

# Ecologically Sustainable Development (ESD) Strategy

APPLICANT:

Fraser's Property Australia

ADDRESS:

78 Middleborough Rd, Burwood East



## **PLANNING AND ENVIRONMENT ACT 1987 WHITEHORSE PLANNING SCHEME**

**This plan is approved pursuant to Clause 43.04  
Schedule 6 of the Whitehorse Planning Scheme.  
This document forms part of the Development  
Plan for the former brickworks site at  
78 Middleborough Road, Burwood East.**

**No. of pages: 35  
Document: 6 of 8 in Volume: 2  
Signed: Allison Egan  
Date: 28/02/2018**

V11

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Prepared by



[info@organicaeng.com.au](mailto:info@organicaeng.com.au)

[www.organicaeng.com.au](http://www.organicaeng.com.au)

# 1. Introduction

This Sustainable Design Assessment is based on the Green Star Communities toolkit, which is used to demonstrate compliance with the following key environmental components from the Development Plan Overlay Schedule 6 (DPO6) in the Whitehorse Planning Scheme.

This project represents the redevelopment of a total site area of approximately 20.5 hectares. The site is located on the northern side of Burwood Highway extending north to Eley Road.

The DPO6 requires the provision of an Ecologically Sustainable Development (ESD) Strategy. This ESD Strategy must consider and respond to the major components of the proposed development and construction processes and:

- State how ESD principles will guide and be incorporated into the use and development of the site;
- Demonstrate the incorporation of recognised technologies and best practice;
- Demonstrate how compliance with all relevant statutory obligations in environmental sustainability is achieved;
- Show any features or sites of ecological significance and include an assessment of the likely impact of any proposed buildings or works on these sites;
- Identify and nominate the level of sustainability performance standards to be adopted; and
- Assess options by which the agreed level of sustainable performance standards will be achieved.

The ESD strategy requirements are addressed in section 2 and 3 of this report.

## 1.1 *Green Star Communities Initiatives*

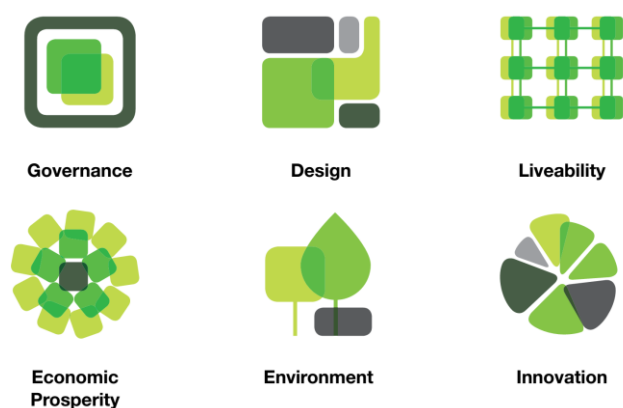
Green Star Communities has been developed by the Green Building Council of Australia – it represents consensus around Australia between industry and government on the best ways of applying sustainability principles in precinct developments. This project is targeting a 5 Star Certified Green Star Communities Rating. 5 Stars represents Australian Excellence – a level of sustainability that will become a leading example of excellent sustainable design nationally. Green Star communities meets and exceeds what is required in the Whitehorse planning scheme for sustainability in subdivisions. An extract from the Green Star Communities scorecard (preliminary – not certified) has been provided in Appendix B – Green Star Communities Pathway detailing the precinct sustainability commitments in the following categories. In addition the specific Green Star Communities initiatives adopted for the project have been outlined in section 3.

- Enhance liveability
- Create opportunities for economic prosperity
- Foster environmental responsibility
- Embrace design excellence
- Demonstrate visionary leadership and strong governance
- Innovation

## 1.2 About Green Star Communities<sup>1</sup>

The **Green Star – Communities PILOT** rating tool was released in 2012 as an independent, national, voluntary rating tool to drive the development of more sustainable, productive and liveable Australian communities. Green Star has been used to guide master planning of the development. The tool will also guide the detailed design and the delivery of the project. Initial certification will be prior to commencing construction of the project. The certification process will ensure that the masterplan and infrastructure meet the rigorous requirements of the Green Star submission guidelines. The project will also be seeking recertification of the project once the project is complete to ensure the construction has met Green Star guidelines.

It was developed by the Green Building Council of Australia (GBCA) in close collaboration with the development market, including all three tiers of government, public and private sector developers, professional services providers, academia, product manufacturers and suppliers and other environmental and industry stakeholder groups. The PILOT rating tool assesses the sustainability performance of projects' planning, design and construction outcomes against the following categories:



### Assessment:

An independent GBCA assessment panel awards points to the Green Star - Communities projects based on how well they deliver against each category. Because the assessment is independent, some variation usually exists between what points a project will claim, and which points a project is finally awarded.

## 1.3 Scope of this report

Detail about the sustainable technologies used in buildings have been provided in the greatest possible detail at this stage of the project. Further details of the buildings will be resolved later in the design process, and in the building planning permit stage, and will include a high level of sustainability performance. This report does not cover the Green Star tools relating specifically to building design including "Design and As-Built" and "Performance". These tools cannot be applied until the buildings in question have been designed in detail. Decisions on Green Star certification of individual buildings will be resolved later in the design process and the buildings will include a high level of sustainability performance. Details of building sustainability features are provided in section 3 and also a sustainable design checklist has been provided in Section 4. We anticipate that this will be applied to all residential dwellings on the project, and this approach will be confirmed at the planning permit application for each project stage.

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<sup>1</sup> Source for image and information on Green Star Communities: GBCA website <http://www.gbca.org.au/green-star/green-star-communities/>



**Figure 1 – Development Plan Drawing**



- Civic Space
- Boulevard Link Road
- Shared Pedestrian and Bicycle Path Connection
- Pedestrian Connection
- Improved Pedestrian Environment
- Access to Plaza

- Signalised Intersection
- Site Interface
- Traffic Slow Point
- Dedicated Off Road Bicycle Route
- Roundabout
- Non-Public Open Space

**TYPES AND BUILDING ENVELOPES**

- Detached and Semi-Detached Housing
- Terrace and Town Housing
- Apartment Living
- Apartments, Terraces and Town Housing
- Retail Centre
- Open space is subject to detail design





## 2. Sustainability Strategy

The sustainability strategy responds to the different phases of the project by employing the Green Star Communities framework and applying it to the site. This project has registered as a Green Star Communities project and it is committed to achieving 5 star Green Star Communities Certification. The following table correlates the requirements of DPO6 with the design features in the Masterplan and the commitments in the Green Star Communities credits. In addition, a draft Climate Adaptation Plan has been created for the site, which is provided in Appendix A for Council Review.

The Nature of Green Star is that it allows flexibility on which credits are targeted, while still allowing projects to aim for the 5 star target which represents "Australian Excellence". This project will most likely adjust our approach and the targets we pursue in response to market requirements and detailed design constraints.

**Table 1- Project response to the DPO6 sustainability requirements**

| Requirement of the DPO6   | Project Response   |
|---|--|
| State how ESD principles will guide and be incorporated into the use and development of the site; | Green Star Communities Certification requires that ESD principles are incorporated into the development of the site from the initial masterplanning stage right through to the detailed building design and the construction and operation of the site. The Green Star Certification has guided the masterplanning process, and the Green Building Council will assess and independently certify that ESD measures have been incorporated into the use and development of the site. Please see the following section 3 of this report and the Green Star Communities Submission Guidelines for details of initiatives that will be targeted by this project. |
| Demonstrate the incorporation of recognised technologies and best practice;                       | This development will be incorporating best practice technologies and initiatives into the development as defined by the credits we select from the Green Star Communities rating tool. Please see section 3 and 4 of this report below and the attached Appendix B – Green Star Communities Pathway for detail on how this project will demonstrate incorporation of recognised sustainable technologies and best practice.   |

| Requirement of the DPO6   | Project Response  |
|---|---|
| Demonstrate how compliance with all relevant statutory obligations in environmental sustainability is achieved;   | <p>Environmental sustainability statutory obligations have been complied with in several ways. For example, the decontamination of the site required application of the SEPP obligations. In addition, we have addressed obligations around biodiversity protection and around water sensitive urban design. Please see the biodiversity report, the traffic report addressing sustainable transport, and also the engineering report for how this project has addressed Water Sensitive Urban Design (WSUD) requirements.</p> <p>This site will also develop a comprehensive Environmental Management Plan (EMP) prior to commencing construction.</p>   |
| Show any features or sites of ecological significance and include an assessment of the likely impact of any proposed buildings or works on these sites; | <p>A full biodiversity assessment was undertaken on the site. It is planned that as part of Green Star Communities certification, the development will create a significant net biodiversity gain representing a 20% improvement over the site's biodiversity values. For more details of sites of ecological significance, please see the Biodiversity Report (Biosis 2014)</p>  |
| Identify and nominate the level of sustainability performance standards to be adopted; and  | <p>The development is registered with Green Star Communities and it is committed to achieving 5 stars Green Star Communities Certification. Five stars equates to "Australian Excellence" which is above and beyond the 4 star level of "Best Practice". Green Star Communities will comprehensively cover all aspects of sustainability within the precinct.</p> <p>Details of individual buildings are not finalised at this stage of the project, and planning approval of the individual buildings will occur later in the planning approvals process.</p> <p>As individual dwellings and buildings are outside the scope of assessment of Green Star Communities, this project will use the BESS planning sustainability tool, the 'Green Star Design and As-Built' tool, or similar tool approved by Council to achieve a high level of sustainability in the site's buildings.</p> |





| Requirement of the DPO6  | Project Response  |
|--|---|
| <p>Assess options by which the agreed level of sustainable performance standards will be achieved.</p> | <p>This development will undertake third party certification of the Green Star Communities performance standards, to ensure that the standards are integrated into the design. The Green Building Council will assess the project in two stages: the first is a review of the masterplan and preliminary design documentation, and the second assessment is to review the project in three years' time once the first stages are completed. The assessment by the GBCA will be undertaken by an independent panel of assessors, and the assessment process will review each of the credits claimed by the project as outlined in Section 3 of this report.</p> <p>As minimum scores are required in all categories this project will achieve the level of "Australian Excellence" in of each of the six areas of Governance, Design, Liveability, Economic Prosperity, Environment, and Innovation.</p> |





Please see the following chapters detailing the Green Star Communities pathway and the building design performance standards for the many innovative precinct-wide strategies we will be implementing to enhance environmental, social, and economic sustainability outcomes.




### 3. How ESD principles will guide and be incorporated into the use and development of this site

The following section provides detail about how the project addresses the requirements of the DPO. The following table outlines each Green Star Communities Credit and details how the project has integrated Green Star Communities initiatives into the design.

| Green Star Communities Credit   | How ESD principles will guide and be incorporated into the use and development of this site:  |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
|---|---|-----------------|-------------------|-----------------|-------------------|-----------------|------------------|---------------|----------------|-------------------------|--------------------|----------|----------|------|-------|--|----------|--|----------|--|
| GOVERNANCE CATEGORY   | Sustainable communities are characterised by leadership, and strong governance frameworks that are transparent, accountable and adaptable. They enable active partnerships to build capacity and achieve a shared vision, and deliver a variety of stakeholder benefits. The purpose of the Governance category is to encourage and recognise developers and projects that demonstrate leadership within the sector, by the establishment and maintenance of strong governance practices. The category promotes engagement, transparency, and community and industry capacity building. It also seeks to ensure that community projects are resilient to a changing climate.  |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
|    | A Green Star Accredited Professional (GSAP) has been made part of the project team to provide advice, support, and information related to Green Star principles, structure, timing and processes, throughout the development.   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Green Star Accredited Professional  |   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
|  | This project has undertaken an independent design review process facilitated by Roberts Day to ensure sustainable urbanism. For sustainable communities to be 'places for people', they must be desirable, accessible and adaptable. To achieve these outcomes, and help a community develop a distinct character and identity, effective urban planning practices have been adopted by this project. The key to realising these goals is to ensure the design will meet a community's requirements. That determination is most effectively made through an unbiased and correctly focused design review process. This project has undertaken the process of design review of the project's site planning, layout and urban design.   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Design Review   |   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
|  | This project has implemented a comprehensive, project specific stakeholder engagement strategy early in the planning process. In addition, the project is preparing a Stakeholder Engagement Strategy in accordance with the core values of the International Association for Public Participation Australasia (IAP2) for public participation (see the Green Star Communities Submission Guide). The scope of the Strategy includes the planning, design and construction phases of the project. IAP2 Australasia has been identified as the leading public participation association in Australasia. The IAP2 core values code of ethics and public participation spectrum are considered to offer a sound foundation for the preparation of a strategy for effective engagement. |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Stakeholder Engagement  |   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
|  | This project has been designed to be resilient to the impacts of a changing climate and natural disasters. A project-specific Climate Adaptation Plan (CAP) has been developed. In addition, prior to the occupation of any habitable building on the project site, a project-specific Community Resilience Plan (CRP) will be developed that addresses preparation, during- and post-disaster communication, safety, and response. The Climate Adaptation Plan has been attached to this report in   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Climate change adaptation and resilience  | Appendix A – Climate Adaptation Plan.   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
|   | <table><tr><th>Primary Effects</th><th>Secondary Effects</th></tr><tr><td>Air Temperature</td><td>Relative Humidity</td></tr><tr><td>Solar Radiation</td><td>Bushfire Weather</td></tr><tr><td>Precipitation</td><td>Sea Level Rise</td></tr><tr><td>Sea Surface Temperature</td><td>Coastal Inundation</td></tr><tr><td>Humidity</td><td>Cyclones</td></tr><tr><td>Wind</td><td>Flood</td></tr><tr><td></td><td>Heatwave</td></tr><tr><td></td><td>Drought.</td></tr></table>  | Primary Effects | Secondary Effects | Air Temperature | Relative Humidity | Solar Radiation | Bushfire Weather | Precipitation | Sea Level Rise | Sea Surface Temperature | Coastal Inundation | Humidity | Cyclones | Wind | Flood |  | Heatwave |  | Drought. |  |
| Primary Effects   | Secondary Effects   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Air Temperature   | Relative Humidity   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Solar Radiation   | Bushfire Weather  |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Precipitation   | Sea Level Rise  |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Sea Surface Temperature   | Coastal Inundation  |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Humidity  | Cyclones  |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
| Wind  | Flood   |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
|   | Heatwave  |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |
|   | Drought.  |                 |                   |                 |                   |                 |                  |               |                |                         |                    |          |          |      |       |  |          |  |          |  |

|  |  |
|--|--|
|  <p>Corporate Responsibility</p>                | <p>Frasers property takes corporate social responsibility seriously, and we have developed a corporate responsibility policy that is in line with the Green Star standards covering each of the core subjects identified in ISO 26000. ISO 26000 identifies the following seven core subjects that a business must address to be considered socially responsible (see Guidance):</p> <ol style="list-style-type: none"> <li>Organizational Governance;</li> <li>Human Rights;</li> <li>Labour Practice;</li> <li>Environment;</li> <li>Fair Operating Practices;</li> <li>Consumer Issues; and</li> <li>Community Involvement &amp; Development. In addition Frasers undertakes Sustainability Reporting annually in compliance with the GRI Sustainability Reporting Guidelines, covering essential elements including economic, environmental, social and governance performance, which provides the background against which an organization communicates the impacts of its operations.</li> </ol> |
|  <p>Sustainability Awareness</p>                | <p>A Community Users' Guide will be developed for, and provided to, all project occupants:</p> <ul style="list-style-type: none"> <li>The Community Users' Guide (the Guide) will be made available to all project occupants including those who take ownership of sites or lots within the project boundary, regardless of land use (i.e., residential, commercial, education, industrial etc.), and any tenants.</li> <li>The Guide will be available prior to the occupation of any habitable buildings.</li> <li>The Guide will include relevant non-technical information pertaining to the sustainability attributes of the project, outlining what is available to project occupants and what they can do behaviourally in support of those attributes.</li> </ul>  |
|  <p>Community participation and governance</p> | <p>The development will establish mechanisms for community participation in management arrangements for facilities and programs. Community facilities will be managed, coordinated or organised by a community led entity, where:</p> <ol style="list-style-type: none"> <li>Project occupants are actively involved in the decision making process for managing the community facility;</li> <li>Project occupants are able to hold events or activities at the community facility by contacting other project occupants; and</li> <li>Some of the ongoing maintenance or management responsibilities for the community facility are carried out in association with or by project occupants.</li> </ol> <p>In addition at least one community program will be managed, coordinated or organised by a community led entity.</p>   |
|  <p>Environmental Management</p>              | <p>Environmental management systems and plans ensure that the site is managed well during the construction process. Frasers is certified to the international environmental management standard ISO 14001. In addition a site-specific environmental management plan will be developed prior to construction. The NSW Environmental Management System (EMS) Guidelines have been identified as the reference benchmark for best practice in the development and implementation of a comprehensive EMP. Section 3 of the most recent version of the NSW EMS Guidelines will be used, which outlines an Environmental Management Plan's requirements, elements and the review process.</p>   |

|  |   |
|--|---|
| <b>LIVEABILITY CATEGORY</b>  | <p><b>Sustainable communities are liveable. They are diverse, affordable, inclusive and healthy. They enhance social interaction and ownership, are safe and caring, and improve people's wellbeing. The purpose of the Liveability category is to encourage and recognise developments that deliver safe, accessible and culturally rich communities. The category encourages the development of healthy and active lifestyles, and rewards communities that have a high level of amenity, activity, and inclusiveness.</b></p>  |
|  <p>Healthy and Active Living and Sustainable Transport</p> | <p><b>Footpaths</b></p> <p>The project has been provided with footpaths in accordance with the requirements of Green Star Communities. Footpaths are in accordance with the principles outlined in the Australian Model Code for Residential Development (AMCORD) for pedestrian facilities (see below diagrams). This Code for pedestrian facilities has applied to all development types.</p> <p>The street hierarchy has been designated to provide for the safe and convenient movement of pedestrians. Particular attention has been given to the aged, young children, people using prams, and people with disabilities. In access lanes and places of low-volume access, we have provided for pedestrians on the street pavement. In access streets carrying higher traffic volumes (i.e. excess of 1000 vpd), a footpath has been provided on one side of the road. On collector streets, where traffic speeds and volumes are higher, a footpath has been provided on both sides of the street.</p> <p><b>Active Lifestyle</b></p> <p>The site has been designed and built to promote an active lifestyle through well designed walking paths and cyclist facilities. Prior to construction a signage strategy will be developed in inform the community of all active lifestyle infrastructure.</p> <p><b>Recreational Facilities</b></p> <p>All dwellings, places of employment and/or places of education are within close and easy access to both a public park and an accessible sports facility.</p> <p><b>Healthy Places</b></p> <p>The development has been designed and built in line with holistic active and healthy living principles: designed to achieve the following five key design outcomes:</p> <ul style="list-style-type: none"> <li>- Walkability through attractive streetscapes, traffic control, connected street network, and comfort to walkers;</li> <li>- Physical transport activity where cyclist facilities are complemented with good planning of location, transport plans, public transport corridors and end of trip facilities;</li> <li>- Wayfinding elements are present through architectural elements and signage to improve navigating the project site by foot or alternative transport;</li> <li>- Improved public spaces with a relevant human scale, landscaping, and facilities; and</li> <li>- Encouraging social interaction through public art, interesting places, safety, and accessibility features for all.</li> </ul> |



## 09 9.0\_MINIMUM REQUIREMENT - FOOTPATHS

### STREET HIERARCHY

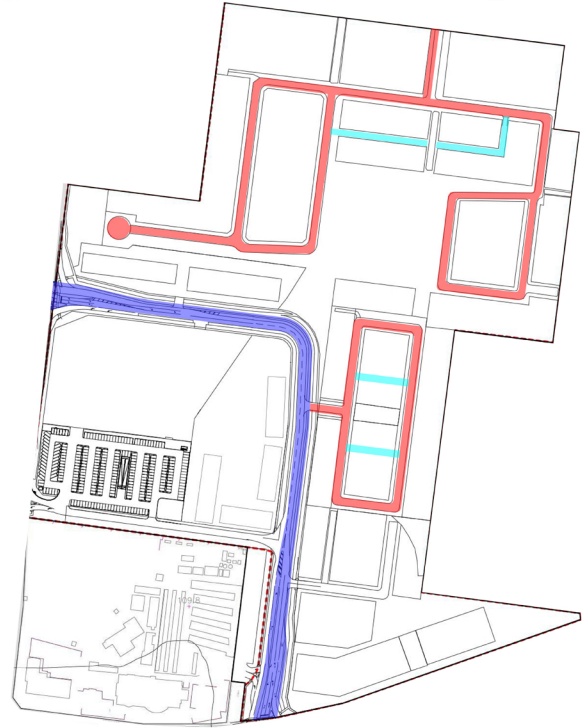
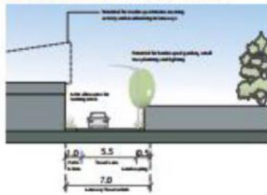
#### 1. PRIMARY : 50km/h SPEED LIMIT



#### 2. SECONDARY : 40km/h SPEED LIMIT



#### 3. ACCESS LANE : 15km/h SPEED LIMIT



## 09 9.1\_ACTIVE LIFESTYLE

### 9.1.2 WALKING PATHS

#### LEGEND



#### EXISTING LOCAL PEDESTRIAN MOVEMENT

THE DEDICATED OFF-ROAD BICYCLE ROUTE IS COMPLEMENTED BY SHARED PEDESTRIAN AND CYCLE PATHS WHICH HAVE BEEN STRATEGICALLY INTEGRATED TO FORM A CONNECTION WITH EXISTING ROAD BICYCLE ROUTES



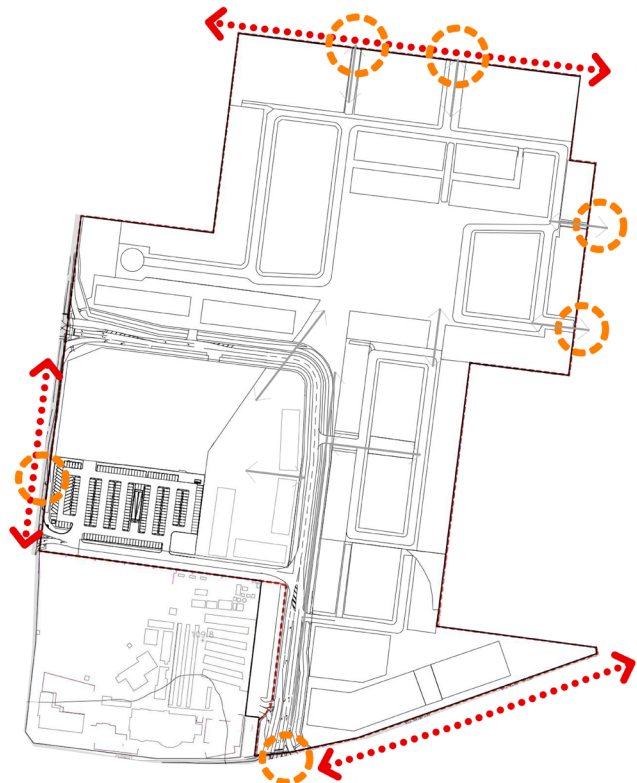
#### PEDESTRIAN LINKS

PEDESTRIAN LINKS ALIGN WITH GREEN AND OPEN SPACES ACROSS THE SITE, LOCAL ROADS, PUBLIC TRANSPORT AND THE SURROUNDING NEIGHBOURHOODS



#### LINK

CONNECTION LINKS TO EXISTING NETWORKS



## 9.1.2 CYCLING FACILITIES

## LEGEND

**EXISTING LOCAL BICYCLE ROUTE**

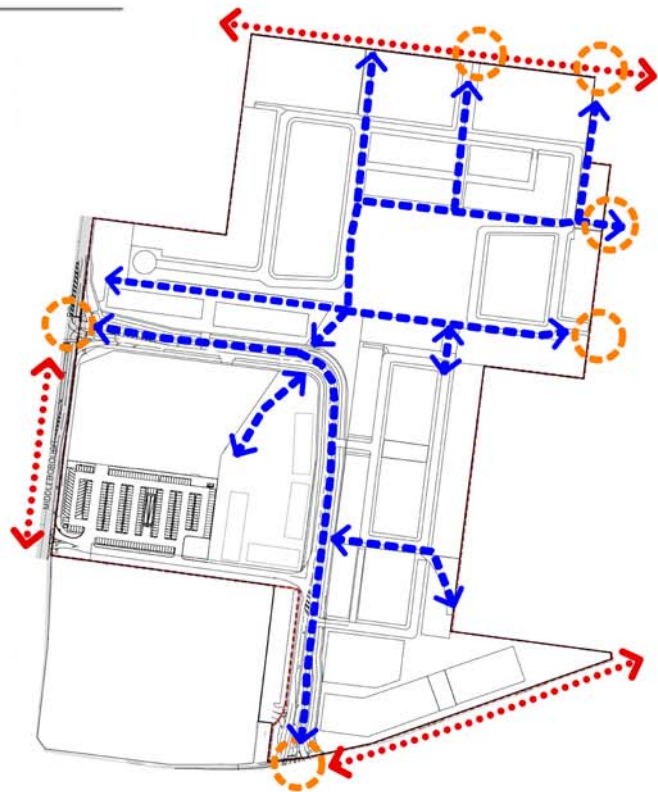
THE DEDICATED OFF-ROAD BICYCLE ROUTE IS COMPLEMENTED BY SHARED PEDESTRIAN AND CYCLE PATHS WHICH HAVE BEEN STRATEGICALLY INTEGRATED TO FORM A CONNECTION WITH EXISTING ROAD BICYCLE ROUTES

**INTEGRATED BICYCLE LINKS**

OFF STREET CYCLE PATHS PROVIDE A SAFE AND VIABLE ALTERNATIVE TO THE PRIVATE MOTOR VEHICLE, CONNECTING THE NEIGHBOURHOOD WITH PROPOSED ELEY ROAD PATH AND TRAM STOPS LOCATED ON BURWOOD HIGHWAY

**LINK**

CONNECTION LINKS TO EXISTING NETWORKS



Please see the site's Integrated Transport Plan (prepared by Traffix Group) and Masterplan for more details on the active living transport features of the development.



Community Development

**Community Development Plan**

Prior to construction Australand will develop a Community Development Plan that addresses key issues within the community. The key issues are decided as part of the community consultation process, addressing issues such as community connection and cohesiveness, local culture, dispute resolution, and environmental management issues for participation of the local community in site operations.

**Community Development Officer**


Frasers will instate a community development officer to implement the Community Development Plan for the project. They will be employed/contracted for at least 1 day per week after 50% of dwellings are occupied.

**Community Group**

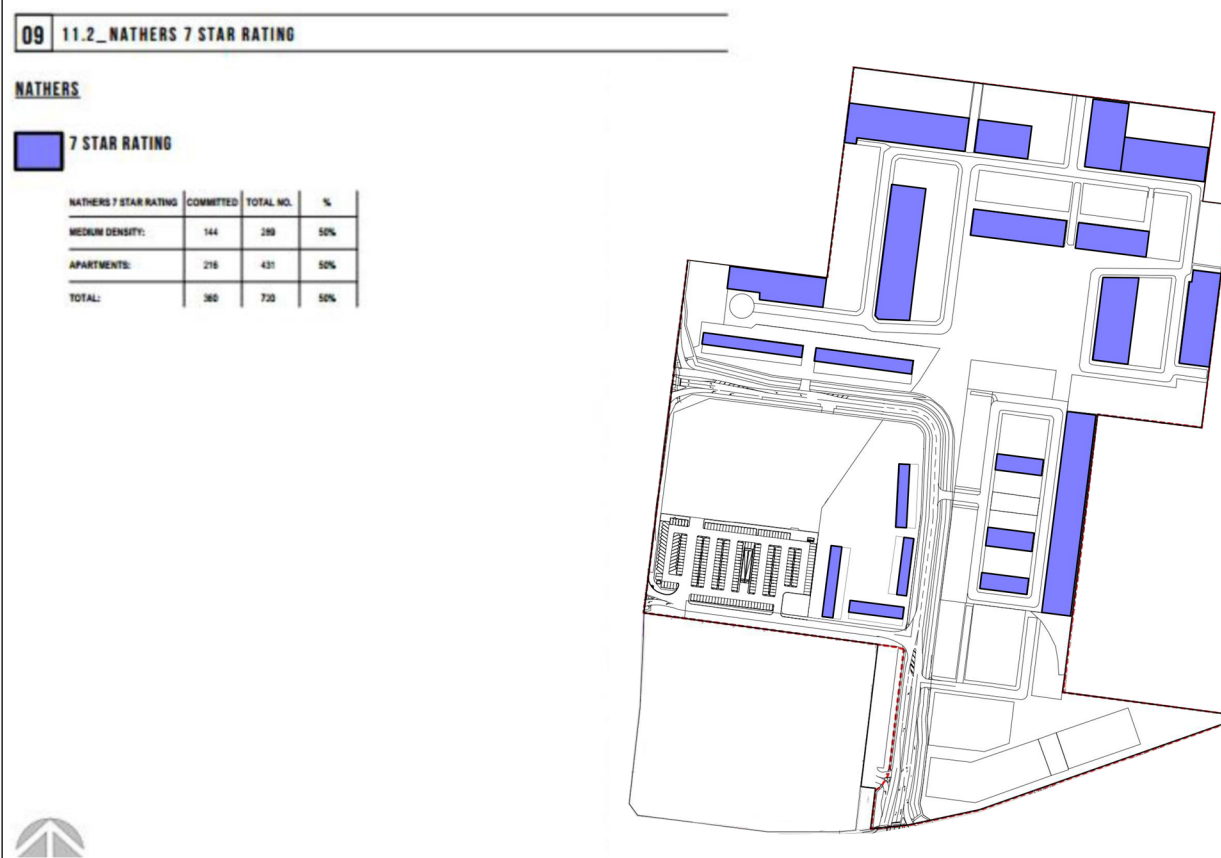
Frasers will facilitate the establishment of a community group that contributes to the implementation of the Community Development Plan (e.g., residents, business reps, education reps). This group will be established by the time 50% of dwellings etc. are occupied.

**Community Information** will be made directly available and distributed to the community. Community information will be an overview of the Community Development Plan and/or other documents that provide information about the strategies and activities for building community awareness and involvement. For example;

- Information on how to get involved in the project community and contact details;
- Notices of upcoming events, with the ability for the project community to post items for inclusion;
- Blog(s)/forum(s) that enable the project community to share information internally (e.g. work wanted, services available, for sale, for rent etc.);
- A log of the activities of the Community Development Officer(s) and FAQs from the project occupants.
- Project community resources/document centre; and

|  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>An area to provide feedback on the project community.</li> </ul>   |
|  <p>Sustainable Buildings</p> | <p><b>Green Star Certified Buildings</b></p> <p>We are currently deciding the best approach to sustainability certification for the retail centre and aged care buildings on site which may be eligible to be certified using the Green Star Design and As-Built rating tools or another compliant environmental rating tool. The sustainable certification will be finalised in the planning application for these buildings. All of the other buildings on the site are too small to be eligible for Green Star Design and As-built certification or Green Star Performance certification. Smaller buildings will be designed to achieve a pass for using BESS tool.</p> <p><b>Sustainable Residential Buildings</b></p> <p>Over 50% of dwellings in the project site will:</p> <ul style="list-style-type: none"> <li>- Achieved a NatHERS rating of 7 Stars or more; and</li> <li>- Achieve certification in accordance with the Livable Housing Australia Design Guidelines.</li> </ul> <p>All dwellings will be required to pass BESS or the Sustainable Housing Checklist provided in Section 4 of this report. The sustainable housing checklist (or equivalent BESS report) will be submitted for all dwellings as part of stage planning approvals.</p> |

#### Dwellings planned to achieve rating of 7 Stars (FirstRate) or more





## Dwellings planned to achieve certification in accordance with the Livable Housing Australia Design Guidelines

A livable home is designed and built to meet the changing needs of occupants across their lifetime. Livable design recommends the inclusion of key easy living features that aim to make homes easier and safer to use for all occupants including: people with disability, ageing Australians, people with temporary injuries, and families with young children.

A livable home is designed to:

- be easy to enter
- be easy to move around in
- be capable of easy and cost-effective adaptation, and
- anticipate and respond to the changing needs of home occupants.

### 09 11.2 LIVABLE HOUSING

#### LIVABLE HOUSING AUSTRALIA

##### LIVABLE HOUSING


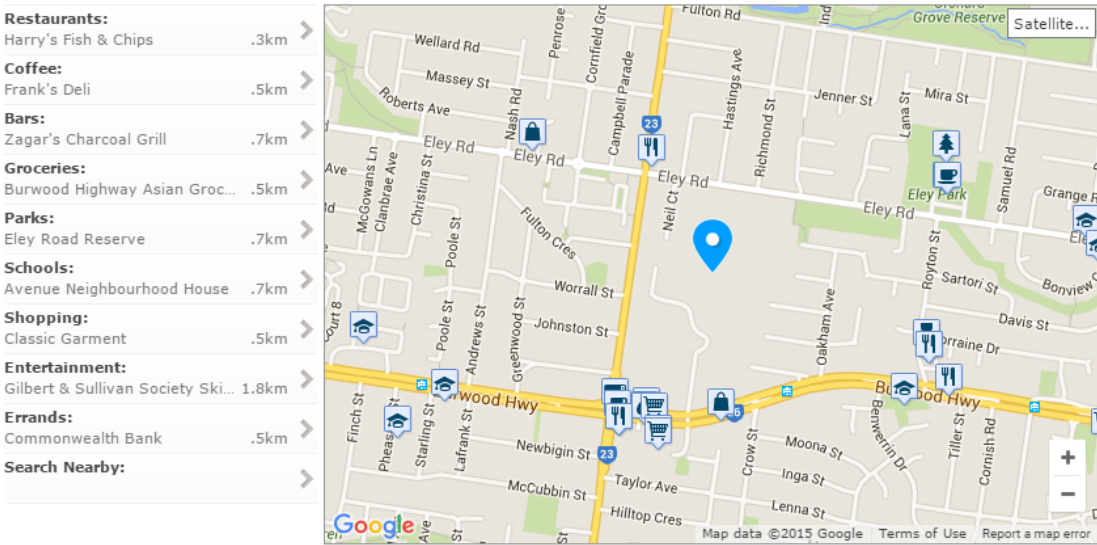


| LIVABLE HOUSING | COMMITTED | TOTAL NO. | %   |
|-----------------|-----------|-----------|-----|
| MEDIUM DENSITY: | 163       | 289       | 56% |
| APARTMENTS:     | 216       | 431       | 50% |
| TOTAL:          | 379       | 720       | 53% |







Culture,  
Heritage, and  
Identity

This development will be a site where cultural heritage and identity are managed and interpreted, and interpretation of the culture, heritage and identity of the project site informs the design of the project site in a way that strengthens the cultural and heritage connections, and which will contribute to building a strong local identity. Cultural and Heritage Significance is defined by the Burra Charter and the Community Consultation Process. Cultural identity and heritage is defined by natural, indigenous and historic places with cultural values. Examples may include memorials, trees, gardens, parks, places of historical events, urban areas, towns, industrial places, spiritual and religious places. These considerations have been integrated into the Masterplan developed by Tract. Prior to construction of the first stage, a culture and heritage interpretation plan will be developed to outline methods of interpretation and include one or a combination of the following:

- A Community Culture Plan (CCP): A Community Culture Plan outlines a path to strengthening cultural connections and a building a strong local identity through art and culture programs. Projects looking for more information for the development of a Community Culture Plan through a process of community consultation should look at the "Cultural Planning Guidelines for local government" published by the NSW Ministry of Arts.
- Installations: that may include public art/artwork, sculptures and similar items.
- Landmarks: that reinforce community and historical identity.

|   |   |
|---|---|
|   | <ul style="list-style-type: none"> <li>- Design standards/guidelines: that promote the historical significance and cultural values of the place.</li> <li>- Tourism, information, and education operations: that may include interpretation facilities, tours, trails, exhibitions, community websites, or similar.</li> <li>- Plantings: that are relevant to the places or items.</li> <li>- Hard landscaping: that may include boardwalks, seating and other structures.</li> <li>- Promotion and marketing: that may include campaigns to raise awareness about the cultural values of the site and invite involvement/visitation.</li> </ul>   |
|  <p>Access to amenities</p>    | <p>All habitable buildings have close and easy access to a diverse number of amenities. This development includes a retail sector that will provide convenient, walkable shopping and services to the development inhabitants. The vacant site currently receives a walkscore of 37 out of 100 (<a href="http://www.walkscore.com">www.walkscore.com</a>). The site's new parks and retail precinct will improve the walkscore for both the people in the development, and the surrounding community.</p> <p><b>What's Nearby</b></p>  <p>Image source: <a href="http://www.walkscore.com">www.walkscore.com</a></p> |
|  <p>Access to Fresh Food</p> | <p><b>Access to Fresh Food</b></p> <p>All habitable buildings are close to a source of fresh food (within 1km over Burwood highway, and in the site's own retail area).</p> <p><b>Local Food Production</b></p> <p>Prior to construction we will design a well sized, located and serviced community food garden(s) within the community boundary (within 1km of dwellings, community run, &gt;100sqm per every 1000 residents). We plan to include a 'Productive, Organic and Diverse' community food space that encompasses a composting area, raised garden beds and a mini orchard with fruit trees, vines, berries.</p>  |
|  <p>Safe Places</p>          | <p>This development has ensured that planning and detailed design for land use, development and redevelopment takes into consideration designing out crime principles.</p> <p><b>Design for Safety</b></p> <p>All public areas, such as playgrounds, skate parks and local food gardens, are visible from at least one street. Prior to construction a crime risk assessment process will be undertaken, and a landscape design strategy will be adopted that incorporates designing out crime principles.</p>  |

| <div>ECONOMIC PROSPERITY</div>   | <div>Sustainable communities are prosperous. They encourage and facilitate business diversity, innovation, and economic development, and ensure a strong and resilient local labour market. The purpose of the Economic Prosperity category is to encourage and recognise projects that promote prosperity and productivity. The category encourages affordable living and housing, investment in education and skills development, and the facilitation of community capacity building. The Economic Prosperity category also promotes greater productivity via emerging opportunities in the digital economy.</div>   |  |   |   |                           |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
|--|---|--|---|---|---------------------------|-----------|------------|---------|--------|--------|--------|--------|--------|---------------------|----------------------|----------------------|---|---|----------------------|-----------|-------------------|---------------------|---------------------|---------------------|---------------------|------------|-------------------|---------------------------|---------------------------|---------------------------|---------------------------|----------|----------|-----|-----|-----|-----|---------|---|---------------|---------------|---------------|---------------|----------|---|---------|---------|---------|--------|--------------------|---|--|--|--|--|
| <div><div></div><div>Employment and Economic Resilience</div></div> | <div><div>Net Percentage Increase of Local Jobs</div><div>This project will have a demonstrable positive net gain on existing employment opportunities within 5km of project.</div><div>Higher Education Facilities</div><div>The site offers more than two higher education facilities that meet the Compliance Requirements are located within 10km of the geographic centre of the project or that can be reached within a 45 minute commute by public transport in line with Green Star Communities requirements.</div></div>   |  |   |   |                           |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| <div><div></div><div>Incentive Programs</div></div>                 | <div><div>Incentive Programs</div><div>This project will provide purchasers with a range of incentives to encourage sustainable practices that reduce the cost of living and working:</div><div>This project will provide financial incentives to encourage sustainable practices that reduce the ongoing cost of living and working, where the dollar value of incentives provided is ≥ \$750 per residential dwelling</div></div>   |  |   |   |                           |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| <div><div></div><div>Digital Economy</div></div>                   | <div><div>High-speed Broadband</div><div>This project will provide state of the art broadband access to all buildings on the site consisting of either:</div><div>A. Fibre-to-the-Premises; or</div><div>B. Fixed wireless connectivity with minimum speeds of 25-50Mbps/5-20bps. "</div><div>Wireless Local Area Network</div><div>In addition there will be the provision of a free Wireless Local Area Network (Free Wi-Fi) at every major activity centre.</div></div>  |  |   |   |                           |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| <div><div></div><div>Reduced Peak Electricity Demand</div></div>  | <div><div>Reduced Peak Electricity Demand - Performance Pathway</div><div>A 25% reduction in peak electricity demand for the community (compared to BAU).</div><div>It is planned that both greenhouse gas emissions and peak electricity demand will be reduced by a combination of the following measures:</div><table><tr><th>Technology</th><th>Base Case</th><th>1-2 Bedroom</th><th>3 Bedroom</th><th>4+Bedroom</th><th>Apartments</th></tr><tr><td>NatHERS</td><td>6 Star</td><td>7 Star</td><td>7 Star</td><td>7 Star</td><td>7 Star</td></tr><tr><td>Heating and Cooling</td><td>2 Star Split Systems</td><td>4 Star Split Systems</td><td>5 Star Gas Heating (ceiling fans for cooling)</td><td>5 Star Gas Heating (ceiling fans for cooling)</td><td>4 Star Split Systems</td></tr><tr><td>Hot Water</td><td>Gas Instantaneous</td><td>Solar (Gas Boosted)</td><td>Solar (Gas Boosted)</td><td>Solar (Gas Boosted)</td><td>Solar (Gas Boosted)</td></tr><tr><td>Appliances</td><td>Standard Practice</td><td>Best Practice Dishwashers</td><td>Best Practice Dishwashers</td><td>Best Practice Dishwashers</td><td>Best Practice Dishwashers</td></tr><tr><td>Lighting</td><td>Standard</td><td>LED</td><td>LED</td><td>LED</td><td>LED</td></tr><tr><td>Standby</td><td>-</td><td>Master Switch</td><td>Master Switch</td><td>Master Switch</td><td>Master Switch</td></tr><tr><td>Solar PV</td><td>-</td><td>2.08 kW</td><td>2.08 kW</td><td>3.12 kW</td><td>0.1 kW</td></tr><tr><td>Community Solar PV</td><td>-</td><td colspan="4">1,000 kW array for non-residential sites</td></tr></table></div> | Technology                               | Base Case                                     | 1-2 Bedroom                                   | 3 Bedroom                 | 4+Bedroom | Apartments | NatHERS | 6 Star | 7 Star | 7 Star | 7 Star | 7 Star | Heating and Cooling | 2 Star Split Systems | 4 Star Split Systems | 5 Star Gas Heating (ceiling fans for cooling) | 5 Star Gas Heating (ceiling fans for cooling) | 4 Star Split Systems | Hot Water | Gas Instantaneous | Solar (Gas Boosted) | Solar (Gas Boosted) | Solar (Gas Boosted) | Solar (Gas Boosted) | Appliances | Standard Practice | Best Practice Dishwashers | Best Practice Dishwashers | Best Practice Dishwashers | Best Practice Dishwashers | Lighting | Standard | LED | LED | LED | LED | Standby | - | Master Switch | Master Switch | Master Switch | Master Switch | Solar PV | - | 2.08 kW | 2.08 kW | 3.12 kW | 0.1 kW | Community Solar PV | - | 1,000 kW array for non-residential sites |  |  |  |
| Technology   | Base Case   | 1-2 Bedroom                              | 3 Bedroom                                     | 4+Bedroom                                     | Apartments                |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| NatHERS  | 6 Star  | 7 Star                                   | 7 Star  | 7 Star  | 7 Star                    |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| Heating and Cooling  | 2 Star Split Systems  | 4 Star Split Systems                     | 5 Star Gas Heating (ceiling fans for cooling) | 5 Star Gas Heating (ceiling fans for cooling) | 4 Star Split Systems      |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| Hot Water  | Gas Instantaneous   | Solar (Gas Boosted)                      | Solar (Gas Boosted)                           | Solar (Gas Boosted)                           | Solar (Gas Boosted)       |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| Appliances   | Standard Practice   | Best Practice Dishwashers                | Best Practice Dishwashers                     | Best Practice Dishwashers                     | Best Practice Dishwashers |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| Lighting   | Standard  | LED                                      | LED   | LED   | LED                       |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| Standby  | -   | Master Switch                            | Master Switch                                 | Master Switch                                 | Master Switch             |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| Solar PV   | -   | 2.08 kW                                  | 2.08 kW                                       | 3.12 kW                                       | 0.1 kW                    |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |
| Community Solar PV   | -   | 1,000 kW array for non-residential sites |   |   |                           |           |            |         |        |        |        |        |        |                     |                      |                      |   |   |                      |           |                   |                     |                     |                     |                     |            |                   |                           |                           |                           |                           |          |          |     |     |     |     |         |   |               |               |               |               |          |   |         |         |         |        |                    |   |  |  |  |  |



ENVIRON-  
MENT

Sustainable communities respect the environmental systems that support them. They protect and restore the natural environmental values of the bio-region in which they are located. They are less resource intensive. They promote infrastructure, transport, and buildings with reduced ecological footprints.

The purpose of the Environment category is to reduce the impact of urban development on ecosystems. It encourages resource management and efficiency by promoting infrastructure, transport, and buildings, with reduced ecological footprints. The Environment category seeks to reduce the impacts of projects on land, water, and the atmosphere.

Integrated water cycle

The project applies best practice water management practices for alternative water sources and stormwater. As per the Engineering Servicing and Stormwater Management report also submitted as part of this development, the site will include a wetland integrated with the retarding basin in the main reserve. In addition there will be A bio-retention area contained within the commercial / retail service area provided for the water quality treatment of the commercial / retail area directly.

Music modelling undertaken for the site based on our current stormwater design has given the following results which meet the Melbourne Water Best Practice Environmental Management Stormwater Pollutions targets:

|                                | Source Load | Residual Load | % Reduction |
|--------------------------------|-------------|---------------|-------------|
| RESULTS                        |             |               |             |
| Flow (ML/yr)                   | 105         | 99.8          | 4.9         |
| Total Suspended Solids (kg/yr) | 2.05E+04    | 4.06E+03      | 80.1        |
| Total Phosphorus (kg/yr)       | 42          | 16.2          | 61.4        |
| Total Nitrogen (kg/yr)         | 298         | 155           | 48.1        |
| Gross Pollutants (kg/yr)       | 3.87E+03    | 0             | 100         |

Figure 1 - Extract from the Reeds Consulting ENGINEERING SERVICING AND STORMWATER MANAGEMENT REPORT (12/2014) showing stormwater environmental performance



Greenhouse Gas Intensity

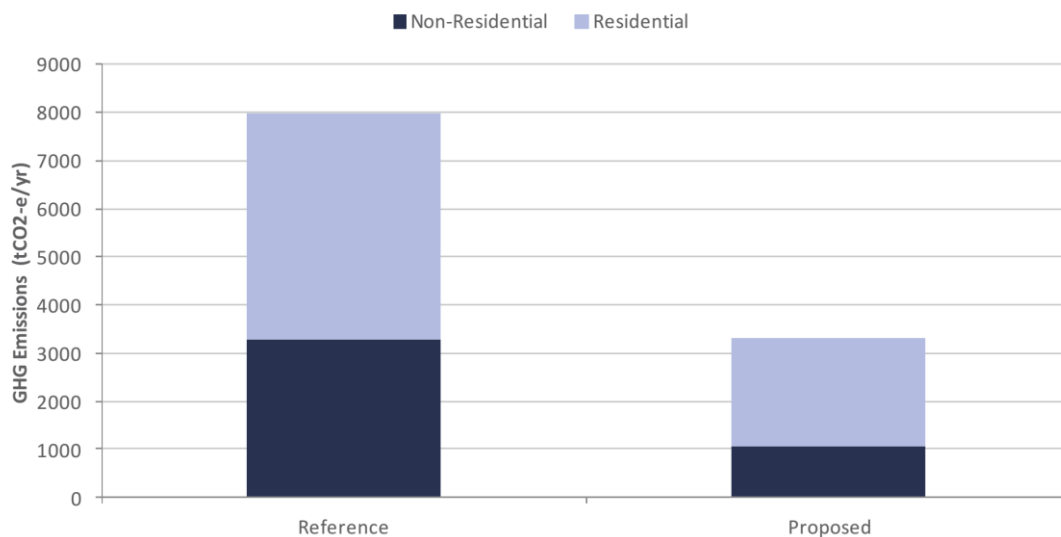
As outlined in the peak energy section of this report, this will be achieved using the following initiatives:

| Technology          | Base Case            | 1-2 Bedroom                              | 3 Bedroom                                     | 4+Bedroom                                     | Apartments                |
|---------------------|----------------------|--|---|---|---------------------------|
| NatHERS             | 6 Star               | 7 Star                                   | 7 Star  | 7 Star  | 7 Star                    |
| Heating and Cooling | 2 Star Split Systems | 4 Star Split Systems                     | 5 Star Gas Heating (ceiling fans for cooling) | 5 Star Gas Heating (ceiling fans for cooling) | 4 Star Split Systems      |
| Hot Water           | Gas Instantaneous    | Solar (Gas Boosted)                      | Solar (Gas Boosted)                           | Solar (Gas Boosted)                           | Solar (Gas Boosted)       |
| Appliances          | Standard Practice    | Best Practice Dishwashers                | Best Practice Dishwashers                     | Best Practice Dishwashers                     | Best Practice Dishwashers |
| Lighting            | Standard             | LED                                      | LED   | LED   | LED                       |
| Standby             | -                    | Master Switch                            | Master Switch                                 | Master Switch                                 | Master Switch             |
| Solar PV            | -                    | 2.08 kW                                  | 2.08 kW                                       | 3.12 kW                                       | 0.1 kW                    |
| Community Solar PV  | -                    | 1,000 kW array for non-residential sites |   |   |                           |

Modelling prepared by Kinesis<sup>2</sup> for Frasers Property compares the two scenarios:

1. Base Case — this is the Reference Case which assumes to approximate building code compliance. This scenario is established as the benchmark against which to compare the Proposed Case.
2. Proposed Case — a suite of strategies delivered by Frasers Property Australia for Burwood East.






Energy Modelling was undertaken using CCAP Precinct, which is an integrated analysis tool that models the environmental performance of master plans, precinct- scale development and redevelopment projects, development applications and re-zonings.



Our calculations indicate that the site will achieve a 59% reduction in Greenhouse Gas emissions:

|                  | Net Electricity Consumption (MWh/yr) | Gas Consumption (GJ/yr) | Greenhouse Gas Emissions (tCO2-e/yr) |
|------------------|--------------------------------------|-------------------------|--------------------------------------|
| Base Case        | 5,567                                | 10,535                  | 7,986                                |
| Proposed         | 3,322                                | 8,415                   | 3,307                                |
| <b>Reduction</b> |                                      |                         | <b>59%</b>                           |

<sup>2</sup> East Burwood CCAP PRECINCT GREEN STAR COMMUNITIES REPORT, Kinesis 5/11/2015

|   |   |
|---|---|
|  <p>Responsible Sourcing of Materials</p>            | <p>80% by mass of reinforcing steel, asphalt and concrete used in site-wide works to be sourced from: Reinforcing steel manufacturing facilities, asphalt batching plants and concrete batching plants that have an accredited ISO 14001 Environmental Management System (EMS) in place, valid at the time of project registration - the company manufacturing the reinforcing steel must be a member, and comply with requirements, of the World Steel Association's Climate Action Programme.</p>   |
|  <p>Sustainable Sites and ecological enhancement</p> | <p>This site is built on previously developed land, which helps reduce the pressure on the city edge farmlands and forests by reducing urban sprawl.</p> <p>In addition the project has adopted best practice remediation strategies in accordance with its remediation management plan and its implementation plan.</p> <p>In addition a full biodiversity assessment was undertaken on the site. It is planned that as part of Green Star Communities certification, the development will create a significant net biodiversity gain representing a 20% improvement over the site's biodiversity values. For more details of sites of ecological significance, please see the Biodiversity Report (Biosis 2014).</p>  |
|  <p>Waste Management</p>                             | <p><b>Reduction in Site, Construction, and Demolition Waste</b></p> <p>As part of developing the Construction Site Environmental Management Plan, this project is developing and implementing a Waste Reduction Plan for site-wide works; and &gt;80% of the construction and demolition waste associated with site works has been recycled or reused.</p> <p>In addition measures for the community to reduce the overall amount of operational waste will be initiated in partnership with Whitehorse Council including:</p> <ul style="list-style-type: none"> <li>• Public place recycling scheme;</li> <li>• Residential recycling scheme;</li> <li>• Hazardous waste collection or disposal services; and</li> <li>• Composting or Green Waste scheme.</li> </ul>   |
|  <p>Urban Heat Island Effect</p>                   | <p>At least 50% of the total site area in plan view comprises one, or a combination, of the following:</p> <ul style="list-style-type: none"> <li>• Vegetation;</li> <li>• Roofing materials, including shading structures, having the following SRI values: <ul style="list-style-type: none"> <li>i. For roof pitched &lt;15° a three year SRI &gt;64</li> <li>ii. For roof pitched &gt;15° a three year SRI &gt;34</li> </ul> </li> <li>• Unshaded hard-scaping elements with a three year SRI &gt; 34 or an initial SRI &gt;39;</li> <li>• Hard-scaping elements shaded by overhanging vegetation or roof structures;</li> <li>• Water bodies and/or water courses; and</li> <li>• Areas directly to the south of vertical building elements, including green walls and areas shaded by these elements at the summer solstice.</li> </ul> |
|  <p>Light Pollution</p>                            | <p>This project will projects that minimise the adverse impact of light emissions on nocturnal fauna and the night sky. Relative to its particular mounting orientation, 95% (by number) of external public lighting luminaries within the project boundary have an Upward Light Output Ratio less than 5%.</p>   |

## 4. Achievement of sustainable performance measures

### **Sustainable performance measures of the Site Master Planning**

The development is registered with Green Star Communities and it is committed to achieving 5 stars Green Star Communities Certification. Five stars equates to "Australian Excellence". The specific design initiatives adopted to allow the project to meet the Green Star Communities five star standard are outlined in section 3 above.

### **Sustainable performance measures of Residential Buildings**

All dwellings will be required to pass BESS or the Sustainable Housing Checklist provided below. The sustainable housing checklist (or equivalent BESS report) will be submitted for all dwellings as part of stage planning approvals.

The following checklist will be applied to residential buildings to ensure all buildings meet a minimum level of sustainability performance. Please note that where options are provided, all options would meet current STEPS / BESS sustainability benchmarks.

#### **Energy**

- ☐ Minimum 6 star AccuRate (of FirstRate) thermal performance requirements; 50% of dwellings to be 7 star.
- ☐ Solar hot water heater, gas instantaneous (4+ star) or electric heat pump water heater;
- ☐ Natural Gas central heating (4+ star) or 4+ star electric reverse cycle AC;
- ☐ An evaporative cooler or ceiling fans installed, or 4+ star refrigerative AC;
- ☐ Outside / balcony / over bathtub clothes line installed;
- ☐ Minimum 0.5kW of solar photovoltaic panels installed for each bedroom in townhouses within the development; Solar PV sized to power communal lighting only in apartment buildings.
- ☐ High efficiency LED, fluorescent and/or CFL lighting specified.

#### **Water**

- ☐ 2000L of water tank installed for detached dwellings in the development where no solar hot water system is provided;
- ☐ Tanks connected to at least 50m<sup>2</sup> of roof area;
- ☐ Tanks connected to toilet, laundry and irrigation water uses;
- ☐ 4 star WELS ratings on toilets and taps;
- ☐ Shower 3 Star WELS rating (Less than 9 Litres per minute).

#### **Stormwater**

- ☐ Demonstrate compliance with precinct Water Sensitive Urban Design Guidelines in the Drainage Engineering Plan

#### **Materials**

Note on plans how sustainable materials will be used in the project including:

- ☐ Exclusion of old growth harvested or imported rainforest timbers;
- ☐ Any other material initiatives specified including resource efficient design or construction techniques, and use of materials that minimise environmental impacts.

#### **Indoor Environment Quality**

- ☐ Low VOC internal paints and finishes specified;
- ☐ Low formaldehyde (E0) composite wood products specified where used internally.



## Transport

- ☐ Mark up on plans an appropriately sized and secure space for bicycle parking.

## Waste

- ☐ Show appropriately sized bin storage area for general waste, green waste, and recyclable waste bins;
- ☐ Show separate area specified for composting bins.

## Sustainable performance measures of Non-Residential Buildings

All commercial buildings will be required to pass BESS or the Green Star Design and As-Built Checklist. Prior to the commencement of construction, a Sustainable Design Assessment (SDA) checklist (or equivalent BESS report) will be submitted for all commercial buildings as part of stage planning approvals.

## Climate Adaptation performance measures

Prior to construction the following adaptation actions will be integrated into the design. In addition please see the recommendations in Appendix A – Climate Adaptation Plan which will be integrated into the development detailed designs.

| Property Element/Adaptation actions (Extract from the Climate Adaptation Plan – prepared by Ramboll Environ 13/11/2015)  |  |
|--|--|
| <b>Location and Design</b>   |  |
| <ul style="list-style-type: none"><li>▪ To manage heat levels outdoors providing shading and using natural landscaping i.e. the use of large canopy shade trees.</li></ul>   |  |
| <ul style="list-style-type: none"><li>▪ Investigate the feasibility of the provision of permanent shade structures, louvers and façade treatments in order to reduce heat stress for patrons and increase building thermal comfort levels.</li></ul>   |  |
| <ul style="list-style-type: none"><li>▪ Investigate the use of materials that reduce heat load impacts internal and outdoor i.e. avoid the use of metal outdoor furniture.</li></ul>   |  |
| <b>Structure and landscape</b>   |  |
| <ul style="list-style-type: none"><li>▪ Consider the effectiveness of applying heat reflective coatings to roof sheeting that has specified performance ratings (e.g. Colorbond Coolmax Steel) to reduce heat transfer into building envelopes.</li></ul>  |  |
| <ul style="list-style-type: none"><li>▪ Investigate the installation of fasteners to roof structures, external signage and fixtures to withstand an increase in intensity of high winds.</li></ul>   |  |
| <ul style="list-style-type: none"><li>▪ Investigate the installation of guards on air conditioning package units to protect condenser coils against damage from an increase in frequency of hail events.</li></ul>   |  |
| <ul style="list-style-type: none"><li>▪ Review landscaping tree selection to limit and reduce debris created during strong wind events that could potentially injure people or damage building structures and vehicles.</li></ul>  |  |
| <b>Operation and Maintenance</b>   |  |
| <ul style="list-style-type: none"><li>▪ Investigate the capacity of roof drainage systems to withstand the projected increases in heavy rain events. This may involve further hydraulic modelling to confirm adequacy of drainage capacity to cope with future scenarios and the potential replacement of any existing siphonic drains. Additionally, it may include business continuity planning to understand appropriate action to be undertaken in an event where the current design capacities are exceeded.</li></ul>  |  |
| <b>Utilities and services</b>  |  |
| <ul style="list-style-type: none"><li>▪ To enable an understanding of HVAC systems' operational parameters, investigate the impact of a projected increase in extreme heat days (over 35°C) on the capacity of HVAC to function effectively.<ul style="list-style-type: none"><li>– Consider that the plant capacity of any proposed HVAC plant factors in a projected increase in extreme heat days over 35°C and an increase in maximum mean temperatures. This may involve further predictive modelling on building heat loads using a higher ambient condition to confirm adequacy of plant capacity for future scenarios.</li></ul></li></ul> |  |

## 5. Conclusion

We believe that the integrated residential development represents a highly resolved and well thought out response to the particular characteristics presented by the development site.

It represents a master planned residential development that is centred on an area of high quality public open space, connected through a series of high value open spaces benefiting the entire community, with pedestrian and cyclist linkages prioritised to encourage healthy and active lifestyles. The Green Star Communities tool specifically excludes the detailed design features of the buildings (which are addressed at later building planning permit stages). The sustainability strategy outlined in this report relates to all components of the development including the public / private realms; and the retail / residential / other uses.

This report demonstrates, through the use of the Green Star Communities tool, that the development will meet best practice sustainability benchmarks as outlined by the Sustainable Design Assessment in Planning Process (SDAPP) program, as well as meeting the requirements outlined in DPO6 applying to the site.

### Disclaimer

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### Document Control

| Version | Author   | Date       | Notes                               |
|---------|----------|------------|-------------------------------------|
| 1.      | I. Adams | 23/02/2015 | Draft Report                        |
| 2.      | I. Adams | 03/03/2015 | Final Draft                         |
| 3.      | I. Adams | 18/03/2015 | TP feedback integrated              |
| 4.      | I. Adams | 20/09/2015 | Whitehorse feedback integrated      |
| 5.      | I. Adams | 23/09/2015 | Client Feedback integrated          |
| 6.      | I. Adams | 03/12/2015 | Further Council Feedback Integrated |
| 7.      | I. Adams | 09/12/2015 | Further Council Feedback Integrated |
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| 9.      | I. Adams | 11/04/2017 | Updated the Masterplan on P4.       |
| 10.     | I. Adams | 05/12/2017 | Updated the Masterplan on P4.       |
| 11.     | I. Adams | 16/01/2018 | Updated the Masterplan on P4.       |



## Appendix A – Climate Adaptation Plan



## Appendix B – Green Star Communities Pathway<sup>3</sup>

| No.                              | Credit Name                                | Description  | Points Available | Points Targeted |
|----------------------------------|--|--|------------------|-----------------|
| <b>Governance</b>                |  |  |                  |                 |
| <b>Accredited Professional</b>   |  |  |                  |                 |
| 1.1                              | <b>Accredited Professional</b>             | <b>1 point</b><br>GBCA AP is engaged on the project ongoing.   | 1.00             | 1.00            |
| <b>Design Review</b>             |  |  |                  |                 |
| 2.1                              | <b>Site Planning and Layout</b>            | <b>2 points</b><br>In-house design review process.<br><b>3 points</b><br>Mixed design review process.<br><b>4 points</b><br>Fully independent design review process. | 4.00             | 3.00            |
| 2.2                              | <b>Urban Design</b>                        | <b>2 points</b><br>In-house design review process.<br><b>3 points</b><br>Mixed design review process.<br><b>4 points</b><br>Fully independent design review process. | 4.00             | 3.00            |
| <b>Engagement</b>                |  |  |                  |                 |
| 3.1                              | <b>Stakeholder Engagement Strategy</b>     | <b>3 points</b><br>Develop a Stakeholder Engagement Strategy.  | 2.00             | 2.00            |
| 3.2                              | <b>Strategy Implementation</b>             | <b>3 points</b><br>Provide evidence of implementation.   | 2.00             | 2.00            |
| <b>Adaptation and Resilience</b> |  |  |                  |                 |
| 4.1                              | <b>Climate adaptation</b>                  | <b>2 points</b><br>Develop a project specific Climate Adaptation Plan.   | 2.00             | 2.00            |
| 4.2                              | <b>Community resilience</b>                | <b>2 points</b><br>Develop a project specific Community Resilience Plan.   | 2.00             | 2.00            |
| <b>Corporate Responsibility</b>  |  |  |                  |                 |
| 5.1                              | <b>Corporate Responsibility Policy</b>     | <b>1 point</b><br>Report annually against corporate responsibility policy.   | 1.00             | 1.00            |
| 5.2                              | <b>Sustainability Reporting</b>            | Undertake sustainability reporting annually in accordance with the GRI.<br><b>1 point</b><br>Core option<br><b>2 points</b><br>Comprehensive option                  | 2.00             | 1.00            |
| <b>Sustainability Awareness</b>  |  |  |                  |                 |
| 6.1                              | <b>Sustainability Education Facilities</b> | <b>1 point</b><br>Provision of sustainability education facilities.  | 1.00             |                 |

<sup>3</sup> For more detail on what is required to achieve credit compliance please see Green Star Communities: GBCA website <http://www.gbca.org.au/green-star/green-star-communities/> we are unable to duplicate this information for copyright reasons

| No.   | Credit Name                            | Description   | Points Available | Points Targeted |
|---|--|---|------------------|-----------------|
| 6.2   | <b>Industry Capacity Building</b>      | <b>1 point</b><br>Investment in industry capacity building in built environment sustainability issues (to directly influence stakeholders in the supply chain - designers, contractors, product suppliers and manufacturers).                                       | 1.00             |                 |
| 6.3   | <b>Community Users Guide</b>           | <b>1 point</b><br>Develop and deliver a public community users' guide.  | 1.00             | 1.00            |
| <b>Community Participation and Governance</b> |  |   |                  |                 |
| 7.1   | <b>Community Facility Management</b>   | <b>1 point:</b><br>A community owned and led entity is responsible for the management and/or coordination of at least one community facility.<br>(e.g. Parks, food gardens, storage facilities, clubhouse, public realm).   | 1.00             | 1.00            |
| 7.2   | <b>Community Program Management</b>    | <b>1 point</b><br>A community owned and led entity is responsible for the management and/or coordination of at least one community program or service.  | 1.00             | 1.00            |
| <b>Environmental Management</b>               |  |   |                  |                 |
| 8.1   | <b>Environmental Management System</b> | <b>1 pont</b><br>All contractors with a contract value $\geq$ \$5 million have a valid ISO 14001 Environmental Management System accreditation prior to and throughout construction.  | 1.00             | 1.00            |
| 8.2   | <b>Environmental Management Plan</b>   | <b>1 point</b> A project specific EMP is implemented in accordance with the most recent version of the NSW EMS guidelines.  | 1.00             | 1.00            |
| <b>Total</b>                                  |  |   | <b>27.00</b>     | <b>22.00</b>    |
| <b>Liveability</b>                            |  |   |                  |                 |
| <b>Healthy and Active Living</b>              |  |   |                  |                 |
| 9.1   | <b>Minimum Requirement - Footpaths</b> | <b>To be eligible</b><br>Projects must provide footpaths in line with the project's street hierarchy.   | Y/N              | Y               |
| 9.2   | <b>Active Lifestyle</b>                | <b>2 points</b><br>Site has been designed and built to promote an active lifestyle through well designed walking paths and cyclist facilities.<br><br>Signage strategy must be developed in inform the community of all active lifestyle infrastructure.            | 2.00             | 2.00            |
| 9.3   | <b>Recreational Facilities</b>         | <b>2 points</b><br>All dwellings, places of employment and/or places of education are within close and easy access to both a public park and an appropriate number of publicly accessible sports facilities relevant to the size and demographics of the community. | 1.00             | 2.00            |

| No.                             | Credit Name                                      | Description   | Points Available | Points Targeted |
|---------------------------------|--|---|------------------|-----------------|
| 9.4                             | Healthy Places                                   | <b>1 additional point</b><br>The development has been designed and built in line with holistic active and healthy living principles.  | 2.00             | 1.00            |
| Community Development           |  |   |                  |                 |
| 10.0                            | Minimum Requirement - Community Development Plan | Develop a Community Development Plan that addresses key issues within the community.  | Y/N              | Y               |
| 10.1                            | Community Development Officer                    | <b>1 point</b><br>Instate a community development officer to implement the Community Development Plan for the project. Must be employed/contracted for at least 1 day per week from after 50% of dwellings are occupied.                                | 1.00             | 1.00            |
| 10.2                            | Community Group                                  | <b>1 point</b><br>Establish a community group that contributes to the implementation of the Community Development Plan (e.g., residents, business reps, education reps). Must be established by the time 50% of dwellings etc. are occupied.            | 1.00             | 1.00            |
| 10.3                            | Community Events                                 | The facilitation and support of at least one free community events every quarter (Markets, parades, fairs, free sporting events). Must commence when 30% of buildings are occupied or within three months after the occupation of first building.       | 1.00             |                 |
| 10.4                            | Community Information                            | <b>1 additional point</b><br>Two of the first three initiatives are undertaken and 'community information' is made directly available and distributed to the community.   | 1.00             | 1.00            |
| Sustainable Buildings           |  |   |                  |                 |
| 11A                             | Green Star Certified Buildings                   | <b>Up to 4 points</b><br>Based on the percentage of all buildings, which are eligible to be certified using the Green Star suite of building rating tools or another compliant environmental rating tool, that achieve a certified rating.              | 4.00             | 2.00            |
| 11B                             | NatHERS and Livable Housing Australia            | <b>Up to 4 points</b><br>Based on the percentage of dwellings in the project site that:<br><br>Have achieved a NatHERS rating of 7 Stars or more; and<br>Have achieve certification in accordance with the Livable Housing Australia Design Guidelines. |                  |                 |
| Culture, Heritage, and Identity |  |   |                  |                 |

| No.                         | Credit Name  | Description   | Points Available | Points Targeted |
|-----------------------------|--|---|------------------|-----------------|
| 12.1                        | <b>Managing and interpreting cultural heritage significance</b>          | <b>1 point:</b><br>Where cultural heritage and identity are managed and interpreted.<br><br>Cultural and Heritage Significance defined by Burra Charter or Community Consultation Process.  | 1.00             | 1.00            |
| 12.2                        | <b>Developing and Enhancing Community Culture, Heritage and Identity</b> | <b>2 additional points:</b> Where the interpretation of the culture, heritage and identity of the project site informs the design of the project site in a way that strengthens the cultural and heritage connections, and which will contribute to building a strong local identity. (Natural, indigenous and historic places with cultural values. Examples may include memorials, trees, gardens, parks, places of historical events, urban areas, towns, industrial places, spiritual and religious places. | 2.00             | 2.00            |
| <b>Access to Amenities</b>  |  |   |                  |                 |
| 13.1                        | <b>Access to amenities</b>   | <b>2 points</b><br>All habitable buildings have close and easy access to a diverse number of amenities.   | 2.00             | 2.00            |
| <b>Access to Fresh Food</b> |  |   |                  |                 |
| 14.1                        | <b>Access to Fresh Food</b>  | <b>1 point</b><br>All habitable buildings are close to a source of fresh food (within 1km, retail area or market where at least 50% of its food offering is fresh food).  | 1.00             | 1.00            |
| 14.2                        | <b>Local Food Production</b>   | <b>1 point</b><br>Well sized, located and serviced community food garden(s) within the community boundary (within 1km of dwellings, community run, >100sqm per every 1000 residents). Can be located on one or more sites.<br><br>May include a 'Productive, Organic and Diverse' community food space that encompasses a composting area, raised garden beds and a mini orchard with fruit trees, vines, berries.  | 1.00             | 1.00            |
| <b>Safe Places</b>          |  |   |                  |                 |
| 15.0                        | <b>Minimum Requirement - visibility</b>                                  | <b>To be eligible:</b><br>All tunnels or underpasses within the community have end-to-end visibility; and<br><br>All public areas, such as playgrounds, skate parks and local food gardens, are visible from at least one street.   | Y/N              | Y               |
| 15.1                        | <b>Design for Safety</b>   | <b>2 points</b><br>A crime risk assessment process has been undertaken; and<br>A design strategy has been adopted that  | 2.00             | 2.00            |



| No.                                | Credit Name                              | Description  | Points Available | Points Targeted |
|------------------------------------|--|--|------------------|-----------------|
|                                    |  | incorporates designing out crime principles.   |                  |                 |
| Total                              |  |  | 6.00             | 19.00           |
| Economic Prosperity                |  |  |                  |                 |
| Community Investment               |  |  |                  |                 |
| 16.0                               | Community Infrastructure Investment      | 4 points - investment in community infrastructure is calculated to be \$2,000 per residential dwelling or \$16 per square metre for non-residential spaces.  | 4.00             |                 |
| Affordability                      |  |  |                  |                 |
| 17A                                | Residential Affordability Strategies     | 4 points<br>At least two residential affordability strategies are implemented for a percentage of the total residential area delivered as part of the project.   | 4.00             |                 |
| 17B                                | Non Residential Affordability Strategies | 4 points<br>At least two non-residential affordability strategies are implemented for a percentage of the total non-residential area delivered as part of the project.   |                  |                 |
| Employment and Economic Resilience |  |  |                  |                 |
| 18.0                               | Net Percentage Increase of Local Jobs    | 1 point<br>Project must have a demonstrable positive net gain on existing employment opportunities within 5km of project geographic centre.  | Y/N              | Y               |
| 18A.1                              | Local Area Employment                    | Up to 1 point a) Criterion 18.0 Proportion of job demand from the project that is serviced locally at the time of the project's completed(partial points available, full points for >80% job demand).Points are calculated based on the proportion of local jobs that meet the criteria. If the proportion of job demand serviced locally is 50%, the number of points awarded is 0.6 points. If the proportion is 80%, one point will be awarded. 'Local area' is defined as:- Sites < 2000 hectares, local area = 5km radius from geographic centre of development.- Sites >2000 hectares, local area = 2.5km from the boundary of the development site. | 1.00             |                 |

| No.                                     | Credit Name                                       | Description   | Points Available | Points Targeted |
|---|---|---|------------------|-----------------|
| 18A.2                                   | <b>Diverse Employment</b>                         | <p><b>1 additional point</b><br/> a) Criterion 18.0 is achieved<br/> b) Criterion 18A.1 has been achieved; and</p> <p>At least 15% of jobs in the local area are from Type A industry sectors; and Jobs from a Type B industry do not constitute more than 50% of all jobs in the local area.</p> <p>Type A: Agriculture, Forestry, Fishing, Electricity, Gas, Water, Waste, Public Admin, Safety, Education, Health Care, Social Assistance</p> <p>Type B: Mining, Manufacturing, Construction, Wholesale Trade, Retail Trade, Accommodation and Food Services, Transport, Postal and Warehousing, Information Media and Telecommunications, Financial/Insurance, Rental, Admin, Arts, Other services.</p> | 1.00             |                 |
| 18B                                     | <b>Deemed-to-Satisfy: Proximity to Major City</b> | <p><b>2 points:</b><br/> Where the project is located within 5km of the boundary of the designated Central Business District or Commercial Core of a Major City.</p>  | 2.00             |                 |
| 18C                                     | <b>Deemed-to-Satisfy: NCC Class Mix</b>           | <p><b>2 points:</b><br/> Project has no Class 1 or 2 dwellings as defined by the National Construction Code (NCC).</p>  | 2.00             |                 |
| <b>Education and Skills Development</b> |   |   |                  |                 |
| 19.1                                    | <b>Higher Education Facilities</b>                | <p><b>1 point</b><br/> At least two higher education facilities that meet the Compliance Requirements are located within 10km of the geographic centre of the project; <b>OR</b><br/> Can be reached within a 45 minute commute by public transport.</p>  | 1.00             | 1.00            |
| 19.2                                    | <b>Skills Development Programs</b>                | <p><b>1 point</b><br/> Project delivers skills development programs within a school, university, TAFE or Registered Training Organisation to at least two of the nominated stakeholder groups listed in the Compliance Requirements.</p>  | 1.00             |                 |
| <b>Return on investment</b>             |   |   |                  |                 |
| 20.1                                    | <b>Analysis of Direct Costs and Benefits</b>      | <p><b>1 point</b><br/> Projects apply cost and benefit analysis methods in assessing return on investment (guideline options p. 168).<br/><br/> AS/NZS 4536:1999 Life Cycle Costing: An Application Guide (etc.)</p>  | 1.00             | 1.00            |

| No.                            | Credit Name   | Description   | Points Available | Points Targeted |
|--------------------------------|---|---|------------------|-----------------|
| 20.2                           | Analysis of Indirect Costs and Benefits                     | Cost benefit analysis includes indirect benefits and cost.<br>Include indirect benefits and costs for infrastructure that accounts for at least 50% of optional investment item spend;<br>Address issues such as productivity, health, crime, employment, skills development and education etc. | 1.00             |                 |
| <b>Incentive Programs</b>      |   |   |                  |                 |
| 21.1                           | Incentive Programs  | <b>2 points</b><br>Provision of incentives to encourage sustainable practices that reduce the cost of living and working:<br><br>Points awarded on a linear scale: ≥\$750 per residential dwelling.   | 2.00             | 2.00            |
| <b>Digital Economy</b>         |   |   |                  |                 |
| 22.1                           | High-speed Broadband  | <b>1 point</b> A. Fibre-to-the-Premises; orB. Fixed wireless connectivity with minimum speeds of 25-50Mbps/5-20bps.   | 1.00             | 1.00            |
| 22.2                           | Wireless Local Area Network                                 | <b>1 point</b><br>Provision of a free Wireless Local Area Network at every major activity centre.   | 1.00             | 1.00            |
| <b>Peak Electricity Demand</b> |   |   |                  |                 |
| 23A                            | Reduced Peak Electricity Demand - Performance Pathway       | <b>2 points</b><br>A 25% reduction in peak electricity demand for the community (compared to BAU).  | 2.00             | 1.00            |
| 23B.i                          | Fuel Substitution - Prescriptive Pathway                    | <b>2 points:</b><br>A. All water heating, space heating and cooling for the project is powered with fuel sources other than grid electricity;<br><br>OR<br><br>B. At least 25% of the annual energy needs of the project is provided by non-electric energy sources.                            |                  |                 |
| 23B.ii                         | Onsite Generation - Prescriptive Pathway                    | <b>2 points:</b><br>At least 30% of the annual electrical energy needs of the development are met through on-site power generation systems.   |                  |                 |
| 23B.iii                        | Energy Storage - Prescriptive Pathway                       | <b>2 points:</b><br>At least 25% of the peak electricity demand is shifted to non-peak times through the use of energy storage systems.   |                  |                 |
| <b>Total</b>                   |   |   | <b>20.00</b>     | <b>7.00</b>     |
| <b>Environment</b>             |   |   |                  |                 |
| <b>Integrated Water Cycle</b>  |   |   |                  |                 |
| 24A                            | Water Sensitive Urban Design - Modelled Performance Pathway | <b>Up to 7 points</b><br>Based on the reduction of total nominated water demand.  | 7.00             |                 |

| No.                             | Credit Name  | Description   | Points Available | Points Targeted |
|---------------------------------|--|---|------------------|-----------------|
| 24B                             | <b>Water Management - Prescriptive Pathway</b>           | <b>Up to 5 points</b><br>The project applies best practice water management practices for alternative water sources and stormwater.   |                  | 4.00            |
| <b>Greenhouse Gas Intensity</b> |  |   |                  |                 |
| 25.0                            | <b>Greenhouse Gas Strategy - Performance Pathway</b>     | <b>Up to 6 points</b><br>Based on the magnitude of the project's predicted reduction in energy demand and GHG emissions, when compared against a reference project.<br>The greenhouse gas intensity of energy supply in the community is less than the greenhouse gas intensity of the energy available in BAU.<br><br>Points are awarded based on % improvement from zero to 100% reduction in greenhouse gas intensity.<br>5.1-20.8% = 1 point<br>84.1-100% = 6 points                            | 6.00             | 1.00            |
|                                 | <b>Greenhouse Gas Strategy - Prescriptive Pathway</b>    | <b>Up to 4 points</b><br>Where the predicted energy demand and GHG emissions of the project have been reduced by employing 'best practice' attributes.  |                  |                 |
| <b>Materials</b>                |  |   |                  |                 |
| 26.0                            | <b>Minimum Requirement - Responsible Sourcing</b>        | 80% by mass of reinforcing steel, asphalt and concrete used in site-wide works to be sourced from:<br><br>Reinforcing steel manufacturing facilities, asphalt batching plants and concrete batching plants that have an accredited ISO 14001 Environmental Management System (EMS) in place, valid at the time of project registration - the company manufacturing the reinforcing steel must be a member, and comply with requirements, of the World Steel Association's Climate Action Programme. | Y/N              | Y               |
| 26A                             | <b>Life Cycle Assessment (LCA) - Performance Pathway</b> | <b>Up to 5 points</b> are available where:<br><br>a. The minimum requirement is met; and<br>b. A whole-of-site, whole-of-life (cradle-to-grave) life cycle assessment (LCA) is conducted for the project site and a reference project site.<br><br>Points are awarded based on the extent of environmental impact reduction achieved against seven environmental impacts categories, when compared to a reference project site.   | 5.00             |                 |



| No.                    | Credit Name  | Description  | Points Available | Points Targeted |
|------------------------|--|--|------------------|-----------------|
| 26B                    | Life Cycle Assessment (LCA) - Prescriptive Pathway       | <b>Prerequisite - Up to 3 points</b> are awarded by percentage on a sliding scale (by cost) of 'primary building materials' used in the project which are compliant with the Compliance Requirements.  |                  | 1.00            |
| Sustainable Transport  |  |  |                  |                 |
| 27A                    | Sustainable Transport and Movement: Performance Pathway  | <b>3 points</b><br>Design and implement an integrated response to transport and movement that encourages a people-focused hierarchy.   | 3.00             | 3.00            |
| 27B                    | Sustainable Transport and Movement: Prescriptive Pathway | <b>Up to 2 points</b><br>Design and implement initiatives that reduce the impact of transport.:<br><br><b>1 point</b><br>Shared, pooled or common use parking regime for a minimum of 25% of the total on-site parking supply excluding detached housing.<br><br><b>Up to 1 point</b><br>Based on the frequency and accessibility of existing or planned public transport. |                  |                 |
| Sustainable Sites      |  |  |                  |                 |
| 28.0                   | Conditional Requirement                                  | A project subject to an approval as a Controlled Action under the EPBC Act 1999, be granted approval under the Act.  | Y/N              | Y               |
| 28.1                   | Previously Developed Land                                | <b>1 point</b><br>75% of the project site was previously developed land.   | 1.00             | 1.00            |
| 28.2                   | Best Practice Site Decontamination                       | <b>1 point</b><br>The site was contaminated such that the uses permitted under the relevant planning scheme were initially precluded; and<br><br>The developer has adopted best practice remediation strategies in accordance with its remediation management plan and its implementation plan.  | 1.00             | 1.00            |
| Ecological Enhancement |  |  |                  |                 |
| 29.1                   | Change of Ecological Value                               | <b>Up to 1 point</b><br>The ecological value of site is enhanced based on a comparison of the ecological value of the site at the date of site purchase and after project completion.  | 1.00             | 1.00            |
| 29.2                   | Biodiversity Enhancement                                 | <b>1 point</b><br>The site can demonstrate a 20% net biodiversity gain from the date of purchase; and<br><br>A Biodiversity Management Plan has been prepared by a suitably qualified professional and is implemented demonstrating the management of the long   | 1.00             | 1.00            |

| No.                       | Credit Name  | Description   | Points Available | Points Targeted |
|---------------------------|--|---|------------------|-----------------|
|                           |  | term biodiversity values of the site (and off site where offsets are established).  |                  |                 |
| <b>Waste Management</b>   |  |   |                  |                 |
| 30.1                      | <b>Reduction in Site, Construction, and Demolition Waste</b> | <p><b>Up to 1 point where</b><br/>The project develops and implements a Waste Reduction Plan for site-wide works; and</p> <p>&gt;60% of the construction and demolition waste associated with site works has been recycled or reused.<br/>Partial points are awarded based on the percentage of waste recycled over 60%.</p>  | 1.00             | 0.75            |
| 30.2                      | <b>Operational Waste</b>                                     | <p><b>Up to 1 point where</b><br/>The community implements measures to reduce the overall amount of operational waste.</p> <p>Points are awarded based on the initiatives implemented in the community. Each initiative is worth 0.33 points for a maximum of one point:</p> <p>Public place recycling scheme;<br/>Residential recycling scheme;<br/>Hazardous waste collection or disposal services;<br/>Pay as you throw (PAYT) scheme;<br/>Composting or Green Waste scheme.</p> | 1.00             | 1.00            |
| <b>Heat Island Effect</b> |  |   |                  |                 |
| 31.0                      | <b>Heat Island Effect</b>                                    | <p><b>1 point</b><br/>At least 50% of the total site area in plan view comprises one, or a combination, of the following:<br/>Vegetation;<br/>Light coloured building materials,<br/>Water bodies, and<br/>Green roofs</p>  | 1.00             | 1.00            |
| <b>Light Pollution</b>    |  |   |                  |                 |
| 32.0                      | <b>Light Pollution</b>                                       | Relative to its particular mounting orientation, 95% (by number) of external public lighting luminaries within the project boundary have an Upward Light Output Ratio less than 5%  | 1.00             | 1.00            |
| <b>Total</b>              |  |   | <b>8.00</b>      | <b>16.75</b>    |
| <b>Innovation</b>         |  |   |                  |                 |
| <b>Innovation</b>         |  |   |                  |                 |

| No. | Credit Name                                   | Description  | Points Available | Points Targeted |
|-----|---|--|------------------|-----------------|
|     | <b>Innovative Strategies and Technologies</b> | The initiative is a process, methodology and/or technology with a level of sustainability performance that is considered innovative in Australia or the world.   | 10.00            | 4.00            |
|     | <b>Market Transformation</b>                  | The initiative substantially contributes to the broader market transformation towards sustainable development in Australia or in the world.  |                  |                 |
|     | <b>Improving on Green Star Benchmarks</b>     | The initiative results in a substantial improvement to a specific impact (environment, social, economic), addressed by the Green Star credit targeted.   |                  |                 |
|     | <b>Green Star Innovation Challenges</b>       | Initiatives will need to respond to one or more of the Green Star - Communities Innovation Challenges posted on the GBCA innovation portal. These challenges have been designed to challenge projects to be even more sustainable. |                  |                 |
|     | <b>Sustainable Design Initiatives</b>         | Initiatives will need to addresses an issue not included within any of the existing Green Star Credits or Green Star - Communities Innovation Challenges.  |                  |                 |
|     |   | <b>Total</b>   | 10.00            | 4.00            |
|     |   | <b>Total</b>   | 110.00           | 68.75           |
|     |   |  |                  | 68.75           |
|     |   | <b>60 points required to achieve 5 stars</b>   |                  |                 |