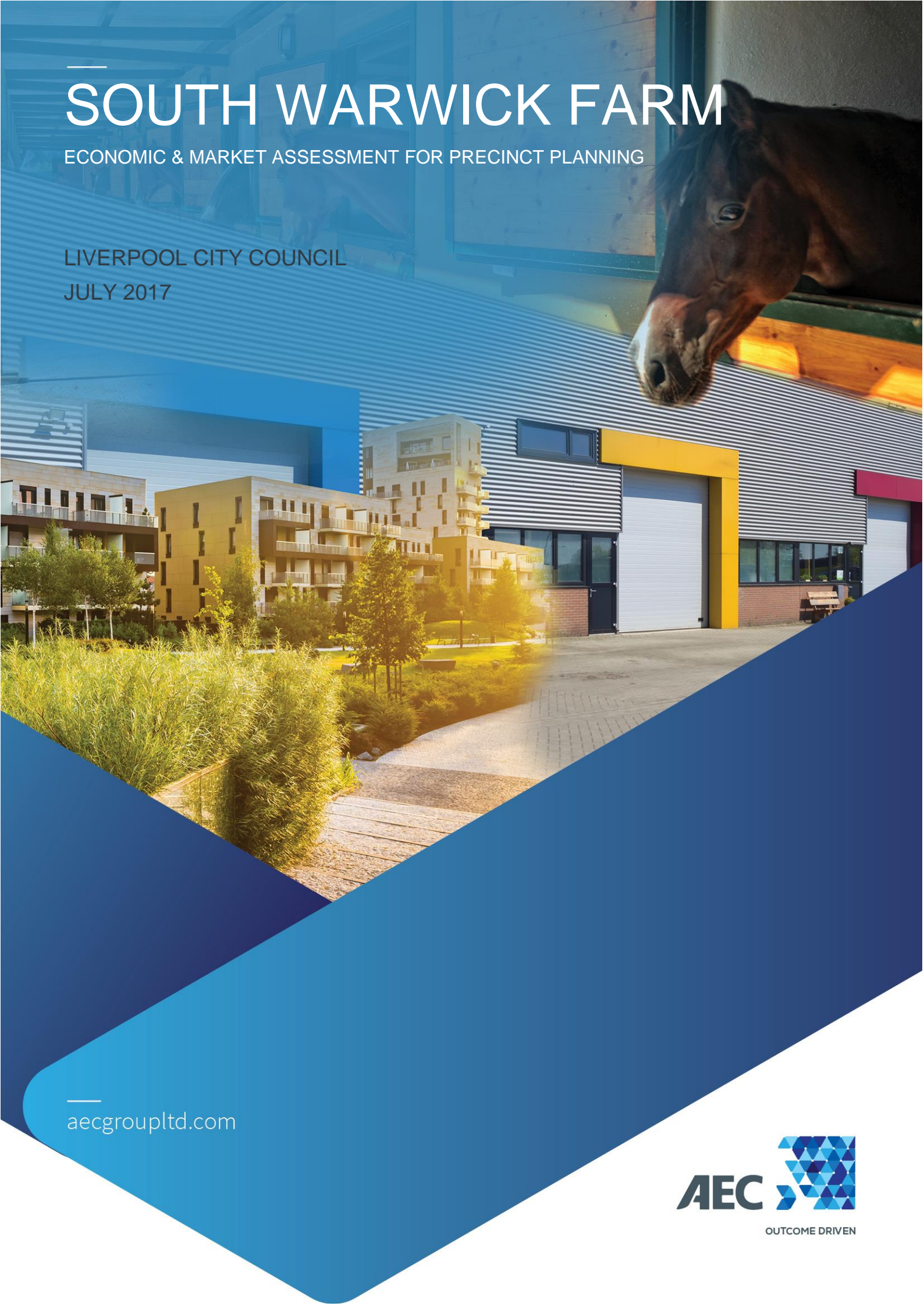


SOUTH WARWICK FARM

ECONOMIC & MARKET ASSESSMENT FOR PRECINCT PLANNING

LIVERPOOL CITY COUNCIL

JULY 2017



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Client: Liverpool City Council
Client Contact: Allan Campling
Project Manager: Christina Livers
Email: christina.livers@aecgrouppltd.com
Telephone: (02) 9283 8400
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EXECUTIVE SUMMARY

BACKGROUND

Warwick Farm is a large precinct (“the Precinct”) comprising a diversity of land uses. The Precinct extends from Georges River in the east to The Grove retail facility in the northwest and the Warwick Farm Racecourse to the north. It incorporates the Liverpool Waste Water Treatment Plant, an environmental conservation area, industrial uses and significant residential development, particularly to the west of the Cumberland Rail Line.

South Warwick Farm is comprised of three distinct precincts that are each subject to a different land use zone.

- Munday Street (R2 Low Density Residential zone).
- Lot 1 Governor Macquarie Drive (B5 Business Development zone).
- Priddle/Scrivener Street Precinct (IN1 General Industrial zone).

Following a number of separate developments in South Warwick Farm (a planning proposal seeking to rezone Lot 1 for residential uses and an approval to develop a new Equine Centre at the Warwick Farm Racecourse), Liverpool City Council is in the process of preparing a Precinct Plan for the broader Warwick Farm area and seeks to understand the role and function of the various precinct components.

AEC Group (AEC) is commissioned by Liverpool City Council (Council) to provide economics and land economics advice to help inform precinct planning for Warwick Farm.

PURPOSE & APPROACH

Council has identified a number of key issues need to be resolved before a Precinct Plan can be progressed.

- Munday Street Precinct (residential area which accommodates many horse stables)
 - What is the economic contribution of the horse stables to the locality and the Liverpool LGA, given its proximity to the Warwick Farm Racecourse.
 - What is the opportunity cost of relocating the horse stables to the racecourse or elsewhere.
 - Should Council retain the R2 Low Density Residential zone.
- Lot 1 Governor Macquarie Drive (or “former Masters site”)
 - Should Council retain the B5 Business Development zone or rezone it to R4 High Density Residential.
 - If rezoned to R4 High Density Residential, what density (FSR) threshold is required for feasible development.
- Priddle/Scrivener Street Industrial Precinct
 - What is the future role and function of the Precinct.
 - Should the Precinct be retained for industrial/employment uses.

In order to answer the key issues identified, AEC has undertaken the following tasks:

- Site visit to Liverpool and Warwick Farm general locality.
- Review of local planning legislation and planning strategies.
- Property market appraisal of industrial, large format retail and residential uses to understand their locational requirements and factors for long term viability.
- Economic modelling to quantify the economic contribution of Munday Street Precinct to the locality and Liverpool LGA.
- Development of various planning scenarios that considers and evaluates land use options for South Warwick Farm.

KEY FINDINGS

Munday Street Precinct

The NSW Joint Regional Planning Panel approved a proposal by Australian Turf Club (ATC) to develop part of the Warwick Farm Racecourse that will accommodate relocation of William Inglis and Son's thoroughbred auctioneering facility from Randwick to construct a new state-of-the-art \$100m equine complex by 2018.

The new Equine Centre is expected to accommodate a multi-purpose selling area, parade areas, hospitality rooms and horse stabling facilities. There is also proposed a 4.5 star hotel on the site with 145 rooms and a range of hospitality facilities including a bar, gym, wellness centre, café and restaurants.

The new stabling facility at the Racecourse is estimated to be a \$40m-\$50m project, indicated to be the first of its kind in Australia (similar facilities understood to be operating in America and France). The ATC are understood to have plans to utilise value released from their landholdings at Munday Street Precinct (should the area be rezoned to permit higher density residential uses) as contribution to the new stabling facility project.

Whilst the Munday Street Precinct is currently operating as a defacto stabling precinct, this function could potentially shift to the racecourse in the future on completion of new stabling facilities. Survey findings from businesses, landowners and trainers in the Precinct indicate there is a highly favourable sentiment in the neighbourhood for rezoning the Precinct for alternative uses so long as suitable alternatives for horse stabling and related activity in close proximity to the Warwick Farm Racecourse is available.

The ATC proposal to develop horse stabling facilities at the Warwick Farm Racecourse could effectively meet the demand for stabling currently provided for in the Munday Street Precinct. The provision of this new stabling area on the racecourse would enable the economic contribution of the Munday Street Precinct to be retained in the Liverpool LGA, while also allowing for the Munday Street Precinct to be redeveloped for higher value land uses.

Lot 1 Governor Macquarie Drive

Large format retailers and commercial uses require certain features in order to be competitive and sustainable in the long term. Large format retailers require large sites which allow numerous retailers to co-locate and cluster. Office precincts require critical mass in order to facilitate the clustering of services amenity and transport access (public transport). The Site is challenged on all of the above-mentioned fronts.

As a B5 zoned site, due to its modest scale and relative isolation, unless commitment from an anchor tenant can be found the Site will likely struggle to be competitive.

Generic feasibility analysis demonstrates that should the Site be rezoned to R4 High Density Residential, a minimum FSR of 1:1 is required for feasible residential unit development. The FSR is less compared to that which the planning proposal lodged for the Site proposes (FSR 3.5:1).

Priddle/Scrivener Street Precinct

The Precinct is generally well occupied, catering to a local service need. While manufacturing activity declined over the 2006-2011 period, the Precinct experienced growth in transport logistics and local service-based businesses.

Market investigations demonstrate the Precinct generally enjoys good market appeal. That said, the difficulty of access to and from the Precinct detracts from its central location within Liverpool and the South West region. If the issue of road access is left unaddressed, it is conceivable that market interest will decline over time as other locations that offer better vehicle access are available.

The Precinct has an important role to play in providing local urban services (i.e. mechanics and construction businesses) and facilitate urban logistics as market penetration for online retail continues to increase. As the population of Liverpool and the South West region grows, so too will the need for urban services to support the population's needs.

Notwithstanding the importance of the Precinct's role, key to the Precinct being sustainable in the long term will be implementation of the proposed Manning Street bypass that facilitates direct access to and from Governor Macquarie Drive.

PLANNING SCENARIO ANALYSIS

Business-as-usual

In the Business-as-usual scenario, each component precinct within South Warwick Farm remains in their existing use. Implications for each of the precinct components are detailed:

- **Munday Street Precinct**

This residential area (zoned R2) currently functions as a defacto horse stabling facility for horses who train and race at Warwick Farm Racecourse. Owing to its location just adjacent to the racecourse, it provides horse trainers with the close proximity required for training and racing.

Despite the valuable location of this precinct close to the racecourse, there are a number of safety concerns particularly with respect to horses commuting to and from the racecourse on roads shared with passenger vehicles, heavy trucks and pedestrians.

- **Lot 1 Governor Macquarie Drive**

The site is relatively small in scale and offers limited opportunity for large format retailers to cluster/co-locate. Unless commitment from an anchor large format retail tenant can be secured, it is conceivable the Site will face market resistance owing to its less desirable location and site characteristics.

- **Priddle/Scrivener Street Precinct**

The industrial precinct (currently zoned IN1) is not suited to large format industrial users as it does not provide unrestricted access for large trucks. Current road access is via narrow roads and through the residential/horse stabling area of Munday Street.

Notwithstanding the heavy vehicle access challenges, the Precinct continues to play an important role by accommodating service-based businesses as well as urban logistics businesses, both of whom respond to population growth.

Being an established industrial area (and with many older style buildings), it is conceivable that the Precinct will be at risk of being uncompetitive in time (as buildings age and road access continues to be challenged).

Potential Planning Interventions and Scenarios

Owing to the important role played by the Priddle/Scrivener Street industrial precinct, all planning scenarios envisage retention of the area for general industrial uses (i.e. retaining the IN1 General Industrial zone). Various planning interventions are considered for Munday Street Precinct and Lot 1 Governor Macquarie Drive.

Residential Uses

A rezoning of Munday Street Precinct and Lot 1 Governor Macquarie Drive to permit a mix of residential densities should be predicated on the ability of the horse stabling function to be relocated and accommodated on the Racecourse. This is important for three key reasons:

- **Economic contribution of horse stabling precinct**

Economic modelling indicates the contribution Munday Street Precinct makes to the Liverpool LGA is significant - supporting 238 jobs (direct and indirect) and approximately \$20.3m in Gross Regional Product each year, and paying \$11.9m in wages and salaries.

A relocation of horse stabling to the racecourse would allow the economic contribution of Munday Street Precinct to be retained within the Liverpool LGA. Developing horse stables at the racecourse will result in the land being consumed and potential for development for alternative uses on the site being lost. Though, any potential opportunity costs associated with developing horse stables at the racecourse will be more than offset by the retention of horse stabling activities in Liverpool LGA and higher value uses available at Munday Street.

- **Viability of Warwick Farm Racecourse**

Should the Munday Street Precinct be rezoned independent of the delivery of new horse stabling facility at the racecourse, there is a risk that utilisation rates at the racecourse will decline, thereby resulting in severe economic loss for the Liverpool LGA.

Many respondents to the survey indicated that availability of horse stabling facilities in close proximity to the racecourse is essential in their decision to continue training and racing at Warwick Farm.

- **Value released from rezoning**

As a major landowner in Munday Street Precinct, it is understood that ATC plan to leverage value that may be released from its landholdings following a rezoning to permit higher density residential uses.

A critical requirement that underpins this scenario is implementation of alternate access to Priddle/Scrivener Street Precinct that bypasses the new residential area.

Residential and industrial uses do not mix. In order for both precincts to be viable and have market appeal, there needs to be provision for separate access and unimpeded access to the industrial precinct.

Existing-use values in Munday Street Precinct and Lot 1 Governor Macquarie Drive are at levels that facilitate even a modest increase in residential density. A rezoning to permit higher densities accompanies an opportunity for Council to require contributions to public benefit as part of a planning proposal. Contributions could include amenity and infrastructure items for the new residential precinct as well as to fund the Manning Street bypass.

While the rezoning of Lot 1 Governor Macquarie Drive would *theoretically* result in the 'loss of employment land', the nature of its location and scale makes it challenging to establish a viable cluster of large format retail uses. Potentially some local convenience retail and supporting commercial space could be considered at this location (intersection of Manning Street, Warwick Street and Munday Street) as part of wider masterplanning for a new residential precinct.

Employment Uses

A rezoning to facilitate employment uses at Munday Street Precinct to be sandwiched between two employment zoned areas - Lot 1 Governor Macquarie Drive (zoned B5) and Priddle/Scrivener Street Precinct (zoned IN1) is a logical land use scenario. Similar to the residential scenario, this scenario is predicated on the relocation of Munday Street Precinct's horse stabling function to the racecourse.

A rezoning to employment uses would effectively eliminate any land use conflicts between the existing industrial, residential and horse stabling activities. There would accordingly be a less compelling case to progress and implement the Manning Street bypass.

In practical terms, this scenario is unlikely to result in meaningful outcomes on-ground as existing-uses (low density residential) are generally more valuable than potential B5 or IN1 lands. In the main, it is conceivable that most properties will remain in their existing use (potentially even retaining horse stabling), there being little incentive for landowners to change or redevelop. As a consequence, land use conflicts will arguably still present between existing residential uses and industrial uses at Priddle/Scrivener Street Precinct.

A bypass road solution could still be required to address safety risks and amenity issues. 'New' employment uses are unlikely to be able to contribute to public benefit considering there is unlikely to be any 'value uplift' to the lands in Munday Street Precinct, rather a value decrease.

Summary

The future of Lot 1 is inextricably linked to the future of Munday Street Precinct. Should the horse stabling functions of Munday Street Precinct be successfully and viably relocated to the racecourse, opportunities arise for Munday Street Precinct and Lot 1 to collectively deliver a masterplanned outcome incorporating a range of housing formats, required urban amenity and commercial support services, as well as meet social/community infrastructure need.

Despite the presence of the Warwick Farm train station, the Precinct (South Warwick Farm) is not currently planned to accommodate higher density residential uses. Comprehensive land use planning will be required to unlock the Precinct's potential for a new community.

Resolution of road access and conflicts between different road users (residents and employment uses) is critical to ensuring any new residential community and the existing industrial precinct are viable and sustainable.

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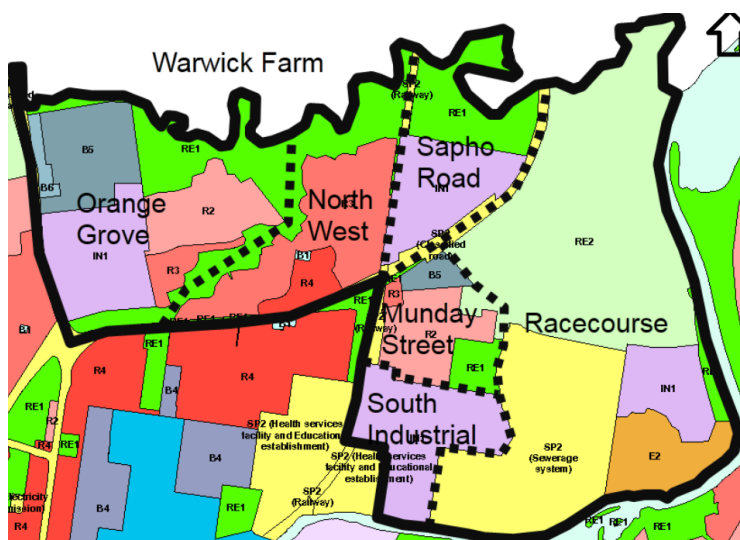
1. INTRODUCTION

1.1 BACKGROUND

Warwick Farm is a large precinct (“the Precinct”) comprising a diversity of land uses. The Precinct extends from Georges River in the east to The Grove retail facility in the northwest and the Warwick Farm Racecourse to the north. It incorporates the Liverpool Waste Water Treatment Plant, an environmental conservation area, industrial uses and significant residential development, particularly to the west of the Cumberland Rail Line.

Figure 1.1 depicts Warwick Farm as a whole. This report outlines the research and analysis carried out for South Warwick Farm, denoted in the diagram as “Munday Street”, “South Industrial” and the unnamed parcel of land adjacent to Munday Street in the north, collectively to the southwest of the Racecourse.

Figure 1.1. Warwick Farm Precinct



Source: Liverpool City Council

Recently, Liverpool City Council have received a number of planning proposals applying to separate parts of the Precinct. In February 2017 Council resolved to defer consideration of a planning proposal for a parcel of land zoned B5 (commonly referred to as “former Masters site”) until Council adopts a broader precinct-wide strategy for Warwick Farm Precinct (to be considered in July 2017).

The Australian Jockey Club (now ATC) have received approval for a proposal for significant development on the Warwick Farm Racecourse to accommodate a new Equine Centre which would include new horse stabling facilities. The new horse stabling facilities would have the capacity to accommodate horses currently stabled in Munday Street Precinct.

Should Munday Street Precinct transition from being a defacto horse stabling area following the relocation of horses to be stabled at the Warwick Farm Racecourse, questions relating to the precinct’s future role and function arise.

Following a number of separate developments in South Warwick Farm, Council is in the process of preparing a Precinct Plan for the broader Warwick Farm area and seeks to understand the role and function of the various precinct components.

AEC Group (AEC) is commissioned by Liverpool City Council (Council) to provide economics and land economics advice to help inform precinct planning for Warwick Farm. AEC’s analysis is carried out in two parts:

- 1 Residential Market and Development Feasibility Analysis for North West Precinct (separately reported).
- 2 South Warwick Farm Economic and Market Assessment (this report).

1.2 PURPOSE OF THE STUDY

The objective of the Study is to examine the role and function of each precinct component which together accommodate a diverse range of land uses.

Council has identified a number of key issues need to be resolved before a Precinct Plan can be progressed. These include:

- Munday Street Precinct
 - What is the economic contribution of the horse stables to the locality and the Liverpool LGA, given its proximity to the Warwick Farm Racecourse.
 - What is the opportunity cost of relocating the horse stables to the racecourse or elsewhere.
 - Should Council retain the R2 Low Density Residential zone.
- Lot 1 Governor Macquarie Drive (or “former Masters site”)
 - Should Council retain the B5 Business Development zone or rezone it to R4 High Density Residential.
 - If rezoned to R4 High Density Residential, what density (FSR) threshold is required for feasible development.
- Priddle/Scrivener Street Industrial Precinct
 - What is the future role and function of the Precinct.
 - Should the Precinct be retained for industrial/employment uses.

A number of land use conflicts present in the South Warwick Farm precinct, primarily relating to safety concerns with horses, pedestrian, passenger cars and large trucks sharing the internal road network. Additionally, the requirement for large trucks to pass through the existing residential area of Munday Street Precinct presents challenges of access to and from Priddle/Scrivener Street Precinct.

The key issues identified above are explored in the Study, which also considers various planning scenarios for Council’s consideration.

1.3 APPROACH

In order to answer the key issues identified, AEC has taken the following approach:

- Site visit to Liverpool and Warwick Farm general locality to understand:
 - Current built form, offer and amenity and existing market dynamics between land uses.
 - Principal land use opportunities and constraints that influence viability of future development and growth.
- Review of local planning legislation and planning strategies.
- Property market appraisal was undertaken to:
 - Determine by land use South Warwick Farm’s position in the market relative to the Liverpool CBD and surrounds.
 - Identify patterns of supply and demand, understand market and development activity and purchaser preferences and requirements.
 - Review development pipeline (developments approved and in those in planning) to understand the drivers and nature of new development.
 - Understand the viability of various land uses in South Warwick Farm.
- Economic modelling to quantify the economic contribution of Munday Street Precinct to the locality and Liverpool LGA.
- Generic feasibility testing to examine the feasibility of developing a rezoned Lot 1 site into R4 High Density.

1.4 ASSUMPTIONS AND LIMITATIONS

AEC acknowledges a number of limitations associated with the generic feasibility testing.

- Generic development options are formulated for feasibility testing based on notional FSRs. This is useful for the purposes of considering the financial feasibility of development options however the development schemes are notional only, and have not been capacity, urban design or engineering tested. AEC are not urban designers or architects. As such the financial feasibility testing carried out is a numerical exercise with no regard to physical site capacity, shadow impacts, building separation or other design considerations.
- Desktop appraisal of 'as is' property values, without the benefit of internal inspections.
- Generic feasibility testing does not consider nuances of a site typically considered in detailed feasibility analysis. Development costs assumed are 'generic', based on construction cost publications and past industry experience. No provision is made for extraordinary development costs that may be necessary as a result of ground conditions or environmental constraints.

Notwithstanding the limitations above, the approach is considered appropriate for the purposes of reviewing on an aggregate basis, if planning controls are financially feasible to undertake in a particular area.

2. MUNDAY STREET PRECINCT

2.1 KEY OBJECTIVES AND APPROACH

The Munday Street Precinct (the Precinct) currently functions as horse stables (accommodating approximately 520 horses) and has strong links to the Warwick Farm Racecourse (operated by the Australian Turf Club) which is located adjacent to the Precinct. There are two significant landowners in the Precinct, these include: the Australian Turf Club and Godolphin.

By way of background, in 2010 the owner of Warwick Farm Racecourse and Coopers Paddock, the Australian Jockey Club (now Australian Turf Club) sought an amendment to the Liverpool Local Environmental Plan to facilitate development at the Warwick Farm Racecourse and the Department of Planning & Environment approved the amendment in 2012. The amendment permits 'stock and sale yards' on land north of Governor Macquarie Drive as well as rezoning land south of Governor Macquarie Drive from RE2 Private Recreation to IN1 General Industrial and RE1 Public Recreation.

A horse stabling precinct is proposed on the racecourse, which could potentially accommodate the needs of, and replace the stabling precinct at Munday Street. The new facility would accommodate approximately 400-500 stables and have a small residential component which could be used by horse trainers.

As a result of the above, Council is considering what an appropriate land use zone for the Munday Street Precinct might be and as such have asked the following three questions:

- 1 What is the economic contribution of the horse stables to the locality and Liverpool LGA, given its proximity to the Warwick Farm Racecourse?
- 2 What is the opportunity cost of relocating the horse stables to the racecourse or elsewhere?
- 3 Should Council retain the R2 Low Density Residential Zone?

In order to answer the above-mentioned questions, AEC took the following approach:

- Analysed the results of a survey undertaken by Council to ascertain:
 - How the community feels about Warwick Farm and its future; and
 - Key metrics to inform the economic contribution analysis.
- Undertook consultation with the Australian Turf Club and representatives from Godolphin to inform the economic analysis.
- Examined the economic value of horse stables in the Munday Street Precinct to the Liverpool City Council area. Input-Output modelling was used to examine the direct and flow-on activity supported within the Liverpool economy.

The findings are detailed in the sections below.

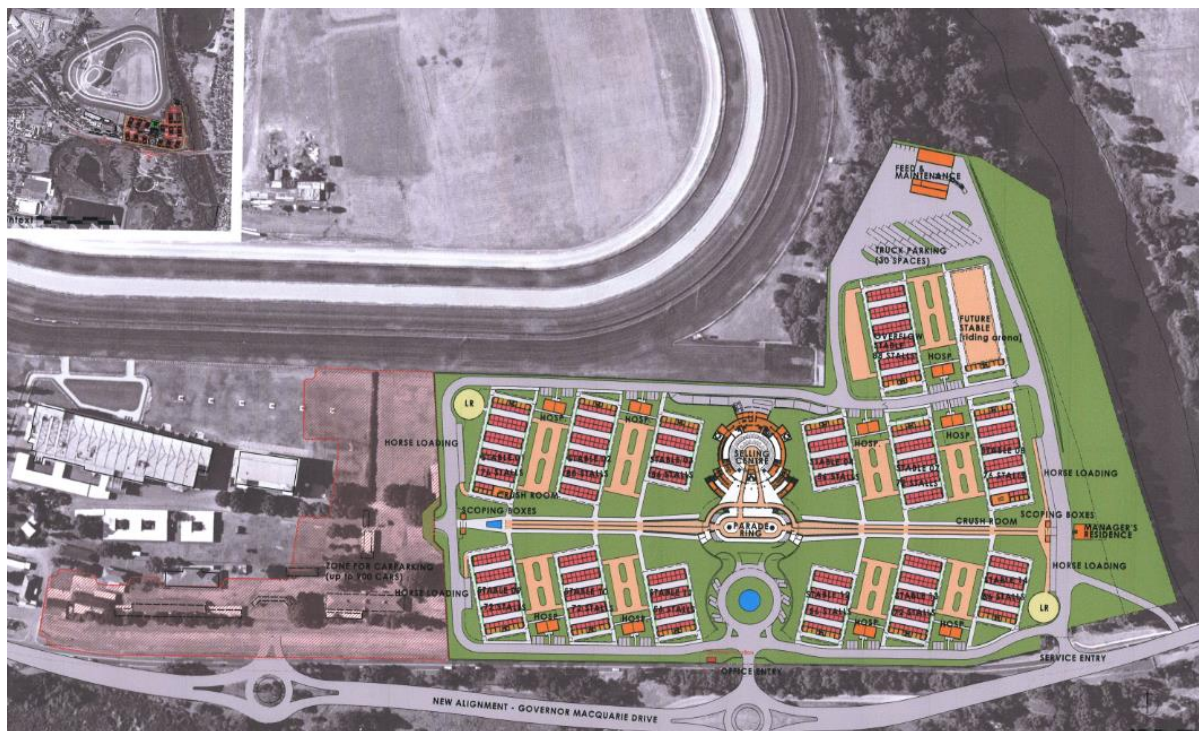
2.2 PROPOSED NEW EQUINE FACILITIES

Pursuant to the LEP amendments sought, a redevelopment of part of the Warwick Farm Racecourse will accommodate William Inglis and Son. William Inglis and Son (Inglis) propose to relocate its thoroughbred auctioneering facility from Randwick to Warwick Farm to construct a new stage-of-the art \$100m equine complex by 2018.

The NSW Joint Regional Planning Panel approved the proposal, enabling Inglis the opportunity to accommodate the world's best horse owners, trainers, breeders and buyers close to the future new airport at Badgerys Creek.

The new Equine Centre is expected to accommodate a multi-purpose selling area, parade areas, hospitality rooms and horse stabling facilities. There is also proposed a 4.5 star hotel on the site with 145 rooms and a range of hospitality facilities including a bar, gym, wellness centre, café and restaurants.

Figure 2.1. Warwick Farm Equine Centre Masterplan



Source: DPE

Figure 2.1 indicates the location of the new Equine Centre, particularly the new horse stables.

From discussions with the Australian Turf Club (ATC), the new stabling facility is understood to have capacity to accommodate approximately 400-500 stables and have a modest residential component which could be used by horse trainers for overnight accommodation.

The new stabling facility at the Racecourse is estimated to be a \$40m-\$50m project, indicated to be the first of its kind in Australia (similar facilities understood to be operating in America and France). The ATC are understood to have plans to utilise value released from their landholdings at Munday Street Precinct (should the area be rezoned to permit higher density residential uses) as contribution to the new stabling facility project.

Commercial terms have not been developed yet, however discussion with the ATC indicate a ground lease would be available to those who wished to develop their own stables. Detailed terms have yet to be developed and ATC are cognisant that the new stabling facility would need to be within affordability thresholds. A stabling fee in the order of 10% of the cost of horse training is considered to be a reasonable benchmark.

Whilst the Munday Street Precinct is currently operating as a defacto stabling precinct, this function could potentially shift to the racecourse in the future on completion of new stabling facilities. Residents and businesses in the Precinct were surveyed to gather their views on the future of the Precinct, detailed next.

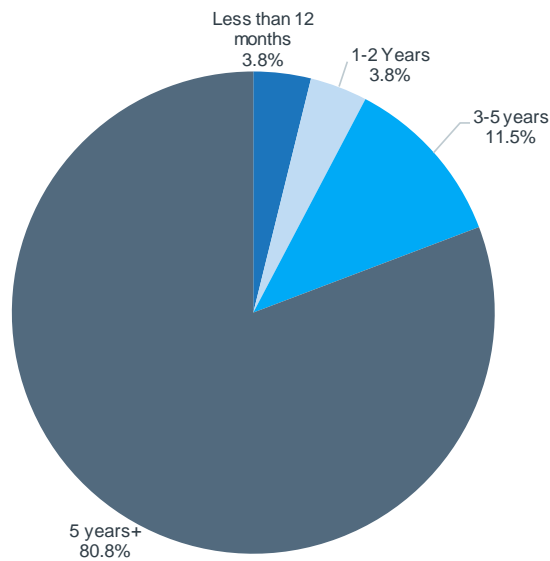
2.3 SURVEY RESULTS

As part of consultation with the community, Council undertook a neighbourhood questionnaire to understand how the community feels about Warwick Farm and its future.

2.3.1 Neighbourhood Basics

Of those who responded, four out of five people (or 80%) have been living in Warwick Farm for more than five years. Another 11.5% have been living there between three and five years. Only 3.8% have been living there for less than 12 months and 3.8% have been living there for between one and two years.

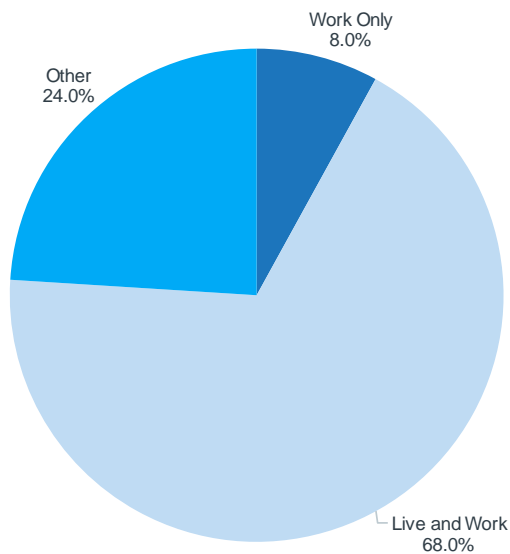
Figure 2.2. Length of Stay in Current Home in Warwick Farm



Source: AEC.

Nearly 90% of people owned their own home (either outright or paying mortgage), whilst everyone else rented their home. Over two-thirds of people both live and work in Warwick Farm, whilst 8% only work there. About a quarter of respondents indicated ‘other’ and reported that they only live there and/or are retired.

Figure 2.3. Status in Warwick Farm



Source: AEC.

2.3.2 Perception of Warwick Farm

Respondents were asked the three best things about living in their neighbourhood. Of those who responded, people often cited the neighbourhood’s proximity to:

- Work;
- Racecourse;
- Shops;
- Hospital; and
- Train station.

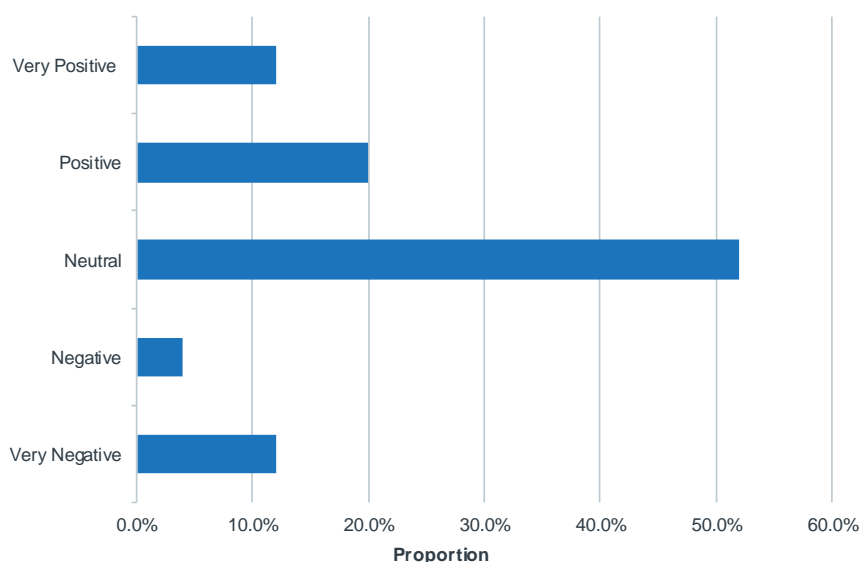
Other less-prominent responses included the quiet and/or rural setting and the community feel of the neighbourhood.

Likewise, respondents were asked the three things they would change about their neighbourhood. Of those who responded, people most frequently commented on the need for:

- Lights at Governor Macquarie and Munday Street due to safety concerns;
- Additional roadways for industrial/commuter transport that is creating noise and traffic concerns, particularly through residential areas;
- Better access to the racecourse; and
- General upgrade in terms of environmental and cleanliness concerns and the need to rezone the Precinct to allow for high rise residential development.

Respondents were then asked to give an overall indication of how they feel about living in Warwick Farm from a selection of the following – very positive, positive, neutral, negative, and very negative. Over those who responded, just over half indicated their feelings as neutral. Nearly a third of people indicated that they felt positive/very positive about living in Warwick Farm, whilst 16% indicated that they felt negative/very negative.

Figure 2.4. Overall Perception on Living in Warwick Farm

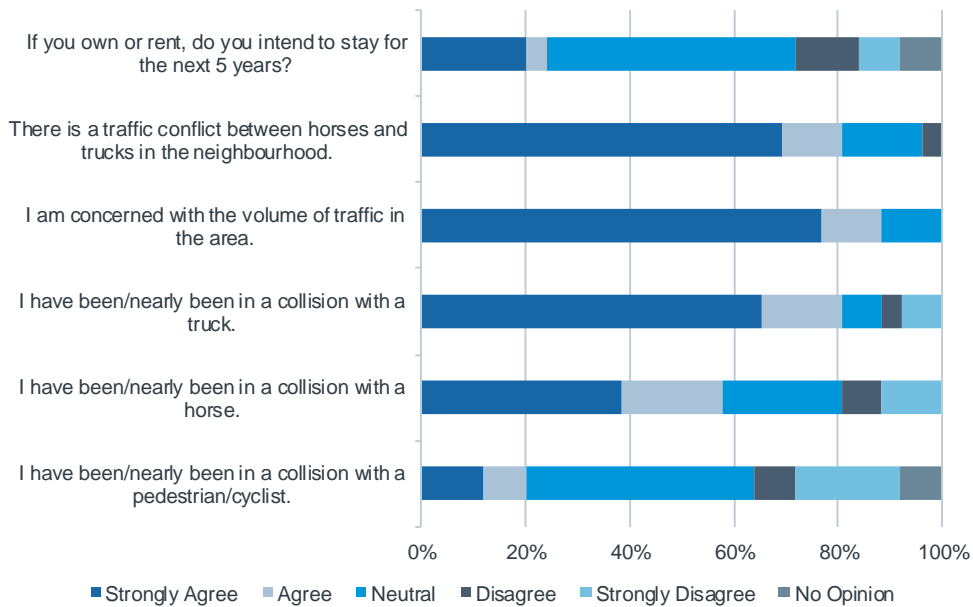


Source: AEC.

Respondents were given various statements about Warwick Farm and asked to indicate to what degree they agreed with each statement – strongly agree, agree, neutral, disagree, strongly disagree, or no opinion. The following can be deduced from the survey response:

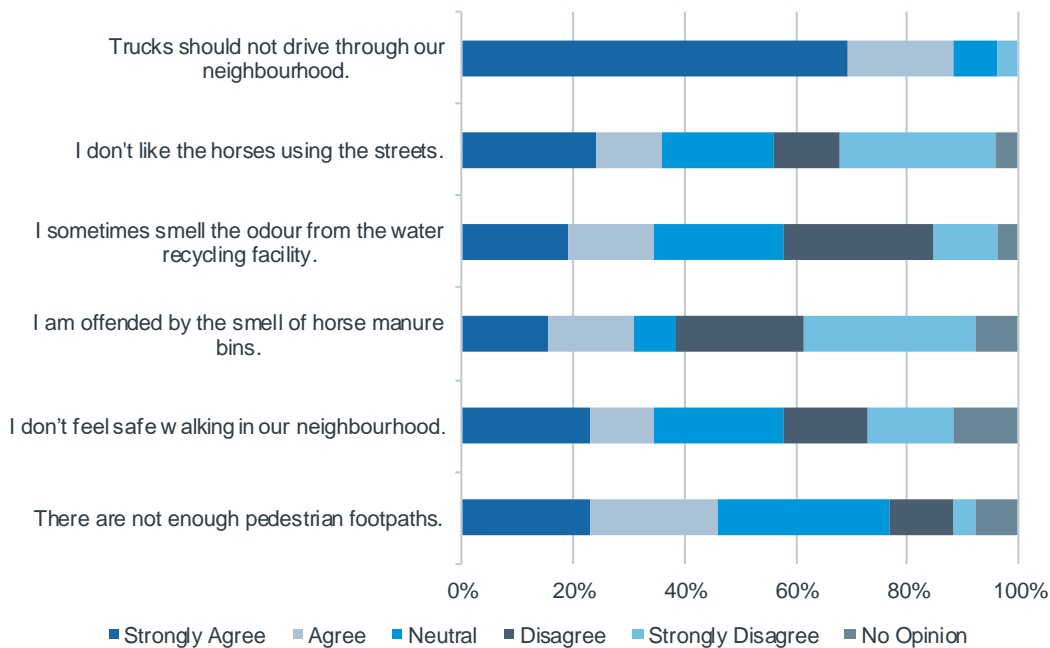
- Nearly a quarter of respondents indicated that they agree/strongly agree that they intend to stay in Warwick Farm for the next 5 years, whilst a fifth indicated that they disagree/strongly disagree that they intend to stay.
- Nearly a third reported themselves as neutral.
- More than four in five respondents reported that they agree/strongly agree that: there is a traffic conflict between horses and trucks in the neighbourhood; they are concerned with the volume of traffic in the area; they have been/nearly been in a collision with a truck and; trucks should not drive through the neighbourhood.
- More than half of respondents indicated that they agree/strongly agree that they have been/nearly been in a collision with a horse, and nearly half responded as such that there are not enough pedestrian footpaths. The only statement in which a clear majority of respondents disagreed/strongly disagreed was that which said they were offended by the smell of horse manure bins.

Figure 2.5. Perceptions About Warwick Farm



Source: AEC.

Figure 2.6. Perceptions About Warwick Farm (Continued)



Source: AEC.

2.3.3 Horse Related Activity

Of those who operate horse related activity on their land, most respondents indicated that it was for the use of stabling, whilst a small proportion indicated that it was for training horses. Respondents were asked how many staff (i.e. horse trainers, strappers, stable hands, grooms, track jockeys/riders) they employed. Most respondents indicated that they employed fewer than 10 staff, whilst a small proportion indicated that they employed between 10 and 20 and about the same responded that they didn't employ anyone. Of those with staff, most responded that fewer than 5 were living at the premises.

When asked about the key considerations regarding where to stable horses whilst in training at Warwick Farm Racecourse, respondents indicated that proximity to the track and safety (related to traffic) were the most important.

All respondents indicated that the proximity to the racecourse in considering where to stable these horses was an important or very important consideration. Reasons cited for the necessary proximity included the danger for the horses and the people due to traffic and the time it takes to walk the horses. Consequently, nearly all respondents wanted the stabling location to be on course to avoid a cost and logistical burden for transporting horses. Most respondents indicated that they train between 10 and 20 horses at Warwick Farm Racecourse, and most, if not all, are stabled at their Warwick Farm premises.

They were then asked about relocation of stables, they gave the following response:

- Every respondent indicated that they thought relocating the stables from their premises to Warwick Farm Racecourse was a possibility and that doing so would reduce transport logistics costs.
- All respondents indicated that relocating stables at their premises further away from the racecourse would influence their decision to train at Warwick Farm Racecourse.
- Many responded that the transport costs would impact their decision.

The respondents were then asked about costs associated with the stables and transportation. The responses provided the following indications:

- **Cost of Horse Stabling and Upkeep**
Only about half responded to a question about average monthly costs associated with horse stabling and horse upkeep (per horse). Of those who responded, most reported that monthly costs per horse were \$3,000-\$4,000.
- **Proportion spent on Goods and Services in Liverpool**
There was no consistent response for the proportion of that which is spent on goods and services from within Liverpool Council area. Some reported between 40% and 50%, whilst some reported that nearly all is spent within the local area and conversely, some reported 10% or less is spent within the area.
- **Cost of Horse Transportation to Racecourse**
There was also no consistent response for the proportion of cost spent on transporting a horse to the racecourse from the stable. Most of the cost would be associated with wages because most people have staff walk the horses there. However, many respondents reported no cost, when there is likely to be some cost associated at least with labour.
- **Other Matters**
When asked an open-ended question, some respondents expressed the interest in stabling on the racecourse.

AEC met with representatives of Godolphin who indicated future plans to relocate from the site they occupy in the Precinct (next 3-5 years) to a newer and more sophisticated stabling/training facility they own at Windsor. They plan to transport their horses (understood to be 100-120 in number) to Warwick Farm Racecourse on race days.

The future plans of major landowners have the potential to influence the Precinct in the future. Those who operate the stables are another important stakeholder.

2.3.4 Summary of Survey Results

More than half of the respondents have a neutral feeling about their overall perception of Warwick Farm. Consequently, almost a third felt neutral about whether they intended to stay in Warwick Farm for the next five years. An overwhelming majority agreed/strongly agreed that there is an issue with traffic conflicts between horses and trucks, traffic volume, risk of collision with trucks driving through the neighbourhood. A smaller majority also agreed/strongly agreed that the issue of collision with horses and insufficient pedestrian footpaths was serious.

In terms of horse related activity, most respondents reported that they stabled horses on their land and employed fewer than 10 staff, with even fewer living on the premises. Most respondents reported that the proximity to the racecourse when considering where to stable their horses was an important or very important decision because of the danger and time for people and the horses whilst transporting them. As such, nearly all respondents expressed the desire to move their stabling location to the racecourse.

The next section assesses the economic value of horse stables in the Munday Street Precinct to the Liverpool LGA.

2.4 ECONOMIC CONTRIBUTION

2.4.1 Approach

This section examines the economic value of horse stables in the Munday Street Precinct to the Liverpool City Council area. Input-Output modelling was used to examine the direct and flow-on¹ activity supported within the Liverpool economy. A description of the assumptions used in modelling is outlined in Section 2.4.2. A description of the Input-Output modelling framework used is provided in **Appendix A**.

Input-output modelling describes economic activity by examining four types of impacts:

- **Output:** Refers to the gross value of goods and services transacted, including the costs of goods and services used in the development and provision of the final product. Output typically overstates the economic impacts as it counts all goods and services used in one stage of production as an input to later stages of production, hence counting their contribution more than once.
- **Gross product:** Refers to the value of output after deducting the cost of goods and services inputs in the production process. Gross product (e.g., Gross Regional Product) defines the true net contribution and is subsequently the preferred measure for assessing economic impacts.
- **Income:** Measures the level of wages and salaries paid to employees of the industry under consideration and to other industries benefiting from the project.
- **Employment:** Refers to the part-time and full-time employment positions generated by the economic stimulus, both directly and indirectly through flow-on activity, expressed in full time equivalent (FTE) positions².

2.4.2 Drivers and Assumptions Used in Modelling

The economic value of the horse stables to the Liverpool City Council area was examined in terms of the economic activity supported by providing stabling in this precinct to support horse training at Warwick Farm racecourse. In developing drivers and assumptions for assessing the economic value of the Munday Street Precinct, survey results (outlined in section 2.3) of households in the Munday Street Precinct was used, which was supplemented by consultation by AEC staff with the Australian Turf Club (ATC).

Consultation with the ATC indicates there are 42 trainers that use Warwick Farm racecourse, with typically around 700 horses in total training at Warwick Farm on any given day. Of these, around 180 are stabled at the racecourse with the other 520 stabled in the Munday Street Precinct.

Survey results indicated the average cost to train a horse can vary between \$2,000 to \$5,000 per month, with the most common responses being between \$3,000 and \$4,000 a month. This was consistent with consultation findings with the ATC which indicated an average cost of approximately \$110 per day (or approximately \$3,300 per month). For the purposes of this study an average cost for training of \$3,500 per month was used, which equates to \$42,000 a year. Across 520 horses being stabled in Munday Street on average through the year, this equates to a total annual cost for training horses stabled in the Munday Street Precinct of \$21.84 million.

Costs were broken down by the following components:

- Stabling fees – 10% (as per consultation with ATC).
- Track fees – 7% (AEC industry experience).
- Transport – 10% (AEC industry experience).
- Vet fees and farrier/ plating – 10% (AEC industry experience).
- Medication and vaccination – 5% (AEC industry experience).

¹ Both Type I and Type II flow-on impacts have been presented in this report. Refer to **Appendix A** for a description of each type of flow-on impact.

² Where one FTE is equivalent to one person working full time for a period of one year.

- Training fees – 58% (AEC industry experience), which is assumed to be broken down by:
 - Feed – 40%.
 - Gear and equipment – 10%.
 - Staff wages and salaries (including jockeys) – 40%.
 - Gross profit – 10%.

Costs were allocated to their most relevant industry in the Input-Output model. Assumptions were made regarding the proportion of expenditure in each industry that is spent on goods and services provided within the Liverpool City Council economy, based on results from the survey.

Table 2.1. Breakdown of Costs by Activity

Activity	Total Value (\$M)	Percent Local (%)	Total Local Content (\$M)
Headline Activity			
Total Output	\$21.84	100%	\$21.84
Wages and Salaries	\$5.07	100%	\$5.07
Gross Profit	\$1.27	100%	\$1.27
Purchases of Goods/ Services			
Sports and Recreation	\$3.71	100%	\$3.71
Road Transport	\$2.18	50%	\$1.09
Retail Trade	\$1.60	50%	\$0.80
Wholesale Trade	\$4.18	25%	\$1.04
Agriculture, Forestry and Fishing Support Services	\$1.09	50%	\$0.55
Professional, Scientific and Technical Services	\$1.09	75%	\$0.82
Other Food Product Manufacturing	\$1.01	50%	\$0.51
Other Manufactured Products	\$0.63	25%	\$0.16

Source: AEC, consultation with the ATC and survey of households in the Munday Street Precinct.

Approximately one person is employed per 2.3 horses, equating to approximately 226 jobs directly supported by the 520 horses stabled in the Munday Street Precinct. For the purposes of this assessment it was assumed not all of these jobs represent full time jobs, and that some of these jobs are also supported by other racing activities aside from training. A full time equivalence of 0.6 has therefore been applied, equating to approximately 136 FTE jobs directly supported. This equivalence has been adopted as this provides a direct FTE employment estimate approximately in line with the direct Input-Output multiplier for the Sports and Recreation industry (for which horse racing is part of) applied to an output estimate of \$21.84 million (ABS, 2016; ABS, 2017).

2.4.3 Economic Modelling Results

The \$21.8 million in training costs associated with stabling in the Munday Street Precinct is estimated to support approximately \$26.8 million in industry output for businesses in the Liverpool City Council area via flow-on activity, including purchases of goods and services for training of horses as well as subsequent production induced activity and additional household consumption from wages and salaries.

This level of activity is estimated to support approximately \$20.3 million in Gross Regional Product (GRP) each year within the Liverpool City Council economy, including direct and flow-on impacts, as well as support 238 FTE jobs and pay \$11.9 million in wages and salaries.

Table 2.2. Economic Contribution of Stabling Horses in Munday Street Precinct, Liverpool City Council

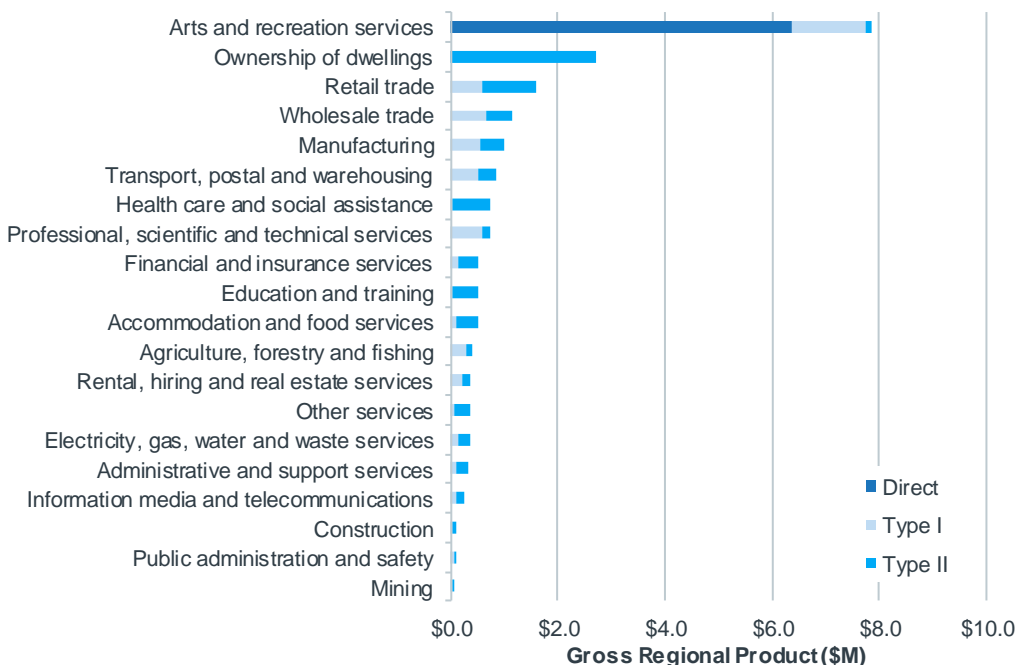
Impact	Output (\$M)	Gross Regional Product (\$M)	Incomes (\$M)	Employment (FTEs)
Direct	\$21.8	\$6.4	\$5.1	136
Type I Flow-On	\$12.4	\$5.5	\$3.2	50
Type II Flow-On	\$14.4	\$8.4	\$3.6	52
Total	\$48.6	\$20.3	\$11.9	238

Note: Figures may not add due to rounding.

Source: ABS (2012), ABS (2016a), ABS (2017), AEC, consultation with the ATC and survey of households in the Munday Street Precinct.

The local arts and recreation services industry (in which the horse racing industry is part of) is estimated to receive the largest share of total GRP derived from horse training associated with stabling in the Munday Street Precinct, primarily through direct impacts.

Figure 2.7. Economic Contribution by Industry, Gross Regional Product, \$M, Liverpool City Council



Source: ABS (2012), ABS (2016a), ABS (2017), AEC, consultation with the ATC and survey of households in the Munday Street Precinct.

2.5 FUTURE OF THE MUNDAY STREET PRECINCT

The Munday Street Precinct in its present configuration, zoning and land uses (which largely relates to horse stabling and activity) has an average land value of approximately \$1,400 per sqm of site area.

Survey results indicate there is a highly favourable sentiment amongst the neighbourhood for rezoning the Precinct for alternative uses so long as suitable alternatives for horse stabling and related activity in close proximity to the Warwick Farm Racecourse is available.

The ATC proposal to develop horse stabling facilities at the Warwick Farm Racecourse could effectively meet the demand for stabling currently provided for in the Munday Street Precinct. The provision of this new stabling area on the racecourse would enable the economic contribution of the Munday Street Precinct (as outlined in section 2.4) to be retained in the Liverpool LGA, while also allowing for the Munday Street Precinct to be redeveloped for higher value land uses. It is estimated rezoning the precinct to R4 High Density would lift the average land value in the precinct to at least \$1,800 per sqm of site area (depending on permitted density).

However, it is noted that if the stables are relocated to the racecourse, those who currently live in the Precinct close to existing stables will need to find alternative accommodation. Even so, given the stabling activities currently undertaken in the Munday Street Precinct would be retained within the Liverpool LGA, and additional dwelling options would be available in the redevelopment, there is not anticipated to be any material loss in functionality currently provided in the precinct.

Provided the horse stabling functions of Munday Street Precinct can be successfully and viably relocated to the racecourse, the rezoning of the Precinct to allow for a range of residential densities and formats would present an opportunity to deliver a masterplanned outcome that incorporates a range of house types, required urban amenity and meet social/community infrastructure need. Despite the presence of the Warwick Farm train station, the Precinct is not currently planned to accommodate higher density residential uses. Comprehensive land use planning will be required to unlock the Precinct’s potential for a new community.

By developing horse stables at the Warwick Farm Racecourse this will result in this land being consumed and some potential for development for alternative uses of this site being lost. That said, any potential opportunity costs associated with developing horse stables at the Warwick Farm Racecourse will be more than offset by the retention of existing horse stabling activities in the Liverpool LGA and higher value uses available in the Munday Street Precinct.

3. LOT 1 GOVERNOR MACQUARIE DRIVE

3.1 KEY OBJECTIVES AND APPROACH

The Site is located at Lot 1 Governor Macquarie Drive, Warwick Farm (hereafter referred to as the Site) near the south-western junction of the Hume Highway and Governor Macquarie Drive. The Site is currently vacant.

The Site is currently zoned B5 Business Development. It is noted that the current land use zoning of the site came into effect on 9 December 2011 as the result of a Planning Proposal by the Australian Jockey Club (now the ATC) to accommodate a Masters Home Improvement Centre. Business operational changes by Masters determined not to proceed with this development on the site. Prior to the rezoning of the site for a specific end-user in December 2011, the site was zoned part RE2 Private Recreation and part R2 Low Density Residential.

It is understood that new landowner Warwick Farm Village Pty Ltd has now submitted a planning proposal to rezone the Site. The primary objectives of the planning proposal are:

- To amend the LLEP 2008 to enable the redevelopment of Lot 1 on DP 1162276 for a mixed uses and high density residential purposes, delivering opportunities for living in an environment close to transport, community services and commercial activities.
- To increase the height of building control to facilitate buildings of up to 28 storeys.
- To amend the FSR control increasing from 0.75:1 to 3.5:1.

A conceptual design for redevelopment of the site has been prepared for the Site, refer to **Figure 3.1** below.

Figure 3.1. Conceptual Design of Site



Source: MPA (2016)

As a result, Council have asked the following questions:

- 1 Should Council retain the B5 Business Development Zone on the site or rezone it to R4 High Density Residential.
- 2 If rezoned to R4 High Density Residential, what density (FSR) threshold is required for feasible development.

In order to answer the above questions, AEC undertook the following approach:

- Assessed the level and nature of demand for B5 Business Development land uses in the local government area (with a focus on large format retail and ancillary commercial space).
- Assessed the level and nature of demand for residential uses.
- Reviewed the planning proposal Council recently received for the Site.
- Investigated the feasibility of high density residential development (as well as a range of FSRs) to assess the minimum FSR threshold required for development to be feasible.
- Reviewed the findings from the feasibility analysis against that which is envisaged by the planning proposal.

3.2 SITE CONTEXT AND LOCATION

The Site is located on the north-eastern edge of the Liverpool City Centre, which is located approximately 32km south-west of the Sydney Central Business District (CBD). The Liverpool City Centre plays a major commercial and cultural role in the local area and includes Liverpool Hospital, Westfield Liverpool and Macquarie Street Mall. The Site is located in a precinct supporting a range of uses including industrial, low and medium density residential uses, the Warwick Farm Racecourse and ancillary horse stabling and training facilities.

The Hume Highway adjoining the northern boundary of the Site is the main east-west vehicle access route through Warwick Farm and a main transport route through the Liverpool local government area), which supports several major regional bus routes.

The eastern two-thirds of the Site is scattered with trees of varying type and density. The western third of the Site was previously occupied by eight residential properties erected by the Australian Jockey Club in the late 1940s, however these buildings were recently demolished and this portion of the site is currently vacant with the exception of some trees in the south-western corner of the Site.

The Site is currently zoned B5 Business Development. Apart from the Site, there are three pockets of land in the Liverpool local government area zoned B5 Business Development, these are located at:

- **Either side of Viscount Place, Warwick Farm**
The area contains large format retail uses and discount retail stores, including The Grove Homemaker Centre, Fashion Spree and Liverpool Officeworks. It contains some other retail uses such as Dan Murphy's, Subway and Harry's Café De Wheels.
- **Casula** (south of Camden Valley Way)
Businesses include as Costco, Bunnings and Crossroads Homemaker Centre (which includes: The Good Guys, Poco, Freedom and Fantastic Furniture) to name a few.
- **A small pocket at the southern portion of Len Waters Estate**
A Masters store is located here.

In accordance with the Liverpool Local Environmental Plan 2008, the B5 Business Development land use zone has the following objectives, permissible uses and prohibited uses.

Table 3.1. B5 Business Development Zone Objectives, Permissible Uses and Controls

B5 Business Development Zone	
Objectives	<ul style="list-style-type: none"> • To enable a mix of business and warehouse uses, and bulky goods premises that require a large floor area, in locations that are close to, and that support the viability of, centres. • To maintain the economic strength of centres by limiting the retailing of food and clothing. • To provide for a larger regionally significant business development centre in a location that is highly accessible to the region. • To ensure a reasonable concentration of business activity.
Permitted Uses	Building identification signs, bulky goods premises, business identification signs, car parks, child care centres, community facilities, environmental facilities, environmental protection works, flood mitigation works, food and drink premises, garden centres, hardware and building supplies, hotel or motel accommodation, landscaping material supplies, light industries, liquid fuel depots, office premises, passenger transport facilities, places of public worship, plant nurseries, public

B5 Business Development Zone	
	administration buildings, pubs, recreation areas, recreation facilities (indoor), recreation facilities (outdoor), respite day care centres, restaurants or cafes, roads, storage premises, timber yards, vehicle sales or hire premises, warehouse or distribution centres
Prohibited Uses	Any development not specified above.
FSR/Height Control	0.75:1 and 15 metres

Source: Liverpool City Council (2016)

Under the B5 zone objectives, large format retail, bulky goods and commercial uses are permitted to the extent that they support the viability of centres. The next section examines the nature of demand for various land uses to identify uses that might be suitable on the Site.

3.3 MARKET OVERVIEW

3.3.1 Large Format Retail

Trends and Drivers

Large format retailing has evolved in recent years in Australia and incorporates bulky goods and retail showroom uses. It also includes categories such as automotive parts, accessories, repairs and services, camping, outdoor and recreation goods, electric, light fittings, pet supplies, food and window coverings, furniture, bedding, furnishings, fabric, manchester and homewares, household appliances, household electrical goods and home entertainment goods, party supplies, swimming pools, office equipment and supplies, baby and children's play equipment and accessories, hardware and landscape garden supplies, and other items of a bulky nature that require a large area for handling, display or storage, or direct vehicle access to the site or the premises by the public for the purpose of loading goods into a vehicle after purchase or hire.

The development of large format retail/bulky goods/homemaker facilities in Australia has been evolving over time. Initially, large format retail tenants preferred to locate in free-standing facilities along major roads. There has been an increasing trend for large format retail/ homemaker traders to co-locate within one centre or precinct as bulky large format retail/homemaker customers seek to compare products and prices across a range of stores, with all traders benefiting from the creation of a strong destination.

The following factors are driving demand for large format retail uses:

- Growth in real household income levels has meant that retail spending capacity has increased. This has driven activity not just in the retail trade industry but also in the wholesale trade industry which provides support to it.
- Innovation by the retail sector and the introduction of new retail formats has occurred, with the development of various retail typologies since the mid 1980's including super regional and regional shopping centres, homemaker centres and brand outlet centres.
- Online retailing currently comprises around 5%-6% of total retail sales in Australia, and is projected to increase to 12%-14% over the next decade. While the proliferation of online retailing has impacted on the growth of retail floorspace demand, this impact has been particularly notable in certain key categories such as apparel, travel, electronics, etc. Large format retail has been arguably less impacted compared to these other categories.

Market Analysis

Land in the Liverpool LGA which is zoned B5 Business Development and is located in closest proximity to the Site is located along either side of Viscount Place at Warwick Farm. As such, the focus of this analysis will be on this portion of B5 Business Development land. This area contains large format retail uses and discount retail stores, including: The Grove Homemaker Centre, Fashion Spree and Liverpool Officeworks. It contains some other retail uses such as Dan Murphy's, Subway and Harry's Café De Wheels. Our investigations indicate these occupiers are performing well, these outlets attract strong interest local shoppers keen on a bargain. There is only one vacancy in the Grove Homemaker Centre, Shop 27 (700sqm) is currently on the market and is located in the Grove Homemaker Centre, the asking rent is \$400 (net) per week. The marketing agent indicates there is a high level of interest in this shop space from large format retail occupiers. There have been no recent sales observed.

Testament to the desirability of this Precinct is Fashion Spree's opening in early 2016. The family-owned Gazcorp, run by the Gazal group, opened the new-look Fashion Spree centre at Liverpool on the site of the former Orange Grove designer outlet centre. Having sat dormant after some controversy a few years ago, the Gazal family has resurrected the 14,500sqm site to cater for shoppers in greater Western Sydney. Gazcorp director Nicholas Gazal said the new Fashion Spree centre will target all shoppers who have been starved of outlet sites in the western suburbs. Furthermore, he said the store will offer up to 70 per cent off in high quality brands, 13 of which are new to Liverpool, brands will include Mimco, Country Road, Asics and Glue opening their first stores to the area.

Given the limited supply of B5 zone land in the local government area and strong population growth, it is not surprising that this pocket of B5 land is performing well and there is strong demand.

3.3.2 Commercial/Retail

The Liverpool City Centre is a major commercial centre for south-west Sydney, accommodating major institutional and retail occupiers, the Liverpool Courthouse and TAFE NSW. Liverpool is one of Sydney's major medical precincts based around Liverpool Hospital which services a larger portion of residents within Sydney's South West.

Whilst the type of commercial floorspace which could be viable on the Site is different to what is found in the City Centre (traditional office space), it is important to understand the drivers of demand and market activity for contextual purposes.

Drivers of Demand and Market Activity

The Liverpool City Centre property market has overall been performing well, underpinned by demand from professional services such as accountants and solicitors as well as government funded employment agencies, medical uses and education and training colleges.

The A Grade commercial property market in the Liverpool CBD performs well with strong demand for quality floorspace which witnesses capital values of \$4,000/sqm-\$4,500/sqm of floor area. Quality floorspace is scarce in the Liverpool CBD as commercial stock is primarily of B and C Grades which achieve lower capital values upwards of \$3,000/sqm.

Commercial floorspace in the CBD achieves (net) lease rates between \$250/sqm to \$400/sqm depending on the size, location, carparking provisions, amenity and quality of improvements. Good quality space is highly sought after but is restricted in supply.

As the South West region experiences further growth, demand for commercial office space is likely to increase with demand from local services based businesses, government agencies, health and medical specialists and education institutions and colleges. The Liverpool City Centre is well placed to cater to the demand for more commercial office space as it offers an amenity-rich environment which is critical for the viability of new commercial office space.

While demand is present, the feasibility of developing new commercial floorspace is a challenge due to the differential between development cost and value on completion (compare development cost of \$3,000/sqm-\$4,000/sqm to capital values of completed space in the order of \$4,000/sqm).

Demand for retail floorspace in the CBD is primarily focused around core areas in close proximity to Westfield which accommodates anchor tenants such as Myer, Coles, Woolworths, Target, Big W, Best & Less and Event Cinemas as well as a number of supporting retailers.

Retail property performance in Liverpool CBD is directly linked to the ability to leverage synergy of location with Westfield. Those retail units located 'off-pitch' in fringe areas are subject to lower rents and capital values akin to commercial uses, demonstrating the importance of location and position for retail space and viable retail operations.

The core retail area in the CBD is located primarily on Macquarie Street between Westfield (Elizabeth Street) and Moore Street. Anecdotal evidence suggests the area performs strongly anchored by Westfield Liverpool with retail shops around the shopping centre achieving in the order of \$800/sqm to \$900/sqm (net) floor area whilst retail shops located further from Westfield can achieve rents as low as \$300/sqm net which is in line with commercial rents, indicating less retail focus.

3.3.3 Residential

Market Contextual Overview

A major regional hub within South-Western Sydney, Liverpool is located approximately 35km south-west of the Sydney CBD. Liverpool is a regional employment hub with established transportation networks, hospital and medical facilities, educational institutions and large retail centre (Westfield Liverpool). While traditionally a low and medium density housing market, apartment development has increasingly strengthened in recent times with good demand as buyers value the amenity and convenience on offer within the Liverpool CBD.

A range of housing types is observed throughout Liverpool - post-war brick veneer houses, fibro-clad brick cottages, weatherboard houses, double storey brick unit blocks and modern cement rendered pavilion style housing. Modern apartment buildings are typically bulky residential flat buildings typically no more than 6 storeys in height.

While the high-rise market within Liverpool has begun to mature with major projects such as the Paper Mill by Coronation Property and the Pinnacle by EQ Projects, the market is constrained by the affordability considerations of local buyers and competition from similarly priced townhouse and land and house packages within the LGA. Despite this and unlike many other metropolitan markets, development activity within Liverpool has continued to gather pace throughout 2016 and now into 2017.

Liverpool is poised to deliver a total of 5,700 new dwellings over the coming 3-5 years (assuming all projects eventuate into delivery). The overwhelmingly majority of new dwellings are to be high-density apartments, particularly within the Liverpool City Centre. Little low-density housing development is currently observed, however a small contingent of townhouse developments is identified in the development pipeline.

Warwick Farm Market Analysis

According to ABS Census, Warwick Farm contains 29% separate houses, 9% semi-detached/townhouses and 63% flats apartments. The suburb predominately contains family households (61%), followed by single person households (35%) and group households (5%). The suburb of Warwick Farm is divided by the Hume Highway, with most of the R4 zoned land south of the highway and the medium density zone land north of the highway.

Warwick Farm contains good transport links, with Warwick Farm Train Station being located in the suburb (south of the Hume Highway). It should be noted that the portion of the suburb (north of the Hume Highway) does not benefit from the same amenity as the portion to the north of the highway, it is further away from the train station and does not have any retail amenity.

The proximity to Warwick Farm train station is one of the major draw cards for people who live in (or are seeking to live in Warwick Farm). The other key attractor is its proximity to the Liverpool City Centre, which has high amenity associated with retail facilities and employment opportunities. As there is limited retail amenity and employment opportunities in the Warwick Farm suburb, the fact this retail amenity and employment centre is located approximately 2km away is a major attractor.

Marketing agents indicate the residential market in the suburb of Warwick Farm is performing reasonably well, with approximately 20 properties currently on the market, the majority of these are residential apartments (both established and new). Anecdotal evidence suggests that residential apartment product is particularly popular in Warwick Farm (south of the Hume Highway), this is due to the fact that residents benefit from being located in an area, with good rail links and amenity (close by in the Liverpool CBD) without being located in the core of the CBD.

Residential apartment price points are slightly lower in Warwick Farm (\$500,000-\$535,000 for a new two-bedroom apartment) compared to the Liverpool City Centre (\$515,000-\$664,000 for a new two-bedroom apartment) and as such affordability is good. Furthermore, there is strong demand for two and three bedroom apartments as apartment are a popular choice for families in Warwick Farm.

Marketing agents indicate that detached dwellings are tightly held, this reflected by the fact that out of the 20 properties on the market, only 1 is a detached dwelling. There is currently no new development selling off-the-plan in Warwick Farm, however, there are a number of developments in the pipeline (some 1,233 residential apartments and 14 townhouses). This indicates a strong response to demand for residential apartment dwellings. It is envisaged that in time, as the residential apartment market in the Liverpool City Centre matures, Warwick Farm

will capture some of the overflow demand (particularly the area south of the Hume Highway) due to its close proximity Warwick Farm Train Station and the Liverpool City Centre.

3.4 LOCATIONAL SUCCESS FACTORS AND COMPETITIVE ASSESSMENT

In a competitive environment shaped by changing business dynamics, it is increasingly important for locations to understand and continually improve their value proposition to investors/occupiers. The location must understand its competitive position in the market by posing the following question: “What is our ‘product’ and who will this product appeal to?”.

This section investigates the value proposition of the Site from an investor/ occupier’s point of view. Investors and developers are typically customer-led and respond to signals from tenants and business on where they would like to be located. It is necessary to understand location selection factors as these underpin the desirability of the Site.

3.4.1 Large Format Retail

Large format retailers serve broad geographic trade areas due to the nature of goods retailed. As a consequence these retail showrooms are suited to locations that convey the ability for numerous retailers to co-locate and cluster. The co-location of facilities in a single centre/precinct results in a benefit to the consumer as well, with customers preferring to cross shop, in order to compare prices and products more easily. This has been an increasing trend within the Australian retail environment.

Large format retail centres/precincts typically flourish in extremely high profile, main road locations and, therefore, receive excellent exposure to passing traffic and are easily accessible from both a local and regional perspective.

The market analysis demonstrates there is strong demand for large format retail uses in the Liverpool LGA. The Site’s relatively small size and isolated location from other large format retailers does not lend itself to enabling multiple large format retail uses to co-locate and cluster which is critical in order for such uses to be viable.

3.4.2 Commercial Office

Office precincts require ‘critical mass’ in order to facilitate the clustering of services (cafés, drycleaners, child care centre, etc.) that will provide and contribute to worker amenity.

Whilst the market analysis demonstrates there is strong demand for commercial office space (particularly from local services based businesses, government agencies, health and medical specialists and education institutions and colleges), the Site does not offer the scale to encourage redevelopment to accommodate a large scale suburban office precinct as tenants typically require specific market dynamics which attract high profile organisations. Furthermore, it would be difficult for the Site to replicate the built-up environment of the Liverpool CBD in terms of amenity and transport access (public transport), factors which are required for a suburban location to be successful.

There are numerous examples of office buildings developed in isolated locations that have suffered from market resistance and high vacancies. Office buildings at the Site would likely suffer from the same challenges.

3.4.3 Residential

There are a number of residential precincts throughout the LGA. All of these destinations are characterised by common locational factors – a large local resident population and easy access via main road transport. The Site is placed amongst a large immediate population catchment. Additionally, with population set to continue its rapid expansion, there will be considerable future demand for residential floorspace. The Site has the potential to meet some of this need.

Implications for Viable Uses on the Site

Large format retail uses and commercial uses require certain features in order to be competitive and sustainable in the long term. Large format retailers require large sites which allow numerous retailers to co-locate and cluster. Office precincts require critical mass in order to facilitate the clustering of services amenity and transport access (public transport). The Site is challenged on all of the above-mentioned fronts.

In its current form (zoned B5), the Site will likely struggle to be competitive. By virtue of its comparatively isolated location, modest scale, lack of worker amenity, market appeal for large format retail and commercial space is conceivably limited. The viability of the Site in its current form will be predicated on commitment by an anchor tenant (similar to Masters).

The site is located 100m east of Warwick Farm railway station, this station provides regular connections to Campbelltown and Macarthur in the south, Parramatta, Blacktown, Schofields and the north-west growth centres in the west and Sydney CBD in the east. The site is in close proximity to the Liverpool City Centre, being approximately 20-minute walk (1.5km) to the commercial centre and Westfield shopping centre, as a result is in close proximity to amenity. It is also located approximately a 10-15 minute walk (1km) to Liverpool Hospital.

The site is currently in single ownership and vacant providing an opportunity for residential development that will revitalise the area. The site is an island site, bounded by roads on all sides – while this provides significant opportunity to cater for residential development, there are amenity challenges to be overcome.

3.5 FEASIBILITY ANALYSIS

The previous section considered the types of land uses that would be appropriate for the Site, the analysis finding that as a B5 zoned site, due to its modest scale and relative isolation, unless commitment from an anchor tenant can be found the Site will likely struggle to be competitive.

This section seeks to address Council's second question: If the Site were rezoned to R4 High Density Residential, the minimum FSR threshold required for development to be feasible.

The capacity of land to accommodate new dwellings can be thought of as two-fold: planning capacity and market capacity.

- **Planning capacity** (or theoretical capacity) refers to the physical ability of land to be developed, taking into account permissibility under planning framework, environmental and infrastructure constraints, etc.
- **Market capacity** refers to issues of commercial viability - whether pricing levels, development costs, etc. make development a commercial proposition, i.e. if development is financially feasible.

In some instances, constraints to housing supply could be as a result of market capacity, relating to market and economic factors, in which case those impediments are beyond the control of planning authorities.

This section assesses the 'market capacity' of the Site (if it was zoned for residential uses) to be developed and suggests appropriate density controls for the Site.

The Hypothetical Development or Residual Land Value (RLV) approach has been adopted as the method of assessment, utilising development feasibility software Estate Master. The RLV approach involves assessing the value of the end product of the development, allowing for development costs, and making a further deduction for the profit and risk that a developer would require to take on the project.

The Residual Land Value (RLV) can be defined to be the maximum price a developer would be prepared to pay for a site in exchange for the opportunity to develop the site, whilst achieving target hurdle rates for profit and project return. This approach involves assessing the value of the completed product, making a deduction for development costs and further deduction for profit and risk whilst ensuring the development achieves the target project margin and return.

A key metric for development feasibility is land value, which is a 'residual' after all costs and revenues are taken into account. The figure must be of a sufficient amount to encourage the owner to sell and/or displace the current use. In order for development of the Site to be viable, the Residual Land Value must exceed the 'as is' value of the land, i.e. the value of the land in its existing use including all improvements.

Factors Affecting the Financial Feasibility of Development

There are a considerable number of factors affecting the feasibility of individual sites for redevelopment and rarely is a single factor the only cause of poor development feasibility. It is important to understand that urban land is

subject to pressures for redevelopment which directly affect their land values and the feasibility of developing into higher and better uses.

The following are a selection of common factors that affect the feasibility of development.

- **Land Value and Site Assembly**

In order to economically acquire and develop land, the proposed use must translate into a higher value than the existing use including any improvements on it (or 'As Is' value). Development will only occur if the proposed use is valuable enough to displace existing uses. While existing improvements may be dated and due for replacement, in many instances they may still be providing a good level of functional utility and thereby still be relatively valuable.

As a consequence, the acquisition of land can be a high-risk and high-resource activity for developers, particularly in established urban areas where numerous lots have to be amalgamated prior to development.

Where numerous lots are required to be assembled, the payment of incentives over and above market value is often required to incentivise individual landowners. This analysis assumes a 25% premium incentive is necessary for site assembly.

When sites are upzoned to higher densities landowner expectations often increase in tandem, unrealistic landowner expectations can thwart site assembly efforts. In Warwick Farm, analysis of existing-use values demonstrates that not unexpectedly, higher density zones have higher existing-use values.

- **Effective Demand**

Residential markets are diverse. Market acceptance for higher density product is good within most inner suburbs of Sydney, hence end sale prices of the completed product justify the higher cost of construction.

Effective demand, rather than underlying demand, is relevant for development feasibility. The ability of households to pay for housing underpins the type and nature of development the market can respond with.

While market attitudes in the LGA are shifting and smaller residential product is enjoying increasing market acceptance, prices achieved for residential units are nevertheless limited by prices paid for detached dwellings. For example, if a 3 bedroom detached dwelling is available for \$750,000-\$800,000, it is unlikely a 3 bedroom unit will be able to achieve the same level of pricing.

- **Construction Costs**

The cost of construction can increase substantially as buildings become taller. Service requirements will dictate that more lifts will be required so that vertical transportation times are not compromised. Service shafts and fire escapes are correspondingly wider too.

In deciding the amount of capital to apply to a site, i.e. how intensely the site should be developed, developer capital will be applied to the point where incremental revenue is equal to incremental cost.

Table 3.2 outlines the potential cost and revenue differential as buildings become taller in the LGA. For comparison purposes, indicative revenue differential observed in Sydney CBD is also provided.

Table 3.2. Indicative Cost v Revenue Comparison

No. of Storeys	Liverpool (\$/sqm)		Sydney CBD (\$/sqm)	
	Ave. Cost	Ave. Revenue	Ave. Cost	Ave Revenue
<3 storeys	\$1,900	\$6,000	\$1,900	\$12,000
4-7 storeys	\$2,200	\$7,000	\$2,200	\$15,000
7-20 storeys	\$2,800	\$8,000	\$2,800	\$25,000
21-35 storeys	\$3,500	\$10,000	\$3,500	\$30,000

Source: Rawlinsons (2016), RLB (2016), AEC

Tall buildings will only be developed in locations where developers can expect to offset the increased cost of construction (taller buildings and more basement levels) and risk with higher revenue levels. It is therefore no surprise that residential towers are feasible to develop in limited markets, particularly in the Sydney CBD.

- **Planning/Development Controls**

Planning and development controls have the ability to affect feasibility through changes in land use zoning and densities but also through the costs associated with design requirements and securing planning approvals.

Codes for parking, open space, sustainability, etc. all have the ability to influence the cost of development. As an example of the influence of development controls, an increase in density will increase height and cost of construction but may also impact on code-based requirements such as car parking areas.

The cost of code compliance could have a disproportionate impact on cost, e.g. where additional basement parking is required, and could severely undermine the economics/ feasibility of development.

Minimum FSR Threshold

The section carries out generic feasibility testing to assess the minimum FSR threshold required for development at the Site to be feasible. Notional development schemes premised on specific densities and land use types are tested for development feasibility. Note that notional development schemes are not site or capacity tested with urban design/architectural expertise.

Residential Apartment Development

For the purposes of generic feasibility testing the following assumptions are made:

- Assumed Land Cost** (Opportunity Cost of Land)
 The Site (29,400sqm in size) was last sold in 2010 for \$11,050,000. It is conceivable that since then land values have increased. A 5% annual increase was applied to the purchase price to approximate the value of the land today. Using this approach, the value of the land is approximated at \$15.5m (\$528/sqm/site area).
- Notional Development Yield**
 At an FSR of 1:1, a yield of 293 residential apartments results.

Table 3.3. Feasibility Testing of Residential Flat Building

Description	Yield and Performance
Site Area	29,400sqm
Gross Floor Area (FSR 1:1) Development Yield	24,900sqm 293 residential apartments
Development Feasible?	Yes
Residual Land Value (RLV)	\$80,320/per unit/site or \$945/sqm of site area

The RLV at \$945/sqm is higher than the assumed land cost of \$528/sqm of site area. Accordingly, development to an FSR of 1:1 is assessed to be feasible to undertake. This is the threshold at which development is feasible.

We highlight that in the absence of a detailed cost plan or development scheme specifics, generic cost and revenue assumptions are adopted in the feasibility modelling. Should the Site be subject to extraordinary site or technical issues, the assessment could result in a different outcome.

3.6 POTENTIAL USE AND DENSITY OF THE SITE

In its current form, the Site is less competitive due to its small scale and relative isolation. By virtue of its comparatively isolated location, lack of worker amenity, market appeal for bulky goods and office space is conceivably limited.

Large format retailers and commercial uses require certain features in order to be competitive and sustainable in the long term. Retail format retailers require large sites which allow numerous retailers to co-locate and cluster. Office precincts require critical mass' in order to facilitate the clustering of services amenity and transport access (public transport). The Site is challenged on all of the above-mentioned fronts.

The future of the Site is inextricably linked to the future of Munday Street Precinct. Should the horse stabling functions of Munday Street Precinct be viably relocated to the racecourse, opportunities arise for Munday Street Precinct and Lot 1 to collectively deliver a masterplanned outcome that incorporates a range of house types, required urban and retail amenity as well as meet social/community infrastructure need.

Despite the presence of the train station, the general area of South Warwick Farm has not been planned to accommodate higher density residential uses. In this circumstance, the Site will have an important role to play in contributing to the urban amenity of the new community, particularly around the train station. The site is an island site, bounded by roads on all sides – while this provides significant opportunity to cater for residential development, the amenity challenges of a main road (Hume Highway) location are acknowledged.

The feasibility analysis demonstrates that a minimum FSR of 1:1 is required for residential unit development on the site to be feasible. The FSR is significantly less compared to that which the planning proposal lodged for the Site has put forward (FSR 3.5:1). Further testing and analysis would be required however our preliminary findings indicate there would be opportunity for Council to capture some of the value uplift for public benefit, particularly to fund the required infrastructure for a new residential community.

4. PRIDDLE/SCRIVENER STREET PRECINCT

4.1 KEY OBJECTIVES AND APPROACH

The Priddle/Scrivener Street industrial area is a small pocket of industrial land (approximately 25 hectares in area) in the suburb of Warwick Farm in the Liverpool LGA. The industrial area is zoned IN1 General Industrial.

In order to inform precinct planning for South Warwick Farm, i.e. land south of the Hume Highway (including Munday Street Precinct, Lot 1 Governor Macquarie Drive and Priddle/Scrivener Street Precinct) analysis of the Priddle/Scrivener Street Precinct is essential.

The pertinent question for the Priddle/Scrivener Street Precinct is:

- 1 What is the future role and function of the Precinct?
- 2 Should the Precinct be retained for industrial/employment uses?

In order to answer the above question, the Liverpool Industrial Employment Lands Study undertaken by Knight Frank was reviewed to assess how industrial lands in the LGA are performing and in the context of the Priddle/Scrivener Street Precinct. Relying on this information and carrying out our own market investigations, this chapter considers the existing and future role of the Precinct.

4.2 PRECINCT CONTEXT AND LOCATION

The Priddle/Scrivener Street (Warwick Farm) industrial area is a small pocket of industrial land (approximately 25 hectares in area) in the suburb of Warwick Farm in the Liverpool LGA. The industrial area is zoned IN1 General Industrial. In accordance with the Liverpool Local Environmental Plan 2008, the IN1 General Industrial land use zone has the following objectives, permissible uses and prohibited uses.

Table 4.1. IN1 General Industrial Objectives, Permissible Uses and Controls

IN1 General Industrial Zone	
Objectives	<ul style="list-style-type: none"> • To provide a wide range of industrial and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses. • To particularly encourage research and development industries by prohibiting land uses that are typically unsightly or unpleasant. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.
Permitted Uses	Boat sheds, building identification signs, business identification signs, car parks, cemeteries, child care centres, community facilities, crematoria, depots, environmental facilities, environmental protection works, flood mitigation works, freight transport facilities, garden centres, general industries, hardware and building supplies, helipads, heliports, hotel or motel accommodation, industrial training facilities, industrial retail outlets, information and education facilities, kiosks, light industries, liquid fuel depots, mortuaries, neighbourhood shops, passenger transport facilities, places of public worship, public administration buildings, recreation areas, recreation facilities (indoor), recreation facilities (outdoor), respite day care centres, restaurants or cafes, roads, sex services premises, storage premises, take away food and drink premises, transport depots, vehicle body repair workshops, vehicle repair stations and warehouse or distribution centres.
Prohibited Uses	Any development not specified above.
Height Control/Minimum Lot Size	15 metres; 2,000sqm minimum lot size.

Source: Liverpool City Council (2016)

Road access to the Hume Highway via Governor Macquarie Drive and the local street network is available to the Precinct. The local road network to access the Precinct is shared with the adjoining residential area to the north (Munday Street Precinct).

It is understood that a proposed bypass is being considered which would provide direct access from Governor Macquarie Drive directly to the Precinct, the proposed route would run on the eastern side of Rosedale Park so as to avoid the residential area in the north (Munday Street Precinct).

The Precinct is surrounded by a varied mix of land uses including residential and horse stables to the north, the Liverpool Hospital to the west, Georges River to the south and the Liverpool Water Recycling Plant to the east. Also in close proximity is the Warwick Farm Racecourse and the adjacent industrial land (12.8 ha), which is being developed by Stockland (Coopers Paddock) while further to the north is the nearby industrial land of Sappho Road (Warwick Farm North - 16.8 ha), which is home to car dealerships (Peter Warren), Masterton Homes and the Warwick Farm Hometown Centre.

In total, there are 25ha of industrial zoned land within the Precinct, all of which has been developed. Current uses operating at the Precinct include: freight forwarding, warehouse and distribution and packaging and paper manufacturing. There is also a large presence of smaller business located at 29-31 and 33 Scrivener Street which service local residents including auto repairs/mechanics and local construction businesses. The tenant mix identified in the Supplement to Liverpool Industrial Employment Lands Study (2016) is detailed below.

Table 4.2. Priddle/Scrivener Precinct Tenant Mix

Street Address	Business Name	Core function / service
8 Priddle Street	Vacant (previously occupied by Hannanprint)	Vacant (previously occupied by Print/Paper Manufacturing/Packaging)
8 Priddle Street	Vacant (previously occupied by Stockwell International)	Vacant (previously occupied by Freight Forwarding/Transport Solutions)
20 Scrivener Street	Direct Freight Express	Freight Forwarding/Transport Solutions
41 Scrivener Street	Visy	Print/Paper Manufacturing/Packaging
20 Scrivener Street	Tru Blue Beverages	Wholesale Seller
29-31 Scrivener Street	MTA Autoparts	Automotive Repairs
29-31 Scrivener Street	BT Constructions	Construction
29-31 Scrivener Street	T&T Kitchens and Shop fitting	Construction
29-31 Scrivener Street	Evolution Auto Repairs	Automotive Repairs
29-31 Scrivener Street	TNN Kitchens	Construction
29-31 Scrivener Street	Colours Unlimited	Automotive Repairs
29-31 Scrivener Street	SMW Built-in Wardrobes	Construction
29-31 Scrivener Street	Head2work	Rehabilitation Service
29-31 Scrivener Street	Enterpraise	N/A
29-31 Scrivener Street	All Auto Spares	Automotive Repairs
29-31 Scrivener Street	GMN Smash Repairs	Automotive Repairs
29-31 Scrivener Street	Viman Smash Repairs	Automotive Repairs
29-31 Scrivener Street	Food Storage/Preparation	Food Wholesaling
33 Scrivener Street	28 Gate Christian Centre	Religion
33 Scrivener Street	Modern Design Wardrobes	Construction
33 Scrivener Street	W.F. Plastics	Packaging/Cleaning Supplies
33 Scrivener Street	Embroidery House	Embroidery/Clothing Retailing
33 Scrivener Street	Cabinetry	Furniture Manufacturer
33 Scrivener Street	Anavada Upholstery	Furniture Manufacturer
33 Scrivener Street	Dry Cleaners	Clothing
42 Scrivener Street	Gamma Illumination	Lighting Manufacturer
48 Scrivener Street	HY Quest Solutions	Hydrological/Meteorological Manufacturing

Source: Knight Frank (2016)

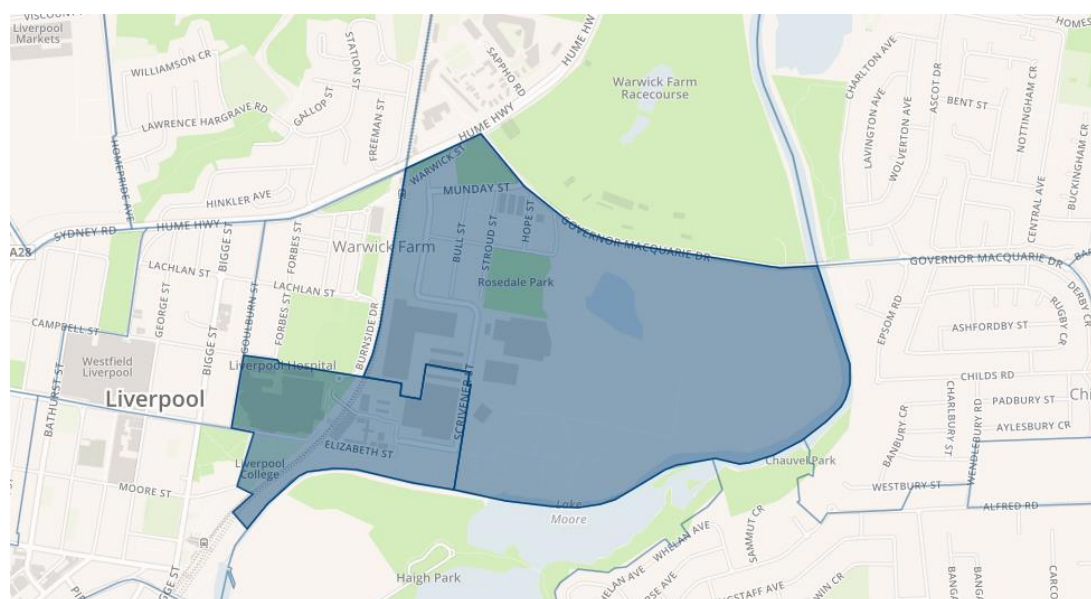
4.3 PROFILE OF THE PRECINCT

4.3.1 Employment Profile

In order to better understand employment and activities occurring in the Precinct over the 2006-2011 period, Bureau of Transport Statistics (BTS, 2014) data was examined using statistical geographic boundaries of Travel Zones.

The Precinct traverses two travel zones (3841 and 3840), these travel zones cover a larger area than the Precinct. The travel zones are represented in **Figure 4.1**.

Figure 4.1. Priddle/Scrivener Precinct Travel Zone Definition



Source: NSW BTS (2017)

Table 4.3. Employment by Industry, 2006 – 2011 (19 Sector – 1 Digit ANZSIC)

Industry	2006		2011		Change 06-11	
	No.	% of Total	No.	% of Total	No.	%
Agriculture, Forestry and Fishing	9	0.2%	15	0.3%	6	62%
Mining	0	0.0%	0	0.0%	0	-100%
Manufacturing	612	11.6%	434	7.5%	-177	-29%
Electricity, Gas, Water and Waste Services	42	0.8%	32	0.5%	-10	-25%
Construction	234	4.4%	254	4.4%	20	9%
Wholesale Trade	31	0.6%	38	0.7%	7	22%
Retail Trade	103	1.9%	106	1.8%	3	3%
Accommodation and Food Services	60	1.1%	84	1.4%	25	41%
Transport, Postal and Warehousing	353	6.7%	366	6.3%	13	4%
Information Media and Telecommunications	3	0.1%	4	0.1%	1	37%
Financial and Insurance Services	0	0.0%	0	0.0%	0	-100%
Rental, Hiring and Real Estate Services	0	0.0%	0	0.0%	0	-100%
Professional, Scientific and Technical Services	48	0.9%	39	0.7%	-9	-19%
Administrative and Support Services	56	1.1%	68	1.2%	13	22%
Public Administration and Safety	45	0.9%	65	1.1%	20	44%
Education and Training	210	4.0%	283	4.9%	72	34%
Health Care and Social Assistance	3,300	62.6%	3,823	65.7%	523	16%
Arts and Recreation Services	150	2.8%	185	3.2%	35	23%
Other Services	18	0.3%	19	0.3%	1	7%
Total	5,274	100.0%	5,815	100.0%	540	10.2%

Source: NSW BTS (2014)

In 2011, the Precinct contributed to 9% of total employment in the Liverpool LGA (61,595). While the majority of employment in the Precinct is in the manufacturing and transport, postal and warehousing sector, the broader LGA has a much more diverse economy than the Precinct.

In 2011, the Precinct employed 5,274 employees with around 7.5% of these employed in manufacturing and 6.3% in transport, postal and warehousing and 4.4% in construction. The table demonstrates a higher proportion of health care and social assistance and education and training - these employment uses are not associated with the Precinct itself, they are associated with Liverpool Hospital which is captured in the travel zones as well.

Table 4.4. Journey to Work Data

LGA	Workers	% of Workers
Liverpool	258	33.2%
Fairfield	115	14.8%
Campbelltown	88	11.3%
Blacktown	71	9.1%
Canterbury-Bankstown	58	7.5%
Cumberland	33	4.2%
Parramatta	17	2.2%
Inner West	16	2.0%
Penrith	16	2.0%
Sutherland Shire	16	2.0%
Rest of NSW	87	11.2%
From outside NSW	3	0.4%
Total	778	100.0%

Source: NSW BTS (2014)

In order to understand where employees in the Precinct live, BTS Journey to Work data was analysed. The analysis shows the majority of workers are local residents who reside in the Liverpool LGA (33%), followed by the nearby local government areas of Fairfield (14.8%) and Campbelltown (11.3%).

4.3.2 Market Profile

Trends and Drivers

A broad spectrum of factors influences industrial activity in the Precinct and Liverpool LGA. While some of these are internal factors over which the local area have control, many are not. Significant influences on industrial activity come from outcomes at the broader global and national levels. Understanding the broader context in which Liverpool's industrial sector operates is essential in understanding future demand for industrial lands.

The following factors have significant implications for industrial activity and likely influence the demand for local industrial land:

- Increasing size of Distribution Centres and Warehouse Facilities**
 This has become a defining feature of the modern industrial market. Some estimates suggest that the average floor space of new large format industrial facilities has increased by around 30% in recent years. These larger formatted or supersized facilities are clearly visible in the transport infrastructure industrial markets – a clear indication of the strong demand for logistics space in more densely populated areas and corridors.
- Construction and Design**
 This includes; higher internal clearances (+10m), concrete tilt panel construction, full early suppression fast response sprinkler systems, all weather awning spaces, A grade office areas with complete amenities, multiple container height roller doors and loading docks, B-double access with heavy and light duty pavement, large hardstand areas for truck turning and container handling. Modern facilities are also increasingly located in precincts which feature 24/7 zoning.
- Automation**
 The digital revolution is enabling an increasing preference towards automation of all types of industrial processes. Advances in ICT is facilitating innovation in warehousing practices. Traditionally employing thousands of workers, digital picking, sorting and retrieval systems and GPS technologies are making thousands of traditional transport and storage industry jobs obsolete. Such technologies are employed as a response to demand side pressures resulting from growth in e-commerce.
- Strategic Sites**
 The demand for industrial land in transport infrastructure rich locations is evident. Transactions by notable logistics specialists have highlighted the significance of these locations in recent years actively leasing or purchasing facilities in key locations. Proximity to workforce is also an important consideration for the selection of strategic industrial locations.

- **Small Industrial Units**

Due to strong population growth, there has been strong demand for smaller industrial units (used by mechanics, builders etc). In some instances, these small industrial units include co-located warehouse and ancillary office space. These are generally located in highly populated urban areas.

- **Conversion of Older Industrial Property**

Industrial land and asset sales in the Sydney industrial market have been fuelled by land rezoning which are transitioning industrial areas towards a mixed-use, residential future. The significant rise in residential value has provided a compelling reason for owner-occupiers to sell their industrial assets and realise capital appreciation.

Major Projects and Catalytic Infrastructure

A number of major projects and catalytic infrastructure items will drive growth and investment in South West Sydney. These include the development and future operation of the Moorebank Intermodal Terminal, the second airport at Badgerys Creek, progress of South West Priority Growth Area and Council's plans for revitalisation of the Liverpool CBD.

- **Moorebank Intermodal Freight Precinct**

Sydney's freight handling capacity is increasingly constrained by a heavily congested road network hence the need for more containerised freight to be moved by rail. The Moorebank intermodal freight precinct means the number of containers travelling by road between Port Botany and west/south west Sydney will only grow to 11,000 a day by 2040, rather than 14,000.

The Moorebank intermodal freight precinct will include facilities for transferring interstate freight between rail and road. Interstate containerised freight moves a wide range of goods around Australia; including agricultural produce, groceries, consumer goods and manufactured materials. The intermodal facility will be supported by approximately 300,000sqm of warehousing and up to 8,000sqm of commercial and retail services facilities.

It will enable containers moving between Port Botany and south-west Sydney to undertake much of their journey by rail. This will reduce the projected growth in road freight traffic from Port Botany, with up to 3,000 fewer truck journeys to and from Port Botany a day, which equates to 60,000 fewer kilometres travelled by import-export freight trucks on Sydney roads each day. This reduction in truck travel will reduce the growth in congestion across the Sydney network, reduce travel times, and increase the reliability of trip duration.

The Moorebank intermodal freight precinct is also expected to reduce the amount of interstate freight being transferred by truck through Sydney's roads and on the national highway network.

As many as 7,700 jobs are expected to be created as a result of the Moorebank intermodal freight precinct. Development of the intermodal freight precinct will also create jobs in the broad range of industries that service the terminal and its staff. These industries range from construction suppliers to retail, financial services, food outlets and health services.

- **Western Sydney Airport and Supporting Infrastructure**

The Western Sydney Airport has the potential to create anywhere from 11,000-12,000 or up to 35,000 jobs by 2035. State Government projections even estimate up to 60,000 jobs in the longer term.

The Australian and state government launched the \$3.6 billion western Sydney infrastructure programme. Through the construction of over 61,000km of new and upgraded roads, the plan will significantly increase connectivity between Badgerys Creek and the neighbouring areas in the south west, including Liverpool.

Additionally, the Westconnex motorway scheme, which is currently under construction and forecast to be completed in 2023, will enhance vital links between west and central Sydney. Spanning, 33,000km, the new road network will reduce driving time between Liverpool and central Sydney.

- **South West Priority Growth Area**

The South West Priority Growth Area (SWGC) is approximately 17,000ha in size and straddles the local government areas of Liverpool, Camden and Campbelltown. There are 18 precincts within the SWGC, some of which have been released and rezoned.

Several major employment hubs are located just outside the SWGC including Liverpool and Campbelltown CBDs which incorporate major hospital and retail precincts. The Liverpool LGA is a key employer for residents in the SWGC. In 2011 almost 30% of SWGC residents worked in Liverpool LGA (BTS, 2012).

The continued progress of released and rezoned precincts in the SWGC will undoubtedly have implications for increased demand for more local employment, particularly in the Liverpool LGA.

- **Liverpool City Centre Revitalisation**

Council is currently working on a planning proposal for the City Centre, which proposes altering the zoning applying to the Liverpool City Centre to permit increased mixed-use development. The rezoning will encourage greater levels of residential development, which in turn will result in population growth and demand for retail, commercial and industrial floorspace. In particular, strong population growth will result in demand for local urban services e.g. mechanics, smash repairers etc.

Market Appeal to Occupiers

The Precinct is comprised of a high proportion of secondary industrial stock. The Precinct has a high occupancy rate with just two warehouses (4,000sqm and 6,500sqm in size) on the market. These warehouses are located at 2-8 Priddle Street, the asking rent is \$75/sqm for both warehouses.

Market activity in the light industrial sector is evolving with businesses increasingly gravitating towards newer premises given the associated operational efficiencies. While larger occupiers, particularly within transport, postal and warehousing sub-sectors have relocated to more suitable sites along key road and transport networks (Prestons, Eastern Creek etc.) from established locations, smaller businesses who service the local population will still require to be located close to residents.

An example of this is Hannanprint (Print/Paper Manufacturing/Packaging) and Stockwell International (Freight Forwarding/Transport Solutions) who were previously located at 8 Priddle Street and have since relocated. The main issues with these warehouses is the low clearance levels and poor truck access to and from the Precinct. The marketing agent indicated that despite the roads being approved for B-doubles by the RMS, Governor Macquarie Drive is only a one-way street and a B-double truck on this road takes up about 60% of the road.

Despite the challenges of road access, marketing agents have indicated that local auto repairs/mechanics and warehousing who service the local population are still highly represented in the Precinct and performing well. The above analysis indicates that moving forward the Precinct has a role to play in providing local support services (i.e. mechanics and construction businesses) as well as accommodating urban logistics occupiers (e.g. food and beverage manufacturing and distribution) that service the South West region of Sydney.

Despite its location adjacent to the Liverpool Hospital precinct, there does not appear to be obvious synergy with the hospital precinct, with businesses who seek to locate in the Precinct generally unconnected to activity in the hospital precinct.

4.4 LOCATIONAL SUCCESS FACTORS

There are two main types of industrial occupiers, these include: large format industrial and smaller format industrial. Large format industrial uses require large parcels of land (e.g. minimum 5ha) and usually attract large freight and logistics occupiers. Many of these occupiers are observed at Eastern Creek and Erskine Park.

Smaller format industrial uses typically occupy industrial strata units, high-tech industrial and warehouse/ storage facilities. These businesses typically play a local service role as well as a 'Last Mile' logistics function. Further analysis of each is detailed below.

Large Format Industrial

New industrial development that requires large land parcels (e.g. minimum 5ha) in order to facilitate the large scale nature of the warehouses and distribution centres required as well as sufficient hardstand space to move containers and trucks. Additionally, easy access to major highways is critical for these types of logistics operations. Large format industrial users need to be located in an area that has direct access to major motorways and is well buffered from residential uses.

The Precinct lacks the sufficient size and direct access to major highways to be appealing to this market segment. The Precinct is also not well buffered from residential, with an adjoining residential area located to the north of Precinct. Areas such as Eastern Creek, Erskine Park and the broader Outer West and South West are much more suitable and competitive for these uses.

Smaller Format Industrial

Smaller format industrial users typically occupy industrial strata units, high-tech industrial and warehouse/storage facilities. Smaller format industrial users require the following features in order to be competitive and sustainable in the long term. These factors include:

- Unrestricted access to arterial road network to be able to service key customer catchments.
- Location close to population growth to enable critical response times and access by customers, suppliers and workers alike.
- Ability to operate in a conflict-free environment (e.g. unrestricted truck access and sufficiently buffered from residential).
- Generic buildings that can be easily re-purposed following relocation of occupiers.
- Critical mass of lands to enable clustering activity of businesses.

The Precinct benefits from the above-mentioned characteristics, although the Precinct is not completely conflict-free, with residential land uses immediately to the north of the Precinct. Furthermore, the Precinct does not have direct access off a major arterial corridor.

4.5 FUTURE OF THE PRIDDLE/SCRIVENER STREET PRECINCT

The Precinct is generally well occupied, catering to a local service need. While manufacturing activity declined over the 2006-2011 period, the Precinct experienced growth in transport logistics and local service-based businesses.

Market investigations demonstrate the Precinct generally enjoys good market appeal. That said, the difficulty of access to and from the Precinct detracts from its central location within Liverpool and the South West region. If the issue of road access is left unaddressed, it is conceivable that market interest will decline as other locations that offer better vehicle access are available.

A new bypass that provides direct access from Governor Macquarie Drive directly to the Precinct along the eastern side of Rosedale Park would vastly contribute to the appeal and sustainability of the Precinct for industrial uses.

The Precinct has an important role to play in providing local urban services (i.e. mechanics and construction businesses) and facilitate urban logistics as market penetration for online retail continues to increase. As the population of Liverpool and the South West region grows, so too will the need for urban services to support the population's needs.

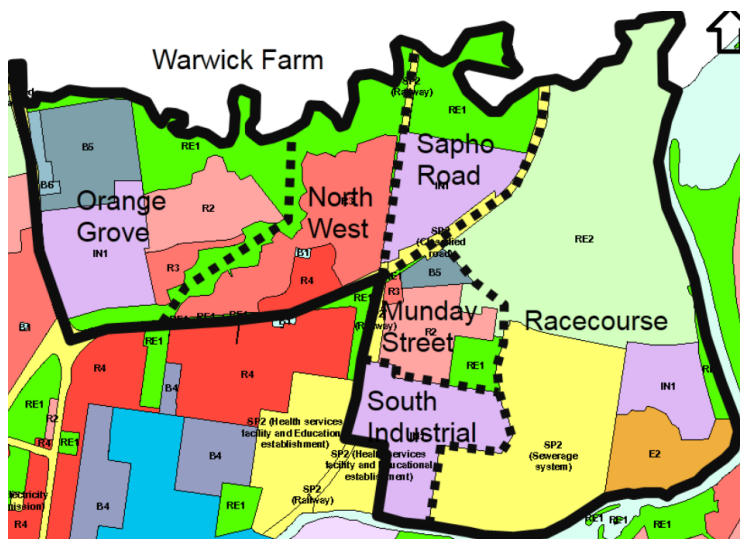
Notwithstanding the importance of the Precinct's role, key to the Precinct being sustainable in the long term will be implementation of the proposed Manning Street bypass that facilitates direct access to and from Governor Macquarie Drive.

5. PLANNING SCENARIO ANALYSIS

5.1 BUSINESS-AS-USUAL

In the Business-as-usual scenario, each component precinct within South Warwick Farm remains in their existing use, as depicted in Figure 5.1.

Figure 5.1. South Warwick Farm Precinct Components



Source: LCC

Implications for each of the precinct components are detailed:

- **Munday Street Precinct**

This residential area (zoned R2) currently functions as a defacto horse stabling facility for horses who train and race at Warwick Farm Racecourse. Owing to its location just adjacent to the racecourse, it provides horse trainers with the close proximity required for training and racing.

Despite the valuable location of this precinct close to the racecourse, there are a number of safety concerns particularly with respect to horses commuting to and from the racecourse on roads shared with passenger vehicles, heavy trucks and pedestrians.

- **Lot 1 Governor Macquarie Drive**

This site was originally rezoned to B5 to enable Masters to operate a home improvement centre. Following the exit of Masters from the large format retailing scene, a residential use is now proposed for the vacant site.

The site is relatively small in scale and offers limited opportunity for large format retailers to cluster/co-locate. Unless commitment from an anchor large format retail tenant can be secured, it is conceivable the Site will face market resistance owing to its less desirable location and site characteristics.

- **Priddle/Scrivener Street Precinct**

The industrial precinct (currently zoned IN1) is not suited to large format industrial users as it does not provide unrestricted access for large trucks. Current road access is via narrow roads and through the residential/horse stabling area of Munday Street. Many large format industrial users have located to industrial areas such as Prestons and Eastern Creek where heavy vehicle access is unrestricted and efficient. Consequently, the Precinct has experienced a number of departures by tenants whose road access needs are not met.

Notwithstanding the heavy vehicle access challenges, the Precinct continues to play an important role by accommodating service-based businesses as well as urban logistics businesses, both of whom respond to population growth.

Being an established industrial area (and with many older style buildings), it is conceivable that the Precinct will be at risk of being uncompetitive in time (as buildings age and road access continues to be challenged).

The next section considers planning interventions that may help address some of the current challenges in each precinct component.

5.2 PLANNING INTERVENTIONS AND SCENARIOS

Owing to the important role played by the Priddle/Scrivener Street industrial precinct, all planning scenarios envisage retention of the area for general industrial uses (i.e. retaining the IN1 General Industrial zone). Various planning interventions are considered for Munday Street Precinct and Lot 1 Governor Macquarie Drive.

5.2.1 Residential Uses

This scenario considers the potential for Munday Street Precinct and Lot 1 Governor Macquarie Drive to be rezoned for residential uses (e.g. R3 or R4 zone).

Relocation of Munday Street's horse stabling functions to new facilities at the racecourse is critical to this scenario. Should this not be possible (for example if ATC's new stabling facilities not eventuate into delivery) and without horse stabling accommodation at Munday Street Precinct there is a risk future patronage and utilisation rates at the Warwick Farm Racecourse would significantly fall.

Key to the viability of this scenario is for the 'new' residential areas required to co-exist and operate alongside the industrial precinct in the south. If not managed appropriately, land use conflicts between the new residential uses and existing industrial uses could threaten the viability and market appeal of both precinct components.

5.2.2 Employment Uses

This scenario considers the potential for Munday Street and Lot 1 Governor Macquarie Drive to be rezoned for employment uses (e.g. B5 or IN1 zone).

This scenario is also predicated on the relocation of Munday Street's horse stabling functions to new facilities at the racecourse. Similar to the residential scenario, should for any reason the proposed stabling facilities at the racecourse not eventuate into delivery, a change of use at Munday Street Precinct could risk future patronage and utilisation rates at the Warwick Farm Racecourse.

The 'new' employment areas would also be required to co-exist and operate alongside the industrial precinct in the south. The potential for land use conflicts is likely to be less compared to the residential scenario in section 5.2.1.

Key to the viability of this scenario is whether a change in use from residential (R2) in Munday Street Precinct to employment (B5 or IN1) is commercially feasible and would facilitate meaningful change.

5.3 WEIGHING-UP THE SCENARIOS

In evaluating each of the planning scenarios, we have considered economic and market factors that ultimately underpin the viability of new land uses.

Residential Uses

Market appetite and acceptance of higher density residential product has grown significantly over the last five years in Liverpool. The amenity-rich environment of the Liverpool City Centre offers an attractive value proposition to people seeking a convenience lifestyle. While there has been notable price growth in apartment prices in the City Centre, there are other areas in Liverpool LGA that do not have as wide market acceptance for higher density living.

Notwithstanding a shift in market attitudes in favour of high density living, many areas are still observed to have a preference for larger housing formats particularly where there are high numbers of new immigrants with large families.

A rezoning of Munday Street Precinct and Lot 1 Governor Macquarie Drive to permit a mix of residential densities should be predicated on the ability of the horse stabling function to be relocated and accommodated on the Racecourse. This is important for three key reasons:

- **Economic contribution of horse stabling precinct**

Economic modelling indicates the contribution Munday Street Precinct makes to the Liverpool LGA is significant - supporting 238 jobs (direct and indirect) and approximately \$20.3m in Gross Regional Product each year, and paying \$11.9m in wages and salaries.

A relocation of horse stabling to the racecourse would allow the economic contribution of Munday Street Precinct to be retained within the Liverpool LGA.

- **Viability of Warwick Farm Racecourse**

Should the Munday Street Precinct be rezoned independent of the delivery of new horse stabling facility at the racecourse, there is a risk that utilisation rates at the racecourse will decline, thereby resulting in economic loss for the Liverpool LGA.

Many respondents to the survey indicated that availability of horse stabling facilities in close proximity to the racecourse is essential in their decision to continue training and racing at Warwick Farm.

- **Value released from rezoning**

As a major landowner in Munday Street Precinct, it is understood that ATC plan to leverage value that may be released from its landholdings following a rezoning to permit higher density residential uses.

A critical requirement that underpins this scenario is implementation of alternate access to Priddle/Scrivener Street Precinct that bypasses the new residential area.

Residential and industrial uses do not mix. In order for both precincts to be viable and have market appeal, there needs to be provision for separate access and unimpeded access to the industrial precinct.

Existing-use values in Munday Street Precinct and Lot 1 Governor Macquarie Drive are at levels that facilitate even a modest increase in residential density. A rezoning to permit higher densities accompanies an opportunity for Council to require contributions to public benefit as part of a planning proposal. Contributions could include amenity and infrastructure items for the new residential precinct as well as to fund the Manning Street bypass.

While the rezoning of Lot 1 Governor Macquarie Drive to permit residential uses would *theoretically* result in the 'loss of employment land', the nature of its location and scale makes it challenging to establish a viable cluster of large format retail uses. Potentially some local convenience retail and supporting commercial space could be considered at this location (intersection of Manning Street, Warwick Street and Munday Street) as part of wider masterplanning for a new residential precinct.

Employment Uses

This scenario envisages the rezoning of Munday Street Precinct to B5 Business Development, IN1 General Industrial or a combination of both. Similar to the residential scenario, this scenario is predicated on the relocation of Munday Street Precinct's horse stabling function to the racecourse.

If realised, a rezoning to employment uses would effectively eliminate any land use conflicts between the existing industrial, residential and horse stabling activities. There would accordingly be a less compelling case to progress and implement the Manning Street bypass.

There are two key risks associated with this scenario:

- **No incentive for land use change**

Property values in Munday Street Precinct (as an R2 zone) are higher than values in a B5 zone or IN1 zone. Despite a change in land use zone, it is likely that properties will remain in their existing use by virtue of existing-use rights.

A change in land use zone is therefore likely to be a theoretical exercise, effecting little change on-ground.

- **Ability to leverage value from residential rezoning**

As a major landowner in Munday Street Precinct, it is understood that ATC plan to leverage value that may be released from its landholdings following a rezoning to permit higher residential uses. Should Munday Street Precinct be rezoned to B5, IN1 or both, this opportunity would not exist for ATC to cross-fund the new development at the racecourse.

Summary

The potential relocation of Munday Street Precinct's horse stabling facility to new stabling facilities at the Warwick Farm Racecourse raises questions about its future use and role.

A rezoning to permit higher density residential uses would:

- Optimise use of a residential area that is located proximate to a train station.
- Present an opportunity to masterplan the collective Munday Street Precinct and Lot 1 Governor Macquarie Drive to deliver local and convenience amenity close to the train station, required social and community infrastructure and a diverse range of housing formats.
- Release value to assist in delivery of new stabling facility at racecourse.
- Present opportunity for Council to receive contributions to fund required infrastructure by capturing some of the uplift in land value following the rezoning to higher densities.
- Assist delivery of new Manning Street bypass from contributions received.

Key disadvantages to a residential rezoning scenario are:

- Loss of B5 zoned land. This 'loss' is conceivably a theoretical loss as the Site is challenged by virtue of its location and scale to accommodate a viable large format cluster. A mitigating factor to this would be the masterplanning of the new residential precinct to allow for local amenity, commercial and civic uses close to the train station, which new residents would otherwise have to travel to Liverpool City Centre for.
- Unless land use conflicts between residential and industrial uses are addressed (e.g. with implementation of a bypass that separates trucks and residential traffic), a rezoning to permit higher density residential will only exacerbate the conflicts.

A rezoning to facilitate employment uses at Munday Street Precinct would sandwich the precinct between two employment areas - Lot 1 Governor Macquarie Drive (zoned B5) and Priddle/Scrivener Street Precinct (zoned IN1) is a logical land use scenario.

In practical terms, the employment rezoning scenario is unlikely to result in meaningful outcomes as existing-uses (low density residential) are generally more valuable than potential B5 or IN1 lands. In the main, it is conceivable that most properties will remain in their existing use (potentially even retaining horse stabling), there being little incentive for landowners to change or redevelop. As a consequence, land use conflicts will arguably still present between existing residential uses and industrial uses at Priddle/Scrivener Street Precinct.

A bypass road solution could still be required to address safety risks and amenity issues. 'New' employment uses are unlikely to be able to contribute to public benefit considering there is unlikely to be any 'value uplift' to the lands in Munday Street Precinct, rather a value decrease.

In conclusion, provided the horse stabling functions of Munday Street Precinct can be successfully and viably relocated to the racecourse, the rezoning of the Precinct to allow for a range of residential densities and formats would present an opportunity to deliver a masterplanned outcome that incorporates a range of housing formats, required urban amenity and commercial support services, as well as meet social/community infrastructure need.

Despite the presence of the Warwick Farm train station, the Precinct is not currently planned to accommodate higher density residential uses. Comprehensive land use planning will be required to unlock the Precinct's potential for a new community.

Resolution of road access and conflicts between different road users (residents and employment uses) is critical to ensuring any new residential community and the existing industrial precinct are viable and sustainable.

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APPENDIX A: INPUT-OUTPUT METHODOLOGY

INPUT-OUTPUT MODEL OVERVIEW

Input-Output analysis demonstrates inter-industry relationships in an economy, depicting how the output of one industry is purchased by other industries, households, the government and external parties (i.e. exports), as well as expenditure on other factors of production such as labour, capital and imports. Input-Output analysis shows the direct and indirect (flow-on) effects of one sector on other sectors and the general economy. As such, Input-Output modelling can be used to demonstrate the economic contribution of a sector on the overall economy and how much the economy relies on this sector or to examine a change in final demand of any one sector and the resultant change in activity of its supporting sectors.

The economic contribution can be traced through the economic system via:

Direct impacts, which are the first round of effects from direct operational expenditure on goods and services.

Flow-on impacts, which comprise the second and subsequent round effects of increased purchases by suppliers in response to increased sales. Flow-on impacts can be disaggregated to:

- **Industry Support Effects** (Type I), which represent the production induced support activity as a result of additional expenditure by the industry experiencing the stimulus on goods and services in the intermediate usage quadrant, and subsequent round effects of increased purchases by suppliers in response to increased sales.
- **Household Consumption Effects** (Type II), which represent the consumption induced activity from additional household expenditure on goods and services resulting from additional wages and salaries being paid within the economic system.

These effects can be identified through the examination of four types of impacts:

Output: Refers to the gross value of goods and services transacted, including the costs of goods and services used in the development and provision of the final product. Output typically overstates the economic impacts as it counts all goods and services used in one stage of production as an input to later stages of production, hence counting their contribution more than once.

Gross product: Refers to the value of output after deducting the cost of goods and services inputs in the production process. Gross product (e.g., Gross State Product) defines the true net contribution and is subsequently the preferred measure for assessing economic impacts.

Income: Measures the level of wages and salaries paid to employees of the industry under consideration and to other industries benefiting from the project.

Employment: Refers to the part-time and full-time employment positions generated by the economic shock, both directly and indirectly through flow-on activity, and is expressed in terms of full-time equivalent (FTE) positions.

Input-Output multipliers can be derived from open (Type I) Input-Output models or closed (Type II) models. Open models show the direct effects of spending in a particular industry as well as the indirect or flow-on (industrial support) effects of additional activities undertaken by industries increasing their activity in response to the direct spending.

Closed models re-circulate the labour income earned as a result of the initial spending through other industry and commodity groups to estimate consumption induced effects (or impacts from increased household consumption).

MODEL DEVELOPMENT

Multipliers used in this assessment are derived from sub-regional transaction tables developed specifically for this project. The process of developing a sub-regional transaction table involves developing regional estimates of gross production and purchasing patterns based on a parent table, in this case, the 2013-14 Australian transaction table (ABS, 2016).

Estimates of gross production (by industry) in the study area were developed based on the percent contribution to employment (by place of work) of the study area to the Australian economy (ABS, 2012), and applied to Australian gross output identified in the 2013-14 Australian table.

Industry purchasing patterns within the study area were estimated using a process of cross-industry location quotients and demand-supply pool production functions as described in West (1993).

Where appropriate, values were rebased from 2013-14 (as used in the Australian National Input-Output transaction tables) to 2016 values using the Consumer Price Index (ABS, 2017).

MODELLING ASSUMPTIONS

The key assumptions and limitations of Input-Output analysis include:

Lack of supply-side constraints: The most significant limitation of economic impact analysis using Input-Output multipliers is the implicit assumption that the economy has no supply-side constraints, so the supply of each good is perfectly elastic. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.

Fixed prices: Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using Input-Output multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. The system is in equilibrium at given prices, and prices are assumed to be unaffected by policy and any crowding out effects are not captured. This is not the case in an economic system subject to external influences.

Fixed ratios for intermediate inputs and production (linear production function): Economic impact analysis using Input-Output multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. That is, the input function is generally assumed linear and homogenous of degree one (which implies constant returns to scale and no substitution between inputs). As such, impact analysis using Input-Output multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. However, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount. Further, it is assumed each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies there is only one method used to produce each commodity and that each sector has only one primary output.

No allowance for economies of scope: The total effect of carrying on several types of production is the sum of the separate effects. This rules out external economies and diseconomies and is known simply as the “additivity assumption”. This generally does not reflect real world operations.

No allowance for purchasers’ marginal responses to change: Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.

Absence of budget constraints: Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.

Despite these limitations, Input-Output techniques provide a solid approach for taking account of the inter-relationships between the various sectors of the economy in the short-term and provide useful insight into the quantum of final demand for goods and services, both directly and indirectly, likely to be generated by a project.

In addition to the general limitations of Input-Output Analysis, there are two other factors that need to be considered when assessing the outputs of sub-regional transaction table developed using this approach, namely:

It is assumed the sub-region has similar technology and demand/ consumption patterns as the parent (Australia) table (e.g. the ratio of employee compensation to employees for each industry is held constant).

Intra-regional cross-industry purchasing patterns for a given sector vary from the national tables depending on the prominence of the sector in the regional economy compared to its input sectors. Typically, sectors that are more prominent in the region (compared to the national economy) will be assessed as purchasing a higher proportion of imports from input sectors than at the national level, and vice versa.

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BRISBANE

Level 5, 131 Leichhardt Street
Spring Hill QLD 4000
Australia
T: +61 (0)7 3831 0577

MELBOURNE

Level 13, 200 Queen Street
Melbourne VIC 3000
Australia
T: +61 (0)3 8648 6586

SYDNEY

Level 14, 25 Bligh Street,
Sydney NSW 2000
Australia
T: +61 (0) 2 9283 8400

BANGKOK

2024/129-130 Sukhumvit 50
Prakanong Klongtoey,
Bangkok, Thailand 10260
T: +66 2 107 0189

DARWIN

Level 1, 48-50 Smith Street
Darwin NT 0800
Australia
T: 1300 799 343

PERTH

Level 2, 580 Hay Street
Perth WA 6000
Australia
T: +61 (0) 8 6555 4940

TOWNSVILLE

233 Flinders Street East
Townsville QLD 4810
Australia
T: +61 (0)7 4771 5550

SHANGHAI

46F Hongkong New World Tower
300 Huahai Road Central
200021 China
T: +8621 6135 2310

aecgrouppltd.com

OUTCOME DRIVEN

