

GOLD COAST DWELLING SUPPLY STUDY

Assessing the Gold
Coast's Expansion Area
Dwelling Supply



This report was prepared by Zone Planning Group in collaboration with BIOME Consulting, Matusik Property Insights and Zone Landscape Architecture.

February 2020

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EXECUTIVE SUMMARY

South east Queensland, currently home to approximately 3.4 million people, is one of the fastest growing urban regions in Australia. In order to accommodate the current and forecast growth it is critical that State and local planning instruments are structure in such a manner that supports residential development in the right locations and facilitates housing choice and diversity.

In December 2018 the Queensland Government released the first Land Supply and Development Monitoring Report, an initiative identified by ShapingSEQ, the South East Queensland Regional Plan 2017, as a tool for monitoring the delivery and planned supply of dwelling stock within the region.

This report has been prepared to determine the realistic availability of land within the Gold Coast local government area's expansion area to accommodate residential development through to 2041. In particular, this report analyses the existing development potential of land based on the local and State planning controls applicable to the Gold Coast expansion land as at August 2019.

This analysis has been completed via a comprehensive sieve mapping exercise undertaken by Zone Planning Group, BIOME Consulting and Zone Landscape Architecture to identify the study area, applicable planning controls, calculate planned residential densities and apply environmental constraints which may inhibit future development. This analysis focused only on the Code Assessable development outcomes achievable under the relevant provisions of the Gold Coast City Plan (v7) and the planned residential densities allowed for under both the City Plan and Planning Assumptions associated with the Gold Coast Local Government Infrastructure Plan (LGIP).

Following the identification of the total developable area within the Gold Coast's expansion area, Matusik Property Insights undertaken a final sieve to determine the economic reality and likelihood of the planned dwelling yield being delivered by 2041.

This assessment has determined that cumulatively, the Gold Coast expansion area has the capacity to accommodate up to 22,673 dwellings to 2041, approximately half that identified by the LSDM (2018), of which only 11,038 have a medium to high chance of being developed by 2041.

This is comprised of:

- 4,143 dwellings under 20 dwellings per hectare
- 6,906 dwellings over 25 dwellings per hectare.

Based on the high and medium likelihood figures mentioned above and the annual average dwelling demand for new housing stock, the Gold Coast expansion area provides approximately 4.6 years of supply.

Significantly, with the increased demand for detached housing stock (ie. densities of 20 dwellings per hectare or less), it is anticipated that there is only 2 years of supply of land accommodating 20 dwellings per hectare remaining within the expansion area.

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BACKGROUND

Currently home to approximately 3.4 million people, South East Queensland has experienced significant growth over the last 20 years and is anticipated to continue to experience similar growth over the coming years. As the region's population continues to grow, so does the demand for housing. It is therefore critical that State and local planning instruments are structured in such a manner that facilitates development in the right locations to accommodate this growth and provide for housing choice and diversity.

This study seeks to analyse the Land Supply and Development Monitoring Report (2018) prepared by the Queensland Government and publicly released in December 2018. Specifically, this study examines dwelling supply within the expansion area of the City of Gold Coast local government area (LGA) to the year 2041.

ShapingSEQ – South East Queensland Regional Plan 2017

ShapingSEQ, the South East Queensland Regional Plan 2017 (SEQRP), was published by the Queensland Government in August 2017, establishing a 50 year vision for South East Queensland (SEQ). To facilitate the development of the region, the SEQRP establishes three key land use designations, the Urban Footprint, Rural Living Precinct (RLP) and Regional Landscape and Rural Production Area (RLRPA). Generally speaking, land within the Urban Footprint is intended to accommodate the region's urban development through until the year 2041 with the RLP and RLRPA intended to preserve areas of natural and environmental significance and for agricultural production (Department of Infrastructure, Local Government and Planning, 2017).

The SEQRP also continues to define the region's Existing Urban Area (EUA), a boundary formed based on SA2 boundaries as provided by the Australian Bureau of Statistics. The EUA has been in place since the 2005 iteration of the SEQRP; however, the boundaries which define it have shifted over time transitioning from former census collection districts to the current SA2-based boundary. The EUA is critical to defining where the region's expansion and consolidation development occurs.

Expansion development is defined by the SEQRP as:

'Development on land outside the existing urban area boundary. Previously known as 'greenfield development'' (Department of Infrastructure, Local Government and Planning, 2017).

Consolidation development is defined by the SEQRP as:

'Development on land inside the existing urban area boundary. Previously known as 'infill development'' (Department of Infrastructure, Local Government and Planning, 2017).

Being SA2-based, there are discrepancies between the EUA and cadastre-based Urban Footprint boundaries resulting in land located outside of the Urban Footprint being located within the EUA. This has the potential to skew consolidation and expansion area targets with the development potential of land outside of the Urban Footprint being significantly constrained by the assessment benchmarks provided by Schedule 10 of the Planning Regulation 2017 with respect to land in the RLP and RLRPA. At a regional level, the EUA is primarily focused around the main urban townships and cities (see **Figure 1**).

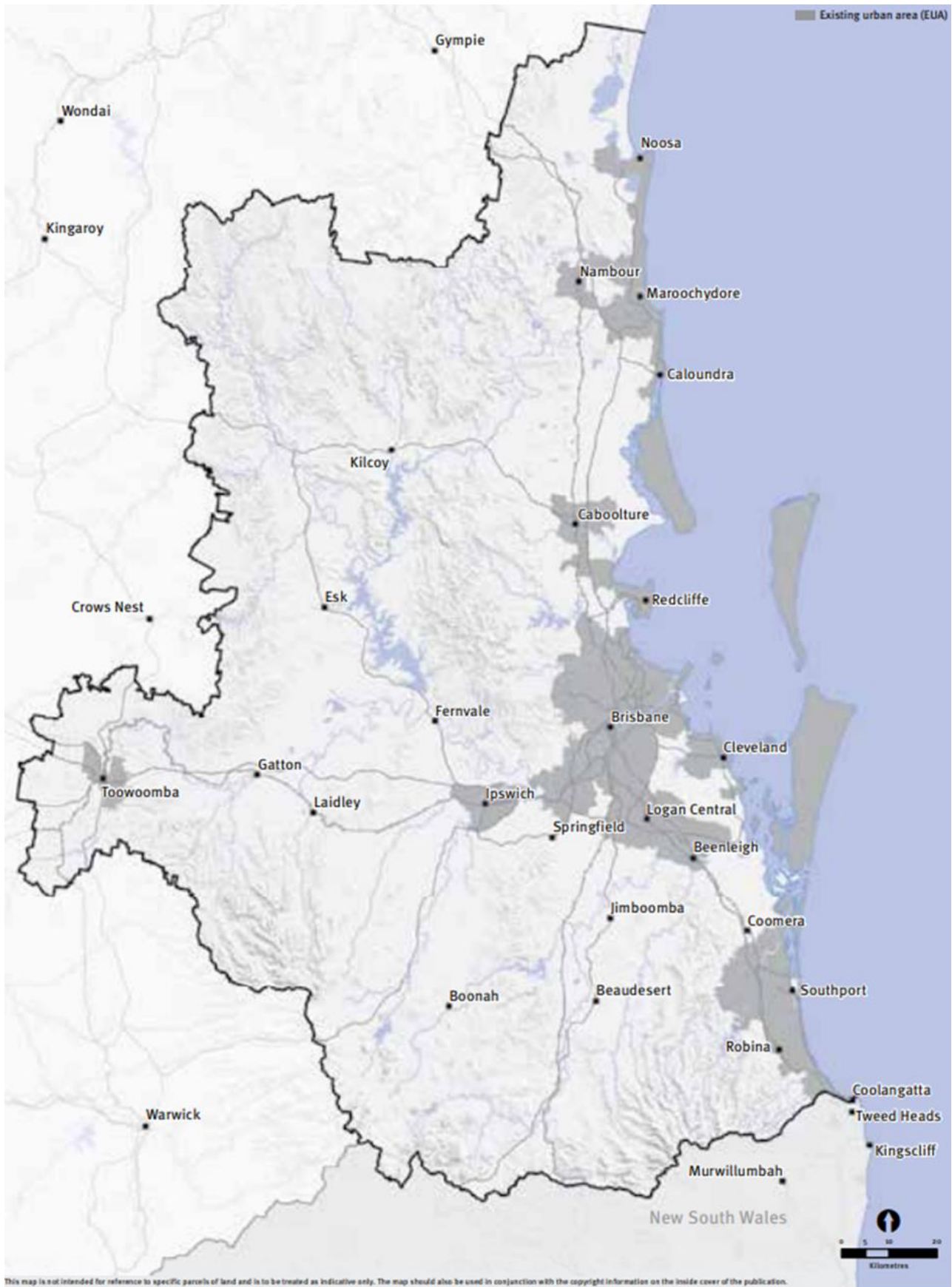


Figure 1: Existing Urban Area boundary (Department of Infrastructure, Local Government and Planning, 2017)

The SEQRP includes sub-regional directions (a revised version of the former sub-regional narrative) for each sub-region of SEQ which are intended to guide development in these areas over the 25 year period until 2041. The Gold Coast LGA is located within the Southern Sub-Region, being the only LGA in that sub-region.

At the time of drafting the SEQRP, the Gold Coast LGA had a population of approximately 567,900 people with the population estimated to increase by 351,100 people between 2016 and 2041. To accommodate this population growth, the SEQRP anticipates an additional 158,900 dwellings will be required to accommodate these people of which 20% (31,000 dwellings) are to be located within the LGA's expansion area and the balance 80% within the consolidation area (Department of Infrastructure, Local Government and Planning, 2017). Interestingly, there were no significant changes to the Urban Footprint boundary within the Southern Sub-Region as part of the SEQRP review leading to the publication of ShapingSEQ.

To facilitate the implementation of the direction set by ShapingSEQ, the SEQRP establishes a number of benchmarks for local governments to meet through their planning schemes, including:

- minimum 15 years of dwelling supply in the consolidation and expansion areas;
- sufficient land to achieve the dwelling targets set for each sub-region;
- allowing development to facilitate an 80% / 20% split in terms of consolidation versus expansion development; and
- maintaining a minimum 4 years of supply of reconfiguring a lot approvals (Department of Infrastructure, Local Government and Planning, 2017).

Land Supply and Development Monitoring Report 2018

In addition to setting the direction for the future development of SEQ, ShapingSEQ identifies a number of measures for delivering and monitoring the goals for the region, including land supply and development monitoring. In December 2018 the Queensland Government released the first Land Supply and Development Monitoring Report. It is understood that the Queensland Government intend to release an updated version of the LSDM report annually as a means of continually monitoring development within SEQ.

LSDM Report Findings

For the purpose of this study, the most relevant section of the LSDM report is that relating to planned dwelling supply, as such ultimately demonstrates that ability for the Gold Coast LGA to support continued growth into the future. The LSDM report defined planned dwelling supply on the basis of capacity and realistic availability and concluded that the Gold Coast has in excess of the required minimum 15 years of supply in both the consolidation and expansion areas. Relevantly, the LSDM identifies a capacity of 46,911 dwellings and realistic availability of 45,376 dwellings within the Gold Coast's expansion area (Department of State Development, Manufacturing, Infrastructure and Planning, 2018).

Capacity is defined by the LSDM report as *'the number of dwellings that could be developed in an area when fully developed in compliance with the planning instruments that currently apply in that area, given the expected nature of dwelling demand and densities over time'* (Department of State Development, Manufacturing, Infrastructure and Planning, 2018).

While *'realistic availability'* is defined as *'a scenario which assumes some of the capacity of planned dwelling supply is not available for development by 2041 due to factors that may constrain the availability of land for development to accommodate dwellings. Such factors may include:*

- *infrastructure availability*
- *the practical staging of and capability for development*

- *landownership fragmentation*
- *landowner intent*
- *insufficient demand for the planned scale/density of uses in some areas up to 2041*
- *existing versus planned density (or land value in the existing versus the planned use)*
- *the age of existing development*
- *accessibility*
- *constraints affecting the economic feasibility of development (Department of State Development, Manufacturing, Infrastructure and Planning, 2018).'*

Interestingly, the LSDM found that the current development trend on the Gold Coast is seeing approximately 40% of all new residential development occurring within the expansion area, exceeding that anticipated by the SEQRP.

It is noted that the Queensland Government released the 2019 version of the LSDM Report on 10 December 2019. The 2019 version of the LSDM Report includes very little change to the planned dwelling supply in terms of capacity and realistic availability figures compared to the 2018 version of the report, noting a capacity of approximately 47,000 dwellings and realistic availability of approximately 45,000 dwellings within the Gold Coast LGA's expansion area (Department of State Development, Manufacturing, Infrastructure & Planning, 2019).

LSDM Report Methodology

In support of the LSMD report, the State published background material under the title of 'Best Practice Research' and 'Technical Notes'; however it is important to note that the methodologies and data of the various technical reports relating to the whole SEQ region purportedly commissioned by the State have not been publicly published. Specifically, these reports include the following research:

- realistic land availability and take-up, undertaken by Spatial Economics;
- use and density, undertaken by Spatial Economics;
- land suitability, undertaken by RPS; and
- ability to service, undertaken by GHD.

Through the Best Practice Research section of the LSDM report, it is noted that realistic land availability and take-up was assessed both based on the longer-term capacity of zoned land to accommodate growth but also factors which may influence how land is used, including:

- infrastructure availability;
- instances where planned uses are not in sufficient demand up to the planning horizon;
- existing versus planned density (or land value in the existing versus planned uses);
- age of the existing development on land;
- accessibility; and
- any constraints which may affect the economic feasibility of development.

SEQ Koala Conservation Strategy & Regulation

The draft South East Queensland Koala Conservation Strategy and associated mapping was released for public consultation in December 2019. Due to the timing of the release of the draft strategy and mapping, being outside of the August 2019 date set in the methodology of this report, the implications of the strategy and associated regulation have not been factored into this study. The SEQ Koala Regulation and associated mapping was adopted and commenced on 7 February 2020.

SCOPE

Purpose of the report

The purpose of this report is to determine the realistic availability of land within the Gold Coast's expansion area to accommodate residential development through to 2041. In particular, this report analyses the existing development potential of land based on the local and State planning controls applicable to the expansion land on the Gold Coast as at August 2019.

The methodology associated with this analysis is detailed in the following section of this report.

METHODOLOGY

This section of the report provides a breakdown of the methodology utilised to analyse the realistic planned dwelling supply within the Gold Coast LGA's expansion area.

From the outset it is important to recognise that this analysis is only based on the expansion area within the Gold Coast LGA. Specifically, this is defined based on the land within the Gold Coast LGA that is outside of the EUA boundary but contained within the Urban Footprint boundary (see **Figure 2**).

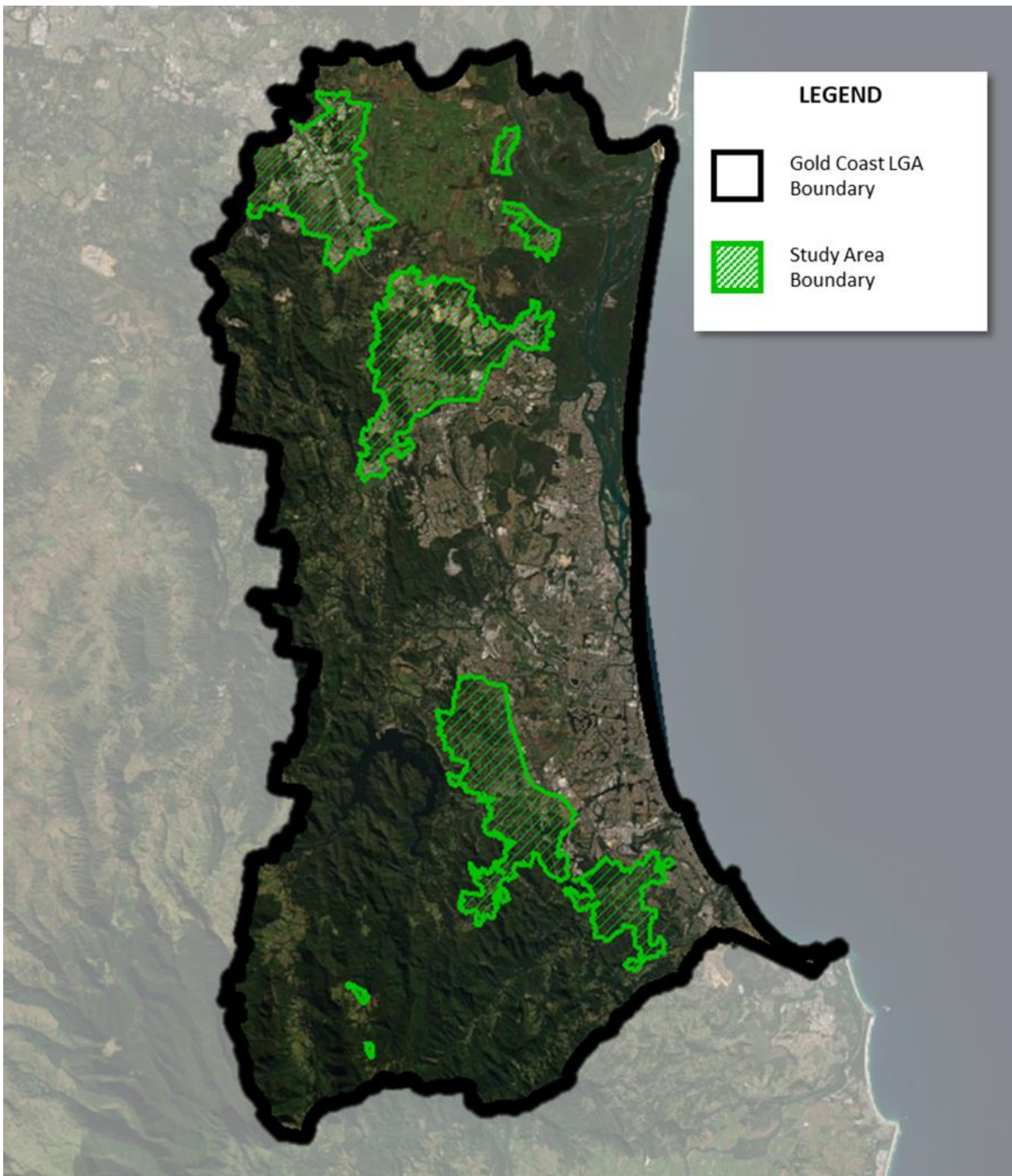


Figure 2: Study area

The analysis undertaken is parcel specific and is based on publicly available data sets produced by the Queensland Government and City of Gold Coast and aerial imagery produced by Nearmap as at 17 August 2019.

The Gold Coast LGA's EUA boundary was defined based on:

- the information contained in ShapingSEQ;
- mapping of the EUA published by City of Gold Coast in support of the Gold Coast City Plan (Strategic Framework Map SFM-9);
- SA2 boundary data sourced from the Australian Bureau of Statistics; and
- cadastre published by the Department of Natural Resources, Mines and Energy.

The Urban Footprint boundary was introduced into the GIS model to define the consolidation and expansion areas. Once the expansion area within the Urban Footprint was identified, this was extracted and defined as the 'study area'.

The methodology utilised a four-phase sieve mapping exercise to analyse each parcel within the study area based on varying levels of detail and constraints. The four phases consisted of:

1. By the Book;
2. Special Cases;
3. Environmental Constraints; and
4. Economic Reality.

The methodology associated with each phase is described in detail within the following sections.

Phase 1 – By the Book

The first phase of the sieve mapping exercise focused on a strict application of the zoning and planned residential densities under the Gold Coast City Plan (version 7) to the study area.

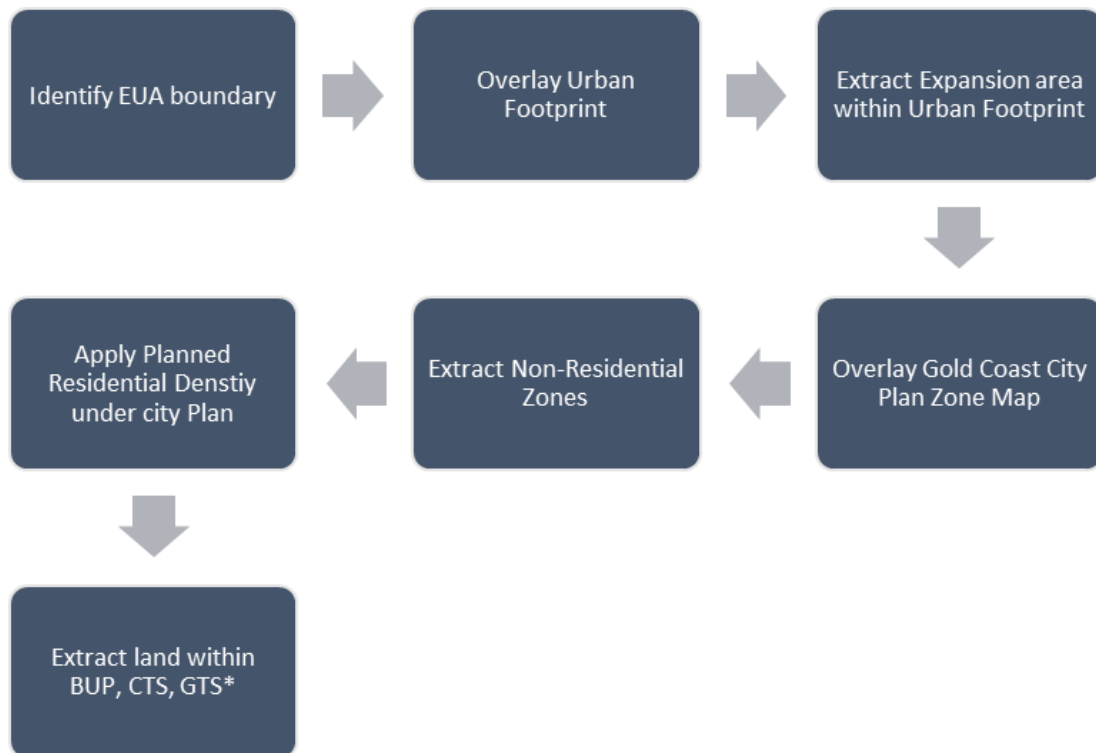


Figure 3: Phase 1 methodology

*land within a building unit plan, community titles scheme or group titles scheme or similar was extracted where the redevelopment potential of the land was equal to or less than the planned density applicable to the land under the City Plan (v7).

The Gold Coast City Plan (v7) identifies a total of ten zones as being able to facilitate residential development based on the Code Assessable development rights conferred by the respective Tables of Assessment in Part 5 of the City Plan, namely:

- Low density residential zone
- Medium density residential zone
- High density residential zone
- Innovation zone
- Centre Zone
- Neighbourhood centre zone
- Mixed use zone
- Township zone
- Rural residential zone
- Emerging community zone

Importantly, with the exception of the Emerging Community Zone which is discussed separately below, Impact Assessable residential development opportunities have not been considered in this assessment due to the discretionary decision-making powers conferred on an Assessment Manager for such development. Impact Assessment triggers provided by the City Plan are relatively clear-cut, being identified in the Table of Assessment for each respective zone and range from land use and building height to residential density in certain circumstances (eg. Low Density Residential Zone).

Residential density is clearly defined within the City Plan, with the Residential Density Overlay Map generally allocating the residential density applicable to a particular parcel of land. **Table 1** (below) shows the residential density categories provided by the City Plan.

Table 1: City Plan Residential Density Categories

Category	Density Designation	Dwellings per hectare
RD1	1 dwelling/ 400m ²	25
RD2	1 dwelling/ 300m ²	33
RD3	1 dwelling/ 250m ²	40
RD4	1 dwelling/ 200m ²	50
RD5	1 bedroom/ 50m ²	100
RD6	1 bedroom/ 33m ²	150
RD7	1 bedroom/ 25m ²	200
RD8	1 bedroom/ 13m ²	385

Where the RD Overlay Map does not apply to a site, the default residential density is identified in the Table of Assessment for the applicable zone.

The Emerging Community Zone is an exception to this rule as it is broadly recognised as the main zoning designation for facilitating 'greenfield' development with the purpose of the zone stated as:

- (1) *The purpose of the Emerging community zone is to:*
- (a) *Identify land that is suitable for urban purposes and protect land that may be suitable for urban development in the future*
 - (b) *Manage the timely conversion of non-urban land to urban purpose*
 - (c) *Prevent or discourage development that is likely to compromise appropriate longer term land use' (City of Gold Coast, 2016).*

With the exception of limited small-scale interim land uses, such as a Dwelling House, other forms of urban residential development trigger Impact Assessment, but are nonetheless generally consistent with the purpose of the Zone.

The zones identified as being 'non-residential' zones for the purpose of this report include the following:

- Extractive industry zone
- Waterfront industry zone
- Low, medium & high impact industry zones
- Mixed use zone (Fringe business precinct)
- Open space zone
- Conservation zone
- Limited development (constrained land) zone
- Community facilities zone Sport & recreation zone
- Special purpose zone
- Rural zone
- Major tourism zone
- Low density residential zone (Large lot precinct)
- Township zone (Large lot precinct)

Further detail regarding the determination of 'residential' and 'non-residential' zones for the purpose of this report is provided in **Appendix 1**.

All land within the non-residential zones was extracted from the GIS model and excluded from this analysis.

The City Plan Residential Density Overlay Map was applied to the remainder of the study area to assign a planned residential density to each remaining lot. Where the Residential Density Overlay Map did not apply to a specific lot, the 'default' residential density provided by the applicable Zone Code was applied.

For the purpose of calculating residential density in terms of dwellings the assumptions utilised the planning assumptions employed by City of Gold Coast in the drafting of the Gold Coast Local Government Infrastructure Plan (LGIP) to maintain a consistent approach between the methodology adopted by Council and the State. Please refer to **Appendix 1** for a breakdown of residential density rates.

Phase 2 – Special Cases

The second phase of the methodology considers ‘special cases’ where land is under government ownership, improved by development that is inconsistent with the residential zoning or existing residential development approvals that have been commenced but not yet completed.

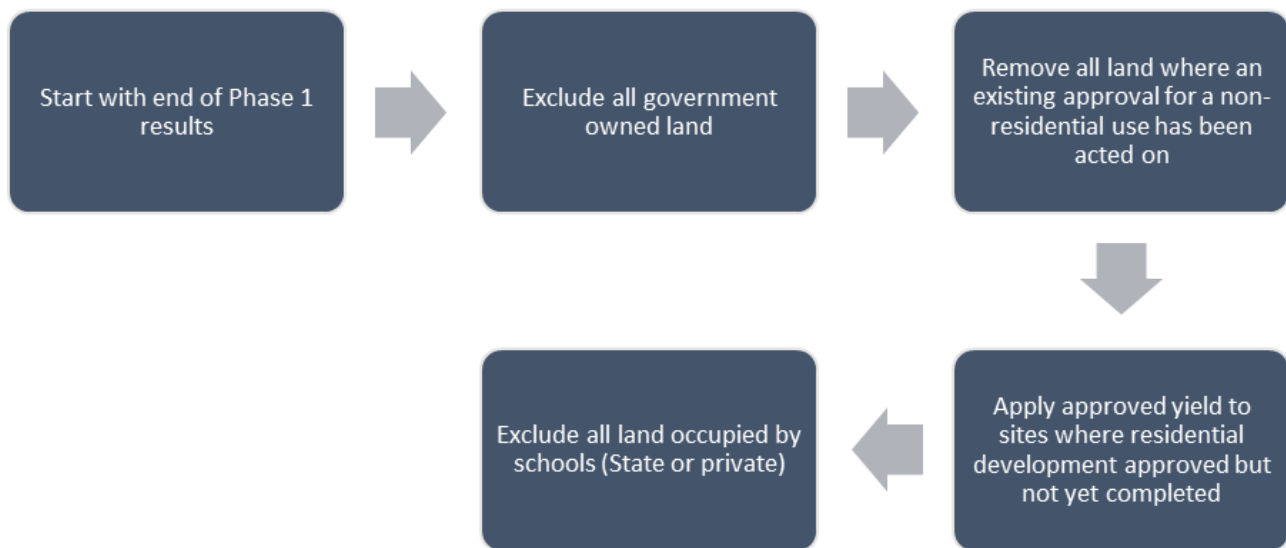


Figure 4: Phase 2 methodology

Following the completion of Phase 1 of the exercise, all land that was under government (local, state or federal) ownership at the time was excluded from the analysis. This included land purchased for future schools and community infrastructure or dedicated as open space or set aside for road reserves.

Where an existing development approval for a non-residential use was granted over residential land and had been acted upon, that land was excluded from the analysis due to the nature of the use being generally higher yielding (financially) than that which could be achieved through the development of the land for residential purposes. Generally, many of these approvals had been recently acted on (ie. within the preceding 12 months) and therefore the age of the non-residential development on the site also acted as a constraint for future residential development within the study timeframe.

Throughout the Gold Coast expansion area, there are a select number of examples of larger residential developments having been approved but not yet completed. Where this occurred, the balance of the approved residential density/yield not yet constructed was factored in for that particular site recognising its contribution to future housing stock.

Finally, all land that was improved by a school, whether public or private, located within a residential zone was removed from the study area as it was considered that would be a very low (if any) likelihood of such a facility being redeveloped for residential development within the study timeframe.

Phase 3 – Environmental Constraints

The objective of this phase of the methodology was undertaken by BIOME Consulting and sought to determine the extent to which environmental constraints impact on the potential to develop the land identified within Phase 2 of the project (approximately 2,350 ha). The provisions of the City Plan Environmental Significance Overlay Code were relied upon to define relevant constraints with the listed Acceptable Outcomes being the preferred result and the Performance Outcomes achieved as a secondary requirement. From the outset it is important to note that Part 1.4 of the City Plan establishes a hierarchy of assessment benchmarks which sees Overlays prevail over Zones and Use/Development Codes (City of Gold Coast, 2016). This has the effect of affording Overlays, such as the Environmental Significance Overlay, greater weight in the Development Assessment process and defining the extent of developable area on a particular site.

Environmental Significance Overlay Code

The Environmental Significance Overlay Code seeks to identify and protect matters of environmental significance (MES) and ensure that development is consistent with, and contributes to, the achievement of the objectives of City of Gold Coast's Nature Conservation Strategy (City of Gold Coast, 2016).

In order to protect MES, development is generally required to maintain environmental significant areas 'in situ' and provide buffers to ensure long term ecological function.

The code applies to all material change of use, reconfiguration of a lot and operational works (vegetation clearing, changes to ground level, infrastructure) for development on land identified in Part 5.10 Categories of development and assessment and containing the following mapped overlays:

- Environmental significance – Biodiversity areas;
- Environmental significance – Priority species;
- Environmental significance – Vegetation management; and
- Environmental significance – Wetlands and waterways.

The code contains Performance and Acceptable Outcomes grouped under the following areas of interest:

- Ecological Site Assessment;
- Biodiversity area;
- Wetland and Waterway;
- Vegetation Management;
- Priority Species;
- Fauna Management;
- Tenure, ownership and management arrangements; and
- Rehabilitation.

The code presents a general theme or hierarchy to the implementation of the listed outcomes, which can be summarised as:

- Across the City:
 - Wetlands, Waterways and their associated buffers are protected and enhanced; and
 - High Priority and Regulated Vegetation is protected in situ;

- Within Biodiversity Areas:
 - MES is protected “in situ” and enhanced to maintain flora and fauna diversity; and
- Outside of Biodiversity Areas:
 - Disturbance to medium and general vegetation is minimised to the greatest extent possible; and
 - State and local significant species and their habitat are identified and protected

Methodology

A spatial analysis was undertaken using Geographical Information System software to identify the extent to which the of identified developable land (approximately 2,350 ha) from Phase 2 of the project, is affected by environmental overlays (constraints).

QGIS was used as the preferred platform for the analysis as it supports both raster and vector layers and integrates with open data sources effectively.

Available Digital Data

Initially a search of Council’s open data portal was undertaken to identify relevant digital data sets (**Table 2**). The search indicated that most data sets were available digitally and could be used for spatial analysis.

Table 2: Digital data set availability

Overlay Map	Overlay Map Sub-set	Digital Data Set
Environmental significance – Biodiversity areas	• Protected Areas	Not Available
	• Hinterland core habitat system	Available as Hinterland core habitat system, Substantial remnants and Coastal wetlands and islands core habitat system
	• Coastal wetlands and islands core habitat system	
	• Substantial remnants	
	• Hinterland to coast critical corridors	Available
Environmental significance – Priority species	• Koala habitat areas	Not Available
	• State significant species	Available
	• Local significant species	Available
Environmental significance – Vegetation management	• Regulated Vegetation	Available
	• High priority vegetation	Available as Vegetation Management
	• Medium priority vegetation	
	• General priority vegetation	
Environmental significance – Wetlands and waterways	• State significant aquatic systems	Not Available
	• State significant wetlands.	Not Available
	• Major waterway	Available as Waterways
	• Waterway	Available as Waterways
	• Local significant wetlands	Available

The unavailable data sets were not considered critical to the outcomes of the project based on the following:

- **Protected Areas** - These areas generally constitute areas of land that are protected in nature reserves and have not been identified as having potential for development.
- **Koala Habitat Areas** – This data set covers extensive areas of nature vegetation consisting of Eucalyptus dominated forest. Whilst the inclusion of this data set would be beneficial, its spatial extent is generally reflected by the state and local significant species data set, which can be used as a substitute.
- **State Significant Aquatic Systems** – This data set covers the tidal areas of Southern Morton Bay Islands and the Coombabah Wetlands. These areas are not contained within any zoning that would allow for development. The extent of this data set is also generally covered by the spatial limits of the Local Significant Wetland data set, which can be used as a suitable substitute to determine constraints.
- **State Significant Wetlands** - The extent of this data set is similar to that of the Local Significant Wetland data set, which can be used as a suitable substitute to determine constraints.

Data Manipulation

The available data sets were uploaded into QGIS and manipulated to:

- 1) Create a **Wetland and Waterway Buffer** layer by:
 - Applying the following buffers to the Waterway line features:
 - 60 m to Major Waterways (AO5.4); and
 - 30 m to Waterways (AO5.5).
 - Applying a 100 m buffer to the Local Significance Wetland polygon (AO5.3); and
 - Combining the resulting polygons.
- 2) Create a combined **High Priority and Regulated Vegetation** layer by:
 - Extracting the high priority vegetation data from the Vegetation Management data set
 - Combining it with the Regulated Vegetation data set; and
 - Applying a 30 m buffer (AO12).
- 3) Create a combined Biodiversity Areas layer by merging the following data sets:
 - Hinterland core habitat system, Substantial remnants and Coastal wetlands and islands core habitat system; and
 - Hinterland to coast critical corridors.
- 4) Create a combined Priority Species layer by merging the following data sets:
 - State significant species; and
 - Local significant species.
- 5) Spilt the Vegetation Management (Medium and General Priority Vegetation) using the Biodiversity Areas layer to create:

- An **INSIDE Medium or General Priority Vegetation** layer; and
 - **OUTSIDE Medium or General Priority Vegetation** data.
- 6) Create an **OUTSIDE Coinciding Medium or General Vegetation and Priority Species** layer by identify those areas common to the following:
- **OUTSIDE Medium or General Priority Vegetation**; and
 - **Priority Species**.

Data processing

Based on the newly created data sets, the cadastral base of the developable land identified within Phase 2 of the project, was run through sieving process as illustrated by **Figure 5**.

The aim of the data processing was to determine the extent of developable land that was affected by the requirements of the Environmental Significance Overlay Code and thus identify the area of unconstrained development land that remains within the Gold Coast Expansion Area.

The sieving process was undertaken in a cumulative manner, with each additional sieve removing an additional land area based on the identified constraint until all constraints were applied. The resulting land area is relatively free of environmental constraints.

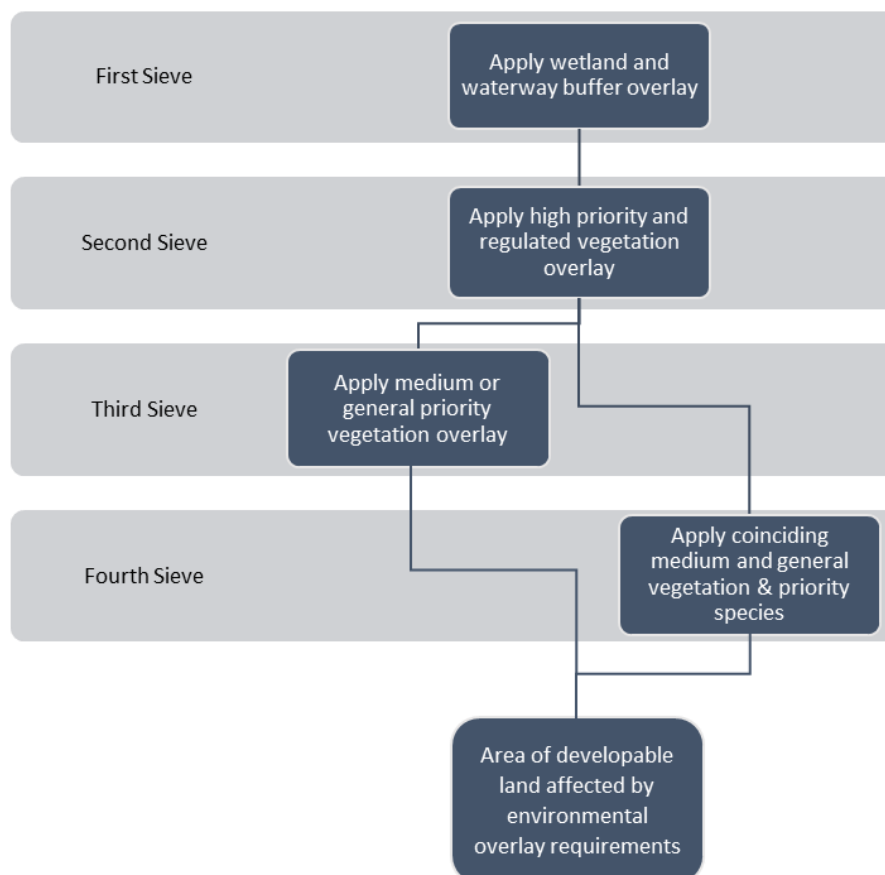


Figure 5: Phase 3 methodology

Initially, an assessment of the study area against the Flood Overlay was to be included in the Phase 3 methodology; however, when the Flood Overlay was applied to the sites assessed through Phase 3 it was

identified that the wetland and waterways and associated buffer areas provided under the Environmental Significance Overlay Map largely overlaid the areas of the study area affected by the Flood Overlay. It was therefore considered that the flooding constraints applicable to a small portion of the study area were adequately captured in the existing assessment against the Environmental Significance Overlay.

Similarly, other environmental constraints such as the Bushfire Hazard Overlay and Landslide Hazard Overlay were not included in the Phase 3 methodology due to the ability to design to respond to such hazards and their limited application to the study area.

Phase 4 – Economic Reality

The final phase of the methodology sought to refine the total developable area and yield determined at the end of Phase 3 based on the economic reality associated with redevelopment of the developable land within the study area.



Figure 6: Phase 4 methodology

This phase of the study was undertaken by Matusik Property Insights and provided an analysis of the development potential identified through Phase 3 of the study based on the application of economic assumptions.

Initially, all land within the study area that was improved by a traditional ‘big box’ shopping centre (eg. Westfield Coomera and Pimpama City Shopping Centre) were removed from the study due to the very low (if any) likelihood of any of these centres being redeveloped to accommodate residential development within the 2041 planning horizon. This was largely based on the higher economic uplift provided by the existing shopping centres which tends to detract from the overall economic feasibility of redeveloping shopping centres for residential purposes.

The balance of the land was then analysed to determine the economic viability for redevelopment based on the developable area and planning controls applicable to the site. Each remaining lot was assigned a high, medium or low ranking to differentiate the likelihood of redevelopment occurring on the site based on current and predicted market trends as follows:

- **High** = 75% + likelihood of development between 2020 and 2041

- **Medium** = 35% to 75% likelihood of development between 2020 and 2041
- **Low** = Less than 35% likelihood of development between 2020 and 2041

Sites in the **high chance** category are either already owned by development companies or are in areas where similar urban development is well advanced.

The **medium chance** category includes sites that are held in private hands and make some economic sense to redevelop. This does not take into account the owner's intent or their expectation as to profit.

The **low chance** segment includes sites which contain a very high expectation with regards to density. Such sites are already hard to develop near the beach, along the light rail corridor and/or in existing established urban centres on the Gold Coast. The economic reality and past track record suggest that high density development across much of the Gold Coast greenfield area is very unlikely by 2041.

We note that the availability or capacity of infrastructure to support the growth envisaged by the City Plan has not been reviewed under this assessment.

Also, sites which have an existing land use such as a small neighbourhood shopping centre or aged commercial development have also been placed in the low category due to the chance that an existing retail centre in an expansion area location - and especially one with multiple owners and tenants - will be redeveloped into residential dwellings is low.

Sites which had their developable area significantly reduced to impractical/ unfeasible areas due to environmental and other town planning overlays were also allocated to the low category, as development on these sites was considered to not likely be economically viable.

It was determined that planned (as per the City Plan residential density designation) or approved residential densities would be utilised consistently throughout this study. While an application of the economic reality through Phase 4 could have included applying economic assumptions based on current and forecast market trends to determine the likely yield that would be achieved in individual sites within the study area, given the subjective nature, such an approach was not implemented.

FINDINGS

In order to determine the realistic dwelling supply within the Gold Coast LGA expansion area, the methodologies for Phases 1 – 4 conveyed herein were applied to the study area. The results of this assessment are discussed below.

Application of Phase 1

In defining the study area through the implementation of the Phase 1 methodology it was determined that the Gold Coast LGA's expansion area comprises approximately 2,462ha of land contained within 16 suburbs across the LGA. A majority of the land within the expansion area that accommodates planned dwelling supply based on the Phase 1 methodology is located within the Coomera area (see **Figure 7**). Cumulatively, Phase 1 of the study identified the potential for up to 71,333 dwellings to be developed within the Gold Coast LGA's expansion area.

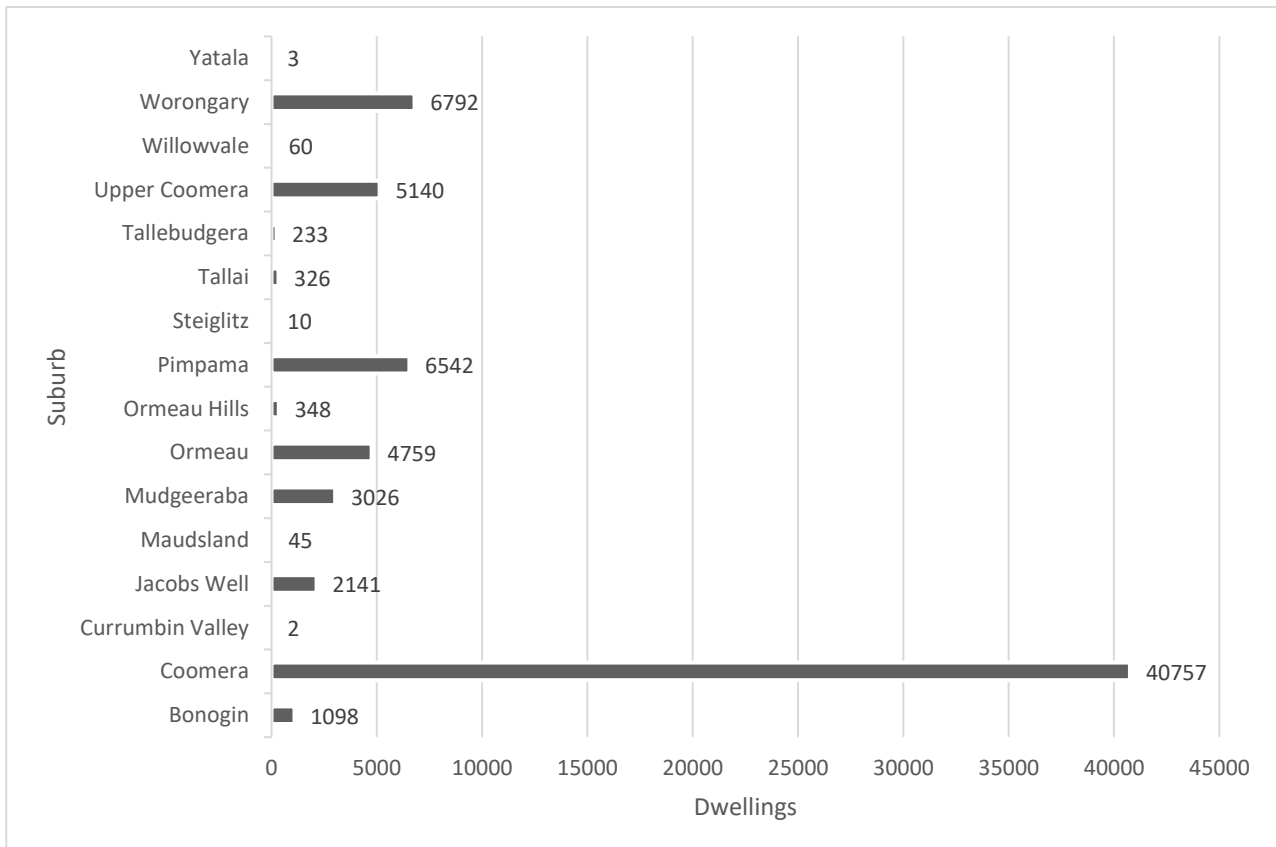


Figure 7: Phase 1 planned dwelling supply by suburb

The dominance of Coomera in terms of planned dwelling supply is not unusual given the history associated with the planned development of Coomera Town Centre and its periphery. Coomera is also the only location outside of the high-rise coastal spine between Broadbeach and Main Beach/ Surfers Paradise to benefit from an RD8 (one bedroom per 13m² or 380 dwellings per hectare) residential density designation. It is important to note that the High Density Residential Zone within Coomera is the only occurrence of that zone outside of the coastal high-rise strip between Broadbeach and Labrador, Miami to Burleigh Heads and Coolangatta.

Unsurprisingly, the distribution of planned dwelling supply based on suburb generally aligns with the planned dwelling supply based on City Plan Zones (see **Figure 8**). The Centre and Emerging Community Zones account

for a majority of the potential dwellings with the ‘mixed zoned’ land surrounding the Coomera Town Centre also comprising a large portion of the potential supply.

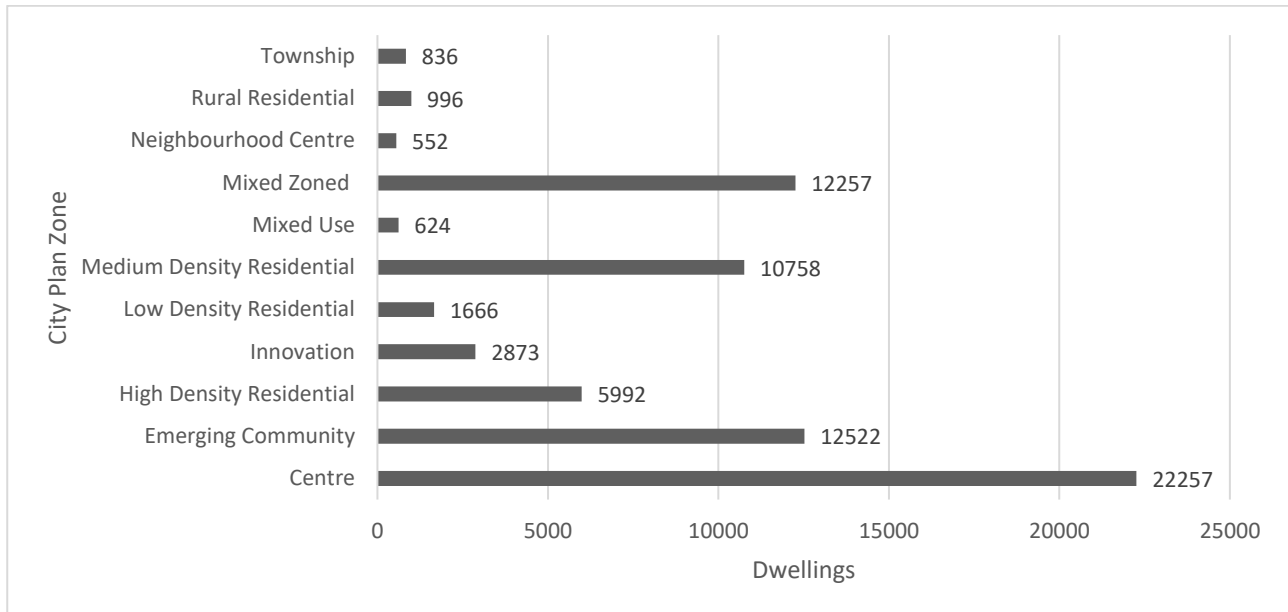


Figure 8: Phase 1 planned dwelling supply by City Plan Zone

The ‘mixed zoned’ land primarily refers to land surrounding the Coomera Town Centre to which several zones apply under the City Plan (see **Figure 9**). Where each zone over a parcel of land had a different residential density, the applicable density was applied to that area of the site.



Figure 9: Example of land within the study area affected by split zoning and density designations

Application of Phase 2


The second phase of the exercise resulted in a cumulative planned dwelling supply for the Gold Coast LGA expansion area of 43,086 dwellings, being a reduction of 28,247 dwellings from the Phase 1 yield.

The most significant decreases from the Phase 1 yield were in the Innovation and Centre Zones. While land in the Innovation Zone is afforded a residential density designation under the City Plan, all of the land in that zone within the study area is either government owned (Coomera TAFE campus) or improved by an existing commercial development approval which has been acted on (Ormeau Innovation Zone). Similarly, by removing recently completed non-residential development from the Centre Zoned land, the potential dwelling supply within that zone was reduced. The majority of the planned dwelling supply (50.7%) remained in the Coomera area.

Existing large-scale development approvals, such as Stockland’s Foreshore residential estate off Foxwell Road in Coomera, which have commenced and benefit from existing Preliminary Approval’s overriding the Planning Scheme which assign alternative dwelling yields to those under the City Plan were taken into consideration to the extent of the non-completed stock. These major approvals are discussed in further detail below.

Stockland Foreshore, Coomera

The Foreshore development on Oakey Creek Rd in Coomera is currently under construction and benefits from an existing Preliminary Approval Overriding the Planning Scheme which assigns an overall dwelling yield for the estate which differs from the current zoning under the City Plan (v7).

Stockland Foreshore, Coomera	
City Plan Zoning	Medium Density Residential Zone
City Plan Residential Density	1 dwelling per 400m ² (20 dwellings per hectare)
Approved Residential yield	747 dwellings
Undeveloped yield	407 dwellings
Site Map	

Pacific View Estate, Worongary

Pacific View Estate benefits from an existing Ministerial Call-in approval issued in 2015 for a master planned estate. While construction is yet to formally commence on the approval subsequent approvals for vegetation clearing (forestry) have been obtained and the original approval remains valid. The approval allows for residential development of a variety of densities ranging from 14 dwellings per hectare to 50 dwellings per hectare to be developed up to a maximum of 3500 dwellings within the estate.

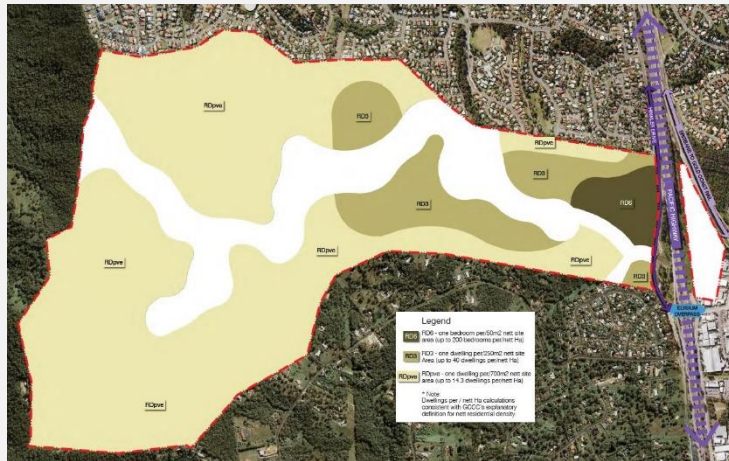
Pacific View Estate, Worongary

City Plan Zoning	Emerging Community Zone
City Plan Residential Density	20 dwellings per hectare
Approved Residential yield	3500 dwellings
Undeveloped yield	3500 dwellings

Site Map



Approved Residential Density Map



Coomera Woods, Coomera

The Coomera Woods estate is located to the immediate north-east of the Coomera Town Centre and Coomera Train Station. The estate benefits from an existing Preliminary Approval Overriding the Planning Scheme which facilitates residential development in accordance with the Coomera Woods Development Code.

Coomera Woods, Coomera

City Plan Zoning	High Density Residential, Medium Density Residential, Centre, Open Space and Conservation Zones
City Plan Residential Density	RD7 (200 dwellings per hectare) and RD3 (40 dwellings per hectare)
Approved Residential yield	4,082 dwellings
Undeveloped yield	4,082 dwellings

Site Map



Calypso Bay, Jacobs Well

Calypso Bay is a canal residential estate and golf course currently under construction in the northern Gold Coast suburb of Jacobs Well which benefits from an existing approval granted by the Planning and Environment Court in the early 2000’s for a Preliminary Approval Overriding the Planning Scheme. The precincts of under the Preliminary Approval have been somewhat carried forward into the current City Plan (v7), with a Calypso Bay Precinct unique to the estate created within the Low and Medium Density Residential Zones and overall dwelling density cap applied.

Calypso Bay, Jacobs Well	
City Plan Zoning	Low Density Residential and Medium Density Residential Zones (Calypso Bay Precinct)
City Plan Residential Density	20 dwellings per hectare (cumulative density not exceeding 1,852 dwellings)
Approved Residential yield	1,852 dwellings
Undeveloped yield	1,507 dwellings
Site Map	

In addition to the abovementioned larger development approvals, smaller approvals which remain current have also been included in this assessment. The details of these approvals were obtained through Council’s PD Online database.

Application of Phase 3

The results of Phase 3 of the sieve exercise indicate that approximately 65% or 1,527.7ha of the land identified for development within Phase 2 of the study (2,348.4ha) is impacted by the Environmental Significance Overlay.

Overall, Phase 3 of the study identified a total of 24,591 potential dwellings being able to be constructed within the study area. This equates to a reduction of 18,495 dwellings based on the Phase 2 results, being a significant decrease in the available dwelling supply within the study area.

Based on the wording contained within the Acceptable and Performance Outcomes, the Purpose Statement of the Code and the Strategic Framework intent the City Plan seeks to:

- protect and enhance Wetlands, Waterways and their associated buffers;
- protect in situ High Priority and Regulated Vegetation across the city;
- protect in situ and enhanced MES to maintain flora and fauna diversity when inside a Biodiversity Area; and
- protect State and Local significant species and their habitat and minimised to the greatest extent possible any disturbance to medium and general priority vegetation when outside biodiversity areas.

These outcomes effectively limit development to areas located outside Wetland and Waterway buffers that are either:

- cleared; or
- medium and general priority vegetation with no State or Local significant species values and located outside a Biodiversity Area.

The results indicated that the environmental constraints affect identified development land across all land use zones, removing on average 60% of the land area within each zone. Most affected by environmental constraints (79%), is land within the Rural Residential Zone, being subject to wetland and waterway buffers and the retention of medium and general vegetation inside biodiversity areas.

Table 2 reports the percentage of each zone impacted by environmental constraints with **Table 3** demonstrating the impacted area in hectares.

Table 3: Percentage of developable land subject to Environmental Constraints (cumulative percentage)

	Environmental Constrained Land (Cumulative %)										
	CENTRE	EMERGING COMMUNITIES	HIGH DENSITY RESIDENTIAL	INNOVATION	LOW DENSITY RESIDENTIAL	MEDIUM DENSITY RESIDENTIAL	MIXED USE	NEIGHBOURHOOD CENTRE	RURAL RESIDENTIAL	RURAL RESIDENTIAL (RRLEP)	TOWNSHIP
Wetland and Waterway Buffers	51%	38%	45%	60%	33%	48%	30%	21%	34%	48%	49%
High Priority and Regulated Vegetation	2%	7%	1%	0%	0%	1%	1%	0%	1%	1%	7%
INSIDE Medium or General Priority Vegetation	0%	8%	0%	0%	0%	0%	0%	0%	1%	30%	0%
OUTSIDE Coinciding Medium or General Vegetation and Priority Species	16%	31%	10%	17%	1%	15%	29%	3%	21%	0%	6%
Cumulative Total	68%	83%	56%	76%	35%	64%	60%	23%	57%	79%	62%
Unconstrained Developable Land	32%	17%	44%	24%	65%	36%	40%	77%	43%	21%	38%

Table 4: Area of developable land subject to environmental constraints (cumulative hectares)


	Environmental Constrained Land (Cumulative ha)											
	CENTRE	EMERGING COMMUNITIES	HIGH DENSITY RESIDENTIAL	INNOVATION	LOW DENSITY RESIDENTIAL	MEDIUM DENSITY RESIDENTIAL	MIXED USE	NEIGHBOURHOOD CENTRE	RURAL RESIDENTIAL	RURAL RESIDENTIAL (RRLEP)	TOWNSHIP	Total
Wetland and Waterway Buffers	59.2	206.0	18.8	11.3	46.6	268.7	86.6	5.2	155.5	42.5	31.0	931.4
High Priority and Regulated Vegetation	1.9	36.4	0.5	0.0	0.6	7.4	2.7	0.0	5.3	1.1	4.1	60.0
INSIDE Medium or General Priority Vegetation	0.0	43.7	0.0	0.0	0.5	0.0	0.0	0.0	3.5	26.3	0.0	74.0
OUTSIDE Coinciding Medium or General Vegetation and Priority Species	18.3	167.7	4.4	3.2	1.8	82.6	85.0	0.6	95.1	0.0	3.7	462.4
Cumulative Total	79.4	453.7	23.8	14.5	49.5	358.7	174.2	5.9	259.4	69.9	38.8	1,527.7
Unconstrained Developable Land	37.7	89.8	18.4	4.5	90.5	203.6	115.4	19.3	198.8	18.4	24.2	820.7

In summary, the Environmental Significance Overlay affects approximately 65% of the land within the study area, equating to an area of approximately 1,527.7ha. This results in approximately 35% (820.7ha) of the study area being free from environmental constraints.

To illustrate the impact that the Environmental Significance Overlay has on the development potential of a site, two example sites are provided below. In both cases, the land has been zoned for residential development; however, when the Environmental Significance Overlay is applied, a strict application of the Overlay Code results in each site having no development potential.

300 Yawalpah Road, Pimpama

Site Area	40,000m ²
City Plan Zoning	Medium Density Residential Zone
Planned Residential Density	1 dwelling per 400m ² (20 dwellings per hectare)
Phase 1 & 2 Yield	99 dwellings
Application of Environmental Significance Overlay	
Phase 3 Yield	0 dwellings

8 Pelican Parade, Jacobs Well	
Site Area	7,934m ²
City Plan Zoning	Township Zone
Planned Residential Density	1 dwelling per 400m ² (20 dwellings per hectare)
Phase 1 & 2 Yield	11 dwellings
Application of Environmental Significance Overlay	
Phase 3 Yield	0 dwellings

The above are examples of ‘extreme’ outcomes following the application of the Phase 3 methodology. It should be noted that there are numerous examples of sites with reduced development potential following the application of the Phase 3 sieve. The feasibility of developing sites with ‘leftover’ portions has been considered through Phase 4 of this study.

Application of Phase 4

Based on the application of Phases 1-3 and consideration of the economic reality of residential development within the Gold Coast’s expansion area, Phase 4 of this study has concluded that the Gold Coast’s expansion area is potentially capable of providing up to 22,673 dwellings between now and 2041 based on the current planning controls and commenced but not completed approvals.

Matusik’s application of the high, medium and low likelihood of redevelopment has identified that of the total potential dwellings within the expansion area, only 24% (5,452 dwellings) have a high chance of being developed by 2041. A further 25% (5,586 dwellings) have a medium chance of development within the same planning horizon. A very high 51% or 11,635 dwellings have a low chance of being developed during the subject timeframe (see **Table 4**).

Table 5: Potential dwellings in Gold Coast Expansion Area – grouped by likelihood of development

Suburb	Dwellings		
	High chance	Medium chance	Low chance
Bonogin	399	60	58
Coomera	2,499	1,421	7,649
Currumbin Valley	-	-	1
Jacobs Well	169	1,579	69
Maudsland	-	-	18
Mudgeeraba	37	152	637
Ormeau	264	168	445
Ormeau Hills	121	11	49
Pimpama	681	317	292
Steiglitz	-	4	6

Tallai	89	15	93
Tallebudgera	-	19	79
Upper Coomera	259	213	1,256
Willowvale	--	-	18
Worongary	934	1627	965
Total	5,452	5,586	11,635
Matusik Phase 4 Review 13-14 th and 29 th November 2019 Zone Planning Group – PVE Review 10 December 2019 Suburbs from DNRME DCDB			

The 22,673 potential dwellings are spread across 1,478 prospective development sites; however, of those sites, only 4% (55 sites) have a high chance of being developed by 2041. Of note is also the small size of the development sites, making it exceptionally difficult for developers to amalgamate future sites at feasible prices (see **Table 5**). Approximately 84% of the sites within the Gold Coast expansion area identified as being able to potentially accommodate residential development have a low likelihood of redevelopment by 2041.

Table 6: Expansion dwelling supply by number of development sites

Suburb	Number of development sites		
	High chance	Medium chance	Low chance
Bonogin	2	9	32
Coomera	12	12	123
Currumbin Valley	-	-	1
Jacobs Well	2	14	28
Maudsland	-	-	9
Mudgeeraba	2	29	163
Ormeau	8	52	81
Ormeau Hills	5	3	43
Pimpama	13	26	42
Steightz	-	1	5
Tallai	1	3	36
Tallebudgera	-	3	36
Upper Coomera	7	33	625
Willowvale	-	-	7
Worongary	3	3	4
Total	55	188	1,235
Matusik Phase 4 Review 13-14 th and 29 th November 2019			

Table 7: Expansion area dwelling supply by average development site size

Suburb	Average development site size (in hectares)		
	High chance	Medium chance	Low chance
Bonogin	17.38	3.27	0.81
Coomera	5.43	1.6	0.44
Currumbin Valley	-	-	1.88
Jacobs Well	5.39	3.71	0.22
Maudsland	-	-	0.17
Mudgeeraba	0.76	0.38	0.14
Ormeau	1.72	0.23	0.18
Ormeau Hills	1.29	0.26	0.12
Pimpama	1.77	0.17	0.15
Steiglitz	-	0.32	0.5

Tallai	2.27	2.58	1.13
Tallebudgera	-	2.99	0.66
Upper Coomera	1.62	0.49	0.13
Willowvale	-	-	1.42
Worongary	113.98	2.34	0.8
Total	9.3 (3.25*) (2.4**)	0.9	0.24
Matusik Phase 4 Review 13-14 th and 29 th November 2019.			
* Excludes Pacific View Estate. ** Excludes Pacific View Estate and Coomera Woods.			

When looking at the potential dwelling supply with a **high chance** of being delivered between now and 2041 there are:

- 1,997 dwellings under 20 dwellings per hectare; and
- 3,455 dwellings over 25 dwellings per hectare.

Due to the higher demand within the Gold Coast expansion area market for dwelling stock at densities of up to 20 dwellings per hectare (eg. detached dwellings), it is envisaged that demand will continue to see such product continue to be delivered at higher rates when compared with medium and high density residential product (eg. townhouses and apartments) within the study area. However, as outlined in **Table 7**, there is still a chance that some medium and higher density product will be delivered within the study area by 2041.

Table 8: Expansion area dwelling supply by expected dwelling density

Dwellings per hectare	Dwellings		
	High chance	Medium chance	Low chance
2.5 dwellings	40	124	149
16 to 20 dwellings	3,573	397	579
Total <20/ ha	3,613	521	728
25 to 40 dwellings	3,211	1,8763	2,204
50+ dwellings	244	1,588	8,701
Total >25/ ha	3,455	3,451	10,905
Total	7,068	3,972	11,633
2.5 dwellings	1%	2%	1%
16 to 20 dwellings	51%	10%	5%
25 to 40 dwellings	46%	47%	19%
50+ dwellings	3%	40%	75%
Total	100%	100%	100%
Matusik Phase 4 Review 13-14 th and 29 th November 2019.			
Zone Planning Group – PVE Review 10 December 2019			

EXPANSION AREA PLANNED DWELLING SUPPLY

As outlined herein, the LSDM Report 2018 identifies that the expansion area has a capacity to accommodate 46,911 dwellings and is realistically able to provide for up to 45,376 dwellings by 2041 (Department of State Development, Manufacturing, Infrastructure and Planning, 2018). This study has determined that based on the application of current planning controls, the Gold Coast's expansion area is more likely to be able to provide up to 22,673 dwellings by 2041. Importantly, this falls well below the benchmark of 31,000 dwellings set by ShapingSEQ (see **Figure 9**).

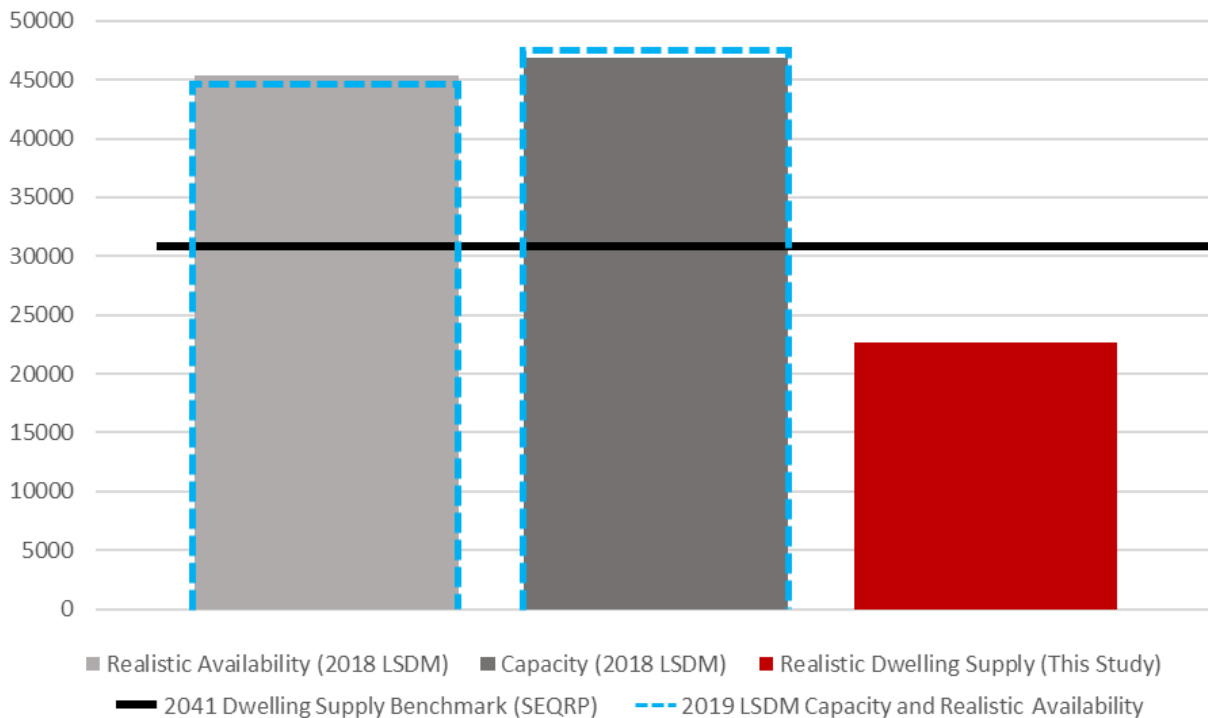


Figure 10: Comparison of LSDM Dwelling Assumptions, SEQRP Benchmark and findings of this study

Of the 22,673 dwellings able to be provided in the expansion area, approximately 54% are located within the Coomera area and a further 13% are located in Upper Coomera (ie. cumulatively 67% of the potential expansion area dwelling supply until 2041 is focused within the broader Coomera area).

It is noted that the annual demand for new housing on the Gold Coast is currently 4,800 dwellings per annum. This is forecast to rise to 5,750 dwellings per annum over the next decade, being 2021 to 2031 (see **Table 9**).

Table 9: Gold Coast past and forecast population growth/housing demand

Financial year	Resident population	Annual change in population	Annual demand for new housing
Past growth			
2006	496,000	12,500	4,800
2016	622,000		
Future growth			
2021	650,000	14,700	5,750
2031	797,000		
Matusik, ABS + Queensland Government Population Projections, 2018 edition (medium series). Annual housing demand based on 2.6 people per dwelling.			

Based on forecast demand, some 50% of this demand (reflecting current trends) is for housing under 20 dwellings per hectare and 50% on sites over 25 dwellings per hectare (see **Table 10**).

Table 10: Gold Coast new dwelling registrations

Years ending September	Dwelling Registrations		
	Under 20 dwellings per hectare	Over 25 dwellings per hectare	Total residential lot registrations
2010	633	173	806
2011	962	297	1,259
2012	840	237	1,077
2013	624	121	745
2014	1,245	201	1,446
2015	1,901	217	2,118
2016	3,049	339	3,388
2017	1,735	390	2,125
2018	2,082	473	2,555
2019	1,344	348	1,692
Ten year average	1,442	280	1,721
Five year average	2,022	353	2,375

Queensland Government Statistician's Office, Queensland Treasury.

Most of the housing demand (80%) over 25 dwellings per hectare is likely to be satisfied in consolidation area on the Gold Coast being within the city's existing urban area and typically in established centres, along the light rail corridor or near the beach/canals. It is also likely that up to approximately 10% of the lower density demand (under 20 dwellings per hectare) will be met within these consolidation areas.

Additionally, while several vacant sites without existing current development approvals have been identified as having a low likelihood of redevelopment, it is acknowledged that such could be developed at lower yields to that anticipated by the City Plan in order to meet demand. One example of this occurring is Lot 8 SP150732 on Foxwell Drive, Coomera where Council have granted a development approval for 413 dwellings in November 2019 (Council ref. MCU201701190). In that instance, the approved dwelling yield was approximately 903 dwellings below the 'planned' dwelling capacity under the City Plan of 1,316 dwellings.

Based on current and forecast trends, it is estimated that there is a need for 2,375 dwellings per annum to 2041 within Gold Coast LGA's expansion area, being comprised of:

- 2,022 new dwellings under 20 dwellings per hectare (per annum to 2041); and
- 353 new dwellings over 25 dwellings per hectare (per annum to 2041).

When focusing on the dwelling supply with a high and medium chance of occurring between now and 2041 there are a total of 11,038 potential dwellings able to be delivered, **resulting in approximately 4.6 years of supply**.

Significantly, the future supply of housing at densities of 20 dwellings per hectare or less is limited; however, demand for such product is anticipated to remain very high based on past trends. This **equates to just 2 years of supply for dwellings at a density up to 20 dwellings per hectare**.

As evidenced above, the current planning controls and density assumptions place a significant reliance on higher density residential development facilitating the delivery of a majority of new dwellings within the Gold Coast's expansion area; however, the current market demand is primarily for detached dwellings at a density of up to 20 dwellings per hectare and this is anticipated to continue over at least the next 10 years.

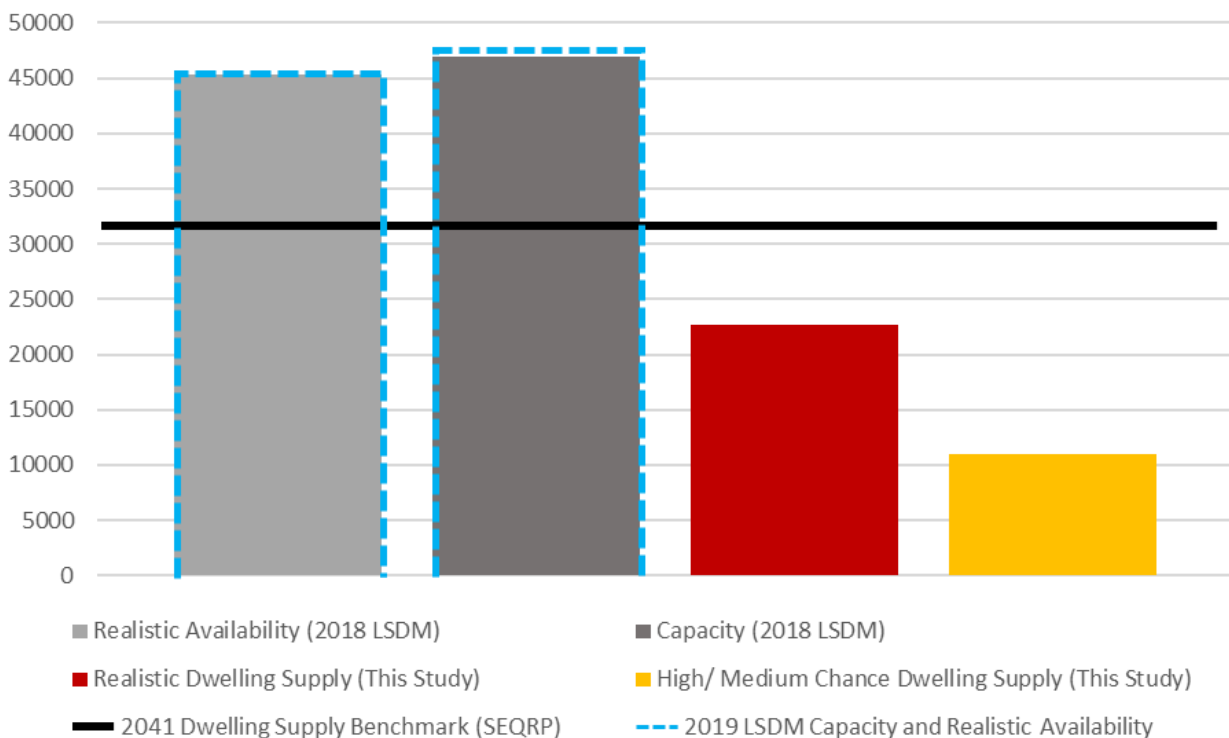
CONCLUSION

This report has been prepared to determine the realistic availability of land within the Gold Coast local government area’s expansion area to accommodate residential development through to 2041. In particular, this report analyses the existing development potential of land based on the local and State planning controls applicable to the Gold Coast expansion land as at August 2019.

The analysis herein has been completed via a comprehensive sieve mapping exercise undertaken by Zone Planning Group, BIOME Consulting and Zone Landscape Architecture to identify the study area, applicable planning controls, calculate planned residential densities and apply environmental constraints which may inhibit future development. This analysis focused only on the Code Assessable development outcomes achievable under the relevant provisions of the Gold Coast City Plan (v7) and the planned residential densities allowed for under both the City Plan and Planning Assumptions associated with the Gold Coast Local Government Infrastructure Plan.

Following the identification of the total developable area within the Gold Coast’s expansion area, Matusik Property Insights undertook a final review to determine the economic reality and likelihood of the planned dwelling yield being delivered by 2041.

This assessment has determined that cumulatively, the Gold Coast expansion area has the capacity to accommodate up to 22,673 dwellings up to 2041, approximately half that identified by the LSDM Report (2018 and 2019), of which only 11,038 have a medium to high chance of being developed by 2041 based on current and forecast market trends. This is comprised of 4,143 dwellings under 20 dwellings per hectare and 6,906 dwellings over 25 dwellings per hectare.



In addition to significantly differing from the figures contained in both the 2018 and 2019 LSDM Reports, this analysis has demonstrated that the Gold Coast's expansion area does not have capacity to accommodate the dwelling target for the expansion area (31,000 dwellings by 2041) anticipated under ShapingSEQ.

Based on the high and medium likelihood figures mentioned above and the annual average dwelling demand for new housing stock, the Gold Coast expansion area provides approximately 4.6 years of supply.

Significantly, with the increased demand for detached housing stock (ie. densities of 20 dwellings per hectare or less), it is anticipated that there is only 2 years of supply of land accommodating 20 dwellings per hectare remaining within the expansion area.

It is noted that, this report has not factored in the implications new SEQ Koala Conservation Strategy and associated Regulations released on 7 February 2020 on the potential dwelling supply in the Gold Coast expansion area due to the timing of the release of the regulation. It is, however, anticipated that the new regulation will have a negative impact on the delivery of new dwellings within the Gold Coast's expansion area based on the regulatory framework associated with the Strategy, potentially placing greater pressure and limitation on the amount of developable land within the expansion area.

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Spatial Data Sources

GIS LAYER	SOURCE
Hinterland Core Habitat System; Substantial Remnants; Coastal Wetlands & Core Habitat System	Gold Coast Open Data
Hinterland to Coast Critical Corridor	
Local Significant Species	
State Significant Species	
Vegetation Management	
Waterways	
Wetlands	
Consolidation Area	
Extractive Resources Special Management Area	
Flood Assessment Required	
Flood Levels	
Gold Coast Cadastre	
Gold Coast Cadastre (September)	
Landslide Hazard	Gold Coast Open Data
LGA Boundary	Queensland Spatial
Base Imagery	Nearmap
Regulated Vegetation	Queensland Spatial
Residential Density	Gold Coast Open Data
SEQRP Regional Land Use Categories	Queensland Spatial
State Significant Species	Gold Coast Open Data
Statistical Areas Level 2	Australian Bureau of Statistics
Suburbs	Gold Coast Open Data
Zoning	



APPENDICES



APPENDIX 1

Zoning and Density Considerations



Zoning & Density Considerations

The following rules relate to assumptions for residential density under the City Plan Zones that are identified as 'residential zones' and 'non-residential zones' for the purpose of this study.

Residential Zones		
City Plan Zone	Associated Density	Methodology
Low Density Residential zone	16 dwellings per hectare	Extract corner lots exceeding 800m ² in area and assume that these can be developed for 2 x dwellings. If in LDR and a Residential Density (RD) overlay is applicable (only RD1 is applicable) include all allotments exceeding 800m ² and assume that they can be subdivided/ developed for 1 dwelling per 400m ² . Any large LDR site that is not a corner site, divide site area by 600m ² to determine code assessable ROL yield. The CoGC LGIP assigns a yield of 16 dwellings/ha.
Medium Density Residential Zone	RD1-8 Or default 20 dwellings per hectare	<p>Look at residential density (RD) maps to see where they coincide with this zone. If there is no RD map, identify sites exceeding 800m² to assume that each lot can be subdivided/ developed for 1 dwelling/lot per 400m². This applies to <u>all</u> lots exceeding 800m², not just corner lots.</p> <p>Where an RD Overlay applies, the following yield is assumed (from CoGC LGIP):</p> <ul style="list-style-type: none"> • RD1 – equates to 25 dwellings/ ha • RD2 – equates to 33 dwellings/ ha • RD3 – equates to 40 dwellings/ ha • RD4 – equates to 50 dwellings/ ha • RD5 – equates to 100 dwellings/ ha • RD6 – equates to 150 dwellings/ ha • RD7 – equates to 200 dwellings/ha • RD8 – equates to 385 dwellings/ha <p>The RD1-RD8 dwelling yield based on planning assumptions adopted in the CoGC LGIP.</p>
High Density Residential Zone	RD1-8 Or default 20 dwellings per hectare	Process as per approach for Medium Density Residential Zone. The RD1-RD8 dwelling yield based on planning assumptions adopted in the CoGC LGIP.
Rural Residential Zone	2.5 dwellings per hectare	Identify lots with a minimum area of 16,000m ² (1.6Ha) and assume that two or more 8000m ² allotments with one dwelling each can be established. Equates to 2.5 dwellings/ha.
Rural Residential Zone (Rural Residential Landscape & Environment Precinct)	0.3125 dwellings per hectares	Identify lots with a minimum area of 32,000m ² and assume that 2 or more 16,000m ² allotments with one dwelling each can be established.
Neighbourhood Centre Zone	RD1-8 Or default 20 dwellings per hectare	If not on the RD maps identify all lots with an area of 800m ² or more and assume 1 dwelling/ allotment per 400m ² .

Innovation Zone	RD1-8 Or default 20 dwellings per hectare	If not on the RD maps identify all lots with an area of 800m ² or more and assume 1 dwelling/ allotment per 400m ² .
Centre Zone	RD1-8 Or default 20 dwellings per hectare	Identify RD category and divide site area by assumed bedrooms per dwelling on the basis that all centre zone land in study area is RD5 or higher.
Mixed Use Zone	RD1-8 Or default 20 dwellings per hectare	Either apply the applicable RD category or identify sites with a minimum 800m ² area and assume 1 dwelling per 400m ² .
Township Zone	16 dwellings per hectare	Either apply RD category or identify sites exceeding 800m ² and assume 1 dwelling per 400m ² . Equates to 16 dwellings/ha under the LGIP
Emerging Community Zone	20 dwellings per hectare	All development triggers impact assessment but it would be unreasonable to excludes it all on that basis. Look into each zone specifically including investigation of all approvals commenced as per Nearmap (as at 17 August 2019). Equates to 20 dwellings/ha under the LGIP.

Non-Residential Zones		
City Plan Zone	Associated Density	Methodology
Major Tourism Zone	N/A	This zone is excluded from the study as it does not anticipate permanent residential development.
Limited Development Zone	N/A	Only applies to a small area west of the Pacific Motorway. As all development in this zone is impact assessable, any assumptions re density won't conform to our normal rules. This zone is excluded from the LGIP planning assumptions and therefore has been excluded from this exercise.
Low Density Residential Zone (Large Lot Precinct)	N/A	Exclude the whole of this zone as it does not allow for further subdivision.
Mixed Use Zone (Fringe Business Precinct)	N/A	This zone has been excluded from the study as it does not anticipate residential development.
Rural Zone	N/A	Identify lots with a minimum area of 200Ha and assume that 2 x 100Ha allotments can be established (where outside of the precinct). It was identified that lots of this size do not exist within the study area. Additionally, land in the Rural Zone (Rural Landscape & Environment Precinct) is identified as having no subdivision potential under the City Plan. Therefore, both the Rural Zone and Precinct are to be excluded from this exercise.
Rural Zone (Rural Landscape & Environment Precinct)	N/A	
Open Space Zone	N/A	Exclude the whole of this Zone as residential development is not expressly contemplated within this Zone under City Plan.
Sport & Recreation Zone	N/A	
Low Impact Industry Zone	N/A	
Medium Impact Industry Zone	N/A	
High Impact Industry Zone	N/A	

Waterfront Industry Zone	N/A	
Community Facilities Zone	N/A	
Township Zone (Large Lot Precinct)	N/A	Exclude the whole of this zone as it does not allow for further subdivision.
Conservation Zone	N/A	Exclude the whole of this Zone as residential development is not expressly contemplated within this Zone under City Plan.
Extractive Industry Zone	N/A	



APPENDIX 2

Environmental Constraints Assessment



Land Supply

Environmental Constraints Assessment



November 2019

BC-19066



BIOME

WATER AND ENVIRONMENTAL CONSULTING



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1.1 Phase 3 - Objective

The objective of this phase of the project was to determine the extent to which environmental constraints impact on the potential to develop the land identified within Phase 2 of the project (2,350 ha). The provisions of the City Plan Environmental Significance Overlay Code were relied upon to define relevant constraint with the listed Acceptable Outcomes being the preferred result and the Performance Outcomes achieved as a secondary requirement.

1.2 Environmental Significance Overlay Code

The Environmental Significance Overlay Code seeks to identify and protect matters of environmental significance (MES) and ensure that development is consistent with, and contributes to, the achievement of the objectives of the Nature Conservation Strategy.

In order to protect MES, development is generally required to maintain environmental significant areas “in situ” and provide buffers to ensure long term ecological function.

The code applies to all material change of use, reconfiguration of a lot and operational works (vegetation clearing, changes to ground level, infrastructure) for development on land identified in Part 5.10 Categories of development and assessment and containing the following mapped overlays:

- Environmental significance – Biodiversity areas;
- Environmental significance – Priority species;
- Environmental significance – Vegetation management; and
- Environmental significance – Wetlands and waterways.

The code contains Performance and Acceptable Outcomes grouped under the following areas of interest:

- Ecological Site Assessment;
- Biodiversity area;
- Wetland and Waterway;
- Vegetation Management;
- Priority Species;
- Fauna Management;
- Tenure, ownership and management arrangements; and
- Rehabilitation.

The code presents a general theme or hierarchy to the implementation of the listed outcomes, which can be summarised as:

- Across the City:
 - Wetlands, Waterways and their associated buffers are protected and enhanced; and
 - High Priority and Regulated Vegetation is protected in situ;
 - Within Biodiversity Areas:
 - MES is protected “in situ” and enhanced to maintain flora and fauna diversity; and
 - Outside of Biodiversity Areas:
 - Disturbance to medium and general vegetation is minimised to the greatest extent possible; and
-



- State and local significant species and their habitat are identified and protected.

1.3 Methodology

A spatial analysis was undertaken using Geographical Information System software to identify the extent to which the of identified developable land (2,350 ha) from Phase 2 of the project, is affected by environmental overlays (constraints).

QGIS was used as the preferred platform for the analysis as it supports both raster and vector layers and integrates with open data sources effectively.

1.3.1 Available Digital Data

Initially a search of Council's open data portal was undertaken to identify relevant digital data sets (Table 1). The search indicated that most data sets were available digitally and could be used for spatial analysis.

Table 1: Digital Data Set Availability

Overlay map	Overlay Map	Digital Data Set
Environmental significance – Biodiversity areas	• Protected Areas	Not Available
	• Hinterland core habitat system	Available as Hinterland core habitat system, Substantial remnants and Coastal wetlands and islands core habitat system
	• Coastal wetlands and islands core habitat system	
	• Substantial remnants	
	• Hinterland to coast critical corridors	Available
Environmental significance – Priority species	• Koala habitat areas	Not Available
	• State significant species	Available
	• Local significant species	Available
Environmental significance – Vegetation management	• Regulated Vegetation	Available
	• High priority vegetation	Available as Vegetation Management
	• Medium priority vegetation	
	• General priority vegetation	
Environmental significance – Wetlands and waterways	• State significant aquatic systems	Not Available
	• State significant wetlands.	Not Available
	• Major waterway	Available as Waterways
	• Waterway	
	• Local significant wetlands	Available

The unavailable data sets were not considered critical to the outcomes of the project based on the following:

- **Protected Areas** - These areas generally constitute areas of land that are protected in nature reserves and have not been identified as having potential for development.
- **Koala Habitat Areas** – This data set covers extensive areas of nature vegetation consisting of Eucalyptus dominated forest. Whilst the inclusion of this data set would be beneficial, its spatial extent is generally reflected by the state and local significant species data set, which can be used as a substitute.



- **State Significant Aquatic Systems** – This data set covers the tidal areas of Southern Morton Bay Islands and the Coombabah Wetlands. These areas are not contained within any zoning that would allow for development. The extent of this data set is also generally covered by the spatial limits of the Local Significant Wetland data set, which can be used as a suitable substitute to determine constraints.
- **State Significant Wetlands** - The extent of this data set is similar to that of the Local Significant Wetland data set, which can be used as a suitable substitute to determine constraints.

1.3.2 Data Manipulation

The available data sets were uploaded into QGIS and manipulated to:

- 1) Create a **Wetland and Waterway Buffer** layer by:
 - Applying the following buffers to the Waterway line features:
 - 60 m to Major Waterways (AO5.4); and
 - 30 m to Waterways (AO5.5).
 - Applying a 100 m buffer to the Local Significance Wetland polygon (AO5.3); and
 - Combining the resulting polygons.
 - 2) Create a combined **High Priority and Regulated Vegetation** layer by:
 - Extracting the high priority vegetation data from the Vegetation Management data set
 - Combining it with the Regulated Vegetation data set; and
 - Applying a 30 m buffer (AO12).
 - 3) Create a combined Biodiversity Areas layer by merging the following data sets:
 - Hinterland core habitat system, Substantial remnants and Coastal wetlands and islands core habitat system; and
 - Hinterland to coast critical corridors.
 - 4) Create a combined Priority Species layer by merging the following data sets:
 - State significant species; and
 - Local significant species.
 - 5) Split the Vegetation Management (Medium and General Priority Vegetation) using the Biodiversity Areas layer to create:
 - An **INSIDE Medium or General Priority Vegetation** layer; and
 - **OUTSIDE Medium or General Priority Vegetation** data.
 - 6) Create an **OUTSIDE Coinciding Medium or General Vegetation and Priority Species** layer by identify those areas common to the following:
 - **OUTSIDE Medium or General Priority Vegetation**; and
 - **Priority Species**.
-



1.3.3 Data processing

Based on the newly created data sets, the cadastral base of the developable land identified within Phase 2 of the project, was run through a sieving process as illustrated by Figure 1.

The aim of the data processing was to determine the extent of developable land that was affected by the requirements of the Environmental Significance Overlay Code and thus identify the area of unconstrained development land that remains within the Gold Coast Expansion Area.

The sieving process was undertaken in a cumulative manner, with each additional sieve removing an additional land area based on the identified constraint until all constraints were applied. The resulting land area is relatively free of environmental constraints.

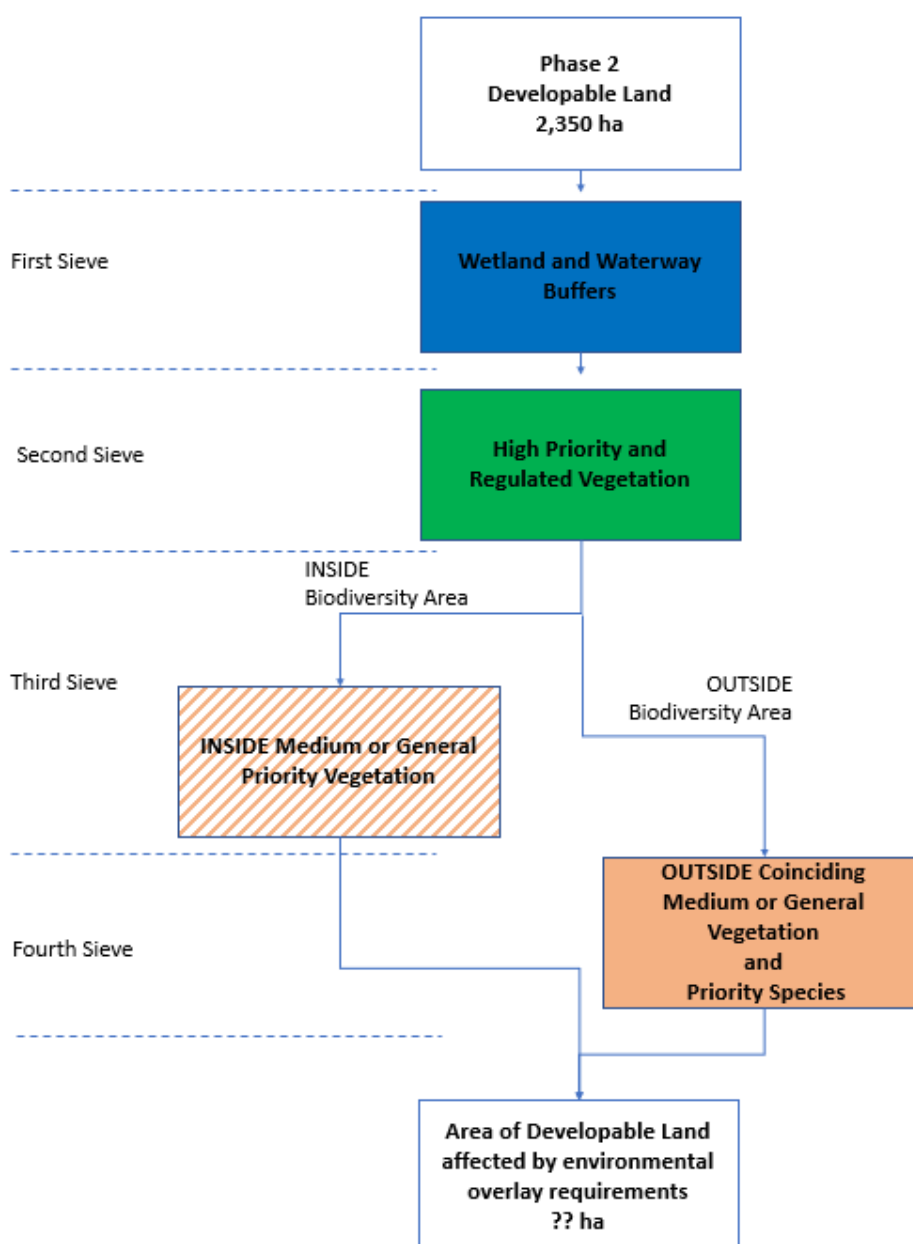


Figure 1: Data Processing Flow Charge



1.4 Results

The results indicate that approximately 65% or 1,527.7 ha of the land identified for development within Phase 2 of the project (2,398.4) is impacted by Environmental Significance Overlay Code. Based on the wording contained within the Acceptable and Performance Outcomes, the Purpose Statement of the Code and the Strategic Framework intent the City Plan seeks to:

- Protect and enhance Wetlands, Waterways and their associated buffers;
- Protect in situ High Priority and Regulated Vegetation across the city;
- Protect in situ and enhanced MES to maintain flora and fauna diversity when inside a Biodiversity Area; and
- Protect State and Local significant species and their habitat and minimised to the greatest extent possible any disturbance to medium and general priority vegetation when outside biodiversity areas.

These outcomes effectively limit development to areas located outside Wetland and Waterway buffers that are either:

- cleared; or
- medium and general priority vegetation with no State or Local significant species values located outside a Biodiversity Area.

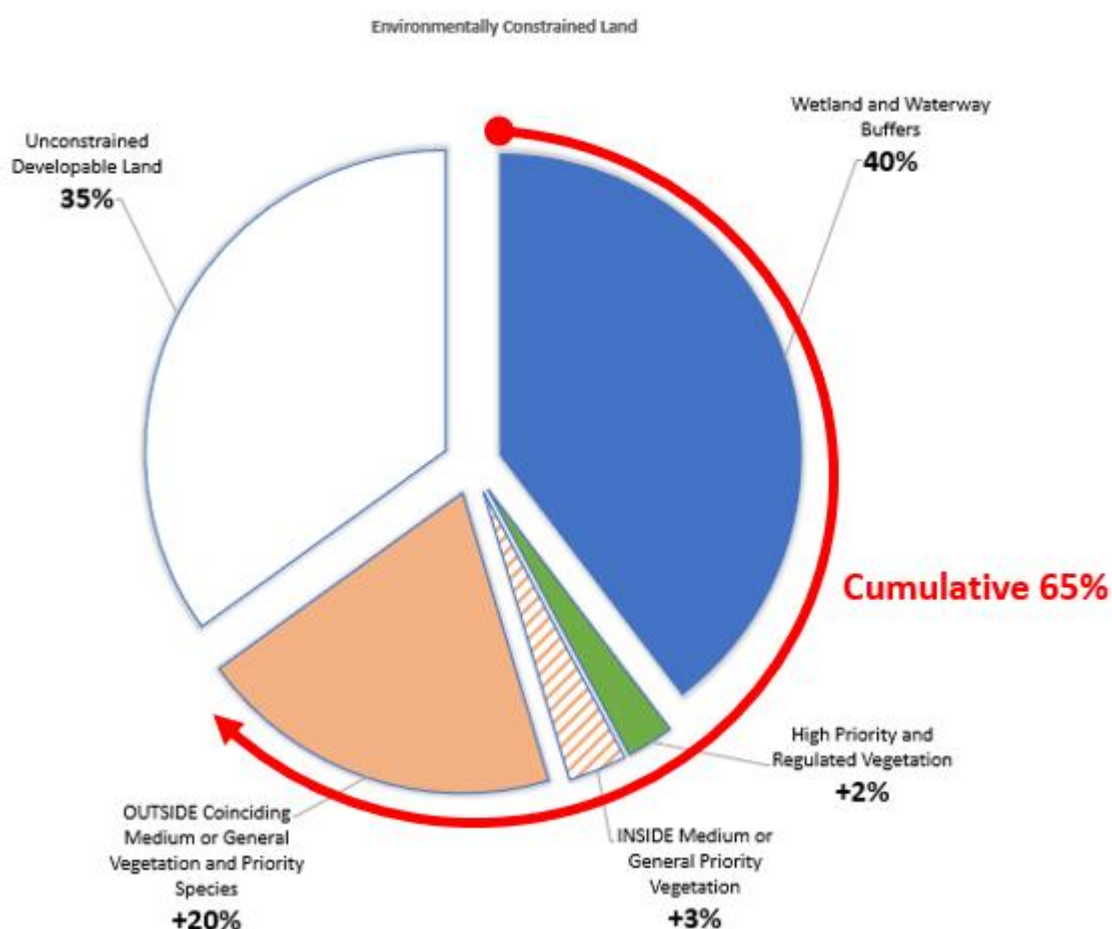


Figure 2: Environmentally Constrained Land - (Cumulative %)

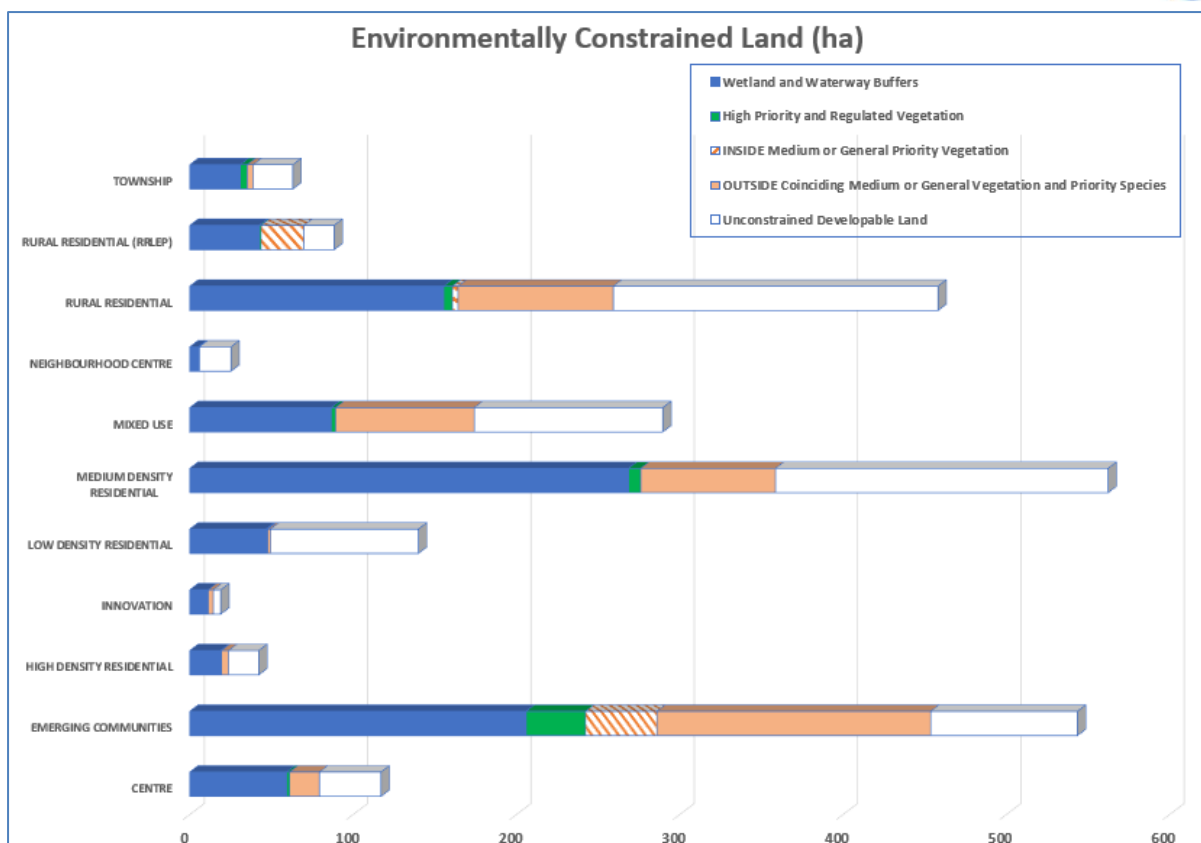


Figure 3: Environmentally Constrained Land (ha)

The results indicated that the environmental constraints affect identified development land across all land use zones, removing on average 60% of the land area within each zone. Most affected by environmental constraints (79%), is land zoned for Rural Residential uses being subject to wetland and waterway buffers and the retention of medium and general vegetation INSIDE biodiversity areas.

Table 2 report is the percentage of each zone impacted by environmental constraints with Table 3 reporting the impacted area in hectare.

Table 2: Percentage of Developable Land subject to Environmental Constraints

	Environmental Constrained Land (Cumulative %)										
	CENTRE	EMERGING COMMUNITIES	HIGH DENSITY RESIDENTIAL	INNOVATION	LOW DENSITY RESIDENTIAL	MEDIUM DENSITY RESIDENTIAL	MIXED USE	NEIGHBOURHOOD CENTRE	RURAL RESIDENTIAL	RURAL RESIDENTIAL (RRLEP)	TOWNSHIP
Wetland and Waterway Buffers	51%	38%	45%	60%	33%	48%	30%	21%	34%	48%	49%
High Priority and Regulated Vegetation	2%	7%	1%	0%	0%	1%	1%	0%	1%	1%	7%
INSIDE Medium or General Priority Vegetation	0%	8%	0%	0%	0%	0%	0%	0%	1%	30%	0%
OUTSIDE Coinciding Medium or General Vegetation and Priority Species	16%	31%	10%	17%	1%	15%	29%	3%	21%	0%	6%
Cumulative Total	68%	83%	56%	76%	35%	64%	60%	23%	57%	79%	62%
Unconstrained Developable Land	32%	17%	44%	24%	65%	36%	40%	77%	43%	21%	38%



Table 3: Area of Developable Land subject to Environmental Constraints

	Environmental Constrained Land (Cumulative ha)											
	CENTRE	EMERGING COMMUNITIES	HIGH DENSITY RESIDENTIAL	INNOVATION	LOW DENSITY RESIDENTIAL	MEDIUM DENSITY RESIDENTIAL	MIXED USE	NEIGHBOURHOOD CENTRE	RURAL RESIDENTIAL	RURAL RESIDENTIAL (R/LEP)	TOWNSHIP	Total
Wetland and Waterway Buffers	59.2	206.0	18.8	11.3	46.6	268.7	86.6	5.2	155.5	42.5	31.0	931.4
High Priority and Regulated Vegetation	1.9	36.4	0.5	0.0	0.6	7.4	2.7	0.0	5.3	1.1	4.1	60.0
INSIDE Medium or General Priority Vegetation	0.0	43.7	0.0	0.0	0.5	0.0	0.0	0.0	3.5	26.3	0.0	74.0
OUTSIDE Coinciding Medium or General Vegetation and Priority Species	18.3	167.7	4.4	3.2	1.8	82.6	85.0	0.6	95.1	0.0	3.7	462.4
Cumulative Total	79.4	453.7	23.8	14.5	49.5	358.7	174.2	5.9	259.4	69.9	38.8	1,527.7
Unconstrained Developable Land	37.7	89.8	18.4	4.5	90.5	203.6	115.4	19.3	198.8	18.4	24.2	820.7



APPENDIX 3

Economic Assessment



1. Executive summary

- **There are 11,040 dwellings across the greenfield expansion area on the Gold Coast that have a high to medium chance of being developed over the next 21 years.**
- The breakdown of this potential dwelling supply by development density is:
 - 4,143 dwellings under 20 dwellings per hectare.
 - 6,906 dwellings over 25 dwellings per hectare.
- Over the past five years, there has been, on average, 2,375 new residential lots registered per annum across this greenfield area.
- The breakdown of this annual average dwelling demand by development density was:
 - 2,022 new lots registered under 20 dwellings per hectare.
 - 353 new lots registered over 25 dwellings per hectare.
- **In summary, the 11,040 potential greenfield housing supply divided by the recent demand for 2,375 new dwellings each year equates to 4.6 years supply.**
- **Yet the future supply of housing stock at development densities under 20 dwellings per hectare is tight (being 4,143) whilst the annual demand for such housing is very high, being 2,022 on average, over the past five years.**
- **This equates to just two (2) years supply.**

2. Greenfield supply by number of dwellings

- There are 22,673 potential dwellings available to be developed across the greenfield areas on the Gold Coast. These dwellings are hypothetically anticipated to be developed between now and 2041.
- Only 31% or 7,068 dwellings have a high chance of being developed over the 21 years.
- A further 18% or 3,972 dwellings have a medium chance of development.
- A very high 51% or 11,633 dwellings have a low chance of development during the subject time frame.

Gold Coast: Greenfield supply by number of dwellings

Suburb	Dwellings		
	High chance	Medium chance	Low chance
Bonogin	399	60	58
Coomera	2,499	1,421	7,649
Currumbin Valley			1
Jacobs Well	169	1,579	69
Maudsland			18
Mudgeeraba	37	152	637
Ormeau	264	168	445
Ormeau Hills	121	11	49
Pimpama	681	317	292
Steightz		4	6
Tallai	89	15	93
Tallebudgera		19	79
Upper Coomera	259	213	1,256
Willowvale			18
Worongary	2,550	13	963
Total	7,068	3,972	11,663

Matusik Phase 4 Review 13-14th and 29th November 2019

3. Greenfield supply by number of development sites

- The 22,673 potential dwellings are spread across 1,478 prospective development sites.
- Only 4% or 55 sites have a high chance of being developed between now and 2041.
- A further 13% or 188 sites have a medium chance of development.
- An extremely high 84% or 1,235 sites have a low chance of development during the subject time frame.
- Of note is also the small size of the development sites, making it almost impossible for developers to amalgamate future sites and at feasible prices. See the table overleaf.

Gold Coast: Greenfield supply by number of development sites

Suburb	Number of development sites		
	High chance	Medium chance	Low chance
Bonogin	2	9	32
Coomera	12	12	123
Currumbin Valley			1
Jacobs Well	2	14	28
Maudsland			9
Mudgeeraba	2	29	163
Ormeau	8	52	81
Ormeau Hills	5	3	43
Pimpama	13	26	42
Steightz		1	5
Tallai	1	3	36
Tallebudgera		3	36
Upper Coomera	7	33	625
Willowvale			7
Worongary	3	3	4
Total	55	188	1,235

Matusik Phase 4 Review 13-14th and 29th November 2019

Gold Coast: Greenfield supply by average development site size

Suburb	Average development site size (in hectares)		
	High chance	Medium chance	Low chance
Bonogin	17.38	3.27	0.81
Coomera	5.43	1.6	0.44
Currumbin Valley			1.88
Jacobs Well	5.39	3.71	0.22
Maudsland			0.17
Mudgeeraba	0.76	0.38	0.14
Ormeau	1.72	0.23	0.18
Ormeau Hills	1.29	0.26	0.12
Pimpama	1.77	0.17	0.15

Steightz		0.32	0.5
Tallai	2.27	2.58	1.13
Tallebudgera		2.99	0.66
Upper Coomera	1.62	0.49	0.13
Willowvale			1.42
Worongary	113.98	2.34	0.8
Total	9.3 (3.25*) (2.4**)	0.9	0.24
Matusik Phase 4 Review 13-14 th and 29 th November 2019. * Excludes Pacific View Estate. ** Excludes Pacific View Estate and Coomera Woods.			

4. Matusik chance ratings

- **High** = 75% + likelihood of development between 2020 and 2041
- **Medium** = 35% to 75% likelihood of development between 2020 and 2041
- **Low** = Less than 35% likelihood of development between 2020 and 2041

The **high chance** sites are either already owned by development companies or are in areas where similar urban development is well advanced.

The **medium chance** category includes sites that are held in private hands and makes – in my opinion – some economic sense to redevelop. Of course, this doesn't take into account the owner's intent or their expectation as to profit or timing.

The **low chance** segment includes sites which contain a very high expectation with regards to density. Such sites are already hard to develop near the beach, along the light rail corridor and/or in existing established urban centres on the Gold Coast. The economic reality and past track record suggest that high density development across much of the Gold Coast greenfield area is very unlikely over the next decade or two.

Also, sites which have an existing land use - like a shopping centre - have also been placed in the low category. The chance that an existing retail centre in a greenfield location - and especially one with multiple owners and tenants - will be redeveloped into dwellings is low.

Likewise, sites which have been reduced dramatically in terms of dwelling yield due to environmental and other town planning overlays has also been allocated to the low pile as well, as these are probably no longer economically viable.

5. Greenfield supply by expected dwelling density

When looking at the dwelling supply with a **high and medium chance** of happening between now and 2041 there are:

- 4,134 dwellings under 20 dwellings per hectare
- 6,906 dwellings over 25 dwellings per hectare

Gold Coast: Greenfield supply by expected dwelling density

Dwellings per hectare	Dwellings		
	High chance	Medium chance	Low chance
2.5 dwellings	40	124	149
16 to 20 dwellings	3,573	397	579
Total < 20 / ha	3,613	521	728
25 to 40 dwellings	3,211	1,863	2,204
50+ dwellings	244	1,588	8,701
Total > 25 / ha	3,455	3,451	10,905
Total	7,068	3,972	11,633
2.5 dwellings	1%	3%	1%
16 to 20 dwellings	51%	10%	5%
25 to 40 dwellings	46%	47%	19%
50+ dwellings	3%	40%	75%
Total	100%	100%	100%

Matusik Phase 4 Review 13-14th and 29th November 2019.

6. Greenfield dwelling demand

- Over the last five years, there has been a demand for some 2,375 new dwellings each year in the Gold Coast greenfield area.
- Most of this demand – some 85% or 2,022 housing starts per year – have been in new estates and projects with development densities under 20 dwellings per hectare.

Gold Coast greenfield area: Annual lot registrations

Years ending September	Under 20 dwellings per hectare	Over 25 dwellings per hectare	Total residential lot registrations
2010	633	173	806
2011	962	297	1,259
2012	840	237	1,077
2013	624	121	745
2014	1,245	201	1,446
2015	1,901	217	2,118
2016	3,049	339	3,388
2017	1,735	390	2,125
2018	2,082	473	2,555
2019	1,344	348	1,692
Ten year average	1,442	280	1,721
Five year average	2,022	353	2,375

Queensland Government Statistician's Office, Queensland Treasury.

7. Matusik Property Insights:

- Matusik Property Insights is an independent consultancy, providing detailed residential market research and analysis for industry, government, companies and, in some instances, individuals.
- Matusik prides itself as a trusted source of property analysis. Michael is seen by many as a 'voice of reason amongst the distortion'.
- For more general information www.matusik.com.au

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Typical data sources

- Price Finder
- State and local government, various
- RBA
- BCI Australia
- SQM Research
- State rental tenancy authorities
- ABS census
- ABS publications, various
- Matusik Database

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