

Hunter Indoor Sport Centre (HISC)
Equity-Focussed Health Impact Assessment

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Equity-Focused Health Impact Assessment (EFHIA)
Hunter Indoor Sports Centre (SSD – 65595459)
24 Wallarah Road and 2 Monash Road, New Lambton

Part 1 – Screening

Introduction and context of proposal

The Basketball Association of Newcastle Limited (BANL) has proposed for the development of a new Hunter Basketball Stadium/Hunter Indoor Sports Centre (herein referred to as ‘the HISC’ ‘the new stadium’ and ‘the project’ interchangeably) — a multi-purpose indoor court sport centre, with commercial spaces for cafes and health and wellbeing services.^{1, 2} This is a State Significant Development (SSD) proposal, and the justification of the project was on the ground that the existing stadium of 55 years is at strained capacity and in a dilapidated state. Due to the denied application on Hillsborough Road, Charlestown, in the Lake Macquarie Local Government Area (LGA); the BANL, City of Newcastle (CN) and the New South Wales (NSW) government announced to build on public open green space at 2 Monash Road and 24 Wallarah Road (Appendix 1), New Lambton, in the City of Newcastle LGA.

Community-wide objection has been observed regarding the proposal location. An e-petition with 1521 signatures was placed before the Parliament to object to the HISC being built on the Blackley and Wallarah ovals.³ The below screening process utilised the screening tool by Harris et al.⁴ (Appendix 2) and will address the core questions under the framework by Mahoney et al.⁵

The Environmental Impact Statement (EIS) requested by the Department of Planning, Housing and Infrastructure (DPHI) Secretary’s Environmental Assessment Requirements (SEARs) on 22 January 2024 had not yet been published at time of screening.² Details were adjusted accordingly when the EIS was exhibited on the 15th of October 2024 while this EFHIA had progressed to step 4.

Key stakeholders of the proposed development

- **Funding body** – The NSW Government
- **Project Proponent** – BANL
- **Scoping report/ EIS consultant on behalf of BANL** – Urbis
- **Crown Land manager** – Newcastle City Council

- **State Significant Development (SSD) authority** – NSW Department of Planning, Housing and Infrastructure
- **Community and other government stakeholders:** City of Newcastle Council, state and local sporting users/organisations, Lambton High School (LHS), nearby residents and business, Transport for NSW (TfNSW)

Target population

According to the Centre for Population, 50% of the top 10 population growth corridors in regional NSW are LGAs in the Hunter region.⁶ Therefore, this proposal is said to align with all the three government levels' (local, state and commonwealth) strategic plans on the growth of the Hunter and Newcastle greater region.¹ This includes the Broadmeadow Place Strategy, Greater Newcastle Metropolitan Plan 2036, Newcastle Local Strategic Planning Statement 2040, Hunter Park and Hunter Regional Plan.¹ The HISC is part of these strategies aiming at providing adequate sport facilities across these populations but impacts of the development are more profound on the population in the Newcastle LGA, particularly the proximate suburbs.

According to the 2023 BANL annual report, there was 6.5% growth in membership, with over 6200 members of over 70 countries of birth.⁷ With 16 camps for school holiday hosted for 1300 participants, there were also 3800 registered for the junior club and summer competitions.⁷

In 2023, CN has a population of 175, 529, and is forecasted to grow to 205, 445 by 2046.⁸ The largest increase in number predicted is people aged 85 and over (+4456); and infant, children and adolescents aged 0 –19 is forecasted a combined growth of 20.4% (+4303).⁸

According to the 2021 Australian Bureau of Statistics (ABS) and .idProfile Newcastle,^{9, 10} the suburb of the proposed development site, New Lambton, had 10, 651 residents. Compared to CN, New Lambton has a higher proportion of children and young people aged 0 - 19 (25% vs 22%); parents aged 35 – 49 (20.5% vs 19.2%); and retirees and seniors aged 60 – 84 (21.3% vs 19.9%).^{10, 11} When compared to the state and national level, CN has a higher proportion of people (36.3 %) with at least one long-term health conditions.¹¹ Similarly in New Lambton (36.3%), the most common conditions are mental health condition (11.6%), follow by arthritis (10.1%), and asthma (9.2%).¹⁰

Links between the project, health impacts and equity

The proposed site for HISC is currently Blackley and Wallarah ovals, a total of 7.83 hectares of public open green spaces.¹ According to the EIS prepared by consulting firm Urbis on behalf

of BANL, HISC is set to operate every day from 6:00 AM to 11:00 PM, attracting near 27,000 people weekly and over 1.4 million visits each year for events, training and competition to drive sports participation, tourism and economic benefits.² The current shortfall of basketball courts and indoor sports facilities is undeniable due to growing population. Unfortunately, minimal considerations were put into the development application regarding environmental justice¹² and the potentially differential inequitable health impacts developing sports stadiums bring to different population groups.

The HISC consists of 12 courts for basketball and other sports, relevant athletic training facilities, spectator seats, amenities, and associated business services.^{1, 2} Other proposed construction on the existing ovals include: 240 carpark spaces; landscaping and civil works such as new vehicular access and egress point construction; demolition of existing amenities blocks; service infrastructure provision; signage for building and site; and subdivision for including additional land to be incorporated into the site.² (Appendix 1)

❖ **Positive impacts** (Appendix 3)

The HISC has the potential to promote social and community inclusion, and health and wellbeing for athletes and participants with its expansion of sport training facilities and entertainment spaces. It will enhance access to indoor sporting facilities for athletes, sport enthusiasts and spectators for state and national events. Furthermore, its construction and operation will bring economic benefits via employment opportunities and revenue for businesses and government. Both the EIS and other evidence supports the above-mentioned benefits on sporting facilities, but literature noted social impacts that are multifaceted have the potential to be socially inequitable.^{13, 14}

❖ **Negative impacts** (Appendix 3)

The negative impacts are potential inequitably distributed among the public and population groups that are existing users of the ovals. These include residents surrounding the ovals; children and youth; shift workers or people who sleep during the day; pupils attending LHS; elderly people; existing users of the ovals; people with chronic illnesses and/ or disabilities; people and families of a lower socioeconomic position (SEP) and/or culturally and linguistically diverse (CALD) backgrounds.

Currently, the public and local sporting clubs include cricket and football clubs who routinely utilise the ovals for recreation, training and registered matches. Going ahead with the HISC development also means LHS will lose the green space as an evacuation point, recess and lunch activity spot, and sports playground for its students.³ For anyone, particularly people and families from a lower SEP who use the ovals for exercising or leisure purposes, like picnics, the removal of this free public green space will have a detrimental impact to their health and wellbeing. The EIS has stated that only a half basketball court will be freely available, publicly.² This suggests the cost of accessing sport facilities and events are likely additional barriers to the project's stated health and wellbeing benefits for anyone in low SEP, factoring in other associated fees like transportation and equipment. Although the proximate residential value with sports facilities development remains disputable,¹⁵ the uncertainty around the undesirable factors such as construction and outcomes can cause distress to homeowners and renters, the latter particularly having less autonomy over housing.

The operation of HISC will further exacerbate the existing traffic and parking issues seen in the close-by residential streets when events happen in the opposite McDonald Jones Stadium, which poses further risk for road injuries or deaths, as well as hindering accessibility to emergency services like ambulances and police in any urgent situations. The construction hours of 7:00 AM – 6:00 PM Monday to Friday and 8:00 AM – 1:00 PM on Saturdays; and operating hours of HISC from 6:00 AM to 11:00 PM seven days per week are also going to increase heightened disturbance and distress due to the noise and air pollution from construction, congested traffic and stadium operation, and light pollution at night.² All the listed issues differentially impact the health of everyone born, grown, living and studying nearby — especially infants, children and youth, elderly, people with chronic illness and disabilities, and shift workers who sleep during the day.

Not only do green spaces facilitate health and wellbeing,¹⁶⁻¹⁸ the ecological benefits also have linkages to human health and disease reduction.¹⁷ Green spaces naturally cool air and surfaces for heat reduction, support water management for flood mitigation for clean air and water; noise reduction; absorb carbon dioxide to offset greenhouse gas emissions to combat climate change effects; and biodiversity conservation.^{17, 19} As an identified flood storage area and bisected by large floodways,² Blackley and Wallarah ovals are affected by Local Catchment Flooding, and therefore as open green space for flood mitigation play a vital water management role. Elimination of such for the development is likely to worsen the existing flood risk for adjacent schools and dwellings.

Green space exposure and regular physical activities provide significant physical and mental health benefits including the prevention and management of non-communicable disease, and reduction in depression and anxiety symptoms.^{16, 20} Particularly in children and adolescents, green space is associated with optimal growth and developmental outcomes.^{21, 22} This is crucial for children in lower SEP, in line with the United Nation (UN) Convention on the Rights of the Child and the UN Sustainable Development Goal (SDGs).^{21, 22}

The short-term and long-term consequences arising from this development application range from the direct impacts on health behaviours, psychological distress and disturbance, disrupted childhood and youth development; to indirectly increasing non-communicable disease risk factors, burden of diseases, and reducing life expectancy. They are clearly unfairly distributed by the geography, age groups and socioeconomic status.

Recommendation and level of action required

Given the dilapidated current stadium state, the HISC is warranted to support sports participation. It will undoubtedly benefit regional growth economically through tax revenue, income and unemployment. However, the issues identified in the screening process demonstrated considerable potentially inequitable negative health impacts, both short and long term — with limited considerations on those from the EIS.

Since the proposal is still under consideration, the opportunity to influence developer and key stakeholders to understanding these potential health risk and disparities is very high. There is also the chance to make suggestions and recommendations to mitigate, if not eliminate these inequitable potential health risks.

A comprehensive prospective EFHIA is strongly desired given the extensive impacts of the HISC are largely unknown. This will require consultation with a multidisciplinary team and stakeholders to understand the potential and differential health impacts. It is noted that there is a 2-year time frame according to SEARs and limited funding available, so at minimum an intermediate EFHIA is encouraged to ensure the local and contextual impacts are being consultatively assessed.⁵ Due to the limited time and resources, this will be a desk-based prospective EFHIA.

Part 2 – Scoping

Objective

Scoping is a crucial step to confine the EFHIA for timely completion. This desk-based EFHIA will be conducted in a solo capacity over a 6-week period.

Considering the inequitable impacts will be most felt by populations who are in proximity to the development of the HISC, it is decided that this EFHIA will examine the population within the 1200 metre radius of the proposed development site. This covers suburbs including New Lambton, Lambton, Broadmeadow, Waratah, and Georgetown. (Appendix 4)

Terms of Reference (ToR) for Steering Committee on the definition of equity

A steering committee needs to be formed to ensure diverse and multidisciplinary input and representation are incorporated when conducting the EFHIA.⁵ Establishment of the value and perspectives is crucial to define the interpretation of equity, fairness, justice and avoidable impacts. These core values underpinning the EFHIA process suggested in Mahoney et al ⁵ will apply:

<u>Terms</u>	<u>Definition</u>
Democracy⁵:	A transparent process throughout the project life cycle encompassing members from the target populations to participate. This emphasises and ensures representation and consideration when formulating, implementing and evaluating the development application that poses direct and indirect impacts to their lives.
Health determinants⁵:	It is well understood that the status of health is determined by factors beyond biology and genetics. These include age, gender, ethnicity, geography, environment, SEP, systemic policies and practices within and outside the healthcare system.
Differential health impacts⁵:	Positive or negative consequences as a result of the proposed development that are differentially distributed among population groups. In this case, families from a low SEP will

	not have the income or transportation to afford the access to the sports facilities, health services, or events held in the HISC.
Health equity^{5, 23}:	Health equity refers to the fundamental right where all people regardless of age, gender, ethnic background or SEP are able to attain their full potential for health and wellbeing. ²³ The central point of the prospective EFHIA is to address the potential health inequities of the proposed development that are differentially distributed, particularly on vulnerable groups. These include short- and long-term impacts, direct and indirect impacts.
Sustainable development⁵:	Sustainable development is an overarching definition that emphasises projects that provide benefits today should not be at the expense of environmental, social and personal health of future generations. ^{24, 25} Proposed development needs to consider short- and long-term, and direct and indirect impacts that pose differential consequences to vulnerable groups. This principle ensures avoidable health inequalities and inequities are prevented or mitigated.

Table 1: Terms of reference for steering committee.

Steering Committee

There will be no steering committee formed for this desk-based EFHIA. However, a proposed steering committee will include a diverse range of stakeholders who adhere to the values under the ToR, and provide comprehensive perspectives and expertise. *(Please refer to appendix 5 for drafted project plan)* These include:

- ❖ BANL representatives
- ❖ Residents from New Lambton and/or within 1200m radius
- ❖ Schools and sporting clubs — Current users of ovals
- ❖ City of Newcastle Council representatives
- ❖ Public health professionals from Hunter New England Health and/or NSW Health
- ❖ NSW DPHI representatives

❖ TfNSW representatives

Scope

Aligning with the value of sustainable development and health equity, the potential health impacts associated with the development of HISC are particularly concerning to children and adolescents due to their critical stages of growth and development. Along with the demographic data in the screening process showing the higher proportion of children and adolescents living in New Lambton compared to CN, crucial is understanding and assessing the inequitable short and long- term health impacts on children and youth associated with the public green space removal and noise pollution from construction, traffic, and stadium operation.

The irreversible impact of the green space removal is worth exploring considering the immense benefits green space possesses. Along with the foreseeable sustained noise pollution, this EFHIA will assess the negative health impacts of the green space removal and noise pollution of the HISC development on children and youth within the 1200 metre radius of the proposed site.

Sources of information

As a desk-based EFHIA, the report will utilise all documents from the NSW DPHI Planning Portal on HISC, government reports, data from the ABS and Newcastle Community profile, grey literature, media releases and newspapers on the Internet, Google scholar and the University of Newcastle library database.

Part 3 – Impact Identification

Please refer to Appendix 6 for potential negative health impacts concept map. (Appendix 6)

Target population profile

1200m radius of the proposed development site covers suburb including New Lambton, Lambton, Broadmeadow, Waratah, and Georgetown.

Suburb	Population	Numbers of 0 – 19 years	% of 0 – 19 years
Australia	25, 505, 514	6, 095, 818	23.9%
New South Wales	8, 072, 163	1, 927, 897	23.9%
City of Newcastle	168, 873	37, 085	22%
New Lambton	10, 651	2662	25%

Lambton	5214	1253	24%
Broadmeadow	1688	323	19.1%
Waratah	4927	809	16.4%
Georgetown	2072	435	21%

Table 2: Population profile of children and adolescents in Australia, New South Wales, and suburbs within 1200m radius to Wallarah and Blackley Oval from the ABS 2021 Census data.¹⁰

Suburb	Median weekly household income	Household income in lowest quartiles \$0 – 886 (id Newcastle community profile)¹¹	% of one-parent family	Household where a non-English language is used
Australia	\$1746	N/A	15.9 %	24.8%
New South Wales	\$1829	N/A	15.8 %	29.5%
City of Newcastle	\$1760	25.9%	17.4 %	12.4%
New Lambton	\$1853	25.3%	18.6 %	9.3 %
Lambton	\$1628	29.6%	20.0 %	12.3%
Broadmeadow	\$1653	25.2%	18.3 %	14.6%
Waratah	\$1511	31.9%	23.6 %	14%
Georgetown	\$2005	21.8%	17.1 %	8.8%

Table 3: Profile on the median household income; household income in lowest quartiles; percentage of one-parent family; and households where non-English language is used in Australia, New South Wales and profiled suburbs from .id Community Profile and the ABS 2021 Census data.¹⁰

New Lambton, where Wallarah and Blackley ovals are located, has the highest proportion of children and youth amongst identified suburbs comparing to CN, NSW and Australia. (Table 2) Three out of five identified suburbs have lower median household incomes than the CN, NSW and Australia. (Table 3) With 80% of the profiled suburbs having higher percentage of households consisting of one-parent families, a positive correlation is also noticed between the percentage of one-parent families and percentage of household income in the lowest quartiles. (Table 3) The cost of HISC will further contribute to the inequalities and barriers to sports participation and outdoor play for children and youth from lower SEP, compared to the existing free public green space ²⁶ — ultimately worsening the health inequity.

Suburb	% of people with at least one long-term health condition	% of people with mental health condition
Australia	31.7 %	8.8 %
New South Wales	30.9 %	8.0 %
City of Newcastle	36.3 %	12.5 %
New Lambton	36.3 %	11.6 %
Lambton	37.7 %	13.3 %
Broadmeadow	35.0 %	14.7 %
Waratah	39.8 %	15.2 %
Georgetown	36.3 %	13.9 %

Table 4: Percentage of people with one or more counted long-term health conditions; and percentage of people with mental health conditions in Australia, New South Wales profiled suburb from .id Community Profile and ABS 2021 Census data.¹⁰

Health and social profile	NSW	Newcastle
Percentage of children & youth (2 – 17 years) overweight & obesity	17% & 7.4%	16.8 & 8.4%
Adults (18 years and over) overweight & obesity rate	35% & 30.9%	34.9% & 34 %
Aged 65+ receiving aged pension	59.0 %	65.7%
Mental health & behavioural problems	18.8%	23.1%
Circulatory system/ cardiovascular disease	4.1%	5.3%
Asthma	10.6%	14.1%
Life expectancy Male & Female	81.5 years & 85.7 years	79.9 years & 83.6 years

Table 5: Health and social profile from the Hunter New England and Central Coast (HNECC) Primary Health Network (PHN) Newcastle LGA Population Health Snapshot 2021.²⁷

There is a limitation with the data on health status from the HNECC PHN and ABS, being non-age specific. Nevertheless, they provide a snapshot and outlook on various morbidity rates of the Newcastle population.

The profiled suburbs and CN have high rates of people living with long-term and mental health conditions such as cardiovascular disease, asthma, and anxiety and depression. (Table 4 and 5) Higher rates of chronic disease risk factors like obesity are seen across children, youth and adults in Newcastle. (Table 4 and 5) A relatively higher portion of elderly receive the aged

pension and the life expectancy of the population in Newcastle is comparatively lower. (Table 4 and 5)

Evidence on greenspace and health

Although sports facilities have the positive effects of promoting physical activities and wellbeing, the associated cost with access remains an obstacle for anyone, particularly children and adolescents, from lower SEP.¹³ Contrastingly, public open green space provides equality in accessing recreational space that facilitates physical activity — vital to achieving health equity and limiting health disparities for populations from low SEP.^{18, 28}

Substantial evidence suggests green space is instrumental to the physical, mental and social development from infancy to adulthood.^{21, 22, 29, 30} Two systematic reviews on children and adolescents aged 2 - 19 demonstrated positive association between green space exposure and developmental outcomes.^{31, 32} These include cognitive and brain development; mental health and wellbeing; attention and behaviour; lower prevalence of asthma and rhinitis; and lower risks of spectacle use.^{31, 32}

The salutogenic health benefits are highest in children and adolescents from lower SEP, reflected in the reduction in healthcare cost with green space exposure.^{21, 28} To children from lower SEP, the socio-cultural and physical displacement of green space as a process of gentrification is particularly disadvantaging.³³ According to health and wellbeing outcomes of children from Australian longitudinal studies, reduced hospital admission, lowered blood pressure, serum triglycerides, and body fat percentage are correlated with green space exposure.^{34, 35} Overall, this reduces the risk factors of chronic diseases, including cardiovascular disease and type 2 diabetes.²⁸

The more urbanised environments children live in with lesser access to green space, the more risks and negative health outcomes such as anxiety, depression and schizophrenia are found.²¹ Because public green space is a mediator for community and social cohesion, greener neighbourhoods reduce parental and caregiver stress — where behaviour and development of children also significantly improves because of less stress brought home.²¹ Through many direct and indirect pathways, immediate and long-term beneficial physical, mental and developmental health outcomes are clear in childhood and adolescents with greenspace exposure.³⁰⁻³² This is important considering the higher than state and national average risk factors of chronic disease seen the Newcastle population. (Table 5)

Evidence on noise pollution and health

(Appendix 7 for examples of familiar sounds at various noise levels decibels (db(A)))

Noise is defined as unwanted noise and recognised as a health risk,^{36, 37} which for this development includes sources from construction, traffic and stadium operation noises brought continuously to the immediate vicinity. Limits around residential areas are important as environmental noise like traffic is associated with risks factors for cardiovascular disease (7AM to 11PM above 60dB $L_{Aeq,day,16h}$), effects on cognition, and sleep disturbance (above 55 dB(A)).³⁷ According to the World Health Organisation (WHO), children, elderly people, pregnant women and shift workers are identified as potential at-risk groups to noise on sleep disturbance.³⁷

WHO guidelines recommend children limit for recreational noise exposure to 80dBA L_{EX} .³⁸ While how much of the noise will be transmitted to the outside of the stadium is unknown, a USA study showed the highest noise level recorded at an indoor basketball arena is 138 dB(A).³⁹ Road traffic noise ranging from 27 – 86 dBA is also found to positively correlate with blood pressure in children.⁴⁰ In this case, children and adolescents attending adjacent LHS and residential dwellings are the most vulnerable being in close proximity. ^{37, 40} Considering the construction and HISC operational hours mentioned in the screening process from the EIS, the noises will be heavily disruptive to anyone nearby.

Aside from the obvious auditory impacts like hearing loss, government reports and literature have shown the non-auditory health effects of noise exposure in children include disturbance and annoyance, cognitive impairment, sleep disturbance and higher cardiovascular disease risks.^{36, 37, 40-43} A 2018 systematic review on school-aged children (7 – 11years) found adverse association of traffic noise exposure on mental ill-health, behavioural, and neurodevelopment problems.⁴² A recent ongoing longitudinal study with 25 years follow-up further confirmed that childhood and adolescent exposure to noise from road sources impacts cognition, increases anxiety due to elevated disrupted physiological and endocrine stress responses and sleep disturbance, particularly during school years.^{40, 44}

Lastly, due to the negative effects on neighbourhood environmental and social cohesion, thus disincentivising physical activity outdoors, environmental noise directly and indirectly impacts physical and mental health negatively, both short-term and long-term.^{41, 42}

Part 4— Impact Assessment

Matrix was used to comprehensively assess impacts from step 3, and take the quality of evidence into account to address the core issues for the steps in Mahoney et al. below.⁵ (Table 6)

It is clear if the developmental application of HISC on Wallarah and Blackley ovals is approved, the irreversible elimination of current public open green space will be replaced by the new HISC complex and 240 car park spaces, where only half a basketball court will be free for public access.

International organisations and their relevant frameworks such as the UN Convention on the Rights of the Child and the SDGs have asserted children's green space access as fundamental.²¹ Despite the variable age brackets of children and adolescents in reviewed longitudinal cohort studies and systematic reviews, green spaces are found to correlate to healthier growth and developmental outcomes.^{21, 22, 29-32, 34, 35} Therefore, it is highly inequitable —particularly under the value of sustainable development defined in the ToR — as substantial evidence points towards the indispensable nature of green space exposure on the cognitive development in children and adolescents^{31, 32} where its removal is undoubtedly deleterious. Considering the direct and indirect factors of green space to the determinants of health, such as ability to influence health behaviours, achieving health equity, and mitigating climate change, air and noise pollution — it is expected that children and youth from adjacent LHS and nearby will suffer negative consequences differentially as they will no longer have access to the neighbouring public green space during or outside school hours.

On environmental noise pollution, ample evidence demonstrated the short and long-term negative health impacts on children and adolescents.^{36, 37, 40-44} Although long-term health impacts of the specific noise from construction and sports stadium operation on children is lacking, noises are detrimental to the development and health and wellbeing of children and adolescents.^{36, 37, 40-44} The annoyance and disturbance from all environmental noises are going to have major impacts in the immediate vicinity, with particular harm to children and adolescents on top of the loss of currently adjacent public open green space. Given cognitive abilities like reading, comprehension, and memory are important for not only education but life chances and adult life,⁴⁰ these effects can considerably affect children from lower SEP backgrounds.

Impacts prioritisation

There are higher proportions of children and adolescents in the most proximal suburbs (New Lambton and Lambton) compared to the City of Newcastle, NSW and Australia. Both the elimination of public green space and noise pollution are particularly unfair to children and adolescents with the negative health impacts demonstrated across various ages. Factoring in the higher proportion of people with chronic diseases, mental health conditions, and lower life expectancy within the Newcastle area (Table 4 & 5), the long-term differential negative impacts will be particularly detrimental to children from lower SEP, for whom proposed benefits of HISC are unlikely to translate.

With the increasing number of children growing up in urbanised environments,²¹ the removal of public green space is identified as the highest priority as its removal is irreversible and has the most detrimental potential health impacts — with extensive evidence and organisation supporting its benefits and necessity for optimal growth and development outcomes. Noise pollution related to construction, traffic and stadium operation is also significant, though its impacts are secondary to the removal of ovals for the HISC development. Recommendations on noise pollution are put forward in *part 5* for mitigating the inequitable negative health impacts on children and adolescents, in the case where the development application is approved.

Both health inequities are avoidable with further exploration and thoughtful planning regarding the replacement of the current 55-year-old stadium for proper and adequate sports facilities provision. Although the proponent of the HISC development insists the two ovals are the only feasible location, public opinions on alternative sites⁴⁵ and findings from this EFHIA on the severe health negative consequences suggests otherwise.

Activity	Determinants of health	Population differentially impacted	Health impacts	Source of Information	Typology weight	Nature of impact	Timing & size	Likelihood	Impact justification
Public green space removal	Social cohesion	<ul style="list-style-type: none">ResidentsElderlyParentsChildren & adolescentsPeople in low SEPCALD backgrounds	Asthma & rhinitis	Systematic	+++	Negative	Short & long term	Definite	Unfair
	Early Life		Cognitive & brain development	Longitudinal/ prospective Cohort –	++				
	Growth and development		Mental health & wellbeing	NGO and government reports	++				
	Education		Attention & behaviour						
	Employment		Spectacle use	Literature review	+++				
	Physical environment		Serum triglycerides						
	Mental Health		Hospital admission						
			Blood pressure						
			Body fat percentage						
			CVD &T2DM						
Noise pollution from construction , traffic and stadium operation	Social cohesion	<ul style="list-style-type: none">ResidentsElderly peopleParentsChildren and adolescentsPregnant womenShift workers	Disturbance & annoyance	Systematic	+++	Negative	Short & long term	Definite	Unfair
	Early Life		Sleep disturbance	Longitudinal Cohort	++				
	Growth & development		Cardiovascular risk	Government reports	++				
	Education		Blood pressure						
	Employment		Cognitive impairment	Literature review	+++				
	Physical environment		Mental ill-health, anxiety						
	Mental health		Behavioural problems						
			Neurodevelopment problems						
			Endocrine disruption						

Table 6: Comprehensive Assessment Matrix; Typology weight using typology of evidence was adapted from Health Impact Assessment: A practical guide. ⁴

Part 5 – Recommendations

The following recommendations are made from this desk-based Equity Focused Health Impact Assessment.

First and foremost, alternative sites should be considered, to avoid the green space removal altogether, such as the Hamilton North Jemena Energy gasworks site that is fully remediated.⁴⁵

As *part 3 and 4* demonstrated, loss of green space and noise pollution carries both short-term and long-term impacts. If HISC development goes ahead on Wallarah and Blackley ovals, the following recommendations are suggested:

1. Consider incorporating regular provision of free sports programs or facilities for children and adolescents from low SES backgrounds in addition to the publicly available half-basketball court, and the limited turf area.²
2. During construction period, ensure noise containment and install sound barrier fencing all along areas adjacent to residential dwellings and school to reduce sound pollution.
3. With its proximity to residences, it is recommended for the construction hours to be scaled further back to the recommended hours set out by the NSW Environmental Protection Authority (EPA) of 7 AM to 5 PM Monday to Friday and no construction on Saturday, Sunday, and public holidays to reduce annoyance and disturbance particularly from construction equipment and activities.⁴⁶
4. Adopt as many noise mitigation practices as possible, as suggested in the EPA construction noise guidelines, such as quieter work methods and equipment.⁴⁶
5. Although building materials for the facades is not confirmed yet, the acoustic assessment from the EIS assumed the use of 90mm rock wool, which has sound reduction properties.² To further alleviate the potential health negative impact noise and vibrations generated from the increased traffic and HISC on surrounding residents and school, it is recommended that adjacent LHS and nearby households, particularly those with children, access the NSW Noise Abatement Program for treatments such as architectural acoustic treatment, noise barriers and noise mould.⁴⁷
6. Adjust HISC operation hours to be in line with the noise guide by the EPA residential neighbourhood noise standards at 7 AM or 8 AM to 10PM, instead of 6AM to 11PM to minimise annoyance and disturbance.⁴⁸

7. Coordinate regular and effective public transport to HISC, particularly for large events to reduce private car reliance from crowds and minimise traffic to the local residential area.

Conclusion

This EFHIA highlighted the potentially inequitable health impacts arising from the HISC proposal on Wallarah and Blackley Ovals. A comprehensive EFHIA is highly recommended to assess the full spectrum of consequences for sustainable development and health equity, to safeguard our future generations.

References

1. Strudwick P, Sutcliffe R, Tonks I. Scoping report - Hunter Basketball Stadium [Internet]. Urbis Ltd; 2023 [updated 21 December 2023; cited 2024 13 September]. Available from: <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-65595459%2120240108T043319.777%20GMT>.
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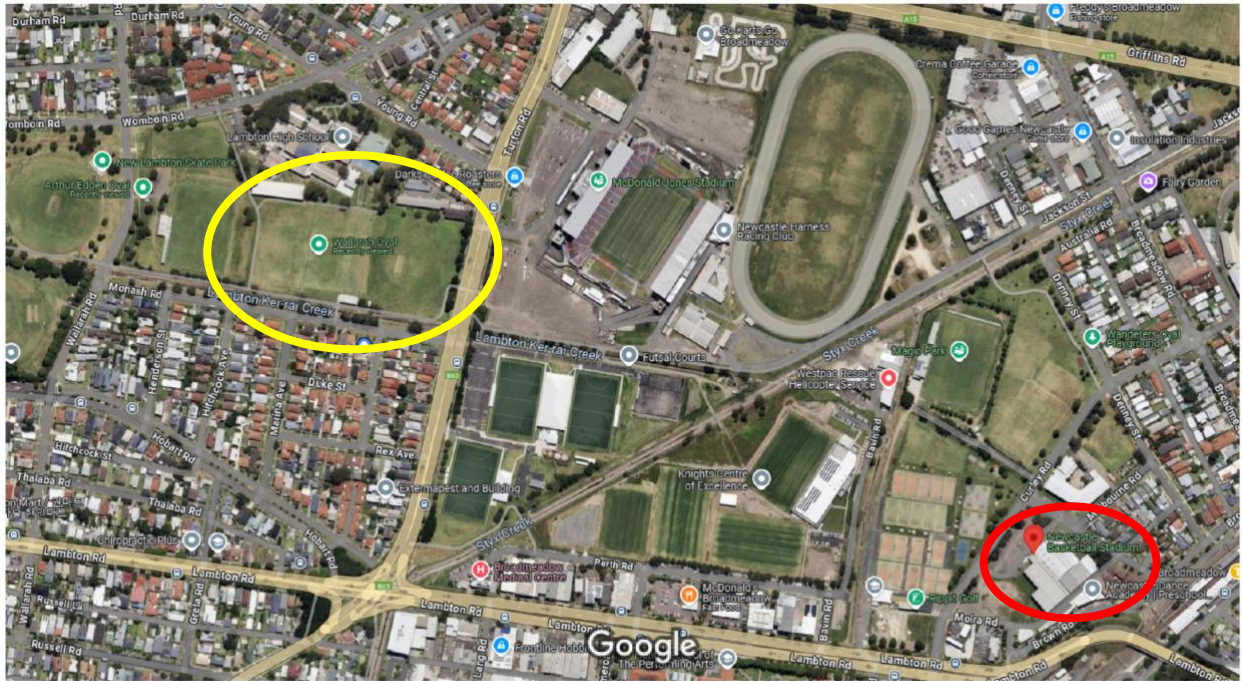
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Appendices

Appendix 1 – Current Newcastle Basketball Stadium (red circle), proposed development site, Wallarah and Blackley Ovals (yellow circle), and visualisation of completed HISC complex



Imagery ©2024 Airbus, Maxar Technologies, Map data ©2024 100 m

Picture 1: Locations of Current Newcastle Basketball Stadium and Wallarah and Blackley Ovals sourced from *Google map*.⁴⁹



Picture 2: Visualisation of completed HISC complex from the Urbis scoping report, created by EJE Architecture.¹

Appendix 1: Screening Tool for Health Impact Assessment

Based on:

- Screening Tool for Health Impact Assessment Queensland Health HIA Framework Draft 20 February 2004
- Seahorse HIA Planning & Report Writing Toolkit Salim Vohra et al version 4 October 2003, adapted from a tool developed by Erica Ison.
- CHETRE Screening Checklist, HIA Training 2004

1. What is the proposal about?

Development of a new Hunter Basketball Stadium / Hunter Indoor Sports Centre (HISC) on Wallarah and Blackley ovals.

2. What is the context outlined for the proposal? (eg policy context, history)

- Currently dilapidated state of existing stadium
- Broadmeadow Place Strategy + Council & state strategies.

3. Does the proposal concern any of the following determinants?

- | | |
|---|---|
| Lifestyle | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Physical environment | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Social/economic environment | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Capacity of the health system to impact on these determinants | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Other please specify | <input checked="" type="radio"/> Yes <input type="radio"/> No |
- Growth & Development

4. What are the assumptions embedded in or underpinning the proposal?

↑ Economic activities, ↑ sports facilities capacity

5. Why does this proposal have potential to impact on health?

Removing existing public green space & replacing it w/ car parks & building, noise/air/light pollution to residential area, What are the: flood risks.

Potential positive impacts

↑ Sports Participation, ↑ tax revenue, ↑ employment, ↑ income

Potential negative impacts

Congested traffic → noise/air/light pollution to residential area

Intended consequences

New sports facilities, ↑ capacity, ↑ income & economic activities.

Possible unintended consequences

↑ Traffic Congestion, ↑ flood risks to the area, air/noise/light pollution.

6. Describe any information which identifies the nature and extent of the impacts on health for this type of proposal

Long-term negative impacts that are risk factors to chronic diseases.

7. List the groups most likely to be affected by this proposal

Close by residents, students from Lambton High School, children & youth living closeby, elderly, parents.

8. What are some of the potential equity issues?

Desirable

Increase sports participation (physical activity), Long term = ↑ health & wellbeing, employment

Undesirable

- Lost of free public green space proven important for health equity for low SES groups.

- Noise pollution/light pollution. ☒ Yes ☐ No

Why or why not?

Short- & long-term health impacts are inequitably distributed.

If yes, what type and how?

Comprehensive. is recommended w/ impacts largely unknown.

Recommendations/comments

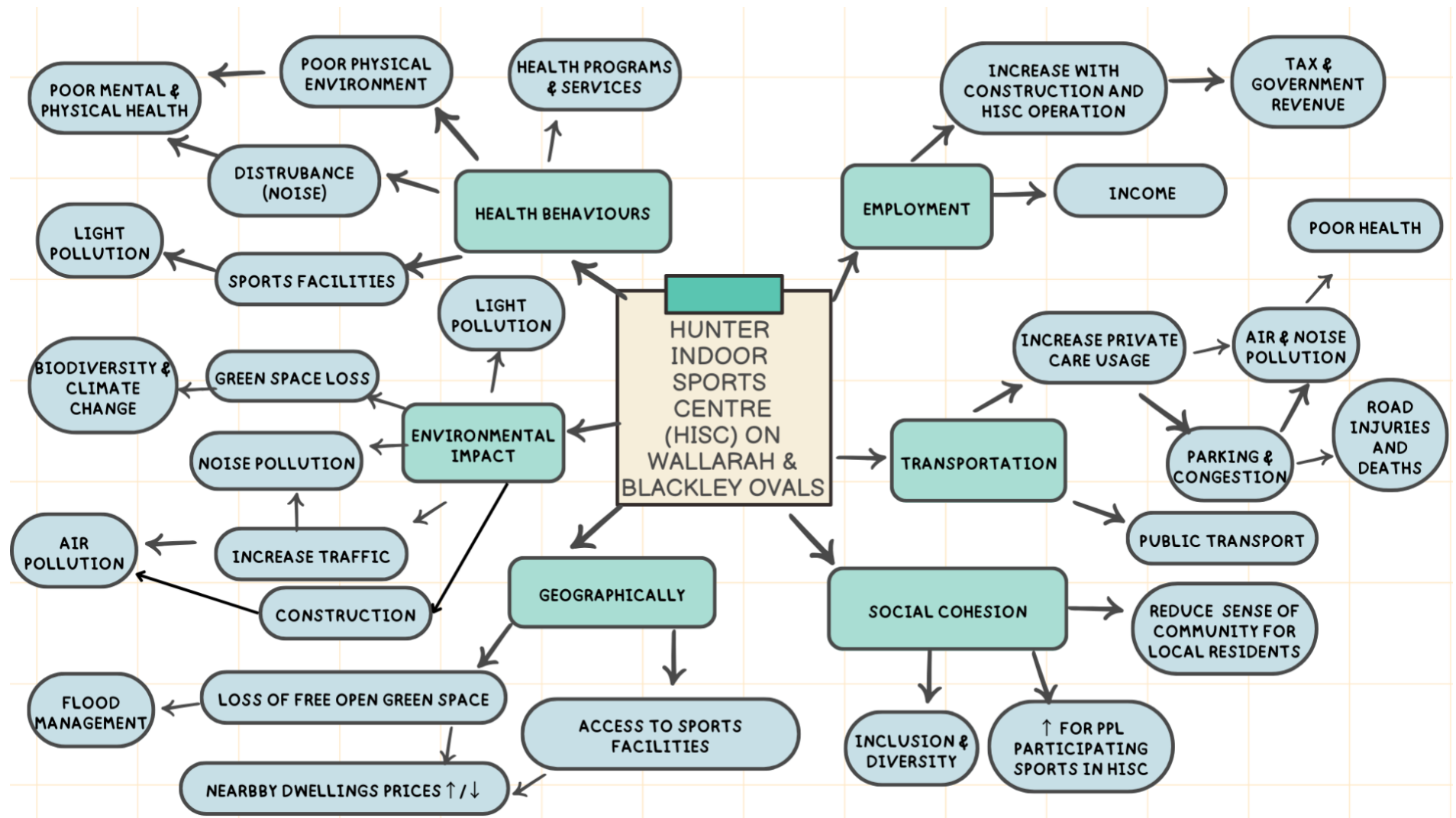
Proceed w/ Equity-focused HIA.

Appendix 1 continued: Screening Tool for Health Impact Assessment

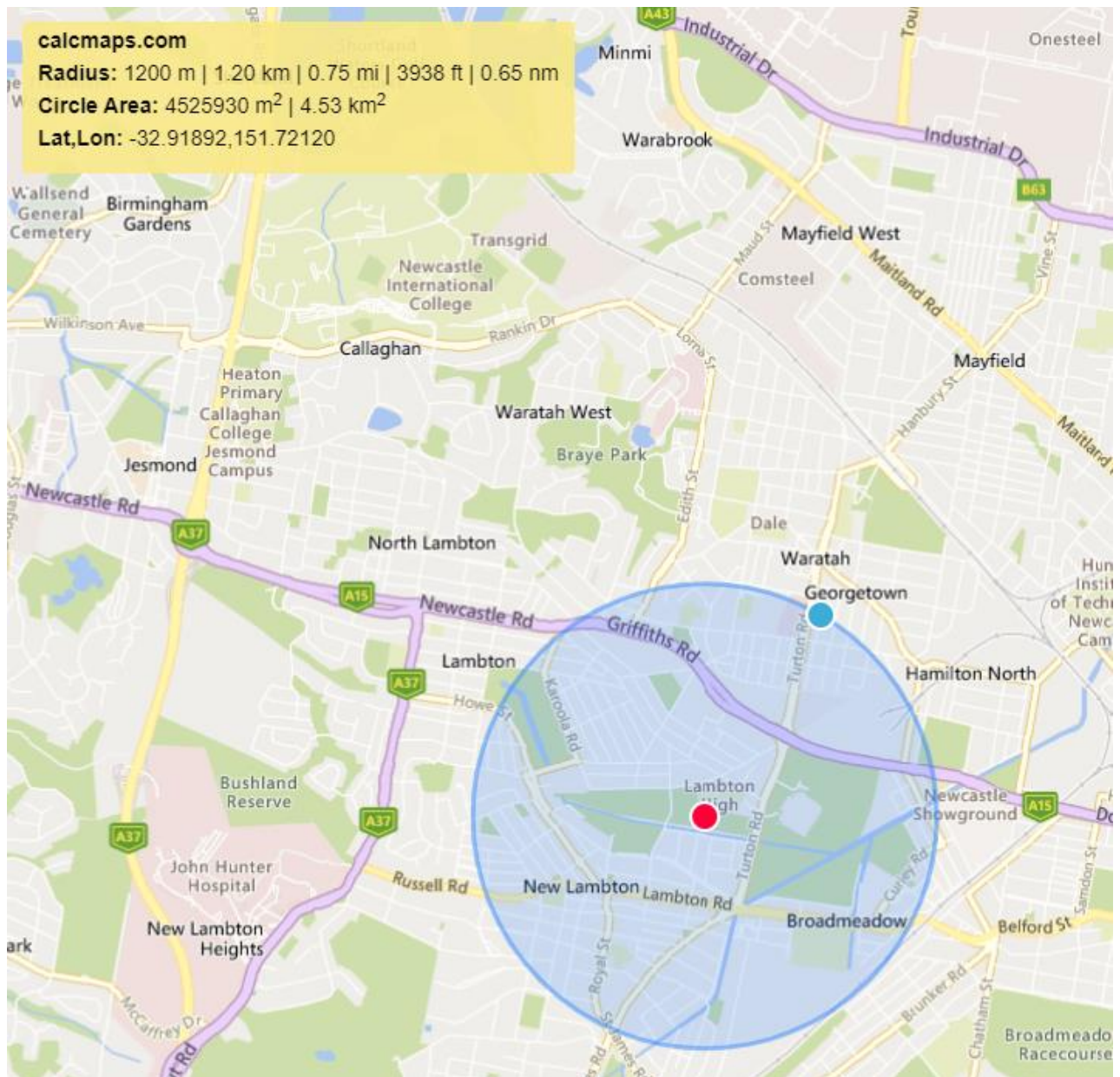
10. Checklist

ANSWERS FAVOURING DOING A HIA	TO YOUR KNOWLEDGE	ANSWERS FAVOURING NOT DOING A HIA
HEALTH IMPACTS		
<input checked="" type="radio"/> Yes / not sure	Does the initiative affect health directly?	No
<input checked="" type="radio"/> Yes / not sure	Does the initiative affect health indirectly?	No
<input checked="" type="radio"/> Yes / not sure	Are there any potentially serious negative health impacts that you currently know of?	No
<input checked="" type="radio"/> Yes / not sure	Is further investigation necessary because more information is required on the potential health impacts?	No
<input checked="" type="radio"/> No	Are the potential health impacts well known and is it straightforward to suggest effective ways in which beneficial effects are maximised and harmful effects minimised?	Yes
<input checked="" type="radio"/> No	Are the potential health impacts identified judged to be minor?	Yes
COMMUNITY		
<input checked="" type="radio"/> Yes / not sure	Is the population affected by the initiative large?	No
<input checked="" type="radio"/> Yes / not sure	Are there any socially excluded, vulnerable, disadvantaged groups likely to be affected?	No
<input checked="" type="radio"/> Yes / not sure	Are there any community concerns about any potential health impacts?	No
INITIATIVE		
<input checked="" type="radio"/> Yes / not sure	Is the size of the initiative large?	No
<input checked="" type="radio"/> Yes / not sure	Is the cost of the initiative high?	No
<input checked="" type="radio"/> Yes / not sure	Is the nature and extent of the disruption to the affected population likely to be major?	No
ORGANISATION		
<input checked="" type="radio"/> Yes	Is the initiative a high priority/important for the organisation/partnership?	No
<input checked="" type="radio"/> Yes	Is there potential to change the proposal?	No
FOR = 14	TOTAL	AGAINST =
TYPE OF HIA		
<input checked="" type="radio"/> Yes	Is there only limited time in which to conduct the HIA?	No
<input checked="" type="radio"/> Yes	Is there only limited opportunity to influence the decision?	<input checked="" type="radio"/> No
<input checked="" type="radio"/> Yes	Is the time frame for the decision-making process set by external factors beyond your control?	No
<input checked="" type="radio"/> Yes	Are there only very limited resources available to conduct the HIA?	No
ASSESSORS		
No	Do personnel in the organisation or partnership have the necessary skills and expertise to conduct the HIA?	<input checked="" type="radio"/> Yes
No	Do personnel in the organisation or partnership have the time to conduct the HIA?	<input checked="" type="radio"/> Yes

Appendix 3 – Mapping of direct and indirect impacts of the HISC development proposal



Appendix 4 – Map Radius Calculator 1200 m from Wallarah and Blackley ovals



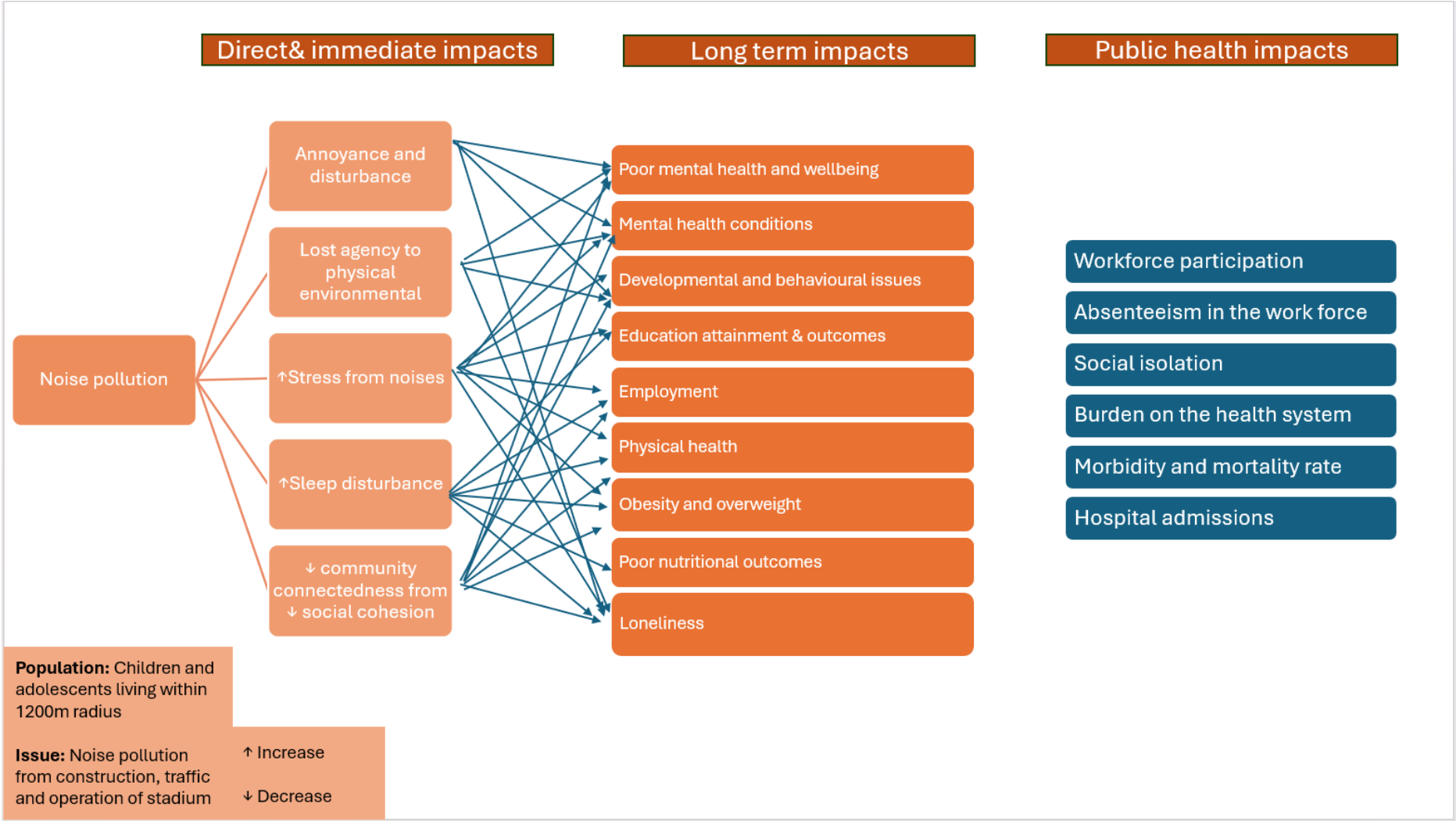
Picture 3: 1200 m from radius Wallarah and Blackley ovals generated from CalcMaps.⁵⁰

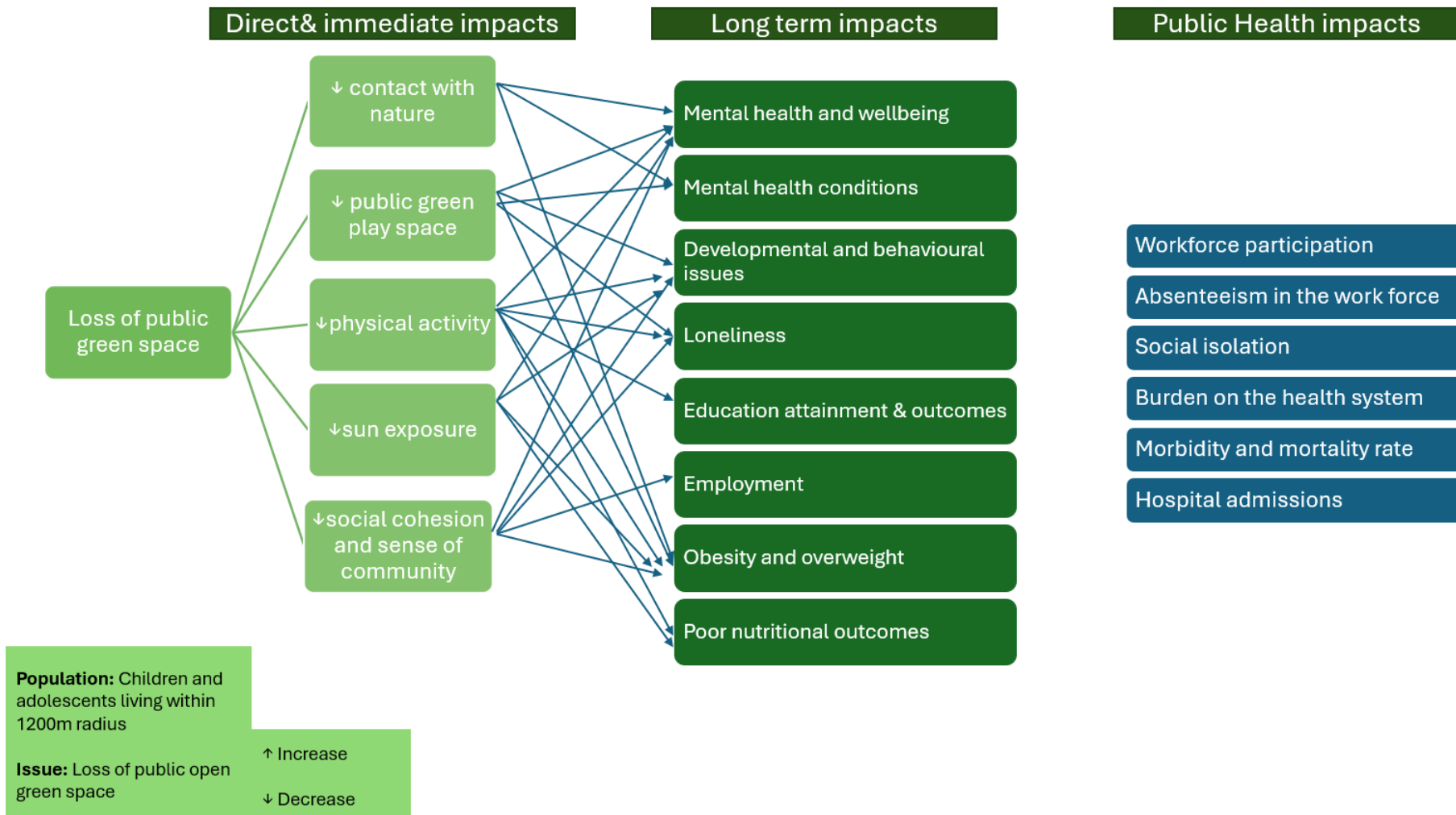
Appendix 5 –Drafted project plan for EFHIA steering committee

EFHIA Project Plan

Action/ Decision	Responsible party	Timeline	Comments
<ul style="list-style-type: none"> Appoint chairperson and develop meeting schedule, agenda, minutes, venue. E.g. monthly or bi-monthly. 	All	To be confirmed (TBC)	
<ul style="list-style-type: none"> Ensure recognition of SEARs expiry date of 21/01/2026. Ensure EFHIA completion before expiry date. 	All	TBC	
<ul style="list-style-type: none"> Identify existing/potential health impacts on different population groups for the HISC development to go ahead. Identify distribution of differential impacts particularly on vulnerable subgroups, such as children and adolescents, low-income families, elderly, culturally and linguistically diverse population etc. Long-term, short-term, direct, and indirect impacts. 	All	TBC	
<ul style="list-style-type: none"> Collect and discuss evidence on identified health impacts such as the removal of green space, noise pollution, air pollution, light pollution, growth and development, physical health, and mental health, and their long-term public health impacts. Apply equity lens in discussions, focusing on low SES/SEP and vulnerable populations. 	All	TBC	
<ul style="list-style-type: none"> Formulate recommendations according to collected evidence and discussion to mitigate negative health impacts of the HISC development. 	All	TBC	
<ul style="list-style-type: none"> Collate minutes, evidence, information, and recommendations into an EFHIA for submission. Each stakeholder responsible for respective area of expertise. 	All	Before 21/01/2026	

Appendix 6—short-term, long-term and public health impacts of the loss of public green space and noise pollution to children and adolescents within 1200m radius:





Appendix 7—Noise levels measure in Decibels dB(A) with familiar examples⁵¹

Examples of noise sound levels in Decibels (dB)

<u>Noise</u>	<u>dB</u>	
Gun Shot	140—160	Possible immediate or permanent hearing loss after exposure
Jet engine (threshold of pain)	140	
<i>Basketball stadium</i>	<i>138</i>	
Music concert, ambulance	120	
Chainsaw/ leaf blower/angle grinder	106—115	Repeated or prolonged exposure have the potential to lead to noise-induced hearing loss
Motorcycle, stereo	100	
Professional sports event/ car horn	95-100	
Subway, shouted convo	90– 95	
City traffic inside a car, noisy restaurant	85	
Alarm clock	80	
Vacuum cleaner	75	
Avg office noise	70	Safe level of sound
Normal conversation	60	
Quiet suburban area/ library	30—50	
Leaves from the wind	20	
breathing	10	