

# CARSELDINE VILLAGE

# a blueprint for sustainable development

from market leaders in sustainability and innovation, Economic Development Queensland (EDQ)



MAY 2024

# EDQ — market leaders in sustainability and innovation

At Carseldine Village, we're delivering a sustainable community with comfortable, affordable net zero energy emission freehold terrace homes.

This showcase urban-infill model creates a mixed-use precinct – close to public transport, jobs and retail and only 14 kilometres from the CBD – and features a suite of green technologies in every terrace home. The community's built environment boasts innovative, green technologies along with wide, walkable streets, plentiful green spaces and facilities to support intergenerational living, all with world-class urban design.

Carseldine Village is now home to the 6 storey, 150 bed Rockpool Residential Aged Care facility, and a relocated new 98-place C&K childcare centre, both of which are designed to 5 Star Green Star specifications by the Green Building Council of Australia (GBCA).



#### CARSELDINE VILLAGE

Inspired living

# A BLUEPRINT FOR FUTURE SUSTAINABLE DEVELOPMENT

By partnering with consumers, builders, developers, marketers and energy suppliers, at Carseldine Village, we've created a blueprint for how private developers can:

- Deliver net zero energy emission residential homes
- Make 100% solar + battery homes affordable and within reach for low- and middle-income households
- Create a product that is incredibly popular with buyers thanks to the competitive price point for the homes coupled with their sustainability and liveability
- Reduce power bills for residents to as low as possible and increase the comfort and liveability of their homes at the same time
- Increase the sustainable features of homes by upskilling builders and developers in sustainable design principles and technologies
- Integrate sustainable technology into the built environment, from smart lighting and irrigation showcased at The Green (Carseldine Village's own sport and recreation precinct)
- Work with energy suppliers to optimise grid compatibility, partnering with them on the design of the local grid and configuration of solar + battery systems
- Ensure climate resiliency at the residential and community scale
- Maximise behind-the-meter use of solar power and battery storage, and
- Encourage the adoption of emerging technologies (such as electric vehicles and smart lighting).

Carseldine Village is showcasing how to deliver affordable sustainable homes. Our development model is drawing much industry interest and is already being replicated at Parkside Yeronga by developer JGL, in the Yeronga Priority Development Area (PDA). Read on to find out more about our aims, learnings and key achievements on this groundbreaking sustainable project.



# THE CONTEXT FOR THIS PROJECT

#### OUR VISION FOR CARSELDINE VILLAGE

To create not just a locality but a lifestyle heart where residents can work, shop, dine and play in one location with affordable, sustainable housing, a walkable precinct with plentiful green spaces and world-class urban design that connects intergenerational residents to transport, jobs, retail and their community.

#### THE SITE

- Carseldine Village is a 15.7 hectare site (the site) located in Carseldine, 14 kilometres from Brisbane's CBD.
- Formerly part of the Queensland University of Technology's Carseldine campus, Carseldine Village is bound by the Transport and Main Roads Customer Service Centre to the west, Beams Road to the north, Cabbage Tree Creek to the south, and railway line to the east.
  - The site is owned and being developed by Economic Development Queensland (EDQ). The balance of the original 45 hectare site north of Cabbage Tree Creek is owned by Brisbane City Council (~18 hectares) and the Department of Energy and Public Works (~11 hectares).
- The Fitzgibbon Priority Development Area (PDA) was declared by the Minister for Infrastructure and Planning in July 2008, identifying the site for urban renewal. Then in July 2009 the Fitzgibbon PDA Development Scheme took effect and was later amended in July 2011.
- In 2016, the Queensland Government released the Advancing Our Cities and Regions strategy, which included economic and community development zones across Queensland. Carseldine Village was identified as the first urban renewal precinct to be revitalised under this strategy.
- Carseldine Village has a unique planning framework in that it is located within a PDA. As such EDQ has both a regulatory planning role and a developer role. This enables coordination and control over land development and this helped to facilitate several of the innovations within the development. Brisbane City Council (BCC) is responsible for the management of public assets, so EDQ has also worked closely with BCC.

We sought to revitalise the site into an urban village that incorporates bushland and open space with a diversity of residential (including residential aged care), expanded childcare, and small scale commercial and retail spaces to catalyse investment in the local community and deliver jobs and economic growth.

We undertook extensive and considered community consultation in 2008, 2010–2011, and 2016 as part of preparing the development scheme for the site and informing further site master planning.



#### POPULATION GROWTH

- New figures show SEQ's population will increase by almost 2.2 million to around 6 million by 2046.
- The Brisbane Local Government Area's estimated residential population as of 2021 was 1,264,000 people, and predicted to grow to 1,721,000 by 2046.
- To manage growth, the Queensland State Government has developed the South East Queensland Regional Plan to serve as a framework for sustainable development. The plan seeks to match housing location with a more sustainable urban form (one with access to public transport, jobs and services), encouraging housing diversity that supports changing lifestyles, demographics and preferences.

#### THE COVID-19 PANDEMIC

Carseldine Village launched its freehold terrace housing product two months before the COVID-19 pandemic took hold and continued through the subsequent supply-chain challenges across the wider construction industry. EDQ held its price points from Release 1A to Release 1B on the expectation demand would reduce during the pandemic. However, this was not the case with demand continuing regardless of such external factors. This is due largely to the uniqueness of this freehold terrace housing product in Brisbane, let alone the sustainability features.

These external factors resulted in significant delays in the construction of Stage 1 terraces homes, with the first homes occupied some 8 to 12 months later than anticipated. This has unfortunately caused some significant challenges for our buyers. However we are certain that once all buyers take possession of their new homes, these delays will be offset by the quality and value in the finished product – which has been the case to date.



# carseldinevillage.com.au

Stage 1 and 2; 3A, 3B, 4A and 4B Releases are indicative only. See carseldinevillage.com.au for further information. \*Subject to development approval





We sought to leverage the site's proximity to transport infrastructure and position within an established urban area to deliver economic growth and housing diversity. We also ensured the development supports intergenerational living by designing homes with flexible floorplans, a variety of layouts and minimum silver level certification under the LHA Liveable Housing Design Guidelines (to support a diversity of residents including families, couples, older residents and work-from-home scenarios).



#### THE MISSING MIDDLE

A key factor that influenced the housing typology adopted for Carseldine Village was the concept of Brisbane's "missing middle", with Brisbane's housing typology largely limited to:

- detached housing on traditional housing lots, largely available on the urban fringe of Brisbane, and
- residential apartments which are currently prevalent within 6 to 8 kilometres from the CBD based on requirements including accessibility and amenity, and are less prevalent in the middle and outer areas of Brisbane.

By delivering 182 freehold two-, three-, and four-bedroom terrace homes at Carseldine Village, we're addressing this missing middle and demonstrating this type of housing can be developed effectively and feasibly and should be supported.

Overall, our vision for the site is to deliver improved sustainability, liveability, and affordability. With mid- and high-rise apartments a less popular development type in some existing neighbourhoods, but currently the only alternative option for affordable housing, we saw the need to provide density in a more traditional, liveable, acceptable, affordable way, including the benefits of freehold title, i.e. no costly body corporates.

Our terrace homes are on lots ranging from as small as 76sqm and averaging around 120sqm, which is very compact by comparison with traditional detached housing product in Brisbane / SEQ. The small (compact) lot size is driving the affordable outcome, without compromising the lifestyle outcomes. The average home size is around 170sqm and ranges from 130sqm – 220sqm, which offers choice and also limits the temptation to build overly large homes that will become increasingly costly to heat and cool in the future.

At Carseldine Village, we're targeting in excess of 55 dwellings per hectare in a development that is 14 kilometres from the CBD. Carseldine Village is a showcase for an urban infill model adjacent to a train station that addresses the needs of Brisbane, today and into the future.

#### THE DEMAND FOR AFFORDABLE, SUSTAINABLE HOMES

Residential buyers in Australia are seeking sustainable homes – although they may not use the term "sustainable" to describe them. They're looking for "comfortable, healthy and affordable homes" which are all features of sustainable homes. Solar power and other renewable technologies are growing in popularity around the country.

Recent CSIRO research determined that while two-thirds of home buyers report that they'd prefer an energyefficient home when given a choice, there is a large gap between consumer demand and supply. And where sustainable options do exist, these homes come with a premium price tag that puts them out of reach for most consumers.

> Our mission in the context of Carseldine Village is to create a community where residents can prosper. We've created an affordable (yet quality) place where people can live an energy-efficient life, do some good for the planet, and save money.

> We know that solar and batteries coupled with energy efficiency measures for homes in new developments makes sense both in terms of meeting key government policy priorities and for supporting lower costs of living for residents. But another key aim of this project is to create sustainable homes with a purchase price point that makes them a viable and desirable choice for low- and middle-income households.

# **KEY ACHIEVEMENTS AND INNOVATIONS**

By listening to and engaging with community and industry, we've designed a sustainable community of the future that is attainable today, meets all key stakeholders' needs – from developers and buyers to energy suppliers and council – and offers homes that are sustainable, affordable and liveable. Carseldine Village was awarded a 5 Star Green Star Communities rating by the GBCA and every home achieves a minimum silver level certification under the LHA Liveable Housing Design Guidelines. Read on to find out more.

#### SUSTAINABLE HOMES

Each terrace home will produce enough renewable energy to offset the home's stationary greenhouse gas emissions, reducing emissions by at least 5 tonnes per year when compared to an industrystandard home.

Every freehold terrace home will be delivered with:

- an 11-panel rooftop solar PV system producing approximately 14kWh per day on average – combined with a 10.1kWh capacity Alpha ESS battery
- a suite of sustainable technologies, including a heat pump hot water system and 5-star efficient Wi-Fi air-conditioning controlled via smartphone
- better thermal performance and airtightness (minimum 7-star NatHERS ratings), meaning lower heating and cooling costs and less emissions, and
- a garage that is electric vehicle charger ready, pre-wired on a separate circuit, saving the owner a costly future retrofit.

#### AFFORDABLE HOMES

We've set industry benchmarks by making a truly sustainable community an accessible, affordable reality: the majority of the homes at Carseldine Village are delivered at price points that bring them in reach of low- and moderate-income households.

Residents also enjoy a significantly lower cost of living. The terrace homes are freehold, meaning residents don't have to pay body corporate or other ongoing fees. Plus, with all homes fitted with a suite of sustainable technologies, residents will save up to \$1800 per year on their energy bills.

We far exceeded our aim under the Fitzgibbon PDA Development Scheme to ensure a minimum of 5% of all dwellings are affordable<sup>\*</sup>.

Of the 182 sustainable homes built and to come at Carseldine Village:

- 68.7 per cent (125 homes) are affordable to purchase by low-income households, and
- 97.3 per cent (177 homes) are affordable to purchase by moderate-income households.



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\*We commissioned Econisis to do an affordable housing review in accordance with the definitions under the Fitzgibbon PDA Development Scheme and the EDQ PDA guideline no. 16 (January 2016), and determined:

FROGMOUTH LA

- 125 of the 182 (i.e. 68.7%) terrace homes were affordable to purchase by low-income households, and
- 177 of the 182 (i.e. 97.3%) terrace homes were affordable to purchase by moderate-income households.



#### LIVEABLE HOMES

At Carseldine Village, the terrace homes are thoughtfully designed to be comfortable and liveable, featuring:

- low-maintenance designs with no backyard (some designs have a small central / private courtyard)
- diverse floorplans to support people at all ages and stages of life, including seniors, multiple generations in the one home and work-from-home scenarios
- minimum silver level certification under the LHA Liveable Housing Design Guidelines
- garages at the rear on a laneway for both street appeal and safety/visibility
- close connection to parks, sports fields and green spaces
- a neighbourhood with wide, walkable streets
- cozy, climate-controlled living year-round with WiFi air-conditioning controlled from a smartphone to allow remote preheating or precooling
- a retail heart right in the Carseldine Village precinct (the Village Heart)
- C&K Childcare and Rockpool Residential Aged Care onsite, and
- close proximity to public transport and less than 30 minutes by train to Central Station.

#### SHOWCASE SUSTAINABLE INNOVATIONS THROUGHOUT CARSELDINE VILLAGE

Carseldine Village was awarded a 5 Star Green Star Communities rating by the GBCA in 2021: Australia's most recognised sustainability and liveability rating tool for neighbourhoods and precincts.

We've demonstrated many other innovations and green technologies at Carseldine Village – in the built environment and at The Green, Carseldine Village's sport and recreation precinct – that are now being used in developments around Australia, including:

- LED lighting in the 14 floodlit towers at The Green that lower greenhouse gas emissions and power bills for the sporting hub
- a "smart" partnership between the BrightSport app and integrated eSwitch technology to coordinate bookings and lighting to each sporting field / court at The Green – the lights will automatically turn on and switch off at the booking times – reducing lighting power bills and the carbon footprint
- a smart irrigation system at The Green that saves up to 30% of water usage via an integrated weather monitor that monitors local weather information and evaporation from the soil surface, and
- lighting for the pathway through to the pedestrian bridge over Cabbage Tree Creek is 100% renewable. Smart solar pathway lights have since been installed at EDQ's developments – Songbird Oxley and Northshore, Brisbane using Greenfrog Systems.

#### LIVEABILITY ENERGY PILOT RESEARCH PROGRAMS

At Carseldine Village, we've coordinated uptake for two renewable energy research programs for Stage 1:

• The HEMS pilot program

This project, using Home Energy Management System (HEMS) technology provided by Evergen, enables Energy Queensland Limited (EQL) to gather data from HOBO data loggers installed in participant residents' meter boxes to measure residents' energy usage. EQL will use this data to understand the value renewable energy offers for households, the wider community and the power network. Homeowners will also use this system and data to better manage their energy use and associated costs, and

The Living Lab pilot program

Queensland University of Technology (QUT), the University of New South Wales (UNSW) and RACE2030 (the national renewable energy and sustainable homes research centre) are collecting resident participants' survey data, electricity data and thermal data. The partnership will use this data to help determine how everyday appliances and renewable energy technologies impact energy bills and comfort.

# POPULARITY / THE RECEPTION

At Carseldine Village we've demonstrated sustainable delivery as well as our strengths in strategic planning and collaboration. The precinct and our unique approach to sustainable development have garnered extensive interest and positive attention.

#### FROM BUYERS AND RESIDENTS

Our freehold terrace homes are an extremely popular product from a price point, a sustainability and a liveability perspective. The initial release sold out within two days, and all subsequent releases have continued to sell quickly, with the last releases taking a little longer due to rising interest rates and general uncertainty in the market. Also, our HEMS program for Stage 1 homes was fully subscribed in 48 hours. We've completed 43 terrace homes to date, and our residents are happy with their new homes:

"What jumped out to me about Carseldine Village was that it's close to the train line, close to the markets...I really liked that it was net zero, that was a really important factor to me. The first impression I got from Carseldine Village is that the homes looked really modern and that they were freehold was also really important to me because it meant no body corporate fees. Living at Carseldine Village is great, we really love it. It's low maintenance...really easy to look after and maintain...and it's really close to everything that we like to do."

 Georgia, Carseldine Village resident who owns a 3-bedroom terrace home

#### FROM THE COMMUNITY, THE MEDIA AND THE GENERAL PUBLIC

The wider Carseldine and Brisbane communities have been very receptive to Carseldine Village. One statistic that demonstrates the development's popularity is that since July 2021, The Green has taken 3439 sports field bookings via the BrightSport app. Most weekends at The Green are packed from sunup to sundown with many families gathering for a play, party, or game of sport.

Our net zero energy emission freehold terrace homes have also been very popular in the media, garnering extensive media coverage including in the mainstream media. One article by ABC News received over 150,000 views, making it one of the most popular and highly read articles of the week.

#### FROM OUR BUILDERS

Our builders and key partners Thompson Sustainable Homes and Vantage Homes Queensland are extremely happy due to the popularity of the product and speed of sales. Since we started selling in March 2020, the terrace house and land packages are now sold out.As mentioned above, Stage 1 sold out in 48 hours, and we've experienced strong demand for each stage (10 releases).





#### **FROM THE INDUSTRY**

Thanks to demand from customers for comfortable, affordable, sustainable and liveable homes, developers have shown significant and ongoing interest in Carseldine Village. As a result, we have held four tours of the development in the past 12 months. We also delivered a presentation to the Urban Development Institute of Australia's (UDIA) Housing Supply and Affordability Committee which was extremely well received and is likely to result in more visits to Carseldine Village.

We have also been nominated as a finalist in the 2023 Property Council of Australia (PCA) Innovation and Excellence Awards in the Development Innovation category.

We're demonstrating market leadership in sustainability and innovation, creating a blueprint for future sustainable development. Thanks to the demonstration of numerous sustainable technologies and innovations showcased throughout Carseldine Village, these initiatives are now being replicated by EDQ and a range of builders and developers throughout Australia. One example is JGL Properties who are using our freehold model for some of their terrace homes at Parkside Yeronga, at least 12 of the total 37 dwellings planned.

#### FROM THE GREEN BUILDING COUNCIL OF AUSTRALIA (GBCA)

Carseldine Village was awarded a 5 Star Green Star – Communities rating by the GBCA who provide Australia's largest national sustainability rating system. This award is an independent certification from the GBCA that identifies the Carseldine Village development as a showcase of Australian Excellence in master planning.

#### FROM THE PRIVATE SECTOR

We've also experienced significant interest from the private sector. Companies who have partnered with Economic Development Queensland at Carseldine Village include:

- Vantage Homes Queensland
- Thompson Sustainable Homes
- Rockpool Residential Aged Care, who have built one of Australia's first 5 Star Green Star designed residential aged care homes at Carseldine Village, which opened in August 2022, and
- C&K Childcare, who have built a 5 Star Green Star design. One of only a few early childhood education and care centres in Australia to be certified by the Green Building Council, which opened in August 2023.

### THE KEYS TO OUR SUCCESS: OUR PARTNERSHIP MODEL + SUSTAINABILTY FROM THE START

#### OUR PARTNERSHIP MODEL

#### OUR PARTNERSHIP WITH ENERGY QUEENSLAND

We met with Energy Queensland Limited (EQL) early in the planning stages to discuss our intention to install solar PV and batteries at scale at Carseldine Village. EQL welcomed the opportunity to participate in an urban renewable energy project of this scale. Working collaboratively broke through challenges to achieve the vision for mass deployment of localised renewable energy generation. Today, EQL are now an important partner with us at Carseldine Village, helping facilitate the two megawatts of renewable power that will be produced across the rooftops and batteries of our freehold terrace homes.

How did we shift the energy paradigm that new homes should come with renewable energy as standard at Carseldine Village? We used a partnership model where we spent a lot of time consulting and listening to the various stakeholders at EQL. By taking the time to hear their varying perspectives and individually troubleshoot their concerns, we were able to conceive a plan together that was viable for EQL. This involved creating a power system that is almost self-sufficient, with minimal export to and import from the grid; one that was not oversized for the energy needs in the home. Any excess generation from the homes will be soaked up in the local precinct, used for example by Rockpool, the Rockpool Residential Aged Care facility, which has a 24 hour energy demand for its operations. And now, EQL are our partner in demonstrating how viable and successful these systems can be.

Our HEMS program is also helping inform the future of sustainable energy and impacts on the grid by feeding back to EQL data on Carseldine Village residents' energy usage.

Thanks to our partnership with EQL and our successful approach to solar PV at Carseldine Village, we've readily rolled out a similar model at another of our developments, Songbird Oxley, where we have solar PV on detached homes as well as the residential aged care facility in that development. By establishing a clear vision early and working in a partnership approach to create a sustainable business model, leveraging economies of scale, works with the grid at this scale, our model can be taken up by other developers throughout Australia, accelerating the future of sustainable energy and sustainable development.

#### OUR PARTNERSHIP WITH OUR BUILDERS

Following our call for Expressions of Interest from development partners, we selected two builders with substantial experience in small-lot construction – Thompson Sustainable Homes and Vantage Homes Queensland – who are our key partners for our net zero energy emission terrace homes.

We engaged in extensive and considered consultations with our two builder partners throughout the planning and design phase. This included consulting closely on the designs for the homes to ensure:

- a good range of designs to offer the buyers variety and choice
- not too many design options to ensure this was not too onerous on the builders (which also helps limit the costs for the builds), and
- all the designs were finalised and preapproved prior to each release to avoid delays due to lengthy covenant approval including Plan of Development and LHA compliance.

Our builder partnership model has been highly successful:

- we're delivering 182 freehold terrace homes that are net zero energy emission
- our two builder partners have combined their buying power to purchase in bulk a range of sustainable technologies – including the solar PV / battery systems – well below market price (something that can't be achieved through the traditional model of selling land to a homeowner who has a lot more control over their design, choice of builder, and procurement of such inclusions)
- we have created a product that is very popular with buyers thanks to the competitive price point and low operating costs, i.e. no body corporates, solar PV / battery, and energy efficient appliances
- we reduced buyer confusion by keeping it simple, offering the one set of energy efficient appliances plus the one solar PV / battery set up for all buyers, and

our builder partners – Thompson
Sustainable Homes and Vantage Homes
Queensland – are very happy due to the
popularity of the product and speed of
sales and have the ability to replicate this
approach in other future projects. For
example, our builders have indicated, with
silver LHA compliance being mandated for
such dwellings from October 2023, that they
are well ahead of other builders in achieving
this imminent requirement.

# OUR PARTNERSHIP WITH THE LOCAL COMMUNITY

We also consider the community a key partner in this development. We began the Carseldine Village project with community consultation in 2008 to guide our pre-planning, and we engaged in further and extensive consultation in 2010, 2011 and 2016 to inform and shape the development. To this day we continue to communicate regularly to the local community, particularly via social media, to keep them informed and engaged.

#### OUR PARTNERSHIP WITH TERRACE HOME RESIDENTS

This process is also about educating our buyers and residents about self-sufficient renewable energy. These terrace homes are so efficient that there is no need to have large oversized solar arrays. The solar and battery systems have been sized to meet the energy needs modelled for the home. To ensure everyone has equal access to export to the grid, homes export has been limited to 3kW. This will support a sustainable electricity system while providing great value to the occupants.

## SUSTAINABILTY FROM THE START

#### PRE-PLANNING WAS KEY TO OUR SUCCESS

Our experience and learnings from previous projects, i.e. Fitzgibbon Chase in the Fitzgibbon PDA, helped us evolve how we planned to deliver sustainability both at an individual dwelling/ building level and across the entire scale of the neighbourhood from the start. In our experience, by making choices and planning at the beginning, sustainability can be an affordable and very positive choice for the development. We know from past projects that retrofitting sustainable features later can be complex and expensive.

We began this project with a vision around net zero energy emission homes, which guided our planning decisions and partnerships. We found that while the Green Star Communities criteria helped guide the development to a degree, the criteria largely confirmed and validated the approach we and our builder partners were intending to take for the development. The Green Star Communities certification did, however, result in some new considerations within the project that are likely to be carried forward into future projects. A key lesson from this development was to engage with the GBCA earlier in the planning and design process (as we did for our own sustainability planning) to ensure the ability to maximise outcomes. That said, we're proud to have achieved the highly coveted 5 Star Green Star Communities certified rating from the GBCA for this development, an acknowledgement that we have achieved Australian Excellence in our master planning.

CORYMBIA



# At EDQ, we're market leaders in innovative, sustainable and affordable communities.

#### CARSELDINE VILLAGE IS A BLUEPRINT FOR FUTURE DEVELOPMENT.

By listening to and engaging with community and industry, partnering with our builders and Energy Queensland Limited, and planning sustainability from the start, we've created a blueprint for sustainable development that meets all key stakeholders' needs – from developers and buyers to energy suppliers and council.

#### WE'RE MAKING INNOVATIVE, SUSTAINABLE COMMUNITIES AN AFFORDABLE, COMFORTABLE REALITY TODAY.

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At Economic Development Queensland, we're market leaders in sustainability and innovation