NSROC
Northern Sydney
Regional Organisation
of Councils

REVIEW OF SUPPLY AND DEMAND FOR SPORTS FACILITIES IN THE NSROC REGION

FINAL REPORT - AUGUST 2023

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Otium Planning Group acknowledges the Australian Aboriginal, Torres Strait and South Sea Islander peoples of this nation.

We acknowledge the traditional custodians of the lands on which our company is located and where we conduct our business. We pay our respects to ancestors and to Elders, past, present and emerging.

Otium is committed to national reconciliation and respect for indigenous peoples' unique cultural and spiritual relationships to the land, waters and seas, and their rich contribution to society.

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EXECUTIVE SUMMARY

The Northern Sydney Regional Organisation of Councils (NSROC) aims to enhance the liveability, productivity and sustainability of the region through:

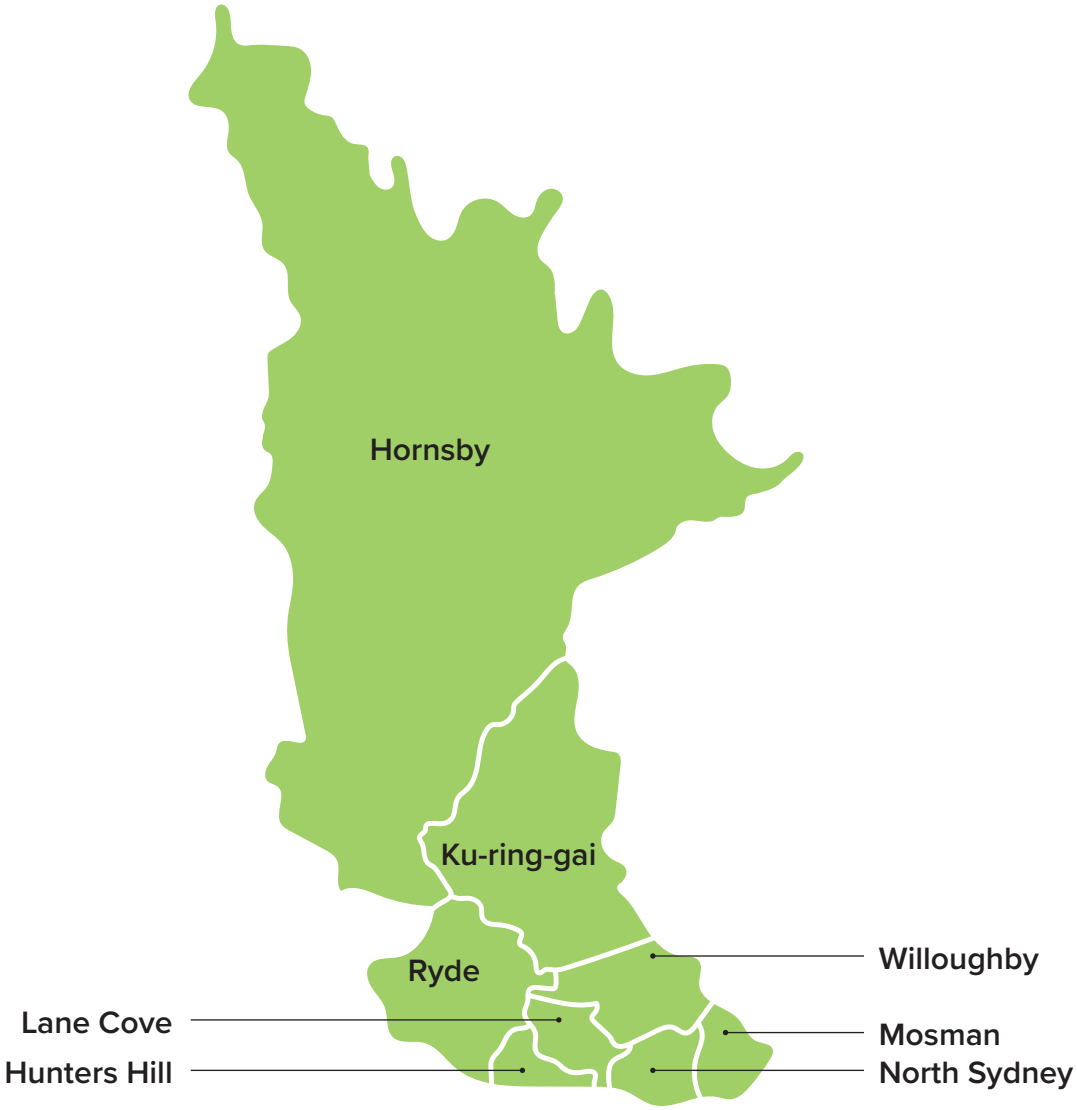
Advocacy
to provide a united voice on shared concerns in the region.

Project management
to co-ordinate councils on regional or cross council projects.

Research
to assess and evaluate regional needs and trends.

Information provision
to provide councils and their communities with supporting resources.

NSROC incorporates eight Member Councils, including:



All tiers of government have a role in supporting sport in Australia. The role of local government, including the NSROC Member Councils is to focus on grass roots community sport facilities. Within this environment, NSROC is responsible for regional planning that optimises sustainable sporting opportunities for communities.

NSROC Sports Facility Planning

For some time, NSROC Member Councils have been concerned about the capacity of sports facilities to meet the needs of the growing population. The 2017 Regional Sportsground Management Strategy Review (excluding Mosman) investigated sportsgrounds (playing fields) only. It found a large and increasing deficit between the demand and supply of sportsgrounds in the NSROC region. Since then, the NSROC Member Councils have made improvements to facilities, explored partnership opportunities, enhanced maintenance regimes and adapted policy and guidelines in order to minimise the deficit. Despite these initiatives, the deficit continues to increase.

On this basis, this *Review of Supply and Demand for Sports Facilities in the NSROC Region* provides a strong evidence base to assist NSROC and its Member Councils to:

- Advocate for greater strategic direction from State Government bodies, including the development of a Greater Sydney District Sport Infrastructure Plan.
- Secure grant funding and make a compelling case for future State funding opportunities.
- Respond to increasing pressure from clubs, sporting associations and members of the community regarding sports facility capacity management.
- Coordinate a regional approach to supply and demand issues, so that resources and funds can be targeted to maximise benefits for the NSROC community as a whole.

Sports Facility Influencers and Trends

Many factors are placing further pressure on the demand for sports facilities, including the growing population, with an estimated increase of 11.3% to a total population of 730,000 people (2022 NSW Common Planning Assumption Projections - Local Government Areas Projections for year ending 30 June used as data source to ensure consistency with state-level planning), anticipated to be living in the NSROC region by 2036. Other pressures on sport facilities as a result of participation trends, are summarised below:

The following trends are occurring as strategies to resolve the impact of increasing demand for sports facilities:

- Indoor court facilities supporting multiple year-round activities and demand from our changing - more culturally diverse and ageing - population, that are seeking increased indoor opportunities
- Multi-use sport and recreation facilities supporting a diversity of use, in consideration of minimal land availability
- Indoor and covered facilities with lighting are supporting increased night-time and out of sun activity
- Innovative solutions such as roof top developments, repurposing retail facilities, synthetic surface solutions, infill within racecourses, floating facilities within water bodies and the re-purposing - in total or partially - of golf courses
- Optimising the capacity of sports facilities through contemporary design, maintenance and management arrangements
- Smaller/ modified formats of each sport as it increases utilisation of the same area.

NSROC Sports Facilities

There are currently 457Ha of sports facility land within the NSROC region, as follows:

	SUPPLY BY FACILITY TYPE (HECTARES)				
	Playing Fields	Outdoor Courts	Outdoor Speciality	Indoor Courts	Indoor Speciality
Hornsby	74.48	10.45	18.55	1.81	2.15
Hunter's Hill	16.15	0.37	0.00	0.00	0.02
Ku-ring-gai	91.98	6.47	5.32	0.44	0.73
Lane Cove	14.21	2.32	1.29	0.27	0.25
Mosman	16.49	5.31	1.68	0.17	0.16
North Sydney	14.60	1.56	1.00	0.61	0.86
Ryde	94.60	10.79	9.67	0.73	1.25
Willoughby	35.72	10.49	3.13	0.17	0.57
NSROC	**358.24**	**47.77**	**40.64**	**4.21**	**5.99**

There are a further 157Ha of publicly owned golf course land.

Several sport facility improvements are planned across the NSROC region, which is estimated to result in a minimum spatial increase of a further 66Ha and an additional 200+ hours to playing fields capacity.

Assessment of Supply and Demand

The assessment of supply and demand for NSROC sports facilities through to 2036, is summarised below:

PROPORTIONAL (TOTAL AREA)									
LOCALITY	CURRENT	2021		2026		2031		2036	
	Supply	Demand	Variance	Demand	Variance	Demand	Variance	Demand	Variance
NSROC	**456.85**	**626.57**	**-169.72**	**637.36**	**-180.51**	**659.26**	**-202.41**	**678.87**	**-222.02**
Hornsby	107.44	152.20	-44.76	152.50	-45.06	152.65	-45.21	157.24	-49.80
Hunter's Hill	16.54	19.52	-2.98	19.52	-2.98	20.53	-3.99	20.53	-3.99
Ku-ring-gai	104.95	128.23	-23.28	128.32	-23.37	132.98	-28.03	133.22	-28.27
Lane Cove	18.34	44.56	-26.22	47.09	-28.75	47.18	-28.84	47.33	-28.99
Mosman	23.82	32.31	-8.50	32.31	-8.50	32.31	-8.50	32.31	-8.50
North Sydney	18.64	76.24	-57.60	76.24	-57.60	76.62	-57.98	78.76	-60.12
Ryde	117.05	128.62	-11.57	133.43	-16.38	146.23	-29.18	158.78	-41.73
Willoughby	50.08	80.99	-30.91	80.99	-30.91	81.14	-31.06	82.54	-32.46

Based on the modelling undertaken for this Review, there is a need to increase the current supply capacity of NSROC sports facilities by around:

40%
to 2026
(equivalent to 181Ha of total space)

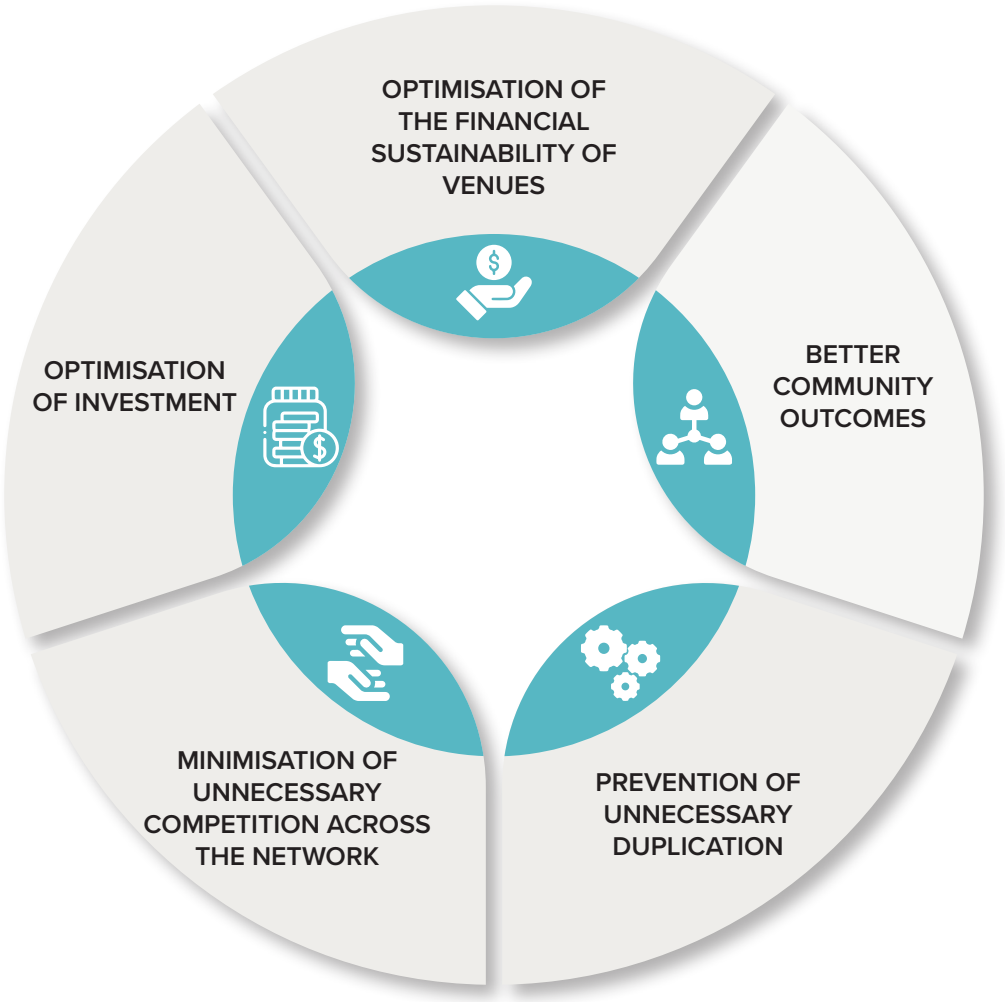
49%
to 2036
(equivalent to 222Ha of total space)

The assessment by facility type is summarised below:

Facility Type (NSROC)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	4.21	11.10	-6.89	12.15	-7.94
Indoor Speciality	5.99	12.86	-6.87	14.08	-8.09
Outdoor Courts	47.77	30.00	17.77	33.60	14.17
Outdoor Speciality	40.64	33.29	7.35	37.32	3.32
Playing Fields	358.24	539.32	-181.08	581.72	-223.48

The oversupply of outdoor courts is considered to be as a result of there being only a small number of multi-court facilities capable of supporting sustainable competitions (20% of netball and 32% of tennis venues). The oversupply of outdoor speciality facilities is largely as a result of the decline in participation for sports such as lawn bowls and croquet.

There are differences across the Member Councils relating to current and future supply and demand needs, with each council having its own unique circumstances that will influence its ability to meet current and future sports facility demand. Continuing to plan for sports facilities at a regional level will support:



Future Opportunities to Address Sport Facility Demand

Future opportunities to address sports facility demand in the NSROC region, in no particular order, include:

Invest in sports facilities that support grassroots community participation only.

Continue to advocate to NSW Government for enhanced and formalised access to school facilities and to include recreation land with future land acquisition strategies.

Incentivise and promote commercial developer and operator investment in sports facilities.

Investigate opportunities at publicly owned golf courses to retain golf, yet introduce alternative uses for sport.

Continue to enhance the capacity of sportsgrounds through improved best practice design and lighting, synthetic surface conversion (whole or part) and expanded maintenance regimes.

Continue to modernise policy and guidelines aimed at optimising the capacity of current sporting facilities and expanding community accessibility.

Investigate opportunities for alternative locations for active recreation and community sport.

Explore opportunities for consolidation and re-purposing of current facilities to meet changing demand and participation trends.

Promote partnership opportunities for repurposing indoor spaces to accommodate indoor sport and facilitating roof top opportunities, including shopping centres, offices, residential buildings for sport.

Introduce opportunities within the recreation parks network to accommodate smaller/ modified versions of traditional sport.

1. NORTHERN SYDNEY REGIONAL ORGANISATION OF COUNCILS

The Northern Sydney Regional Organisation of Councils (NSROC) aims to enhance the liveability, productivity and sustainability of the region through:

Advocacy
to provide a united voice on shared concerns in the region.

Project management
to co-ordinate councils on regional or cross council projects.

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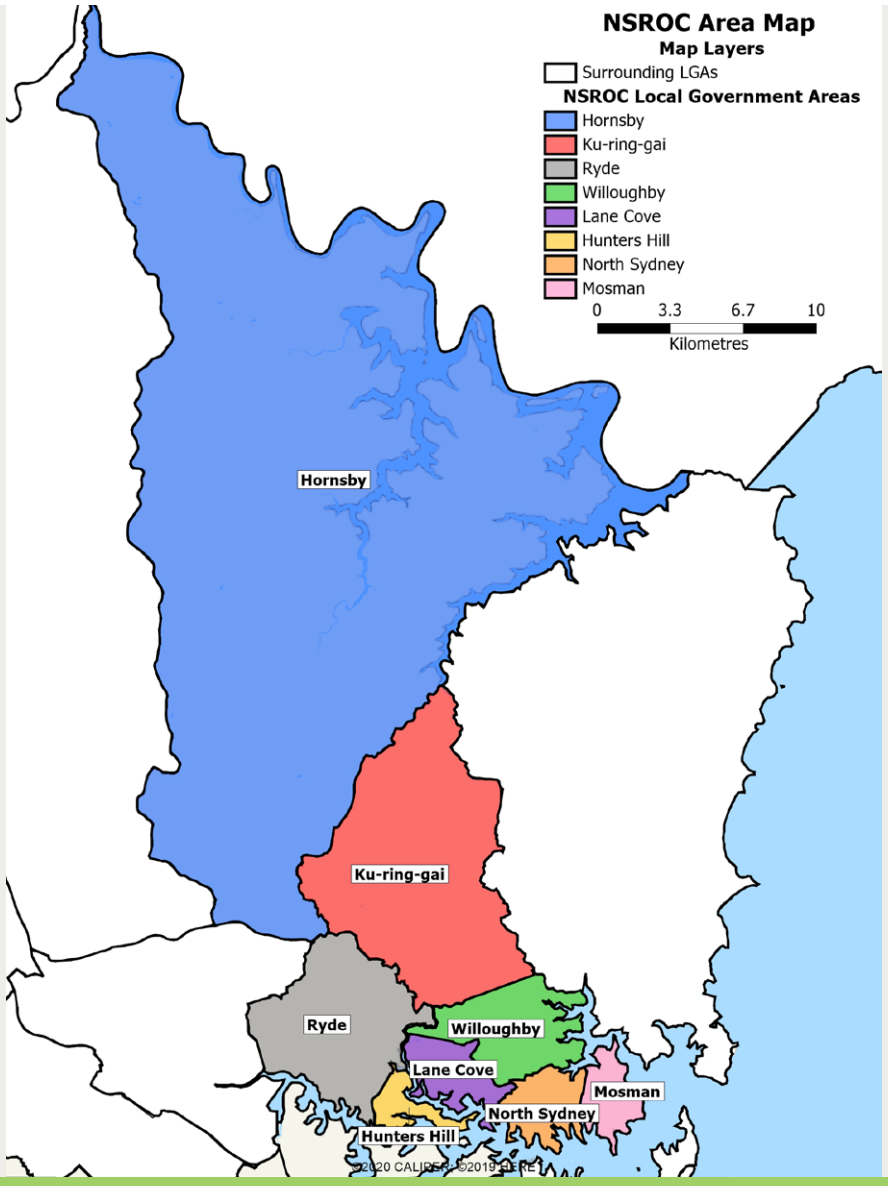
to assess and evaluate regional needs and trends.

Information provision
to provide councils and their communities with supporting resources.

NSROC incorporates eight Member Councils, including:

- Hornsby
- Hunter's Hill
- Ku-ring-gai
- Lane Cove
- Mosman
- North Sydney
- Ryde
- Willoughby.



The NSROC region covers a geographic area of 639km^2 in New South Wales (NSW) stretching from the Hawkesbury River in the north to Sydney Harbour and Parramatta River in the south and generally west of the Harbour Bridge.

The eight councils that make up the NSROC Region service over 650,000 people, more than 40% of whom are born overseas. Thriving commercial and business centres, multicultural hubs, town centres, villages and regional infrastructure create over 400,000 local jobs and are host to 80,000 local businesses. The region is also rich in natural beauty and heritage, including waterways, bushwalking trails, national parklands and Aboriginal cultural sites. The NSROC Region represents a diverse landscape of people, places and environments.

1.1. ORGANISATIONAL SUMMARY

Each Member Council is represented on the NSROC Board by it's Mayor and a Councillor. In addition to the Annual General Meeting, the Board meets four times a year to consider matters of strategic importance and to provide direction to NSROC.

The General Managers Advisory Committee (GMAC) is made up of the General Managers or CEO's of Member Councils. GMAC provides advice to NSROC on administrative and planning matters as well as recommendations to the Board.

1.2. NSROC ROLE FOR SPORTS FACILITIES

To encourage regional dialogue and resource sharing, NSROC convenes a number of Professional Officers Groups (POGs) with representation from each of the Member Councils. They meet on an ongoing basis to discuss common challenges and opportunities for cross-council collaboration.

NSROC has undertaken a number of initiatives to help provide strategic direction for the region. The Sports POG commissioned this *Review of Supply and Demand for Sports Facilities in the NSROC Region* (the Review). This active and long-standing POG oversees projects which have regional benefit in sportsgrounds and facilities management and recreation planning.

A description of the seven roles local government is primarily responsible for and should play, within sports facilities have been identified below:

ROLE CATEGORY	ROLE PARAMETERS
Leadership	« Creating and supporting opportunities for individuals and groups to participate in community life « Responding to community needs through the ongoing review of policy, plans of management, resource allocation and services
Owner/Custodian	« Planning, protecting and making the best use of community assets in a sustainable manner to ensure the greatest possible benefit to our communities.
Regulator	« Maintaining compliance with legislative requirements
Information Provider	« Provide information in relation to availability and use of sporting facilities
Facilitation	« Bring together and connect stakeholders to discuss issues and opportunities in order to determine appropriate actions « To engage in partnerships that allow efficient and effective use of resources « Providing the community the opportunity to participate in decision making processes
Advocacy	« Advocate on behalf of our communities to relevant bodies in relation to issues and opportunities which impact on future sporting facilities and the community
Service Provider	« Provide effective and needed facilities being mindful of demand

1.2.1. Funding Principles

The following funding and support hierarchy summarises the funding responsibilities across government:

The principles guiding NSROC Member Council funding decisions are:

1. Funding responsibility for sport should be shared across all tiers of government and individual user groups and their peak bodies
2. For new or upgraded regional standard facilities, Member Councils should seek contributions from other tiers of government and peak bodies
3. Where limited funds are available, Member Council funding priorities should be focussed upon improving sports facilities that directly support physical activity outcomes.

2. THE REVIEW

The Review is an analysis of the supply and demand gaps for sports facilities in the NSROC region. The aim of the Review is to provide a strong evidence base to assist NSROC and its Member Councils to:

- Advocate for greater strategic direction from State Government bodies, including the development of a Greater Sydney District Sport Infrastructure Plan.
- Secure suitable grant funding and make a compelling case for future State funding opportunities.
- Respond to increasing pressure from clubs, sporting associations and members of the community regarding sports facility capacity management.
- Coordinate a regional approach to supply and demand issues, so that resources and funds can be targeted to maximise benefits for the NSROC community as a whole.

The sports facilities included in this study are either council or privately owned and will cover the following:

2.1. BACKGROUND

For some time, NSROC councils have been concerned about the capacity of sports facilities to meet the needs of the growing population. As detailed in the 2017 Regional Sportsground Management Strategy Review (excluding Mosman), the playing space gap for sportsgrounds was projected to be 60 hectares by 2026 (26% over current capacity) and 94 hectares (over 40% of current capacity) by 2036. In response to this gap, the Strategy recommended the provision of indoor facilities to manage increasing demand.

Not only are additional facilities needed, the *2017 Regional Sportsground Management Strategy Review* also found that, existing sports facilities and courts are already overused:

- NSROC Member Councils' experience suggests many current sportsgrounds operate above recognised optimal use benchmarks, which leads to excessive wear and requires greater expenditure to maintain them.
- Studies also indicate that the provision of court facilities in the NSROC region are low and at capacity. For example, netball competition facilities for the Northern Suburbs Netball Association were operating at a player per court ratio of 344, the highest in metropolitan Sydney by almost 80%.

Since the 2017 Strategy Review, the NSROC region and the broader Sydney metropolitan area have undergone rapid changes in response to extreme weather events and the COVID-19 pandemic. NSROC councils have observed subsequent changes in sports participation patterns, with some activities declining in popularity and others experiencing an unexpected resurgence.

There is a need to assess these changes and update our understanding of sports participation trends and its impact on the demand for sports facilities. It is in this context that a review of the supply and demand gaps for sports facilities in the NSROC region is needed and undertaken in this Review.

2.1.1. Recent NSROC Facility Improvements

The following sport facility improvements have occurred across the NSROC since 2017:

HORNSBY

- Headen Park
  - New drainage
- Normanhurst Park
  - Sportsfield lighting, drainage & irrigation upgrade
  - Netball court surface renewal
- Mark Taylor Oval
  - Sportsfield reconstruction
- Greenway Park Oval No 1
  - Sportsfield reconstruction
- Cheltenham Oval
  - Sportsfield lighting upgrade
- Parklands Oval
  - Sportsfield lighting upgrade
- Thornleigh Oval
  - Sportsfield lighting upgrade
- Montview Park
  - Sportsfield / court lighting upgrade. Netball court surface renewal
- Asquith Oval
  - Irrigation and drainage upgrade
- Edward Bennet Oval
  - Sportsfield lighting and drainage upgrade

HUNTERS HILL

- Weil Park
  - Lighting upgrade
- Bedlam Bay
  - Replacement synthetic cricket wicket
- Boronia Park 1,2 and 3
  - Improved irrigation
- Boronia 3
  - New drainage system
- Boronia netball courts
  - 2 courts upgraded to hard surface

KU-RING-GAI

- Charles Bean Oval
  - New synthetic field
- North Turrramurra Recreation Area
  - Synthetic field
- North Turrramurra Recreation Area
  - Grass field
- Koola Oval
  - Improved Field
- Roseville Park
  - Tennis pavilion
  - Cricket nets
- Canoon Road Recreation Area
- Lighting to 9 netball courts

LANE COVE

- Blackman Park
  - Lighting upgrade to all fields with new lights to 1/2 basketball courts and cricket nets
- Tantallon Oval
  - Updated lighting
- Mindarie Park
  - Multi games court
- Helen Street Reserve
  - Second Table Tennis Table
- Kingsford Smith Oval
  - Basketball/ netball court

MOSMAN

- Middle Head Oval
  - Improved lighting and playing surface including irrigation
- Allan Border Oval
  - Improved drainage, playing surface and irrigation
- Rawson Oval
  - Improved playing surface and irrigation
- George's Height Oval
  - Improved irrigation

NORTH SYDNEY

- Forsyth Park
  - Field #1 install lighting and field reconstruction
  - Field # 2 field reconstruction
- Waverton Park
  - Lighting upgrade and field reconstruction
- Primrose Park
  - New cricket net
- Bon Andrews Oval
  - Additional 2 turf cricket wickets
- Anderson Park
  - Lighting upgrade and field reconstruction

RYDE

- Tuckwell Park
  - Addition of Sportsfield Lighting
- Meadowbank Field 10
  - Addition of Sportsfield Lighting
- ELS Hall Park Field 3
  - Reconstruction – including surface drainage, irrigation and returfing
- Tuckwell Park Field
  - Reconstruction - including surface drainage, irrigation and returfing
- Pioneer Park Field
  - Renewal
- Morrison Bay Park Field 4/5
  - Drainage upgrade
- Ryde Park
  - Sportsfield Lighting Renewal
- Westminster Park Field
  - Reconstruction - including surface drainage, irrigation and returfing
- Pidding Park Field
  - Reconstruction - including surface drainage, irrigation and returfing
- Santa Rosa Park
  - Installation of irrigation system

WILLOUGHBY

- Bicentennial Reserve
  - Improved capacity
- Mowbray Public School Oval
  - Improved capacity.

2.2. METHODOLOGY

This Review involves a three stage process informed by a logical progression of tasks as follows:

STAGE 1: BACKGROUND RESEARCH & ENGAGEMENT

Interviews with Member Councils, State Sporting Organisations & NSW Government

Catchments Analysis

Background Research

STAGE 2: MODELLING

Inventory Database & Mapping

Demand Assessment

STAGE 3: ANALYSIS & REPORTING

Determine Future Needs

Supply & Demand Analysis

Report Preparation

3. NSROC PEOPLE

3.1. REGIONAL

As of 2021, there were 655,196[1] (2022 NSW Common Planning Assumption Projections - Local Government Areas Projections for year ending 30 June used as data source to ensure consistency with state-level planning) residents within the NSROC region. The NSROC region is a diversified community made up of:

POPULATION 2021
655,196

Lower unemployment rate
4.9%
NSW: 6.3%

Relatively consistent median age of
40 years
NSW: 39 years

Lower social disadvantage (SEIFA Index)
1,094
NSW: 1,001

Very low proportion of Aboriginal and Torres Strait Islander population
0.4%
NSW: 3.4%

Lower proportion of people needing assistance
4.0%
NSW: 5.8%)

High medium and high density housing
54%
NSW: 35%

Higher income earners (per week):

- Persons who earned $3,500 or more, **10.3%** - NSW (3.8%)
- Persons who earned $2,000 - $2,999, **12.0%** - NSW (7.9%)
- Persons who earned $400 - $499, **4.8%** - NSW (7.5%)
- Persons who earned $300 - $399, **4.7%** - NSW (7.5%).

Higher proportion of people born overseas
43%
NSW: 29%

The table below summarises the total persons for the NSROC region as at 2021:

Age Groups	Number	%	NSW %
0 to 4	33,882	5.2	5.8
5 to 14	81,932	12.5	12.4
15 and over	539,382	82.3	81.8
Total Population	**655,196**	**100.0**	**100.0**

[1] *2022 NSW Common Planning Assumption Projections - Local Government Areas Projections for year ending 30 June*
NSROC Community Profile, 2021, id Informed Decisions

3.2. MEMBER COUNCIL

The table below summarises the current and projected[2] population by child, adult and total for each of the individual NSROC council members:

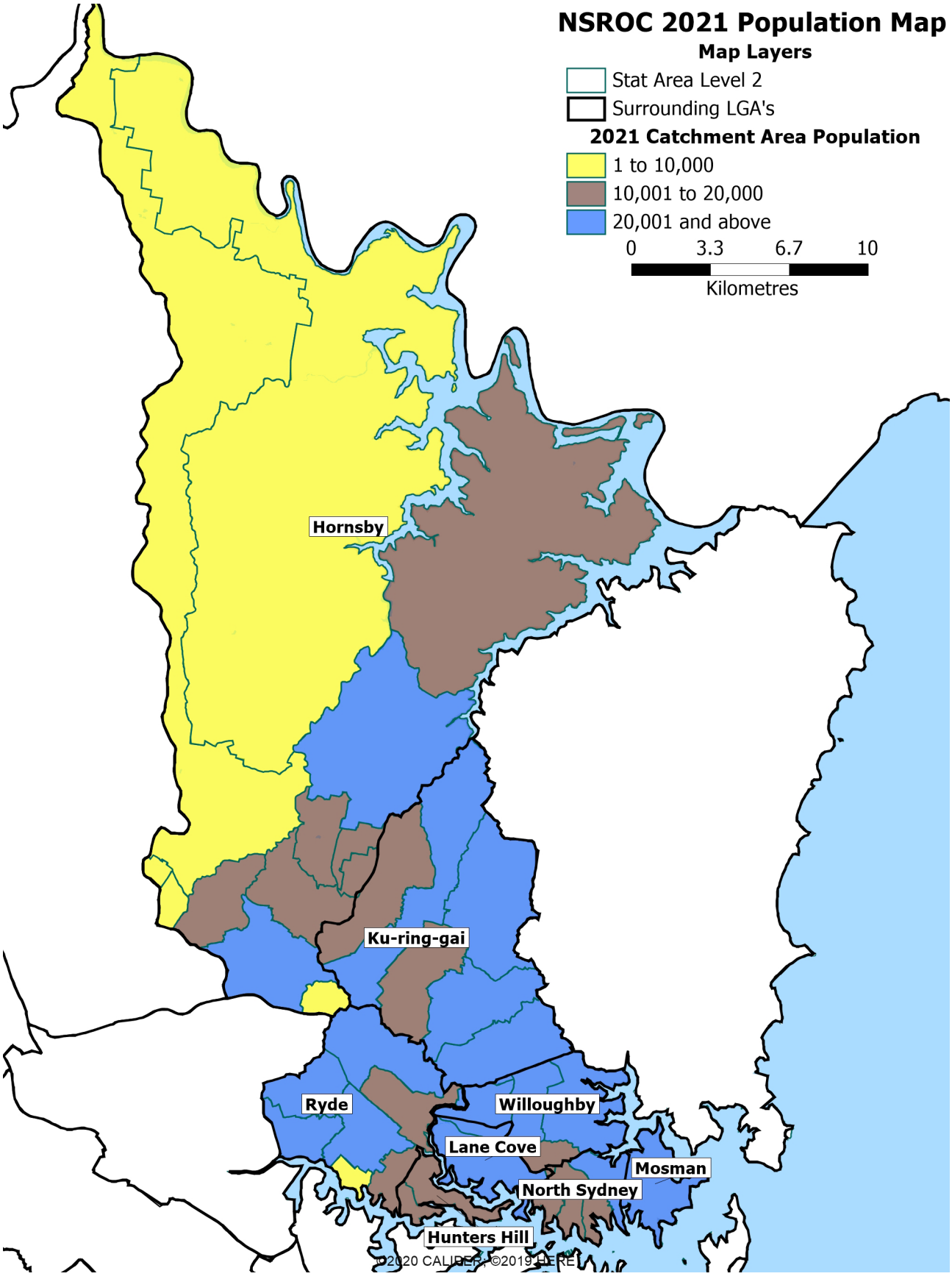
NSROC Member Councils	2021	2026	2031	2036
Hornsby				
Children	29,348	27,498	26,362	26,376
Adults	122,933	126,077	130,856	134,283
Total	**152,281**	**153,575**	**157,218**	**160,659**
Hunters Hill				
Children	2,700	2,601	2,485	2,473
Adults	12,354	12,463	12,689	12,905
Total	**15,054**	**15,064**	**15,174**	**15,378**
Ku-ring-gai				
Children	24,765	24,183	23,979	24,463
Adults	102,487	106,172	110,676	114,321
Total	**127,252**	**130,355**	**134,655**	**138,784**
Lane Cove				
Children	7,360	7,890	7,936	8,114
Adults	33,135	36,276	37,843	39,057
Total	**40,495**	**44,166**	**45,780**	**47,171**
Mosman				
Children	5,155	4,433	4,036	3,892
Adults	25,550	26,378	26,905	27,192
Total	**30,705**	**30,811**	**30,941**	**31,083**
North Sydney				
Children	9,898	10,067	10,008	10,066
Adults	65,027	67,124	70,088	73,038
Total	**74,925**	**77,191**	**80,095**	**83,104**
Ryde				
Children	21,385	21,661	22,248	22,965
Adults	112,000	119,158	133,655	143,009
Total	**133,385**	**140,819**	**155,903**	**165,974**
Willoughby				
Children	15,203	13,533	12,763	12,593
Adults	65,896	68,536	72,653	74,696
Total	**81,099**	**82,070**	**85,417**	**87,289**
Children Total	**115,814**	**111,867**	**109,817**	**110,940**
Adults Total	**539,382**	**562,185**	**595,365**	**618,501**
NSROC TOTAL	**655,196**	**674,051**	**705,182**	**729,441**

[2] *2022 NSW Common Planning Assumption Projections - Local Government Areas (ASGS 2020) Projections for year ending 30 June Assumes current proportion of Children/ Adults remains consistent through to 2036*

3.3. POPULATION DENSITIES

3.3.1. 2021 Population

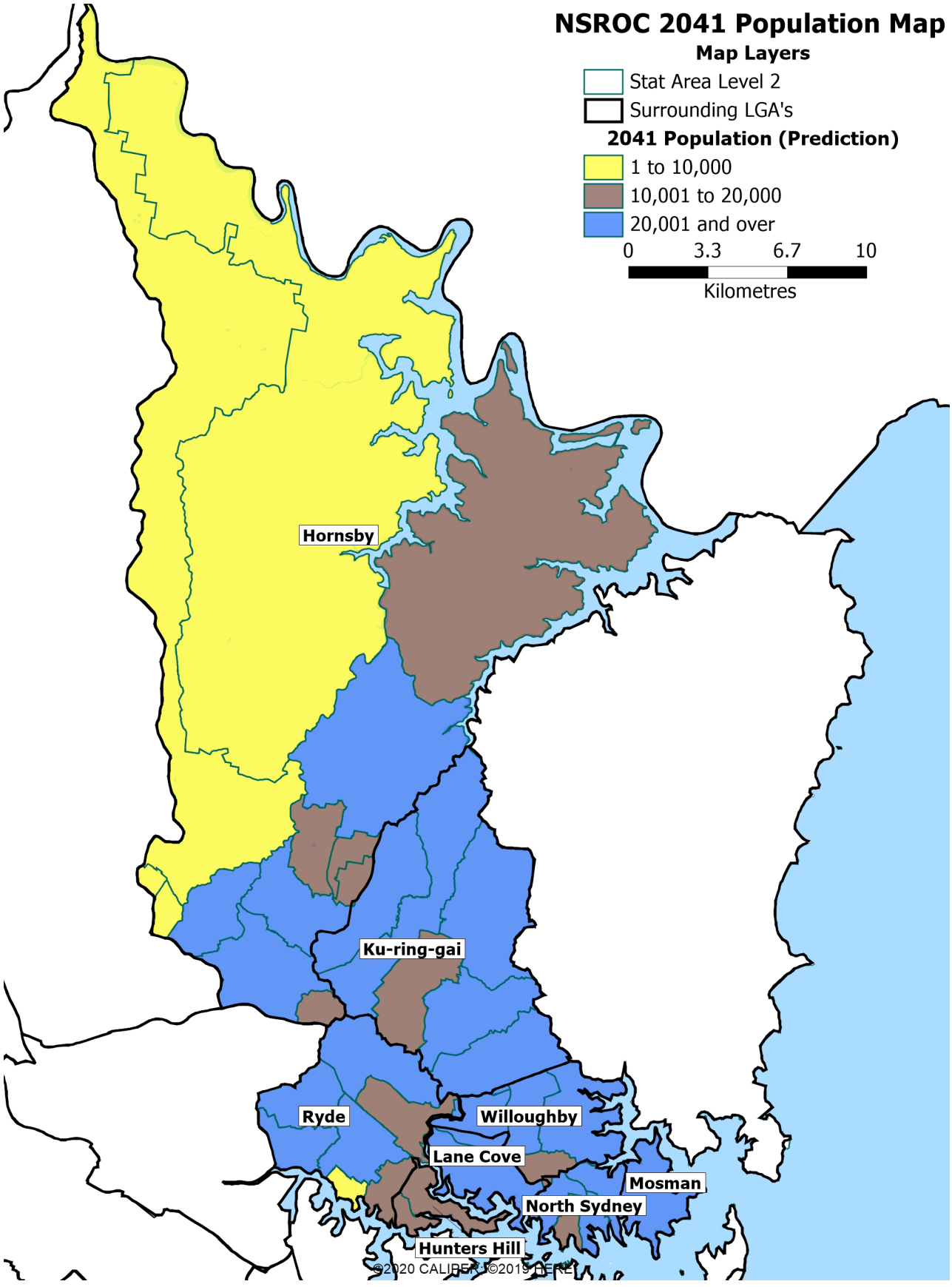
The map below summarises the 2021 population density by SA2[3] within NSROC:



[3] *SA2 areas and boundaries are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

3.3.2. 2041 Projected Population

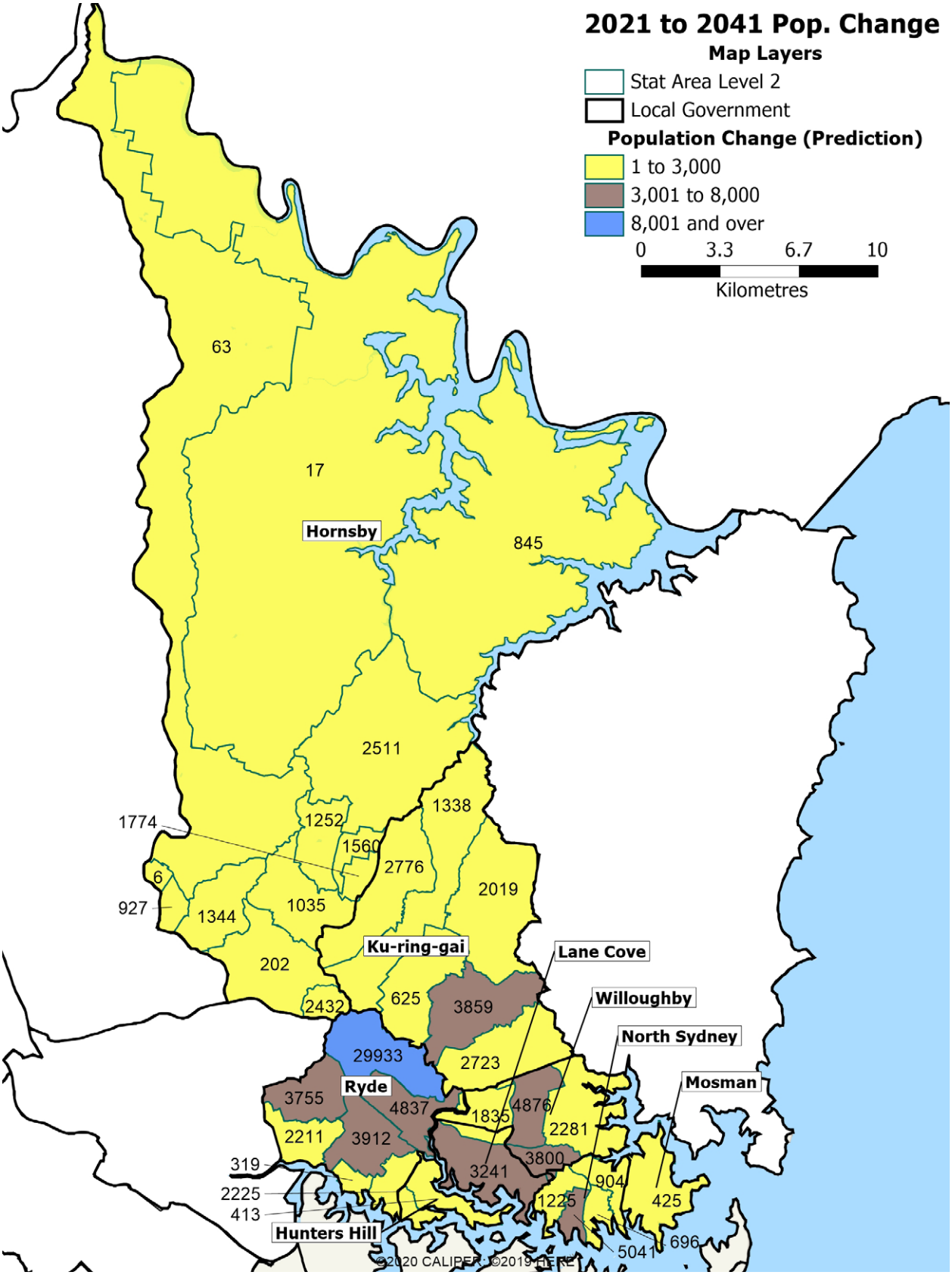
The map below summarises the 2041 population density by SA2[4] within NSROC:



[4] *SA2 areas and boundaries are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

3.3.3. Population Change 2021 - 2041

The map below summarises the population change between 2021 and 2041 by SA2[5] within NSROC:



The locality of Macquarie Park / Marsfield (City of Ryde) is estimated to experience the most intensive growth through to 2041 with a further 30,000 people.

[5] *SA2 areas and boundaries are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

3.4. IMPLICATIONS FOR NSROC SPORTS FACILITIES

NSROC has a large population of 655,196 (2021) people, of which high medium and high density housing accounts for 54% of the total supply, compared to 35% in NSW as a whole. This suggests that opportunities for new greenfield or current facility expansion within the region, will be extremely limited.

The region is estimated to experience ongoing population growth over the 15 years from 2021 to 2036, when the population is forecast to grow 11.3% to approximately 730,000 people.

11.3%

ESTIMATED POPULATION BY 2036

730,000

With the current and increasing population size and density, demand for open space and sports facilities is expected to further increase in an environment where local government within NSROC is already under pressure to meet current community demand. The most extreme pressure will be felt within the northern SA2 locality of Macquarie Park/ Marsfield, which already has a population of 25,168 (2021) and this is estimated to undertake further significant growth of 30,000 people by 2041.

It is recognised that residents within the NSROC Region will at times travel outside of the region to participate in sport. Similarly, NSROC facilities are used by residents who reside from outside the region.

The Benefits of Sport and Physical Activity

Physical activity is the key to good health. Regular activity is known to help prevent a range of diseases, heart attacks, cancer and diabetes, but sport does more than just keep us physically healthy. The whole community benefits from sport participation from players, family, and volunteers.

This allows new friendships to form and builds a sense of belonging and pride for communities. For youth, the confidence that is built from playing sport helps foster important life skills which benefits individuals through to adulthood. Not only do people who play perform better academically, it improves our overall mental health and wellbeing in every aspect of life.

4. TRENDS

4.1. PARTICIPATION

4.1.1. National Participation

Top 10 sports and physical activities - Adults 15+ and by gender

By population numbers and percentages

SPORTAUS AUSPLAY™

Adults (15+)			Men			Women		
Walking (Recreational)	9,186,817 Participants	44.7% Participation Rate	Walking (Recreational)	3,481,882 Participants	34.4% Participation Rate	Walking (Recreational)	5,704,936 Participants	54.8% Participation Rate
Fitness/Gym	7,245,147 Participants	35.3% Participation Rate	Fitness/Gym	3,175,292 Participants	31.3% Participation Rate	Fitness/Gym	4,069,855 Participants	39.1% Participation Rate
Running/Athletics	3,478,379 Participants	16.9% Participation Rate	Running/Athletics	1,894,618 Participants	18.7% Participation Rate	Swimming	1,818,606 Participants	17.5% Participation Rate
Swimming	3,232,970 Participants	15.7% Participation Rate	Cycling	1,572,705 Participants	15.5% Participation Rate	Running/Athletics	1,583,760 Participants	15.2% Participation Rate
Cycling	2,556,869 Participants	12.4% Participation Rate	Swimming	1,414,364 Participants	14.0% Participation Rate	Yoga	988,364 Participants	9.5% Participation Rate
Bush walking	1,412,120 Participants	6.9% Participation Rate	Football/soccer	857,310 Participants	8.5% Participation Rate	Cycling	984,164 Participants	9.5% Participation Rate
Yoga	1,159,677 Participants	5.6% Participation Rate	Golf	826,729 Participants	8.2% Participation Rate	Bush walking	746,426 Participants	7.2% Participation Rate
Football/soccer	1,128,103 Participants	5.5% Participation Rate	Bush walking	665,694 Participants	6.6% Participation Rate	Pilates	627,069 Participants	6.0% Participation Rate
Golf	1,029,641 Participants	5.0% Participation Rate	Tennis	561,615 Participants	5.5% Participation Rate	Netball	525,098 Participants	5.0% Participation Rate
Tennis	981,711 Participants	4.8% Participation Rate	Basketball	561,372 Participants	5.5% Participation Rate	Tennis	420,096 Participants	4.0% Participation Rate

Top 10 non-sport physical activities - Adults 15+ and by gender

By population numbers and percentages

SPORTAUS AUSPLAY™

Adults (15+)

	Participants	Participation Rate
Walking (Recreational)	9,186,817	44.7%
Fitness/Gym	7,245,147	35.3%
Bush walking	1,412,120	6.9%
Yoga	1,159,677	5.6%
Pilates	701,822	3.4%
Dancing (recreational)	316,638	1.5%
Virtual based physical activity	182,898	0.9%
Shooting sports	43,274	0.2%
Rope skipping	23,547	0.1%
Jet skiing	16,326	0.1%

Men

	Participants	Participation Rate
Walking (Recreational)	3,481,882	34.4%
Fitness/Gym	3,175,292	31.3%
Bush walking	665,694	6.6%
Yoga	171,313	1.7%
Virtual based physical activity	85,990	0.8%
Pilates	74,754	0.7%
Shooting sports	41,463	0.4%
Dancing (recreational)	35,517	0.4%
Jet skiing	12,170	0.1%
Body building	10,472	0.1%

Women

	Participants	Participation Rate
Walking (Recreational)	5,704,936	54.8%
Fitness/Gym	4,069,855	39.1%
Yoga	988,364	9.5%
Bush walking	746,426	7.2%
Pilates	627,069	6.0%
Dancing (recreational)	281,121	2.7%
Virtual based physical activity	96,908	0.9%
Rope skipping	14,191	0.1%
Scootering	7,219	0.1%
Body building	5,044	0.0%

Top 10 organised out-of-school sports and physical activities - Children 0-14 and by gender

By population numbers and percentages

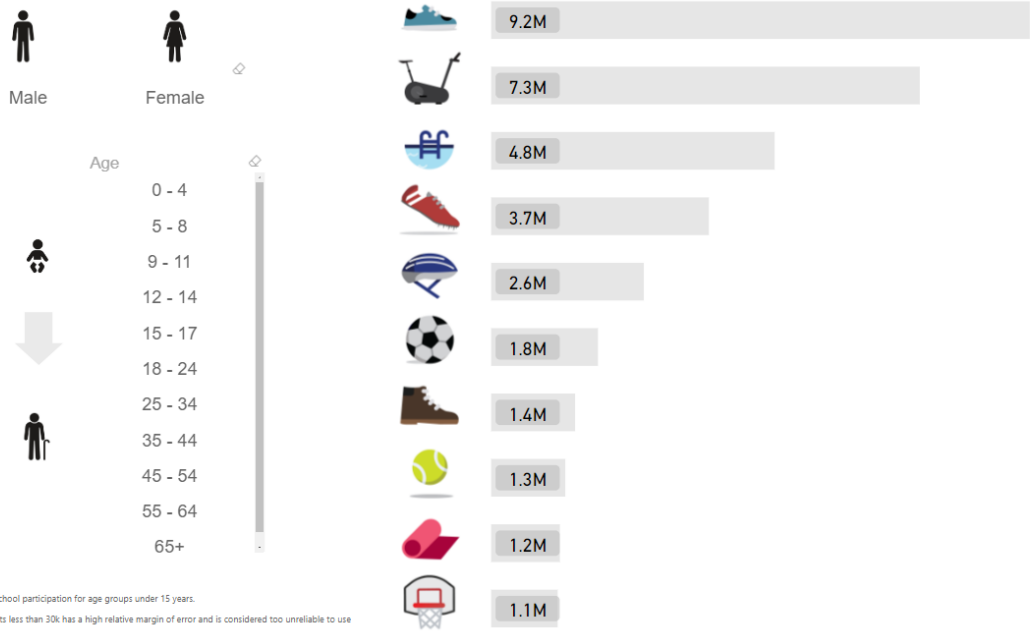
SPORTAUS AUSPLAY™

Children (0-14)			Boys			Girls		
Swimming	1,611,040 Participants	33.6% Participation Rate	Swimming	787,120 Participants	31.8% Participation Rate	Swimming	823,920 Participants	35.5% Participation Rate
Football/soccer	696,582 Participants	14.5% Participation Rate	Football/soccer	533,489 Participants	21.6% Participation Rate	Dancing (recreational)	390,530 Participants	16.8% Participation Rate
Gymnastics	457,152 Participants	9.5% Participation Rate	Australian football	318,792 Participants	12.9% Participation Rate	Gymnastics	343,950 Participants	14.8% Participation Rate
Dancing (recreational)	431,540 Participants	9.0% Participation Rate	Basketball	221,601 Participants	9.0% Participation Rate	Netball	308,429 Participants	13.3% Participation Rate
Australian football	381,442 Participants	8.0% Participation Rate	Cricket	211,912 Participants	8.6% Participation Rate	Football/soccer	163,092 Participants	7.0% Participation Rate
Basketball	344,913 Participants	7.2% Participation Rate	Tennis	174,709 Participants	7.1% Participation Rate	Basketball	123,312 Participants	5.3% Participation Rate
Netball	318,243 Participants	6.6% Participation Rate	Running/Athletics	123,541 Participants	5.0% Participation Rate	Running/Athletics	118,618 Participants	5.1% Participation Rate
Tennis	284,473 Participants	5.9% Participation Rate	Rugby league	118,735 Participants	4.8% Participation Rate	Tennis	109,763 Participants	4.7% Participation Rate
Running/Athletics	242,159 Participants	5.1% Participation Rate	Gymnastics	113,202 Participants	4.6% Participation Rate	DanceSport	91,853 Participants	4.0% Participation Rate
Cricket	239,356 Participants	5.0% Participation Rate	Karate	80,550 Participants	3.3% Participation Rate	Australian football	62,649 Participants	2.7% Participation Rate

Top 10 activities overall - by gender and age

By population numbers and percentages

SPORTAUS AUSPLAY™



Notes:

Only organised out-of-school participation for age groups under 15 years.

Activities with participants less than 30k has a high relative margin of error and is considered too unreliable to use

4.1.2. NSROC Participation

AusPlay

SPORTAUS AUSPLAY™

Local Government Areas

Multiple selections

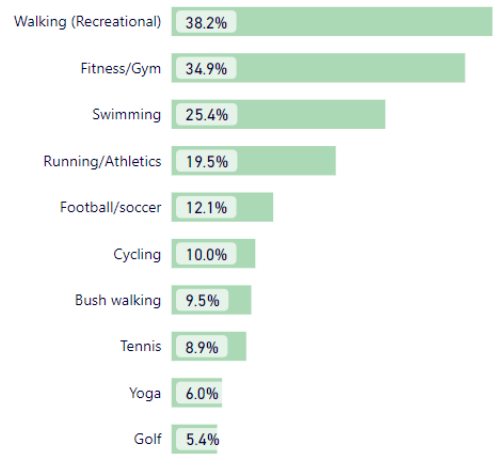
Gender

All

Age

All

Top activities^



^Based on respondents who provided a valid postcode and therefore overall state results may not match other parts of this report
Sample count is greater or equal to 10. For sample count less than 10, estimate has a high relative margin of error and is considered too unreliable to report

SPORTAUS AUSPLAY™

Local Government Areas

Multiple selections

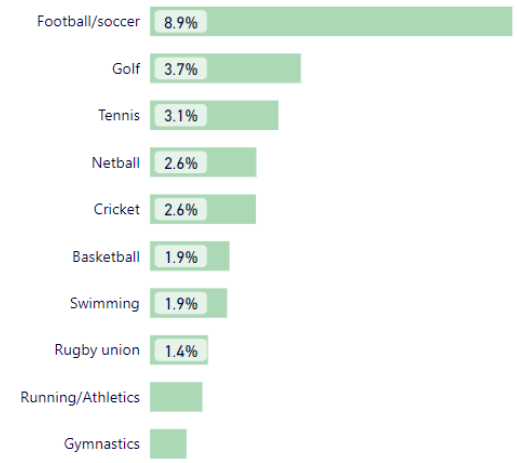
Gender

All

Age

All

Top activities for sports club participation^



^Based on respondents who provided a valid postcode and therefore overall state results may not match other parts of this report
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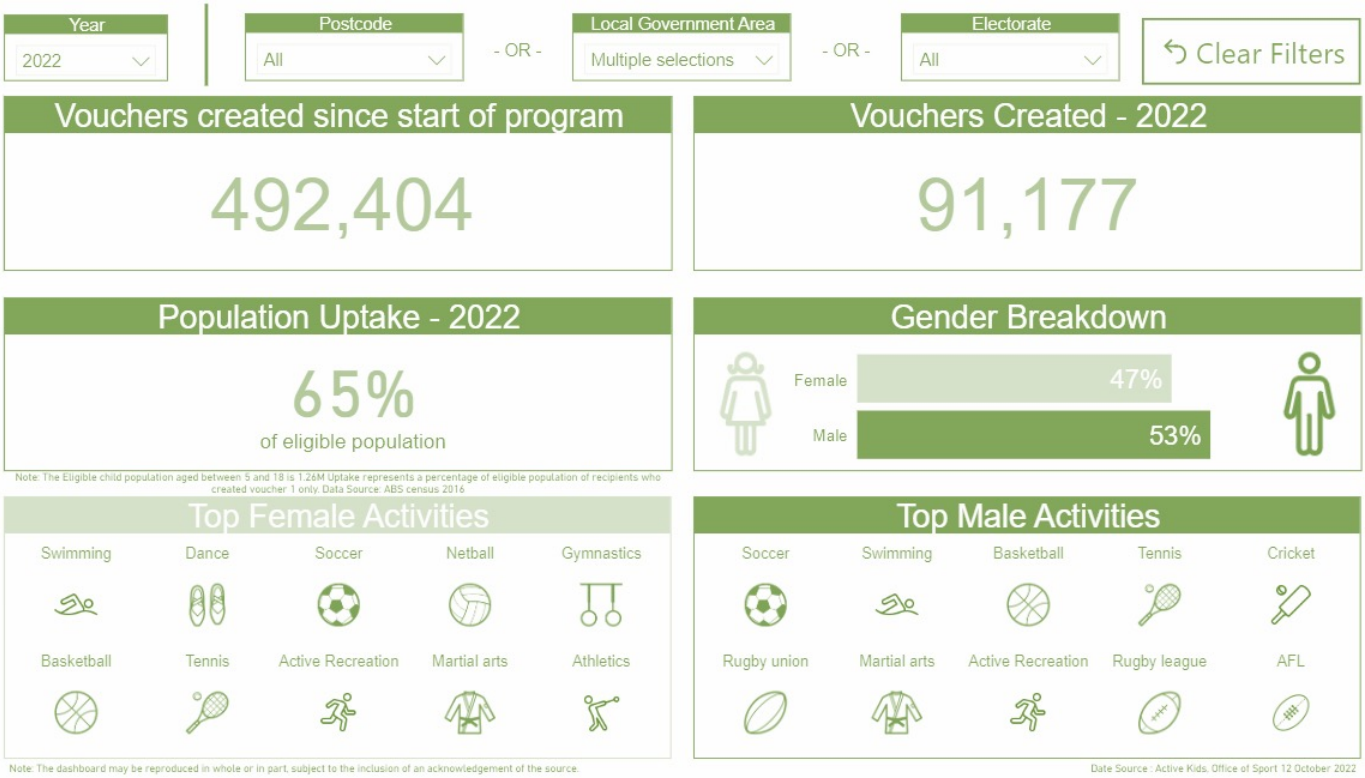
NSW Active Kids



4.2. EMERGING SPORTS

The table below identifies several new or emerging non-traditional sports that have been increasing in popularity. This table provides a description of the activity and general information regarding spatial requirements.

EMERGING SPORT	DESCRIPTION
Disc Golf	Disc golf is like traditional golf however it utilises a flying disc (frisbee) to get the disc in the pole hole (elevated metal basket), in as few throws as possible.
Foot Golf	Foot golf is like traditional golf however the objective is to get a football into the hole in as few kicks as possible.
Pickleball	Pickleball is a paddle sport game that has elements of tennis, badminton and table tennis. It can be played indoors or outdoors on a hard-court surface. It can be played by singles or doubles and uses a solid paddle to hit a plastic whiffle ball over the net (the net is 3 inches lower than a tennis net).
POP tennis/ Padel	POP Tennis is like tennis but played on a short court using low pressure balls and paddles instead of racquets.
Ultimate Frisbee	Ultimate Frisbee is a non-contact team sport played with a flying disc or frisbee on a grass sportsground. It has elements of netball, touch football and gridiron.
Pump Track	A pump track is a continuous track that is made up of rollers, jumps and berms that loop back onto itself. Rider's pump and gain momentum instead of pedalling. The track can be dirt or bitumen.
Ninja Sports	Typically combines several different sporting disciplines including rock climbing, parkour, and obstacles, etc. into a course.
Climbing (bouldering/ rock wall)	A climbing wall is a wall specifically designed for climbing and built to simulate a rocky surface. Bouldering is described as rock climbing where the lowest part of the body is no more than 1.2m above the ground and where adequate safety can be provided by 'spotting' rather than with the aid of additional systems involving harnesses, belay mechanisms and ropes.
Parkour	Parkour is moving (typically non-competitive) from Point A to Point B, going over and through any terrain using only abilities of the body, typically running, jumping and climbing.
Roller Derby	Roller derby is a roller-skating contact sport played by two teams on an oval track. This can either be on an indoor or outdoor basis.
Skate/ Scooter/ Freestyle BMX	A skate park is a purpose-built recreation environment for skateboarding, scooters and BMX. Skateboarding and BMX are now Olympic sports.

Several emerging sports such as pickleball, POP tennis/ padel, ninja sports, climbing and roller derby can be accommodated within multi-purpose indoor sports court facilities.

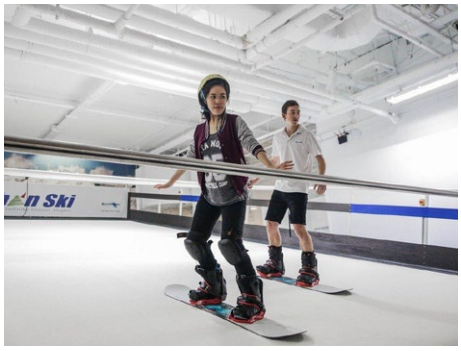
The Rise of E-Sports and Technology

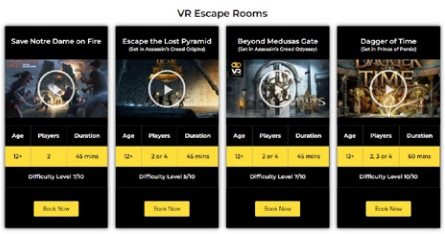
Studies from Deloitte, PWC and National Parks and Recreation Association (NPRA) indicate that E-sports, augmented and virtual reality will continue to grow in the recreation and entertainment industries. It is anticipated that continued growth in technology will be used to create customer experiences that are conventionally located.

In the world of media and entertainment, AR/ VR solutions will likely be used to:

- Provide a highly interactive alternative to traditional gaming controllers and keyboards
- Help companies produce educational programs that provide information in a more interesting manner
- Supplement other tools for training new employees on day-to-day tasks
- Offer an immersive theatre experience by allowing the audience to get involved in the action
- Improve visitors' experiences at museums, art galleries and amusement/ theme parks
- Make concert performances even more memorable.

E-sports have rapidly evolved around competitive video gaming. There are millions of fans who watch professional teams play, in person, on TV, and predominantly on digital platforms. In potential for revenue growth, e-sports ranked higher than soccer and basketball, the perennial powerhouses in the annual poll, as well as all other sports.





4.3. INFRASTRUCTURE

4.3.1. Sports Precincts

An understanding of good practice sport and recreation facility design is essential in ensuring the design of new facilities maximise community use and viability.

Key features of successful sport and recreation facilities and spaces are:

- Provided in high-profile sites that are central to, or within close proximity to, key population areas
- Designed and operated as ‘multi-use’ and clustered with other community or sports facilities
- Meet demands for local community sport, through to premier destination for higher-level events
- High-quality buildings and spaces that are welcoming, universally accessible and fit for purpose
- Easily accessible with good car parking, pedestrian, cycle and public transport access.

4.3.2. Indoor Sport Infrastructure

Indoor sport infrastructure provides all-weather opportunities for a diverse range of sporting codes. As our climate continues to change and participants seek greater certainty of their sport activities, the demand for indoor sport infrastructure will continue to rise.

Location

Indoor sport facilities that can service large catchment areas and are close to public transport are more likely to maximise their use and viability. A great deal of infrastructure expenditure is now being directed to the development of larger public and private complexes, providing a mix of aquatic, health, fitness and indoor sports facilities, because of the higher utilisation which can be achieved. There is less emphasis on the development of traditional single purpose facilities.

Scale

There is an increasing trend towards larger indoor sport facilities (accommodating 4 or more courts), as they move from single purpose to multipurpose. Otium Planning Group have undertaken numerous projects with existing and proposed indoor sports centres, where financial modelling has been undertaken to determine the future financial performance of facilities. This modelling and performance data from actual venues demonstrate that the larger facilities experience higher visits and have a greater expense recovery. It is important to note that this modelling has assumed that there is a sufficient catchment population to utilise the facility, therefore this should be used as a guide only.

Design & Layout

The design needs to accommodate flexible outcomes, however, there is also an emphasis on ensuring facilities are designed to meet the specific needs of the key user groups (i.e. correct runoff and facility standards). Larger new facilities are incorporating breakout spaces for sporting teams to use for pre and post-game addresses to the team. These spaces can be multi use and be used for other opportunities when not used by sporting teams.

Secondary spending is an important consideration in the design of the facility. Food and beverage and merchandise should be incorporated within the design, so that it feels seamless and integrated within the facility.

Indoor sport facilities should include minor facility embellishments to support a variety of community events. Given the large scale of the open floor area, multi-court facilities lend themselves to being used for broader community purposes.

There is a general trend towards participants looking for informal/ social competitions. Participants are increasingly looking towards opportunities for turn up and play (social sport) with no training commitments. As Australia's population continues to age, there are opportunities to target programs for mature aged markets such as 'walking netball'. These can typically be programmed at off-peak times.

Diversified Use

The peak usage for multi-purpose indoor courts is typically late afternoon to late evening on school nights. On this basis, many venues are making subtle and relatively low-cost enhancements to their indoor court design to maximise secondary revenue through community and corporate events, conferences, presentations, training and functions for off-peak bookings. The design enhancements typically include:

- On-court food & beverage serveries
- Enhance lighting and audio/ visual
- Consideration of acoustic treatments
- Portable or permanent staging.

4.3.3. Tennis

Tennis courts provide a mix of formal, informal and commercial use. Tennis centres should form part of a network of facilities from a regional, district and local perspective. Typically, a minimum 8 court, plus 4 hotshot court facility is required for a centre to be viable. Surfaces vary between hardcourt, synthetic grass, natural grass and clay. Hardcourt and synthetic grass are the most popular surfaces at district and local standard facilities. Hardcourts are typically preferred within centres that have a high level of player development and competitions, whilst synthetic grass surfaces are preferred at centres used by older adults, due to the softer impacting surface. Main road frontage for tennis centres is preferred.

4.3.4. Netball

Netball courts are typically being co-located within broader sport and recreation hubs. Where such multi-use precincts incorporate indoor courts, best practice design outcomes are to ensure close proximity between the two activity spaces. A minimum 8 court (preferably 12) netball facility is required to support effective competition management and viability. Larger court provision is required for facilities at a regional and above standard. Lighting of netball courts is considered essential to address trends for increased night competitions and training.

4.3.5. Active Recreation and Sport

The co-location of sport with recreation opportunities is increasing, including opportunities for:

- Walking/ running loops within and around sporting precincts
- Safe participation environments
- Fitness and exercise stations and equipment
- Information technology capabilities
- Opportunities for individuals or groups
- Opportunities for informal and social activity.

4.3.6. Climate Change

As a result of climate change, temperatures are becoming more extreme, droughts will be more prolonged and rainfall and storm events less frequent, but potentially more severe. This will lead to a greater need to explore measures for adapting to a changing climate, so that sports infrastructure is still viable for its intended use and ensure opportunities for participation in sport continue.

Strategies for responding to changing climatic conditions can include:

- Providing lighting to enable evening/ night-time use of sports facilities when temperatures are cooler
- Providing drainage and irrigation to help respond to rainfall variations
- Investigating use of water harvesting programs to enhance irrigation capacity
- Increasing natural and built shading to enhance user and spectator safety and comfort
- Increased planning and consideration of indoor facilities.

Climate resilience measures should be considered in the context of local conditions, facility supply, facility utilisation and economic viability.

4.4. IMPACTS OF COVID-19

In July 2022, Sport Australia released a publication 'How Australians' participation in sport and physical activity is adapting to COVID-normal'.

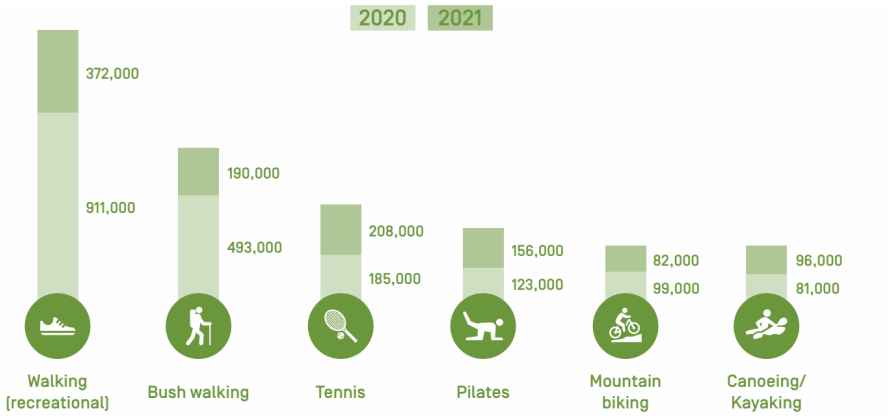
The report draws from data through the AusPlay Survey as well as the Community Perception Monitor- a monthly survey of Australians aged 18+ on a range of topics related to sport and physical activity.

Key findings from the report indicate:

Australians aged 15+ are embracing a greater mix of activities

Compared to 2019, the average number of activities per person has increased. Fewer Australians are relying solely on sporting clubs or organised venues for exercise – they are more likely to be adding in "COVID-safe" unstructured activities.

Physically distanced or home-based activities are continuing to increase in popularity



"Exergaming" becomes a top 20 activity for Australians aged 15+

Participation in exercise accessed through gaming consoles or online interactive platforms increased 100-fold between 2019 and 2021.

Exergaming is defined as virtual/ technology-based/ gaming exercise, for example motion sensing console games, smart treadmills, online platforms such as Zwift.

The most popular way to use technology was through motion sensing/ activity-based video games such as Wii Fit, Xbox, PlayStation (893,000 participants). The use of indoor smart trainers/ treadmills (260,000) or online platforms such as Zwift or Rouvy (170,000) was lower but still growing.

The social and mental health benefits of exercise continue to increase in importance for Australians aged 15+

were motivated by the social benefits of participating (up from 30% in 2019).

were motivated by the mental health benefits they gained (up from 21% in 2019).

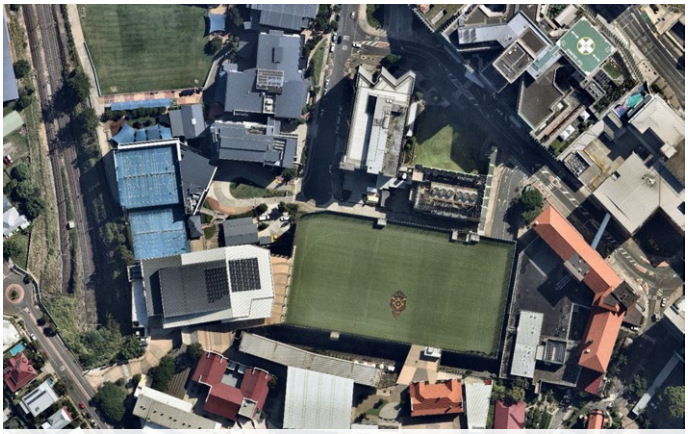
The latest AusPlay data (November 2022) suggests children in particular are getting back to regular (1+ per week) participation. Participation in organised out-of-school hours sport and physical activity for children aged 0-14 years was heavily impacted by COVID-19. However, from 2020-21 to 2021-22 there has been a significant increase in children's regular participation, driven by boys.

4.5. EMERGING INNOVATIONS

4.5.1. High Density Areas

With the increasing density of locations around the world, some cities have been investigating the potential to provide sporting fields and courts in unconventional manners. One of the most popular methods is to provide these facilities in multi-story car parks and rooftops.

The Mater Children's Hospital and St Laurence's College in South Brisbane, Queensland (pictured below) have jointly developed a sporting oval atop a car park shared by the facilities. The City of Sydney also identified a number of potential opportunities to improve access to open space through rooftop sporting facilities in the highest density areas. This trend has also been seen globally including at UC Berkeley (Car Park Roof Field), Providence College (Regulation Field Hockey Field on a rooftop), University of Alberta (Car Park Rooftop), Chesapeake Campus (Rooftop Field) and Adidas Futsal Field in Tokyo (Pictured below). It can be difficult to create public access to rooftops of commercial or residential buildings.



Roof Top Synthetic Playing Field

Roof Top Futsal Field

The use of roof top areas has not been limited to sporting fields. Running tracks have also become a popular option both within buildings (pictured below in Bangkok) and on outdoor rooftops (pictured below Bucharest in Romania). Running tracks with multi-purpose sporting facilities have also been developed in Hangzhou in China (pictured below).

Indoor Mezzanine Running Track

Roof Top Running Track

Multi-use Running, Adventure & Playing Field Precinct

Other important considerations in high density areas are providing sporting options that have high user turnover but that have a relatively small footprint. Examples can include multipurpose courts that can accommodate tennis, basketball and futsal. Active and public transport connections are also important factors in high density areas to ensure residents can access the broader sport and recreation network. Portable and pop up sporting facilities can also provide an opportunity to engage new audiences within small spaces and areas.

Synthetic Futsal Field

Running Track, Court & Fitness Facilities within an Urban Environment

There are also examples in Paris of using the limited available space to provide high quality training only facilities, such as those found in the *Centre Sportif Sablonniere,* which provides a 4 lane shortened athletics track and multi-court layout within the track. This caters for futsal, basketball, tennis, and athletics.

In high density areas making the most of all available space for sporting activities in critical. In Happy Valley Racecourse in Hong Kong this can be seen with great effect, with numerous synthetic sporting fields located within the inside of the racecourse. A similar proposal has been developed within the Master Plan for Moonee Valley Racecourse which includes apartments and sporting facilities.

Multi Field Precinct within a Racecourse

Multi Sport and Recreation Precinct within a Racecourse

Floating Playing Field"

Another potential area of investigation for alternative facility locations is 'floating fields'. Although further investigation would need to be undertaken on a case-by-case basis to assess feasibility there are examples in Asia, including *The Float at Marina Bay in Singapore,* which also has seating for 30,000 spectators[6]. These spaces offer an alternative where sporting land is scarce or difficult to acquire.

The need to consider the re-purposing in total or partially of golf courses is emerging in an environment where there is a shortfall of supply of open space to meet growing community demand. The latest AusPlay data across Australia suggests mixed participation trends for golf between 2016/17 to 2021/22, based on the frequency of participation:

- Infrequent participation
  - 1+ per annum – Increase from 5.0% to 5.7%
  - 4+ per annum – Increase from 4.5% to 4.9%
  - 1+ per month – Increase from 3.7% to 4.0%
- Frequent participation
  - 1+ per week – Decrease from 2.5% to 2.1%
  - 2+ per week – Decrease from 1.4% to 1.2%.

The Northern Beaches Council Golf Market Assessment Final Report November 2016 (Golf Business Advisory Services) estimated Sydney has 3,331 hectares of golf land, with 1,012 public owned land. The Assessment noted that despite annual population growth of 1.7% per year since 2006, there is a slow, reasonably constant annual 1.6% decline evident in golf club membership demand across Sydney. The Assessment concluded that there is a sufficient mix of product to satisfy the level of golf demand that exists, and that this demand would and could be accommodated within a reduced supply pool, a reduction in supply may further assist the market to achieve greater sustainability.

Since this report, the 2022 Golf Australia Golf Club Participation Report has indicated significant increases in both memberships and general participation. Golf and other singular based sports experienced higher levels of participation than formalised sport throughout the Pandemic, induced by the COVID 19 health restrictions, where such activities were able to continue on a restricted basis. These participation increases have immediately been sustained post-COVID 19 at levels equivalent to the increases during the Pandemic and at rates higher than pre-COVID 19. It is too early at this stage, though, to determine whether these trends will be maintained and whether there will be a shift back to more traditional team sports overtime. It is reasonable though given the investment in changing activity patterns (learning the sport) and investment in equipment that such increases are likely to be sustained.

Opportunities to enhance golf courses to retain golf, yet introduce alternative uses include, however are not limited to:

- Emerging sports (refer Section 5.2 above)
- Archery
- Playing fields
- Nature based recreation
- Community events
- Orienteering
- Parkrun.

Golf course clubhouse facilities could also support specialist indoor sport activities such as dance, martial arts and yoga/ pilates.

Junior Sport Training within a Golf Course

[6] *https://www.stadiumguide.com/float-marina-bay/*
https://www.interpcan.ca/the-float-at-marina-bay-the-worlds-largest-floating-football-stadium/

4.5.2. Playing Field Surface Design

The summary of the potential playing field surface solutions is based on advice from Sport Eng. Sport Eng specialises in the Planning, Design and Construction inspection for Fields of Play for all sports.

A variety of methods are increasingly being relied upon to improve the yield and playability of playing fields in an environment with increasing population density and a shortage of open space. Potential solutions include:

- Increased maintenance regime/ grass species
- Improved natural grass design
  - Sand Slit Drainage
  - Rootzone Sand Profile
  - Quality Soil Profile and Drainage
  - Perched Water Table.
- Hybrid grass/ synthetic surface
- Synthetic surface.

It should be noted that based on individual site constraints and the type and intensity of use, not all of the above potential solutions will work in all cases.

INCREASED MAINTENANCE REGIME/ GRASS SPECIES

Methods include:

- Transitioning to a high wear tolerance, heat tolerance and relatively low water use grass species
- Improved maintenance activities, including mowing, irrigation, fertiliser, vert-draining, rye grass over-seeding, herbicide application, removal of rye grass and top dressing with sand
- Shade management
- Managing impact of dogs on sportsgrounds.

IMPROVED NATURAL GRASS DESIGN

Sand Slit Drainage

The sand slit drainage system consists of:

- Stripping the existing turf and organic matter layer (approximately 50 -100 mm)
- Network of subsoil collector drains at 8 – 10 metre spacings and narrow sand slit drains at ~ 2 metre spacings
- Install irrigation system
- Sand topdressing layer (20 – 30 mm deep) utilising a sand meeting a specific set of criteria for particle size distribution, drainage rate, moisture retention and aeration porosity
- Re-turf with washed couch grass variety.

Advantages

- Improved infiltration rates
- Reduced excavation and disposal of material (reduction on overall costs)
- Sports field design drainage rate of 25 – 35 mm/ day (dependent on sand type)
- Resistant to compaction
- Good aeration that promotes good root growth.

Disadvantages

- Construction is more complex and therefore construction duration may be longer
- Specialist construction equipment is required
- Drainage potential is not as effective as a full depth sand profile
- Requires regular sand top dressing maintenance to ensure sand slits are not ‘blocked’.

Hours of Use

- Approximately 15 – 30 hours a week. This is dependent on quality of the construction, footfall per square metre, solar access and the level of maintenance.

ROOTZONE SAND PROFILE

The rootzone sand profile consists of:

- Remove and dispose of existing site growing medium
- Re-shape subgrade to remove undulations from field
- Network of subsoil drains at 4 – 5 metre spacings
- Sand profile (300 mm deep) utilising a sand meeting a specific set of criteria for particle size distribution, drainage rate, moisture retention and aeration porosity
- Re-turf with couch grass variety
- Install irrigation system.

Advantages

- High infiltration rate (>150 mm/hr)
- Sports field design drainage rate of at least 75 – 100 mm/day (dependent on sand type)
- Resistant to compaction
- Excellent aeration that promotes strong root growth.

Disadvantages

- May require an organic amendment to improve moisture retention
- If the turf is worn out the sand surface may lack stability.

Hours of Use

- Approximately 30+ hours per week. This is dependent on quality of the construction, sport per square metre, solar access and the level of maintenance.

QUALITY SOIL PROFILE AND DRAINAGE

The Quality Soil Profile and Drainage consists of:

- Remove and dispose of existing site growing medium
- Introduction of soil layer that supports sustainable grass growth at the top layer
- Re-shape subgrade to remove undulations from field
- Network of subsoil drains at 4 – 5 metre spacings
- Sand profile (300 mm deep) utilising a sand meeting a specific set of criteria for particle size distribution, drainage rate, moisture retention and aeration porosity
- Re-turf with couch grass variety.

Advantages

- Soil layer supports maximised growth and grass viability
- High infiltration rate (>150 mm/hr)
- Sports field design drainage rate of at least 75 – 100 mm/day (dependent on sand type)
- Resistant to compaction
- Excellent aeration that promotes strong root growth.

Disadvantages

- May require an organic amendment to improve moisture retention.

Hours of Use

- Approximately 40+ hours per week. This is dependent on quality of the construction, footfall per square metre, solar access and the level of maintenance.

PERCHED WATER TABLE

The perched water table consists of:

- Remove and dispose of existing site growing medium
- Re-shape subgrade to remove undulations from field
- Network of subsoil drains at 4 – 5 metre spacings
- Approximately 100 mm deep drainage gravel layer utilising a gravel which meets a specific particle size distribution, drainage rate and bridging factor compatibility with the rootzone sand
- Install irrigation system
- Sand profile (300 mm deep) utilising a sand meeting a specific set of criteria for particle size distribution, drainage rate, moisture retention and aeration porosity
- Re-turf with couch grass variety.

Advantages

- High infiltration rates.
- Resistant to compaction.
- Perched water table encourages deep root growth from turf.
- Sports field design drainage rate of >150 mm/day (dependent on sand type).

Disadvantages

- May require an organic amendment to improve moisture retention
- If the turf is worn out the sand surface may lack stability.

Hours of Use

- Approximately 40 hours per week. This is dependent on quality of the construction, sport per square metre, solar access and the level of maintenance.

HYBRID GRASS/ SYNTHETIC SURFACE

Hybrid turf combines blades of synthetic grass with natural turf to provide a consistent playing surface, improved surface durability and stability. This system is more durable than natural turf, due to the presence of synthetic grass fibres that provide traction even if natural grass is worn. However, hybrid turf can impede typical maintenance practices required for natural turf (in particular deep aeration/ decompaction) and further research is required to understand maximum carrying capacity of hybrid playing fields.

The selective use of synthetic or hybrid turf in high-wear areas of a field (e.g. cricket wicket at the centre of an oval, goal mouths on a soccer pitch) has been used by some councils to improve durability and therefore field capacity without needing to convert an entire field. This approach is also used in elite facilities where synthetic grass is used around the pitch to maximise the extent of people traffic without damaging the natural turf surface.

SYNTHETIC SURFACE

Synthetic surfaces have been used for a long period of time for tennis courts, cricket pitches and hockey fields due to the unique nature of their sports and people/ ball movement. In more recent times, synthetic turf has become an attractive option to respond to this growing demand, including high wear areas, due to its ability to support greater levels of use than most natural turf surfaces, as well as:

- The perceived reduction in ongoing maintenance requirements
- The reduction in irrigation requirements
- Synthetic turf's ability to withstand intensive use – 50+ hours
- High durability and consistency in all weather conditions.

However, since the increase in the construction of new synthetic fields within NSW, there has been a growing number of concerns raised by local communities about the impact of synthetic fields, including:

- Lack of consultation on proposed changes to and loss of existing green public spaces
- Increased air and water pollution due to rubber and microplastic particles within synthetic turf materials, noting technologies are rapidly advancing in this area
- Increased surface temperatures during warm weather and the adverse effects on thermal comfort
- Restriction of access for informal and passive recreation activities due to perceived exclusivity of use
- Detrimental impact to local amenity (i.e., light and noise pollution at night) due to extended hours of use.

Of note, the NSW Chief Scientist & Engineer has investigated the use of synthetic turf in public open space in NSW. The review describes:

- Key scientific and technical issues associated with the use of synthetic turf compared with grass surfaces in public spaces
- Available data
- Knowledge gaps, including initiatives in other jurisdictions to address these
- Applicability to NSW of scientific studies and experiential data from other Australian and international jurisdictions
- Potential air and water pollution impacts associated with use of different materials in construction and installation of synthetic turf (e.g. Synthetic fibres, cork infill, rubber crumb infill)
- Potential health impacts of synthetic turf in public open spaces and sports fields including
- Potential environmental and ecological impacts of synthetic turf compared to natural turf including but not limited to water runoff and local impacts, urban heat island effect, use in bushfire-prone areas, changes to fauna habitat and wildlife corridors and light pollution
- Technical and scientific considerations associated with the use of synthetic turf
- Emerging science and new materials that could be used in conjunction with, or as an alternate to, existing natural and synthetic surfaces (including identifying new components and potential prototypes and advances in materials and biological sciences)
- Best management practices in the design, installation, maintenance, disposal and recycling of synthetic turf
- Scientific and technical factors for consideration by local government and other organisations when considering natural and synthetic surfaces.

The review also proposes a research program including:

- A description of in-field, laboratory and other studies that will help address key knowledge gaps in the short, medium and longer term and priorities for future data collections
- Commissioning tests of existing materials under different conditions such as heat, humidity, increased water flow and UV exposure to understand impacts, including substances released into the natural environment.

The Department of Planning and Environment is currently developing guidance on synthetic turf for local government.

4.6. IMPLICATIONS FOR NSROC SPORTS FACILITIES

The primary trends influencing participation and impacting demand for sports facilities are:

The highest adult participation sports are those that have propensity towards self-regulated activities such as walking, running and fitness, whilst participation by children is quite mixed and impacted by locality and cultural influences.

Non-traditional, emerging sports are increasing in popularity and further intensifying the pressure on current sports facilities.

Multi-purpose indoor courts play an important role in servicing year-round, all weather opportunities, for multiple sport and other community uses.

Ensuring single-use sporting facilities are of a minimal but adequate scale, supports the maximisation of use and viability of the infrastructure.

There is a strong trend towards the co-location of sport, with passive and active recreation and other community facilities.

Extreme weather conditions are increasing the need for lighting, covered/ indoor facilities/ improved natural turf design/ management and maximised environmentally sustainable design initiatives.

The changing cultural diversity and ageing of population in Australia, is increasing the demand for indoor sport facilities.

The latest AusPlay data (November 2022) suggests that participation in both formal and informal sport is typically at higher levels than pre-Covid participation levels

The need for multi-use and co-located sports hubs underpinned by population growth in an environment where there is a shortage of usable open space for sporting purposes.

Potential solutions used successfully internationally for some time, or that are emerging to overcome the shortfalls in usable land for sporting purposes, include rooftop developments, re-purposing retail facilities, synthetic surface solutions, infill within racecourses, floating facilities within water bodies and the re-purposing in total - or partially - of golf courses.

There are several solutions for maximising the yield of playing fields, that should consider site constraints (including environmental), budget, location, catchment, accessibility factors – potential solutions include:

- Increased supply of sportsgrounds with lighting
- Increased maintenance regime/ grass species
- Improved natural grass design
  - Sand Slit Drainage
  - Rootzone Sand Profile
  - Quality Soil Profile and Drainage
  - Perched Water Table.
- Hybrid grass/ synthetic surface
- Synthetic surface.

The major trends influencing sport participation and facility provision are:

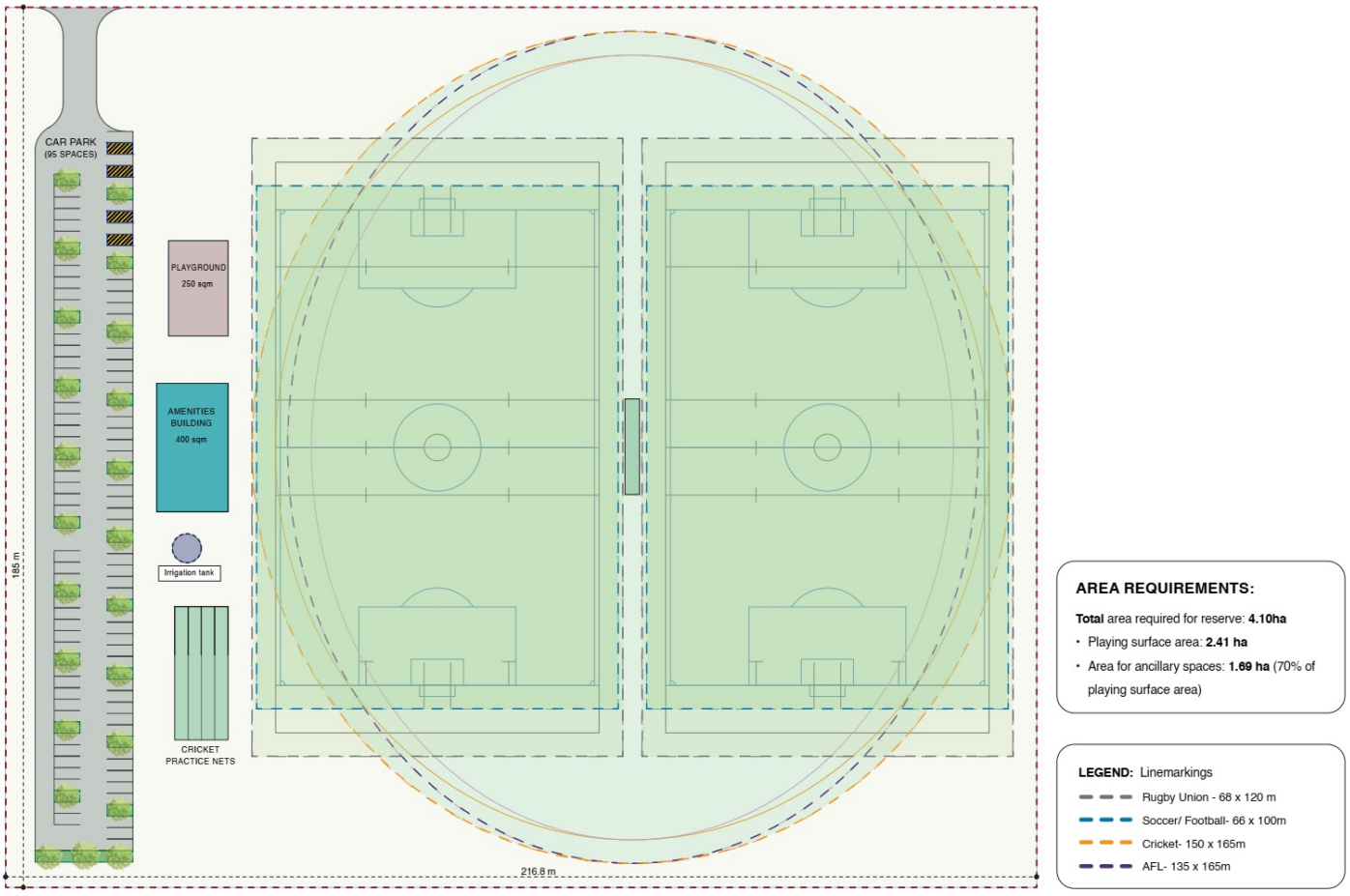
5. NSROC SPORTS FACILITY INVENTORY

Inventory data was supplied by NSROC Member Councils. Where there were gaps in either the total spatial area or area by facility type, the following assumptions informed calculations:

- Indoor Courts
  - Activity space based on standard netball dimensions
- Indoor Speciality
  - Total area based on aerial calculation
- Outdoor Courts
  - Activity space based on standard tennis or netball dimensions
- Outdoor Speciality
  - Activity space based on standard croque, softball, baseball, bowls dimensions, and includes publicly owned golf courses
- Sportsgrounds
  - Activity space based on standard cricket or AFL dimensions.

NSROC's inventory of sports facilities is distributed across activities areas (actual playing space) within a broader total area that includes ancillary space for car parks, amenities, landscaping, pathways and informal open space. This ancillary area is approximately 70% of the activity area which is consistent with ratios used in sports infrastructure planning projects across Australia.

An illustrative, notional layout of an outdoor sports park demonstrates the relationship between the actual playing space and ancillary area:



Privately owned and school facilities that are known to be available for community use have been included in the above inventory.

The supply includes the following facility types:

- Sportsgrounds (playing fields)
- Softball/ baseball diamonds (outdoor speciality)
- Bowls/ croquet/ bocce facilities (outdoor speciality)
- Tennis courts (outdoor courts)
- Outdoor basketball courts (outdoor courts)
- Outdoor netball courts (outdoor courts)
- Outdoor multi-use courts (outdoor courts)
- Gymnastics facilities (indoor speciality)
- Indoor sports courts [where community use is known] (indoor courts)
- Squash courts (indoor speciality)
- Community halls [where indoor specialised sport is participated] (indoor speciality)
- School facilities that have regular outside of school community use of 10+ hours per week.

Publicly Owned Golf Courses

Publicly owned golf courses are excluded from the above inventory, however within the NSROC region the following publicly owned golf courses inventory exists:

- Lane Cove – 12.3Ha
- North Sydney – 25.6Ha
- Willoughby – 59.8Ha
- Ku-ring-gai – 60.2Ha
- **Total NSROC – 157.0Ha**

The current supply of total sports facility land area (activity and ancillary space[7]) in the NSROC region is summarised in the table below:

	TOTAL SUPPLY (2023)	
	Current Supply (Hectares)	Hectares per 1,000 Residents
Hornsby	107.44	0.71
Hunter's Hill	16.54	1.11
Ku-ring-gai	104.95	0.82
Lane Cove	18.34	0.45
Mosman	23.82	0.77
North Sydney	18.64	0.25
Ryde	117.05	0.88
Willoughby	50.08	0.62
NSROC Total	**456.85**	**0.70**

The current supply of total sports facility land area by facility type in the NSROC region is summarised in the table below:

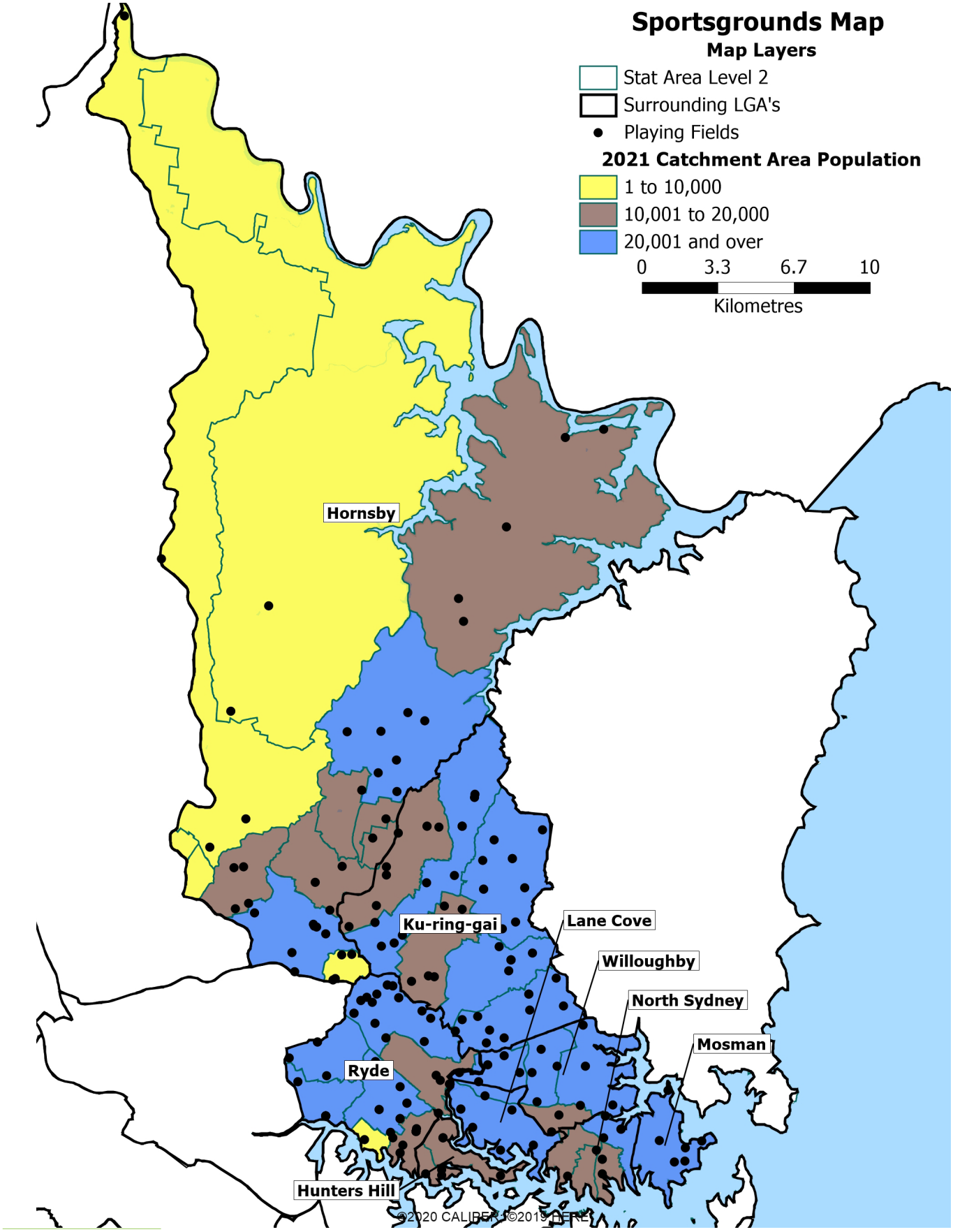
	SUPPLY BY FACILITY TYPE (2023)				
	Playing Fields	Outdoor Courts	Outdoor Speciality	Indoor Courts	Indoor Speciality
Hornsby	74.48	10.45	18.55	1.81	2.15
Hunter's Hill	16.15	0.37	0.00	0.00	0.02
Ku-ring-gai	91.98	6.47	5.32	0.44	0.73
Lane Cove	14.21	2.32	1.29	0.27	0.25
Mosman	16.49	5.31	1.68	0.17	0.16
North Sydney	14.60	1.56	1.00	0.61	0.86
Ryde	94.60	10.79	9.67	0.73	1.25
Willoughby	35.72	10.49	3.13	0.17	0.57
NSROC	**358.24**	**47.77**	**40.64**	**4.21**	**5.99**

[7] *Ancillary space is based on an estimated additional 70% on top of the activity space.*

5.1. CURRENT INVENTORY

5.1.1. Sportsgrounds (Playing Fields)

The map below illustrates the location of current sportsground facilities within NSROC and population densities by SA2[8] areas. Please refer to Appendix 3 Sportsgrounds (Playing Fields) by Member Council, for individual LGA maps with corresponding facility lists.



[8] *SA2 areas and boundaries are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

Capacity Summary

Members Councils provided advice on the estimated winter capacity of each playing field as summarised below:

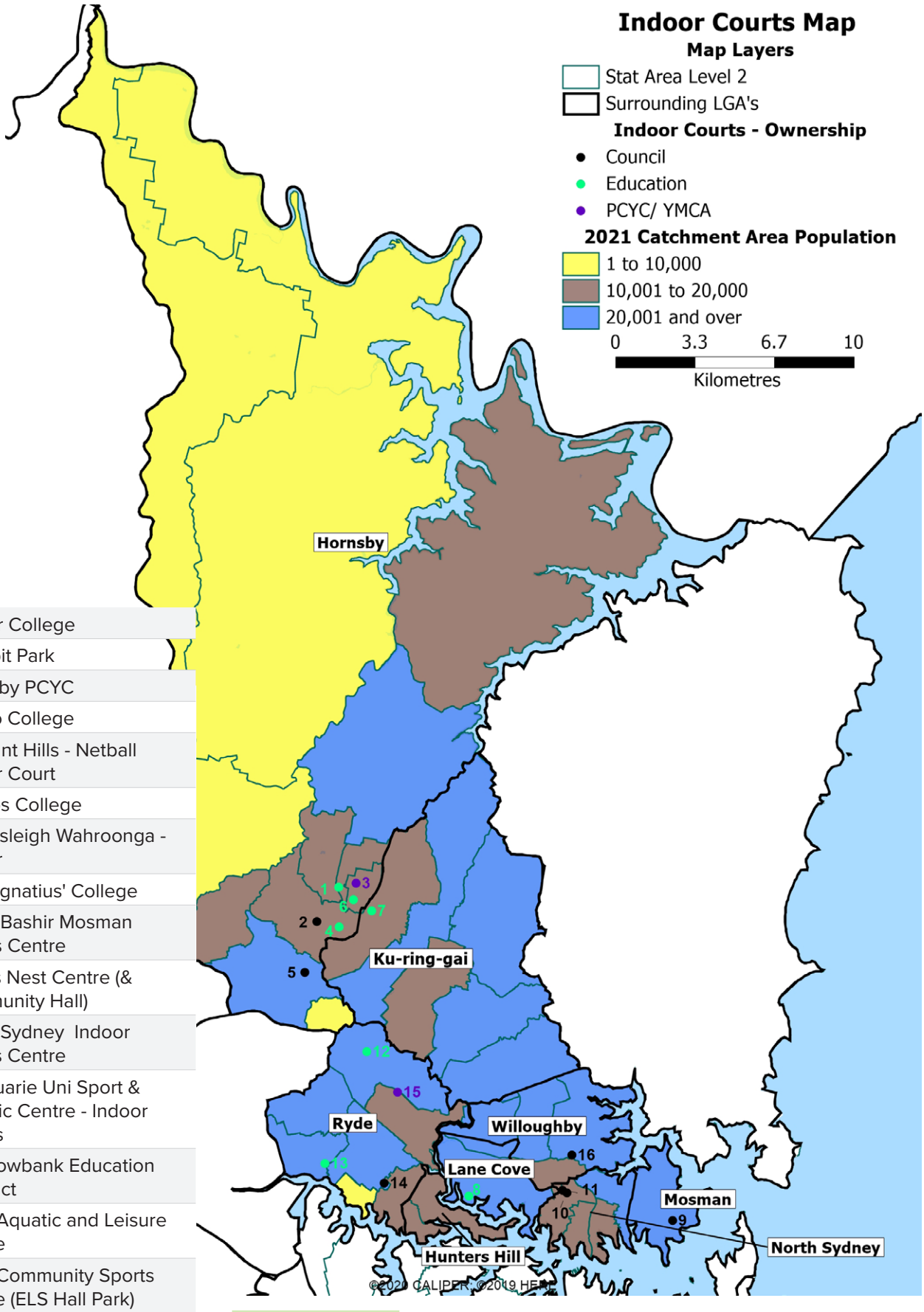
WINTER FIELD CAPACITY (BY HOURS)	LOW	MEDIUM	HIGH	TOTAL
Hornsby	7	15	23	45
Hunter's Hill	6	4		10
Ku-ring-gai	21	11	20	52
Lane Cove	2	2	5	9
Mosman	1		7	8
North Sydney	3	1	13	17
Ryde	32	37	3	72
Willoughby	5	4	9	18
Total	**77**	**74**	**80**	**231**

The above capacity estimates are based on:

- Low
  - Provides under 20 hours of weekly winter use
- Medium
  - Capacity to provide over 20-30 hours of weekly winter use
- High
  - Capacity to provide over 30 hours of weekly winter use.

5.1.2. Indoor Courts

The map and table below illustrates the location of current indoor court facilities within NSROC and population densities by SA2[9] areas:

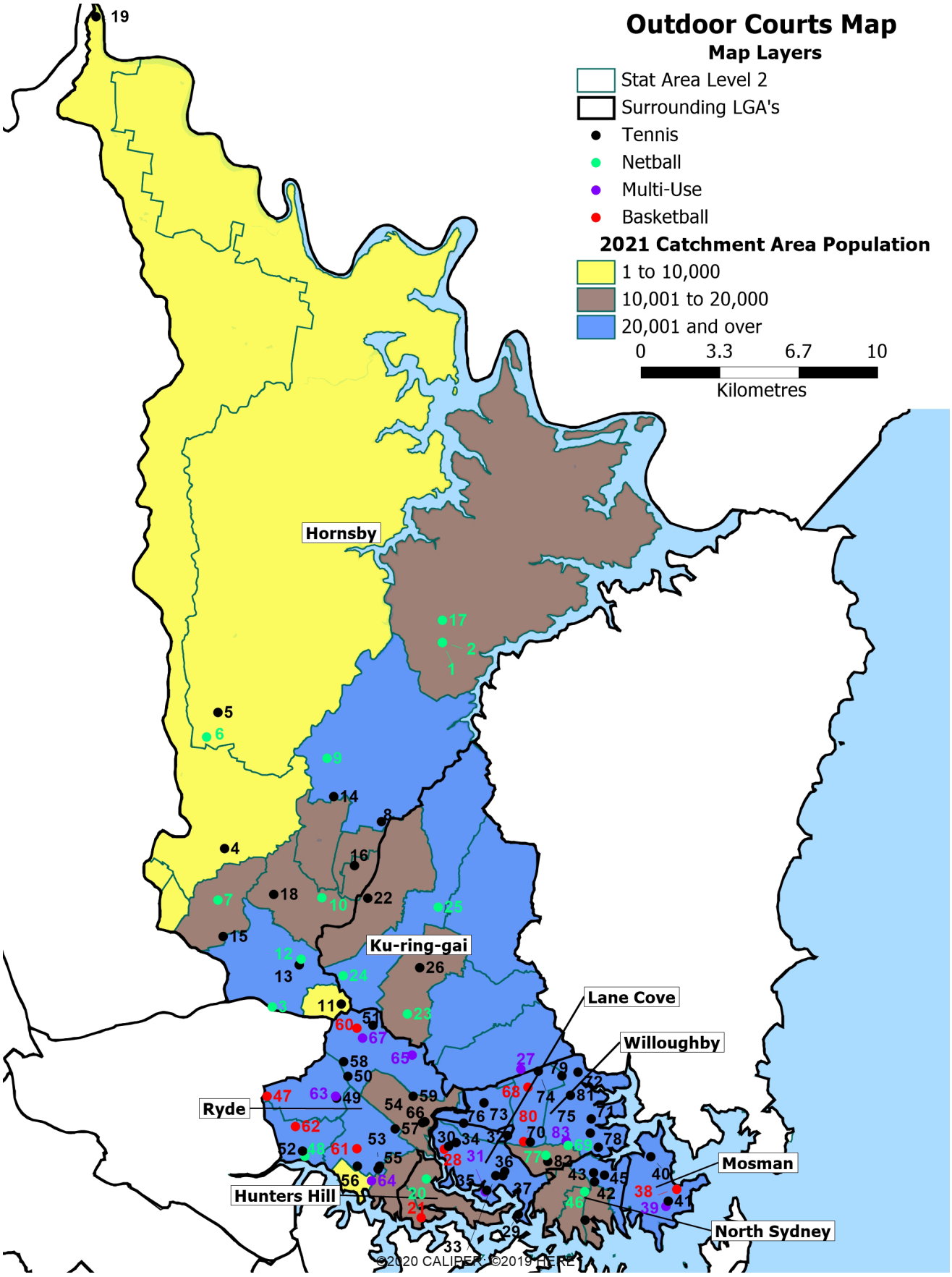


1	Barker College
2	Brickpit Park
3	Hornsby PCYC
4	Loreto College
5	Pennant Hills - Netball Indoor Court
6	St Leos College
7	Abbotsleigh Wahroonga - Indoor
8	Saint Ignatius' College
9	Marie Bashir Mosman Sports Centre
10	Crows Nest Centre (& Community Hall)
11	North Sydney Indoor Sports Centre
12	Macquarie Uni Sport & Aquatic Centre - Indoor Courts
13	Meadowbank Education Precinct
14	Ryde Aquatic and Leisure Centre
15	Ryde Community Sports Centre (ELS Hall Park)
16	Willoughby Leisure Centre

[9] *SA2 areas and boundaries are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

5.1.3. Outdoor Courts

The map and table below illustrates the location of current outdoor court facilities within NSROC and population densities by SA2[10] areas:

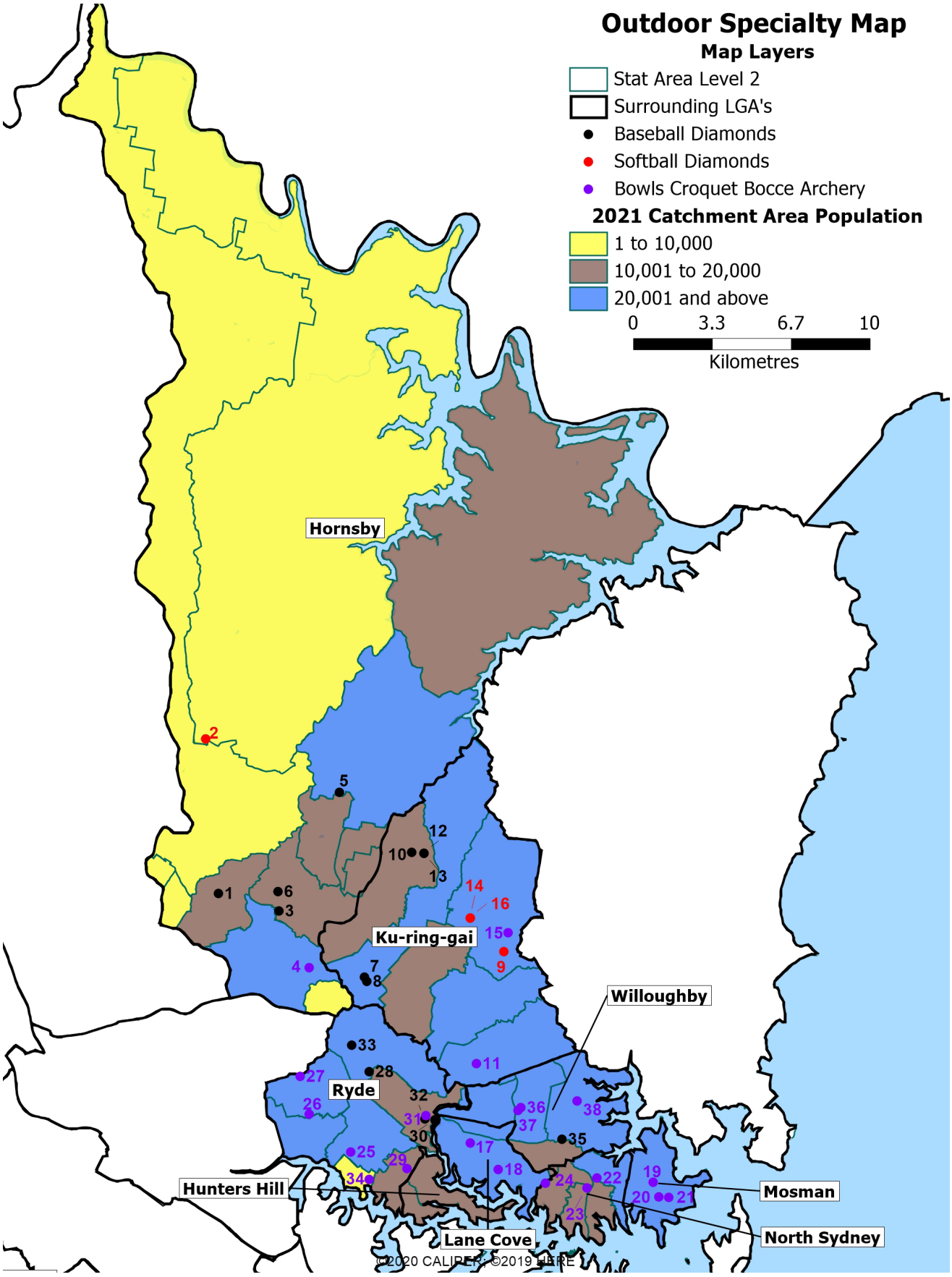


[10] *SA2 areas and boundaries are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

1	Berowra Netball
2	Berowra Netball Courts
3	Cheltenham Oval - Netball Courts
4	Dural Park Tennis Centre
5	Galston Community Tennis
6	Galston Recreation Reserve - Netball
7	Greenway Park Hardcourts (Netball & Basketball)
8	Mills Park Tennis
9	Montview Oval - Netball Courts
10	Normanhurst Oval - Netball
11	North Epping Tennis
12	Pennant Hills - Netball
13	Pennant Hills Tennis Centre
14	Rofe Park Tennis
15	Thomas Thomson Tennis
16	Waitara Tennis Centre
17	Warrina Street - Netball Courts
18	Westleigh Tennis Centre
19	Wisemans Ferry Oval - Tennis
20	Boronia 2 Netball
21	Gladesville Basket/Netball
22	Abbotsleigh Wahroonga - Courts
23	Bicentennial Park - Lofberg Netball Courts
24	Canoon Road Netball Courts
25	Kent Road Sportsground
26	Pymble Tennis Academy
27	Roseville College
28	Blackman Park - Mod Court
29	Greenwich Tennis Club
30	Hallam Avenue Tennis Club
31	Kinsford Smith - Multi-use Court
32	Lane Cove North Tennis (Tennis & Basketball)
33	Lane Cove Tennis Club
34	Lane Cove West Tennis Club
35	Longueville Tennis Club
36	Osborne Park Tennis Courts
37	River Road Tennis Centre
38	Balmoral Oval
39	Drill Hall Common
40	Mosman Tennis Club
41	Rawson Park
42	Cammeray Tennis Centre
43	Green Park Tennis Courts
44	Little Alfred Tennis Centre
45	Primrose Park Tennis Courts (Tennis & Multi-use)
46	St Leonards Park (Netball & Basketball)
47	Brush Farm Park - Hard Courts
48	Meadowbank Park - 28 Netball Courts
49	Kings Park Tennis Courts
50	Kotara Park Tennis Courts
51	Macquarie University Tennis
52	Meadowbank Park (Tennis & Multi-use Courts)
53	Next Gen Tennis
54	North Ryde RSL Tennis
55	Olympic Park Tennis Courts
56	Royal Rehabilitation Centre Tennis Courts
57	Ryde East Public School Tennis Courts
58	St Anthonys Catholic Primary School Tennis Courts
59	Tennis World Tennis Courts
60	Waterloo Park Basketball Court
61	Ryde Park Basketball Court
62	Lions Park
63	Kings Park Multi-use Court
64	Morrison Park Multi-use Court
65	Tuckwell Park Multi-use Court
66	North Ryde RSL - Outdoor Courts (Tennis & Multi-Use)
67	Macquarie Uni Sport & Aquatic Centre - Outdoor Courts
68	Beauchamp Park - Court
69	Bicentennial (Netball & Basketball)
70	Cleland Park - Courts
71	Cortile Reserve - Courts
72	Fairways Tennis - Courts
73	Fullers Rd - 52 & 120A - Courts
74	Kooroora Reserve - Courts
75	Lower Bligh St - Courts
76	Mowbray Public School - Courts
77	Naremburn Park - Courts
78	Northbridge PS - Courts
79	The Willis - Courts (Tennis & Multi-Use)
80	Thomson Park - Court
81	Tyneside Ave - Courts
82	Talus St Reserve - Courts
83	Willoughby Leisure Centre

5.1.4. Outdoor Specialty

The map and table below illustrate the location of current outdoor specialty facilities within NSROC and population densities by SA2[11] areas:

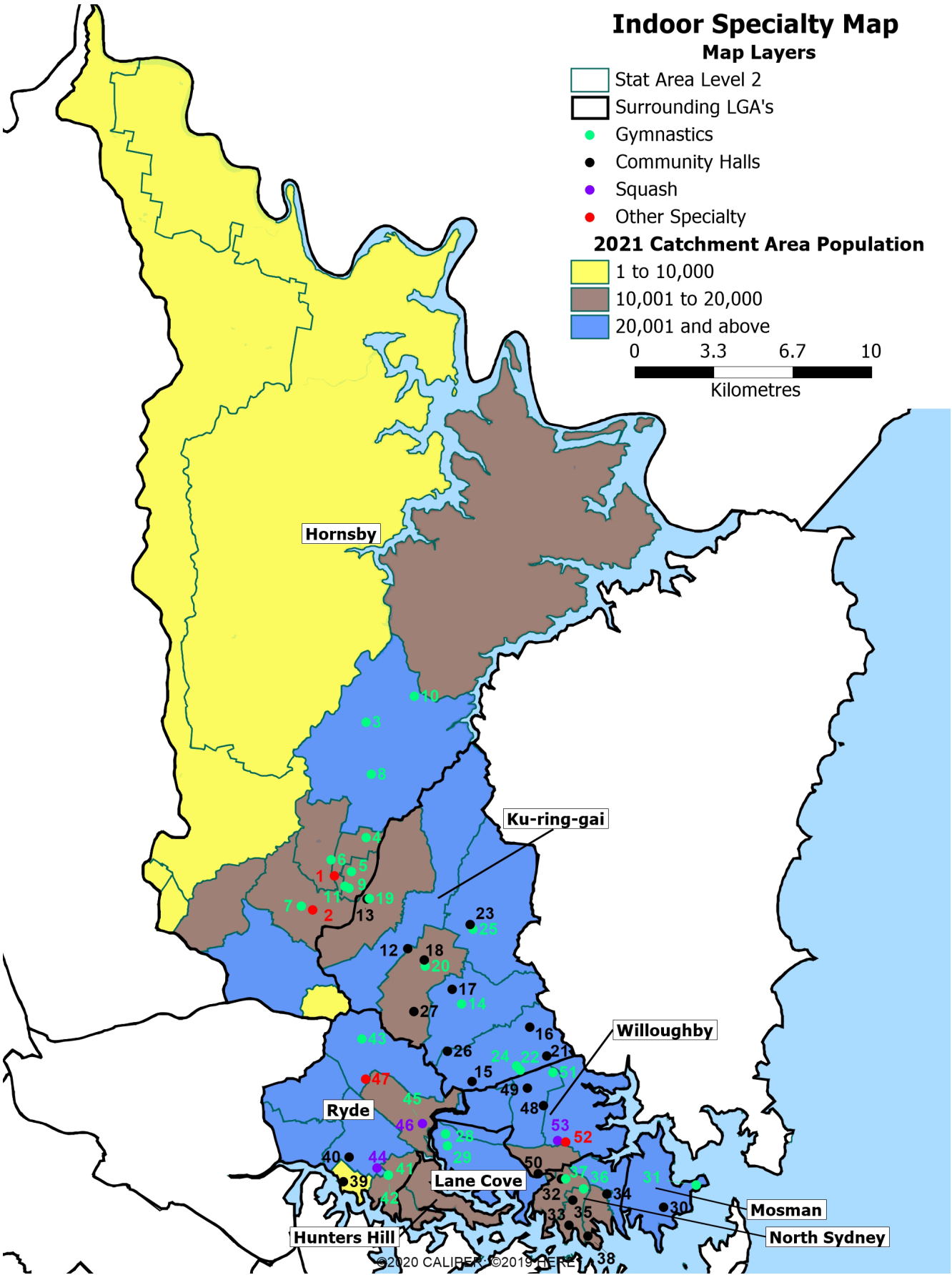


[11] *SA2 areas and boundaries are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

1	Greenway Park No 1
2	Hayes Park
3	Oakleigh Oval
4	Pennant Hills - Archery
5	Rofe Park
6	Ruddock Park
7	Auluba 2/ Sir David Martin Reserve
8	Auluba 3 Sportsground
9	Bryce Avenue Sportsground
10	Cliff Avenue1 Sportsground
11	Edenborough Sportsground
12	Golden Jubilee Sportsground - Back (Baseball & BMX)
13	Golden Jubilee Sportsground - Front (Baseball)
14	St Ives Village Green Sportsground
15	Surgeon White Reserve
16	William Cowan Sportsground
17	Lane Cove Bowling Club
18	Longueville Sporting Club
19	Mosman Bowling Club
20	Rawson Park - Croquet
21	Warringah Bowls Mosman
22	Cammeray Croquet Court
23	The Greens Bowling Club
24	Wollstonecraft Bowling Club
25	Club Ryde Lawn Bowls
26	Denistone Sports Club
27	Eastwood Park Croquet
28	ELS Hall Park - 2
29	Gladesville Sporties Lawn Bowls
30	Magdala Park - 2 (mini)
31	North Ryde RSL Lawn Bowls
32	North Ryde RSL Youth Club
33	Pioneer Park
34	Putney Tennyson Bowling Club
35	Bicentennial - Baseball
36	Chatswood Croquet
37	Chatswood Bowling - Greens
38	Willoughby Park Bowling - Greens

5.1.5. Indoor Specialty Facilities

The map and table below illustrate the location of current indoor specialty facilities, such as gymnastics, community halls and squash, within NSROC and population densities by SA2[12] areas:



[12] *SA2 areas and boundaries are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

1	Barker College
2	Brickpit Park
3	C&M Sports
4	Icon Gymsports
5	Hornsby PCYC (& Boxing/ Gym)
6	Hornsby RSL Gymnastics
7	Infinity Gym Sports & Health
8	Miss Rhythmics Gymnastics Club - Mt Colah
9	Miss Rhythmics Gymnastics Club - Waitara
10	Moving Bodies Pty. Ltd
11	St Leos College
12	1st Turramarra Scout Group (Turramurra Youth Centre)
13	Abbotsleigh Wahroonga - Gymnastics
14	Artistic Gymnastics- Ravenswood School for Girls
15	Blair Wark VC Community Centre
16	East Lindfield Community Hall
17	Gordon Youth Hub
18	Ku-ring-gai Town Hall
19	Le Ray Gymnastics- Abbottsleigh
20	Pymble Rhythmic Gymnastics- Pymble Ladies College
21	Roseville Chase Memorial Community Centre Hall
22	Roseville College (Multi-purpose Hall)
23	St Ives Community Centre and FITZ Youth Centre
24	Sydney Dance & Gymnastics Academy
25	The Y St Ives (& Multi-purpose Room)
26	West Lindfield Community Hall
27	West Pymble War Memorial Community Hall
28	Lane Cove Gymnastics Club
29	North Shore Acrobatics Academy
30	Drill Hall Common
31	Onyx Gymnastics
32	Crows Nest Centre
33	McMahons Point Community Centre
34	Neutral Bay Community Centre
35	North Sydney Community Centre
36	North Sydney Gymnastics-North Sydney PCYC
37	The Institute of Dancing Excellence T.I.D.E
38	The Kirribilli Centre
39	1st Putney Scout Hall
40	Club Ryde (Ryde Ex Services Memorial and Community
41	Gladesville Gymnastics Club
42	K43 Training Centre
43	Macquarie Uni Sport & Aquatic Centre (& Squash/ Gym)
44	Next Gen Health Club
45	North Ryde RSL Youth Club Gymnastics
46	North Ryde RSL Youth Club
47	Ryde Community Sports Centre (ELS Hall Park)
48	Bales Park Pavillion
49	Beauchamp Park - Community Centre
50	Gore Hill Oval Community Centre
51	SXL Gymnastics
52	Willoughby Leisure Centre (& Group Fitness/ Gym)
53	Willoughby Squash Courts

5.2. PLANNED NEW FACILITIES

As advised by NSROC Member Councils, the following new sports facilities are planned across the NSROC network:

MEMBER COUNCIL	FACILITY DESCRIPTION	NOMINAL SPATIAL IMPACT (HECTARES / HOURS PER WEEK)
Hornsby	Westleigh Park	10.0
	Old Mans Valley	2.0
	Mark Taylor Oval	0.9
Hunter's Hill	Boronia Park: Community and Sports Facility	4.2
Ku-ring-gai	Norman Griffiths Oval: Conversion to a synthetic surface	Increased peak hour capacity to 50+ per week
	Ku-ring-gai High School: Existing hockey field is being redeveloped with new surface and improved lighting	Increased peak hour capacity to 30+ per week
	Hassall Park: Existing field upgrade	Increased peak hour capacity to 30+ per week
	St Ives High School: Indoor facility	0.6
	Warrimoo Oval: Lighting upgrade	Increased peak hour capacity to 30+ per week
	The Glade Oval: Field upgrade and proposed field lighting	Increased peak hour capacity to 30+ per week
Lane Cove	Lane Cove Golf Course: Indoor/ Outdoor Court Facility (4 indoor 4 outdoor courts)	1.2
	Bob Campbell Reserve: Proposed upgrade to improved natural turf field	Increased peak hour capacity to 30+ per week
	Burns Bay Reserve: Potential future masterplan	Yet to be scoped
Mosman	George's Heights Oval: Improve amenities, gender neutral	N/A
	Allan Border Oval: Improve amenities, gender neutral	N/A
	Balmoral Oval: Improve field drainage, irrigation and lighting	Increased peak hour capacity to 30+ per week
North Sydney	Anderson Park: Moving field closer to the amenities building, improving drainage and lighting, new gym equipment and new pathway	Increased peak hour capacity to 30+ per week
	Primrose Park: Moving amenities block to fit two fields	4.3
	Cammeray Park PMP: Golf Course changed to Par 3 and a potential new sportsfield	2.1
Ryde	West Ryde Multi Sports Facility: 4 Indoor and 32 outdoor courts	5.4
	Bremner Park: Synthetic surface conversion + sports field lighting	Increased peak hour capacity to 50+ per week
	Smalls Road School (Upper): Synthetic surface conversion + sports field lighting	Increased peak hour capacity to 50+ per week
	Epping Boys High fields: Shared use of 2 new turf fields + sports field lighting	2.80
	Morrison Bay 3: Field Lighting	Increased peak hour capacity to 30+ per week
	Santa Rosa 1: Field Lighting	Increased peak hour capacity to 30+ per week

MEMBER COUNCIL	FACILITY DESCRIPTION	NOMINAL SPATIAL IMPACT (HECTARES / HOURS PER WEEK)
	Meadowbank Park: Fields 7 & 8 netball courts conversion + new full sized fields x 2 + sports field lighting + fields 9, 10, 11, 12	15.71
	Gannan Park: New full sized field + sports field lighting	2.14
	Blenheim Park: Multi use courts x 2	0.30
	Christie Park: Futsal courts x 6	0.90
	Westminster Park: Synthetic surface conversion	Increased peak hour capacity to 50+ per week
	TG Milner: New fields + rezoning opportunity (2 new turf fields + sports field lighting)	4.28
	Bill Mitchell Park 1: Field Lighting	Increased peak hour capacity to 30+ per week
	Peel Park: Field Lighting	Increased peak hour capacity to 30+ per week
	Ryde Community Sports Centre (ELS Hall Park): 2 indoor courts + multi use courts x 3	0.30
	Meadowbank Park: Multi use courts x 4	0.60
	CSIRO Marsfield: Rezoning opportunity- 2 new turf fields + sports field lighting	4.28
	Dunbar Park: Field lighting	Increased peak hour capacity to 30+ per week
	Morrison Bay: Field 6 lighting	Increased peak hour capacity to 30+ per week
	Pioneer Park: Field lighting	Increased peak hour capacity to 30+ per week
	Gannan Park: New full sized field (loss of 1 junior field)	1.99
	Ryde Aquatic and Leisure Centre: 2 indoor courts	0.30
	Waterloo Park: Upgraded to synthetic full sized field + lighting	Increased peak hour capacity to 50+ per week
	Macquarie Uni Sport & Aquatic Centre: 3 x new indoor courts	0.45
Willoughby	Gore Hill Indoor Sports Centre: 6 courts	0.7
	Chatswood Industrial Area (PRIVATE): 2 x new basketball courts	0.1
	Chatswood Westfields: 2 x rooftop basketball courts (PRIVATE)	0.1

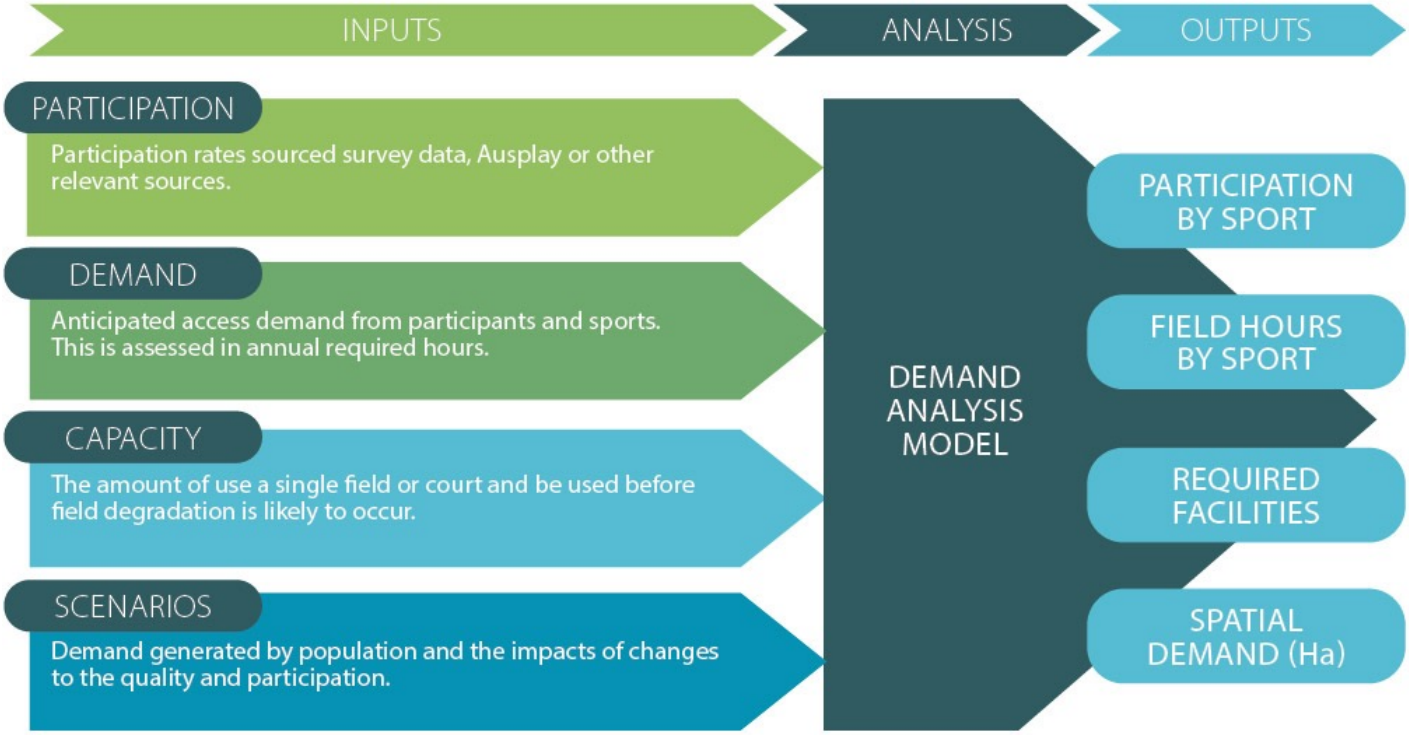
The table above suggests that the future supply of sports facilities in NSROC will be enhanced by:

- Additional spatial provision of approximately 66 Ha
- Additional 200+ hours per week of playing field capacity.

6. DEMAND MODELLING

6.1. DEMAND ASSESSMENT MODEL

Otium Planning Group's Demand Assessment Model is assumption based and takes into account a range of factors such as participation data, lit/ unlit playing areas, sportsground capacity and current/ projected population in order to estimate actual playing area required. The Demand Assessment Model is summarised below:



Calibration

Further detail on the Demand Assessment Model assumptions are outlined in Appendix A. The model has been calibrated specific to the NSROC community, including:

1. Current and future population projections - 2022 NSW Common Planning Assumption Projections; Local Government Areas (ASGS 2020) Projections for year ending 30 June; Projected Population Totals (persons), 2021-2041
2. Future population projections - 2022 NSW Common Planning Assumption Projections; Local Government Areas (ASGS 2020) Projections for year ending 30 June; Projected Population Totals (persons), 2021-2041
3. Participation type:
   - Junior 0-14
   - Senior 15+
4. Local participation data by sport was supplied by the following State Sporting Organisations

Sport	Junior Participation	Senior Participation
AFL	2.985%	0.312%
Little Athletics	3.699%	0.022%
Baseball	0.901%	0.188%
Cricket	5.442%	0.801%
Football	34.992%	2.740%
Netball	4.419%	1.793%
Rugby League	1.925%	0.098%
Rugby Union	3.392%	0.205%
Table Tennis	0.018%	0.012%

5. AusPlay participation data; November 2022
6. Proportion of lit facilities based on 2022 Inventory Database
7. Consistency with the following input areas from the 2017 modelling:
   - Season length
   - Sport types and user needs
   - Facility capacity
   - Facility sizes (consistent with peak body facility guidelines).

Facility Types

The activity assessed within the model by facility type are:

- Playing fields:
  - AFL
  - Cricket
  - Athletics
  - Football
  - League
  - Union
  - Touch
  - Hockey
- Outdoor Courts:
  - Netball
  - Tennis
  - Basketball
- Indoor Courts
  - Badminton
  - Basketball
  - Netball
  - Futsal
  - Volleyball
- Outdoor Speciality:
  - Bowls
  - Croquet
  - Bocce
  - Baseball
  - Softball
- Indoor Speciality:
  - Squash
  - Indoor Cricket
  - Boxing
  - Gymnastics
  - Martial Arts
  - Table Tennis
  - Dancing
  - Fencing
  - Yoga/Pilates.

6.2. NSROC MODELLING

Demand assessment modelling was undertaken by five-year cohorts through to 2036 for the NSROC Region. NSROC's inventory of sports facilities is distributed across activity areas (actual playing space) within a broader total area that includes ancillary space for car parks, amenities, landscaping, pathways and informal open space. The ancillary area is approximately 70% of the activity area, which is consistent with ratios used in sports infrastructure planning projects across Australia.

Current supply is based on data from Section 5 of this report.

6.2.1. Supply/ Demand (Hectare)

A summary of the total area hectare demand forecast against current supply for the combined NSROC region, is outlined in the table below:

PROPORTIONAL (TOTAL AREA)[13]									
LOCALITY	CURRENT	2021		2026		2031		2036	
	Supply	Demand	Variance	Demand	Variance	Demand	Variance	Demand	Variance
NSROC	**456.85**	**626.57**	**-169.72**	**637.36**	**-180.51**	**659.26**	**-202.41**	**678.87**	**-222.02**
Hornsby	107.44	152.20	-44.76	152.50	-45.06	152.65	-45.21	157.24	-49.80
Hunter's Hill	16.54	19.52	-2.98	19.52	-2.98	20.53	-3.99	20.53	-3.99
Ku-ring-gai	104.95	128.23	-23.28	128.32	-23.37	132.98	-28.03	133.22	-28.27
Lane Cove	18.34	44.56	-26.22	47.09	-28.75	47.18	-28.84	47.33	-28.99
Mosman	23.82	32.31	-8.50	32.31	-8.50	32.31	-8.50	32.31	-8.50
North Sydney	18.64	76.24	-57.60	76.24	-57.60	76.62	-57.98	78.76	-60.12
Ryde	117.05	128.62	-11.57	133.43	-16.38	146.23	-29.18	158.78	-41.73
Willoughby	50.08	80.99	-30.91	80.99	-30.91	81.14	-31.06	82.54	-32.46

Whilst the modelling has its limitations, it provides a means of quantifying the likely demand and supply factors. This in turn helps to confirm the need to implement viable initiatives/ projects and to seek out further opportunities to redress the balance.

Based on the modelling undertaken for this Review, there is a need to increase the current supply capacity of NSROC sports facilities by around:

- 40% to 2026 (equivalent to 181Ha of total space)
- 49% to 2036 (equivalent to 222Ha of total space)

The assessment above excludes areas needed to support emerging sport and active recreation demand. This demand will further intensify the pressure on the currently supply of sports facilities land. Advice from Member Councils, that only approximately 34% of current sportsgrounds have the capacity to support over 30 hours of weekly winter use, suggests alternative solutions to increase supply will need to be considered (refer to Section 5.1.1).

[13] *The NSROC total in the top row of this table is not the total of the individual council member amounts in the rows below. Individual models for each member council (by 5 year cohorts) and the whole of NSROC were undertaken separately. The triggers for additional facilities do not align as the Otium Demand Assessment model triggers a new facility when participation demand exceeds 20% of additional capacity. The triggers occur at different intervals based on the total population and the age breakdown.*

Comparison to 2017 Review

The *2017 Regional Sportsground Management Strategy Review* excluded Mosman and investigated sportsgrounds only. The 2017 Review found that there was a need to increase the current supply capacity of sportsgrounds by:

- 26% to 2026 (equivalent to 62Ha of playing space, or 105Ha including ancillary spaces)
- 40% to 2036 (equivalent to 96Ha of playing space, or 163Ha including ancillary spaces).

The major changes to the population and participation between the 2017 and 2023 assessments that have a major impact on demand projections are summarised in the table below based on 2026 modelling:

Model Inputs	2017 Model Inputs	2026 Model Inputs
Proportion of Children (0-14) to Total Population	11.97%	16.6%
Proportion of Adults (15+) to Total Population	88.03%	83.4%
Proportion of the Population Born Overseas	40%	43%
Junior Playing Field Participation	49.1%	56.5%
Senior Playing Field Participation	4.6%	7.1%

Supply/ Demand by Member Council (by Hectare)

The assessment of supply against demand for the NSROC region by facility type is summarised below by hectare:

Facility Type (Hornsby)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	1.81	2.55	-0.74	2.70	-0.89
Indoor Speciality	2.15	3.04	-0.89	3.13	-0.98
Outdoor Courts	10.45	6.90	3.55	7.50	2.95
Outdoor Speciality	18.55	8.07	10.48	8.07	10.48
Playing Fields	74.48	131.64	-57.16	135.84	-61.36

Facility Type (Hunters Hill)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	0.00	0.30	-0.30	0.30	-0.30
Indoor Speciality	0.02	0.35	-0.33	0.35	-0.33
Outdoor Courts	0.37	0.90	-0.53	0.90	-0.53
Outdoor Speciality	0.00	1.01	-1.01	2.02	-2.02
Playing Fields	16.15	16.96	-0.81	16.96	-0.81

Facility Type (Ku-ring-gai)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	0.44	2.25	-1.81	2.40	-1.96
Indoor Speciality	0.73	2.52	-1.79	2.78	-2.05
Outdoor Courts	6.47	6.00	0.47	6.30	0.17
Outdoor Speciality	5.32	7.06	-1.74	7.06	-1.74
Playing Fields	91.98	110.40	-18.42	114.68	-22.70

Facility Type (Lane Cove)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	0.27	0.75	-0.48	0.90	-0.63
Indoor Speciality	0.25	0.78	-0.53	0.96	-0.71
Outdoor Courts	2.32	1.80	0.52	2.10	0.22
Outdoor Speciality	1.29	3.03	-1.74	3.03	-1.74
Playing Fields	14.21	38.20	-23.99	40.34	-26.13

Facility Type (Mosman)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	0.17	0.60	-0.43	0.60	-0.43
Indoor Speciality	0.16	0.61	-0.45	0.61	-0.45
Outdoor Courts	5.31	1.50	3.81	1.50	3.81
Outdoor Speciality	1.68	2.02	-0.34	2.02	-0.34
Playing Fields	16.49	27.58	-11.09	27.58	-11.09

Facility Type (North Sydney)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	0.61	1.35	-0.74	1.35	-0.74
Indoor Speciality	0.86	1.48	-0.62	1.56	-0.70
Outdoor Courts	1.56	3.60	-2.04	3.90	-2.34
Outdoor Speciality	1.00	4.03	-3.03	4.03	-3.03
Playing Fields	14.60	65.78	-51.18	67.92	-53.32

Facility Type (Ryde)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	0.73	2.25	-1.52	2.85	-2.12
Indoor Speciality	1.25	2.61	-1.36	3.21	-1.96
Outdoor Courts	10.79	6.30	4.49	7.80	2.99
Outdoor Speciality	9.67	7.06	2.61	9.08	0.59
Playing Fields	94.60	110.40	-15.80	135.84	-41.24

Facility Type (Willoughby)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	0.17	1.35	-1.18	1.50	-1.33
Indoor Speciality	0.57	1.65	-1.08	1.74	-1.17
Outdoor Courts	10.49	3.90	6.59	4.20	6.29
Outdoor Speciality	3.13	4.03	-0.90	5.04	-1.91
Playing Fields	35.72	70.06	-34.34	70.06	-34.34

Facility Type (NSROC)	Current Supply	2021 Demand	2021 Variance	2036 Demand	2036 Variance
Indoor Courts	4.21	11.10	-6.89	12.15	-7.94
Indoor Speciality	5.99	12.86	-6.87	14.08	-8.09
Outdoor Courts	47.77	30.00	17.77	33.60	14.17
Outdoor Speciality	40.64	33.29	7.35	37.32	3.32
Playing Fields	358.24	539.32	-181.08	581.72	-223.48

Further detail on the estimated demand by Member Council by facility type is outlined in Appendix 2 below.

6.2.2. Supply/ Demand (Hectares to Population)

A summary of the current hectares per 1,000 population against the demand of sports facilities assessed using the Otium Demand Assessment Model is shown in the table below:

	2021		
	Current	Demand	Variance
NSROC	**0.70**	**0.96**	**-0.26**
Hornsby	0.71	1.00	-0.29
Hunter's Hill	1.10	1.30	-0.20
Ku-ring-gai	0.82	1.01	-0.18
Lane Cove	0.45	1.10	-0.65
Mosman	0.78	1.05	-0.28
North Sydney	0.25	1.02	-0.77
Ryde	0.88	0.96	-0.09
Willoughby	0.62	1.00	-0.38

7. ASSESSMENT OF SUPPLY AND DEMAND

7.1. 2017 COMPARISON

The 2017 Regional Sportsground Management Strategy Review excluded Mosman and investigated sportsgrounds only. Since then, several influencers have impacted the current assessment of demand, including:

- The Review has been expanded to include the Mosman LGA
  - Estimated sportsground 2036 shortfall of -11.09Ha
- Investigations have been expanded beyond sportsgrounds only
  - Outdoor and indoor courts
  - Indoor sports facilities that cater for community sport
- Enhancements to the demand modelling methodology include
  - Enhanced Otium Analytics – Demand Assessment Model
  - Better understanding by Member Councils of playing field capacity
    - Approximately 34% of current sportsgrounds have the capacity to support over 30 hours of weekly winter use)
  - Understanding of climatic conditions impacting capacity
    - Wet weather/ drought
  - Changing demographics, including population growth rates and proportion of junior and senior participants
    - 7.4% in junior participation
    - 2.1% in adult participation
    - Proportion of junior aged population (5-14 years) increased by 4.5%
    - Approximately 17,000 (2026) increasing to 37,000 (2036) more participants
  - Participation trends impacting demand
    - Social participation in traditionally formal sports
    - Increase in female participation
    - Emerging sport
    - Active recreation.

Outlined in the table below is the comparison of the sportsground (playing fields) analysis between the 2017 Review and this current review:

Projected Year	2017 Sportsground Review Shortfall		2023 Review Shortfall		Variance	
	%	Ha	%	Ha	%	Ha
2026	31%	-73	40%	-181	9%	-108
2036	44%	-105	49%	-222	5%	-117

Since the 2017 Review, Member Councils have been proactive in minimising the shortfall of sport facilities to meet demand by:

- Improving capacity through investment in playing field design, irrigation and lighting
- Strategically identifying fields for synthetic field conversion
- Enhanced maintenance regimes
- Enhanced access and usage strategies
- Improved policy and procedures to optimise access for the community
- Exploring partnership opportunities.

7.2. OVERSUPPLY FACILITIES

The oversupply of outdoor speciality facilities is largely due to the decreasing participation in these sports, including:

- Lawn bowls
- Croquet.

Outdoor courts for supply and demand (2021) is summarised below:

- Tennis courts
  - Demand 135 courts
  - Supply 265 courts
  - Variance +130
- Netball courts
  - Demand 64
  - Supply 136
  - Variance +72.

The oversupply of outdoor courts is influenced by the demand assessment factoring in ALL courts within the supply analysis. However, the current supply of outdoor courts confirms that there are only a small number of multi-court facilities capable of supporting sustainable competitions. Only 5 of 25 netball venues (20%) are of scale to support competitions, whilst only 16 of 50 tennis venues (32%) are of scale to support competitions. Further, some competition venues may have the ability to expand the number of days and operating times to increase utilisation rates from current practices.

7.3. UNDERSUPPLY FACILITIES

Demand modelling suggests that there is currently an undersupply of:

- Sportsgrounds
  - 223Ha by 2036
- Indoor courts
  - 8Ha by 2036
- Indoor speciality facilities
  - 8Ha by 2036.

Without intervention, these deficits will continue to grow placing further pressure on existing infrastructure. Opportunities to address the shortfall in sportsgrounds include:

- Continue to invest in design, irrigation and lighting enhancements
- Continue to enhance maintenance regimes
- Continue to explore partnership opportunities with educational institutions
- Explore alternative locations for emerging sport and active recreation, away from traditional sports parks
- Identify sustainable locations for conversion of natural sportsgrounds to synthetic surfaces.

Indoor courts and indoor specialist facilities provide the greatest opportunity for partnerships. Examples already exist of community/ educational/ private partnerships for indoor sports facilities through:

- Repurposing indoor spaces to accommodate indoor sport
- Exploring rooftop opportunities, including shopping centres, offices, residential buildings
- Partnership opportunities with educational institutions
- Encouragement of commercial operator investment.

7.4. IMPACT OF PLANNED FACILITY IMPROVEMENTS

The impact of planned new sports facilities (refer to Section 5.2) suggests that the future supply of sports facilities in NSROC will be enhanced by:

- Spatial provision of approximately 66 Ha
- Additional 200+ hours per week of playing field capacity.

Further, there is an additional 157Ha of publicly owned golf courses within the NSROC region. There may be opportunities to undertake an assessment of council-owned golf courses to identify opportunities to enhance golf courses to retain golf, yet introduce alternative uses such as:

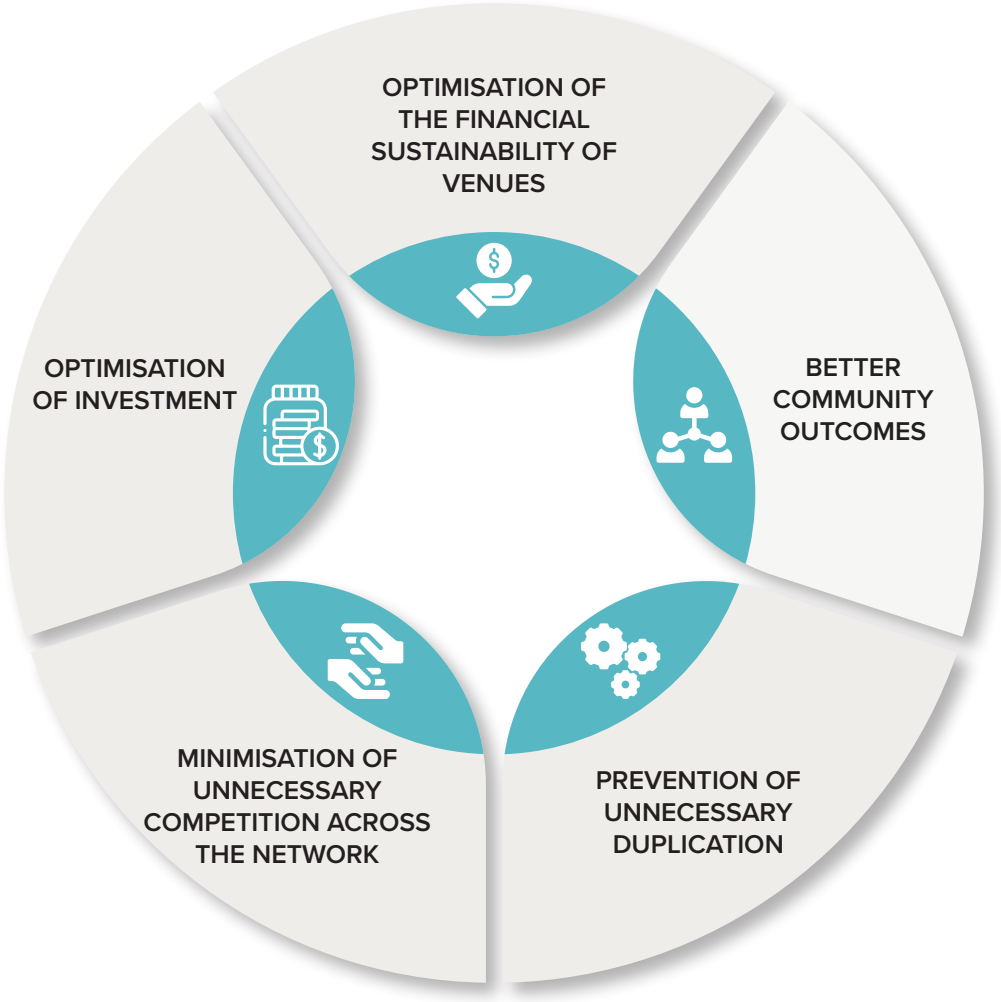
- Specialised indoor sport activities within clubhouses
- Shared use of the golf course area for fitness, active recreation and emerging sports activities.

7.5. ASSESSMENT OF MEMBER COUNCILS

There are differences across the Member Councils relating to current and future supply and demand needs. Each Member Council has its own unique circumstances that will influence its ability to meet current and future sports facility demand, including:

- Availability of quality land suitable for sporting purposes
- Population densities
- Historical sports facility provision
- Sports land site characteristics
- Community accessibility
- Diversity of sport facility type and scale.

Participants do not consider local government boundaries when accessing sport facilities, programs or services. They are typically driven by accessibility and the standard of the offering. Further, the funding environment to delivery new and maintain existing sport facilities is becoming increasingly difficult. For these reasons, continuing to plan for sports facilities at a regional level will support:



8. FUTURE OPPORTUNITIES TO ADDRESS DEMAND

In order to address the current and increasing shortfall of sports facilities with the NSROC region, the following opportunities should be explored:

1. Maintain **disciplined investment** in sports facilities focussing on infrastructure that is the responsibility of local government being grass roots community sport facilities (refer to Section 1.2.1).

2. Continue to advocate to NSW Government for **enhanced and formalised access to school facilities** and to include recreation land with future land acquisition strategies.

3. Enhance planning policy and guidelines to ensure opportunities for active recreation and informal sport, is incorporated as part of **urban design principles.**

4. Incentivise and promote c**ommercial developer and operator investment** in sports facilities.

5. Investigate opportunities at **publicly owned golf courses,** to retain golf, yet introduce alternative uses for specialised indoor sport, fitness, active recreation and emerging sports activities.

6. Continue to **enhance the capacity** of sportsgrounds through improved design and lighting, synthetic surface conversion and expanded maintenance regimes.

7. Continue to **modernise policy and guidelines** aimed at optimising the capacity of current sporting facilities and expanding community accessibility.

8. Investigate opportunities for **alternative locations** for active recreation and community sport.

9. Identify facilities to **consolidate outdoor tennis and netball courts** across alternative sites in the network, to support larger scale venues more capable of supporting competitions and to repurpose the previous sites for active recreation and emerging sports.

10. Promote **partnership opportunities** for:
    a. Repurposing indoor spaces to accommodate indoor sport
    b. Facilitating rooftop opportunities, including shopping centres, offices, residential buildings for sport.

11. **Retain RE2 zoned land for recreation** throughout the NSROC Region.

12. Continue to **review supply against demand** to ensure the network responds to changing demand.

13. Continue to **investigate modernising traditional usage models** such as reducing game times and training in locations other than sports parks.

9. BARRIERS FOR COUNCILS MEETING SPORTS FACILITY DEMAND

In order to address the current and increasing shortfall of sports facilities with the NSROC region, the following barriers will need to be considered:

Lack of suitable land located in proximity to the population. This is exacerbated in areas of population uplift, such as adjacent to public transport hubs. In the established NSROC area, sportsgrounds were often established using former landfill sites, or clearing bushland areas. These avenues for new sportsgrounds no longer exist.

High costs attributed to creating new sports facilities including sportsgrounds. There are fixed income streams for local government that don't allow for acquisition of residential land for the purpose of converting to sportsgrounds. These high costs include:

- land acquisition
- embellishment
- ongoing maintenance and asset renewal

Full costs of establishing much of the additional sporting facilities from 'infill development' is not about to be recouped, due to **financial caps** imposed upon development.

Opposition by existing residents towards:

- change in land use to sportsgrounds
- increase of recreational use for site where longer duration or higher sports use intensity is proposed
- increase in use, traffic, noise, lights
- competition for access to use.... passive vs active (where increase in use is proposed for existing sportsgrounds)

Concerns regarding use of synthetic surfaces to increase sportsground carrying capacity at sportsground facilities.

10. IMPLICATIONS OF NOT INCREASING SUPPLY OF SPORTSGROUNDS AND CAPACITY OF CURRENT INFRASTRUCTURE

In order to address the current and increasing shortfall of sports facilities with the NSROC region, the following opportunities should be explored:

A **lack of space/facility access** will lead to increasing numbers of participants being turned away from sport

Increasing physical inactivity, sedentary leisure behaviour and related health and disease impacts for the local community

Reducing benefits brought about by participation in sport and physical activity including **reduced social cohesion, and life skills**

With lower participation in sports from reduced access to facilities, there is also a correlation with **declining health** and overall increase in health cost

Increased costs to participate and accessibility of facilities (distribution/time) will create inequity in participants and associated benefits

Access to sport may become **based on the capacity to pay,** which may create a greater barrier to participation for lower income households

Existing sportsgrounds are **used more intensively,** thereby generating conflict between passive and active users

Exacerbates the **impact of population increases** upon the existing community

Dedicated sports participants are required to **travel further** afield for opportunities to access suitable facilities

Generational inequity – the previous population had ready access to sportsgrounds for sport, whilst the new generation and incoming population lacks the same access

Over time, under the current population and participation growth trajectory, **the gap between sports facility demand and supply, will continue to grow.** This is reflected in the comparable results of the 2017 and 2023 sportsground review.

11. WARRANTIES AND DISCLAIMERS

The information contained in this report is provided in good faith. While Otium Planning Group has applied their experience to the task, they have relied upon information supplied to them by other persons and organisations.

We have not conducted an audit of the information provided by others but have accepted it in good faith. Some of the information may have been provided 'commercial in confidence', and these venues or sources of information are not specifically identified. Readers should be aware that the preparation of this report may have necessitated projections of the future that are inherently uncertain and that our opinion is based on the underlying representations, assumptions and projections detailed in this report.

Otium Planning Group's advice does not extend to, or imply, professional expertise in the disciplines of economics, quantity surveying, engineering or architecture. External advice in one or more of these disciplines may have been sought, where necessary to address the requirements of the project objectives. There will be differences between projected and actual results because events and circumstances frequently do not occur as expected, and those differences may be material. We do not express an opinion as to whether actual results will approximate projected results, nor can we confirm, underwrite, or guarantee the projections' achievability as it is impossible to substantiate assumptions based on future events.

This report does not constitute advice, investment advice, or opinion and must not be relied on for funding or investment decisions. Independent advice should be obtained in relation to investment decisions.

Accordingly, neither Otium Planning Group, nor any member or employee of Otium Planning Group, undertakes responsibility arising in any way whatsoever to any persons other than the client in respect of this report, for any errors or omissions herein, arising through negligence or otherwise however caused.

APPENDIX 1: DEMAND ASSESSMENT MODEL ASSUMPTIONS

Season Length

SEASON TYPE	SEASON LENGTH (IN WEEKS)
Winter	20
Summer	20
All Year Round	**40**

User Needs

SPORT	SEASON TYPE	ADULT NEEDS PER WEEK (HOURS)	ADULTS PER FIELD (HOURS)	CHILDREN NEEDS PER WEEK (HOURS)	CHILDREN PER FIELD (HOURS)
AFL	Winter	3.5	46	2	92
Cricket	Summer	5	24	2	38
Athletics	All Year Round	4	60	2	120
Football	Winter	3	32	2	64
Union	Winter	3	36	2	72
League	Winter	3	36	2	72
Touch	All Year Round	0.75	22	0.75	22
Hockey (Grass)	Winter	2	28	2	56
Netball (Outdoor)	All Year Round	3	18	1.5	18
Tennis	All Year Round	1	4.5	1	10
Badminton	All Year Round	1	6	1	6
Basketball	All Year Round	1	18	1	18
Netball (Indoor)	All Year Round	3	18	1.5	18
Futsal	All Year Round	1	16	1	16
Volleyball	All Year Round	1	12	1	12
Bowls	All Year Round	2	32	1	32
Croquet	All Year Round	2	10	0	10
Bocce	All Year Round	1	6	0	6
Hockey (Synthetic)	Winter	2	28	2	70
Baseball	Summer	3	26	1	26
Softball	Winter	3	26	1	26
Squash	All Year Round	1	4	1	1
Indoor Cricket	All Year Round	1	17	1	20
Boxing	All Year Round	1	20	1	20
Gymnastics	All Year Round	2	50	2	50
Martial Arts	All Year Round	1	20	1	20
Table Tennis	All Year Round	1	20	1	20
Dancing	All Year Round	2	20	2	20
Fencing	All Year Round	1	10	1	10
Yoga/ Pilates	All Year Round	1	20	1	20

Capacity

FIELD TYPE	SEASON TYPE	CAPACITY PER WEEK UNLIT (HOURS)	CAPACITY PER WEEK LIT (HOURS)
Oval	Summer	25	25
Rectangle	Summer	25	25
Outdoor Court	Summer	27	40
Indoor Court	Summer	46	46
Outdoor Specialty	Summer	27	30
Indoor Specialty	Summer	46	46
Oval	Winter	19.5	25
Rectangle	Winter	19.5	25
Outdoor Court	Winter	19.5	40
Indoor Court	Winter	46	46
Outdoor Specialty	Winter	19.5	30
Indoor Specialty	Winter	46	46

Facility Size

SPORT	REQUIRED PLAYING SPACE	REQUIRED ANCILLARY SPACE	STANDARD FACILITY RATIO
AFL	2.47	1.729	1
Cricket	1.64	1.148	1
Athletics	2.01	1.407	1
Football	0.9	0.63	1
Union	1.26	0.882	1
League	1.07	0.749	1
Touch	0.5	0.35	0.5
Hockey (Grass)	0.9	0.63	1
Netball (Outdoor)	0.1	0.05	1
Tennis	0.1	0.05	1
Badminton	0.06	0.03	0.5
Basketball	0.1	0.05	1
Netball (Indoor)	0.1	0.05	1
Futsal	0.1	0.05	1
Volleyball	0.06	0.03	0.5
Bowls	0.14	0.07	1
Croquet	0.09	0.045	1
Bocce	0.02	0.01	1
Hockey (Synthetic)	0.9	0.63	1
Baseball	1.81	1.267	1
Softball	0.6	0.42	1
Squash	0.02	0.01	1
Indoor Cricket	0.01	0.005	1
Boxing	0.02	0.01	1
Gymnastics	0.1	0.05	1
Martial Arts	0.03	0.015	1
Table Tennis	0.2	0.1	1
Dancing	0.03	0.015	1
Fencing	0.02	0.01	1
Yoga/ Pilates	0.03	0.015	1

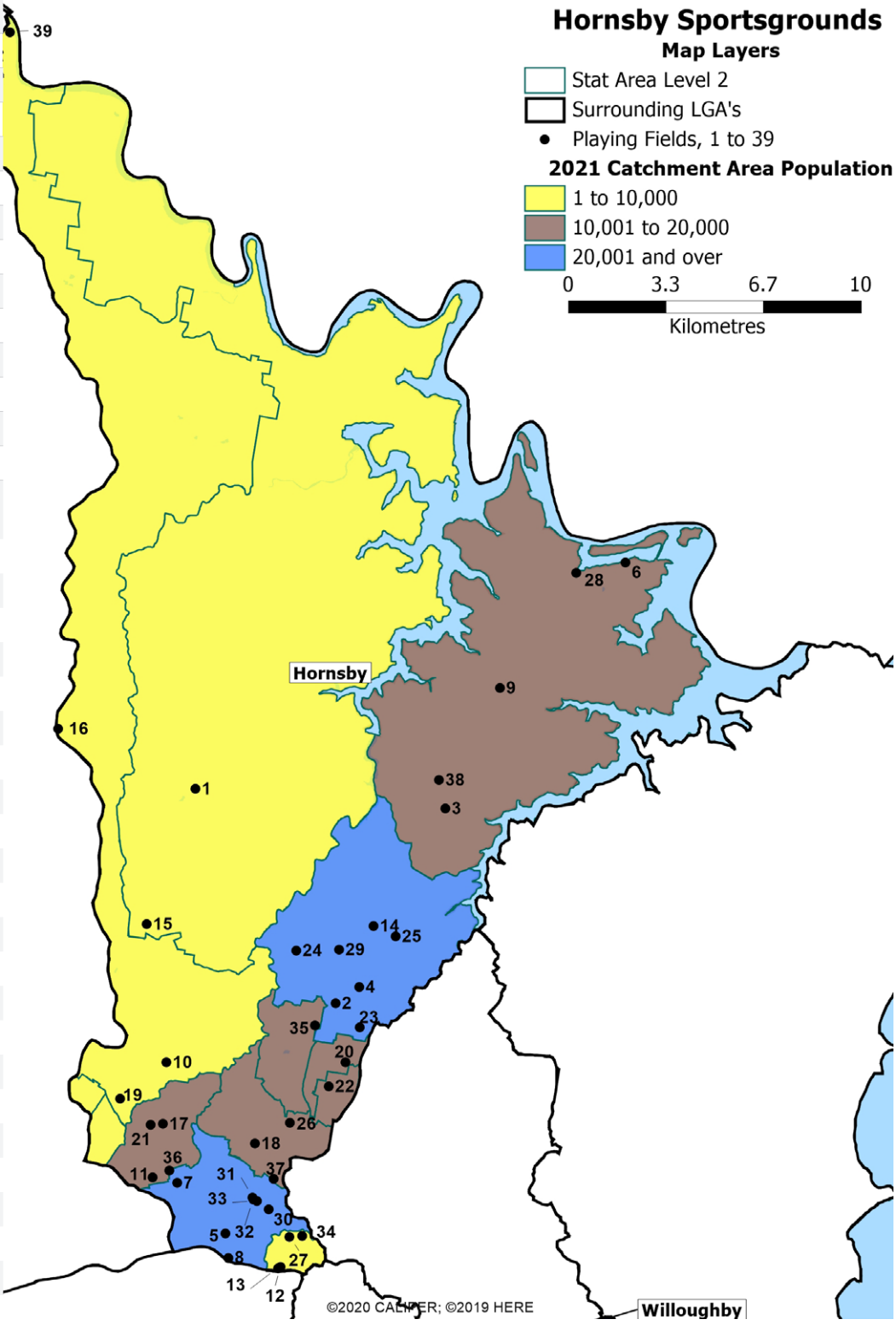
APPENDIX 2: DEMAND (FACILITY TYPE)

A summary of the demand by facility type (per hectare) is outlined below. A comparison against the current supply cannot be undertaken as insufficient data exists on the individual activity areas by sport in an environment where a facility accommodates multiple sports and activity areas within one site.

FACILITY TYPE	YEAR	NSROC	HORNSBY	HUNTER'S HILL	KU-RING-GAI	LANE COVE	MOSMAN	NORTH SYDNEY	RYDE	WIL-LOUGHBY
Indoor Courts	2021	11.10	2.55	0.30	2.25	0.75	0.60	1.35	2.25	1.35
	2036	12.15	2.70	0.30	2.40	0.90	0.60	1.35	2.85	1.50
Indoor Speciality	2021	12.86	3.04	0.35	2.52	0.78	0.61	1.48	2.61	1.65
	2036	14.08	3.13	0.35	2.78	0.96	0.61	1.56	3.21	1.74
Outdoor Courts	2021	30.00	6.90	0.90	6.00	1.80	1.50	3.60	6.30	3.90
	2036	33.60	7.50	0.90	6.30	2.10	1.50	3.90	7.80	4.20
Outdoor Speciality	2021	33.29	8.07	1.01	7.06	3.03	2.02	4.03	7.06	4.03
	2036	37.32	8.07	2.02	7.06	3.03	2.02	4.03	9.08	5.04
Playing Fields	2021	539.32	131.64	16.96	110.40	38.20	27.58	65.78	110.40	70.06
	2036	581.72	135.84	16.96	114.68	40.34	27.58	67.92	135.84	70.06

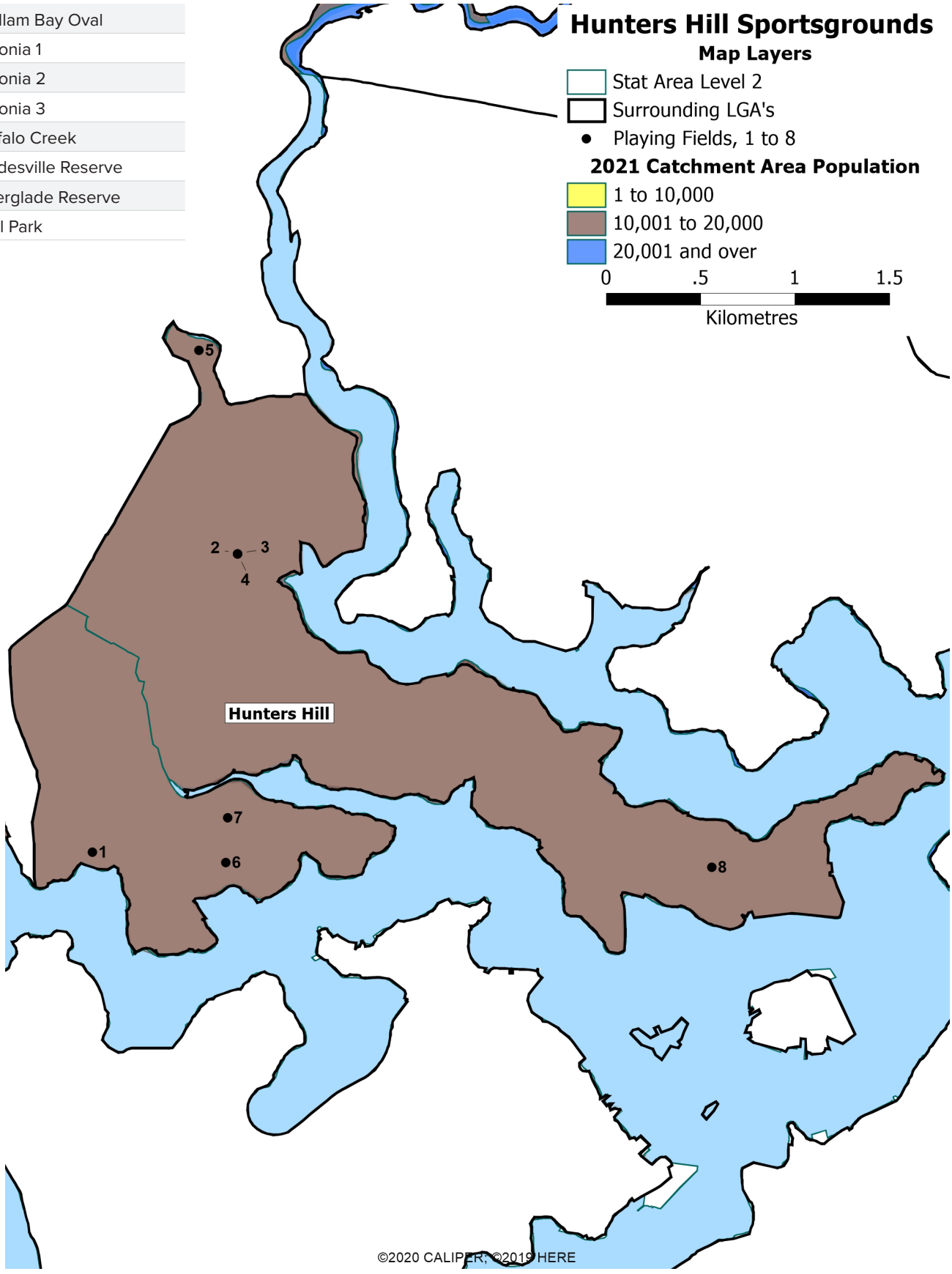
APPENDIX 3: SPORTSGROUNDS (PLAYING FIELDS) BY MEMBER COUNCIL

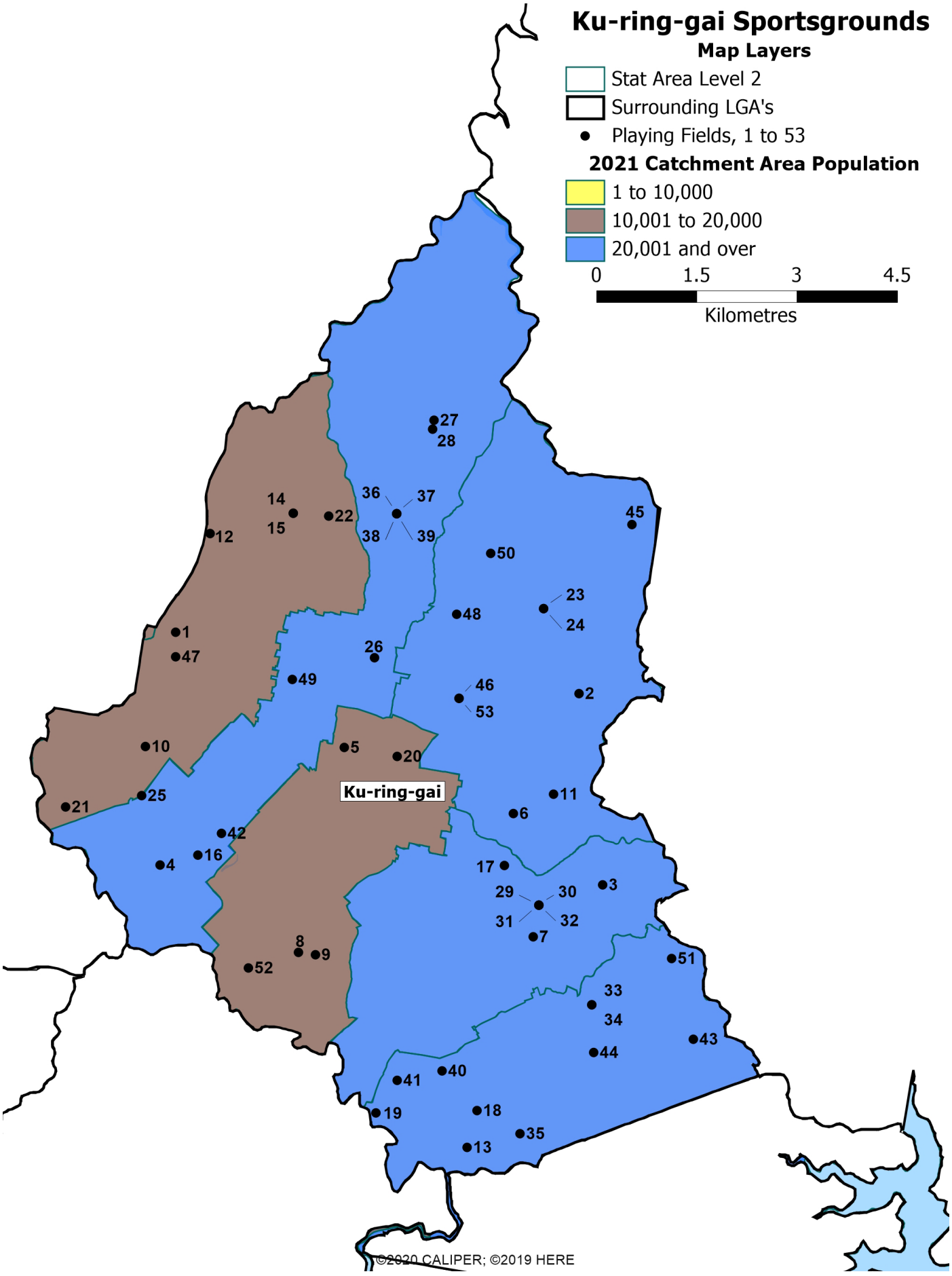
1	Arcadia Park
2	Asquith Oval
3	Berowra Oval
4	Berry Park
5	Booth Park
6	Brooklyn Oval
7	Campbell Park
8	Cheltenham Oval
9	Cowan Park
10	Dural Park
11	Edward Bennet Oval
12	Epping Athletic Track
13	Epping Oval
14	Foxglove Oval
15	Galston Recreation Reserve - Oval
16	Glenorie Park
17	Greenway Park No 2
18	Headen Park
19	James Henty Park
20	James Park
21	John Purchase Oval
22	Mark Taylor Oval
23	Mills Park
24	Montview Oval
25	Mt Ku-ring-gai Oval
26	Normanhurst Oval
27	North Epping Oval
28	Old Dairy Park
29	Parklands Oval
30	Pennant Hills - Hockey
31	Pennant Hills Oval No 1
32	Pennant Hills Oval No 2
33	Pennant Hills Oval No 3
34	Ron Payne Reserve
35	Storey Park
36	Thomas Thomson Park
37	Thornleigh Oval
38	Warrina Street
39	Wisemans Ferry Oval



Note: *SA2 areas and boundaries displayed on the following maps are defined as per the Australian Statistical Geography Standard (ASGS) Edition 2.*

1	Bedlam Bay Oval
2	Boronia 1
3	Boronia 2
4	Boronia 3
5	Buffalo Creek
6	Gladesville Reserve
7	Riverglade Reserve
8	Weil Park




Ku-ring-gai Sportsgrounds
Map Layers
Stat Area Level 2
Surrounding LGA's
Playing Fields, 1 to 53
2021 Catchment Area Population
1 to 10,000
10,001 to 20,000
20,001 and over
0
1.5
3
4.5
Kilometres
Ku-ring-gai
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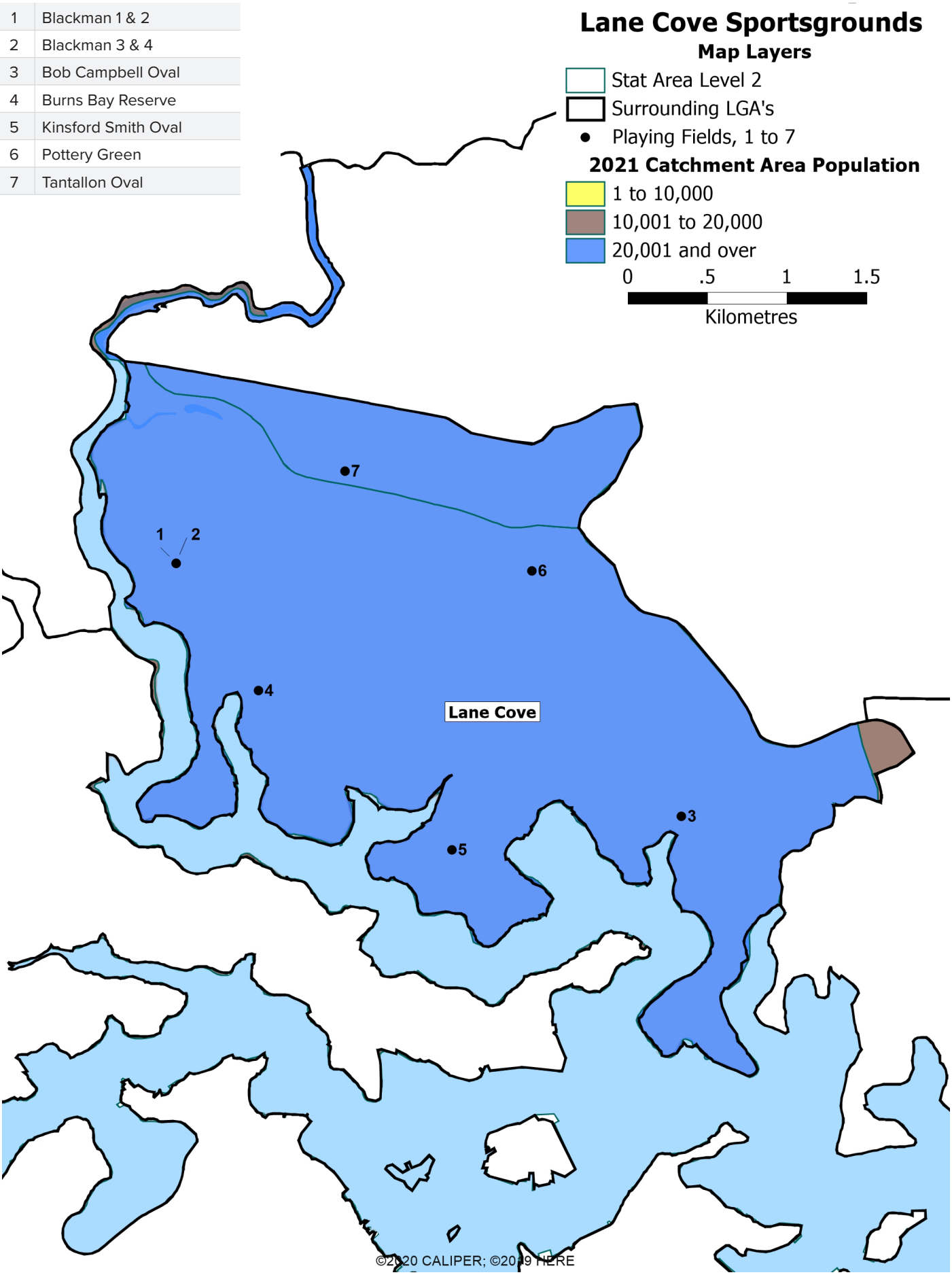
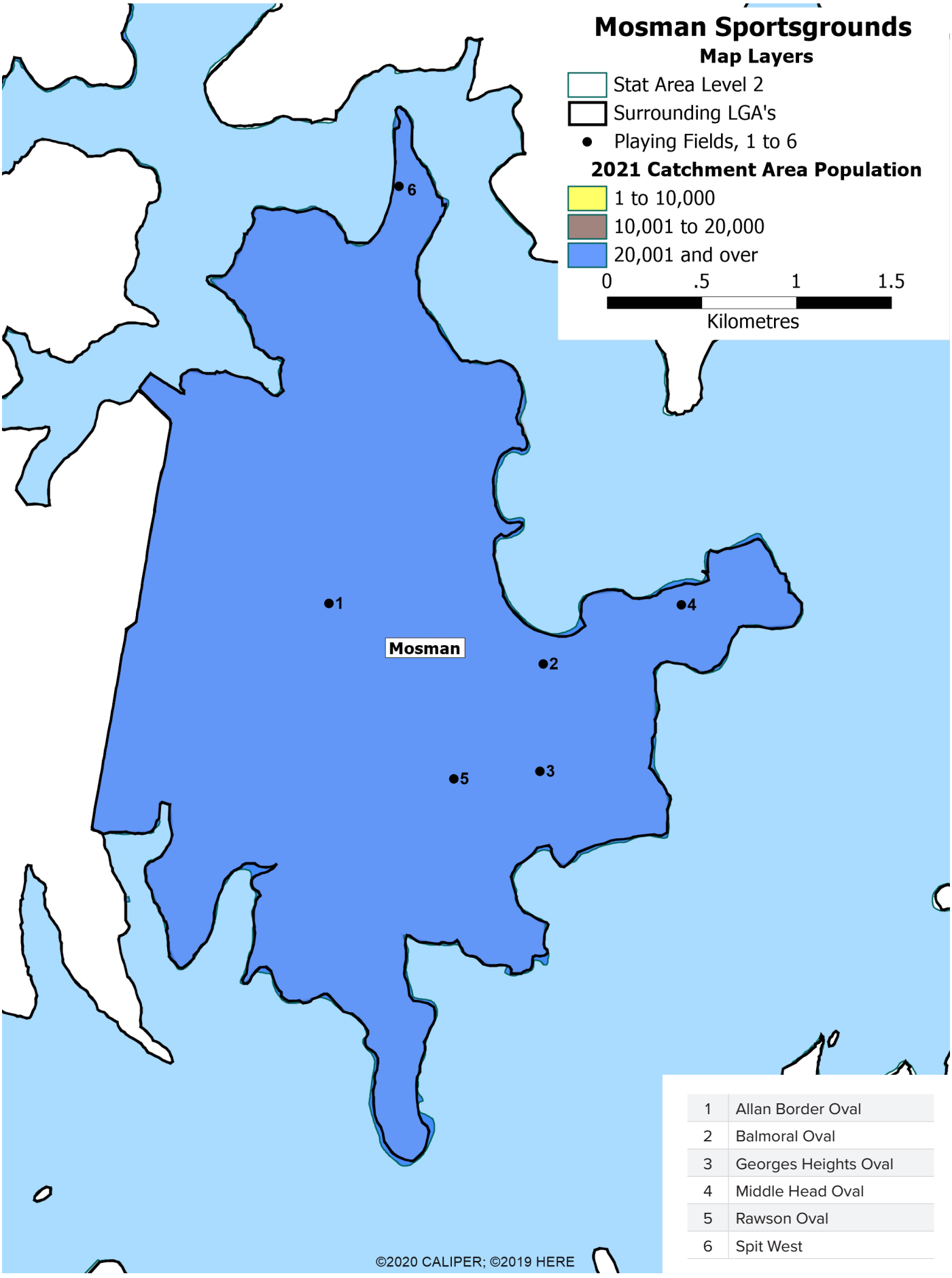
1	Abbotsleigh Wahroonga - Field
2	Acron Oval
3	Allan Small Park
4	Auluba 2/ Sir David Martin Reserve
5	Bannockburn Road Sportsground
6	Barra Brui Sportsground
7	Bert Oldfield Oval/ Killara Park
8	Bicentennial Park - Lofberg Oval
9	Bicentennial Park - Norman Griffiths Sportsground
10	Brown's Field
11	Bryce Avenue Sportsground
12	Carrington Road Sportsground
13	Charles Bean Synthetic Sportsground
14	Cliff Avenue 1 Sportsground
15	Cliff Avenue 2 Sportsground
16	Comenarra Sportsground
17	East Gordon/ Darnley Sportsground
18	Edenborough Sportsground
19	Fiddens Wharf Road Sportsground
20	Friar's Field
21	George Christie Sportsground
22	Golden Jubilee Sportsground (Back)
23	Hassell Park 1 Sportsground
24	Hassell Park 2 Sportsground
25	Howson Avenue Sportsground
26	Kent Road Sportsground
27	Ku-ring-gai High - Hockey
28	Ku-ring-gai High - Oval
29	Koola Park 1
30	Koola Park 2
31	Koola Park 3
32	Koola Park 4
33	Lindfield Memorial Park 1
34	Lindfield Memorial Park 2
35	Loyal Henry Sportsground
36	North Turramurra Park/ Samuel King Sportsground
37	North Turramurra Recreation Area - Synthetic Sportsground
38	North Turramurra Recreation Area 1
39	North Turramurra Recreation Area 2
40	Princes Park/ Primula Sportsground
41	Queen Elizabeth Sportsground
42	Rofe Park/Mimosa Road Sportsground
43	Roseville Chase Sportsground
44	Roseville Park Sportsground
45	St Ives Showground
46	St Ives Village Green Sportsground
47	The Glade Sportsground
48	Toolang Road Sportsground
49	Turramurra Park Sportsground
50	Warrimoo Avenue Sportsground
51	Wellington Road Sportsground/ East Lindfield Park
52	West Pymble PS Oval
53	William Cowan Sportsground

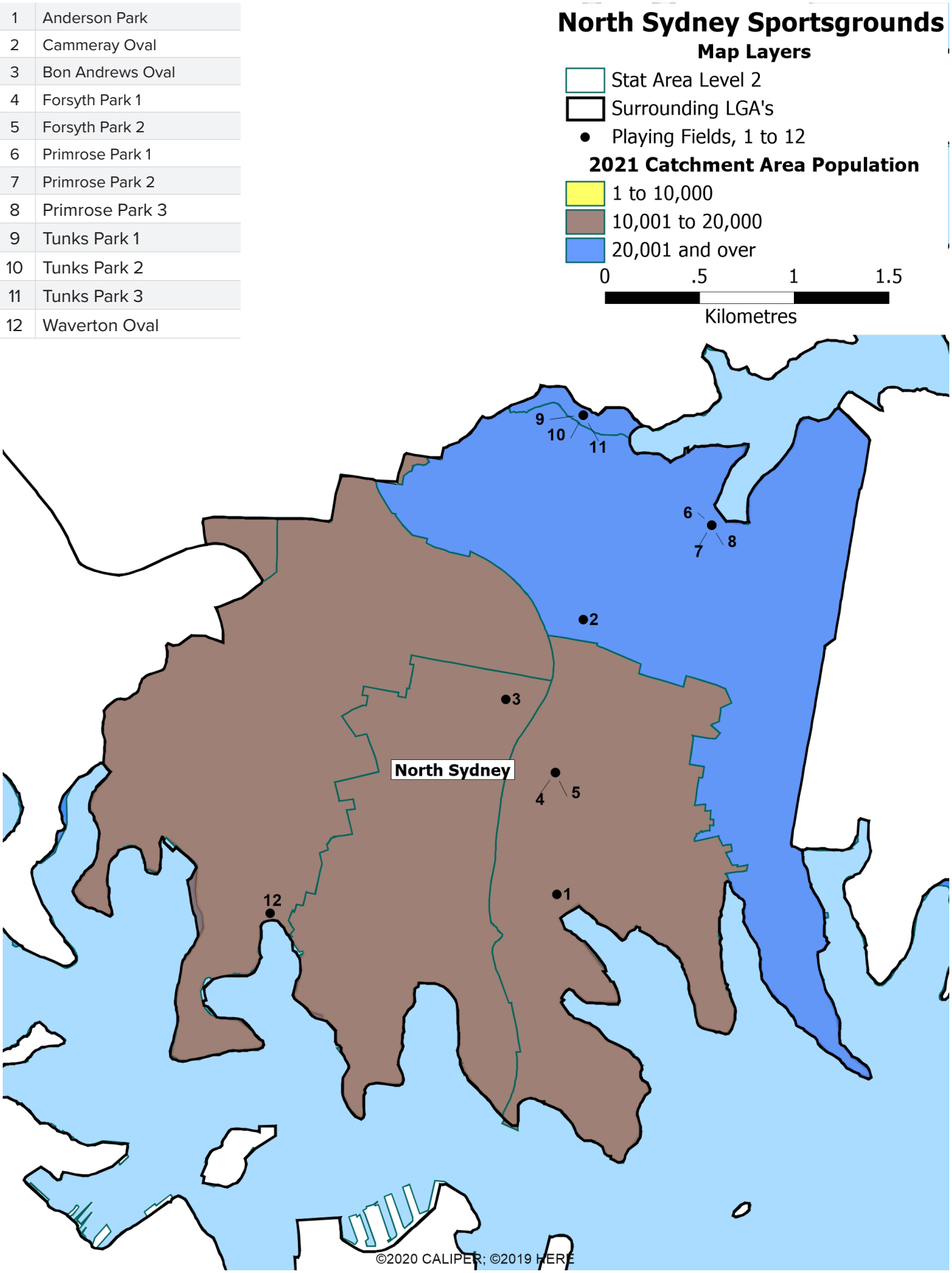
1	Blackman 1 & 2
2	Blackman 3 & 4
3	Bob Campbell Oval
4	Burns Bay Reserve
5	Kinsford Smith Oval
6	Pottery Green
7	Tantallon Oval

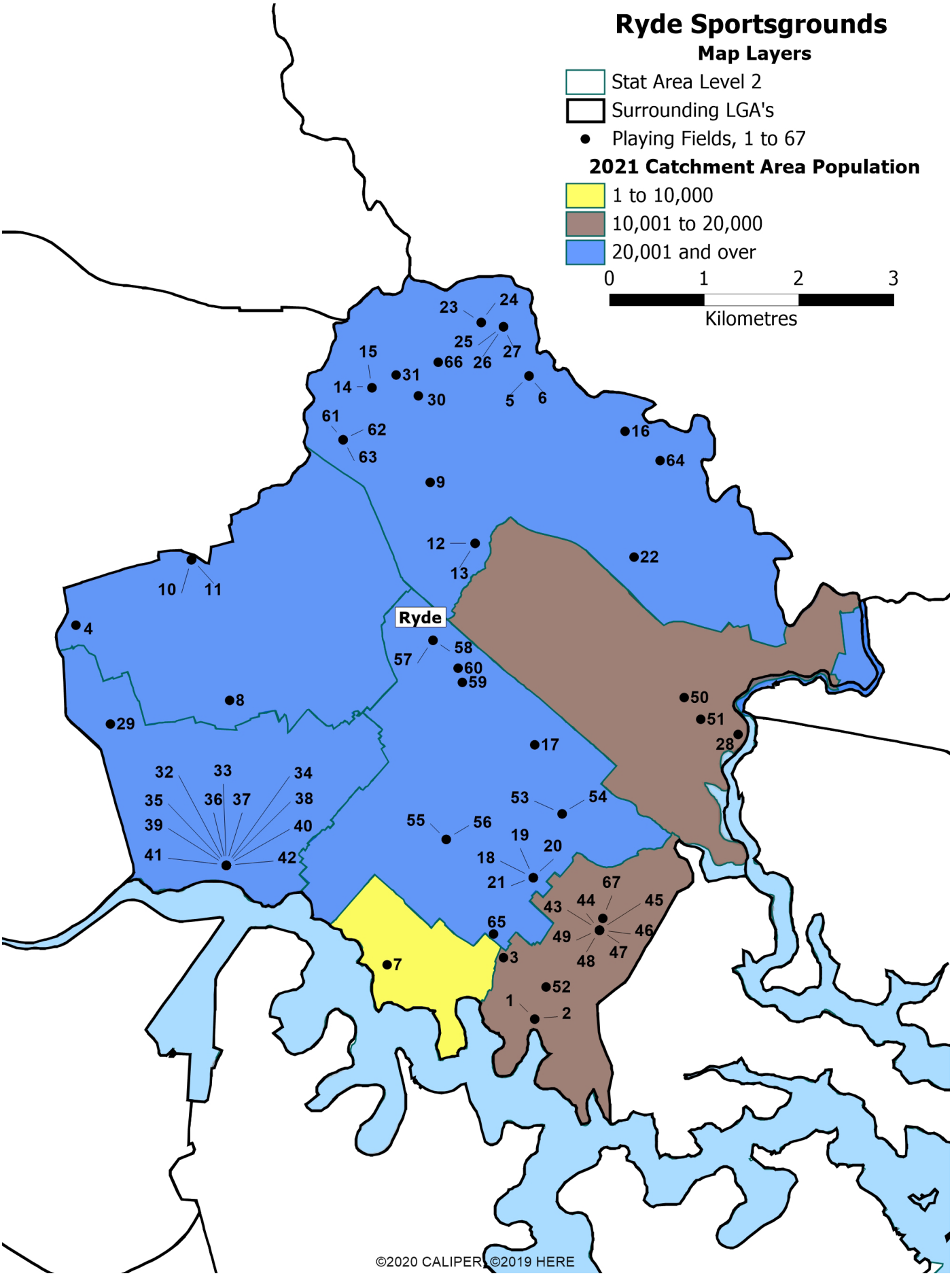




1	Allan Border Oval
2	Balmoral Oval
3	Georges Heights Oval
4	Middle Head Oval
5	Rawson Oval
6	Spit West

1	Anderson Park
2	Cammeray Oval
3	Bon Andrews Oval
4	Forsyth Park 1
5	Forsyth Park 2
6	Primrose Park 1
7	Primrose Park 2
8	Primrose Park 3
9	Tunks Park 1
10	Tunks Park 2
11	Tunks Park 3
12	Waverton Oval




Ryde Sportsgrounds
Map Layers
Stat Area Level 2
Surrounding LGA's
Playing Fields, 1 to 67
2021 Catchment Area Population
1 to 10,000
10,001 to 20,000
20,001 and over
0 1 2 3
Kilometres
Ryde
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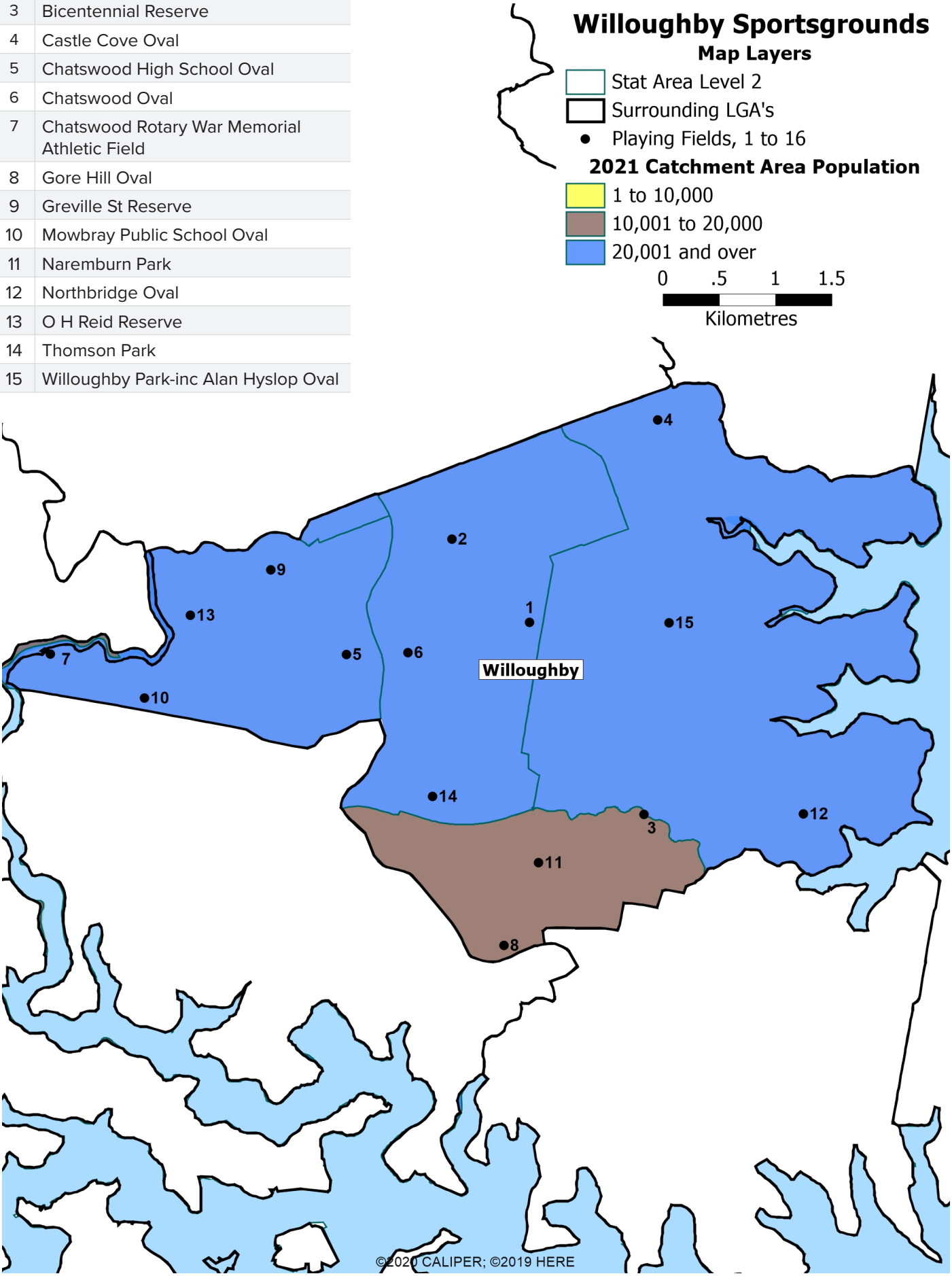
1	Bill Mitchell Park - 1
2	Bill Mitchell Park - 2
3	Bremner Park
4	Brush Farm Park - Oval
5	Christie Park - 1
6	Christie Park - 2
7	Cleves Park
8	Darvall Park
9	Dunbar Park
10	Eastwood Park - Lower
11	Eastwood Park - Upper
12	ELS Hall Park - 1
13	ELS Hall Park - 3
14	Epping Boys High School - 1
15	Epping Boys High School - 2
16	Fontenoy Park
17	Gannan Park
18	Holy Cross - 1
19	Holy Cross - 2
20	Holy Cross - 3
21	Holy Cross - 4
22	Macquarie Park Hockey Field
23	Macquarie University - 1
24	Macquarie University - 2
25	Macquarie University - 3
26	Macquarie University - 4
27	Macquarie University - 5
28	Magdala Park - 1
29	Marsden High School
30	Marsfield Park - 1
31	Marsfield Park - 2
32	Meadowbank Park - 10 + wicket
33	Meadowbank Park - 12
34	Meadowbank Park - 13
35	Meadowbank Park - 3
36	Meadowbank Park - 4
37	Meadowbank Park - 5 (mini)
38	Meadowbank Park - 6 (mini)
39	Meadowbank Park - 7
40	Meadowbank Park - 8
41	Meadowbank Park - 9
42	Meadowbank Park - LH Waud
43	Monash Park
44	Morrison Bay Park - 1
45	Morrison Bay Park - 2 + wicket
46	Morrison Bay Park - 3
47	Morrison Bay Park - 4
48	Morrison Bay Park - 5 (mini field)
49	Morrison Bay Park - 6
50	North Ryde Park
51	North Ryde RSL - 1
52	Peel Park
53	Pidding Park - 1 main
54	Pidding Park - 2 mini field
55	Ryde Park - 1
56	Ryde Park - 3
57	Santa Rosa Park - 1
58	Santa Rosa Park - 2
59	Smalls Road School - Lower
60	Smalls Road School - Upper
61	TG Milner - 1
62	TG Milner - 2
63	TG Milner - 3
64	Tuckwell Park
65	Tyagarah Park
66	Waterloo Park
67	Westminster Park

1	Bales Park
2	Beauchamp Park
3	Bicentennial Reserve
4	Castle Cove Oval
5	Chatswood High School Oval
6	Chatswood Oval
7	Chatswood Rotary War Memorial Athletic Field
8	Gore Hill Oval
9	Greville St Reserve
10	Mowbray Public School Oval
11	Naremburn Park
12	Northbridge Oval
13	O H Reid Reserve
14	Thomson Park
15	Willoughby Park-inc Alan Hyslop Oval



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