Hi planning.implementation@delwp.vic.gov.au  

There has been a submission on Planning for Melbourne’s Industrial and Commercial Land through Engage Victoria  

A copy of the submission is provided as below:

Planning principles and strategies for employment land.

The draft Melbourne industrial and commercial land use plan includes principles and strategies to guide planning for industrial and commercial land. (page 32).

Do you think the principles and strategies provide enough clarity and guidance to assist planning for industrial and commercial land?

If no, please let us know why and how they could be improved.
Criteria to identify regionally-significant industrial precincts.

Plan Melbourne identifies state-significant industrial precincts. The draft Melbourne industrial and commercial land use plan identifies regionally-significant industrial precincts and includes criteria used as the basis to identify these locations (page 34).

Do you support the criteria developed to identify regionally-significant industrial precincts?

If no, please let us know why and how they could be improved.

Purpose for regionally-significant industrial precincts and local industrial precincts.

Plan Melbourne outlines a purpose for state-significant industrial precincts. The draft Melbourne industrial and commercial land use plan identifies a purpose for regionally-significant industrial precincts and local industrial precincts (page 35).

Do you support the purpose developed for regionally-significant industrial precincts and local industrial precincts?

If no, please let us know why and how they could be improved.

Developing local industrial land use strategies.
Appendix 2 of the draft Melbourne industrial and commercial land use plan proposes guidance for developing local industrial land use strategies.

Do you have any comments or suggestions to improve the guidance for developing local industrial land use strategies?

Key industrial and commercial areas.

The draft Melbourne industrial and commercial land use plan identifies and describes key industrial and commercial areas for each of the six metropolitan regions (refer to Part B of the plan).

Have the key industrial and commercial areas been adequately identified and described across the regions?

If no, please let us know which other area we should identify or how the areas can be better described.

Would you like to comment on any other aspects of the plan?

If you would like to upload a submission, please do so here.

I am making this submission:
on behalf of a land owner

Email address (Optional)

I agree to receive emails about my submission if required or project updates.
Yes

Privacy Statement - Draft Melbourne Industrial and Commercial Land Use Plan

What we will do with your submission

The Department of Environment, Land, Water and Planning (DELWP) is committed to protecting personal information provided by you in accordance with the principles of the Victorian privacy laws. The submission you provide to DELWP will be used to inform the finalisation of the Melbourne Industrial and Commercial Land Use Plan.

The information you provide will be made available to DELWP to develop a consultation report. This report will be uploaded to the Melbourne Industrial and Commercial Land Use Plan page on the DELWP website.

The contact information you provide may be used to contact you should we need to clarify your submission or to provide you with project updates.

The submission you provide will be published on the DELWP website. To protect individual privacy, DELWP will remove your name and address from your submission when we receive it.

If you do not wish to be identified, please ensure there is no other information in your submission that could identify you or other individuals.
If you are making comment as an organisation, then your comments may be published, including the name of your organisation.

De-identified submissions may be used by DELWP, or its contracted service providers under confidentiality agreements, in preparing its recommendations to government.

Please note, if you do not provide your name/email address we will not be able to identify your submission if you wish to access it, make a correction, or require technical support.

Should you need to correct the information you provided or gain access to your submission, please contact us via email at planning.implementation@delwp.vic.gov.au

I agree to the privacy statement


yes

To view all of the form's submissions, visit:


Regards,
The Engage Victoria Team

This is not SPAM. You are receiving this message because you have submitted feedback or signed up to Engage Victoria. If you think you have been sent this by mistake please contact us at contact@engage.vic.gov.au

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20 December 2019

The Hon. Richard Wynne MP  
Minister for Planning  
Level 20, 1 Spring Street  
Melbourne VIC 3000

Dear Minister,

Stockland Submission – Draft Melbourne Industrial and Commercial Land Use Plan

Stockland has a long and proud history of partnering with government over many years to deliver sustainable communities, affordable homes, shopping centres, recreational facilities, industrial and logistics precincts, retirement living communities and the jobs, education and health facilities associated with these.

We have over $3 billion invested in 45 properties and projects across Victoria and a strong commitment to future investment in the State. As at 30 June 2019, Stockland’s national industrial and logistics portfolio comprised 29 properties encompassing over 1.4 million square metres of building area, with a gross book value of $2.7 billion. These properties are strategically positioned in key locations for logistics, infrastructure and employment. This is aligned with a national strategy to grow our workplace and logistics portfolio to up to 25% of assets.

Stockland has a proven track record in delivering innovative, mixed use precincts that respond to emerging trends and meet the needs of a vibrant, sustainable communities where local jobs are created for local people. Examples of these are outlined below:

**Melbourne Business Park (Truganina, Vic):** The 260-hectare industrial estate is the largest master planned industrial precinct in the rapidly growing western corridor. Located within the Mt Atkinson Precinct comprising residential, community facilities and retail town centre will provide over 19,000 jobs and be home to up to 5,000 families.

**Cloverton Metropolitan Activity Centre (Kalkallo, Vic):** The second largest master planned, mixed use community in Australia (second only to Aura QLD, below) encompassing 1100 hectare and will include a 60-hectare Metropolitan Activity Centre (MAC). The MAC will be home to a major tertiary institution, hospital, 80,000 square metres of retail, a train station, regional sporting, civic and cultural spaces and be the new knowledge capital of the north. The Cloverton MAC will be unlocked by the delivery of the Gunns Gully Rd Freeway Interchange, the enabling infrastructure required to unlock $8.5 billion of economic activity (PWC 2018).

**Aura (Sunshine Coast, Qld):** Australia’s biggest mixed use master planned community, Aura sets a new national benchmark in relation to delivering business and enterprise opportunities surrounded by residential villages. Aura connects these business hubs with the civic, recreation, aged care, education and health facilities surrounding them. The ability to deliver high-value jobs in proximity to quality housing is what makes Aura one of the country’s most successful mixed use communities.

The Draft Melbourne Industrial and Commercial Land Use Plan (the Plan) provides an ideal opportunity to discuss the challenges and opportunities for growth in a changing economy, with emerging trends impacting industry, industrial land use and employment.

We welcome the opportunity to make a submission to the Plan, within the context of Stockland’s significant experience delivering significant workplace and logistics assets, and with specific reference to Stockland’s 341 Ha landholding located on Donnybrook Road, Beveridge within the Merrifield North Precinct Structure Plan area (‘Beveridge Land’).
We have made detailed comments in our submission, and highlight four key aspects below:

- Stockland, as a diversified property, has a desire, and a proven track record in delivering innovative, mixed use precincts that respond to emerging trends and meet the needs of a vibrant sustainable community where high-value, local jobs are created for local people.

- The Northern Industrial Region is well supplied with industrial land, with the second highest proportion in all Melbourne metro regions of available supply in terms zoned and unzoned land, and has the highest proportion of state significant land (87% of total projected supply);

- The importance of catering for flexible industrial land typologies to respond to emerging industrial and commercial sector trends is a critical consideration to creating vibrant and productive employment precincts that meet the rapidly evolving requirements of global businesses.

- Rationale regarding our proposal to reclassify the Beveridge land from State Significant Industrial Land to Regionally Significant Industrial Land. This will provide support and access to a wide range of employment opportunities as envisaged in the emerging industrial businesses and trends. A ‘Regionally Significant’ classification will provide a more effective opportunity to respond to emerging employment area trends.

We enclose in this pack a detailed submission which expands on the above points, together with a paper from PWC regarding industrial land analysis including supply, demand, emerging trends and case studies. We look forward to discussing this further with you and your Department in the new year.

Yours sincerely,

General Manager - Vic
1. INTRODUCTION

We refer to the ‘Draft Melbourne Industrial and Commercial Land Use Plan’ prepared by DELWP which is currently open for public comment until 31 December 2019. This report has been anticipated by the industry and seeks to put in place a planning strategy for supporting economic growth and the economic productivity of the state.

Stockland is a major investor in residential, commercial and industrial property with a proven track record nationally of high quality and successful developments. The release of this document is of keen interest to Stockland as it influences investment and delivery decisions. Stockland commends DELWP for its commitment to securing employment land now and into the future. However, we are of the view that further refinement of land categorisation ought to be made to ensure the right land is secured for the right purpose.

Of particular note, and the basis for this submission is to explore and put forward a position for our landholding at Gunns Gully Road, Beveridge. The site has historically been earmarked for employment purposes and given the site’s location and context, there is an opportunity to deliver a bespoke outcome that provides flexible employment space for the jobs of tomorrow and delivers government policy of 20 minute neighbourhoods.
Figure 1: Draft Land Use Plan extract identifying the subject site
2. SITE CONTEXT

The land is made up of a number of land parcels, being Gunns Gully Road and Hume Freeway, Beveridge which have historically been used for small scale farming / grazing purposes. This site is 340ha in total, minus 94ha for the Outer Metropolitan Ring Road (OMR) which severs the site in the north west corner. The land is approximately 6 km south west of the proposed future Beveridge Interstate Freight Terminal (BIFT).

The land undulates in the eastern part and tends to be flatter further west. The land is located to the north of Gunns Gully Road, Beveridge, to the west of the Hume Freeway, west of the Clovertown Estate. The figure below outlines the boundaries of the site.

Figure 2: Subject site (source: Nearmaps)

Gunns Gully Road is currently an unsealed road, providing access from the Hume Freeway. Gunns Gully Road ultimately terminates to the west with no further road connections provided. Gunns Gully road itself forms the boundary between Mitchell Shire Council to the north and Hume Council to the south. To the east, Gunns Gully Road will ultimately connect into the Stockland Clovertown Estate, providing direct access to the future station and Major Activity Centre. This is an important future connection for the land parcel and ensures it is easily accessible for the future population of the area.
3. **PLANNING BACKGROUND OF SITE**

All of the land is contained within the Urban Growth Boundary (UGB) and identified for future development as part of the Merrifield North Employment Precinct Structure Plan.

The subject land was bought into the UGB as part of Amendment VC68 in August 2010, and was concurrently rezoned from Green Wedge to Urban Growth Zone (UGZ).

The Northern Growth Corridor Plan (NGCP) will eventually accommodate a population of 260,000 people and has the capacity to provide for 83,000 jobs. The North Growth Corridor is one of the most important industrial regions in Australia, with good road and rail links to metropolitan markets and to New South Wales, in particular, via the Sydney rail line and the Hume Freeway, and because of its proximity to Melbourne Airport, which is the region’s largest employer, and the proposed BIFT.

Importantly, the NGCP notes that demand for industrial land and average employment densities in industrial areas may vary and that the Corridor Plans need to allow for such variations so that sufficient flexibility is incorporated into planning for possible future infrastructure and service needs. The NGCP nominates land to the south of Gunns Gully Road and west of the transport routes for ‘business’ with land to the north of Gunns Gully Road and east of the transport routes nominated for ‘industrial’. To the west of the subject area is the Kalkallo retarding basin, and to the south is land with biodiversity values. Unlike some precincts, the land uses in this part of the Northern Corridor are more fragmented, with the employment areas not being contiguous.

Within the NGCP, ‘business precincts’ are large, flexible, multi-use areas that provide for a range of employment opportunities. They accommodate a wide range of employment generating uses in comparison to industrial, and incorporate uses such as service industry, office and commercial activity, restricted retail / bulky goods and research and development.
4. SUBMISSION

4.1. ADEQUATE SUPPLY IN THE NORTHERN REGION

The appended PwC paper provides an important supply and demand analysis of the Melbourne Industrial land market. The key supply analysis findings indicate that there is ample supply of available employment land (with a high proportion of state significance) in the northern industrial region of Melbourne once the unzoned future land supply is accounted for.

If the 2018 industrial land consumption rate continues into the future, there is projected to be 52 years left of remaining zoned and unzoned supply. With the inclusion of a 2.5% annual compound growth rate in land consumption to account for the emerging nature of this precinct, there is still an estimated 34 years of remaining supply. Additionally, the demand analysis suggests that consumption data may be overstated due to data collection methodology limitations, emerging trends into the future and current industrial construction space requirements.

PwC’s research has found that the majority of industrial development across Melbourne (on a value basis) is categorised as light industrial, including showrooms, retail warehouses, retail markets and bulky goods. There has also been a recent emergence of laboratories and research facilities in the northern region (accounting for approximately 7% of the ongoing industrial development). In both Melbourne and the Northern Region, heavy industry categorisations (such as assembly plants, oil refineries and gas / waste depots) account for less than 1% of current development.

The findings, among other things, reinforce that the designated BIFT area has sufficient supply for future core infrastructure, heavy industry, warehouse and logistics uses and ought to be the focus of industrial tenancies and investment to achieve the intended outcomes for the precinct.

The issue of land lost to rezoning in the north is discussed in the Draft Land Use Plan. The biggest single loss in the corridor is identified as being due to a rezoning to Commonwealth land for quarantine purposes which arguably is an industrial use, so whilst not zoned to be recognised in the state system it is performing a similar function. Melbourne Airport is also one of the region’s biggest employers and a major developer of industrial facilities, has capacity to develop more industrial land and actively responds to market enquiry for warehouse/logistics operators. This is also Commonwealth land and also not recognised but adds significantly to the corridor’s supply. Examples of rezoning reducing supply were for sites smaller than 2ha (arguably not fit to be recognised as state or regionally significant industrial land and likely to be affected by encroaching sensitive uses) and rezoning in areas experiencing gentrification such as Moreland which has a long history of having Industrial Land Use strategies to ensure due consideration is afforded to coordinated safeguarding of valuable industrial land and identification of land that is encumbered and no longer fit for industrial purposes.

4.2. EMERGING TRENDS IN EMPLOYMENT

As highlighted by the appended PwC paper, we are in the midst of the fourth industrial revolution and responding to the changing nature of employment and industry is a fundamental consideration when we plan for new communities. The emerging trends we are seeing are shaping the foundations of the future industrial landscape. Traditional manufacturing and warehousing has a limited future in Australia and we are now designing for places which respond to:

- a rapidly growing ecommerce sector which values consolidation of facilities and an efficient ‘last mile’;
- automation and robotics;
- agile workplaces and employees;
- smaller flexible industrial space to support start up businesses;
- increased white collar jobs and decreased blue collar jobs.

This change in workplace and workforce manifests itself in the need to create smart cities and places which have high amenity for people to live, work and play.

There are many reports now available which provide insight and metrics around the impact this change is having. Of particular note is Cisco’s report on ‘Technology and the Future of Australian Jobs’, November 2019. It forecasts that 630,000 jobs could be displaced in the next 10 years in Australia as a result of technology changes – more than 7% of Australia’s current workforce. Net 33,000 jobs are expected to be lost in manufacturing which is 5.5% of that sectors workforce. Vehicle and machine operators and assemblers are in line for the largest net reduction in demand, with 10.6% fewer roles predicted in 10 years’ time. These jobs are in line for considerable disruption from new advances in robotics and autonomous vehicles.

![Figure 5: Net changes in employment (2018 - 2028) source: Cisco](image)

While we see that there is a forecast reduction in these jobs, there is a forecast increase in managers, professional, service and sales. It can be extrapolated that the loss of blue collar jobs as a result of automation may be offset by an increase in white collar jobs with a need for engineers, IT technicians and project managers. In a land use planning sense, this shift won’t necessarily result in a
net change in job numbers, albeit likely in workplaces of a different format with potentially larger administrative/office spaces.

Government policy and strategic planning needs to deliver a framework that can be robust enough to facilitate this dynamic environment and the rapid pace that change is occurring in. The development industry needs to be agile to respond to these shifts and be able to accommodate future employment growth in innovation – start up and smaller boutique industries. These types of employment uses are a good fit within a mixed use context and having residential close to employment in high amenity areas – as referenced in the PwC paper appended to this submission.

The DELWP Unlocking Enterprise in a Changing Economy report (September 2018) similarly identifies that, “innovation is becoming increasingly urban, with convergence across sectors and industries driving product and process development in dense, accessible and amenity-rich precincts.” This report identifies that change is now more rapid, labour more mobile, and businesses more dynamic, resulting in more collaborative working models and reduced timeframes to turn ideas into products and services.

The report reinforces that, “old divisions between the processes of design, production and distribution are no longer as defined, and the lines between places where people work and places where people live are increasingly blurred”.

The critical factor in being able to respond to these emerging workforce trends with minimal disruption will be in providing flexibility for the private sector to be nimble. Stockland will have the ability to deliver on the requirements of future workforces as long as planning controls remain flexible. Critically, a Regional classification for the Gunns Gully Road site would enable a greater range of zones to be applied in order to respond to changing needs than the comparatively more restrictive classification of State Significance, including the Commercial 3 Zone and others.

**Commercial 3 Zone**

In response to emerging employment trends and in particular the recognised benefits of mixed use development, the state government has created a new zone to facilitate development that reflects to contemporary demands and expectations.

The Commercial 3 Zone is a new planning tool which can be applied to help facilitate business growth and innovation in select parts of Victoria. It is a mixed-use employment zone which is intended to facilitate creative industries, small manufacturers and start-up businesses. The zone is intended to promote the creation of dense, economically diverse, affordable, accessible and amenity-rich precincts which are attractive to new and emerging businesses. The purposes of the zone is identified as:

- “Providing for a range of industrial, commercial, office and other employment generating uses which support the mixed-use employment function of the area.
- Promoting collaborative and high-quality working environments which support the area through good urban design and high amenity, accessible and well-connected places.
- Providing opportunities for limited retail uses which are complementary to the role and scale of the area.
- Providing the option for limited residential uses that do not undermine the primary employment and economic development focus of the zone.
- Facilitating the use, development and redevelopment of land in accordance with the objectives specified in a schedule to the zone.”

DELWP’s Unlocking Enterprise report identifies that “This new zone better aligns with the needs of the modern and emerging economy and has a clear purpose to promote innovative and enterprising mixed-use precincts. It aims to reduce the planning burden for a host of employment uses from urban manufacturers and makers to co-working spaces, while allowing for complementary yet limited retail and residential uses where these uses are considered appropriate to support enterprises to flourish.”

As you will see in the case study below, the ability for planning regulations – in particular zone provisions – to be agile is imperative in delivering successful employment hubs of the future.
4.3. STOCKLAND’S ABILITY TO CREATE JOBS OF THE FUTURE

As the jobs and workplaces of tomorrow continue to evolve, traditional typologies and land use is changing to meet these emerging requirements. In an industrial context, PwC identifies a move towards embedding flexibility into the redevelopment of traditional industrial land to respond to the dynamic market demand profile.

The analysis in the Draft Land Use Plan categorises land into state, regional and local significance. In an industrial sense and relevant to this site, the state and regional classifications are the most relevant.

Both categories identify significant industrial land in strategic locations, however from a delivery perspective there is a critical difference. The state significance category only permits the use of the Industrial suite of zones (ie: IN1Z, IN2Z, IN3Z & limited C2Z). Land categorised as regionally significant permits a more flexible approach to zoning and does not permit the heaviest and most noxious uses (ie: fundamentally the potential to consider C3Z and not IN2Z). From a practical delivery sense, the application of the IN2Z on the Beveridge site is not appropriate as it is too fragmented to effectively deliver core IN2Z land uses. The potential to apply the C3Z links directly with the trends being experienced in the industry.

Stockland has the ability to develop true mixed communities. There is an opportunity to provide a 20min neighbourhood through one proponent and to deliver a precinct with point of difference that provides high amenity, high quality employment and housing. This brings together the current trends in industry and government policy.

The only way this can be delivered is if flexibility within in the Draft Land Use Plan is afforded and the land recategorised to ‘regionally significant’ to give the opportunity of the Commercial 3 Zone to be considered.

A prime example of how a flexible approach to the planning regulations can achieve a best practice outcome is at the Stockland Aura development in Queensland. This estate sets a new national benchmark. Aura offers a range of business and enterprise opportunities surrounded by residential villages and will connect these business hubs with the civic, recreation, aged care and education facilities surrounding them. Aura will be Australia’s largest master planned community in single ownership and the biggest 6-Star Green Star community.
Figure 6: Key benefits of Aura

The ability to deliver quality jobs in proximity to quality houses has made this new community successful. A similar approach and outcome can be realised at the Beveridge site and we would welcome the opportunity to further discuss the details of this exemplar project with the government and how we anticipate it can be realised in a Melbourne context.

For the northern region, Clovertern Town Centre (formerly known as Lockerbie) presents a rare opportunity to create a new metropolitan-scale town centre on a train station, in a location which is central to a future population of over 330,000 people, and readily accessible by multiple modes of public and private transport. Beyond its retail functions, Clovertern Town Centre will provide a diversity of key services and employment uses including Melbourne Polytechnic campus, Northern Health, civic uses and a range of other high-value white collar jobs. The proximity of the Gunns Gully Road site presents an excellent opportunity to complement these uses.

4.4. THE RISE OF MIXED USE

A range of factors are driving development trends towards mixed-use outcomes. The combination of urban sprawl, increasing land values and the stronger desire for the population and policy makers to promote co-location of uses has resulted in a growth in business parks that blend commercial, industrial, retail and amenity to great effect.

Australia, and Victoria in particular, has some exemplar existing and emerging mixed use business park precincts, as discussed in PwC’s report. Projects such as Minta Farm (Vic), Norwest Business Park (NSW) and Tonsley (SA) demonstrate the need to remain flexible and responsive to changing end-user demand over time, with a renewed focus on embedding high levels of amenity, landscaping and green space to boost physical wellbeing outcomes for those who interact with the precincts.
The Gunns Gully Road site is ideally positioned to provide an attractive, high amenity mixed business outcome, given its proximity to and potential synergies with the future Cloverdale MAC, and the unique opportunity for the Kalkallo Basin to provide a recreation and respite function.

4.5. IMPORTANCE OF INTERMODAL TERMINALS

Intermodal terminals will play a significant role in facilitating the consolidation, storage and transfer of freight between rail and road. Intermodal terminals will provide connectivity to ports, regional networks and other capital cities and other locations. Efficient intermodal terminals can also increase flexibility for freight operators’ and decrease the overall cost in a supply chain.

The Beveridge Interstate Freight Terminal (BIFT) is a state and federal government investment commitment. It will connect to the Inland Rail and the Port of Melbourne. It is to become a major freight hub which will attract and accommodate a range of business, predominantly distribution centres and warehousing. As mentioned earlier some of the change surrounding ecommerce and large scale warehouse/logistics facilities is the move towards greater consolidation, value on location and proximity to infrastructure and customers. The BIFT will be approximately 1,000ha in size and will provide an important national asset in the movement of goods.

To maximise the benefit from this federal and state government investment, government ought to ensure the value of this investment is not diluted or fragmented by creating direct competition in immediate proximity to this hub.

The Land Use Plan has an opportunity to confirm that the BIFT should be the core of the future state significant industrial land in the northern corridor. As identified above, given the changes in traditional warehouse/logistics to automation and the overall decline in manufacturing, the Land Use Plan has an opportunity to enable employment land outside of the BIFT to be flexible to be able to support it, cater for change over time and futureproof employment opportunities. Not doing so unnecessarily constrains the ability for successful development to occur now and in the future and provide for job opportunities as they emerge and as the region grows.
5. SUMMARY AND CONCLUSION

Our review has identified that there is land in the northern region providing substantial positive impact on the supply of industry and jobs which are not captured in the Draft Land Use Plan. In addition to these the BIFT must be the main focus for the corridor and more supply is considered available than purported in the Draft Land Use Plan.

Comparatively, the Gunns Gully Road land is ideally suited to provide a support role for traditional and emerging industries requiring high amenity to encourage skilled workers to live and work in the area. Its direct links to the future Cloverdale MAC, significant wetlands and open space and the future improved road network means that the land is significant and has the potential to play an important role in the northern corridor.

Stockland as a developer in all asset classes has the ability to deliver a mixed employment outcome like Aura. However, to do so government must think beyond the traditional suite of planning controls and embrace an agile future to deliver for the next generation. The categorisation of the land must be changed from ‘State Significant’ to ‘Regionally Significant’ for this to occur.
Industrial Land Analysis

Prepared for Stockland
December 2019

pwc
Engagement Context

On the 1 November 2019, the Department of Environment, Land, Water and Planning ("DELWP") released the draft Melbourne industrial and commercial land use plan ("land use plan"). That document seeks to establish a long term planning framework to enable the planning of future employment and industry needs by helping government identify which land should be retained for industrial and employment purposes and which could be considered for alternative uses.

In doing so, it identifies land that is to be considered:

- **State significant** - strategically located land for major industrial development linked to the principal freight network (PFN) and transport gateways; and
- **Regionally significant** - areas with a need to be planned for and retained either as key industrial areas or locations that can transition to a broader range of employment opportunities.
- **Locally significant** - areas not defined as either state or regionally significant.

DELWP has invited feedback on this draft document to be submitted by 5:00pm on Tuesday 31st of December.

Details of Engagement

PwC has been engaged by Stockland to conduct an independent Melbourne industrial land market analysis, with a particular focus on the northern industrial region (as defined by DELWP). This supply and demand analysis will inform Stockland’s response to the draft industrial and commercial land use plan.

The extent of our agreed scope includes:
- Analysis of current and future industrial land supply
- Analysis of industrial land take up and trends
- Synthesisation of current and emerging industrial sector trends and the expected impact on land and jobs
- Identify and highlight relevant projects that support the findings of the analysis
- Provide economic insights relating to the key findings of the analysis
Assumptions

The study undertaken by PwC is subject to a number of critical assumptions upon which the analysis is conducted. These have been provided below and should be read in conjunction with the remainder of the report.

Critical Assumptions

- We have relied upon a number of external sources in conducting our analysis. Unless otherwise stated, PwC has not validated and cannot guarantee the accuracy of this data.
- Where possible, we have referenced data from the ‘Draft Melbourne Industrial and Commercial Land Use Plan (2019)’, nothing that there is a link between this document and the ‘Urban Development Program (2018)’.

Definitions

- Unless otherwise stated, ‘land’ refers to industrial land only.
- ‘Total’ supply / land refers to the aggregation of both zoned and unzoned land.
- ‘Unzoned’ and ‘future’ supply are used synonymously throughout the report.
- ‘Zoned’ land, unless otherwise stated, is net.
- ‘Unzoned’ land, unless otherwise stated, is gross (and subject to discount factors).

Key Sources of Information

- DELWP ‘Draft Melbourne Industrial and Commercial Land Use Plan (December 2019)’
- DELWP ‘Urban Development Program - Metropolitan Melbourne Industrial (January 2018)’
- Cordell Connect (data retrieved December 2019)
- Industrial Property Industry Reports - JLL, Knight Frank, CBRE (2015-2019)
- Other sources as referenced throughout the document

Disclaimer

PwC does not accept any liability for actions taken as a result of the findings in this report. It is provided for information purposes only and no reliance should be placed on the content contained herein. Unless stated otherwise, PwC have not ratified or verified source data or information.
Supply
Melbourne Metropolitan

Melbourne’s industrial precincts are typically clustered around key infrastructure (existing or proposed), such as ports, airports, intermodal terminals and major arterial roads. As such, clustering of land use, investment and end users are a key factor of the success of these precincts.

The Northern Industrial Region has one of the highest proportions of available supply in terms of zoned and unzoned land and has the highest proportion of state significant vacant land at 87% (zoned and unzoned).

As per UDP data, Metropolitan Melbourne industrial land is subject to average three year absorption rates of circa 281 ha per annum [1]. This is against a backdrop of supply as outlined in the table below.

<table>
<thead>
<tr>
<th>Region</th>
<th>Total Space (ha)</th>
<th>Vacant Space (ha)</th>
<th>Vacant (% of total)</th>
<th>SSIP (% of vacant)</th>
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<tr>
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<td>452.8</td>
<td>28.0</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Western</td>
<td>11,269.0</td>
<td>5,448.5</td>
<td>48%</td>
<td>53%</td>
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<td>3,357.4</td>
<td>47%</td>
<td>87%</td>
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<tr>
<td>Eastern</td>
<td>2,572.6</td>
<td>135.6</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
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<td>10,796.1</td>
<td>3,522.5</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>Inner SE</td>
<td>143.0</td>
<td>2.3</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32,309.5</strong></td>
<td><strong>12,494.3</strong></td>
<td><strong>39%</strong></td>
<td><strong>65%</strong></td>
</tr>
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</table>

Source: Draft Melbourne industrial and commercial land use plan - Part A (2019)

As outlined above, the Western and Northern regions have the highest proportion of vacant industrial land (zoned and unzoned) at circa 47-48% of total land. Notably, the proportion of vacant industrial land that is categorised as state significant in the northern region is substantially higher at 87% compared to the southern and western regions at 67% and 53% respectively.

[2] Zoned supply (net) + unzoned supply (gross) which is subject to an aggregate discount factor of 0.68. Refer to Appendix A.
Northern Region

Of the total industrial land in the northern region (zoned and unzoned), 47% is currently available with 62% of this availability currently unzoned. At a more granular level, relative availability increases further away from the CBD. This aligns with market commentary indicating that demand moves outward in concentric circles as regions evolve and develop.

<table>
<thead>
<tr>
<th>#</th>
<th>Council (LGA)</th>
<th>Total (ha)</th>
<th>Available (ha) [1]</th>
<th>Available (% of total)</th>
<th>Unzoned Supply (% of available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nillumbik</td>
<td>29.3</td>
<td>0.1</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>Banyule</td>
<td>117.9</td>
<td>1.4</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>Darebin</td>
<td>304.6</td>
<td>16.0</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>Moreland</td>
<td>259.9</td>
<td>13.2</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>Hume</td>
<td>3,515.4</td>
<td>1,373.5</td>
<td>39%</td>
<td>33%</td>
</tr>
<tr>
<td>6</td>
<td>Whittlesea</td>
<td>2,567.6</td>
<td>1,677.9</td>
<td>65%</td>
<td>82%</td>
</tr>
<tr>
<td>7</td>
<td>Wallan</td>
<td>281.3</td>
<td>275.3</td>
<td>98%</td>
<td>92%</td>
</tr>
</tbody>
</table>

**Total**

| 7,076.0 | 3,357.4 | 47% | 62% |

Source: Draft Melbourne industrial and commercial land use plan - Part B (2019)

Most northerly areas inside the MAL include Epping and Craigieburn

We note that there were a range of responses from different market participants to the land supply reported in DELWP’s ‘Urban Development Program’ (January 2018). This is reflective of the fact there are a range of methodologies to account for, and report land supply. This included a report entitled ‘Melbourne’s Industrial Land Supply Debunked which suggested the supply was overstated.

A fundamental argument in this report is the consideration of a ‘Market Activity Line’ (‘MAL’) i.e. where the demand for industrial land is concentrated in areas moving outwards from the CBD. This assertion appears to be supported by the analysis above. **We note that a significant portion of the Northern industrial precinct is located outside of this line, and as such, we have chosen to adopt UDP data for the supply analysis. Furthermore, the MAL is not considered to be static and may change over time as further investment is committed to the growth corridors in improving both infrastructure and accessibility through initiatives such as the Outer Metropolitan Ring Road.**

December 2019

[1] Zoned supply (net) + unzoned supply (gross) which is subject to an aggregate discount factor of 0.69. Refer to Appendix A.
Development Activity - Northern Industrial Region

The latest data indicates that the primary concentration of northern region industrial development activity (in terms of number of applications) is occurring in Epping, Campbellfield and Craigieburn. When sorting by estimated project value, it is clear that there is strong current demand for flexible, light industrial facilities in the northern region.

Northern Industrial Region

- The current typology of industrial development across Melbourne, and particularly in the north, lends itself towards light industrial type facilities with the majority of projects categorised as ‘showrooms, retail warehouses, retail markets and bulky goods’.

- In both Melbourne and the Northern Region, heavy industry categorisations (such as assembly plants, oil refineries and gas / waste depots) account for less than 1% of current development.

- In the northern region there is a recent emergence of laboratories and research facilities (typically higher specification / value typology), accounting for approximately 7% of the ongoing industrial development.

The heat map illustrates the geographical concentration of industrial development projects located in the northern industrial region. Projects from the early planning stage onwards are recorded on the map.

When the data is analysed by estimated project value, we can assess the relative level of investment demand for each typology of industrial project.

The current data indicates that light industrial type uses such as showrooms and retail warehouses make up the majority of current industrial investment and demand in the northern industrial region.

<table>
<thead>
<tr>
<th>Melbourne Metropolitan - Industrial Development Typology (by project value)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road infrastructure, car parks and air runways</td>
<td>41%</td>
</tr>
<tr>
<td>Warehouses, cargo sheds, distribution centres</td>
<td>25%</td>
</tr>
<tr>
<td>Showrooms, retail warehouses, retail markets and bulky goods</td>
<td>12%</td>
</tr>
<tr>
<td>Hospitals and health infrastructure</td>
<td>3%</td>
</tr>
</tbody>
</table>

Source: Cordell Connect - List of current industrial developments sorted by postcode (Dec 2019)

<table>
<thead>
<tr>
<th>Northern Region - Industrial Development Typology (by project value)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showrooms, retail warehouses, retail markets and bulky goods</td>
<td>66%</td>
</tr>
<tr>
<td>Warehouses, cargo sheds, distribution centres</td>
<td>18%</td>
</tr>
<tr>
<td>Laboratories, research buildings &amp; observatories, tracking stations</td>
<td>7%</td>
</tr>
<tr>
<td>Service stations</td>
<td>3%</td>
</tr>
</tbody>
</table>

Source: Cordell Connect - List of current industrial developments sorted by postcode (Dec 2019)
Key Developments

There are a number of key future employment based developments throughout the Northern Growth Corridor that will benefit from clustering and concentration of investment into the future.

- **Location:** Beveridge, VIC
  - **Size:** Proposed 1,010 hectares (gross) [1]
  - **Estimated Jobs:** An initial average sized IMT (using an increment in the available land) could support 2,000-3,000 jobs onsite. An IMT using the full space could support up to 13,000 jobs.
  - **Commentary:** The Beveridge Interstate Freight Terminal (BIFT) is designed to enable the transfer of interstate road and rail freight from the ports of Melbourne. It is expected to be delivered over the next 30 years.

- **Location:** Epping, VIC
  - **Size:** 50 hectares (future) / 8 hectares within curtilage of Markets
  - **Estimated Jobs:** The markets have the potential to support up to 1,000 jobs on site, with the employment impacts much broader for suppliers to the markets.
  - **Commentary:** The future land supply immediately adjacent to the market, offers the opportunity to deliver on the Market’s vision in the medium to long term. It is expected complementary uses will be developed on the land (i.e. logistics, warehouses, support services, ag/food innovation etc.)

- **Location:** Mickleham, VIC
  - **Size:** 465 hectares
  - **Estimated Jobs:** The business park at Merrifield is estimated to support up to 25,000 jobs at maturity [2]
  - **Commentary:** Merrifield Estate is a jobs led community that provides collocated residential and employment industries. Key industrial tenants in the area include Dulux (60 employees), D’orsogna (240) and Kaufland (600).

- **Location:** Karakool, VIC
  - **Size:** 60 hectares
  - **Estimated Jobs:** PwC analysis in 2018 showed the MAC could support over 2,000 jobs in 2031, growing to over 7,500 in 2046
  - **Commentary:** Cloverton MAC will act as a metropolitan town centre for Cloverton and the northern growth corridor. The northern growth corridor is forecasted to grow to a population of 330,000 residents and 110,000 workers.

---

[1] VPA Northern Growth Corridor Plan
Demand
Demand Analysis

We have assessed the demand for industrial land by primarily analysing two sets of data, aerial photography of changing land use and construction activity (from market based research).

These different approaches reflect the fact, that as with supply, there is no single approach to estimating demand / land absorption and as such, there may be benefits and limitations inherent with different strategies.

1. Aerial Photography

The aerial photography method assesses the consumption of industrial land through the use of time series data. Each year cadastral base parcels within precincts that are currently zoned or intended to be zoned for industrial purposes are identified, and parcels that have transitioned from ‘vacant’ to ‘occupied’ based on a deemed change in use are assessed.

Inherent to this method are a number of limitations illustrated below:

1. **Interim uses**: Some temporary changes in use such as hardstand or informal car parking (that are not productive, end uses) count towards permanent land consumption.

2. **Latent capacity**: Some occupied sites are not fully utilised and retain the potential for higher density subdivision / redevelopment into the future (in line with emerging trends).

Example
Potential interim use

Example
Potential latent capacity

Source: DELWP VicPlan Aerial Photography - Truganina (December 2019)

2. Industrial Construction Data

The industrial construction data method assesses the implicit demand for industrial land through ongoing industrial construction (i.e. the quantum of industrial facilities / space built each year and the estimated land required to do so). The land is estimated using an average ‘grossing up factor’ (i.e. building coverage ratio) on the constructed floor space based on industry information.

The limitations to this method are described below:

1. **Land uses not requiring construction**: Some uses of industrial land (e.g. heavy industrial buffer zones) may not require construction of new floor space and therefore may not be picked up in this dataset.

2. **Grossing up factor**: Each industrial typology will have a different building coverage ratio. Therefore whilst adopting an average in line with market commentary, a holistic approach would be to calculate each development on its own specific details.

Additionally, a prominent emerging international trend in the industrial market is the rise of multi-storey warehousing [1]. If Australia was to adopt this type of facility, we would expect to see a decrease in the consumption of industrial land per unit of constructed industrial floor area (i.e. grossing up factor could increase).

The different approaches outlined above, among others, may produce different land absorption data, in line with the different underlying assumptions and effective definition of land absorption.

UDP Approach - Zoned Land

Excluding unzoned land earmarked for industrial uses, the northern region has circa 35 years left of available supply if absorption continues at the average rate observed between 2015-18 and 25 years if the 2017-18 absorption rate is applied going forward.

In the instance that only existing zoned industrial land is accounted for, the northern region holds between 25 - 35 years of remaining supply.

Shown below is a table of the remaining zoned land supply within each of Melbourne’s industrial regions based on three year average absorption rates (2015-18). Along with the southern region, the northern region is one of the most adequately supplied based on recent three year absorption trends.

<table>
<thead>
<tr>
<th>Industrial Region</th>
<th>Remaining Zoned Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>35 years</td>
</tr>
<tr>
<td>Inner Metro</td>
<td>N/A</td>
</tr>
<tr>
<td>Western</td>
<td>20 years</td>
</tr>
<tr>
<td>Eastern</td>
<td>12 years</td>
</tr>
<tr>
<td>Southern</td>
<td>37 years</td>
</tr>
<tr>
<td>Inner South East</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The above reflects current available zoned land only. Unzoned land which will impact future availability has to be accounted for and this analysis is provided overleaf.

Source: Draft Melbourne industrial and commercial land use plan - Part B (2019)
UDP Approach - Zoned and Unzoned Land

Including unzoned land earmarked for industrial uses, the northern region has circa 73 years left of available supply if absorption continues at the average rate observed between 2015-18 or 52 years if the 2017-18 absorption rate is applied going forward. If the future supply attributable to the BIFT is excluded from the analysis, there still remains between 39 to 54 years of supply.

In the instance that both zoned and unzoned industrial land is accounted for, the northern region holds between 52 - 73 years of remaining supply.

Shown below is a table of the remaining total land supply within each of Melbourne’s industrial regions based on three year average absorption rates (2015-18). The northern region clearly holds the greatest supply when accounting for unzoned supply.

<table>
<thead>
<tr>
<th>Industrial Region</th>
<th>Remaining Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>73 years</td>
</tr>
<tr>
<td>Inner Metro</td>
<td>N/A</td>
</tr>
<tr>
<td>Western</td>
<td>34 years</td>
</tr>
<tr>
<td>Eastern</td>
<td>12 years</td>
</tr>
<tr>
<td>Southern</td>
<td>49 years</td>
</tr>
<tr>
<td>Inner South East</td>
<td>N/A</td>
</tr>
</tbody>
</table>

A large portion of the future unzoned supply in the northern region is expected to be allocated to the Beveridge Intermodal Freight Terminal ("BIFT"). This future land is currently categorised as state significant owing to its proposed use as a major distribution, logistics and transport hub.

If the 1,010ha (gross) is removed from the analysis, the total remaining supply is still expected to last between 39 - 54 years.

---

PwC

[1] Net zoned supply (1,282.7) + Gross unzoned supply (2,074.7) which is subject to an aggregate discount factor of 0.68. Refer to Appendix A.
UDP Approach - Consumption Growth Scenario

Notwithstanding that demand and take up of industrial land is highly cyclical in nature, as a growth corridor there is potential for increased land absorption in to the future. As such, we have modelled supply scenarios with the inclusion of compounding growth rates which indicate supply remains robust.

The Melbourne industrial land market as a whole follows a highly cyclical trend that is closely linked to the economic cycle. Each individual precinct also follows a distinct lifecycle according to its stage of maturity as an industrial region. For example, as evidenced in the UDP graphs opposite the Western industrial region is reaching a point of maturity and absorption in the area is expected to slow down into the future. On the contrary, the Northern precinct is expected to grow into the future as investment is directed towards the priority precinct developments described on previous slides. As such, this growth must be considered in the modelling of future remaining supply of industrial land.

To account for this, remaining available land supply (zoned and discounted unzoned) has been modelled with the inclusion of both 2.5% and 5% year-on-year growth rates in the absorption of industrial land.

Even after accounting for potential growth in absorption rates, the northern region is still expected to hold between 27 - 43 years of total land supply (zoned and unzoned).

Absorption of the Northern and Western SSIPs (2005 - 2018)

Land absorption rates in the Western and Northern SSIPs indicate the highly cyclical nature of demand for industrial land over the last 15 years. This cyclical trend is expected to continue into the future.

Northern Industrial Region
Projected Zoned Available Land Supply (ha)

The commencing land supply is total net supply (zoned and discounted unzoned).

Source: Draft Melbourne industrial and commercial land use plan - Part B (2019)

Source: DELWP, Urban Development Program Report, January 2018
Industrial Construction Data

Noting there are different approaches to estimating land absorption, latest Metropolitan Melbourne industrial floorspace construction data (subject to grossing factors to reflect land absorption), produce a different outcome to the aerial photography approach.

Outlined in the tables below are the comparison between the estimated land absorption rates from UDP (aerial photography) and industrial construction data. These different approaches have been compared at the Metropolitan Melbourne level owing to differences in classifications of regions. However, the findings suggest that the different approaches when applied at a specific granular level (e.g. LGA, region, etc.) would likely produce variable land absorption outcomes.

<table>
<thead>
<tr>
<th>DELWP UDP Data (Melbourne Metropolitan) [1]</th>
<th>Units</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Land Absorption</td>
<td>ha</td>
<td>286.1</td>
<td>310.0</td>
<td>247.6</td>
<td>281.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industrial Construction Data (Melbourne Metropolitan)</th>
<th>Units</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Space Construction [2]</td>
<td>ha</td>
<td>46.9</td>
<td>49.9</td>
<td>43.6</td>
<td>46.8</td>
</tr>
<tr>
<td>Implied Industrial Land Requirement (65% coverage) [3]</td>
<td>ha</td>
<td>72.2</td>
<td>76.8</td>
<td>87.1</td>
<td>72.1</td>
</tr>
<tr>
<td>Implied Industrial Land Requirement (35% coverage)</td>
<td>ha</td>
<td>134.1</td>
<td>142.7</td>
<td>124.6</td>
<td>133.8</td>
</tr>
</tbody>
</table>

The aerial photography method used by the UDP may overestimate land consumption due to latent capacity and interim uses, while the industrial construction method may underestimate consumption due to the exclusion of certain land consuming industrial uses and varying industrial building typologies (refer slide 10). To account for this, we have applied an additional grossing up factor (35% building coverage based on recent large transaction market evidence) to provide a range of the estimated land required to accommodate current levels of industrial development.

As such, we expect that prevailing industrial land absorption likely sits in between the estimates outlined above both at the Metropolitan Melbourne level and defined geographical boundaries. This may extend the remaining land supply referenced in previous slides, noting that UDP’s supply side estimates have been adopted for this analysis.

---

[2] Based on average aggregated industrial market research data from JLL, CBRE and Knight Frank (2015-2018)
Emerging Trends
Emerging Industrial demand drivers

Current and emerging trends in industry are impacting the demand drivers for industry and end users of industrial land. There is a transition away from the typical ‘traditional’ approach, with an increased focus on flexibility and agility to respond to the current and expected future market demand. Outlined below are a range of these emerging trends, with their impact on land supply and typology explored in more detail overleaf.

Industry 4.0
The fourth industrial revolution refers to end-to-end digitisation and data integration of the value chain via data driven technologies that connect the physical and digital aspects of industry. Emerging trends include advanced manufacturing, biomed sciences, advanced automation, robotics, artificial intelligence, machine learning, data analytics / ‘big’ data and machine to machine communication [1].

Smart Cities
Smart cities are those which leverage technology to provide for residents in an environmentally, socially and economically responsible way. Critical to this in an Australian context is embedding flexibility throughout the infrastructure and urban landscape [7].

eCommerce
Australian e-commerce is growing rapidly with more than 73% of households shopping online which accounted for 10% of total retail spend in 2018. The growth is expected to continue with 12% of all retail sales expected to be online in 2019 [6].

Automation and Robotics
Automation is becoming increasingly prevalent in warehousing and logistic. High profile current examples include Coles and Woolworths investment in automated warehouses (Sydney and Melbourne) to lower supply chain costs, improve safety and enhance productivity and reduce manual low-skilled tasks [2].

Live, work and play
The Victorian State Government recognises the importance of providing residents with inclusive, vibrant and healthy neighbourhoods [3]. Achieving this will take time, particularly in the emerging growth corridors where flexibility should be retained to support a range of live, work and play options to support the evolving demands of the population.

The future of work
The transition of the workforce to more service based has, and will continue to place an increasing emphasis on higher productivity jobs, and digital rather than physical workplaces [4] across all sectors including industrial. As such employees seeking a positive ‘people experience’ at work [5]. Contributing factors to people experience include an effective ecosystem across physical and virtual domains and ensuring workplace and the surrounding environment provides high amenity and promotes wellbeing.

Impact of emerging drivers on land and typology

The impact of these emerging trends on industrial land supply and product typology must be understood and appropriately planned for. Outlined below are the key land considerations associated with each of the emerging trends that are driving demand for industrial land.

Industry 4.0
As the fourth industrial revolution continues to evolve, there will be greater demand for office and ancillary accommodation that can support higher specification warehouse space. There is also expected to be greater demand for smaller, more flexible space that can accommodate advanced manufacturing. Industrial estate planning will need to cater for a range of uses including high specification office and data centres, resulting in the rise of the Enterprise Park model[1] to meet end user demand.

Smart Cities
Smart cities require flexibility across a range of factors including energy, transport, security etc. In an industrial land and buildings context this means embracing densification of uses and promoting flexible zoning through the co-location of different sectors[2].

eCommerce
Continued growth in eCommerce will place increased demand on ‘last mile’ delivery and hub and spoke models to address increased freight movements. Major infrastructure such as Intermodal Freight Terminals[3] will play a critical role in supporting this growth, and should be the key focus of logistic ‘hubs’ (i.e. large format), with the ‘spokes’ located in strategic urbanised areas (i.e. smaller, flexible typology).

Automation and Robotics
The continuing growth in automation and robotics[4] in the industrial sector will require a focus on different types of spaces. The need for centralised operations centres and a renewed reliance on ‘front of house’ and client experience will underpin the deployed technology. To be able to meet these changing needs requires a flexible planning approach to complement the industrial space and allow for a greater ratio of office accommodation, and higher amenity around that accommodation, to support job creation complementary to automation.

Live, work and play
20 minute neighbourhoods is important for Melbourne’s productivity and wellbeing of the population[5]. Whilst not every location can necessarily deliver the outcomes, a range of flexible land options should be maintained to support the future delivery of live, work and play initiatives outside of key industrial and commercial centres (i.e. intermodal or major freight hubs).

The future of work
As the expectations of the workforce change, building and land use will have to adapt with increased demand expected for high amenity, mixed use space. This will impact on ‘traditional’ industrial land and premises, with a move to more flexible enterprise parks that offer a greater ‘people experience’ with initiatives including public open space, public transport and support services such as gyms, child care etc.[6].

In line with the above, future industrial land supply should remain flexible and agile to respond to these emerging trends and their expected impact on land use and typology.

[1] Refer Transition from Traditional to Emerging Industrial on slides 23-24
[4] Refer The role of mixed use case studies on pages 25-26
[5] Refer Importance and role of Intermodal Freight Terminal case studies on pages 21-22
Potential impact of emerging trends on economy-wide employment

The analysis of how emerging employment trends will play out in Australia’s future workforce is broad and varied, with most concluding that it will depend on the application and success of policy responses. There is often a tendency to overestimate short-term impacts and underestimate long-term impacts where technological uncertainty is greatest. The factors below are not necessarily mutually exclusive, but reflect different ways the trends can be expressed in aggregate.

<table>
<thead>
<tr>
<th>Shift to non-routine jobs</th>
<th>Increase in value add of jobs</th>
<th>Shift from blue to white collar</th>
<th>Increasing service focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>A shift from routine jobs to non-routine jobs is widely accepted as a likely impact of emerging employment trends. Most analysis predicts that routine jobs, with repeatable tasks, are the most likely to be at risk of automation, whereas non-routine jobs that require creativity and human interaction will be less at risk.[1] This does not always mean and increased level of skill. This has been expressed as meaning &quot;...non-routine jobs have become steadily more important. These jobs tend to be more difficult to automate.&quot;[2] Therefore, this is unlikely to lead to a reduction of employment in any specific industry, but rather in specific roles across industries. Service jobs, or those with inherent creativity in them, are more likely to be growth roles.</td>
<td>Another way to characterise these impacts is a change within job roles, than that fundamentally different jobs in the economy. AlphaBeta analysis showed that 'only 29 per cent of the automation driven workplace change will involve workers changing job roles', but rather what employers and customers expect from a individual in a specific role will change.[3] By allowing emerging technology to augment, rather than replace, jobs (as seen in rise of ecommerce or future of work flexibility changes on previous page), this will lead to an increase in the value add of jobs. This characterisation generally points to a need for continuous upskilling for workers to avoid major impacts to employment.</td>
<td>When examined by type of occupation (i.e. manager v professional v trade worker etc.) the impact on employment could be characterised as a decrease in blue collars jobs, while the potential for white collar employment increases. For example, Cisco analysis shows a future major reduction in crafts and trades workers and machine operator occupation groups with greatest increase in professionals and service workers.[4] However, a pure blue to white collar distinction can disregard the importance of population services and sales jobs that do not necessarily sit in that distinction. This characterisation is a longer term one, as is less about transition and more about fundamental composition of the economy.</td>
<td>Expressing the change to economy-wide employment as an increasing focus on services industries is very broad, but reflects all the emerging trends as well as broader demographics that show increased demand for health and social services. Service industries are the most likely to retain jobs through automation and industry 4.0,[1] as well as be the location and experience industries needed for 'live, play, work' neighbourhoods and the future of work. This categorisation leads to a conclusion of a decline in employment in industries with a product focus and an increase in employment in professional and other services.</td>
</tr>
</tbody>
</table>

Aside from the industrial trends above, it is also important to note that there are broader factors that are not emerging trends but continue to have a major impact on employment. These factors, such as an international increase in demand for service exports such as tourism and education, global resource pricing, exchange rates and level of industrialisation are not emerging trends but contribute to the uncertainty and need for flexibility into the future.
Potential impact of emerging trends on future industrial workplaces in the northern region

In the specific context of the northern industrial region, these trends will play out in different ways. An increase in population services employment is the most likely increase in line with projected resident growth. There is the greatest uncertainty around how broader manufacturing trends will play out in the region, leading to a potential reliance on flexibility.

Share of Workplaces in the Northern Industrial Region [1]

<table>
<thead>
<tr>
<th>Workplace Type</th>
<th>Land</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business &amp; Professional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesaling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport &amp; Warehousing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Commentary:
- No major impact from trends able to be determined for miscellaneous other workplaces
- As population continues to grow and ‘live, work, play’ trends prevail, population services jobs and space for those jobs are likely to increase in the North
- Most trends point to a need for more high-skilled jobs, such as in technology and data driven services. Although some of this growth will be in city centres, it is likely to be reflected across locations, with the rise of 20 minute neighbourhoods
- In the short term construction jobs are likely to increase as development occurs in the North but no major trends impacting construction in long term as these jobs move with level of activity and do not settle in a location (even as construction jobs potentially automate in the future)
- No major impact from trends, as a step removed from impacts on retail
- Transport and warehousing jobs are likely to grow with population and demand for ecommerce, but growth will be moderated by automation in these sectors
- The mix of employment is expected to change in manufacturing with some trends leading to increase in advanced manufacturing, while some traditional industries will decline. Exactly how this will play out in one specific region will depend greatly on specific enterprises and how parcels of land are deployed.

[1]: DELWP, Urban Development Program Report, January 2018
Case Studies
Importance and role of Intermodal Terminals

Victoria and other Australian states recognise the important role that intermodal terminals (IMTs) will play in striking the balance between the effective movement of freight, financial and economic benefits, and improving the safety and accessibility of our cities to meet the requirements of our growing population.

Australian context

The Australian Federal and State Governments recognise the critical role that an efficient freight and supply chain strategy is of paramount importance to the country’s prosperity[1].

There are a number of initiatives that are planned or being deployed as part of the overarching strategy, with one key aspect being the delivery of strategically located IMTs across Australia and in particular the eastern seaboard.

IMTs are seen as critical infrastructure that act as a single interaction point where all distribution and logistics related activities come together and integrate to optimise transport and freight efficiencies.

In line with current and emerging trends, the need for IMTs that can be the primary interface between road, rail and seaborne container based freight is paramount to supporting population growth and consumer demands.

Victorian context

The Victorian State Government are invested in a number of initiatives relating to multi-modal movement of freight. A number of these initiatives[2] are outlined below and demonstrate the State’s clear commitment to optimised freight and supply chain movement in and around metropolitan Melbourne, intra and inter state:

- **Intermodal terminals** The Western Interstate Freight Terminal (WIFT) has received business case funding.
- **The Port Rail shuttles** Circa $58m between Federal and State Government with $25.5m deployed in Somerton and Altona to connect these major freight hubs to the Port of Melbourne by rail to reduce truck movement on local roads.
- **Mode Shift Incentive Scheme** which comprises $28m over six years to encourage industry to shift more containerised freight from road to rail.

Policy setting

In transport policy, an efficient whole of network approach that allows for modal shifts where appropriate is prioritised for the investment and economic impacts set out below. This is evidenced in both state and federal policy including:

- **National Freight and Supply Chain Strategy**
- **Australian Infrastructure Audit 2019** review of freight transport infrastructure
- **Transport for Victoria’s Delivering the Goods priorities and plans for the state’s freight network**

Market demand

IMTs can present those active in the supply chain with a range of efficiencies and cost savings. The benefits to the freight and logistics sector is evidenced by the sell-down of space at recent developments such as Somerton in Melbourne which attracted major tenants including Coles, Vissy, Linfox and Kraft.

Strategically located IMTs that offer users proximity to key markets and ports are expected to attract investment in the short, medium and long term.

Investment rationale

There are a number of reasons for both the public and private sectors to invest in IMTs. These include:

**Public**
- Fully leverage infrastructure investment
- Supply chain efficiency
- Targeted land supply
- Improve road safety

**Private**
- Clustering benefits
- Reduced transport costs
- Supply chain optimisation
- Improved access to key ports / markets

Economic impacts

The major economic impacts of IMTs mirror the benefits of enabling a mode switch from road to rail, including:

- Productivity benefits in cost, time, availability and reliability
- Increased safety, as rail is shown to be up to nine times safer than road
- Reduced cost of road, as one freight train can take 110 trucks off the road
- Reduced environmental impact, as rail movement of freight generally produces a significantly less carbon than by road.

The IMTs also increase productivity through consolidation, regardless of mode.
Importance and role of Intermodal Terminals

There are a number of IMT examples underway or planned across Australia. As a key area of focus for both Government and the private sector, it is clear that the proposed investment is a clear indicator of the expected benefits that can be delivered in proximity to the terminal infrastructure and more broadly across the regions in which they sit.

**WIFT and BIFT**

The State Government have identified locations in the Western (WIFT) and Northern (BIFT) growth corridors as key locations for future IMTs.

WIFT will be located next to existing industrial and logistics hubs. BIFT will be connected to the proposed Outer Metropolitan Ring road and northern railway line leading to Sydney, strengthening the linkages with the eastern seaboard.

The significant investment required to implement WIFT and BIFT[1] will act as a major catalyst for industrial and commercial uses in a ‘Freight Village’ in immediate proximity to the terminals.

The major investment that will need to be made by Government and potentially private sector participants to unlock these facilities in the medium to longer term will drive the following benefits:

- efficiencies for transport movements - reduced costs, increased safety, reduced travel times
- common infrastructure that can be leveraged by the market to drive cost efficiency
- an agglomeration benefits of centrally located equipment and services that will attract business investment and co-location
- enhanced reliability for the users of the facility
- implement technological and capacity improvements (i.e. double stacked trains etc.)

**Current IMT examples**

Outlined below are a number of inter-state IMTs that are planned or underway. These are a clear demonstration that there is an alignment between Government, industry and end-users as to the benefits that these facilities can deliver to support the growth and prosperity of the supply chain both domestically and internationally.

**Moorebank Intermodal Terminal, NSW**

Listed as a project of national priority by Infrastructure Australia in 2016, the 243ha Moorebank terminal is integral to Sydney’s future as a link between Port Botany, Western Sydney and major freight corridors.

Key partners / tenants include QUBE Holdings (joint owner); Target (37,860 sqm tenancy); Kalmar and Navis (tech partners)

**Bromelton Intermodal Terminal, QLD**

The 1,800ha Bromelton State Development Area was created to respond to the state’s high priority initiative for freight rail access to the Port of Brisbane to meet growing industrial demands. Approximately 16% of the anticipated developable precinct area will be taken up by a Special Industry Precinct, 9% will be absorbed by a Rail Dependant Industry Precinct and 13% of the area will be taken up by a Medium - High Impact Industry Precinct. Key partners / tenants include SCT Logistics (130 ha tenancy); A.J. Bush & Sons; Beaudesert Waste Management; Nellson Group

**Enfield Intermodal Terminal, Strathfield South NSW**

Seeking to address the rapid growth in the central-west Sydney industrial precinct, the 60ha Enfield Intermodal Terminal was developed as a public-private partnership to provide a direct connection to Port Botany in line with market demand.

Key partners / tenants include NSW Ports (joint developer); Goodman Group (joint developer); LINX Group (operator)

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Transition from traditional to emerging industrial

As the jobs and workplaces of tomorrow continue to evolve, traditional typologies and land use is changing to meet these requirements. In an industrial context, there is a move towards embedding flexibility into the redevelopment of traditional industrial land to respond to the dynamic market demand profile.

Australian context

At US $12.14/hour, Australia currently sits atop of the list with the world’s highest minimum wage, a stark contrast from low wage manufacturing heavyweights such as Bangladesh (~US $0.43) and China (~US $2.20). Australia’s high comparative minimum wage paired with globalisation through free trade agreements now means that traditional low cost manufacturing in Australia is no longer viable.

As a result, the Australian economy has been forced to undergo a structural change, transitioning away from traditional low cost, low margin industries to an economy driven by skilled labour and higher margin ‘advanced manufacturing’.[1]

This is supported by Federal and State Governments with the establishment of a number of funds to support the transition, including:

- Australian Innovation fund
- Advanced manufacturing growth fund

Victorian context

The Victorian government is dedicated to “developing new opportunities to support innovation in industry” in order to strengthen the Victorian economy. It has identified six priority sectors that have a potential for extraordinary economic growth and the capacity to create high-skill, high wage jobs. The sectors identified are medical technologies and pharmaceuticals; new energy technologies; food and fibre; transport, defence and construction technologies; international education and professional services[2].

A number of initiatives have been established to support the transition, including:

- Advanced manufacturing council and blueprint for the future
- A $200m future industries fund

Planning policy

Planning policy at the State level has, and continues to evolve over time to reflect the dynamic nature of demand. Industrial zones were improved via reform in July 2013 to respond to trends regarding the mix of industry, office and elements of retail to encourage business investment.

Increased flexibility is evidenced by the recent development of commercial zone 3 to support business growth and innovation by establishing a diversity of areas from which businesses can thrive. The provision of a sufficient supply of commercial and industrial is key to this.

Employment impacts

The changing shape of industry will inevitably change the scale, skill set and location of jobs. Some jobs will be displaced, but employment impacts in Australia specifically may include:

- Employment will more likely to be in higher productivity roles - for example, Australian manufacturing jobs with incomes of $78,000-$104,000 have increased by 200% in a decade[4]
- Workforce and skill planning, at individual, organisational, government and spatial levels will need to be built for an uncertain future[5]

Market demand

Industrial development activity has undergone a structural shift to increased flexibility[3]. Emerging themes within the industrial market include increased demand amongst investors, developers and occupiers for strategically located multi-storey logistics facilities[7] and compact strata-titled unit developments. These trends can be attributed to:

- Changing consumer requirements in response to the rise of e-commerce[8];
- Increasing land prices;
- Investors chasing higher rental yield[9]

Economic impacts

In 2018, manufacturing contributed 5.7% of Australia’s GDP, a significant part of our economy. However, this economic contribution of the sector has been declining.[6] Growth components of the sector include high-skill and technology-intensive goods exports. The economic potential of the sector will depend on investing for the future - particularly low-volume, high-value manufacturing with customer and export focusses, that have fundamental different infrastructure and employee requirements.

Transition from traditional to emerging industrial

There are a number of transition precinct examples across Victoria that demonstrate the importance of allowing the end user market to influence the use of the land. These areas under transition provide for a broad range of typologies, innovations and amenity that have changed how these particular areas are viewed.

What’s driving the transition......

High wages driving traditional manufacturing offshore to less developed nations, with Australia responding to new jobs and innovations. Ecommerce is also driving significant demand for well placed, strategic industrial land that can support ‘last mile’ delivery in urban areas.

These factors amongst others have contributed to increasing industrial land values, which in turn has impacted how the land is developed to optimise returns and benefits.

The Australian economy is expected to continue to evolve, therefore it is essential that emerging industrial has the flexibility to react to changing market and end-user demand, future proofing Australian Jobs.

Monash National Employment and Innovation Cluster, VIC

The Monash NEIC is a health, education and research precinct which supports circa 75,000 jobs across a diverse range of industries with an annual economic contribution of over $9.4 billion to the State[3]. The precinct incorporates:

- Australia’s largest university (Monash University),
- the Australian Synchotron,
- the Melbourne Centre for Nanofabrication,
- Monash Medical Centre and a new Monash Children’s Hospital,
- CSIRO’s largest site in Victoria and the Monash Enterprise Centre.

Again, this traditional precinct has seen a shift away from goods related services to business services manufacturing down from 15.9% to 10.0%. Simultaneously there has been growth in Professional, Scientific and Technical Services (2019 at 9.5% from 7.3% in 2009), healthcare (2019 at 12.8% from 11.1% in 2009) and education (2019 at 12.7% from 11.2% in 2009).

Western Suburbs, VIC

There has been a transition in traditional manufacturing jobs in the west from 12.8% in 2011 to 7.4% in 2016[1]. As these jobs have declined, there has been an increase in jobs that support population growth such as Healthcare at 10.5% in

Aligned to this change in job’s it is clear that Melbourne’s West is growing its offerings in education, training, research and development facilities, which complement existing industry.

In addition to the emerging logistic and warehouse locations in the new western suburbs such as Truganina, the identification as Sunshine and Footscray as two of the State Government’s priority precincts[2] is expected to continue to drive change in the inner west industrial zoned land.

Geelong, VIC

In 2006 manufacturing was the leading employer in Geelong making up 14.3% of jobs, by 2016 influenced by the closure of Geelong’s Ford Australia Manufacturing plant, which is proposed to be redeveloped into an innovative technology focussed business park [4], and the Alcoa run Point Henry smelter, manufacturing jobs in Geelong had dropped by 4,605 roles to make up just 7.5%[5].

To ensure Geelong’s future prosperity a strategy was devised to leverage Geelong’s existing strengths in engineering and manufacturing and combine these with Australia’s growth industries in education, technology and healthcare to establish the Geelong future economy precinct[6]. The precinct based at Deakin University’s Waurn Ponds campus focuses on the development of skilled labour to feed its research institutes and advanced manufacturing companies CSIRO, Carbon Nexus, LeMond Composites and Carbon Revolution. Today the Geelong future economy precinct employs over 1000 people in advance manufacturing, Education and Healthcare.
The rise of mixed use

A range of factors are driving development trends towards mixed-use outcomes. The combination of urban sprawl, increasing land values and the stronger desire for the population and policy makers to promote co-location of uses has resulted in a growth in business parks that blend commercial, industrial, retail and amenity to great effect.

Australian context

Today's Australians are, more than ever, favouring co-location in developments, allowing the ability to live, work and play in a single location. To ensure the needs of the customer are able to be met, the commercial real estate market has been forced to evolve, with the continued emergence of true mixed use developments a key contributor to meeting this end user demand.

Mixed use developments are attractive on a number of fronts, and provide significant benefits to government, community and developers over more traditional single use developments, including:

- **Flexibility** - in order to future proof mixed use developments, developers are designing buildings to allow for multiple uses, this ability to flex to demand is essential to ensure long term prosperity of the development.
- **Health benefits** - walkability from home to the office, along with access to a lifestyle facilities
- **Higher council taxes per sq m** - A combination of high to medium rise commercial and residential increases over traditional low rise residential the council's land tax income stream.
- **Lower risks for developers** - Greater exposure to customers, lower infrastructure costs.

Mixed use developments are also changing the role of the developer. No longer are they simply building owners, they are now also service providers and curators of place with a focus on delivering an experience for locals, along with the flexibility tenants are seeking allowing for co-location of live, work and play.

Mix of uses and success factors

There are a range of success factors in business and enterprise parks. These can include the following[1]:

- **Curation** - careful curation of the tenants and amenities is critical to meeting the needs of the end users
- **Community** - creating a sense of community is important to create something that is more than a place of work
- **Design including the Built form, landscaping, green space, multi purpose and flexible spaces

Market demand

Given the continued contraction in CBD and fringe market vacancy rates, there has been a significant increase in tenant demand in suburban business parks. Increased tenant demand has led to a number of new spectatively built developments including a newly approved mixed use development in Burwood East, the Nexus Corporate Park in Mulgrave, and the Caribbean Business Park in Scoresby [4]. Total Melbourne suburban office stock stood at circa 3 million sqm as at Jan 19, with a total vacancy rate of 4.4%, and 12 month net absorption of 56,000 sqm [5].

Employment impacts

Mixed use developments allow people to live and work locally, optimising their time choices. Employment impacts of this include:

- **Workers with lower commuting times** have 16% less absenteeism than people who do not live close to their employment[2]
- **Workers with high job satisfaction and happiness** (of which commuting time is one of the main contributing factors), can lead to a 12 per cent more productive workforce[3]

Economic impacts

There are direct economic benefits following from employment productivity shown to the left. Additionally, clustering employment, residential and social uses can have agglomeration economic benefits from concentration of economic activity. These can include supply chain efficiencies and ability to attract skilled labour. Mixed use neighbourhoods that bring population services closer to employment and residential hubs can also have environment benefits by reducing travel.

[1] Colliers International Review of PCA Awards
The rise of mixed use

Australia and Victoria in particular have seen an increasing demand for mixed use business park precincts. These projects demonstrate the need to respond to changing end-user demand over time, with a renewed focus on embedding high levels of amenity, landscaping and green space to boost physical wellbeing outcomes for those who interact with the precincts.

The role of the mixed use business park

The evolution of co-location of industries and impact of emerging trends has seen an increase in the demand for business parks, whether this is in the form of new development or the repositioning of more traditional parks to cater for new demand drivers. Given the lack of available stock in CBD Fringe markets, the metropolitan office market is experiencing significant investment demand. Transaction volume exceeded $750 million in 2018, primarily driven by offshore investors targeting assets with redevelopment potential.

The role of mixed use business parks is to create employment and lifestyle hubs outside the CBD to support knowledge economies, job creation in close proximity to residency and enabling flexibility to cater for a changing economy, thus ensuring future prosperity.

Minta Farm, VIC

There is a 25 year vision for the development of the Minta Farm site in Melbourne’s south-east, into a significant mixed use precinct. Early stage development with completion from 2020, will establish residential housing to accommodate approximately 8,500 people in approximately 3,050 dwellings.

The long term vision for the Minta Farm site will include commercial sites for information, research, technology and knowledge-based employment and services to support Casey’s growing population and economy.

Norwest Business Park, NSW

Established in 1992, Norwest Business Park is a world-standard business park located at Baulkham Hills and Bella Vista in Sydney, Australia. Representing an investment in excess of $2.5 billion, Norwest Business Park comprises a total of 377 ha, with 221 ha dedicated for business use, and 122 ha for residential purposes. A key focus for the Park is the amenity provided for occupants and residents, with over 30 hectares set aside for lakes, waterways and parklands. Norwest has recorded six consecutive quarters of positive net absorption, totalling 9,300 sqm, and a vacancy rate of 3.80% as at Q2 2018.

Tonsley, SA

Formerly the site of a Mitsubishi motors assembly plant, the 61ha Tonsley site provides an example of a transition from a traditional manufacturing site to a mixed use space, includes 24 hectares for high-value manufacturing and commercial purposes which will support an expected 6,300 full time workers across a range of industries and sector. 11 hectares have been allocated to the Tonsley Village. Which is set to provide approximately 850 homes for around 1,200 residents.

[1]: Property Council of Australia
[4]: The Sydney Morning Herald (2019) Suburban office sector giving the CBD some competition
[5]: CBRE (2019) Surgeoning activity in Melbourne’s suburban office parks
[6]: Knight Frank (2019) Melbourne Metropolitan Office Market Review April 2019
[7]: Jones Lang LaSalle (2018) Norwest Market Overview Q2 2018

December 2019
Appendices
Appendix A - Methodology

Detailed below are the various methodologies adopted by PwC in conducting the analyses contained in this report:

Sources:
- Draft Melbourne Industrial and Commercial Land Use Plan (2019)
- Urban Development Program (2018)

Notes / Approach:
1. Zoned land is net
2. Unzoned land is gross and subject to discounting
3. Total supply comprises the net zoned and gross unzoned figures
4. Availability / vacancy figures are taken as a proportion of total supply outlined in the point above.
5. SSIP (%) is calculated as a proportion of the total vacant land for each region that is categorised as state significant.
6. Unzoned supply (%) is calculated as the proportion of total vacant land that is not yet zoned (i.e. future supply).
7. The northern region map is colour scaled based on the proportion of vacant space (as a % of total land). Note that the ‘total (ha)’ column refers to industrial space, rather than the area of each LGA as a whole.

Sources:
- Cordell Connect (dated December 2019)

Notes / Approach:
1. Data is collected from Cordell Connect (retrieved December 2019) with the following filters:
   a. Industrial project type
   b. Metropolitan Melbourne areas
   c. Projects involving new or additional space (i.e. renovations)
   d. Projects to be completed from January 2019 onwards (i.e. not already completed)
   e. Projects currently in early planning through to construction
   f. Abandoned / duplicate projects removed
2. Map - The data is colour scaled according to the number of projects in each postcode.
3. Tables - The data is sorted by ‘main project category’ as defined by Cordell Connect and summarised as a proportion of total according to ‘estimated project value’.

Sources:
- Draft Melbourne Industrial and Commercial Land Use Plan (2019)
- Urban Development Program (2018)

Notes / Approach:
1. Supply / Absorption Calculation:
   a. Identify areas zoned (or intended to be zoned) for industrial purposes and identify individual cadastral base parcels within these zones.
   b. Make an assessment from geo-rectified digital aerial photography of the status of land as either occupied or vacant.
   c. Parcels changing from vacant to occupied between annual dates of aerial photography are deemed to be absorbed / consumed.
2. Remaining Life Calculation:
   a. Zoned land is net
   b. Unzoned land is gross and discounted in a two step process:
      i. 15% for infrastructure
      ii. 20% for potential further subdivision and infrastructure
3. A grossing factor of 65% (i.e. building coverage ratio) is applied as per the CBRE industry report to obtain the land required to accommodate the reported construction data.
4. A grossing factor of 35% is also applied as an additional sensitivity for indicative purposes.

Sources:
- JLL Quarterly Industrial Market Overview (2015-18)
- CBRE Quarterly Australia Industrial MarketView (2015-2018)
- Knight Frank Melbourne Industrial Market Overview (2018)
- Other relevant industry publications
- Direct engagement with industrial market participants

Notes / Approach:
1. Quarterly data (reported industrial construction pipeline) from each of the respective sources is compiled (typically on a calendar year basis).
2. The construction data is averaged (unweighted) for each of the relevant years (2015-2018).
3. A grossing factor of 65% (i.e. building coverage ratio) is applied as per the CBRE industry report to obtain the land required to accommodate the reported construction data.
4. A grossing factor of 35% is also applied as an additional sensitivity for indicative purposes.

[1]: Occupied land defined by the UDP to include “land occupied by buildings, container parks, informal carparking, quarries, agricultural uses and hard stack storage areas.”
[2]: PwC assumption based on market engagement.
Thank you