Development Plan Amendment

By the Council

Playford Council

Playford Health Precinct Development Plan Amendment

Explanatory Statement and Analysis

For Consultation

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Have Your Say

This Development Plan Amendment (DPA) will be available for inspection by the public at Playford Civic Centre, 10 Playford Boulevard, Elizabeth from 29 August 2019 until 25 October 2019.

During this time anyone may make a written submission about any of the changes the DPA is proposing.

Submissions should be sent to the CEO, City of Playford, 12 Bishopstone Road, Davoren Park, SA 5013 or by e-mail: playford@playford.sa.gov.au

Submissions should indicate whether the author wishes to speak at a public meeting about the DPA. If no-one requests to be heard, no public meeting will be held.

If required, a public meeting will be held on 12 November 2019 at the Civic Centre Playford Boulevard, Elizabeth.

Explanatory Statement

Introduction

The *Development Act 1993* provides the legislative framework for undertaking amendments to a Development Plan. The *Development Act 1993* allows either the relevant council or, under prescribed circumstances, the Minister responsible for the administration of the *Development Act 1993 (*the Minister*),* to amend a Development Plan.

Before amending a Development Plan, a council must first reach agreement with the Minister regarding the range of issues the amendment will address. This is called a Statement of Intent. Once the Statement of Intent is agreed to a Development Plan Amendment (DPA) (this document) is written to explain the policy changes proposed and to provide justification. The DPA also explains how the process will be conducted.

A DPA includes:

- An Explanatory Statement (this section)
- Analysis, which may include:
  - Background information
  - Investigations
  - Recommended policy changes
  - Statement of statutory compliance
- References/Bibliography
- Certification by Council's Chief Executive Officer
- Appendices
- The Amendment.

Need for the amendment

The City of Playford has established a health precinct around the Lyell McEwin Hospital (LMH) in Elizabeth Vale, with a master plan prepared in 2011 and rezoning undertaken in 2013. The rezoning provided the potential for a broad range of new facilities in a mixed use area around the hospital with a particular focus on allied health services and facilities. Investigations undertaken by Council indicate that by building on the advantages of one of the three tertiary hospitals in Adelaide, the Precinct has great potential to develop into a significant economic 'cluster'. This has also been recognised with the inclusion of the precinct in the 30 Year Plan 2017 update as a Business and Industry Cluster.

Success in attracting new development to the precinct means that that there is now the need to expand the mixed use area which is designated as Suburban Activity Node Zone. Additionally, advice from separate reports undertaken by Oryx in 2016 and Deloitte in 2018 indicated a potential for larger scale commercial activity but identified land availability as a key constraint to future growth. There are several new developments or proposed new developments in the precinct, which will mean that very little land is available for development until land can be rezoned. Development includes:

- A major new facility by ACH (Healthia) for allied health and aged care with planning approval
- Redevelopment of a number of small former residential allotments for smaller scale consulting room developments and a small commercial car park
- Expansion of the LMH Emergency Department and LMH car park

Statement of Intent

The Statement of Intent relating to this DPA was agreed to by the Minister on 19th of March 2019.

The issues and investigations agreed to in the Statement of Intent have been undertaken or addressed.

Affected area

The area(s) affected by the proposed DPA is identified in Figure 1 below:

Figure 1 DPA Affected Area and areas proposed for rezoning

Summary of proposed policy changes

The DPA proposes the following changes:

- Rezoning land from Residential Zone to an expanded Suburban Activity Node Zone at:
  - Lots 48 and 61 Mark Road which are located with frontage to Mark Road, John Rice Avenue and Phillip Highway
  - the properties to the north of Oldham Road between the current zone boundary and Broughton Road (between Mofflin Road and Haydown Road)
  - the properties between the current zone boundary (to the east of Haydown Road) and Lister Street and Davidson Road
- Renaming, revising and updating of the Lyell McEwin Health Node Policy Area 23 in the following way:

- providing greater clarity of role and function of the policy area for health, allied health, research, education and as an important activity centre for Adelaide's greater northern region

- better emphasising the range of residential and accommodation development sought (including preferred formats)

- greater focus on the Haydown Road as a main street and the uses, built form, activation of frontages and public realm treatments that would support this function

- improved guidance as to the desired forms of car parking

- identification of the desired location and design of iconic buildings in the zone

- identifying the important pedestrian connections throughout the policy area

- Application of the Noise and Air Emissions Overlay to the zone in this location

- Application of the Affordable Housing Overlay to the zone in this location

- Subsequent changes to mapping to reflect the above policy changes, including the removal of Concept Plan Map Play/33.

Legal requirements

Prior to the preparation of this DPA, council received advice from a person or persons holding prescribed qualifications pursuant to section 25(4) of the *Development Act 1993*.

The DPA has assessed the extent to which the proposed amendment:
- accords with the Planning Strategy
- accords with the Statement of Intent
- accords with other parts of council's Development Plan
- complements the policies in Development Plans for adjoining areas
- accords with relevant infrastructure planning
- satisfies the requirements prescribed by the *Development Regulations 2008*.

Consultation

Informal discussions have already been undertaken with the EPA, DPTI (Planning) and SA Health to ensure an appropriate understanding of relevant issues. These agencies will also be formally consulted during consultation on the DPA.

This DPA is now released for formal agency and public consultation. The following government agencies and organisations are to be formally consulted:

- Department for Child Protection
- Department for Education
  Department for Environment and Water
- Department for Innovation and Skills
- Department for Trade, Tourism and Investment
- Department for Health and Wellbeing
- Department for Manufacturing, Innovation, Trade, Resources and Energy
- Department of Planning Transport and Infrastructure
- Environment Protection Authority
- Renewal SA
- SA Water
- SA Power Networks
- APA Group

- City of Salisbury
- State Member for the electorate of Elizabeth
- Federal member for the electorate of Spence

All written and verbal, agency and public submissions made during the consultation phase will be recorded, considered, summarised and responses provided. Subsequent changes to the DPA may occur as a result of this consultation process.

Important Note for Agencies: This DPA includes modules from the State Planning Policy Library.

As the policy library was subject to agency consultation during its development, agencies are requested to comment only on the range and application of the modules selected and not on the actual policy content, except where that policy has been included as a local addition. Agencies are invited to comment on any additional issues (if relevant).

The final stage

When the council has considered the comments received and made any appropriate changes, a report on this (the *Summary of consultations and proposed amendments* report) will be sent to the Minister.

The Minister will then either approve (with or without changes) or refuse the DPA.

Analysis

1. Background

The health precinct around the Lyell McEwin Hospital (LMH) in Elizabeth Vale was established by the City of Playford through a master planning process in 2011 and rezoning undertaken in 2013. The rezoning of the former Bi-Centennial tennis court site and some residential land on the northern side of Oldham Road provided the potential for a broad range of new facilities in a mixed use area around the hospital with a particular focus on allied health services and facilities. Investigations undertaken by Council indicate that by building on the advantages of one of the three tertiary hospitals in Adelaide (the LMH), the Precinct has great potential to develop into a significant economic 'cluster'. This has also been recognised with the inclusion of the precinct in the 30 Year Plan 2017 update (a volume of the State Government's Planning Strategy) as a Business and Industry Cluster.

Success in attracting new development to the precinct means that there is now the need to provide additional land with potential for larger scale institutional, commercial and allied health development, to be zoned as Suburban Activity Node. There are several new developments or proposed new developments within the precinct, and there is a current shortage of suitably zoned land to accommodate market demand.

The 2013 rezoning facilitated a number of substantial developments. Developments either completed or upcoming as a result of this rezoning include:

- ACH Development on the former Bi-Centennial tennis courts, south of Oldham Road.
- Fluid Solar Office development on Haydown Road.
- Two consulting rooms and a private car park development on the northern side of Oldham Road.

There are a number of identified trends which are driving the expansion of the Health Precinct, these include:

- Population growth
- Low self-sufficiency of the Northern Areas Local Health Network Catchment
- An ageing population and high levels of chronic disease

The DPA will provide a suitable supply of relatively large undeveloped land and smaller parcels of currently residential land to provide for a diversity of development and opportunities for allied health uses, research facilities, University, private hospital, broader commercial opportunities, and medium density residential development.

2. The strategic context and policy directions

2.1 Consistency with the Planning Strategy

The Planning Strategy presents current State Government planning policy for development in South Australia. In particular, it seeks to guide and coordinate State Government activity in the construction and provision of services and infrastructure that influence the development of South Australia. It also indicates directions for future development to the community, the private sector and local government.

The following volumes of the Planning Strategy are relevant to this DPA:

- The 30-Year Plan for Greater Adelaide (2017 Update)

The DPA addresses the following relevant targets within the Planning Strategy:

- **Target 1 -** 85% of all new housing in metropolitan Adelaide built in established urban areas by 2045
- **Target 2 -** 60% of all new housing in metropolitan Adelaide is built within close proximity to current and proposed fixed line (rail/ tram/ O-Bahn) and high frequency bus routes by 2045
- **Target 3 -** Increase the share of work trips made by public transport modes by residents of inner middle and outer Adelaide by 30% by 2045.
- **Target 4 -** Increase the percentage of residents living in walkable neighbourhoods in Inner, Middle and Outer Metropolitan Adelaide by 25% by 2045
- **Target 5 -** Urban green cover is increased by 20% in metropolitan Adelaide by 2045
- **Target 6 -** Increasing housing choice by 25% to meet changing household needs in Greater Adelaide by 2045

The DPA contributes to the achievement of the targets by seeking to expand the Playford Health Precinct, and to rezone and better utilise land within this strategic location in an established urban area of Adelaide. In doing so, it will facilitate the greater provision of services, employment options, and health facilities to service the immediate and wider Northern Metropolitan region. The DPA will also provide potential for additional diverse housing options, along with mixed use development that provides for local needs and services within a walkable community, with excellent accessibility to public transport.

This DPA is consistent with the principles within the 30 Year Plan, along with policies within the Planning strategy relating to:

- design quality
- housing mix and affordability
- the economy and jobs
- transport

The Playford Health Precinct has been designated as a business and industry cluster in the State Government's 30-year Plan 2017 (a part of the Planning Strategy for SA).

A detailed assessment of the 30 Year Plan for Greater Adelaide is contained within Appendix A.

2.2 Consistency with other key strategic policy documents

2.2.1 Council's Strategic Directions Report

This DPA is consistent with Council's Strategic Directions Report. The Strategic Directions Report was adopted by Council in February 2013. A DPA for the health precinct was underway at the time and was number two on Council's priority list for completion in terms of 'current policy work and DPAs'.

The DPA was second in priority only to Council's involvement in Playford Projects which resulted in the Ministerial DPA for a number of growth areas throughout the City. The Lyell McEwin and Allied Health Precinct DPA was authorised in November 2013 and consolidated in Council's Development Plan in 2014. While Council has not undertaken a more recent Strategic Directions Review, Council's strategic planning has retained development of the health precinct as a high priority.

2.2.2 Playford Council Community Vision 2043

The proposed amendment will be consistent with the Council's current community plan, the Community Vision 2043. The DPA will align with the key themes identified in the plan of prosperity, liveability and happiness.

The DPA aligns with the theme of liveability by providing a well-connected, well-planned and attractive Health Precinct with the appropriate infrastructure and improved accessibility to services. Additionally, the DPA will facilitate a 'village lifestyle' by allowing for a more diverse density and urban form in the locality.

A direct correlation to the theme of happiness will be achieved through the provision of improved health for the community via greater provision of health care infrastructure, and also embedding the healthy living principles of walkability, cycling infrastructure and access to public transport within the policy outcomes.

Prosperity will be facilitated by the DPA through the provision of additional land to allow for the growth and expansion of key existing economic drivers within the area, while also accommodating the establishment of new economic opportunities. The predicted increase in employment opportunities will build on the number of people who work in the Precinct and also employ a greater number of people from the surrounding region, which is expected to experience sizeable population growth. This will assist in transitioning the regional economy from its manufacturing past into new employment sectors.

2.2.3 The Integrated Transport and Land Use Plan

The proposed DPA will align with the following key priorities of the Integrated Transport and Land Use Plan (ITLUP):

- Continue improvements to the public transport network
- A redesigned and modernised bus network
- Integrated planning to support a more compact Adelaide
- Less reliance on cars, and fewer trucks on city streets
- More travel options and more sustainable and healthy travel choices
- Better integration of transport and land use planning

The road system within the affected area is well suited to further development of the precinct, while noting that intersection upgrades by the Department of Planning, Transport and Infrastructure and Council will be required as the area is developed over time. Public transport access within the area is relatively high with numerous bus routes servicing the area. Planning is at an advanced stage for the development of a 'super stop' for buses on Haydown Road where all services would converge to provide a single quality shelter and location for patrons to utilise.

2.2.4 Infrastructure planning

The proposed amendment is consistent with current infrastructure planning (both social and physical) identified in council's strategic directions report, by the Minister or by a relevant government agency.

The State Government will soon be commencing the upgrade of the Emergency Department of the LMH which will be entirely within the current envelope of the hospital site bounded by Oldham Road, Haydown road, John Rice Avenue and Mark Road. It is not anticipated that the DPA will have any significant implications for this project.

Overall the DPA will support the role of the hospital by continuing to develop complementary activities in close proximity. For example, there is potential for university, research and private hospital facilities to be developed in close proximity, as well as additional shopping and commercial development to provide for staff (hospital and other development) and visitors to the precinct.

Infrastructure such as electricity, gas, storm water drainage have been investigated and found adequate to service development in relevant areas. A study commissioned by Council and undertaken by AARB indicates that roads have adequate capacity to service the needs of the precinct with potential for upgrades as required at key intersections as traffic volumes increase over time (further considered by GTA as part of this DPA). These matters are further detailed in Section 3.2.4 and 3.2.5.

Council is currently working towards the development of a bus super stop on Haydown Road. This would improve the service to bus service customers by enabling most services to the precinct to be accessible in this one location.

2.2.5 Current Ministerial and Council DPAs

This DPA has taken into account the following Ministerial and Council DPAs which are currently being processed:

Council DPAs	Response/Comment
Nil	Nil

Ministerial DPAs	Response/Comment
Gawler Rail Corridor Uplift DPA	This DPA examines land within proximity to the Gawler Rail Corridor with a view to examining more appropriate zoning which will capitalise on the population and employment uplift of investment in this critical infrastructure. This is yet to be released for consultation and Council is not fully aware of the policy contents of this DPA, but there are unlikely to be any significant implications for the Health Precinct.
Greater Edinburgh Parks Employment Lands	DPA proposes to amend the Playford Council and Salisbury (City) Development Plans by rezoning land at Penfield and Waterloo Corner to urban employment lands to support industrial/enterprise and allied development and ensure 15 years' zoned land supply. The LMH site is located just outside the south-east boundary of the Employment Lands Area and is not affected by this DPA.

2.2.6 Existing Ministerial Policy

This DPA does not propose changes to existing Ministerial policy.

3. Investigations

3.1 Investigations undertaken prior to the SOI

Prior to the preparation of the Statement of Intent (SOI) in relation to this DPA, the following investigations were undertaken and inform this DPA:

3.1.1 Lyell McEwin Health Precinct Master Plan 2011

Lyell McEwin Health Precinct Master Plan, prepared in 2011 for City of Playford, in conjunction with the Department of Health and the Lyell McEwin Hospital, sought to facilitate and prompt the development of a strong cluster of mutually supporting activities building out from the existing Lyell McEwin Hospital with a range of medical, allied health, industrial, technical and supporting services including accommodation, retail and commercial activities on either the Hospital site or in close proximity to the current site.

The 2011 Master Plan therefore provided for the physical expansion of the hospital as well as providing for allied health and supporting activities along Haydown, Oldham, Rollison and Mark Roads. Streetscape and urban design improvements and “main street/high street” treatments were considered within the precinct, with a focus on Haydown Road.

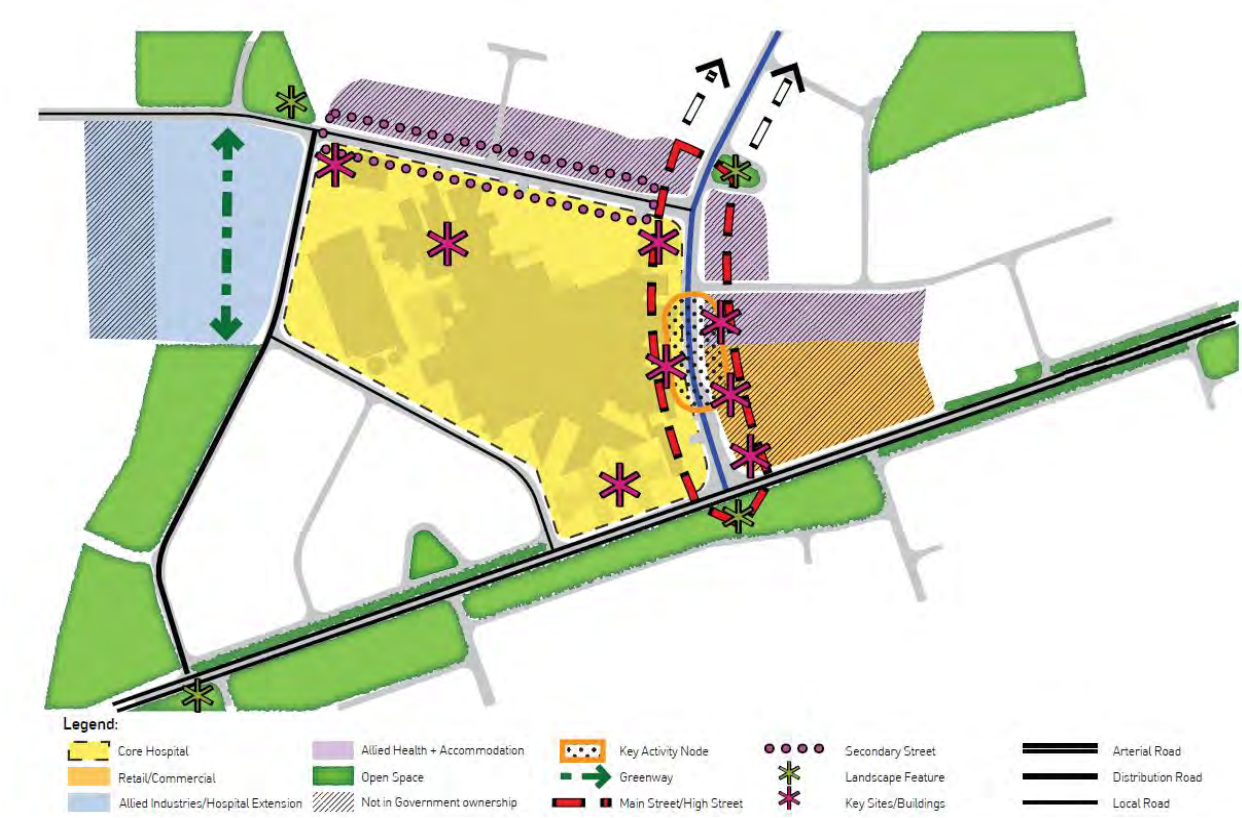

Figure 2 Lyell McEwin Health Precinct Master Plan 2011

The Master Plan preceded the rezoning of the LMH site, land on the western side of Mark Road, northern side of Oldham Road, and eastern side of Haydown Road to Suburban Activity Node Zone.

The road network and utility services infrastructure were considered sufficient to accommodate the 2011 growth scenarios. No serious constraints to the expansion and development of the precinct were identified in the report.

A number of potential opportunities were considered including interest from tertiary institutions having a stronger presence within the precinct into the future during the master plan discussions.

Other medical related opportunities considered included a simulation facility, private medical rooms, associated health and allied services, biotechnology, medical laboratory equipment manufacturing, and equipment hire.

Non-medical potential opportunities consisted of a fitness centre, community health, community centre and library, convention centre, offices and consulting rooms (non-medical), food and beverage, retail, commercial, child-care, aged care, higher density residential, and short-term accommodation.

The 2011 Master Plan provided for the following features:

- The Core Hospital Site for Emergency;
- Allied health provided along Haydown and Oldham Road;
- Redeveloped Neighbourhood Shopping Centre with additional food and retail offer with emphasis on fronting Haydown Road as part of a 'High Street' / 'Main Street';
- Further 'High Street' premises along both sides of Haydown Road;
- Short term residential and medium density residential along Oldham Road and Rollison Avenue;
- Option of future extension of Hospital and/or Allied Health over Mark Road.

The following opportunities have been realised within the precinct since to 2011 Master Plan and subsequent re-zoning:

- ACH development on the 2.5 ha former Bi-Centennial tennis courts site. This was sought for a major allied health development. This is a multi-million-dollar project to establish a substantial aged care and allied health development to commence in 2019.
- The $8 million four storey Fluid Solar office development on Haydown Road which is also off grid (power provided entirely by solar PV and wind turbines) and completed in 2017.
- Three developments have been completed on the northern side of Oldham Road on former residential land / house sites, including two private specialist / consulting room developments and a car park (privately owned pay parking), occupying a total of four residential allotments (out of the total of 14 allotments zoned in 2013 as part of the precinct on Oldham Road).

3.1.2 Playford Health Precinct – A Vision in the making, Deloitte 2018

In 2018 Deloitte prepared a visioning report for the Playford Health Precinct, exploring the current state-of-play, trends and economic drivers within Adelaide's northern suburbs and greater northern region. The expansion of the Health Precinct is responding to and capitalising on these influences.

The report identifies that the global and national trend within health care and services is rapidly evolving towards integrated Health Precincts which combine medical services and health care with education, research, as well as commercial development.

The report recognises that the Playford Health Precinct is well positioned to capitalise on this trend due to it being the largest hospital and health service cluster in Adelaide's north, its accessibility along key transport corridors connecting the Adelaide metro area to the greater northern region of South Australia. Its strategic location serves as a health gateway to the regional population well beyond Adelaide's northern suburbs. The figure below identifies the Health Precinct's location within the context of health offerings available in the greater northern region.

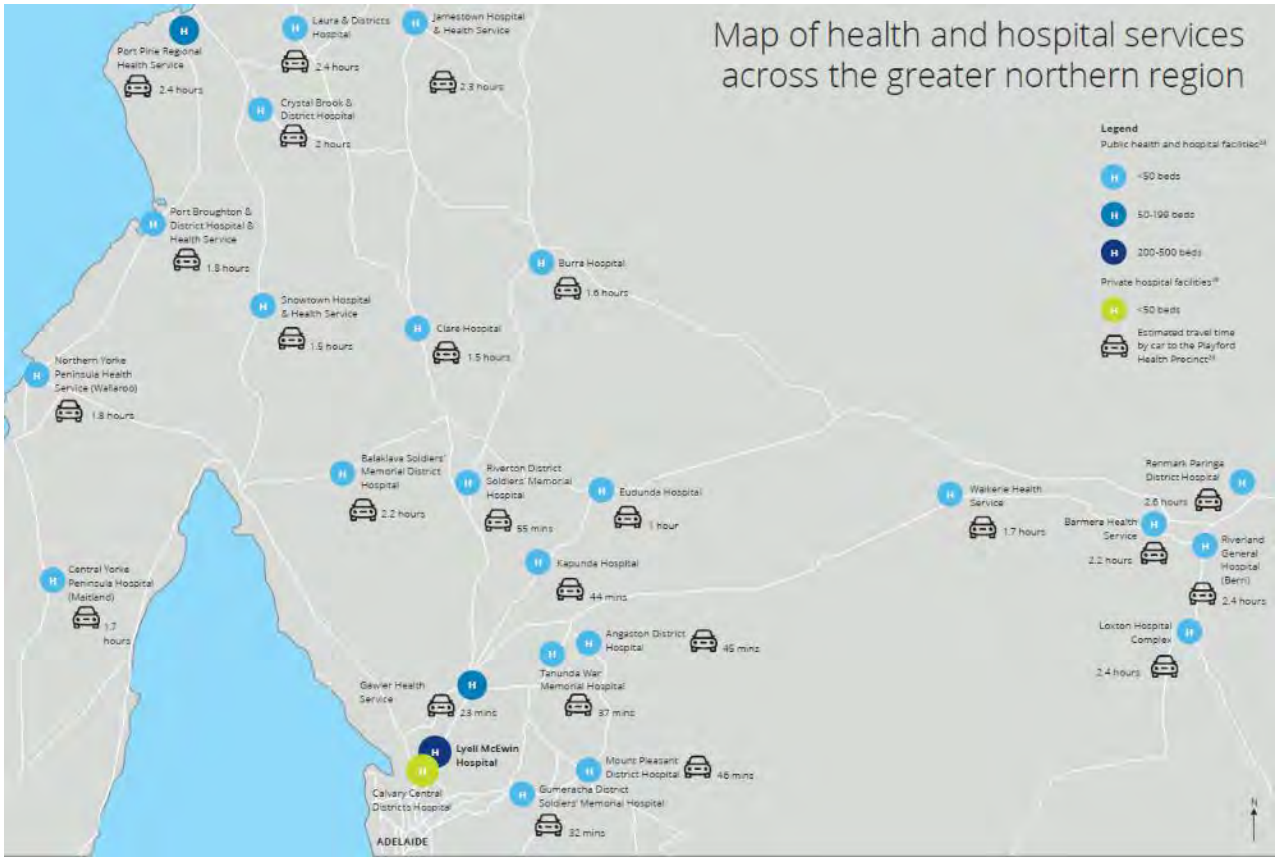

Figure 3 Map of health and hospital services across the greater northern region

The Deloitte report identifies a number of trends and drivers influencing the future of health service provision within Adelaide's northern suburbs and the greater northern region of SA.

Key Trends:

- Adelaide's northern suburbs, particularly Playford, perform poorly on a range of health and socio-economic indicators when compared against South Australia more broadly
- Poor health outcomes coupled with poor social outcomes entail a higher burden for the provision of health care services, particularly publicly funded services
- The northern suburbs are home to a disproportionate number of adults who smoke and are obese and an increased risk of developing a chronic disease.
- A high proportion of adults with a severe disability, as well as those in need of assistance undertaking daily activities, also live in Adelaide's northern suburbs
- Adelaide's greater northern region is particularly popular with older people and retirees, people in a stage of life when access to health services becomes increasingly important.
- Since 2006 automotive manufacturing decline within the region (particularly Playford), has resulted in significant structural change within the local economy and employment sectors.

Key Drivers:

- Defence Industries - More than 85 per cent of Adelaide's defence industry employment is concentrated in the northern suburbs. Much of this activity is generated by the Edinburgh Defence Precinct, located some 7 kilometres from the LMH
- Population growth - Adelaide's northern suburbs are home to some of South Australia's fastest growing populations. It is predicted that a quarter of the state's population will live in northern metropolitan Adelaide by 2026.
- Poor self-sufficiency in public health services - Despite the growing need for health services in Adelaide's northern suburbs, currently only 61 per cent of these needs are met locally
- Ageing population and chronic disease - Adelaide's northern suburbs are ageing at a much faster rate than South Australia as a whole.

The Deloitte reports identifies an opportunity to further diversify and strengthen the economy of the northern suburbs through expansion of the Playford Health Precinct by increasing its health services and diversifying its offerings. In particular the report identifies the following key areas for growth:

- **Hospital Services**
  "Build upon the existing health and medical services provided, while also acknowledging health trends in the region and building a reputation as a leader in treatment of chronic diseases, acute care and geriatric medicine."

  There are limited private hospital facilities servicing the population of Adelaide's northern suburbs, despite 42 percent of the region's population having private health coverage. The development of a private hospital at the Playford Health Precinct could allow the private and public hospitals to leverage off one another, reduce the pressure on the LMH , free up resources and potentially improve services at the LMH by attracting greater range of medical specialists and professionals.

- **Aged care, allied health and other health services**
  Establishing a cluster of health and care services around the existing LMH and other established businesses, could result in achieving the 'critical mass' necessary to attract a range of service providers and facilities at the precinct.

  The ageing population within the region will likely increase the demand for acute medical and recovery services, specialist medical gerontology services, and residential aged care facilities.

  The launch of the NDIS is expected to increase the demand for allied health workers with specialist skills, such as physiotherapists, speech pathologists, occupational therapists, and social workers.

  The proximity of the Edinburgh Defence Precinct presents an opportunity to cater to the specialist health needs of the large defence workforce. This could include services such as specialist general practice medicine, mental health and psychological services in the treatment of depression or post-traumatic stress, and the treatment and rehabilitation services for physical trauma.

  Other health business which could also be developed within the precinct include businesses such as manufacturing and testing of health and medical technology and innovation; health consultancies such as dental services, radiology, audiology counselling; and auxiliary health services such as pharmaceuticals, pathology, optometry, natural therapy, and medical equipment providers.

- **Education, training and research**
  Playford Health Precinct has the potential to increase tertiary level education in Adelaide's north, including TAFE and University institutions, as well as vocational education. This could create a complementary mix of students, researchers, academic leaders, medical professionals and industry.

  Growing the reputation of the precinct as a research centre has the potential to also attract new private sector investment and skilled workers to the area.

The Deloitte Report spatially depicts how the growth of the above services and industries may develop within the available land surrounding the LMH site, as depicted in the figure below.

Figure 4 Potential Expansion of the Playford Health Precinct

Implications for Policy

The Deloitte report identifies a clear need for expansion of the precinct to improve health offerings to respond to the health climate in Adelaide northern suburbs and greater northern region of SA. This provides the base case for the proposed DPA.

It is evident the DPA will need to establish a policy framework that provides flexibility to allow for the establishment of a range of new developments and expansion of existing facilities to respond to the key growth areas of:

- Hospital services
- Aged care, allied health and other services
- Education and training

It is logical for the policy framework/zoning to be applied to the identified expansion area, consistent with established zoning of the existing precinct – i.e. the Suburban Activity Node Zone.

3.1.3 Oryx Commercial Activation Strategy 2016

The Commercial Activation Strategy prepared by Oryx in 2016 explored the limitations, potential opportunities and recommended actions to facilitate commercial growth and activation within the Playford Health Precinct.

The report divided the study area into five distinct precincts. The specific precincts are as follows:

1. Retail and Mixed-Use Precinct
2. Allied Health Precinct (Oldham Road)
3. The Phillip Highway Gateway Precinct
4. Core Expansion Precinct
5. The Western Precinct (ACH complex)

Figure 5 Oryx Report Precincts Map

Precinct 1 Retail and Mixed Use Precinct

The objectives Oryx identified for this precinct were to see it developed to its highest and best use, and the creation of a quality retail core with an activated main street on Haydown Road.

The challenges identified for this precinct primarily related to a shortage of parking to accommodate future growth and a lack of land to rectify this. Additionally, the position of the retail centre on the eastern side of the LMH core precinct was noted as a constraint as the LMH is chiefly oriented west (driven by the location of the decked car park servicing the hospital). Greater connection and integration between these two areas was seen as key enabler of future growth.

The report recommends Council facilitate the development of shared parking as well as, realigning customer orientation to the precinct in order to achieve the highest and best use development outcomes (e.g. precinct gateway, Haydown Road main street, public realm investment).

Precinct 2 Allied Health Precinct

The objectives identified for this precinct were to enable highest and best use development, primarily for small to medium private allied health support use and other commercial enterprises. The constraints for this development scenario were identified to be land and ownership fragmentation, small allotments, high number of egress points on Oldham Road and poor pedestrian environment, and interface with adjoining residential properties.

Precinct 3 & 5 Phillip Highway Gateway Precinct

The report recommends consideration of the release of land south of the ACH site along the western alignment of Mark Road, and extending along John Rice Avenue to the Phillip Highway. This expansion of what is highly exposed land has the potential to create a strategic link between the LMH precinct and the GMH site to the west of the Phillip Highway.

Anticipated uses identified in the report are medium to large scale institutional uses such as a University campus, research facility or a Private Hospital.

In facilitating the development of the land, Oryx suggests that Council investigate either the sale of the land or enabling long term lease arrangements, supported by a DPA process and Community Land revocation. It should be noted that the Community Land designation has already been revoked.

Precinct 4 Core Health Precinct

Development options considered for the Core Precinct include the intensification of development within the defined LMH site or expansion into the triangular residential area bounded by Trembath Road in the north and east, John Rice Road in the south and Mark Road in the west (Core Expansion Area).

Opportunities for substantial intensification of the core were identified as likely to be limited within the established site area. This would cause significant disruption to the operations of the Hospital. Use of the Core Expansion Area would provide an additional 4.7 hectares of area, however currently accommodates 57 residential properties under fragmented ownership.

Council's role in any expansion into this area is identified as minimal, other than preventing its development in a manner that would negate its future use for the long-term expansion of the LMH. For this reason, it is suggested that the other precincts discussed in the report, particularly Council owned land within the gateway precinct, present greater opportunity and should be the focus for future expansion plans in the short to medium terms.

Implications for policy

The Oryx Report highlights the difficulties in planning for specific activities in any one location. A number of other factors drive the format and location of specific land uses and building forms, principally related to financial viability and market demands and needs. The lack of parking provision, whilst supporting sustainable travel transition, is problematic in this location and the market is driving demand and supply of parking for tenants and visitors to the Precinct.

The format and location of certain developments across the precinct since the rezoning in 2013 have sometimes been contrary to the original intent of policy. The ACH proposal is an example, as the original intent of the area to the west of Mark Road did not include the provision of residential accommodation. This speaks to a need to move away from defining specific precincts across the zone and instead provide for a clear vision for the entire precinct overall to guide land uses and potential synergies.

Contrary to this however is establishing a focus for a retail / main street focus on Haydown Road which remains important in supporting a "heart" for the precinct, supported by focussed public realm and streetscape investment, as well as public transport focus via the super stops.

Importantly, this report identifies and provides a case for the rezoning and inclusion of the Council owned land between the Phillip Highway and the ACH facility along Mark Road as the principal opportunity for commercial activation and expansion of the Health Precinct.

3.1.4 ARRB Playford Health Precinct Transport, Parking and Innovation Report (2017)

This study undertook a review of the traffic, transport and parking needs of the Playford Health Precinct. It specifically investigated the current transport network in place, including public transport, pedestrian and

cycling facilities and the road network. The report also examined the traffic impacts, along with a review of parking issues for the Precinct and the use of future technologies.

Key findings of the report identified a number of strengths, weaknesses and opportunities. Key strengths identified indicated that there are a high number of parking bays within the surveyed area (2311 total) and that during peak periods (2pm Wednesdays) the level of occupancy was below 65 percent indicating capacity for car parking overall within the precinct.

Identified weaknesses include a lack of Council controlled (timed / paid) off-street parking facilities, coupled with confusion / variation in on-street parking restrictions and signage and a shortage of parking dedicated to LMH staff.

Opportunities identified included:

- the availability of council-owned windbreaks land to establish parking on southern side of John Rice Avenue and eastern side of Mofflin Road (triangular section north of Healthia site)
- the provision of a shuttle service to improve utilisation of vacant existing 400+ parking facility at corner of Walsh Street and Phillip Highway (former Holden car park)
- additional on-street parking opportunities on Mark Road
- introduction of parking technology to improve wayfinding, space availability, and mobile 'top-up' payments; and
- re-designing of public parking in front of main LHM entrance to create logical search pattern and reduce emergency service conflicts.

Major recommendations outlined in the ARRB Report include:

- Upgrading the John Rice Avenue / Haydown Road intersection as either a signalised intersection or a roundabout to address right turn movement in and out of Haydown Road.

- Installation of roundabouts at key intersections, particularly Oldham Road/ Haydown Road and Mark Road/Oldham Road/Mofflin Road.

- Providing a public transport super stop to integrate bus and taxi services into a single interchange facility and improve the overall level of passenger comfort and safety. Option 3 Oldham Road is the recommended location (although this has since been revised to Haydown Road upon further investigation and engagement).

- Upgrading pedestrian infrastructure so that all existing footpaths are at least 2.0–2.5 m in width to allow two wheelchairs to comfortably pass one another and to also cater for the anticipated higher pedestrian volumes. Coupled with this should be improvements to universal access signage across the precinct to improve pedestrian wayfinding.

- Improve cycling infrastructure through the provision of bike lanes along John Rice Avenue and Harvey Road (as outlined in the City of Playford's 2014 Cycling and Walking Plan), or alternatively, a shared path along Mofflin Road, Hogarth Road and Harvey Road. New development should also provide additional end-of-trip bike facilities.

- Introduction of a revised parking strategy for the precinct. This should be gradually introduced based on regular comparative surveys of usage and structured to favour short-term occupancy.

- Provision of smart infrastructure, including smart charging points, information kiosks, electric vehicle charging points; and smart lighting.

- Automated Shuttle Bus service, connecting with public transport nodes, parking facilities, or nearby future precincts and centres (such as Elizabeth or Salisbury town centre).

Implications for policy

The findings of this study identify further opportunities for Council to better manage parking and accommodate growth in parking demand across the precinct into the future, including through the use of smart technology and provision of additional on-street / public parking in certain locations. These fall outside of the sphere of planning policy.

The report recommends the addition of future cycling networks, improved pedestrian infrastructure and greater wayfinding facilities and signage, and the addition of a public transport super stop. These aspects should be provided with improved policy coverage as part of this DPA.

Furthermore, the report recommends upgrades to key intersections, importantly including Haydown Road / John Rice Avenue intersection as a suitable location for a signalised or roundabout upgrade, which is identified within the current Concept Plan Map Play/33. These are further considered as part of additional investigations undertaken by GTA within Section 3.2.5.

3.1.5 Previous Site Contamination Investigations

GM Holden Site Contamination Audit Report (2019)

A Site Contamination Audit report pertaining to the former GM Holden site to the west of the Playford Health Precinct was prepared by Australian Environmental Auditors in 2019. An Accredited Auditor's Statement has also been prepared for the site. The auditor's review and statement did not review the suitability of the site for sensitive use, but only sought to investigate and identify the current contamination levels on the site, and identify what, if any, limitations this may place on the use of the land and potential impact on adjoining land.

The investigations confirm levels of contamination across the site, none of which impact directly on the affected area and its ability to be developed for its intended purpose. In addition, whilst groundwater contamination has been identified and a Groundwater Exclusion Zone has been recommended by the Auditor, the area of land affected by this is to the north and west of the GMH site, well away from the affected area (reflective of groundwater flows which run away from the affected area).

ACH Healthia Preliminary Site Investigation, Lot 47 Oldham Road, Elizabeth South (2016)

A preliminary site investigation (PSI), undertaken by LBW Co, was commissioned by City of Playford in 2016 for Lot 47 Oldham Road, Elizabeth South prior to the sale of the land and the subsequent development of the site by ACH for aged care related use.

The objectives of the PSI were to:

- Identify whether potentially contaminating activities (PCAs), defined in the SA EPA Environment Protection Regulations 2009, may have occurred on or near the site;
- Assess the potential for PCAs to have caused site contamination, with respect to the proposed aged and health care facility land use;
- Broadly quantify any residual contamination levels on the site caused by identified PCAs and assess the risk posed by these contaminants, with respect to the proposed aged and health care facility land use.

A site inspection was also undertaken including soil sampling at ten locations on the site, the locations of which are identified in the Figure below. The soil sample material generally consisted of gravelly sands and sands. Groundwater was not encountered. No visual or olfactory indications of petroleum hydrocarbon contamination were observed. No waste material inclusions were noted in fill.

Figure 6 Soil Sample Bore Locations (LBW Co 2015)

A desktop site history investigation identified uses dating from 1949 and found that the site was largely vacant for a long time until the 1980's where the tennis court, parking and sporting facility occupation of the land began. The PSI report made the following statements and conclusions:

- The only potentially contaminating activity identified was the fill or soil importation on the land.
- Concentrations of potential contaminants in soils did not exceed the relevant human health and ecological investigation levels for the proposed aged and health care facility use of the site (ie sensitive land uses with the ability to interact with exposed soils).

While it is acknowledged that this report relates only to the allotment that now forms part of the Healthia development site area, it is highly likely that the soil conditions and past use of the two Council owned allotments west pf Mark Road share a similar history and soil conditions (although noting that they have not been developed for tennis courts and as such their likelihood of imported soils and fill would be even lower).

Implications for this DPA

The previous investigations undertaken for the portions of the affected area, and those known contaminated sites to the west(particularly GMH site) demonstrate that the risk of site contamination of the land in question remains low and will be most likely able to be economically adapted for sensitive land uses (should these be established on this land). There is existing policy providing coverage for the consideration and management of site contamination as part of future development application within the Hazards module of the Development Plan. Additional policy guidance in the zone / policy area are not considered necessary as part of this DPA.

The expanded area being considered north of Oldham Road already contains dwellings which are sensitive land uses. As such their suitability for similar uses is not questioned.

3.1.6 Recent, Current and Pending Development Applications

Lyell McEwin Emergency Department Redevelopment

The LMH Emergency Department redevelopment comprises of 2 phases of work, the first being an internal refurbishment, and secondly the extension of 2880m^2 of additional floor area consisting of:

- Level 1 (ground) - addition to existing clinical spaces
- Level 2 - new emergency administration accommodation and central plant
- Level 3 - 8 bed Short Stay Mental Health Unit.

Due to the identified loss in parking (approximately 81 parks lost) from the increased building footprint and the additional demand generated (some 115) this redevelopment precipitated the Hospital car park extension development application.

Lyell McEwin Hospital Car Park Building Extension

Lyell McEwin Hospital Car Park Building Extension application (292/V002/19) at the time of writing had been lodged with the State Commission Assessment Panel (SCAP) and comprises an extension on the western side of the 5 above ground levels of the existing Multi-Deck Car Park (1 half level below ground and 5 levels above ground) comprising of an additional 205 carparks to the existing 1,249 spaces. The site of the development is in the south west corner of the Lyell McEwin Site.

ACH Vita North / Healthia Masterplan – Stage 1

Stage 1 of a coordinated and integrated aged care and other related use facility by ACH, referred to as Healthia, has been approved and is expected to commence construction in 2019. At its completion the facility in its entirety is intended to provide a comprehensive range of health and wellness related services focused primarily on restorative care and enablement.

It is noted that this use is contrary to what existing policy had intended for this location (institutional, research or similar) and there was specific policy which spoke against aged care or residential use here. Nevertheless, as the first key investment in precinct it was supported.

Fluid Solar Building

Fluid Solar House is a new development of some 3,000sqm of medical consulting room accommodation. This development (completed 2016) comprises a three-storey building together with ground level undercover and external parking (68 car parks, plus motorbike parking and bicycle parking).

The building activation to Haydown Road, public realm improvement, and visual contribution to the locality generally, is limited. The building presents large swathes of blank walls with small windows and very little in the way of articulation or features to provide visual interest. Additionally, the building does little to activate the street level with minimal openings and creates a sense of disconnection from surrounding streetscape. This outcome indicates a need to strengthen policy coverage on design quality and street level activation.

MediHub Facility

A two-storey development of 1,300sqm intended for the use of consulting rooms and office space has been approved on vacant land on the eastern side of the Elizabeth Vale Shopping Centre (44 John Rice Avenue). The facility is referred to as MediHub. It was granted Development Plan consent in 2013 but has not proceeded to full Development Approval. Oryx have suggested that issues with parking availability and limited interest have limited its potential.

Implications for policy

The establishment of uses within land made available by the 2013 DPA indicates a demand for land within the Precinct. Direct policy implications are limited however, it is noted that the poor design outcome associated with the Fluid Solar Building indicates a need to strengthen policy coverage on design outcomes and street level activation, particularly for Haydown Road.

3.2 Investigations undertaken to inform this DPA

3.2.1 Western Expansion of Suburban Activity Zone

A key outcome of strategic investigations has pointed to the need for additional appropriately zoned to further the strategic objectives of delivering a health and research innovation precinct in this location. The original DPA provided limited scope for additional large scale institutional and commercial development to occur and the Healthia concept has effectively filled the vast majority of land to achieve this. The two Council owned land parcels fronting Mark road and John Rice Avenue (Lots 48 and 61) comprise 4.37 hectares of vacant land of a sufficient size and within single ownership to facilitate the expansion and growth envisaged. Importantly, the land parcels, being owned and controlled by Council provides potential for an additional level of security to ensure that the resultant development and land use outcomes align with the strategic objectives of the precinct.

As a commitment to delivering the strategic aims, Council has already gone through the process of removing the land from the community land register. Importantly, the scale of the sites provides development flexibility which will:

- provide an alternative to the possible need to negotiate the purchase of multiple dwelling sites for land to the north of Oldham Road to secure a site large enough to accommodate larger scale institutional and commercial land uses
- ability to respond to buffers and treatments that may be required to alleviate noise and air emission constraints from the adjacent Light Industry zone (documented further in Section 3.2.3)
- flexibility for a wide range of floorplates to suit different land use needs and requirements, with the notable ability to accommodate large floor plate activities such as universities, research facilities and private hospitals which have the potential to be significant draw cards for various other activities .
- ability to provide parking at grade and reduce the reliance on alternative and expensive design options which may hinder the establishment of activities early in the development of the precinct.

The existing Policy Area focusses the development on the western side of Mark Road to tertiary education and commercial land uses. The policy also seeks to limit residential and supported accommodation in this location, presumably to prevent interface issues with the adjacent industrial land uses. The development approval for the former Bicentennial tennis court site by ACH has been contrary to the desired use expressed within the policy, yet it still supports the overall intent and aims of the precinct. This speaks to a need to provide greater flexibility from a policy perspective to the land uses desired within this location, provided they can demonstrate they align with the policy area's strategic intent, and appropriately manage impacts of noise on amenity (discussed further in Section 3.2.3).

The expansion of the zone to the west importantly provides frontage to John Rice Avenue and Philip Highway, and therefore significant exposure to these key arterial roads for the precinct. This also provides an opportunity to improve urban design outcomes in these locations through the careful design and placement of buildings to address and frame important corners, as well as contributing to a sense of arrival through taller building scales and bolder architectural design.

It is acknowledged that the two allotments are currently covered by a number of mature and semi-mature trees, some of which are likely to be regulated trees. These currently do provide amenity benefits and the maintenance of some more mature and good examples of trees would aid in establishing an immediate landscape character to development. In this regard, there is scope to acknowledge the benefit the trees currently provide and seek retention of trees where feasible.

Implications for Policy

The policy should facilitate the expansion of the zone to the two land parcels adjacent and to the west of Mark Road. In addition, the policy should provide further flexibility for the development of this western part of the zone by removing limitations on residential and aged care development, and further allowing this area to be open to a wider range of the envisaged uses to provide greater flexibility in the future development in the precinct.

The policy should also highlight the landmark / gateway function of this location in building design, building on the existing "icon" building sites identified within the current Concept Plan Map.

3.2.2 Northern Expansion of Suburban Activity Zone

The take-up of the residential properties north of Oldham Street has progressively been occurring since the rezoning of this location in 2013. A few consulting room developments have occurred, along with the establishment of an at grade car park (which is contrary to the policy intent). These developments, and in particular the car park, are arguably not achieving the full site potential given the zoning opportunities of this location. There are a number of reasons for this, many of which are outside of the control of the planning system. However, as identified by Oryx in their Commercial Activation Strategy, significant barriers include:

- the need to consolidate properties to make developments viable
- the limited depth of the zone to facilitate further expansion north and create more functional sites that maximise frontage width. Individual driveways reduce frontage for buildings, and are not the most efficient use of the land. The limited depth also limits usable building footprint due to parking requirements. The provision of basement parking at this small scale is not financially viable
- fragmented ownership (including long standing ownership and perhaps lack of interest to sell / move on).

Increasing the depth of the zone to include the properties to the north will provide additional room for consolidation of sites, but, importantly, open up access to Siddall Road for parking and allowing more efficient use of sites and larger building footprints (with space for parking to accommodate this).

The expansion of this area to the north of Oldham Road is considered important in order to provide a diversity of options for development in the Health Precinct. As discussed above in 3.2.1, expansion to the west of Mark Road provides the flexibility for a wide range of development, but is particularly suited to larger floor plate activities. To the north of Oldham Road the smaller allotments provide the potential for purchase and development of land by smaller businesses.

It is proposed to establish a zone boundary, along Broughton Road frontage. This would provide for the better management of the interface through both:

- focusing this location for residential development (and student accommodation or supported accommodation) at higher densities at this interface (which may be more attractive than amongst mixed uses further south)
- providing for a transition in scale from the potentially taller forms of mixed-use buildings to the neighbouring low scale Residential Zone to the north.

The encouragement of consolidation of sites is a complex policy dilemma that is not easily resolved through policy alone. The use of incentives has previously been used across other jurisdictions and policy contexts in aid of encouraging proponents to consolidate sites as part of development proposals. The Core Suburban Activity Node Zone contains a suite of incentive policies most of which have already been adopted within the portion of the zone within the Curtis Road Policy Area 24.

One such core policy incentive applies to the consolidation of sites of 2000m² or more, which implies the need to consolidate at least 2 allotments in the Health Precinct's context. The incentive provides for the provision of an additional building floor level and/or a 10 per cent reduction in the provision of required car parking for a development. This is an appropriate incentive to apply for the Playford Health Precinct in this instance.

Implications for Policy

The policy should provide greater potential for development north of Oldham Road through expanding the zone to Broughton Road and providing policy coverage limiting sites along Broughton Road to residential development only. The Policy should also apply incentives from the Core policy module as they relate to the consolidation of sites. Given the presence of incentives within the Curtis Road Town Centre Policy Area 24, it makes sense to consolidate these into the zone, rather than individually within each policy area.

3.2.3 Interface Impacts of adjacent Industrial Activities

Previous Investigations

The previous DPA for the Health Precinct (2013) examined the issue of the interface with the adjacent Light Industry zone and industrial activities present (which arguably are more than light industry by definition). A buffer assessment was prepared by GHD which specifically examined the buffers required from the GMH facility on Phillip Highway and the SAFCOL fish processing facility on Phillip Highway / Oldham Road. The assessment considered the EPA's Separation Guidelines (current at that time and since replaced with Evaluation Distance Guidelines) for the selected activities / land uses, as well as applied wind / atmospheric modelling to understand potential impacts and changes from the separation distance guideline. The assessment concluded that:

- The SAFCOL activities would result in only a marginal intrusion into the former Bi-centennial tennis courts site for odour and the noise buffer is clear of the Health Precinct – note that this site is currently within the Suburban Activity Node zone and the land fronting Mark Road proposed as part of this DPA for rezoning was not affected by these buffers.

- The GMH site's directional dependent buffer for the Main stack extended slightly into the affected area (directly adjacent to the Phillip Highway frontage only) and the Surface Cleaning stack extended only for a very small portion of the Phillip Highway frontage of the affected area (both however were significantly less than the separation distance guideline of 500 metres). It should be noted that the GMH factory has closed and the main stack and surface cleaning stack are no longer used.

A report, prepared by Sonus in January 2013, provides a more detailed assessment of the likely noise associated from these activities which fall within the recommended Evaluation Distances guidelines by the EPA. Importantly, in recognition of the forms of development envisaged in the zone as "mixed use" Sonus recommended that the noise criteria under the Environment Protection (Noise) Policy applicable to the Health Precinct be assigned as the average of the "commercial" and "residential" land use categories and that noise levels achieve 37dB(A) from internal sensitive land use space when exposed to the highest external noise levels. This is now reflected with the Suburban Activity Node Zone.

It is acknowledged that these previous assessments are now 7 years old and that more recent development and/or operational intensity or changes may have occurred on the land within the adjacent Light Industry Zone which impacts on the interface with the affected area.

Recent Investigations

It is noted that since the original GHD assessment, the Holden facility has ceased operation and the Licence has been surrendered. It is also noted however that additional activities and licences have been issued for the site. An assessment of licensed industrial activities and their recommended EPA evaluation distances is summarised below.

Licence, property	Licensed activity	Closest Distance to Affected Area	Evaluation Distance Recommendation
Northern Gritblasting, 18 Wiley Street (EPA 45282)	Abrasive Blasting	320m	100 m

Licence, property	Licensed activity	Closest Distance to Affected Area	Evaluation Distance Recommendation
Spark Infrastructure, former GMH site Diesel Generators (EPA 50375)	Fuel burning not coal or wood	715m (ACH site)	Individual assessment
Nu Vision, 12 Wiley Street (EPA 46542)	Abrasive blasting Producing listed wastes	150m	100m
Northern Adelaide Local Health Network (EPA 641)	Fuel burning not coal or wood Helicopter landing facilities	Within affected area	Individual assessment

These separation distances are reflected spatially within the figure below.

Figure 7: Licensed Activities and EPA Evaluation Distances

The additional licensed activities identified above mostly fall outside of the recommended evaluation distances recommended by the EPA. Further consultation with the EPA in regards to the Diesel Generators on the Holden site has confirmed that an evaluation distance of 850 metres, based on previous acoustic assessments, is sufficient for the management of the noise from these generators before they form part of the background noise levels of surrounding activities. The generators themselves are only turned on for very short periods of time and very infrequently. Given that only small portions of the affected area encroach within the recommended evaluation distance, the potential impacts are likely to be minimal and not unreasonably impact on amenity.

Council has also consulted the EPA in relation to the acceptability of the expansion of the zone within proximity of the existing Lyell McEwin Hospital helicopter landing facility situated on the John Rice Avenue frontage. It is noted that this facility is within the existing Suburban Activity Node zone and that there are policies dealing with this facility within the Desired Character Statement and a principle of development

control. However, the EPA have advised that the helicopter facility is for emergency purposes only and their use is infrequent and for short periods. On this basis there is not considered to be an unreasonable impact on amenity. It is also noted that there are already many existing dwellings (sensitive uses) within close /closer proximity to the facility than the additional (new) parts of the zone.

More recently (May 2017), an assessment of the acoustic attributes of the locality has been undertaken by Sonus as part of the Healthia / Vita North Stage 1 application on the ACH site (within current Suburban Activity Node Zone). It provides the most recent and contextual assessment of noise generated by the activities within the adjacent zone to the west.

The report examined the noise from activities associated with the adjacent Blown Plastics Facility. It identified noise sources as being from the continuous operation of the granulator facility, as well as from truck and forklift movements and loading and unloading activities, all of which would occur within 80 metres of the site (it is noted that the 2012 assessment identified these activities as the observed principal noises sources in this location and not the adjacent SAFCOL facility). It identified a combined noise level of 47dB(A) (adjusted to Environment Protection (Noise) Policy 2007) from the facility, meaning that the development required the treatment of external façade and windows comprising additional thickness to the glazing.

Since the preparation of the previous DPA, the government has introduced the Noise and Air Emissions Overlay to provide suitable policy coverage and better support assessment planners in managing noise and air quality issues within mixed use precincts and adjacent noise sources such as arterial roads and rail corridors. This overlay triggers the requirement for Class 1m 2, 3, 4 and 9C buildings to achieve the *Minister's Specification 78B Construction requirements for the Control of External Sound.* Based on the Minister's Specification, land uses are required to reduce the internal noise levels through external façade treatments based on a series of Sound Exposure Categories, with façade treatment requirements increasing with the exposure category. The outcomes of the Minister's Specification (and Noise and Air Emissions Overlay application) would be similar to that recommended by Sonus in their assessment of the Healthia proposal under the current policy arrangement.

Implications for Policy

Given that the Suburban Activity Node Zone supports the provision of mixed-use development, including housing within mixed use buildings and adjacent commercial and institutional activities, it is entirely appropriate that the DPA should incorporate the Noise and Air Emissions Overlay to the affected area. This should replace the existing policy references within the Desired Character statement and principle of Development Control 7.

3.2.4 Infrastructure Assessment

An assessment of existing infrastructure servicing the Playford Health Precinct has been undertaken to determine its capacity and to identify any need for upgrades to accommodate the anticipated growth.

The hospital site and surrounding properties remain well serviced with sewer, water, gas, electricity and telecommunications including the high speed/high capacity SABRE Net fibre line connecting the State's major hospitals, education and research facilities.

Overall the precinct as proposed is well serviced by all utilities. As development occurs some of the distribution networks will need to be extended and this is expected to be relatively uncomplicated and cost effective. It is recommended, as future stages and individual developments are identified in terms of location and size, that further discussions with service providers be initiated.

The utility services are described in more detail below:

Stormwater

Tonkin Consulting undertook floodplain and flood hazard modelling of the Adams Creek and Greater Edinburgh Parks areas in July 2016. Analysis of the extent of flooding that can be expected in the area for a range of return periods (20 Year ARI – 500 Year ARI) confirms that flooding of the precinct is generally not a

problem. More detailed assessment is recommended as development proceeds, particularly to identify mitigation measures required to address minor local scale issues (noting that lifting finished floor levels 300mm above kerb level will typically resolve most flooding potential).

Potable Water and Fire Water Supply

The domestic water and fire water supply and pressure to the Precinct remain substantial and are considered satisfactory for the expansion scenario due to the proximity to the adjacent 600mm diameter trunk main in John Rice Avenue.

Doubling of the average demand to around 8 litres per second will not pose a challenge to the local network and can also be accommodated by the bulk water supply system, however depending on location of future connections to the network, local water distribution network upgrades will likely be required.

Natural Gas (network supply)

Due to infrastructure demanded by LMH, natural gas supplies to the precinct are substantial. In May 2019, APA confirmed that, generally the gas mains in this area have spare capacity and good pressures suitable for additional gas connections. However, to assess the specific requirements, additional information is required (e.g. demand, required pressure, number of connections and location).

Gas distribution pipes typically between 50mm and 100mm are present along most local roads in the area, one notable gap in the network is along Mark Road (between Phillip Highway and Trembath St) which will require a main extension to service future development in this location.

Sewer Network

Local SA Water infrastructure provides substantial capability for current and future requirements and capability for future expansion. The estimated total Peak Wet Weather Flow from the present site is 12 litres per second. A precinct of double the size is expected to discharge a Peak Wet Weather Flow of around 24 litres per second.

Existing gravity sewers through the area range between 150mm and 300mm diameter, which if laid on a 1% gradient would have capacities of around 15 and 100 l/s respectively. Depending on present day discharges, sewerage system condition and likely resultant net increase in flows, it is possible that the precinct expansion could trigger the need for minor upgrades to the sewerage system in the area.

Power Supply

The infrastructure assessment undertaken as part of the 2011 master plan investigations identified that ETSA has established the Elizabeth South Sub Station to the north of the Precinct to meet demand of local industry, the LMH and domestic use. It is likely some upgrade of supply will be required to service the expanded precinct, most likely through the provision of new transformers within development sites (not uncommon).

On 20 May 2019 City of Playford staff met with SAPN representatives to discuss the local electricity distribution situation around the Health Precinct. SAPN confirmed that power supply to an expanded precinct would not be problematic.

Communications Supply

The 2011 assessment identified that a connection to the SABRE Net Network exists and this feed can be interfaced with adjacent sites as required; that high-speed fibre is available within the precinct; and, local telecommunications via copper are suitable for current developments, but given the proximity of fibre communications, upgrades are likely.

Implications for policy

Overall the precinct as proposed is well serviced by all utilities. As development occurs some of the distribution networks will need to be extended and upgraded but this is expected to be relatively minor works and is best addressed at individual Development Assessment stage.

Existing Council-Wide policy provides good coverage on infrastructure provision and it is not considered that further policy to address this is necessary in this circumstance.

3.2.5 Road and Traffic Impact Assessment

An assessment of the potential impacts of future development within the Lyell McEwin Health and Innovation Precinct into the future on the key road junctions in the area has been undertaken by GTA. The modelling examined existing conditions for peak AM and PM periods and applied growth scenarios to determine increases in traffic volumes and their impacts on the performance of the intersections to determine future works required. This is important in informing Council and DPTI (for Philip Highway and John Rice Avenue) about future funding and road upgrade priorities.

The modelled intersections included:

- John Rice Avenue/Phillip Highway (roundabout)
- John Rice Avenue/Mark Road
- John Rice Avenue/Trembath Road
- John Rice Avenue/Haydown Road
- Phillip Highway/Oldham Road

The analysis found that existing conditions for these intersections are at acceptable levels, although it is acknowledged that the John Rice Avenue / Haydown Road junction does have extensive queuing in the PM peak hour. The signalisation of this intersection is already identified within the Concept Plan Map in the Development Plan.

The modelling for the future growth scenario has been established to the 2036 timeframe on the basis of the following assumptions:

- annual growth factor of 2%
- additional gross leasable floor area of 55,000m² being established within the affected area (across office, medical education and retail land uses)
- additional 138 dwellings being established within the affected area.

These assumptions are considered very conservative, given the high level of assessment and simplistic and speculative breakdown of land use floor area growth.

The 2% growth assumption alone would result in a 40% increase in traffic to the road network between 2019 and 2036. The additional floor areas demand based on the growth scenario associated with additional development across the affected (ie on the existing and proposed land) would substantially grow the turning movements at the modelled junctions. As a result, under existing geometric configurations, the junctions will fail.

Therefore, the modelling has recommended the following to support appropriate management of traffic:

- introduction of signalisation and channelised right turn lane into Haydown Road for the John Rice Avenue / Haydown Road intersection (considered the highest priority)
- introduction of some form of control (roundabout or signalisation) and separate turning lanes for the John Rice Avenue / Mark Road intersection
- increased right turn channelization for Phillip Highway into Oldham Road (potentially along with increased access routing via Coglin Street)

These improvements may result in the Phillip Highway and John Rice Avenue roundabout to continue operating satisfactorily.

It is not Council's desire to link development within the affected area with a deed of agreement or similar instrument for the upgrade of junctions. This approach has been applied to the growth areas at Angle Vale and Playford North. However, the scale of infrastructure works in these scenarios are much larger and broader than apply to the Playford Health Precinct. This approach is contrary to facilitating an innovation precinct and would unfairly limit and be cumbersome to apply to smaller scale development which could occur without generating the levels of demand that require intersection upgrades. It is also noted that the majority of increased traffic in the locality has to date been generated by the ongoing development of the Lyell McEwin Hospital and that there is expected to be ongoing increases in traffic related to the hospital.

There is scope for the management of the intersection upgrades through individual development applications as this would provide the flexibility for the relevant authority to support smaller scale uses where they are appropriate in terms of their impact on traffic generation. Where larger scale proposals (such as a new University facility or private hospital) which are likely to generate much larger demands and traffic movements, Council (or the relevant authority) can potentially seek agreement (via deed) for the agreed works as part of the application's assessment and approval process. This is already common practice and a reasonable approach in this location.

Implications for Policy

The Development Plan already contains a suite of policies which would provide support for assessing planners to manage this within the Transportation and Access Module. Notwithstanding this, it may be appropriate to reinforce the need to consider road junction upgrades within the zone via reference within the desired character statement of the need to accommodate increased traffic volumes through intersection upgrades.

3.2.6 Open Space Assessment

Portion of the affected area along Mark Road has previously formed part of the windbreaks originally planned as part of the development of the area, consistent with Garden City principles. The land contains mature vegetation, however has not specifically been developed for passive or active recreation facilities (the tennis courts in this area are being redeveloped as part of the Healthia site Council previously sold and rezoned in 2013).

The affected area is identified within Precinct 12 of Council's Open Space Strategy 2018 (shown below). It comprises:

- Mofflin Reserve, a neighbourhood scale reserve of 1.7 hectares which is intended to be designed as a space that supports the objectives of the health precinct, including social inclusion, health and wellbeing
- Duncan Anderson Sportsgrounds comprising 8.8 hectares which are currently fenced. The strategy identifies a need to provide better wayfinding to the public access points.
- Hogarth Road windbreak comprising 10 hectares and identified as a linear trail developed to retain its natural character.

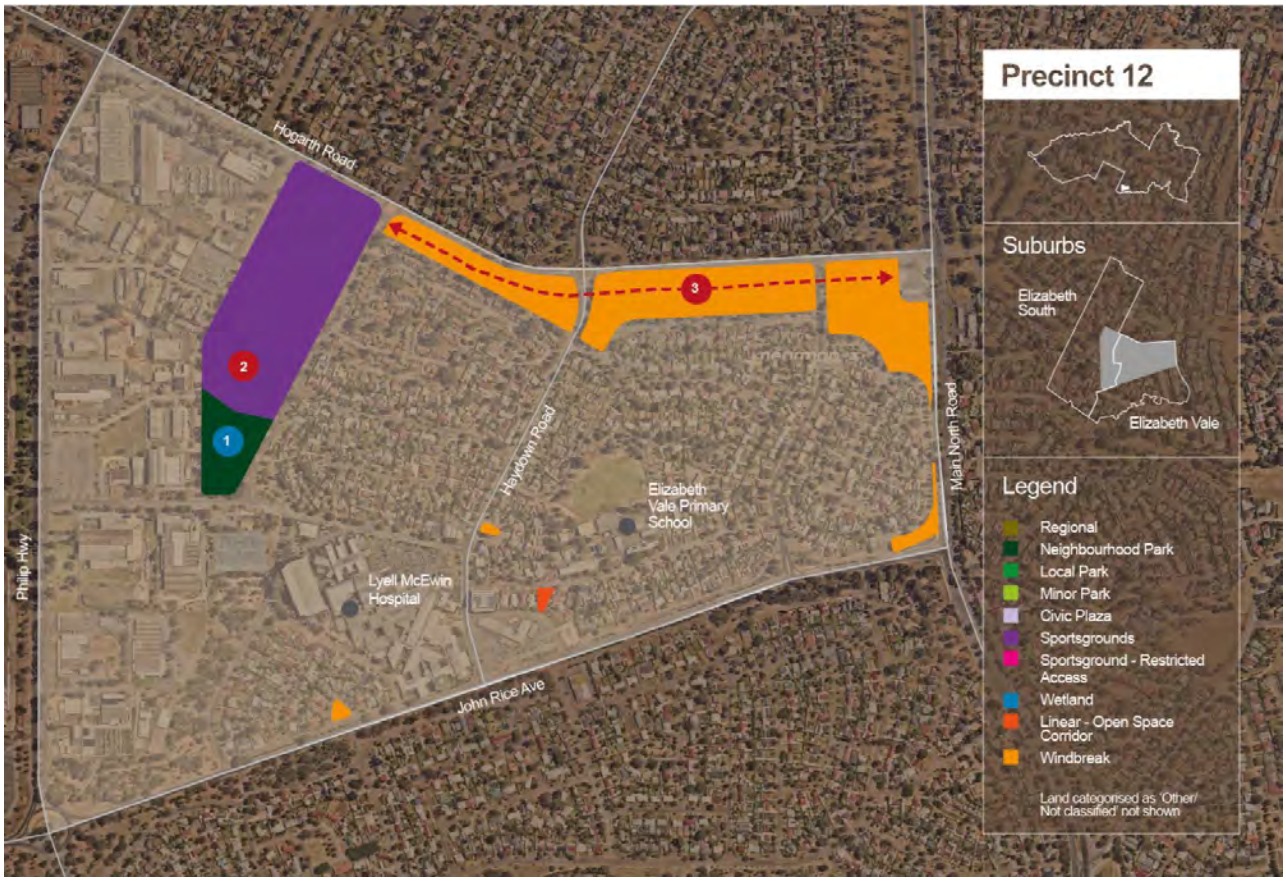

Figure 8: Precinct 12 of Council's Open Space Strategy

The Strategy identifies the precinct as comprising a high provision of open space. A significant portion of this open space comprises the 'windbreaks', which are maintained in a very informal manner and do not contribute significantly to active open space availability. The Strategy identifies both Mofflin Reserve and Duncan Anderson Sportsground as key open space and recreation facilities into the future, together with the development of the Hogarth Road Windbreak as a linear trail connection between Main North Road and Duncan Anderson Sportsgrounds.

Implications for Policy

The loss of the windbreaks along Mark Road does not compromise the open space and recreation needs of the surrounding community. The Duncan Anderson Reserve sits outside of the affected area and proposed Suburban Activity Node Zone, although there are strong connections from the Health Precinct to the reserve and adjacent sportsgrounds. The policy should recognise this strong connection and the need for suitable pedestrian movement from the precinct to the reserve, both from Mofflin Road and Oldham Road

3.2.7 Active movement within the Precinct and surrounds

The existing policy area is not well serviced with a high-quality pedestrian environment. A review of walking infrastructure undertaken by ARRB confirms that footpaths are of insufficient width and should be widened. Wayfinding and key pathways between nodes are weak, with the exception of Haydown Road between the Elizabeth Vale Shopping Centre and the Lyell McEwin Hospital entrance.

Given that the zone will be expanding within this location, supporting additional development, further thought is required as to the important connections for pedestrians. The existing Concept Plan Map only identifies a pedestrian connection across Haydown Road (which exists). However, the policy should support pedestrian paths to key parts of the zone, including:

- the Healthia site and its connection to the Lyell McEwin Hospital (a zebra crossing is proposed in aid of this)
- areas to the north of the Lyell McEwin hospital, particularly Treves Street as a spine to this expanded spine to the north
- connections to the Mofflin Reserve, both from the Healthia site (facilitated by the closure / realignment of Mofflin Road), as well as the residential and mixed-use development proposed east of Mofflin Road
- the residential areas to the south across John Rice Avenue.

Council has developed plans for the upgrade of the public realm within the policy area which will help to improve the streetscape when implemented.

Council's Cycling and Walking Strategy identifies a desire to provide a walking and cycling link between the Elizabeth Centre, the Sports Precinct and the Lyell McEwin Health Precinct. Existing Bike Direct Routes in this location are located on John Rice Avenue, Philip Highway and Haydown Road, however none of these roads contain cycle lanes. There is also scope to connect cycling / share use paths along the windbreak spaces along John Rice Avenue and Hogarth Road and along Haydown Road, through the provision of either an off-road cycle path / footpath or bike lane within the road pavement. The provision of this is however beyond the scope of a DPA.

The affected area is currently well serviced by bus routes which have a series of stops located on Haydown Road, Oldham Road and John Rice Avenue. It is intended to construct super stops located along Haydown Road which will provide a focus for bus services, with improved stop furniture and information. The existing road verge widths along Haydown Road present a challenge to development of the superstops. Discussions are underway to secure additional land on the western side of Haydown Road, while Council will discuss plans for a superstop in conjunction with likely future redevelopment of the shopping centre site.

Implications for Policy

The DPA policy should aid in identifying the important pedestrian connections across the policy area, particularly in light of the removal of the Concept Plan Map for this location.

The DPA should emphasise a high quality pedestrian environment for Haydown Road as a main street and principle public transport destination for the policy area.

The General Modules (Transportation and Access) already provide policy for the provision of suitable bicycle accommodation and end of journey facilities within development such that further coverage of this as part of this DPA is unwarranted.

3.2.8 Urban Design Considerations

The original rezoning for the policy area considered the application of urban design principles centred around a compact, higher intensity form of development within the zone. This has provided for reduced street setbacks (0 – 2 metres) for buildings, ensuring ground floors of buildings address streets and buildings designed to a human scale. These principles are largely addressed within the zone policies or general modules of Council's Development Plan (such as Medium and High Rise Development (3 or more storeys)).

The existing design principles are appropriate for the expanded parts of the zone.

Notwithstanding this, the outcomes of the Fluid Solar development have been disappointing from an urban design perspective, particularly as it relates to meaningfully and actively addressing Haydown Road. There is an opportunity to provide greater strength to the design outcomes sought in this location, particularly in relation to:

- Fully glazed facades
- Frequent and regular tenant entrances (which encourage interaction and force the fronting to the street rather than token glass facades)
- Provision of canopies and verandahs

Implications for Policy

There is scope for additional policy and clarity regarding the manner in which development should front onto and activate Haydown Road. A principle of development control should be added to help ensure development addresses this issue.

3.2.9 Procedural Matters

The existing Suburban Activity Node adopts the core SA Planning Policy Library's approach to procedural matters in that:

- changes to land use comprising a shop, office or consulting room subject to achievement of a range of criteria are complying (as of right) forms of development
- changes from a dwelling to an office or a shop up to 250m² on the ground floor of a building are complying forms of development (subject to certain criteria).
- there are few listed non-complying forms of development other than those specifically inappropriate for the achievement of the zone's objectives (principally those typically found within an industry zone or suburban type commercial zone)

In order to facilitate development opportunities (particularly conversion of dwellings to consulting, office and retail uses) and provide for flexibility for a diverse range of activities and uses potentially envisaged within the precinct, the current zone's approach remains appropriate and is supported into the future.

However, Condition 2 (b) limits the land use changes for complying development to the Main and Secondary Mixed Use Areas identified within the Concept Plan for the policy area. This should be deleted as the zoning changes are intended to enable greater flexibility and DPTI has required that the concept plan is removed.

The current zone lists a series of envisaged uses as Category 1 (no public notification) development, with all other proposals identified as Category 2 (adjacent land owners advised, but without appeal rights), other than for non-complying development.

Importantly, the zone includes a local addition applicable to the Lyell McEwin Policy Area 23 (the affected area) which excludes development greater than two storeys adjacent to a residential zone from being Category 1 development, implying a need to notify neighbours in those instances. This is not an unreasonable exclusion as buildings of this form are likely to attract interest and potential amenity impacts to adjacent residential property owners.

Implications for Policy

There are no specific amendments to the current policy approach within the Suburban Activity Node required as part of this DPA, other than for the removal of Condition 2B for Complying development.

4. Recommended Policy Changes

Following is a list of the recommended policy changes based on the investigations of this DPA:

- Rezoning land from Residential Zone to an expanded Suburban Activity Node Zone at:
  - Lots 48 and 61 Mark Road, adjacent Mark Road, John Rice Avenue and Phillip Highway
  - the properties north of Oldham Road between the current zone boundary and Broughton Road (between Mofflin Road and Haydown Road)
  - the properties east of Haydown Road between the current zone boundary and Lister Street and Davidson Road
- Renaming, revising and updating of the Lyell McEwin Health Node Policy Area 23 in the following way:
  - providing greater clarity of role and function of the policy area for health, allied health, research, education and as a regional activity centre for Adelaide's greater northern region
  - better emphasising the range of residential and accommodation development sought (including preferred formats)
  - greater focus on Haydown Road as a main street and the uses, built form, activation of frontages and public realm treatments that would support this function
  - improved guidance as to the desired forms of car parking formats
  - identification of the location and design of iconic buildings in the zone
  - identifying the important pedestrian connections throughout the policy area
- Application of the Noise and Air Emissions Overlay to the zone in this location
- Application of the Affordable Housing Overlay to the zone in this location
- Subsequent changes to mapping to reflect the above policy changes, including the removal of Concept Plan Map Play/33.

5. Consistency with the Residential Code

The Residential Development Code was introduced in 2009 to make simpler, faster and cheaper planning and building approvals for home construction and renovation.

Currently, the Residential Code provisions apply to the land to the west of Mark Road, as well land north of Oldham Road (despite part of this being located within the Suburban Activity Node Zone).

Figure 9: Residential Code area relative to the Affected Area

With this area being rezoned for more mixed use and medium density residential and accommodation development, there is a need to reduce the incentive to obtain approval for detached dwellings. Future development also requires more detailed assessment of the design and amenity impacts of this development format. It is therefore necessary to remove this area from the gazetted Schedule 4A area.

6. Statement of statutory compliance

Section 25 of the *Development Act 1993* prescribes that the DPA must assess the extent to which the proposed amendment:

- accords with the Planning Strategy
- accords with the Statement of Intent
- accords with other parts of council's Development Plan
- complements the policies in Development Plans for adjoining areas
- accords with relevant infrastructure planning
- satisfies the requirements prescribed by the Development Regulations 2008.

6.1 Accords with the Planning Strategy

Relevant strategies from the Planning Strategy are summarised in the Appendices of this document. This DPA is consistent with the direction of the Planning Strategy.

6.2 Accords with the Statement of Intent

The DPA has been prepared in accordance with the Statement of Intent agreed to on 30 March 2019. In particular, the proposed investigations outlined in the Statement of Intent have been have been addressed in section 3.2 of this document.

6.3 Accords with other parts of the Development Plan

The policies proposed in this DPA are consistent with the format, content and structure of the Playford Council Development Plan.

For instance, the amendment uses the existing policy area and in addition, where policy coverage is being added, seeks to move existing policy within the Curtis Road Town Centre Policy Area 24 into the zone so it applies to both the Curtis Road Town Centre and the Health Precinct.

The DPA does not alter policies within the General section or the Tables and therefore does not impact other parts of the Development Plan.

6.4 Complements the policies in the Development Plans for adjoining areas

The affected area and the suite of policies proposed within this DPA are specific to a location entirely within the Playford Council Development Plan. Therefore impacts of the policy change, and future resultant potential development, are not likely to have any implications or impacts on adjacent Council Development Plans.

Accordingly, the policies proposed in this DPA will not affect and will complement the policies of Development Plans for adjoining areas.

6.5 Accords with relevant infrastructure planning

This DPA complements current infrastructure planning for the Council area, as discussed in section 3.2.4 of this document.

6.6 Satisfies the requirements prescribed by the Regulations

The requirements for public consultation (Regulation 11) and the public meeting (Regulation 12) associated with this DPA will be met.

References/Bibliography

- **BUFFER CONSTRAINTS LYELL MCEWIN HOSPITAL PRECINCT**, GHD, 2012
- **COMMUNITY VISION 2043**, City of Playford, 2013
- **INTEGRATED TRANSPORT AND LAND USE PLAN**, Government of South Australia, 2015
- **LOT 47 OLDHAM ROAD, ELIZABETH SOUTH PRELIMINARY SITE INVESTIGATION**, LBW, 2016
- **LYELL MCEWIN HEALTH PRECINCT MASTER PLAN ENVIRONMENTAL NOISE ASSESSMENT**, Sonus, 2013
- **LYELL MCEWIN HEALTH PRECINCT MASTER PLAN**, Hames Sharley, Leedwell, WSP Lincolne Scott, InfraPlan, 2011
- **LYELL MCEWIN PRECINCT SUBURBAN ACTIVITY NODE ZONE COMMERCIAL ACTIVATION STRATEGIES**, Oryx, 2016
- **PLAYFORD HEALTH PRECINCT – A VISION IN THE MAKING**, Deloitte, 2018
- **PLAYFORD HEALTH PRECINCT TRANSPORT, PARKING AND INNOVATION CONSOLIDATED REPORT**, ARRB, 2017
- **PLAYFORD COUNCIL DEVELOPMENT PLAN**, Government of South Australia, Consolidated 13 September 2018
- **SITE CONTAMINATION AUDIT STATEMENT**, Phillip Hitchcock, 2019
- **SOUTH AUSTRALIAN PLANNING POLICY LIBRARY – VERSION 6**, Government of South Australia, 2011
- **STATE PLANNING POLICIES FOR SOUTH AUSTRALIA**, Government of South Australia, 2019
- **STRATEGIC DIRECTIONS REPORT**, City of Playford, 2013
- **THE 30-YEAR PLAN FOR GREATER ADELAIDE 2017**, Department of Planning, Transport and Infrastructure, Government of South Australia 2017
- **VITA NORTH STAGE 1 NOISE ASSESSMENT**, Sonus, 2017

Schedule 4a Certificate

CERTIFICATION BY COUNCIL'S CHIEF EXECUTIVE OFFICER

DEVELOPMENT REGULATIONS 2008

SCHEDULE 4A

Development Act 1993 – Section 25 (10) – Certificate - Public Consultation

CERTIFICATE OF CHIEF EXECUTIVE OFFICER THAT A DEVELOPMENT PLAN AMENDMENT (DPA) IS SUITABLE FOR THE PURPOSES OF PUBLIC CONSULTATION

I Sam Green, as Acting Chief Executive Officer of The City of Playford, certify that the Statement of Investigations, accompanying this DPA, sets out the extent to which the proposed amendment or amendments-

(a) accord with the Statement of Intent (as agreed between the City of Playford and the Minister under section 25(1) of the Act) and, in particular, all of the items set out in Regulation 9 of the *Development Regulations 2008*; and

(b) accord with the Planning Strategy, on the basis that each relevant provision of the Planning Strategy that related to the amendment or amendment has been specifically identified and addressed, including by an assessment of the impacts of each policy reflected in the amendment or amendments against the Planning Strategy, and on the basis that any policy which does not fully or in part accord with the Planning Strategy has been specifically identified and an explanation setting out the reason or reasons for the departure from the Planning Strategy has been included in the Statement of Investigation; and

(c) accord with the other parts of the Development Plan (being those parts not affected by the amendment or amendments); and

(d) complement the policies in the Development Plans for adjoining areas; and

(e) satisfy the other matters (if any) prescribed under section 25(10)(e) of the *Development Act 1993*.

The following person or persons have provided advice to the council for the purposes of section 25(4) of the Act:

Paul Johnson, RPIA
David Barone, MPIA

DATED this 20th day of August 2019

.....
Chief Executive Officer

Appendices

Appendix A - Assessment of the Planning Strategy

Appendix B – GTA Traffic Impact Assessment

Appendix A - Assessment of the Planning Strategy

30 Year Plan for Greater Adelaide 2017 Update	
Strategic Plan Objective/Targets	**Comment/Response**
1. Containing our urban footprint and protecting our resources 85% of all housing in metropolitan Adelaide will be built in established urban areas by 2045	The Playford Health Precinct and Suburban Activity Node Zone (SAN) zoning will help support and facilitate increased urban renewal in the suburbs around the precinct by providing services, facilities and employment to support higher densities and population growth.
2. More ways to get around 60% of all new hosing in metropolitan Adelaide will be built within close proximity to current and proposed fixed line and high frequency bus routes by 2045	The SAN zoning which incorporates the LMH and allied health facilities enables a mixed-use environment including medium density housing in close proximity to a variety of bus routes that service the precinct. A bus super stop is proposed to be established in the precinct which will improve the level of service to the area.
3. Getting Active Increase the share of work trips made by public transport modes by residents of inner middle and outer Adelaide by 30% by 2045.	An increase in the range of activities and residential densities within the Precinct will improve the potential for use of the range of buses already servicing the Precinct.
4. Walkable neighbourhoods Increase the percentage of residents living in walkable neighbourhoods in inner middle and outer suburbs by 25% by 2045.	The SAN will facilitate the development of improved facilities and services to improve the walkability of the surrounding neighbourhoods. The progressive provision of improved pedestrian and cycle facilities and upgrade of the streetscape by the City of Playford as anticipated by master planning of the area will also encourage the walkability of the area.
5. A green liveable city Urban green cover is increased by 20% in metropolitan Adelaide by 2045.	The inclusion of Council land on Mark Road in the SAN will result in a loss of canopy cover as the area has substantial tree coverage. The land is likely to be developed and while some vegetation would be retained, significant amounts would be removed. The City of Playford has adopted Open Space Guidelines (August 2018) which are of indirect relevance. The guidelines indicate that where remnant vegetation or tree removal is undertaken, revegetation or restoration may occur in a place near to the site or another appropriate location. Playford also has a vegetation management policy which indicates that where removal of vegetation is necessary that there should be an offset. Playford is currently investigating the potential to establish an offset scheme. The Council proposes to develop the Mofflin reserve (corner Oldham road and Mofflin Road) with a particular focus on servicing the Health Precinct and this would be likely to include additional tree planting.

30 Year Plan for Greater Adelaide 2017 Update	
6. Greater housing choice Increase housing choice by 25% to meet changing household needs in greater Adelaide by 2045	Increasing the footprint of the health precinct by extending the SAN zoning has the potential to increase housing choice in the precinct. The types of facilities and services existing and likely to be established in the precinct, and the presence of the LMH are also likely to also attract various forms of accommodation

Appendix B – GTA Traffic Impact Assessment

Playford Health Precinct

Development Plan Amendment
Transport Impact Assessment

Prepared by: GTA Consultants (SA) Pty Ltd for Jensen Plus

on 14/06/19

Reference: S172490

Issue #: A-Dr

GTAconsultants

Playford Health Precinct

Development Plan Amendment
Transport Impact Assessment

Client: Jensen Plus

on 14/06/19

Reference: S172490

Issue #: A-Dr

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A-Dr	14/06/19	Draft	Greg Pollard	Richard Frimpong	Paul Froggatt	
A-Dr 2		Draft – amended				
A		Final				
B		Final – amended				

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CONTENTS

1. INTRODUCTION

01

1.1. Background

A Development Plan Amendment is currently being prepared for a proposed rezoning of land within the suburbs of Elizabeth Vale and Elizabeth South. The land is currently zoned Residential, with a small section of Recreation zoned land, there is a desire to rezone the land to Suburban Activity Node for future mixed use, medical and medium to high density residential developments.

GTA Consultants was commissioned to undertake a transport impact assessment of the potential development.

1.2. Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

1. Existing traffic and parking conditions surrounding the site
2. Local walking, cycling and public transport facilities close to the site
3. Traffic generation characteristics of the possible development
4. Potential access arrangements for the site
5. transport impact of the development proposal on the surrounding road network.

1.3. References

In preparing this report, reference has been made to the following:

- Playford Council Development Plan (consolidated 27 June 2017)
- Playford Health Precinct DPA Statement of Intent (City of Playford, February 2019)
- Traffic surveys undertaken by GTA Consultants as referenced in the context of this report
- Various technical data as referenced in this report
- An inspection of the site and its surrounds
- Other documents as nominated.

2. EXISTING CONDITIONS

02

2.1. Subject Site

The subject site is located north of John Rice Avenue and east of Philip Highway, adjacent the current Playford Health Precinct. Two areas of land in the Residential Zone are proposed to be rezoned to Suburban Activity Zone to allow potential expansion of the Playford Health Precinct and better land use integration.

The proposed rezoning is shown in Figure 2.1, and the current zoning of the subject site is shown in Figure 2.2.

The two areas of land shown in Figure 2.1 are as follows:

- Approximately 4.3ha of Council owned land to the west of Mark Road, which has 320m frontage to Mark Road, 260m to John Rice Avenue and 60m Philip Highway approximately
- Residential allotments to the north of Oldham Road and east of Haydown Road, additional to the allotments immediately north of Oldham Road which are already within the Suburban Activity Zone

Figure 2.1: Proposed Zoning

Source: Attachment D – Playford Health Precinct DPA Statement of Intent

Figure 2.2: Current Zoning

Source: Attachment C – Playford Health Precinct DPA Statement of Intent

2.2. Road Network

2.2.1. Adjoining Roads

Oldham Road

Oldham Road functions as a collector road and is under the care and control of the City of Playford. It is a two-way road aligned in northwest/southeast direction and configured with a two-lane, 12-metre-wide carriageway set within a 20-metre-wide road reserve (approx). The resident permit area (No parking 8am – 6pm Monday to Friday) starts at the intersection of Oldham Road and Mofflin Road. Parking restrictions are in place along Oldham Road, with a general 2-hour restriction in nominated places between 8am and 5pm, Monday to Friday from Haydown Road to Mofflin Road. West of Mofflin Road, parking is unrestricted.

Oldham Road carries approximately 4,900 vehicles per day[1].

Mark Road

Mark Road functions as a local road under the care and control of the City of Playford. It is a two-way road aligned in northeast/southwest direction and configured with a 10-metre-wide carriageway set within a 20-metre-wide road reserve (approx.). Marked on-street parking spaces are available on the western side of the road, with 1-hour parking restriction between 8:00am and 6:00pm Monday to Friday. On the eastern side, a no parking area is in place.

[1] Based on the AM peak hour traffic counts undertaken on 14 May 2019 and assuming a peak-to-daily ratio of 10% for local roads.

Mark Road carries approximately 1,300 vehicles per day.[1]

Mofflin Road

Mofflin Road functions as a local road and is under the care and control of the City of Playford. Mofflin Road splits into two roads approximately 100m north of Oldham Road shown in Figure 2.3. One leg of Mofflin Road forms a T-junction with Oldham Road and the other forms a four-way intersection with Oldham Road and Mark Road. The two intersections are approximately 60m apart. Kerbside parking on Mofflin Street is restricted to residential permits only.

Figure 2.3: Mofflin Road

Haydown Road

Haydown Road is a sub-arterial road under the care and control of City of Playford. It is a two-way road configured with a two-lane, 12 metre-wide carriageway set within a 20 metre wide road reserve. Parking is not permitted to the south of Oldham Road. Kerbside parking is permitted north of Oldham Road, subject to time restrictions (1 hour parking 8am to 5pm Monday to Friday). Parking is prohibited in other locations. Right turn lanes and a pedestrian actuated crossing are located at the southern end of Haydown Road adjacent to the current health precinct.

Trembath Road

Trembath Road is a local road under the care and control of City of Playford. It is a two-way road aligned in a northwest/southeast direction. It is configured with a 10-metre-wide carriageway set within a 20-metre-wide road reserve. Marked on-road parking spaces are available on the northern side of the road subject to time restrictions. Parking is not permitted on the southern side of the road. Parking is prohibited on the south side of Trembath Road, while the northern side of Trembath Road is subject to 2 hour parking restrictions between 8:00am – 6:00pm, Monday to Friday.

John Rice Avenue

John Rice Avenue is an arterial road and is under the care and control of the Department of Planning, Transport and Infrastructure (DPTI). It is a two-way road with two lanes in each direction, configured with a 13-metre-wide carriageway set within a 20 metre wide road reserve. Kerbside parking is not permitted on John Rice Avenue.

John Rice Avenue carries approximately 14,700 vehicles per day[2].

Philip Highway

Phillip Highway is an arterial road under the care and control of DPTI. It accommodates 3 lanes of traffic in each direction, separated by a 10-metre-wide centre median. Each carriageway is approximately 10-metre-wide, set within a 36-metre-wide road reserve. Parking is not permitted on either side of the road.

Philip Highway carries approximately 19,600 vehicles per day[3].

2.2.2. Surrounding Intersections

The following intersections currently exist in the vicinity of the site:

- T-junction of Mofflin Road and Oldham Road (unsignalised)
- Intersection of Oldham Road, Mark Road and Mofflin Road (unsignalised)
- T-junction of Oldham Road and Haydown Road (unsignalised)
- T-junction of Haydown Road and John Rice Avenue (unsignalised)
- T-junction of Trembath Road and John Rice Avenue (unsignalised)
- T-junction of Mark Road and John Rice Avenue (unsignalised)
- T-junction of Oldham Road and Philip Highway (unsignalised)
- Roundabout of John Rice Avenue and Philip Highway (unsignalised)

2.2.3. Traffic Volumes

Turning movement counts on key roads in the vicinity of the site were undertaken on Tuesday 14th May 2019 during the AM Peak Hour and PM Peak Hour for the following intersections. The AM Peak Hour occurred between 8:00am – 9:00am while the PM Peak Hour occurred between 3:30pm and 4:30pm. A SIDRA Intersection assessment was conducted to capture the performance of these intersections.

- Phillip Highway and John Rice Avenue
- John Rice Avenue and Mark Road
- John Rice Avenue and Trembath Road
- John Rice Avenue and Haydown Road
- Mark Road, Oldham Road and Mofflin Road
- Oldham Road and Mofflin Road
- Philip Highway and Oldham Road

[2] Source: 'Traffic Volume Estimates' dataset – base year 2016
[3] Source: 'Traffic Volume Estimates' dataset – base year 2016

2.2.4. Phillip Highway and John Rice Avenue

Figure 2.4: AM Peak Hour (8:00am-9:00am) Turning Movements Philip Hwy Rd and John Rice Ave

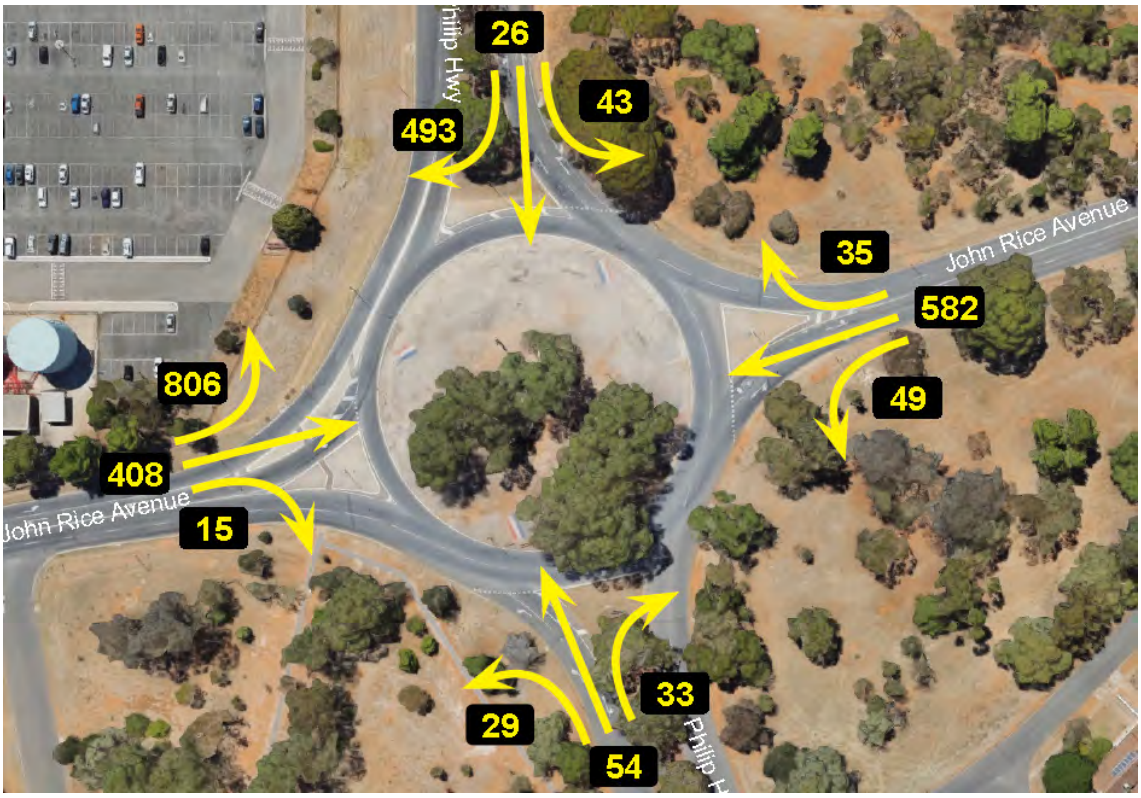


Figure 2.5: AM Peak Hour (8:00am-9:00am) Turning Movements Phillip Hwy and John Rice Ave

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Philip Highway (S)											
1	L2	31	0.0	0.032	4.7	LOS A	0.2	1.1	0.67	0.60	56.4
2	T1	57	0.0	0.077	4.7	LOS A	0.4	3.2	0.68	0.58	56.6
3	R2	35	18.2	0.077	12.2	LOS B	0.4	3.2	0.68	0.58	58.9
Approach		122	5.2	0.077	6.8	LOS A	0.4	3.2	0.68	0.58	57.2
East: John Rice Avenue (E)											
4	L2	52	0.0	0.282	3.3	LOS A	1.6	11.6	0.55	0.38	56.0
5	T1	613	2.9	0.282	3.9	LOS A	1.6	11.6	0.56	0.41	58.5
6	R2	37	2.9	0.282	11.3	LOS B	1.5	10.4	0.56	0.46	61.0
Approach		701	2.7	0.282	4.2	LOS A	1.6	11.6	0.56	0.41	58.4
North: Philip Highway (N)											
7	L2	45	2.3	0.044	3.9	LOS A	0.4	2.9	0.58	0.38	56.3
8	T1	27	0.0	0.044	4.3	LOS A	0.4	2.9	0.58	0.38	59.3
9	R2	519	6.5	0.289	12.0	LOS B	3.3	24.5	0.67	0.58	55.7
Approach		592	5.9	0.289	11.1	LOS B	3.3	24.5	0.66	0.55	55.9
West: John Rice Avenue (W)											
10	L2	848	4.3	0.433	1.8	LOS A	0.0	0.0	0.00	0.24	59.7
11	T1	429	2.9	0.254	2.8	LOS A	1.2	8.8	0.18	0.29	61.0
12	R2	16	0.0	0.254	9.9	LOS A	1.2	8.8	0.18	0.29	64.2
Approach		1294	3.8	0.433	2.2	LOS A	1.2	8.8	0.06	0.26	60.2
All Vehicles		2708	4.0	0.433	4.9	LOS A	3.3	24.5	0.35	0.38	58.6

Based on the above:

- The intersection currently operates at a LOS of A with a DOS well within operational capacity.
- Average delays and 95th percentile queue lengths were modest on each approach leg,.

Figure 2.6: PM Peak Hour (8:00am-9:00am) Turning Movements Philip Hwy Rd and John Rice Ave

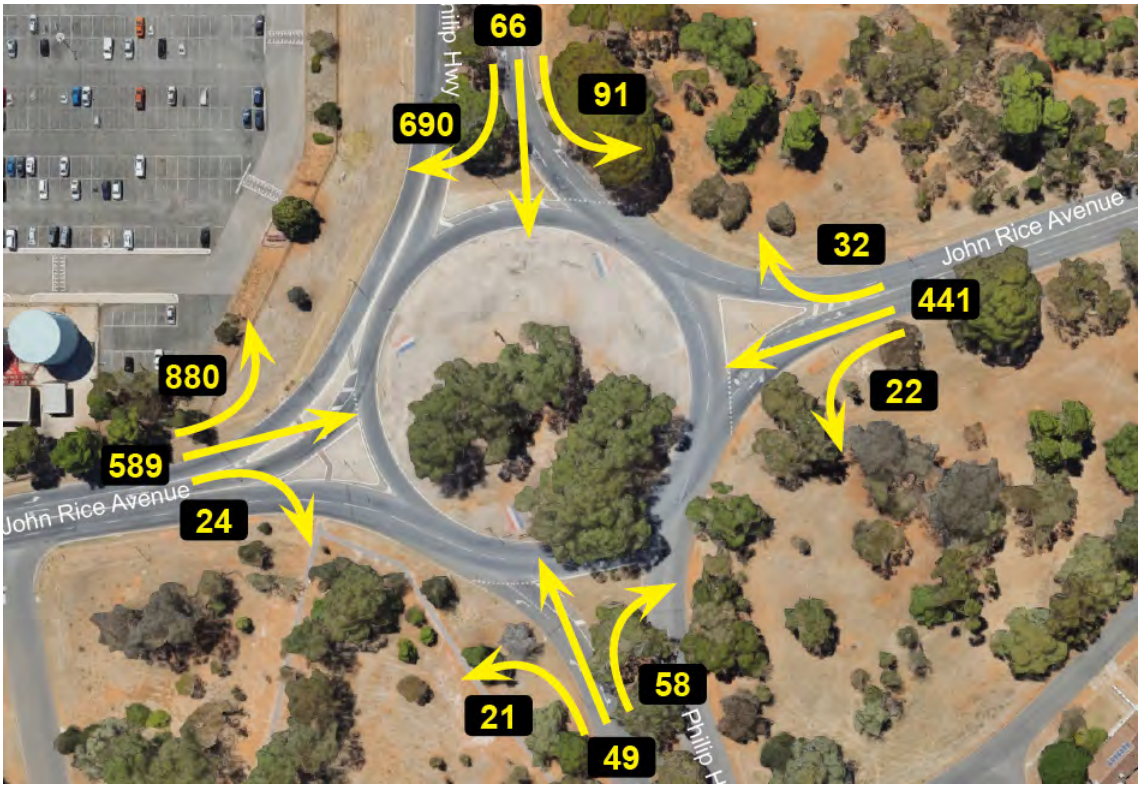


Figure 2.7: PM Peak Hour (8:00am-9:00am) Turning Movements Phillip Hwy and John Rice Ave

Movement Performance - Vehicles

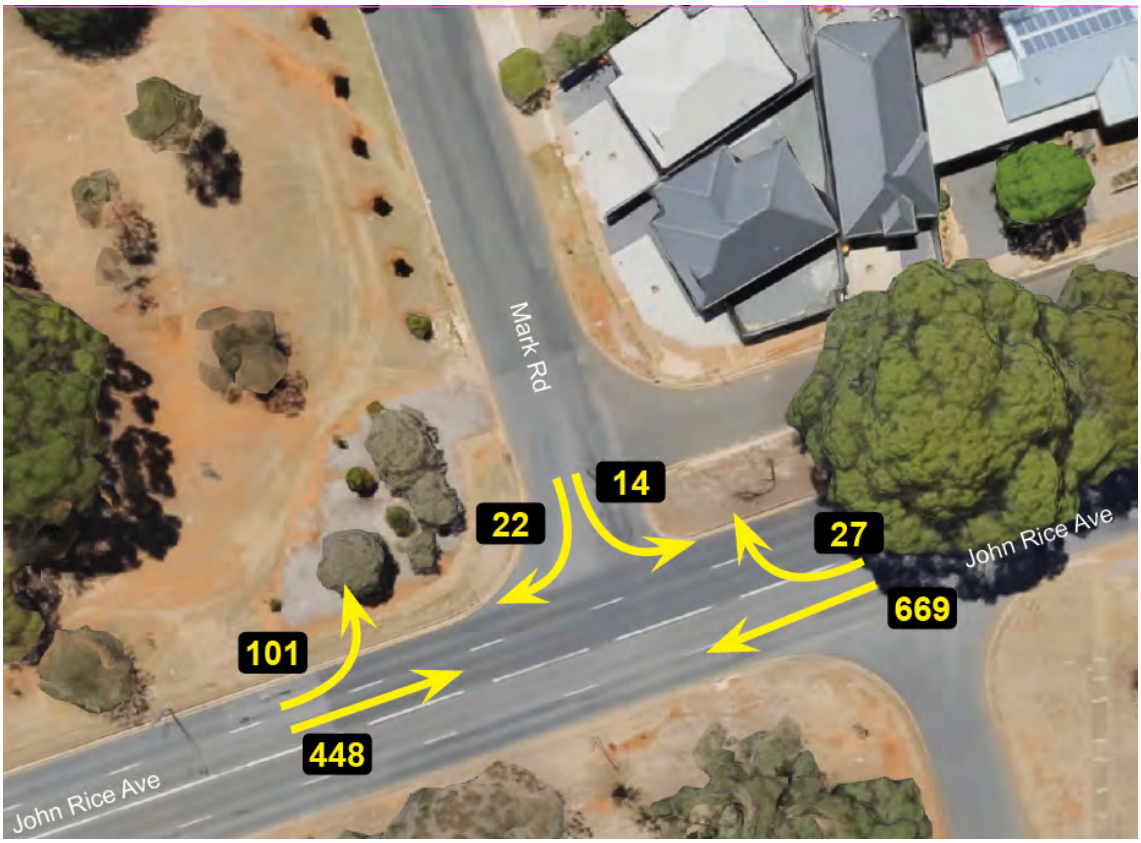
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Philip Highway (S)											
1	L2	22	0.0	0.028	5.1	LOS A	0.2	1.2	0.78	0.65	55.8
2	T1	52	2.0	0.125	5.4	LOS A	0.8	6.2	0.82	0.69	55.3
3	R2	61	15.5	0.125	12.9	LOS B	0.8	6.2	0.82	0.69	57.6
Approach		135	7.8	0.125	8.8	LOS A	0.8	6.2	0.81	0.68	56.4
East: John Rice Avenue (E)											
4	L2	23	0.0	0.268	3.9	LOS A	1.8	12.7	0.73	0.44	55.0
5	T1	464	3.4	0.268	4.6	LOS A	1.8	12.7	0.72	0.49	57.4
6	R2	34	6.3	0.268	12.2	LOS B	1.5	11.0	0.71	0.55	59.9
Approach		521	3.4	0.268	5.1	LOS A	1.8	12.7	0.72	0.49	57.4
North: Philip Highway (N)											
7	L2	96	4.4	0.116	6.8	LOS A	1.6	11.5	0.87	0.50	54.7
8	T1	69	0.0	0.116	7.2	LOS A	1.6	11.5	0.87	0.50	57.5
9	R2	726	2.6	0.472	15.9	LOS B	8.3	59.7	1.00	0.60	54.3
Approach		892	2.6	0.472	14.3	LOS B	8.3	59.7	0.98	0.58	54.6
West: John Rice Avenue (W)											
10	L2	926	3.3	0.469	1.8	LOS A	0.0	0.0	0.00	0.24	59.8
11	T1	620	1.0	0.375	2.9	LOS A	2.2	15.7	0.23	0.30	60.7
12	R2	25	0.0	0.375	10.0	LOS B	2.2	15.7	0.23	0.30	64.0
Approach		1572	2.3	0.469	2.4	LOS A	2.2	15.7	0.09	0.26	60.2
All Vehicles		3119	2.8	0.472	6.5	LOS A	8.3	59.7	0.48	0.41	57.8

Based on the above:

- The intersection currently operates at a LOS of A with a DOS well within operational capacity.
- Average delays and 95th percentile queue lengths were modest on each approach leg, although it was observed there was higher queueing for vehicles turning right from Phillip Highway onto John Rice Avenue (west).

2.2.5. John Rice Avenue and Mark Road

Figure 2.8: AM Peak Hour (8:00am-9:00am) Turning Movements Mark Rd and John Rice Ave



The SIDRA intersection modelling results summary for the AM peak is shown in Figure 2.9.

Figure 2.9: Mark Road – John Rice Avenue AM Peak

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	704	4.3	0.206	0.3	LOS A	0.5	3.6	0.07	0.02	59.2
6	R2	28	7.4	0.206	9.7	LOS A	0.5	3.6	0.15	0.05	56.6
Approach		733	4.5	0.206	0.7	NA	0.5	3.6	0.07	0.03	59.1
North: Mark Road											
7	L2	15	0.0	0.172	6.3	LOS A	0.5	3.9	0.65	0.76	43.6
9	R2	23	4.5	0.172	30.7	LOS D	0.5	3.9	0.65	0.76	40.7
Approach		38	2.8	0.172	21.2	LOS C	0.5	3.9	0.65	0.76	41.9
West: John Rice Avenue											
10	L2	106	2.0	0.155	5.6	LOS A	0.0	0.0	0.00	0.22	55.5
11	T1	472	6.5	0.155	0.0	LOS A	0.0	0.0	0.00	0.08	59.0
Approach		578	5.6	0.155	1.0	NA	0.0	0.0	0.00	0.11	58.3
All Vehicles		1348	4.9	0.206	1.4	NA	0.5	3.9	0.06	0.08	58.0

Based on the above:

- The intersection generally has movements operating with a LOS of A with the exception of right turns operating at LOS of D, which is not dissimilar to other intersections during peak times. The overall intersection has a DOS of 0.206 which is within capacity.
- The average delay and 95th percentile queue length was modest on each approach.

The PM peak hour traffic volumes at the intersection of John Rice Avenue and Mark Road are shown in Figure 2.10.

Figure 2.10: PM Peak Hour (3:30am-4:30am) Turning Movements Mark Rd and John Rice Ave

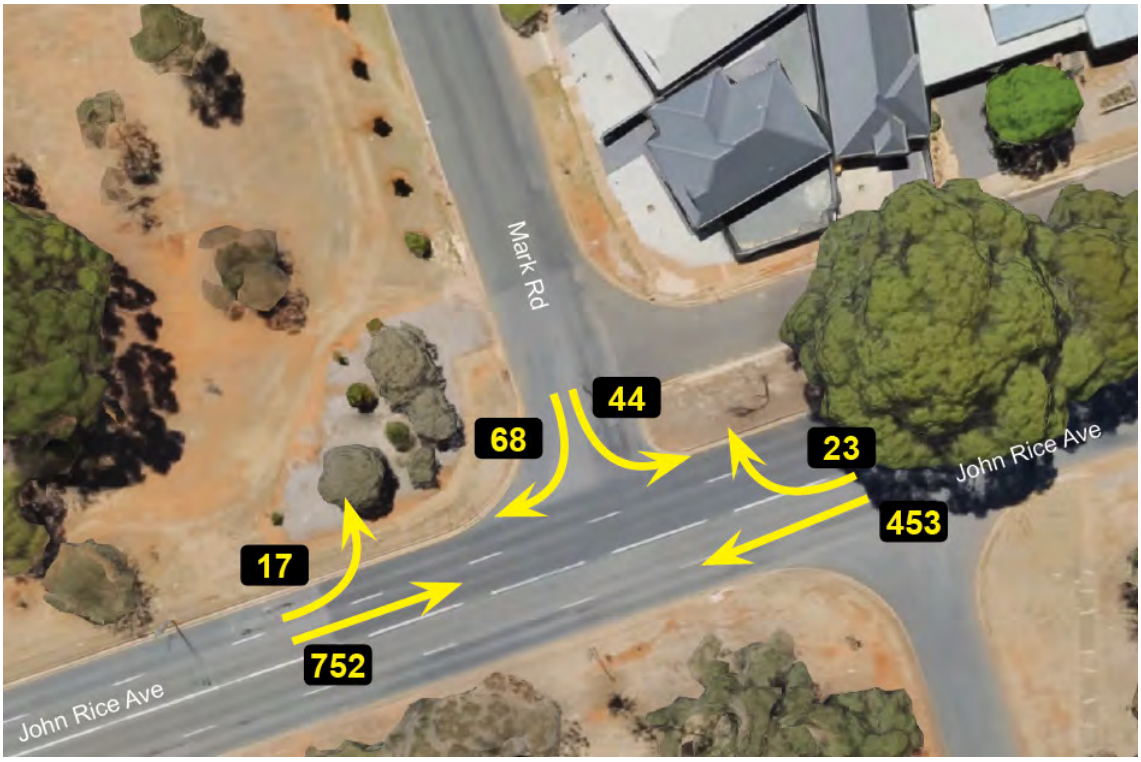


Figure 2.11: Mark Road – John Rice Avenue PM Peak

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	477	3.3	0.147	0.6	LOS A	0.5	3.8	0.10	0.03	58.7
6	R2	24	4.3	0.147	11.4	LOS B	0.5	3.8	0.24	0.08	55.8
Approach		501	3.4	0.147	1.2	NA	0.5	3.8	0.10	0.03	58.5
North: Mark Road											
7	L2	46	0.0	0.524	14.9	LOS B	2.4	16.5	0.81	1.04	39.4
9	R2	72	0.0	0.524	39.9	LOS E	2.4	16.5	0.81	1.04	36.3
Approach		118	0.0	0.524	30.1	LOS D	2.4	16.5	0.81	1.04	37.7
West: John Rice Avenue											
10	L2	18	0.0	0.207	5.6	LOS A	0.0	0.0	0.00	0.03	57.7
11	T1	780	1.6	0.207	0.0	LOS A	0.0	0.0	0.00	0.01	59.8
Approach		798	1.6	0.207	0.1	NA	0.0	0.0	0.00	0.01	59.8
All Vehicles		1417	2.1	0.524	3.0	NA	2.4	16.5	0.10	0.11	56.3

Based on the above:

- The intersection generally operates well, however similar to the AM Peak, the right turn from Mark Road operates at a LOS of E, which is not dissimilar to other intersections during peak times. The DOS of 0.524 is within operational capacity for the intersection.
- The average delay and 95th percentile queue length was modest on each approach.

2.2.6. John Rice Avenue and Trembath Road

Figure 2.12: AM Peak Hour (8:00am-9:00am) Turning Movements Trembath Rd and John Rice Ave

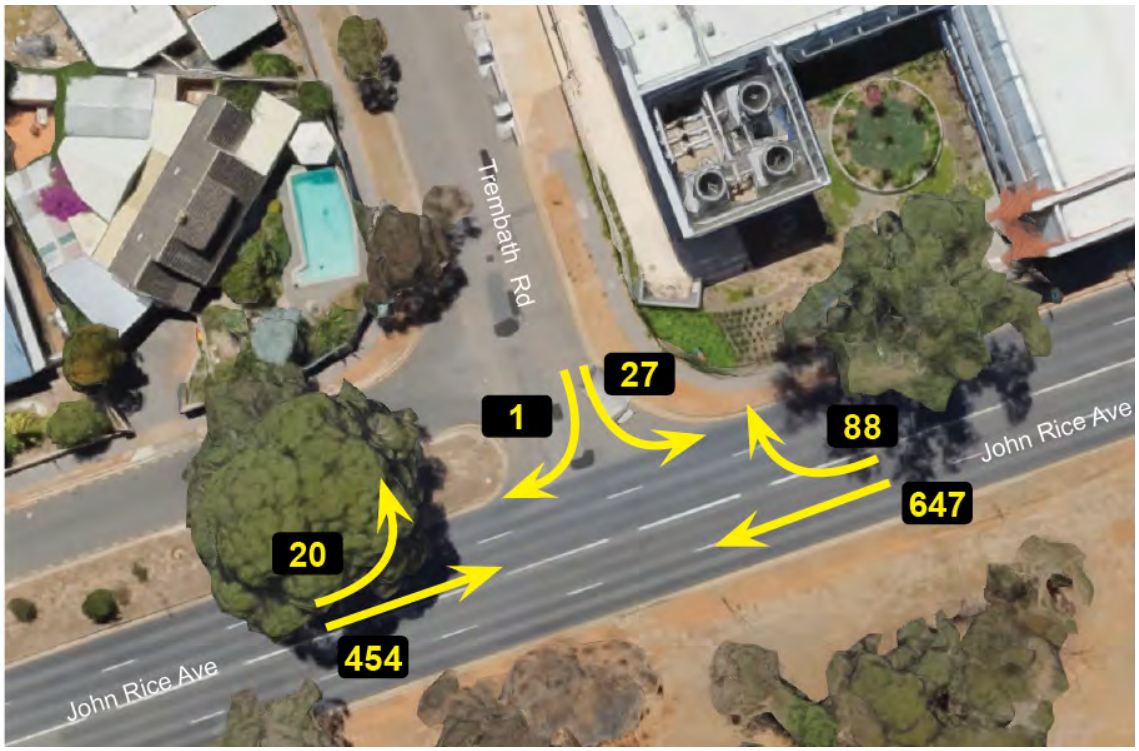


Figure 2.13: Trembath Road and John Rice Avenue Intersection AM Peak

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	681	3.6	0.234	0.6	LOS A	1.1	8.2	0.13	0.07	58.8
6	R2	93	1.1	0.234	8.6	LOS A	1.1	8.2	0.38	0.21	55.1
Approach		774	3.3	0.234	1.5	NA	1.1	8.2	0.16	0.09	58.3
North: Trembath Road											
7	L2	28	7.4	0.059	5.6	LOS A	0.2	1.4	0.47	0.58	43.9
9	R2	1	100.0	0.059	111.6	LOS F	0.2	1.4	0.47	0.58	43.3
Approach		29	10.7	0.059	9.4	LOS A	0.2	1.4	0.47	0.58	43.8
West: John Rice Avenue											
10	L2	21	10.0	0.134	5.7	LOS A	0.0	0.0	0.00	0.05	57.4
11	T1	478	6.2	0.134	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
Approach		499	6.3	0.134	0.3	NA	0.0	0.0	0.00	0.03	59.7
All Vehicles		1302	4.6	0.234	1.2	NA	1.1	8.2	0.11	0.07	58.4

Based on the above:

- The intersection generally operates at a LOS of A with the exception of right turn movements from Trembath Rd at LOS of F, which is not dissimilar to other intersections during peak times. The DOS was 0.234, which is within operational capacity.
- The average delay and 95th percentile queue length for each approach was modest, although a higher delay was noted for the right turn movement from Trembath. Notwithstanding, there was only one (1) vehicle on this approach.

Figure 2.14: PM Peak Hour (3:30pm-4:30pm) Turning Movements Trembath Rd and John Rice Ave

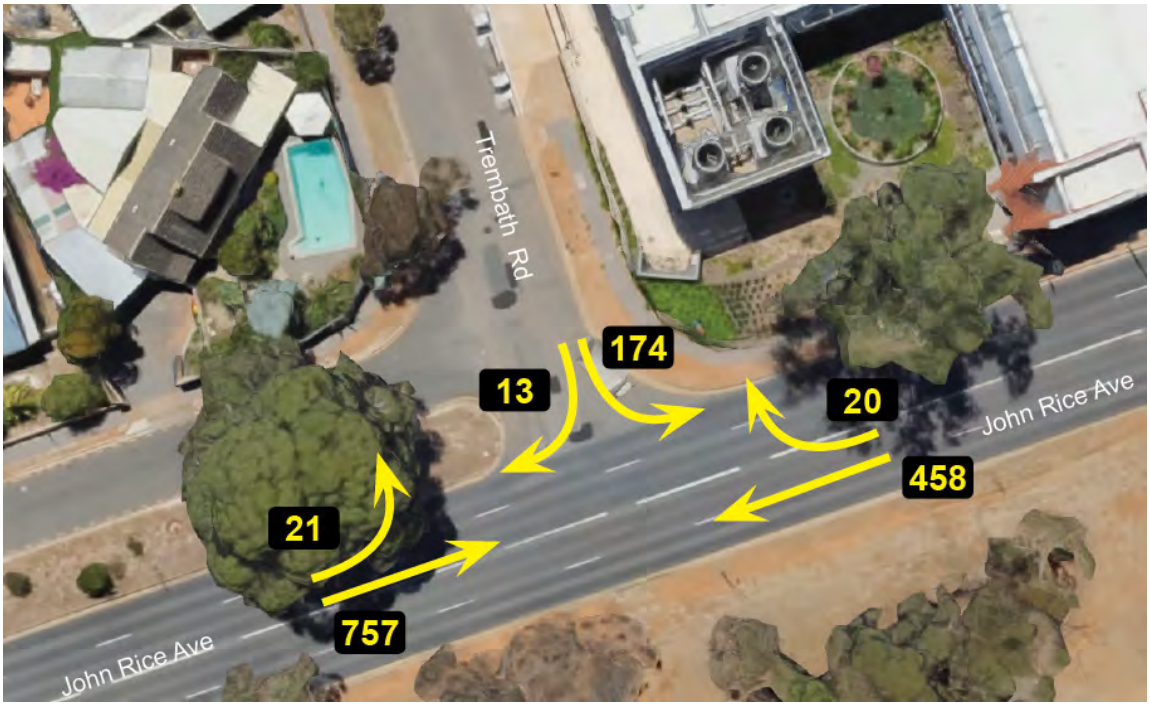


Figure 2.15 Trembath Road and John Rice Avenue Intersection PM Peak

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	482	3.5	0.145	0.6	LOS A	0.5	3.4	0.09	0.03	59.1
6	R2	21	0.0	0.145	11.4	LOS B	0.5	3.4	0.21	0.06	56.3
Approach		503	3.3	0.145	1.0	NA	0.5	3.4	0.09	0.03	58.9
North: Trembath Road											
7	L2	183	0.0	0.301	7.0	LOS A	1.3	8.8	0.54	0.76	44.1
9	R2	14	0.0	0.301	35.4	LOS E	1.3	8.8	0.54	0.76	44.1
Approach		197	0.0	0.301	9.0	LOS A	1.3	8.8	0.54	0.76	44.1
West: John Rice Avenue											
10	L2	22	0.0	0.214	5.6	LOS A	0.0	0.0	0.00	0.03	58.0
11	T1	797	3.0	0.214	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
Approach		819	3.0	0.214	0.2	NA	0.0	0.0	0.00	0.02	59.8
All Vehicles		1519	2.7	0.301	1.6	NA	1.3	8.8	0.10	0.12	56.9

Based on the above:

- The intersection generally has movements operating with a LOS of A with the exception of right turns operating at E. A DOS of 0.301 which is within capacity.

- The average delay and 95th percentile queue length was modest on each approach.

2.2.7. John Rice Avenue and Haydown Road

Figure 2.15: AM Peak Hour (8:00am-9:00am) Turning Movements Haydown and John Rice

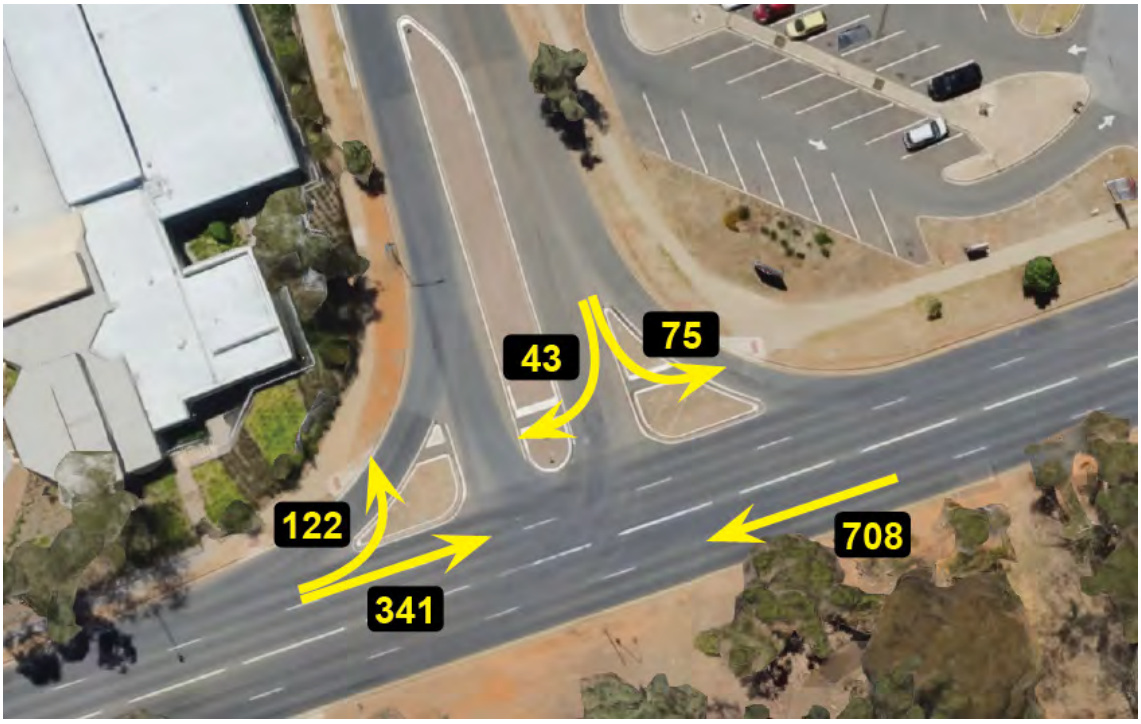


Figure 2.16: Existing Sidra Haydown Road – John Rice AM Peak

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	745	3.4	0.383	0.1	LOS A	2.2	15.9	0.01	0.02	59.8
6	R2	365	1.4	0.383	8.3	LOS A	2.2	15.9	0.54	0.73	51.9
Approach		1111	2.7	0.383	2.8	NA	2.2	15.9	0.18	0.25	56.9
North: Haydown Road											
7	L2	79	8.0	0.066	6.0	LOS A	0.2	1.8	0.17	0.52	53.4
9	R2	45	9.3	0.721	116.2	LOS F	2.6	19.9	0.98	1.11	20.4
Approach		124	8.5	0.721	46.2	LOS E	2.6	19.9	0.47	0.74	33.7
West: John Rice Avenue											
10	L2	128	1.6	0.153	7.1	LOS A	0.7	5.1	0.42	0.41	54.3
11	T1	359	7.9	0.153	0.3	LOS A	0.7	5.1	0.09	0.09	58.9
Approach		487	6.3	0.153	2.1	NA	0.7	5.1	0.17	0.17	57.6
All Vehicles		1722	4.2	0.721	5.7	NA	2.6	19.9	0.20	0.26	54.4

Based on the above:

- The intersection has movements operating with a LOS of F and D and a DOS of 0.506, which is at moderate capacity.
- The average delays for right-turn movements in and out of Haydown Rd are 55.6 and 30.2 seconds within the intersection

- The 95th percentile queue length was on this approach with 3 vehicles exiting Haydown turning right onto John Rice Ave (westbound) in the AM Peak

Figure 2.17: PM Peak Hour (3:30pm-4:30pm) Turning Movements Haydown Road – John Rice

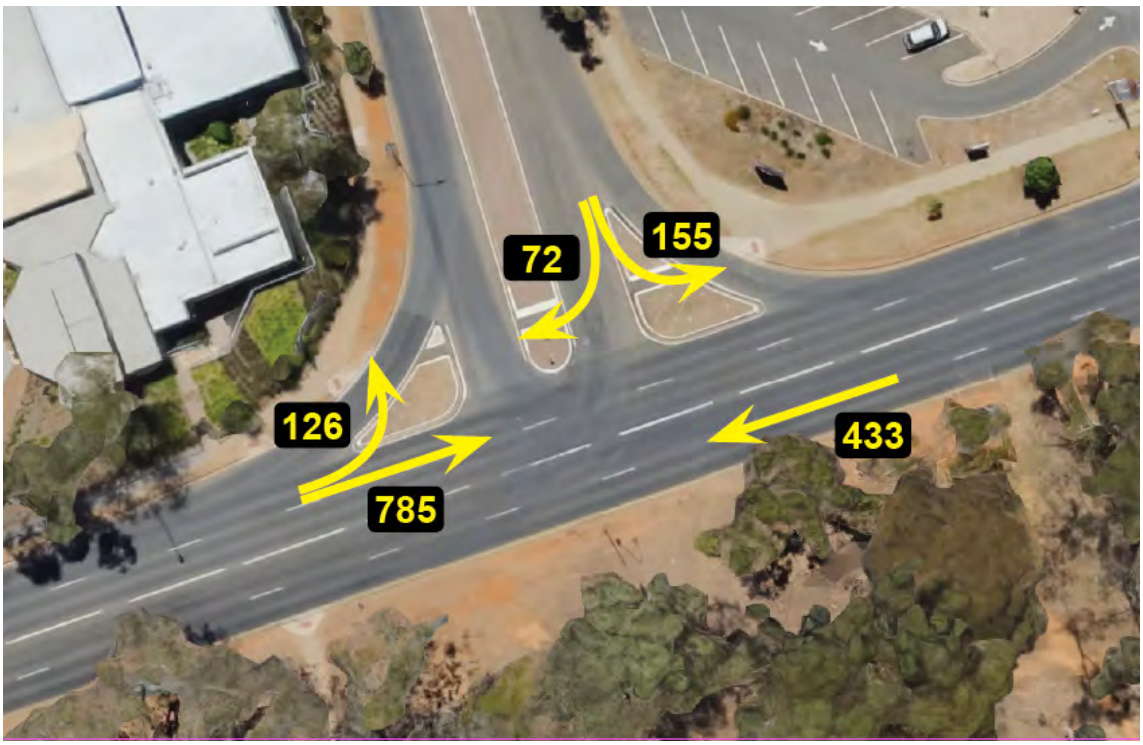


Figure 2.18: Haydown Road – John Rice PM Peak

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	456	3.9	0.240	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
6	R2	141	5.2	0.271	12.5	LOS B	1.1	8.2	0.70	0.90	48.7
Approach		597	4.2	0.271	3.0	NA	1.1	8.2	0.17	0.21	56.8
North: Haydown Road											
7	L2	163	1.3	0.170	7.2	LOS A	0.7	4.6	0.41	0.64	52.8
9	R2	76	5.6	0.828	102.4	LOS F	3.9	28.5	0.98	1.23	22.2
Approach		239	2.6	0.828	37.4	LOS E	3.9	28.5	0.59	0.83	36.8
West: John Rice Avenue											
10	L2	133	4.8	0.263	6.3	LOS A	1.0	6.8	0.18	0.17	56.8
11	T1	826	1.9	0.263	0.1	LOS A	1.0	6.8	0.07	0.06	59.0
Approach		959	2.3	0.263	1.0	NA	1.0	6.8	0.08	0.08	58.7
All Vehicles		1795	3.0	0.828	6.5	NA	3.9	28.5	0.18	0.22	53.8

Based on the above:

- The intersection operates well, noting a higher LOS of F for the right turn lane out of Haydown Road, which reflects observations. Notwithstanding, this is not dissimilar to other intersections during peak times. The intersection performs at a DOS of 0.828 which is at operational capacity.
- The average delay were modest on each approach, although the right turn out of Haydown Road experienced a higher delay.

2.2.8. Mark Road, Oldham Road and Mofflin Road

SIDRA Intersection modelling wasn't carried out for the existing intersection of Mark Road/Oldham Road/Mofflin Road given the existing low volume nature of these roads, and given the proposed configuration changes which will be discussed in subsequent chapters. From observations, the intersection operated with minimal queuing and delays.

Figure 2.19: AM Peak Hour (8:00am-9:00am) Existing Turning Movements Oldham Road, Mofflin Road and Mark Road

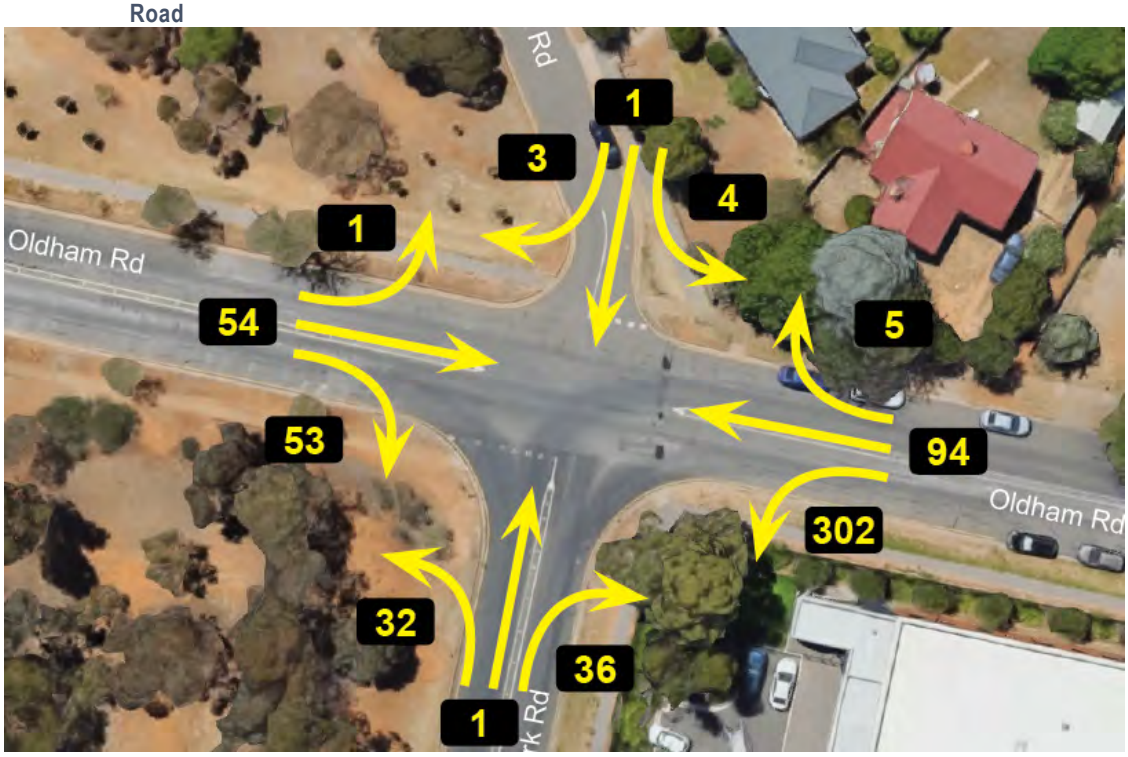
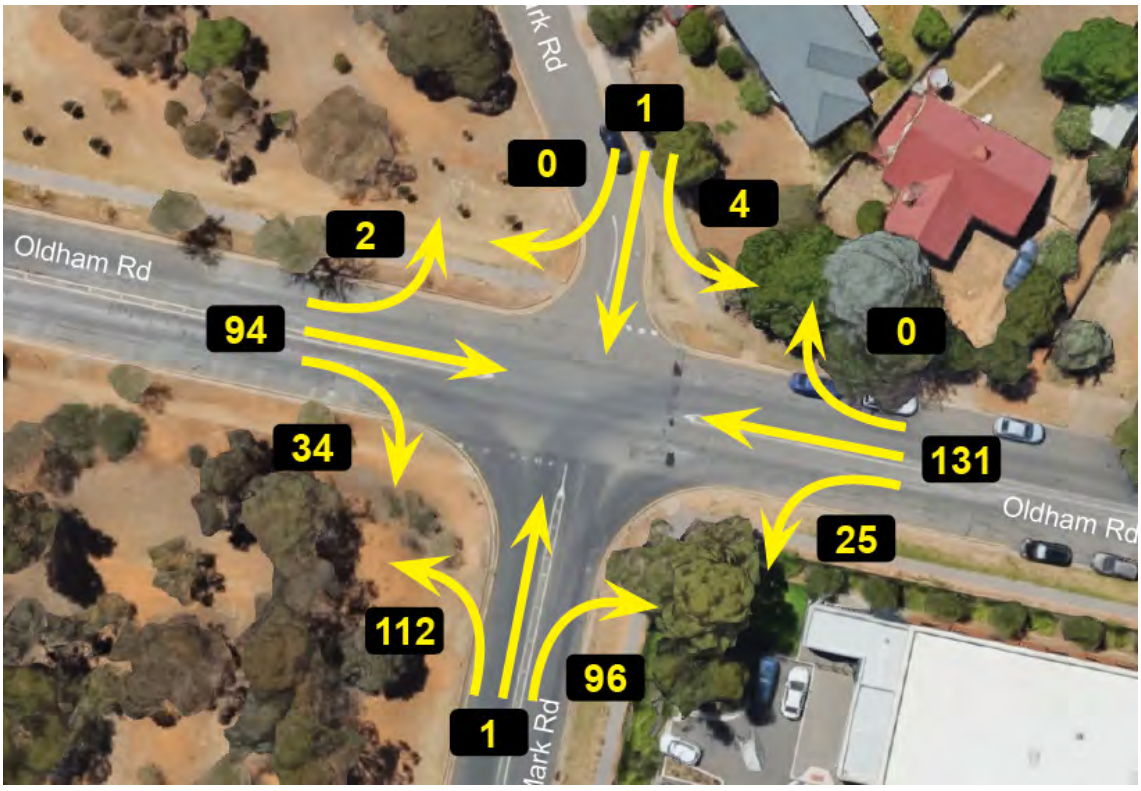


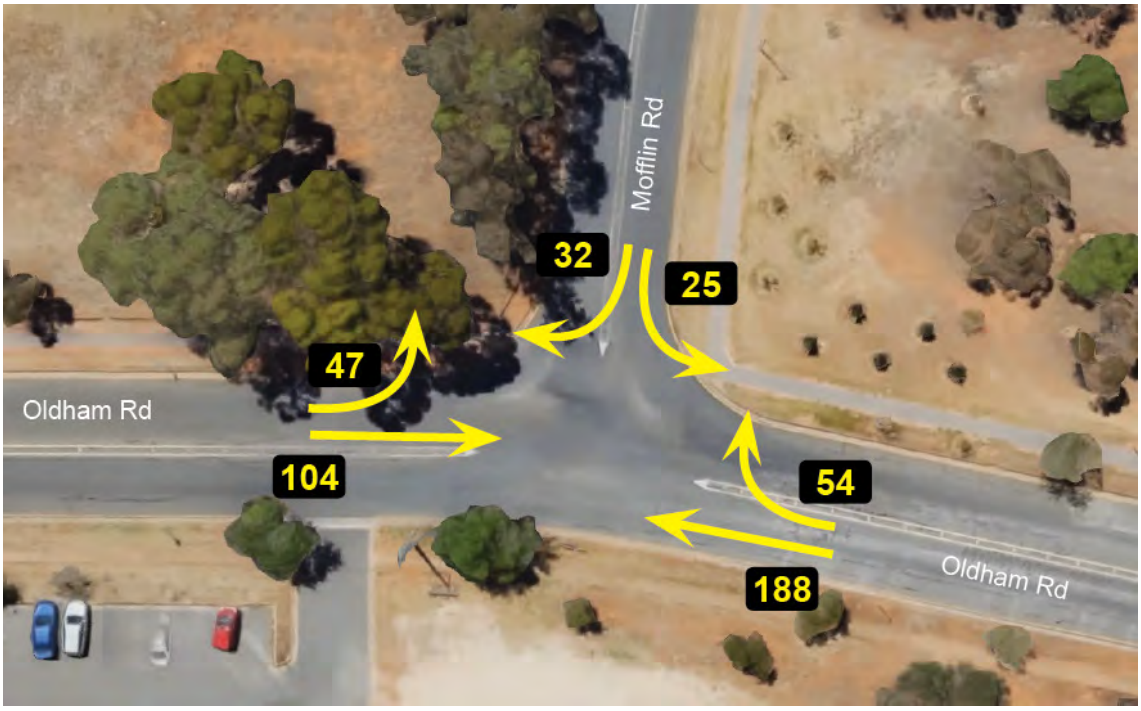
Figure 2.20: PM Peak Hour (3:30pm-4:30pm) Existing Turning Movements Oldham Road, Mofflin Road and Mark Road



2.2.9. Oldham Road and Mofflin Road

Figure 2.21: AM Peak Hour (8:00am-9:00am) Existing Turning Movements Oldham Road, Mofflin Road

Figure 2.22: PM Peak Hour (3:30pm-4:30pm) Existing Turning Movements Oldham Road, Mofflin Road



The above intersections have not been modelled for the existing conditions as the City of Playford is proposing to close the western section of Mofflin Road and construct a 4-arm roundaboout at the exisitng 4-way intersection. Details on the proposed rouindabout are considered in section 4.

2.2.10. Philip Highway and Oldham Road

Figure 2.23: AM Peak Hour (8:00am-9:00am) Existing Turning Movements Oldham Road, Philip Hwy

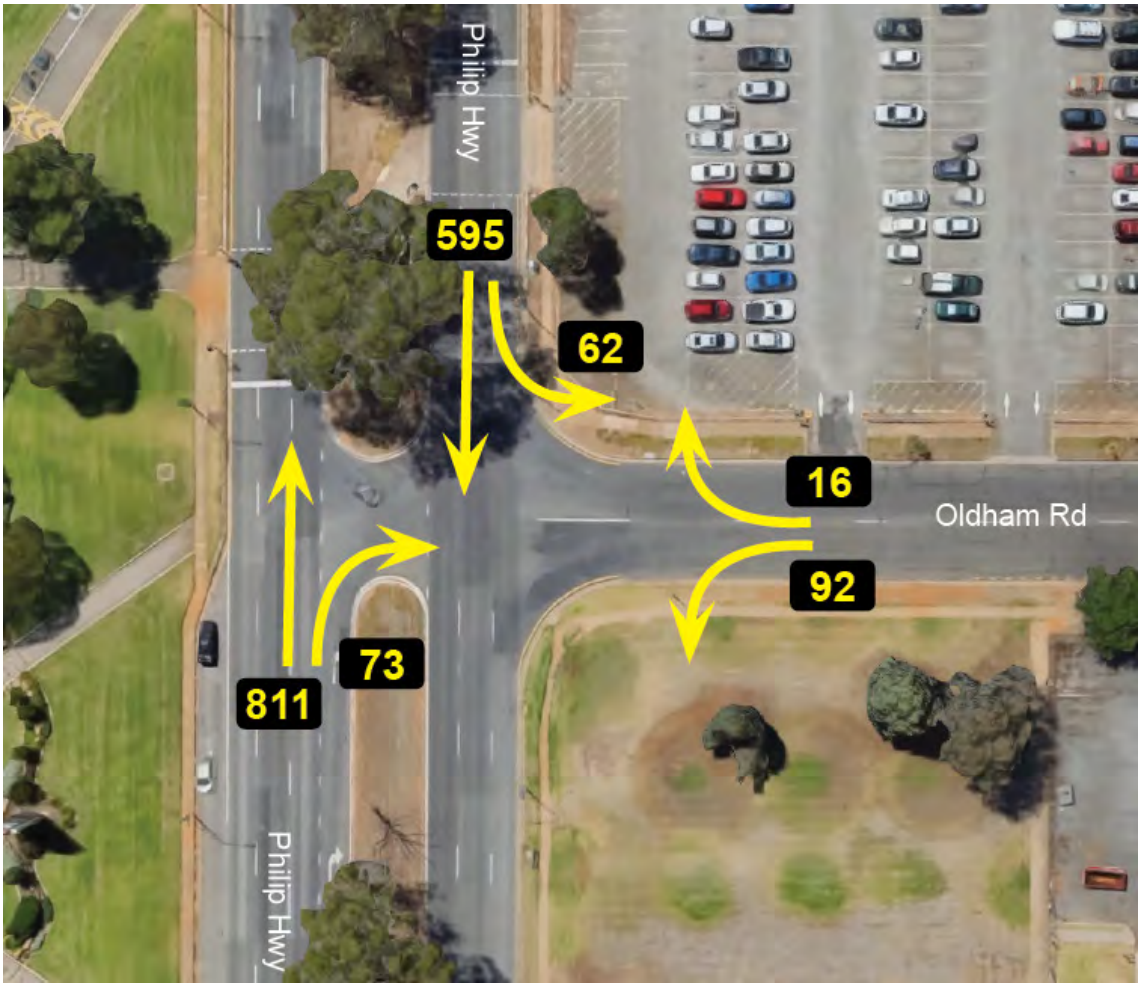


Figure 2.24: Existing Sidra Philip Hwy and Oldham Rd AM Peak

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Phillip Highway (S)											
2	T1	854	5.0	0.151	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	77	5.0	0.185	12.4	LOS B	0.6	4.6	0.63	0.84	45.9
Approach		931	5.0	0.185	1.0	NA	0.6	4.6	0.05	0.07	58.5
SouthEast: RoadName											
23a	R1	17	5.0	0.033	9.5	LOS A	0.1	0.8	0.61	0.75	51.4
Approach		17	5.0	0.033	9.5	LOS A	0.1	0.8	0.61	0.75	51.4
East: Oldham Road (E)											
4	L2	97	5.0	0.149	8.5	LOS A	0.5	3.9	0.56	0.78	47.2
6	R2	17	5.0	0.073	20.1	LOS C	0.3	2.0	0.77	0.89	41.2
Approach		114	5.0	0.149	10.2	LOS B	0.5	3.9	0.59	0.80	46.2
North: Phillip Highway (N)											
7	L2	65	5.0	0.123	5.6	LOS A	0.0	0.0	0.00	0.17	56.7
8	T1	626	5.0	0.123	0.0	LOS A	0.0	0.0	0.00	0.04	59.6
Approach		692	5.0	0.123	0.5	NA	0.0	0.0	0.00	0.06	59.3
All Vehicles		1753	5.0	0.185	1.5	NA	0.6	4.6	0.07	0.12	57.7

Figure 2.25: PM Peak Hour (3:30pm-4:30pm) Existing Turning Movements Oldham Road, Philip Hwy

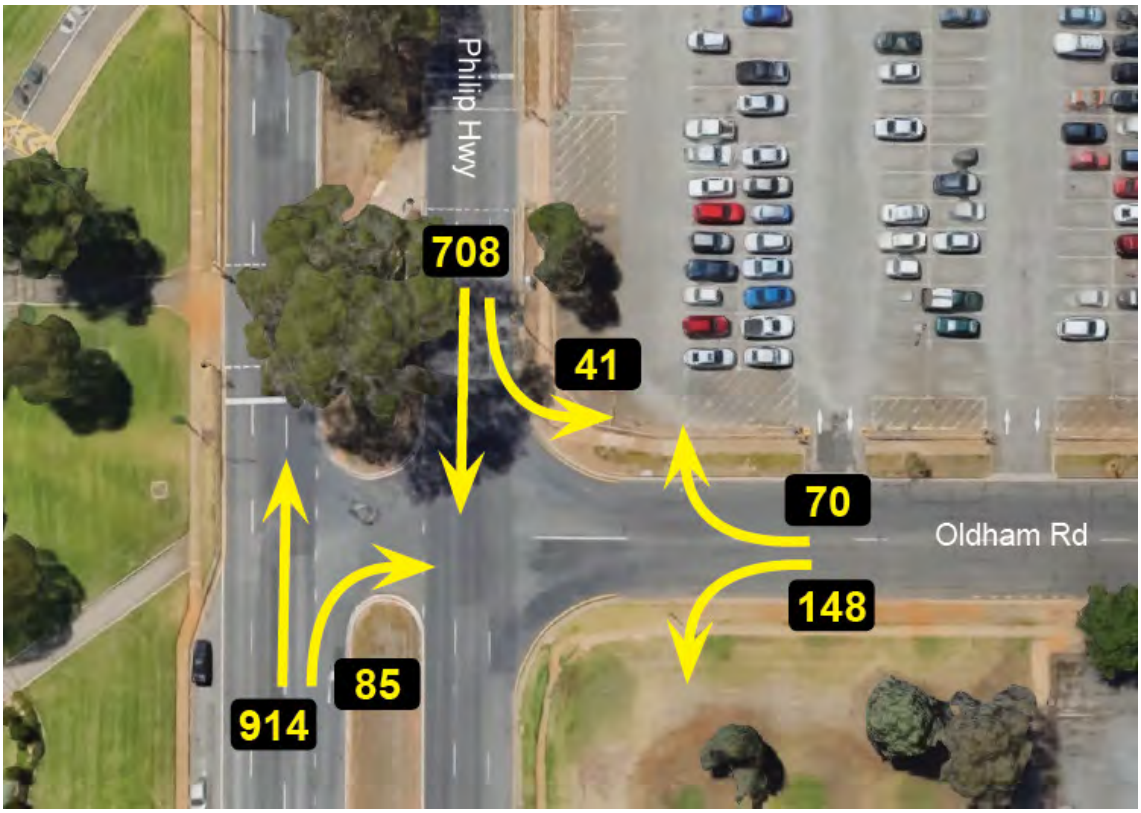


Figure 2.26: Existing Sidra Philip Hwy and Oldham Rd PM Peak

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Phillip Highway (S)											
2	T1	962	5.0	0.170	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	89	5.0	0.249	14.7	LOS B	0.9	6.6	0.70	0.89	44.6
Approach		1052	5.0	0.249	1.3	NA	0.9	6.6	0.06	0.08	58.3
SouthEast: RoadName											
23a	R1	74	5.0	0.164	11.2	LOS B	0.6	4.1	0.69	0.84	50.2
Approach		74	5.0	0.164	11.2	LOS B	0.6	4.1	0.69	0.84	50.2
East: Oldham Road (E)											
4	L2	156	5.0	0.272	10.2	LOS B	1.1	8.0	0.64	0.86	46.2
6	R2	74	5.0	0.414	34.0	LOS D	1.9	13.7	0.88	1.03	35.6
Approach		229	5.0	0.414	17.8	LOS C	1.9	13.7	0.71	0.91	42.2
North: Phillip Highway (N)											
7	L2	43	5.0	0.140	5.6	LOS A	0.0	0.0	0.00	0.10	57.3
8	T1	745	5.0	0.140	0.0	LOS A	0.0	0.0	0.00	0.03	59.7
Approach		788	5.0	0.140	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		2143	5.0	0.414	3.0	NA	1.9	13.7	0.13	0.18	56.1

Based on the above:

- The intersection operates within operational capacity, with a DOS of 0.414 on the worst approach (right turn from Oldham Road)
- Average queue delay and 95th percentile queue lengths were modest on each approach.

2.2.11. Crash History

The reported crash history for the roads and intersections adjoining the subject site has been sourced from the South Australian Government Data Directory (Data SA).

A summary of the crashes for the last available five-year period (2013-2017) is presented in Figure 2.27.

Figure 2.27: Crash History (2013-2017)

Key issues to note include:

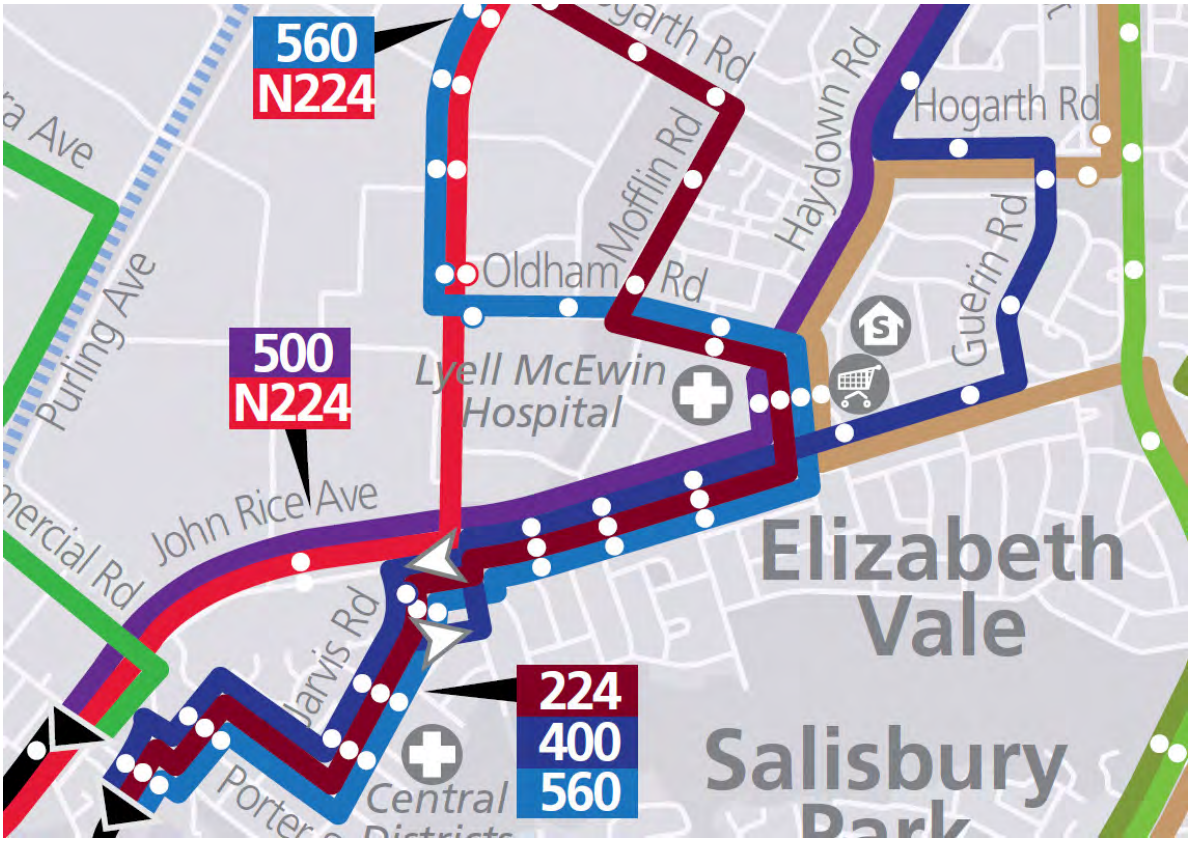
- A cluster of rear end crashes at the roundabout of Philip Highway and John Rice Avenue
- A cluster of right-angle crashes at the intersection of Oldham Road and Philip Highway
- A cluster of right turn crashes at the intersection of Haydown Road and John Rice Avenue

2.3. Sustainable Transport Infrastructure

2.3.1. Public Transport

Figure 2.28 shows the subject site in relation to existing public transport routes within its vicinity. Bus stops are located on Oldham Road, Mofflin Road, Haydown Road and John Rice Avenue.

Figure 2.28: Public Transport Map



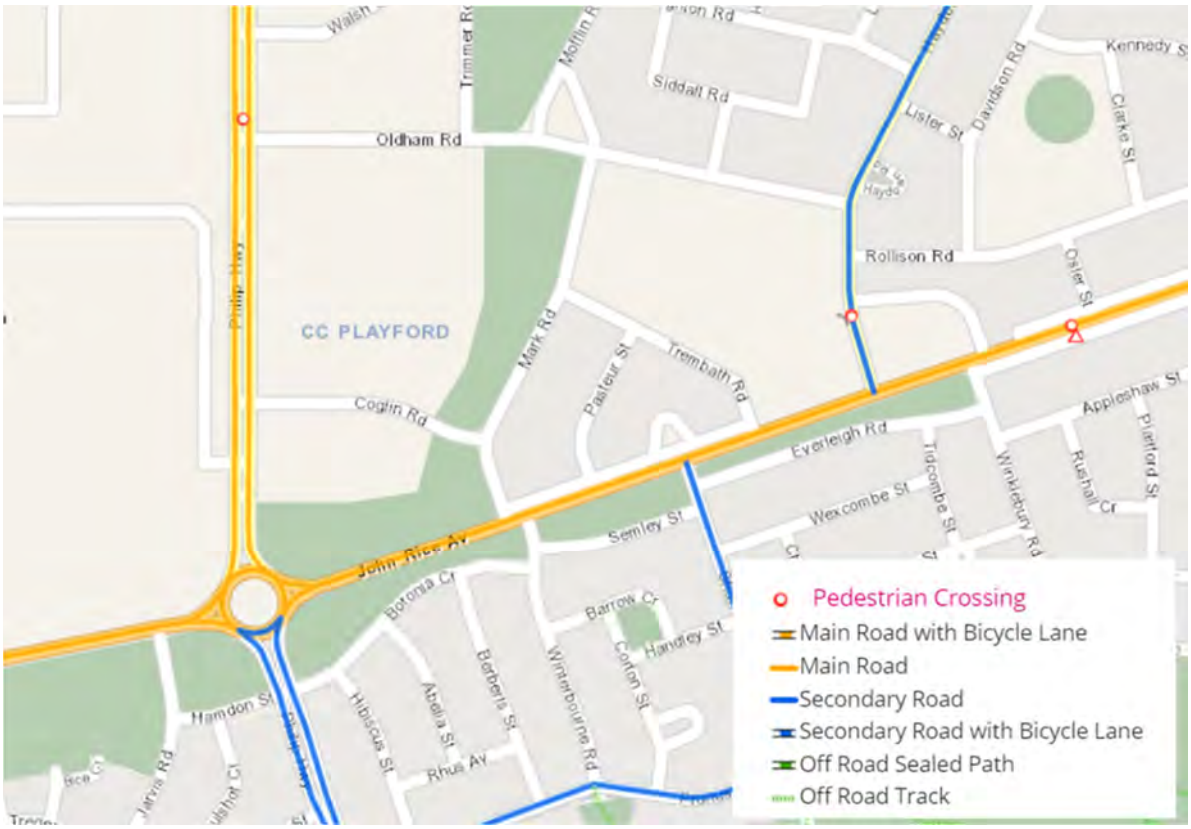
2.3.2. Pedestrian Infrastructure

Sealed pedestrian paths are generally located on both side of the roads within the vicinity of the subject site. As part of the development of the wider health precinct the City of Playford is proposing to install pedestrian crossings and improve the local walking connectivity in the precinct.

2.3.3. Cycle Infrastructure

Cycle paths/routes in the vicinity of the subject site included in the Bike Direct network are located as shown in Figure 2.29.

Figure 2.29: Bike Direct Network



Source: https://maps.sa.gov.au//cycleinstead/

3. DEVELOPMENT PROPOSAL

03

3.1. Proposed Land uses

For the purposes of assessing the traffic generation, the proposed DPA area has been considered as seven (7) land use parcels comprising a mix of office, medical, educational, commercial, retail and residential land uses.

Figure 3.1, considers the DPA area and the land-use area assumptions based on projected development for the Playford Health DPA are summarised in Table 3.1.

Figure 3.1: Land-use Parcel and area size.

Table 3.1: Development Schedule [1]

Parcel	Parcel Size	Land use	Total Floor Area Sqm
1	29,210	Office	19,500
		Medical	2,600
		Education	867
		Retail / Cafe	1,300
		Total	**26,000**
2	13,100	Office	1,920
		Medical	480
		Total	**2,400**
3	6,840	Office	400
		Medical	600
		Total	**1,000**
4	15,910	ACH	-
		Total	**-**
5	20,670	Retail / Café	2,717
		Total	**2,500**
6	67,930	Medical	8,152
		Consulting Rooms	109
		Office	8,152
		Total	**27,172**
7	34,653	Medical	2,488
		Consulting Rooms	33
		Office	3,318
		Residential	138 (dwellings)
		Total	**8,294**

3.2. Vehicle Access

The following access point assumptions are made for each parcel as seen in **Error! Not a valid bookmark self-reference.**

- Parcel 1 will have a left in left out access point on Phillip Highway with additional access points on John Rice Avenue and Coglin Road
- Parcel 2 will have access points on Mark Road and Coglin Road
- Parcel 3 will only have an access point on Mark Road

- Parcel 4 will only have an access point on Oldham Road
- Parcel 5 will have the existing access points with the potential of an additional access point on Rollison Rd
- Parcel 6 will have access points connecting Oldham Road, Haydown Road and Treves Street
- Parcel 7 will have access points along Broughton Rd and Siddal Rd.

Figure 3.2: Vehicle Access Map for Playford Health DPA

4. TRAFFIC IMPACT ASSESSMENT

04

4.1. Traffic Generation

4.1.1. Traffic Generation Rates

The land-uses anticipated within the DPA primarily consist of office space, medical consulting rooms and other allied medical uses, residential and mixed use including additional retail in parcel 5 and ancillary retail in other parcels. The traffic generation rates used in the assessment for each of the land uses are shown in Table 4.1

Table 4.1: Land-Use Traffic Generation Rate

Land-use (Unit)	Peak Hour Rate	Daily Rate	Source
Office (per 100sqm)	0.02	0.1	RTA
Medical (per 100sqm)	0.088	0.88	RTA
Consulting Rooms (per 100 sqm)	5.8	40	GTA
Education (per 100sqm)	0.25	2.5	GTA
Retail / Café (per 100sqm)	0.046	0.55	RTA
Residential (per dwelling)	0.65	6.5	RTA

The DPA proposes to rezone the subject land to allow for mixed use developments. For the purpose of this Transport Impact Assessment, a potential development concept plan has been reviewed to gauge the possible traffic and transport implications on the surrounding road network.

An important characteristic of the traffic generation of the above uses is the different types of trips which may occur. These different trip types correspond to:

- *'Primary Trips'*
- *'Link-diverted Trips'*
- *'Non-link-diverted Trips'.*

Primary trips and *link-diverted trips* involve a vehicle either making a special trip or a modification of the route to an existing trip. *Non-link-diverted trips,* on the other hand, correspond to those trips which do not involve a diversion from the route that would otherwise have been taken, or in other words are trips generated by passing traffic. The important distinction here is that it is only *primary trips* and *link-diverted trips* which impact upon the external road network. *Non-link-diverted trips* are already present on the adjacent road network, and although these trips need to be considered in the design of access driveways, turning lanes and so on, they do not constitute additional traffic per se.

Estimates of peak hour and daily traffic volumes resulting from the proposal are set out in Table 4.2 and

Table 4.3 respectively. Traffic generation rates for the ACH site in parcel 4 have been derived from the Development Application Transport Impact Assessment.

Table 4.2: Peak Hour Traffic Generation Estimates

Land-use	Size	Peak Hour Generation Rate	Percentage of New Trips to the Precinct	Peak Hour Generation Estimate
Parcel 1				
Office	19,500 Sq.m	2 trips per 100sq.m	100%	390
Medical	2,600 Sq.m	8.8 trips per 100sq.m	75%	172
Education	867 Students	0.25 per student	75%	163
Retail/Cafe	1,300 Sq.m	5 trips per 100sq.m	50%	33
			Total	**758**
Parcel 2				
Office	1,920 Sq.m	2 trips per 100sq.m	100%	38
Medical	480 Sq.m	8.8 trips per 100sq.m	75%	32
			Total	**70**
Parcel 3				
Office	400 Sq.m	2 trips per 100sq.m	100%	8
Medical	600 Sq.m	8.8 trips per 100sq.m	75%	40
			Total	**48**
Parcel 4				
ACH	-	-	100%	-47
			Total	**-47**
Parcel 5				
Retail	2,500 Sq.m	5 trips per 100sq.m	50%	58
			Total	**58**
Parcel 6				
Retail / Cafe	2,717 Sq.m	5 trips per 100sq.m	50%	63

Land-use	Size	Peak Hour Generation Rate	Percentage of New Trips to the Precinct	Peak Hour Generation Estimate
Medical	8,152 Sq.m	8.8 trips per 100sq.m	75%	538
Consulting Rooms	109 Consultants	5.8 Trips per Consultants	75%	474
Office	8,12 Sq.m	5 trips per 100sq.m	100%	163
			Total	**1,238**
Parcel 7				
Residential	138 Dwellings	0.65 Trips per dwelling	100%	90
Medical	2,488 Sq.m	8.8 trips per 100sq.m	75%	164
Consulting Rooms	33 Sq.m	5.8 Trips per Consultants	75%	143
Office	3,318 Sq.m	5 trips per 100sq.m	100%	66
			Total	**397**

Table 4.3: Daily Traffic Generation Estimates

Land-use	Size	Peak Hour Generation Rate	Percentage of New Trips to the Precinct		Daily Generation Estimate
Parcel 1					
Office	19,500 Sq.m	10 trips per 100sq.m	100%		1950
Medical	2,600 Sq.m	88 trips per 100sq.m	75%		1716
Education	867 Students	2.5 per student	75%		1626
Retail/Cafe	1,300 Sq.m	60 trips per 100sq.m	50%		390
				Total	**5,682**
Parcel 2					
Office	1,920 Sq.m	10 trips per 100sq.m	100%		192
Medical	480 Sq.m	88 trips per 100sq.m	75%		317
				Total	**509**
Parcel 3					
Office	400 Sq.m	10 trips per 100sq.m	100%		40
Medical	600 Sq.m	88 trips per 100sq.m	75%		396
				Total	**436**
Parcel 4					
ACH	-	-	100%		-384
				Total	**384**
Parcel 5					
Retail	2,500 Sq.m	5.5 trips per 100sq.m	50%		688
				Total	**688**
Parcel 6					
Retail / Cafe	2,717 Sq.m	5.5 trips per 100sq.m	50%		747

Land-use	Size	Peak Hour Generation Rate	Percentage of New Trips to the Precinct		Daily Generation Estimate
Medical	8,152 Sq.m	88 trips per 100sq.m	75%		5381
Consulting Rooms	109 Consultants	40 Trips per Consultants	75%		3270
Office	8,12 Sq.m	10 trips per 100sq.m	100%		815
				Total	**10,213**
Parcel 7					
Residential	138 Dwellings	6.5 Trips per dwelling	100%		897
Medical	2,488 Sq.m	8.8 trips per 100sq.m	75%		1,642
Consulting Rooms	33 Sq.m	40 Trips per Consultants	75%		990
Office	3,318 Sq.m	10 trips per 100sq.m	100%		332
				Total	**3,529**

Based on the above, both AM and PM Peak Hours will generate an additional 2,616 trips to the road network, while it is anticipated that 21,441 trips will be increased to the road network over a daily period.

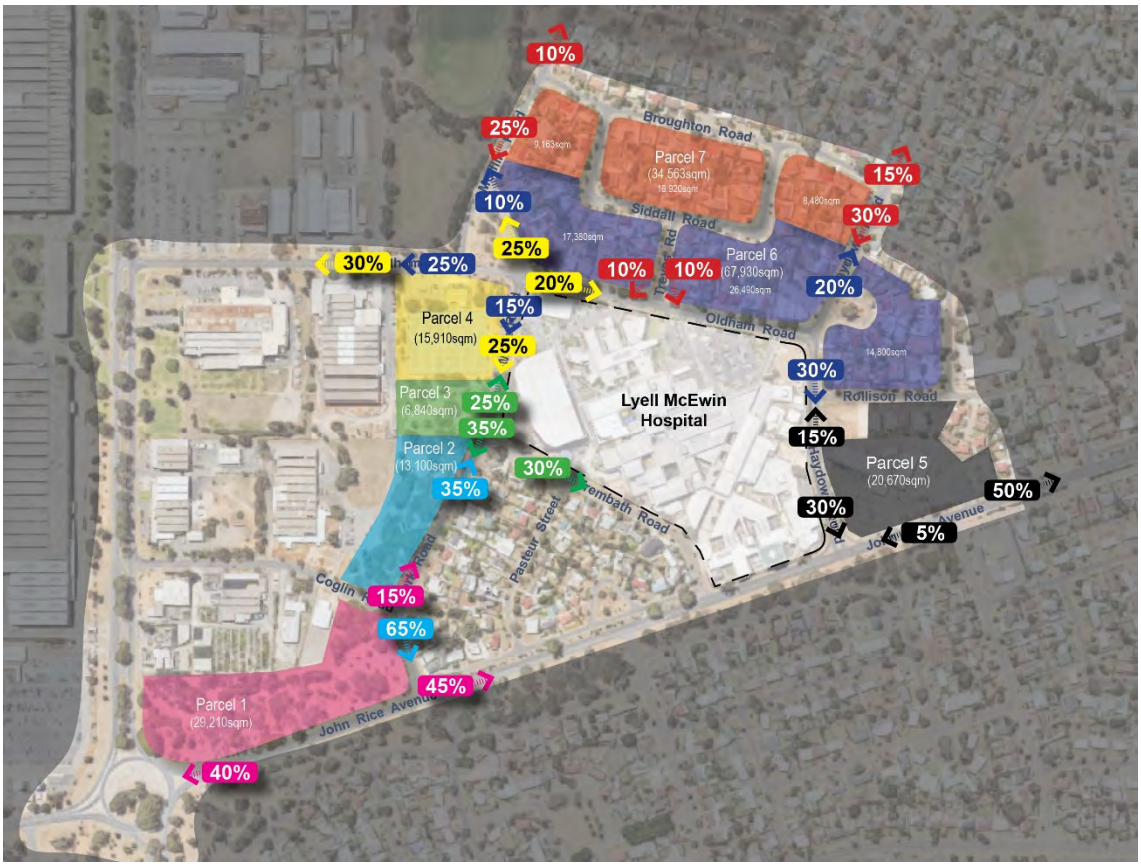
4.1.2. Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development will be influenced by a number of factors, including the:

1. configuration of the road network in the immediate vicinity of the site
2. existing operation of intersections providing access between the local and arterial road network
3. distribution of households in the vicinity of the site
4. surrounding employment centres, retail centres and schools in relation to the site
5. likely distribution of employee's residences in relation to the site
6. configuration of access points to the site.

Having consideration to the above, for the purposes of estimating vehicle movements, the following directional distributions have been assumed:

Figure 4.1: Percentage vehicle movement distribution from each parcel.



4.2. 2036 Post Development Models

SIDRA Intersection modelling has been carried out for post development based on 2036 volumes. The 2036 traffic volumes were calculated by assuming an annual growth factor onto the road network. For this assessment the existing geometry of the modelled intersections were kept consistent other than the intersection of Mark Road/Oldham Road and Mofflin Road that was remodelled as a roundabout. The following intersections were listed below:

- John Rice Ave / Philip Hwy
- Mark Rd / John Rice Ave
- Trembath Rd / John Rice Ave
- Haydown Rd / John Rice Ave
- Philip Highway/Oldham Road
- Oldham Road/Mark Road/ Mofflin Road (proposed roundabout)

4.2.1. John Rice Avenue / Philip Highway

Figure 4.2: AM John Rice Ave / Philip Hwy 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Philip Highway (S)											
1	L2	43	5.0	0.059	8.1	LOS A	0.4	3.2	0.95	0.77	54.4
2	T1	92	5.0	0.217	9.1	LOS A	1.7	12.3	0.98	0.89	53.9
3	R2	68	5.0	0.217	16.3	LOS B	1.7	12.3	0.98	0.89	56.3
Approach		203	5.0	0.217	11.3	LOS B	1.7	12.3	0.98	0.87	54.8
East: John Rice Avenue (E)											
4	L2	78	5.0	0.574	6.1	LOS A	5.5	40.1	0.91	0.72	53.9
5	T1	922	5.0	0.574	7.0	LOS A	5.5	40.1	0.89	0.78	56.3
6	R2	52	5.0	0.574	14.8	LOS B	4.7	34.3	0.88	0.85	58.7
Approach		1052	5.0	0.574	7.3	LOS A	5.5	40.1	0.89	0.77	56.3
North: Philip Highway (N)											
7	L2	95	5.0	0.102	10.6	LOS B	2.1	15.2	1.00	0.49	52.5
8	T1	41	5.0	0.102	11.0	LOS B	2.1	15.2	1.00	0.49	55.1
9	R2	792	5.0	0.593	21.8	LOS C	14.8	108.2	1.00	0.59	50.4
Approach		927	5.0	0.593	20.1	LOS C	14.8	108.2	1.00	0.58	50.7
West: John Rice Avenue (W)											
10	L2	1435	5.0	0.735	2.0	LOS A	0.0	0.0	0.00	0.24	59.5
11	T1	771	5.0	0.484	3.2	LOS A	3.4	25.0	0.31	0.33	60.2
12	R2	22	5.0	0.484	10.4	LOS B	3.4	25.0	0.31	0.33	63.2
Approach		2227	5.0	0.735	2.5	LOS A	3.4	25.0	0.11	0.27	59.8
All Vehicles		4409	5.0	0.735	7.7	LOS A	14.8	108.2	0.52	0.48	56.5

Based on the above:

- The intersection of John Rice Avenue and Phillip Highway would operate adequately applying 2036 volumes. While the DOS of the intersection has increased, it would still perform within operation capacity of the intersection.
- There is an increase in the average delay and 95th percentile queue length, notwithstanding, this is still within acceptable limits.

Figure 4.3: PM John Rice Ave / Philip Hwy 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Philip Highway (S)											
1	L2	31	5.0	0.054	11.2	LOS B	0.4	3.1	1.00	0.80	52.1
2	T1	77	5.0	0.304	12.7	LOS B	2.5	18.3	1.00	0.95	51.3
3	R2	95	5.0	0.304	19.8	LOS B	2.5	18.3	1.00	0.95	53.5
Approach		202	5.0	0.304	15.8	LOS B	2.5	18.3	1.00	0.93	52.4
East: John Rice Avenue (E)											
4	L2	43	5.0	0.703	11.7	LOS B	8.3	60.4	1.00	1.16	51.8
5	T1	865	5.0	0.703	12.5	LOS B	8.3	60.4	0.99	1.15	53.5
6	R2	66	5.0	0.703	20.3	LOS C	6.6	48.3	0.98	1.14	55.1
Approach		975	5.0	0.703	13.0	LOS B	8.3	60.4	0.99	1.15	53.6
North: Philip Highway (N)											
7	L2	302	5.0	0.528	20.0	LOS B	10.3	74.9	1.00	0.69	46.5
8	T1	113	5.0	0.528	20.4	LOS C	10.3	74.9	1.00	0.69	48.5
9	R2	1054	5.0	1.065	196.6	LOS F	148.2	1081.6	1.00	3.20	16.2
Approach		1468	5.0	1.065	146.8	LOS F	148.2	1081.6	1.00	2.49	19.5
West: John Rice Avenue (W)											
10	L2	1391	5.0	0.712	1.9	LOS A	0.0	0.0	0.00	0.23	59.6
11	T1	949	5.0	0.620	3.5	LOS A	5.3	38.7	0.37	0.36	59.7
12	R2	36	5.0	0.620	10.7	LOS B	5.3	38.7	0.37	0.36	62.8
Approach		2376	5.0	0.712	2.7	LOS A	5.3	38.7	0.15	0.28	59.7

Based on the above:

- Excluding the right turn from Phillip Highway onto John Rice Avenue (west), all approaches operated adequately with a DOS within operational capacity.
- The right turn from Phillip Highway onto John Rice Avenue (west) experienced a considerable increase in queuing with this leg performing above the DPTI tolerated DOS.
- Average delays and 95th percentile queue lengths were adequate for all approaches except for right turn from Phillip Highway onto John Rice Avenue.

4.2.2. Mark Road / John Rice Avenue

Figure 4.4: AM Peak Mark Rd / John Rice Ave 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	1006	5.0	0.385	2.4	LOS A	3.5	25.7	0.19	0.06	56.4
6	R2	85	5.0	0.385	18.8	LOS C	3.5	25.7	0.67	0.22	49.3
Approach		1092	5.0	0.385	3.7	NA	3.5	25.7	0.22	0.07	55.7
North: Mark Road											
7	L2	42	5.0	3.063	1935.2	LOS F	53.8	392.5	1.00	2.83	1.7
9	R2	64	5.0	3.063	1992.3	LOS F	53.8	392.5	1.00	2.83	1.4
Approach		106	5.0	3.063	1969.7	LOS F	53.8	392.5	1.00	2.83	1.5
West: John Rice Avenue											
10	L2	319	5.0	0.287	5.6	LOS A	0.0	0.0	0.00	0.36	54.0
11	T1	747	5.0	0.287	0.0	LOS A	0.0	0.0	0.00	0.10	58.8
Approach		1066	5.0	0.287	1.7	NA	0.0	0.0	0.00	0.18	57.3
All Vehicles		2264	5.0	3.063	95.1	NA	53.8	392.5	0.16	0.25	20.0

Based on the above:

- There is considerable queuing and delay for left and right turn out of Mark Road, with a DOS more than three (3) times higher than acceptable limits.
- All other approaches operated within acceptable limits.

Figure 4.5: PM Peak Mark Rd / John Rice Ave 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	797	5.0	0.352	2.4	LOS A	2.9	21.0	0.14	0.06	56.7
6	R2	81	5.0	0.352	21.7	LOS C	2.9	21.0	0.84	0.38	45.7
Approach		878	5.0	0.352	4.1	NA	2.9	21.0	0.20	0.09	55.2
North: Mark Road											
7	L2	139	5.0	9.253	7460.8	LOS F	221.8	1619.4	1.00	3.50	0.5
9	R2	215	5.0	9.253	7476.9	LOS F	221.8	1619.4	1.00	3.50	0.4
Approach		354	5.0	9.253	7470.6	LOS F	221.8	1619.4	1.00	3.50	0.4
West: John Rice Avenue											
10	L2	60	5.0	0.320	5.6	LOS A	0.0	0.0	0.00	0.06	57.0
11	T1	1145	5.0	0.320	0.0	LOS A	0.0	0.0	0.00	0.03	59.6
Approach		1205	5.0	0.320	0.3	NA	0.0	0.0	0.00	0.03	59.5
All Vehicles		2437	5.0	9.253	1085.9	NA	221.8	1619.4	0.22	0.56	2.6

Based on the above:

- There is considerable queuing and delays for the left and right turns lanes for Mark Road, with a DOS of more than nine times higher than typically acceptable limits.
- All other approaches operated adequately.

4.2.3. Trembath Road / John Rice Avenue

Figure 4.6: AM Peak Trembath Rd / John Rice Ave 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	976	5.0	0.379	1.5	LOS A	3.1	22.3	0.17	0.08	57.9
6	R2	134	5.0	0.379	13.3	LOS B	3.1	22.3	0.63	0.31	51.4
Approach		1109	5.0	0.379	3.0	NA	3.1	22.3	0.23	0.11	57.0
North: Trembath Road											
7	L2	41	5.0	0.083	6.4	LOS A	0.3	1.9	0.53	0.66	43.9
9	R2	1	5.0	0.083	127.7	LOS F	0.3	1.9	0.53	0.66	43.9
Approach		42	5.0	0.083	9.4	LOS A	0.3	1.9	0.53	0.66	43.9
West: John Rice Avenue											
10	L2	31	5.0	0.209	5.6	LOS A	0.0	0.0	0.00	0.05	57.7
11	T1	756	5.0	0.209	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
Approach		786	5.0	0.209	0.2	NA	0.0	0.0	0.00	0.02	59.7
All Vehicles		1938	5.0	0.379	2.0	NA	3.1	22.3	0.14	0.09	57.7

Based on the above:

- The intersection continued to operate within operational capacity and similar to existing conditions.

Figure 4.7: PM Peak Trembath Rd / John Rice Ave 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	804	5.0	0.265	2.0	LOS A	1.9	13.6	0.14	0.03	57.6
6	R2	31	5.0	0.265	20.8	LOS C	1.9	13.6	0.37	0.07	52.6
Approach		835	5.0	0.265	2.6	NA	1.9	13.6	0.15	0.03	57.4
North: Trembath Road											
7	L2	255	5.0	1.080	135.4	LOS F	26.2	191.0	1.00	3.43	16.4
9	R2	19	5.0	1.080	313.2	LOS F	26.2	191.0	1.00	3.43	16.4
Approach		274	5.0	1.080	147.7	LOS F	26.2	191.0	1.00	3.43	16.4
West: John Rice Avenue											
10	L2	32	5.0	0.314	5.6	LOS A	0.0	0.0	0.00	0.03	57.8
11	T1	1152	5.0	0.314	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
Approach		1183	5.0	0.314	0.2	NA	0.0	0.0	0.00	0.02	59.7
All Vehicles		2292	5.0	1.080	18.7	NA	26.2	191.0	0.17	0.43	44.9

Based on the above:

- The left and right turn lanes on Trembath Road would be operating slightly above capacity, with an average delay and queue length higher than existing conditions.
- All other approaches would continue to operate without a noticeable increase in queue length and average delay.

4.2.4. Haydown Road / John Rice Avenue

Figure 4.8: AM Haydown Rd / John Rice Ave 2036 Projection

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	1062	5.0	0.562	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
6	R2	812	5.0	1.216	214.7	LOS F	104.9	766.0	1.00	5.88	13.2
Approach		1874	5.0	1.216	93.0	NA	104.9	766.0	0.43	2.55	23.6
North: Haydown Road											
7	L2	175	5.0	0.134	5.7	LOS A	0.0	0.0	0.00	0.55	54.1
9	R2	101	5.0	16.842	14424.8	LOS F	96.7	706.2	1.00	1.39	0.2
Approach		276	5.0	16.842	5289.0	LOS F	96.7	706.2	0.37	0.86	0.7
West: John Rice Avenue											
10	L2	284	5.0	0.486	13.6	LOS B	2.5	18.3	0.77	1.01	48.4
11	T1	597	5.0	0.316	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		881	5.0	0.486	4.4	NA	2.5	18.3	0.25	0.33	55.6
All Vehicles		3031	5.0	16.842	540.1	NA	104.9	766.0	0.37	1.75	5.9

Based on the above:

- The right turn out of Haydown Road would experience a considerable increase in the 95th percentile queue length and average delay, with a DOS considerably higher than existing conditions.
- The right turn queue into Haydown Road is also anticipated to increase, with a DOS, which is also expected to be considerably higher than acceptable limits.
- Overall, the intersection in its current form would not operate adequately without geometric and traffic control changes.

Figure 4.9: PM Haydown Rd / John Rice Ave 2036 Projection

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: John Rice Avenue											
5	T1	768	5.0	0.407	0.1	LOS A	0.0	0.0	0.00	0.00	59.9
6	R2	274	5.0	1.061	120.8	LOS F	20.3	148.5	1.00	2.47	19.9
Approach		1042	5.0	1.061	31.8	NA	20.3	148.5	0.26	0.65	39.1
North: Haydown Road											
7	L2	478	5.0	0.564	10.3	LOS B	4.3	31.1	0.62	0.94	50.6
9	R2	222	5.0	26.270	22841.2	LOS F	195.6	1428.1	1.00	1.54	0.2
Approach		700	5.0	26.270	7254.4	LOS F	195.6	1428.1	0.74	1.13	0.5
West: John Rice Avenue											
10	L2	257	5.0	0.422	7.4	LOS A	2.6	19.2	0.38	0.26	55.4
11	T1	1192	5.0	0.422	0.4	LOS A	2.6	19.2	0.13	0.09	58.6
Approach		1448	5.0	0.422	1.7	NA	2.6	19.2	0.17	0.12	58.1
All Vehicles		3191	5.0	26.270	1602.7	NA	195.6	1428.1	0.33	0.51	2.2

Based on the above:

- The right turn out of Haydown Road would experience a considerable increase in the 95th percentile queue length and average delay, with a DOS considerably higher than existing conditions.
- The right turn queue into Haydown Road is also anticipated to increase, with a DOS, which is also expected to be considerably higher than acceptable limits.
- Overall, the intersection in its current form would not operate adequately without geometric and traffic control changes.

4.2.5. Mark Road / Mofflin Road / Oldham Road Proposed Roundabout

Figure 4.10: AM Mark Road, Oldham Road and Mofflin Rd 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mark Road											
1	L2	23	5.0	0.268	5.9	LOS A	1.7	12.3	0.56	0.63	52.3
2	T1	165	5.0	0.268	6.1	LOS A	1.7	12.3	0.56	0.63	53.6
3	R2	51	5.0	0.268	10.8	LOS B	1.7	12.3	0.56	0.63	53.5
Approach		239	5.0	0.268	7.1	LOS A	1.7	12.3	0.56	0.63	53.5
East: Oldham Road											
4	L2	426	5.0	0.779	13.2	LOS B	11.1	81.0	0.96	1.04	48.6
5	T1	204	5.0	0.779	13.4	LOS B	11.1	81.0	0.96	1.04	49.7
6	R2	21	5.0	0.779	18.1	LOS B	11.1	81.0	0.96	1.04	49.6
Approach		652	5.0	0.779	13.4	LOS B	11.1	81.0	0.96	1.04	48.9
North: Mofflin Road											
7	L2	34	5.0	0.465	8.1	LOS A	3.3	24.3	0.74	0.80	51.6
8	T1	282	5.0	0.465	8.4	LOS A	3.3	24.3	0.74	0.80	52.8
9	R2	43	5.0	0.465	13.0	LOS B	3.3	24.3	0.74	0.80	52.7
Approach		359	5.0	0.465	8.9	LOS A	3.3	24.3	0.74	0.80	52.7
West: Oldham Road											
10	L2	27	5.0	0.431	5.9	LOS A	3.0	22.1	0.58	0.62	52.5
11	T1	342	5.0	0.431	6.2	LOS A	3.0	22.1	0.58	0.62	53.7
12	R2	47	5.0	0.431	10.8	LOS B	3.0	22.1	0.58	0.62	53.6
Approach		417	5.0	0.431	6.7	LOS A	3.0	22.1	0.58	0.62	53.6
All Vehicles		1666	5.0	0.779	9.9	LOS A	11.1	81.0	0.76	0.82	51.5

Based on the above:

- The roundabout would operate at a LOS of A, with a DOS within operational capacity.
- 95th percentile queue lengths and average delays would be low on each approach.

Figure 4.11: PM Mark Road, Oldham Road and Mofflin Rd 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mark Road											
1	L2	120	5.0	0.748	15.3	LOS B	9.4	68.3	0.96	1.13	46.7
2	T1	276	5.0	0.748	15.5	LOS B	9.4	68.3	0.96	1.13	47.7
3	R2	136	5.0	0.748	20.1	LOS C	9.4	68.3	0.96	1.13	47.6
Approach		532	5.0	0.748	16.6	LOS B	9.4	68.3	0.96	1.13	47.5
East: Oldham Road											
4	L2	36	5.0	0.522	6.3	LOS A	4.0	29.5	0.66	0.66	52.2
5	T1	425	5.0	0.522	6.5	LOS A	4.0	29.5	0.66	0.66	53.5
6	R2	38	5.0	0.522	11.2	LOS B	4.0	29.5	0.66	0.66	53.4
Approach		499	5.0	0.522	6.9	LOS A	4.0	29.5	0.66	0.66	53.4
North: Mofflin Road											
7	L2	23	5.0	0.307	7.0	LOS A	1.9	13.7	0.64	0.71	52.0
8	T1	179	5.0	0.307	7.2	LOS A	1.9	13.7	0.64	0.71	53.2
9	R2	45	5.0	0.307	11.8	LOS B	1.9	13.7	0.64	0.71	53.1
Approach		247	5.0	0.307	8.0	LOS A	1.9	13.7	0.64	0.71	53.1
West: Oldham Road											
10	L2	69	5.0	0.454	8.1	LOS A	3.3	24.3	0.78	0.81	51.6
11	T1	231	5.0	0.454	8.3	LOS A	3.3	24.3	0.78	0.81	52.9
12	R2	31	5.0	0.454	12.9	LOS B	3.3	24.3	0.78	0.81	52.7
Approach		331	5.0	0.454	8.7	LOS A	3.3	24.3	0.78	0.81	52.6
All Vehicles		1608	5.0	0.748	10.6	LOS B	9.4	68.3	0.78	0.85	51.1

Based on the above:

- The roundabout would operate at a LOS of B, with a DOS within operational capacity.
- 95th percentile queue lengths and average delays would be low on each approach.

4.2.6. Philip Highway / Oldham Road

Figure 4.12: AM Peak Philip Hwy / Oldham Rd 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Philip Highway (S)											
2	T1	1144	5.0	0.202	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	77	5.0	0.256	17.2	LOS C	0.9	6.6	0.76	0.92	43.3
Approach		1221	5.0	0.256	1.1	NA	0.9	6.6	0.05	0.06	58.5
SouthEast: RoadName											
23a	R1	35	5.0	0.099	13.4	LOS B	0.3	2.4	0.75	0.87	48.7
Approach		35	5.0	0.099	13.4	LOS B	0.3	2.4	0.75	0.87	48.7
East: Oldham Road (E)											
4	L2	204	5.0	0.407	12.7	LOS B	1.9	13.8	0.73	0.96	44.7
6	R2	35	5.0	0.242	34.7	LOS D	0.9	6.6	0.88	0.97	35.4
Approach		239	5.0	0.407	15.9	LOS C	1.9	13.8	0.75	0.96	43.1
North: Phillip Highway (N)											
7	L2	65	5.0	0.160	5.6	LOS A	0.0	0.0	0.00	0.13	57.0
8	T1	839	5.0	0.160	0.0	LOS A	0.0	0.0	0.00	0.04	59.6
Approach		904	5.0	0.160	0.4	NA	0.0	0.0	0.00	0.04	59.4
All Vehicles		2399	5.0	0.407	2.5	NA	1.9	13.8	0.11	0.15	56.7

Based on the above:

- The intersection would continue to operate with minor increases to the average delay and 95th percentile queue length
- The intersection would operate at a DOS within the operational capacity of the intersection.

Figure 4.13: PM Peak Philip Hwy / Oldham Rd 2036 Projection

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Phillip Highway (S)											
2	T1	1289	5.0	0.298	0.8	LOS A	2.2	16.1	0.10	0.00	59.2
3	R2	208	5.0	0.955	70.6	LOS F	9.5	69.3	0.99	1.74	26.6
Approach		1498	5.0	0.955	10.5	NA	9.5	69.3	0.22	0.24	50.6
SouthEast: RoadName											
23a	R1	197	5.0	0.751	32.3	LOS D	4.1	30.0	0.94	1.23	39.0
Approach		197	5.0	0.751	32.3	LOS D	4.1	30.0	0.94	1.23	39.0
East: Oldham Road (E)											
4	L2	415	5.0	1.048	91.0	LOS F	26.5	193.2	1.00	3.08	22.8
6	R2	197	5.0	2.984	1838.1	LOS F	92.2	672.8	1.00	3.81	1.9
Approach		612	5.0	2.984	653.3	LOS F	92.2	672.8	1.00	3.32	5.0
North: Phillip Highway (N)											
7	L2	100	5.0	0.195	5.6	LOS A	0.0	0.0	0.00	0.16	56.7
8	T1	999	5.0	0.195	0.0	LOS A	0.0	0.0	0.00	0.04	59.6
Approach		1099	5.0	0.195	0.5	NA	0.0	0.0	0.00	0.05	59.3
All Vehicles		3405	5.0	2.984	124.0	NA	92.2	672.8	0.33	0.79	19.3

Based on the above:

- The right turn out from Oldham Road onto Phillip Road, resulted in a 95th percentile queue length and average delay, which was considerably higher than existing conditions and three (3) times higher than typically accepted DOS.

- The right turn into Oldham Road experienced a 95th percentile queue lengths which extended beyond the current capacity.
- The intersection would not operate adequately without potential changes to the geometric configuration or traffic control.

4.3. Traffic Impact

Based on 2036 traffic volumes, the following intersections would not operate adequately without changes to signal controls or geometric upgrades:

- John Rice Avenue/Haydown Road
- John Rice Avenue/Mark Road
- Phillip Highway/Oldham Road

Of the three intersections, John Rice Avenue/Haydown Road would be the most critical to signalise and we understand this need has already been identified. Traffic signals would generally attract more vehicles to use them, so this may reduce the number of vehicles using Mark Road and would also alter the platooning assumptions for the other intersections along John Rice Avenue and would also better support the desired pedestrian accessibility within the precinct. All this would be assessed at the next level of detail.

While the intersection of Trembath Road/John Rice Avenue would operate at capacity based on current assumptions, the likely introduction of traffic signals at Haydown Road/John Rice Avenue would create a platooning affect, introducing more gaps for exiting vehicles.

As discussed, the right turn for Phillip Highway onto John Rice Avenue (west) at the roundabout would generate considerable queuing and delays. Notwithstanding, there would be a need to review the operation of the John Rice Avenue/Phillip Highway roundabout as changes to other intersections and the growth and development assumptions (traffic volumes and access locations) may result in the roundabout continuing to operate satisfactorily.

5. CONCLUSION AND RECOMMENDATIONS

05

5.1. Conclusion

Based on the analysis for each of the intersections considered within this report, the following conclusions are made for the proposed Playford Health Precinct:

- John Rice Avenue/Phillip Highway (roundabout)
- John Rice Avenue/Mark Road
- John Rice Avenue/Trembath Road
- John Rice Avenue/Haydown Road
- Phillip Highway/Oldham Road

Each of the intersections have been modelled for intersection performance under existing conditions for the AM and PM peak hour periods. Subsequent to this, the estimated development traffic likely to be generated onto the road network and an annual growth factor have been applied to the existing volumes to see how the intersection would accommodate 2036 traffic. The assumptions are considered very conservative, given the high level of the assessment and the simplistic nature of the development land use.

5.1.1. Existing Conditions

Typically all the intersections operate to acceptable levels, but note that the Haydown Road does experience extensive queuing and delays during the PM Peak hour. This was expected given the un-signalised nature of the intersection and higher traffic generation from the nearby Lyell McEwin Hospital.

5.1.2. DPA Proposal

The DPA proposal will comprise development on various parcels of land and is envisaged to include a mix of office, medical, educational, commercial, retail and residential land uses.

In its entirety, the site could be expected to generate up to 2,616 trips during both AM and PM Peak Hours, with up to 21,441 trips anticipated over a daily period.

5.1.3. 2036 Post Development

The annual growth factor would result in additional traffic to the road network between 2019 and 2036. When adding the DPA development traffic from each of the sites, the turning movements at the intersections are expected to grow quite substantially compared with existing conditions (more than double in some instances). In many of the cases, this has caused one or more legs on the intersections to fail. This is based on an assumption of no changes to the geometric configuration of the intersections.

John Rice Avenue/Phillip Highway (roundabout)

The intersection still performs well during the AM, however in the PM Peak, the Phillip Highway northern approach to the roundabout experiences extensive queuing and delays. This is somewhat evident today, however this queue would increase noticeably. This impact is caused by an increase in eastbound traffic along John Rice Avenue, where platooning would be limited given the Phillip Highway south approach has a very small traffic volume.

John Rice Avenue/Mark Road

The right turn out from Mark Street will fail considerably for both the AM and PM Peaks, however the performance during the PM Peak would be considerably worse (10 x higher than the allowable Degree of Saturation). This is the result of the sheer volume of vehicles intending to turn right out, which have to give way to all traffic on John Rice Avenue.

In our view, the intersection would require some form of control, including separate turning lanes. However, control at other intersections or adjustments to the development assumptions and access arrangements may also change the performance of this intersection.

John Rice Avenue/Trembath Road

This intersection would operate well during the AM Peak, however during the PM Peak, there would be a considerable increase in exiting vehicles, especially if drivers are facing difficulties turning out of other surrounding streets. Notwithstanding, the level of delay and queuing is not as severe as some of the other surrounding intersections. If surrounding intersections are controlled, the traffic along John Rice Avenue would be platooned better, which would create more gaps for vehicles to exit onto John Rice Avenue.

John Rice Avenue/Haydown Road

This intersection fails considerably during both the AM and PM Peak, not only for vehicles turning right out of Haydown Road, but also vehicles turning right into Haydown Road. This is to be expected based on the existing performance. For the right turn out, the DOS is more than 15 x higher than acceptable limits. This intersection would benefit from signal control as well as a channelised right turn lane into Haydown Road.

In our view, this intersection would need to be signal controlled and we understand this has already been identified.

Phillip Highway/Oldham Road

The intersection operates adequately in 2036 during the AM Peak, however during the PM peak there is substantial queuing for the right turn out of Oldham Road, with a DOS 3 times higher than acceptable limits. There is also a notable right turn in queue, however this could be addressed through a longer channelised right turn lane. Some use may also be made of the right turn in to Coglin Street to the south which has not been considered as part of the traffic assignment in this study. The DOS for the right turn in is only just above acceptable limits.

Some future amendments to this intersection are likely to be required but should be considered in conjunction with access routing via Coglin Street.

Mark Road/Oldham Road/Mofflin Road Roundabout

The proposed roundabout is expected to operate without any noticeable queues and delays.

5.2. Recommendations

The following key recommendations have been identified for the intersections based on the results of this modelling

- Signal control at John Rice Avenue/Haydown Road
- Upgrade to John Rice Avenue/Mark Road likely to include right turn lane and possible controlled intersection
- Upgrade to Phillip Highway/Oldham Road intersection

Of the three intersections, John Rice Avenue/Haydown Road would be the most critical to signalise and we understand this need has already been identified. Signals would generally attract more vehicles to use them, so this may reduce the number of vehicles using Mark Road and would also alter the platooning assumptions for the other intersections along John Rice Avenue.

There would be a need to review the operation of the John Rice Avenue/Phillip Highway roundabout as changes to other intersections and the growth and development assumptions (traffic volumes and access locations) may result in the roundabout continuing to operate satisfactorily.

A. SIDRA INTERSECTION RESULTS

A

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Development Plan Amendment

By the Council

Playford Council

Playford Health Precinct Development Plan Amendment

The Amendment

For Consultation

Amendment Instructions Table

Name of Local Government Area:
City of Playford

Name of Development Plan
Playford Council

Name of DPA:
Playford Health Precinct

The following amendment instructions (at the time of drafting) relate to the Playford Council Development Plan consolidated on 27 June 2017.

Where amendments to this Development Plan have been authorised after the aforementioned consolidation date, consequential changes to the following amendment instructions will be made as necessary to give effect to this amendment.

Amendment Instruction Number	Method of Change • Amend • Replace • Delete • Insert	Detail what in the Development Plan is to be amended, replaced, deleted or inserted. If applicable, detail what material is to be inserted and where. Use attachments for large bodies of material.	Is Renumbering required (Y/N)	Subsequent Policy cross-references requiring update (Y/N) if yes please specify.
COUNCIL WIDE / GENERAL SECTION PROVISIONS (including figures and illustrations contained in the text)				
Amendments required: No				
ZONE AND/OR POLICY AREA AND/OR PRECINCT PROVISIONS (including figures and illustrations contained in the text)				
Amendments required: **Yes**				
Suburban Activity Node Zone				
1.	Amend	Principle of Development Control 20 by deleting the words “and Play/33 Lyell McEwin Health Suburban Activity Node”	N	N
2.	Delete	Principle of Development Control 3	Y	N
3.	Insert	Following Principle of Development Control 21 insert the contents of **Attachment A**	N	N
4.	Delete	From Procedural Matters: Complying development condition 2(b)	Y	N
Lyell McEwin Policy Area 23				
5.	Replace	The entire policy area (Objectives, desired Character and Principles of Development Control) with the contents of **Attachment B**	N	N
6.				
Curtis Road Policy Area 24				
7.	Delete	PDC 9 (including accompanying table)	N	N
TABLES				
Amendments required (Yes/No): **No**				
MAPPING (Structure Plans, Overlays, Enlargements, Zone Maps, Policy Area & Precinct Maps)				
Amendments required (Yes/No): **Yes**				

Map Reference Table				
8.	Insert	Overlay Maps, Affordable Housing – Play/32 and Play/33	N	N
9.	Insert	Overlay Maps, Noise and Air Emissions – Play/32 and Play/33	N	N
10.	Delete	Concept Plan Maps – Play/33 Lyell McEwin Health Suburban Activity Node	N	N
Map(s)				
11.	Replace	Council Index Map, Location Map Play/32, Zone Map Play32, Policy Area Map32, Location Map Play/33, Zone Map Play/33, Policy Area Map/33 with the contents of **Attachment C**	N	N
12.	Insert	The contents of **Attachment D** (Overlay Map Play/32 – Noise and Air Emissions and Overlay Map Play/32 – Affordable Housing, Overlay Map Play/33 – Noise and Air Emissions and Overlay Map Play/33 – Affordable Housing)	N	N
13.	Delete	Concept Plan Map Play/33		

Attachment A

Incentives

21 Where a minimum of 3 hours sunlight access on 21 June to habitable rooms and open space of dwellings in adjoining zones can be maintained, the following incentives apply to development:

Form of development	Additional building height above maximum allowed height in the zone	Car parking reduction (rounded to the nearest whole number)
Within Lyell McEwin Health and Innovation Policy Area 23, amalgamation of two or more allotments to create a minimum allotment size of 2000 square metres and the provision of side or rear vehicle access	-	10 per cent
Development which includes more than 15 per cent of dwellings as affordable housing	1 storey	30 per cent
The development includes undercroft parking with access from a road located to the side or rear of the site	1 storey	10 per cent
A building including non-residential development on the ground floor (or first two floors) with residential development on the floors above	1 storey	10 per cent except on land shown on *Overlay Map(s) - Strategic Transport Routes*
A building including a rooftop garden that occupies a minimum 25 per cent of the building footprint area	1 storey	
Maximum accumulated allowance	1 storey (and less than 4 metres) additional building height	30 per cent

Attachment B

Note the following coloured text applies to this Attachment:

Black text = Core SA Planning Policy Library – Existing
Green text = Local Addition policy – Existing
~~Strike through text~~ = Text proposed to be deleted by this DPA
Red text = Local addition policy proposed as part of this DPA

Lyell McEwin Health and Innovation Policy Area 23

Refer to the *Map Reference Tables* for a list of the maps that relate to this policy area.

OBJECTIVES

1 A mixed use area with a variety and concentration of activities focussed on ~~including~~ health, allied health, research, education, commercial and supporting retail ~~related~~ services ~~close to the Lyell McEwin Hospital~~.

2 Noise sensitive development designed to provide its occupants with acceptable levels of amenity when exposed to existing and future potential external noise sources.

3 Noise sensitive development that does not unreasonably interfere with the operation of existing noise sources such as industrial activity.

DESIRED CHARACTER

This policy area is a health and innovation precinct clustered around the existing Lyell McEwin Hospital. It is envisaged that the policy area will support the expansion of health-related services associated with the hospital, together with potential private hospital and supportive health and allied health services and facilities required to service Adelaide's greater northern region. In addition, the policy area supports the establishment and growth of additional research and educational facilities and services around medical, health and aged-care related fields that build on the synergies of being located adjacent a tertiary hospital and within proximity of the Edinburgh Air Force base.

The policy area will also support growth in population, taking advantage of proximity to facilities, open space and public transport. This will include the provision of medium density dwellings, student accommodation, tourist accommodation and accommodation in support of hospital and medical services (such as respite, rehabilitation and family accommodation) either as standalone buildings or within upper levels of mixed-use buildings.

~~will be developed as a strong cluster of mutually supporting activities that builds out from the existing Lyell McEwin Hospital with a range of medical, allied health, tertiary education, research, and supporting services including accommodation, retail and commercial activities. Residential development is appropriate in the policy area except on land adjacent to the existing industrial development located west of the policy area.~~

~~The land identified as 'Tertiary Education and Commercial' on *Concept Plan Map Play/33 - Lyell McEwin Health Suburban Activity Node* will include land uses that are appropriate in close proximity to existing industrial development and will not include dwellings, accommodation, or land uses highly frequented by children or the elderly, such as child care, pre-school, primary and secondary schools, and aged care facilities.~~

Haydown Road will evolve into an active main street comprising the heart of retail and entertainment land uses within the policy area located on, and meaningfully facing the street frontage. These will be complemented by improvements to the public realm through provision of canopies and verandahs, wider footpaths, verge and median plantings and the provision of street furniture.

It is recognised that parts of the policy area are in a state of transition from low density residential to medium density mixed use. Buildings at the interface of the policy area with lower intensity zones to the north and east will create an appropriate transition of development scale and massing. New development will minimise adverse impacts on existing residential development through appropriate setbacks, building heights, window placement, fencing, landscaping and lighting.

~~The range of setbacks provided in the policy area will be critical in providing space for landscaping to soften the hard edge of new built form.~~

Public spaces will be provided for community interaction and will include a range of forms and sizes including small pocket parks and formal squares, and the development of community facilities (such as community

gardens to promote healthy eating), will aim to promote community interaction and compensate for reduced private open space.

Open space will be provided which is located in a quiet location away from the fixed public transit stop and any other potential noise sources.

Front fences will be minimised to ensure visual permeability and avoid large blank walls to encourage passive surveillance, active streetscapes and a visually interesting public realm.

It is expected that development will have regard to the existing helipad operations at the Lyell McEwin Hospital, and ensure its ongoing operation is not compromised through ensuring appropriate height, location and setback of buildings to maintain safe flight paths.

Part of the policy area interfaces with the Light Industry Zone to the west. It is expected that the design, siting and construction of development at this interface will have regard to the appropriate noise mitigation requirements to achieve the *Environment Protection (Noise) Policy 2007*.

As development within the policy area increases, additional traffic generated will trigger the need for upgrades to intersections both within and outside of the policy area.

~~For the Purposes of assessment against the *Environment Protection (Noise) Policy*, it is envisaged that this policy area be assigned the average of the "commercial" and "residential" land use categories.~~

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

~~1 Land identified as 'Main Street Mixed-Use' on the *Concept Plan Map Play/33 - Lyell McEwin Health Suburban Activity Node* should be used for active uses such as shops and consulting rooms with office and residential uses located above.~~

~~2 Land identified as 'Secondary Street Mixed-Use' on the *Concept Plan Map Play/33 - Lyell McEwin Health Suburban Activity Node* should be used for the envisaged uses specified within the zone.~~

~~3 Land identified as 'Tertiary Education and Commercial' on the *Concept Plan Map Play/33 - Lyell McEwin Health Suburban Activity Node* should be used for tertiary education, research, commercial, office and retail.~~

1 Land fronting Haydown Road should be developed principally for retail and entertainment land uses, complemented by a range of consulting rooms and offices and residential development at upper levels.

2 Residential development, including supported accommodation, student accommodation and tourist accommodation should be established:

(a) above non-residential land uses within mixed use buildings or

(b) within standalone buildings north of Oldham Road.

3 Land fronting Brougham Road should be limited to the development of dwellings, student accommodation, supported accommodation or tourist accommodation.

Form and Character

4 Development should be consistent with the desired character for the policy area.

5 New development should protect the amenity of existing residential development through:

(a) reducing building heights at the common boundary

(b) increased setbacks of buildings at the common boundary

(c) careful placement and design of windows and balconies, including the use of screens, wing walls and offsetting

(d) the careful placement and design of ~~use~~ of fencing, landscaping and lighting.

6 No minimum private open space requirement applies within the policy area.

~~4 New noise sensitive development adjacent an existing industry should incorporate noise attenuation measures to achieve an equivalent noise level (LAeq) of 37 dB(A) between 7am and 10pm inside a noise sensitive space (e.g., teaching rooms, offices) when exposed to the highest of the following external noise levels:~~

~~(a) the highest equivalent (LAeq) noise level due to existing industry or commercial activity when measured and adjusted in accordance with the *Environment Protection (Noise) Policy*~~

~~(b) an equivalent (LAeq) noise level of 57 dB(A) between 7am and 10pm.~~

7 Car parking should be established to the rear of buildings, within basements or within decked parking spaces above ground level provided they are sleeved with an active use to the primary street frontage.

8 Iconic buildings should be established in the following corner locations:

(a) northern-eastern corner of John Rice Avenue and Haydown Road

(b) Philip Highway and John Rice Avenue

(c) John Rice Avenue and Mark Road

(d) south-eastern corner of Mark Road and Oldham Road

and be sighted and designed to:

(i) have an increased height to surrounding buildings to emphasise the corner and provide a sense of arrival

(ii) make a bold architectural statement through the building's design and use of high-quality materials.

9 Development fronting onto Haydown Road should be designed to provide:

(a) fully glazed facades to the road frontage

(b) frequent tenancy openings along the street

(c) pedestrian cover through the provision of a canopy or awning.

10 Development should facilitate pedestrian connectivity across and out of the policy area by being designed and located to accommodate pedestrian routes and protected road crossings by connecting:

(a) the Elizabeth Vale Shopping Centre with the Lyell McEwin Hospital site

(b) the Lyell McEwin Hospital site with development on the northern side of Oldham Road and Treves Street

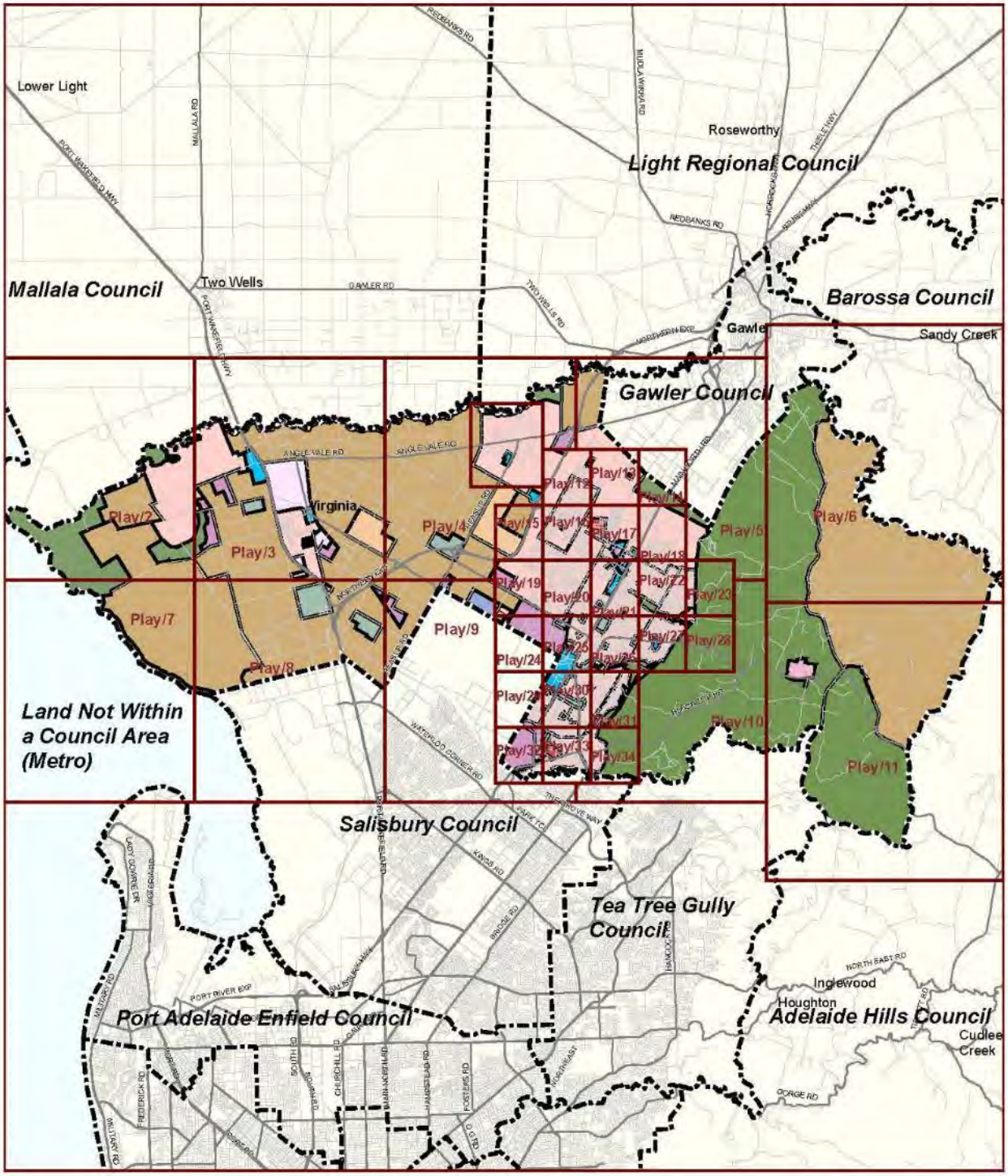
(c) the Lyell McEwin Hospital site with the Healthia site on the western side of Mark Road

(d) the Healthia site on the southern side of Oldham Road with Mofflin Reserve

(e) the policy area to the residential zone across John Rice Avenue.

12 Development fronting Haydown Road should be designed and sited to accommodate the establishment of the super stop bus stops, including surrounding public realm improvements such as space for landscaping and street trees.

Attachment C



For the purposes of the Development Plan unless otherwise clearly indicated, the zone/policy area/precinct boundaries depicted on or intended to be fixed by Maps Play/1 to Map Play/44 inclusive shall be read as conforming in all respects (as the case may require) to the land division boundaries, to the centre line of roads or drain reserves or to the title boundaries, or to imaginary straight lines joining the positions defined by survey or by the measurements shown on the said maps against which the said zone/policy area/precinct boundaries are shown or otherwise indicated.

N

0 10 km

Council Index Map

PLAYFORD COUNCIL
Version A - 12 June 2019

Other Health Services
Hospital
Railways
Local Reserves
Development Plan Boundary

Location Map Play/32

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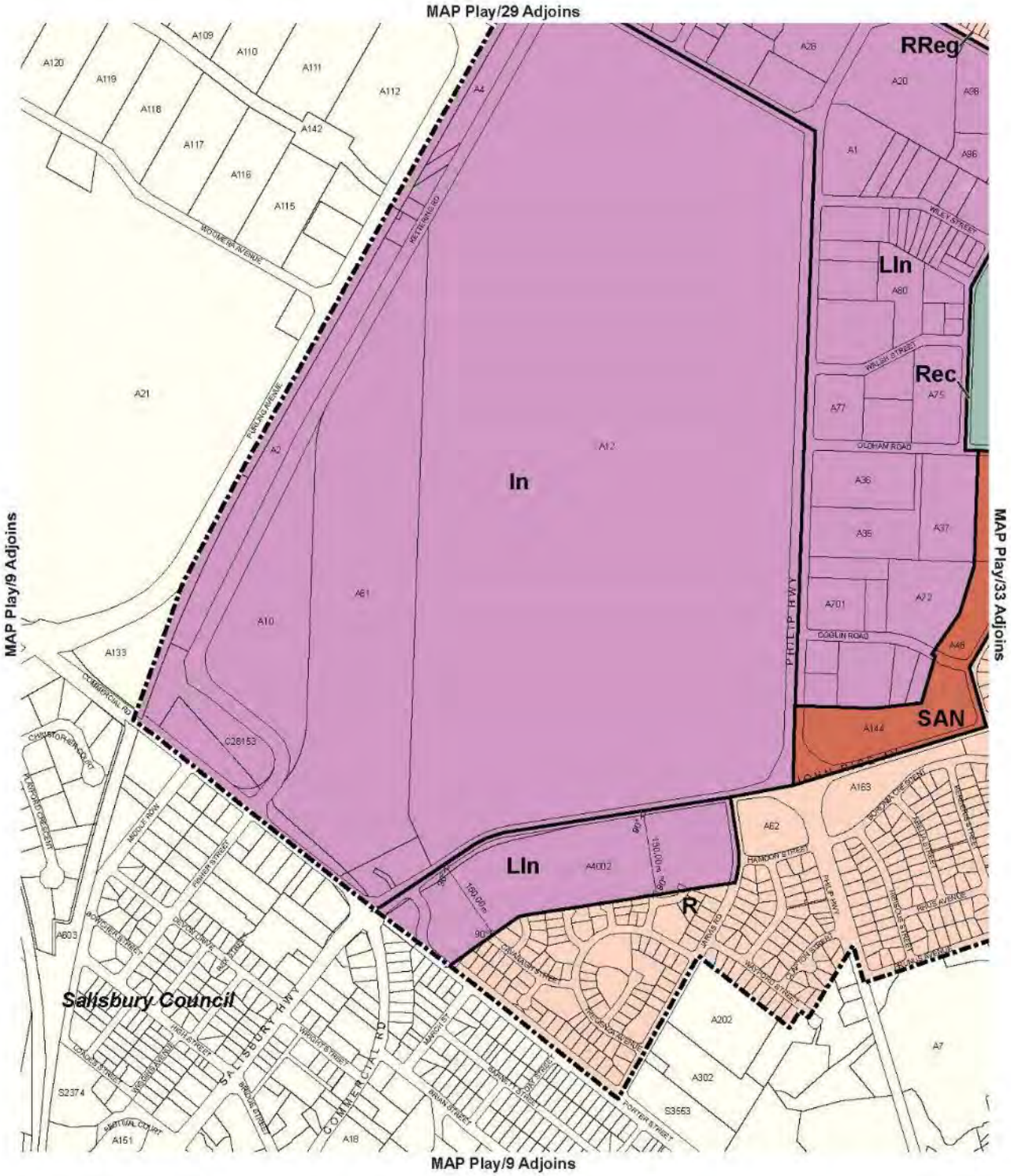


Lambert Conformal Conic Projection, GDA94

N

0 500 m

Zones

- In — Industry
- LIn — Light Industry
- Rec — Recreation
- R — Residential
- RReg — Residential Regeneration
- SAN — Suburban Activity Node
- Zone Boundary
- Development Plan Boundary

Zone Map Play/32

PLAYFORD COUNCIL
Version A - 12 June 2019

Lamberts Conformal Conic Projection, GDA94

0 500m

Policy Areas

23 Lyell McEwin Health Node

Policy Area Map Play/32

Policy Area Boundary

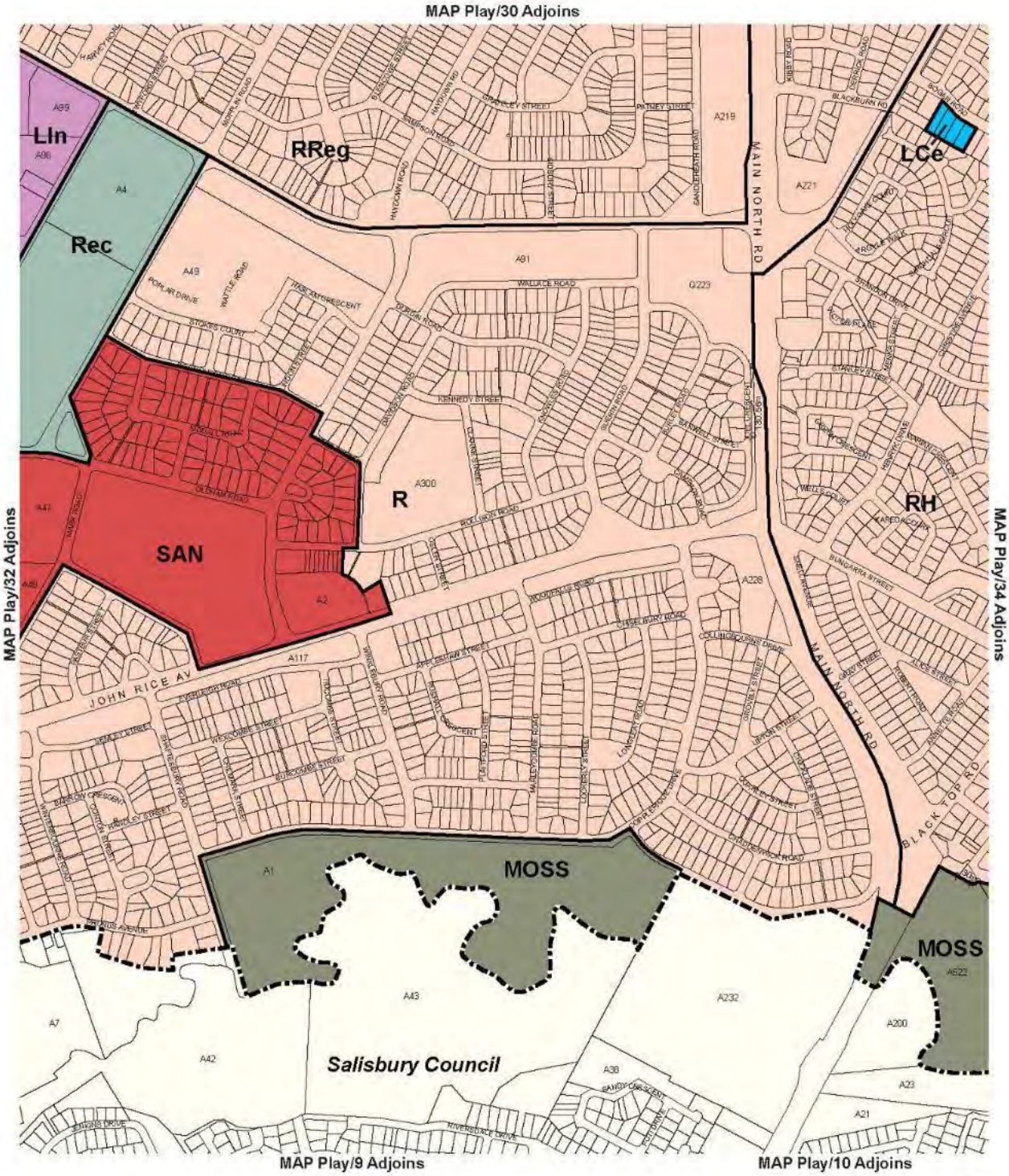
Development Plan Boundary

PLAYFORD COUNCIL
Version A - 12 June 2019

- School
- Post Office
- Other Health Services
- Hospital
- Local Reserves
- Development Plan Boundary

Location Map Play/33

PLAYFORD COUNCIL
Version A - 12 June 2019



Lamberts Conformal Conic Projection, GDA94

Zones

LIn	Light Industry
LCe	Local Centre
MOSS	Metropolitan Open Space System
Rec	Recreation
R	Residential
RH	Residential Hills
RReg	Residential Regeneration
SAN	Suburban Activity Node
	Zone Boundary
	Development Plan Boundary

N

0 500 m

Zone Map Play/33

PLAYFORD COUNCIL
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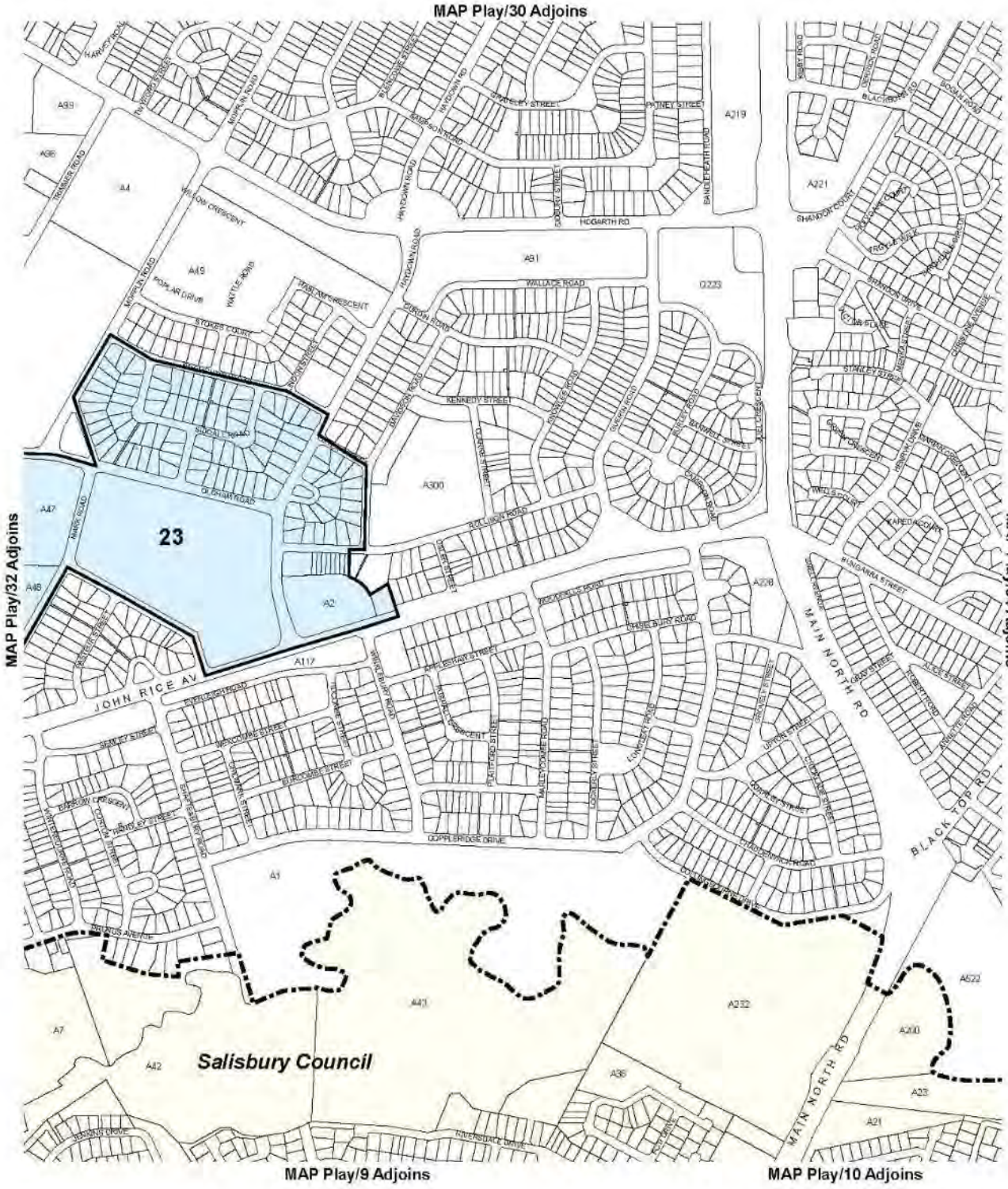

Lamberts Conformal Conic Projection, GDA94

Policy Areas

23 Lyell McEwin Health Node

0 500m

Policy Area Map Play/33

Policy Area Boundary

Development Plan Boundary

PLAYFORD COUNCIL
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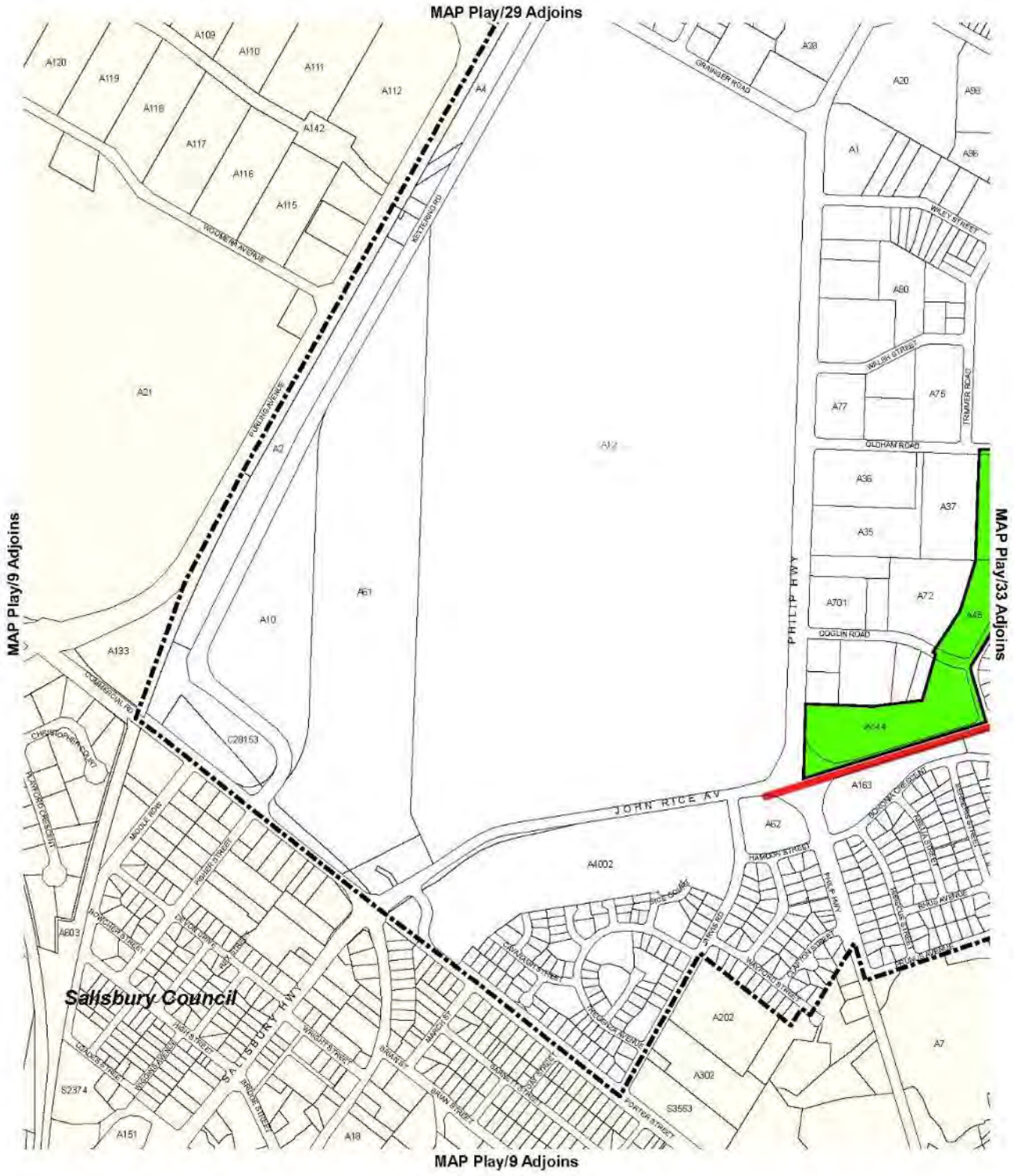
Attachment D



Lambert's Conformal Conic Projection, GDA94

0 500m

Designated Road: type B road

Noise and Air Emissions Designated Area

Development Plan Boundary

Overlay Map Play/32

NOISE AND AIR EMISSIONS

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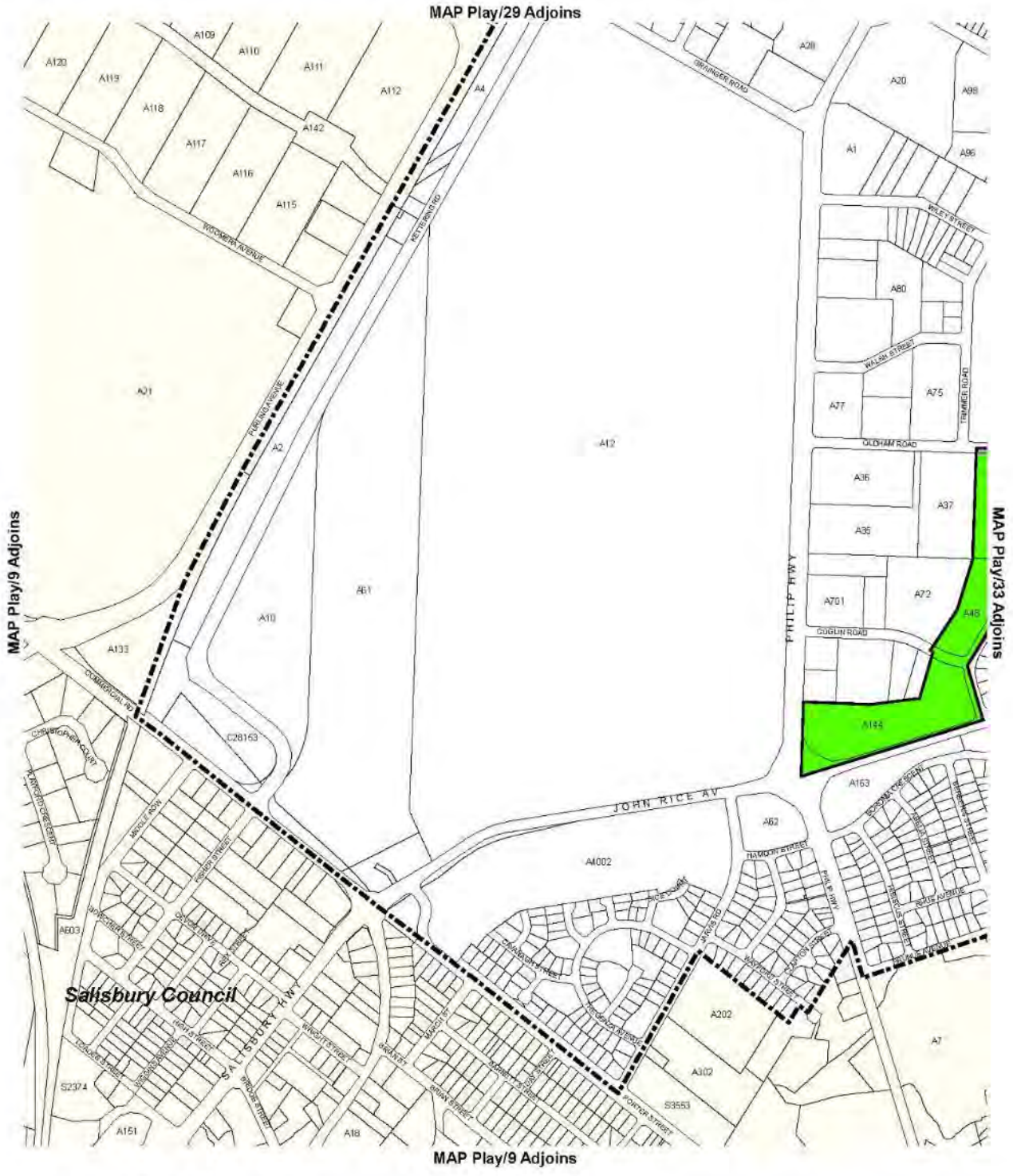

Lamberts Conformal Conic Projection, GDA94

0 500m

Overlay Map Play/32
AFFORDABLE HOUSING

Affordable Housing Designated Area
Development Plan Boundary

PLAYFORD COUNCIL
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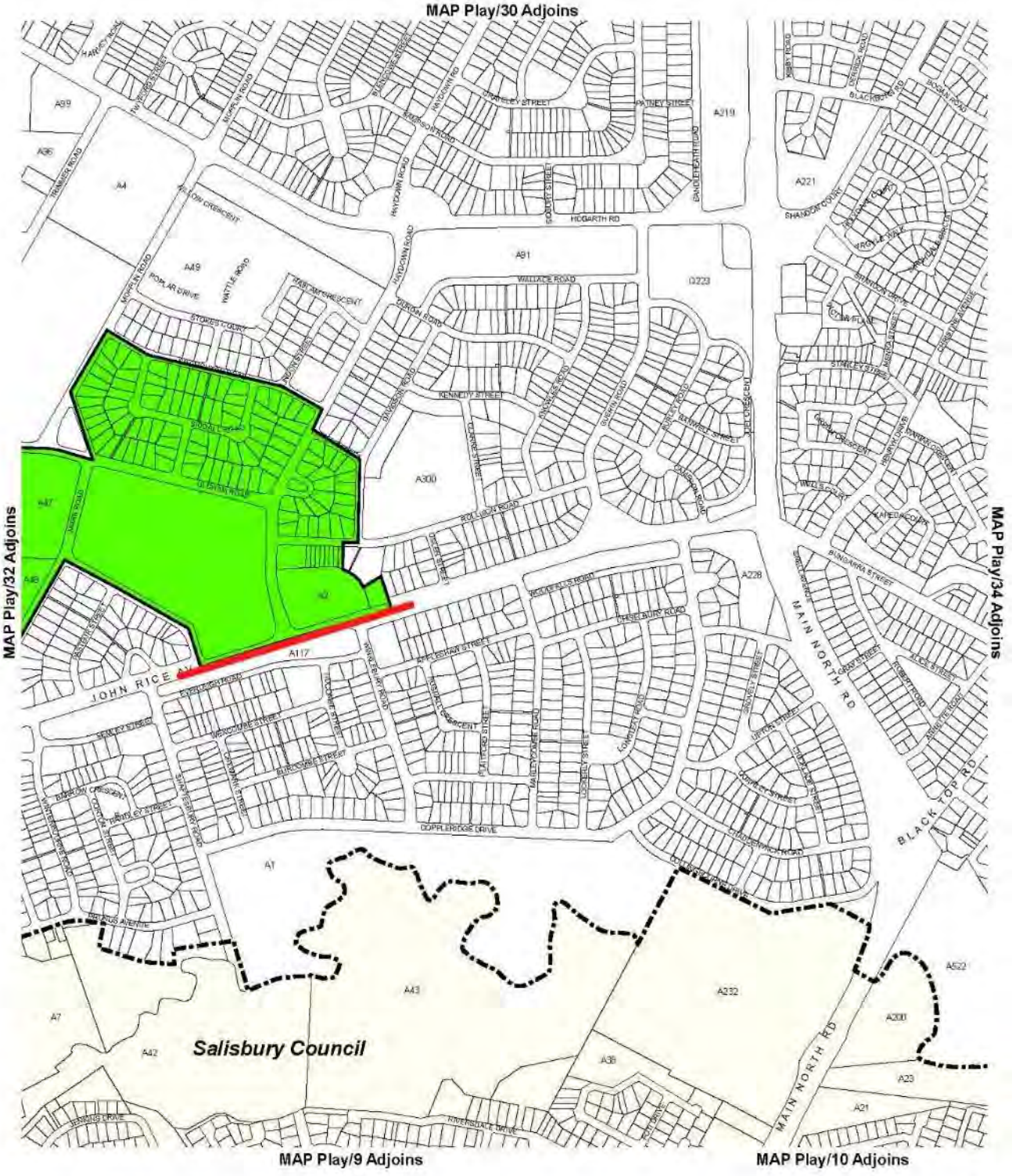


Lamberts Conformal Conic Projection, GDA94

0 500m

Overlay Map Play/33

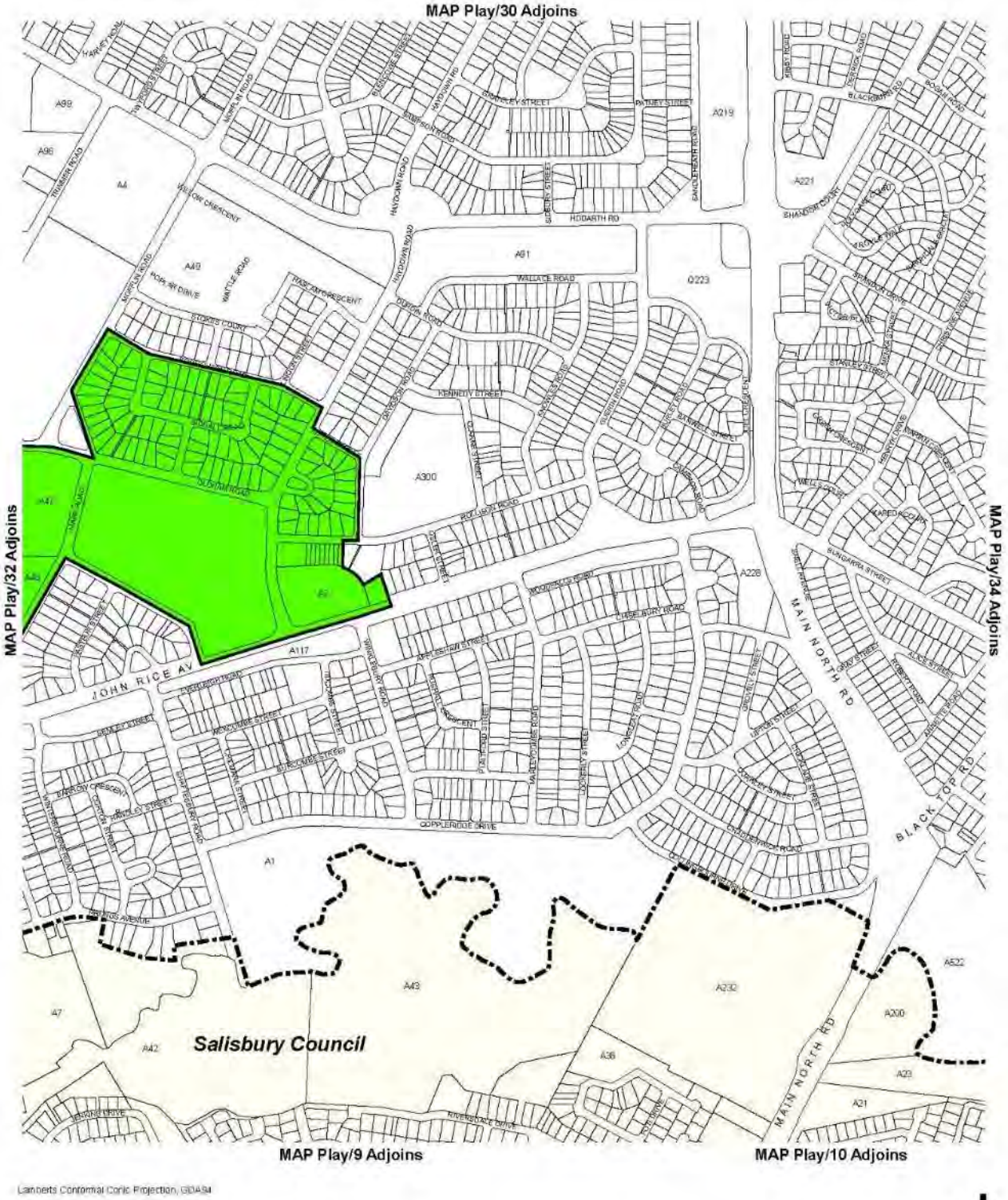
NOISE AND AIR EMISSIONS

Designated Road: type B road

Noise and Air Emissions Designated Area

Development Plan Boundary

PLAYFORD COUNCIL
Version A - 12 June 2019



Lambert's Conformal Conic Projection, GDA94

0 500m

Overlay Map Play/33
AFFORDABLE HOUSING

Affordable Housing Designated Area

Development Plan Boundary

PLAYFORD COUNCIL
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