specific contractors, ensures high quality with a high level of accountability. Professional construction is most appropriate when the project incorporate hardened surfaces and landscaping requirements. It does however have higher capital costs and can lead to reduced ownership if not successfully delivered. Development progress is typically fast.

PROFESSIONAL WITH VOLUNTEER ASSISTANCE

Community lead design with professional documentation can yield high quality and accurate documentation and community ownership. It remains costly and can have compromised design outcomes if not successfully managed.

Professional lead construction, by industry specific contractors, with volunteer assistance can yield high quality but with a reduced level of accountability. Volunteer assisted construction is most appropriate when the project incorporates a combination of natural and hardened surfaces. Volunteer assisted projects can be difficult to price and unless volunteer involvement is significant, it can increase the cost of development through increased management requirements.

VOLUNTEER

Community lead design with minimal input from professionals can be low cost but can often lead to lower quality documentation and potentially less useable facilities. Volunteer lead construction is most appropriate for natural surface developments in urban fringe and natural landscape settings. Accountability of the final outcome is significantly reduced and development progress is typically slow. Volunteer lead construction can lead to significant community ownership, if the final product is desirable.

Given the nature and location of the proposed facility it is recommended that the design and construction is lead by a professional team. The level of community interest in the project indicates that a community based design development workshop would be well received. This will establish a sense of ownership within the community and result in a facility that caters for the local riders. As discussed there is also potential for an agreement with a club or community group for volunteer built and managed dirt jump lines along side the professinally built jump lines.

SUMMARY OF RECOMMENDATIONS

	RECOMMENDATIONS
1	Develop a challenge park at John Dunn Memorial Park, including a pump track, jumps track, skills track/loop, a safety track and associated support infrastructure.
2	Involve the community in a design workshop as part of developing the concept.
3	Conduct a geotechnical survey to determine depth and state of landfill.
4	Design the pump track in a mirrored format to allow for informal racing events.
5	Investigate potential for a set of jump lines built and managed by the community, alongside professionally designed and constructed jump lines.
6	Integrate other park facilties into the design of the site such as a nature play space, toilets and picnic facilities.
7	Consistent with the City of Armadale public toilet strategy, consider upgrading and relocating the toilets on site to the proposed trailhead area.
8	Install safety lighting as a minimum and investigate further lighting of the facility for use after sunset and for events.
9	Incorporate a shared use off road path from Third Avenue to the proposed site.

APPENDIX A COMMUNITY FEEDBACK

The follow are comments received via direct email to the City of Armadale.

FEEDBACK VIA EMAIL

My concern is that at the end of the day, when cycling is over, kids are left hanging around in the park, like they used to do when the BMX track was there causing terribly problems for nearby residents. As it is, we hear burnouts most nights at the park now

I am emailing you today asking for your advice in regards to possibly opening a new BMX racing and leisure facility in the Kelmscott/Armadale area.
In the 80's and early 90's Kelmscott BMX Club situated at John Dunn Oval had one of the best setups in Western Australia in regards to both leisure and competition.We had the racing track which was good enough to hold state titles. Located next to the track was a skate park and 200 meters away was a skate bowel area.
I was a member of the Kelmscott BMX Club in the 80's and early 90's and my father was the club president in the mid 80's.
I have spoken to numerous people both in the local community as well as the BMX and scooter scene and nearly everyone is possessive about my proposal.
Currently in the Kelmscott/Armadale area there is no BMX race track, nor is there a pump track, skate park or pump track. There was been a push recently to see a pump track and dirt jump trail circuit in the area.
My proposal is to build a national standard BMX Racing track capable of holding both state and national titles and possibly even a world title event. As well as the race track I would also include a decent size pump track and dirt jump tracks.
Another option is to ad a skate part area with bowel and ramps for both bmx and scooter trick riding.
I have emailed BMX Sports WA in regards to their advice and what they can offer in regards to assistance. I have already started approaching local businesses to see if we can obtain materials and or services to help out with the building process.
As we already have a good number of people very interested in the proposal I would like to hear what Armadale City Council thinks on the subject and how we should proceed.

Kind regards

reply to City of Armadale response:

I remember the original Kelmscott BMX club of the 80's and early 90's as I was club champion there and it was one of the best tracks in the Perth Metro Area.
With the support from other clubs, past and present state, Australian and world title holders and the general public so far the city of Armadale has the opportunity to build a state of the art facility that betters anything currently in WA and puts the area on the map Bationally.
I have been inundated recently from people not only involved in the racing side but the dirt jumping and pump track associations/groups who wish to ad their experience to the mix to create something really special that out her councils will look to in the future.
Tony Buti's office emailed me the other day saying he was speaking to the Mayir on the subject soon.
We can offer you the experience needed to design and build this facility to make it a huge success. In fact I already have people drawing up sketches of the facility to best fit into the space required.
As I work away I will need to check my roster. However if I can not attend I will have a representative there from the BMX and dirt jump community in my place.
Regards

I just had two points:

1) that the opportunities for a shady spot are plentiful all around to ensure protection from sun is available for those who are more conscious of the consequences of skin cancer. And the council to reflect this.

2) there is a rounded track for youth biking, to give a local opportunity and encouragement to teenagers to come and train for fun and fitness, but also for those with a goal of competition in mind like the renowned Champion Lakes triathlon.

For those not always able to drive places, including us, as we ourselves use the ovals just about daily for exercising like running and playing ball games like footy, soccer, but also practising Athletics, it makes for a great invitation to come and get fit closeby.