

JAPARA AGED CARE ACCOMMODATION – 35-39 REGENT STREET, MOUNT WAVERLEY

SUSTAINABILITY MANAGEMENT PLAN (SMP)



Date: 10 August 2016

Document Number: LCE10741-005



DOCUMENT ISSUE REGISTER

PROJECT NAME: JAPARA AGED CARE ACCOMMODATION

SITE ADDRESS: 35-39 REGENT STREET, MOUNT WAVERLEY

PROJECT REF: LCE10741-005 Sustainable Management Plan

REVISION	DESCRIPTION	DATE ISSUED	AUTHOR	REVIEWED
P1	Town Planning Draft Issue	08.06.16	MH	-
P2	Town Planning Draft Issue	24.06.16	MH	-
TP1	Town Planning	30.06.16	MH	-
TP2	Town Planning	10.08.16	MH	-

CONTENTS

- 1. EXECUTIVE SUMMARY 4**
- 2. PROJECT INFORMATION 6**
 - 2.1 DESCRIPTION OF DEVELOPMENT..... 6
 - 2.2 SUSTAINABILITY FRAMEWORK 6
- 3. KEY SUSTAINABILITY BUILDING CATEGORIES 8**
 - 3.1 INDOOR ENVIRONMENT QUALITY 9
 - 3.2 ENERGY EFFICIENCY 11
 - 3.3 WATER EFFICIENCY 13
 - 3.4 STORMWATER MANAGEMENT 15
 - 3.5 BUILDING MATERIALS 16
 - 3.6 TRANSPORT 18
 - 3.7 WASTE MANAGEMENT 19
 - 3.8 URBAN ECOLOGY 20
 - 3.9 CONSTRUCTION AND BUILDING MANAGEMENT 21
- 4. SUMMARY OF SUSTAINABILITY INITIATIVES 23**
- 5. APPENDIX A – SUSTAINABLE DESIGN SCORECARD 26**
- 6. APPENDIX B - STORM ASSESSMENT 27**
- 7. APPENDIX C - WASTE MANAGEMENT 28**

1. EXECUTIVE SUMMARY

This Sustainability Management Plan (SMP) provides an overview of the sustainability initiatives that have been assessed for inclusion in the proposed aged care facility development located at 35-39 Regent St, Mount Waverley. The development is summarised below.

Building Elements	Project Details
Municipality	City of Monash
Classifications	Class 9c
Total aged care suites	126
Total car parks	39
Site Area	5540 m ²

Building Summary	
Ground Floor Plan	33 x Aged Care Suites, 18 Car parks, 26 Bike Parks, Lounge, Café, Dining, Beauty salon, Chapel, Plant/Store, Kitchen, Laundry, Waste Room, Staff room, Staff Amenities, Men's shed/Women's activities, Wellness centre, Manager office, Coordinator office, Interview room
First Floor Plan	59 x Aged Care Suites, 19 Car Parks, Lounge, Dining
Second floor Plan	34 x Aged Care Suites, Lounge, Dining
Roof plan	Roof area, services area

This SMP will provide a detailed sustainability assessment of a proposed design at the planning stage. An SMP identifies beneficial, easy to implement and best practise sustainability initiatives in line with City of Monash Council Sustainability framework. This includes: -

- A practical approach to assessing sustainable development matters during the planning permit application process.
- The consistent inclusion of key environmental performance considerations into the planning approvals process.
- A guide to achieving more sustainable building outcomes for the long-term benefit of the wider community.

The initiatives proposed provide a holistic approach to sustainability within the aged care facility; however, a focus on indoor environment quality, energy efficiency (electrical and gas), water efficiency and stormwater management has been applied. This report references various sustainability frameworks, checklists and benchmarks, all of which were used to qualify and develop the initiatives. As a result, the initiatives proposed for 35-39 Regent St, Mount Waverley, have been specifically tailored to the development, yet appropriately benchmarked against similar developments to help assess the levels of sustainability proposed.

The development has achieved room layouts that promote natural ventilation and maximised natural daylight to living areas. The layout also removes the need for air conditioning during a vast majority of the year by controlling thermal loads in both summer and winter design conditions. This arrangement is predominantly achieved with high performance glazing, external solar shading devices, suitable ratios of glazing fenestration to facade area and sufficiently sized window/door openings to promote natural ventilation.

The development proposes a highly efficient gas instantaneous hot water system. Natural gas is a fuel which has significantly lower associated greenhouse gas emissions than grid connected electricity (which generally uses brown coal as its primary energy source). Natural gas is also used throughout the development for cooking purposes, in-lieu of electric type appliances.

This development incorporates rainwater storage for re-use within the development for toilet flushing and also irrigation of the various landscaped areas proposed. As such, the development is shown to have significantly reduced the reliance on mains water as compared with typical residential dwellings of similar use.

The development shall also consider the use of renewable energy sources such as solar PV combined with high efficiency central thermal plant to minimise carbon footprint.

2. PROJECT INFORMATION

2.1 DESCRIPTION OF DEVELOPMENT

35-39 Regent St, Mount Waverley, consists of a 3 storey residential aged care facility, containing 126 aged care suites, parking located on the ground and first floors, storage space and bicycle racks. The development also provides a number of communal facilities including commercial kitchen, dining/lounge facilities and other activity centres.



Fig. 2.1 Satellite image of proposed development location. Proposed location is shaded in blue

2.2 SUSTAINABILITY FRAMEWORK

Sustainability is a term that is typically used to describe the intent to balance the elements of society, economics and the environment. This report focuses primarily on the ecologically sustainable development (ESD) initiatives for the proposed development and it is considered that social and economic aspects are also addressed either directly or in-directly where relevant.

The development adopts good passive design principles and building services to achieve sustainable outcomes using simplistic, practical, low maintenance and cost effective design concepts.

The following table summarises the environmental framework, benchmarks and design outcomes of the project: -

Sustainability Assessment Framework	Demonstration of Project Compliance
<ul style="list-style-type: none"> ▪ City of Monash Council Sustainable Development Framework ▪ Melbourne Water's STORM Rating System ▪ Sustainable Design Scorecard –for non-residential sustainability assessments - SDS <p><i>Reference Framework Used:</i></p> <ul style="list-style-type: none"> ▪ CIBSE – Environmental Design Guide 	<ul style="list-style-type: none"> ▪ Energy efficient design (passive design, natural ventilation, natural light, high NatHERS ratings) ▪ High indoor environment quality design (natural ventilation, natural light harvesting) ▪ Water efficient design (WELS rated fixtures), rainwater harvesting & re-use ▪ Provision of parking/storage for sustainable methods of transport, development well serviced by public transport. ▪ Enforcing environmental standards within design and delivery (i.e. design & layouts that achieve natural cross-ventilation and enhanced natural daylight)

Table 2.2: ESD framework, benchmark and design outcomes

The proposed development directly utilises the City of Monash Council Framework, FirstRate5, Sustainable Design Scorecard and Melbourne Water's STORM Rating System to quantify the levels of sustainability achieved. Additionally, the Chartered Institute of Building Services Engineers' (CIBSE) Environmental Design Guide was used as reference framework, to assist in developing the ESD initiatives.



3. KEY SUSTAINABILITY BUILDING CATEGORIES

There are 10 Key Sustainable Building Categories to which Lucid Consulting adheres. The categories (detailed in the below table) set out criteria and benchmarks which the project’s sustainability initiatives aim to satisfy. Each category has a set of requirements which are to be met by the proposed developments, with the requirements set out as being either:

- Mandatory
- Best Practice

Mandatory refers to legislative sustainability/environmental requirements which all developments within Victoria are required to meet. Council’s best practice refers to requirements which are in-line with the City of Monash Council sustainability targets for the built environment, which all developments within the municipality must meet (or provide supporting evidence as to why the development may not specifically meet each particular standard).

The proposed residential aged care facility development at - 35-39 Regent St, Mount Waverley aims to meet all mandatory and best practice requirements which are deemed feasible, within the nature of the development.

Category	Description
1. Indoor Environment Quality	To achieve a healthy indoor environment quality for the wellbeing of building occupants.
2. Energy Efficiency	To ensure the efficient use of energy, to reduce total operating greenhouse emissions and to reduce peak demand
3. Water Efficiency	To ensure the efficient use of water, to reduce total operating potable water use and to encourage the appropriate use of alternative water sources
4. Stormwater Management	To reduce the impact of stormwater run-off, to improve the water quality of stormwater run-off, to achieve best practice stormwater quality outcomes and to incorporate the use of water sensitive urban design, including rainwater re-use.
5. Building Materials	To minimise the environmental impacts of materials used by encouraging the use of materials with a favourable lifecycle assessment
6. Transport	To minimise car dependency and to ensure that the built environment is designed to promote the use of public transport, walking and cycling.
7. Waste Management	To ensure waste avoidance reuse and recycling during the construction and operation stages of development
8. Urban Ecology	To protect and enhance biodiversity and to encourage the planting of indigenous vegetation
9. Innovation	To encourage innovative technology, design and processes in all development, so as to positively influence the sustainability of buildings

10. Construction and Building Management

To encourages a holistic and integrated design and construction process and ongoing high performance.

Table 3: ESD Categories

Each category is addressed within this section of the report, with complete descriptions of the associated issues, assessment methodology, benchmark description, results of benchmarking and all other relevant details/supporting evidence as to how the proposed development addresses the category.

3.1 INDOOR ENVIRONMENT QUALITY

Indoor environment quality is critical for the health and well-being of all building occupants and users. Residential developments which have a high level of indoor environment quality typically have greater levels of occupancy and extended occupancy periods. Indoor environment quality can be measured utilising metrics such as air quality, lighting and noise/acoustics, as well as external views. Buildings with higher levels of indoor environment quality have been found to promote general physical and mental health, as well as improve productivity within workplaces.

Issues

The issues relevant to indoor environment quality for 35-39 Regent St, Mount Waverley, include: -

- Thermal Comfort
- Natural Ventilation
- Daylight
- External Views
- Glare Prevention
- Hazardous Materials and VOC
- Electric Lighting Levels
- Acoustics
- Artificial Light Quality
- Ventilation of Common Areas

The proposed initiatives aim to deal with the above issues.

Proposed Initiatives

1. For the provision of sufficient daylight, habitable rooms of single aspect are within close proximity to a bedroom window.

The vast majority of habitable spaces within the proposed development receive direct sunlight from windows in each habitable room, ensuring that all areas receive adequate natural lighting.

2. The majority of living rooms and private open spaces will receive a minimum of 3 hours direct sunlight between 9am and 3pm in mid-winter.

Aged care suites have been laid out with sunlight in mind, with the number of single aspect south facing suites minimised.

3. 100% of aged care suites have access to natural or forced cross ventilation (either directly or indirectly).

To ensure aged care suites which do not have access to façade cross ventilation are still provided with a high level of indoor environment quality, it is proposed to ventilate (with 100% outside air) the circulation/lobby areas on each floor. This will effectively result in air passing through the aged care suites, via gaps in doorways, before exiting through operable window areas to balcony areas. This level of ventilation is considered an appropriate alternative to cross ventilation, and is provided to all aged care suites within the development.



Figure 3.1 – Natural cross ventilation to aged care suites

4. Windows/openings to aged care suites are appropriately positioned with acoustics in mind. Windows are sealed appropriately to avoid noise transmission.

All aged care suites living/sleeping areas are positioned with acoustics in mind, and all windows/glazed areas are appropriately sealed. The development is not considered to be in an area with significant acoustic issues, with only lower level aged care suites likely to receive background street noise.

5. Lighting in aged care suites will be provided with high colour rendition index and warm white colour to increase occupant comfort levels.

The light fittings to be installed within the aged care suites are to increase occupant comfort by providing colour schemes which suit the nature of the development. This may include the use of latest technology, high efficiency LED lighting.

6. Exhaust to balconies for discharge to ambient in-lieu of recirculating system.

Exhaust is to be ducted directly to balcony areas, to ensure all contaminants/odours are removed directly from the interior. The exhaust discharge will be located 1 meter away from any air intake zones. According to the Australian Standards specifically AS1668.2-2012, this distance is adequate for an airflow rate of 200L/s, which is sufficient in this scenario.

7. Double glazing to be installed.

Aged care suites are to have double glazed windows. As well as having excellent thermal properties, double glazing provides additional occupant comfort due to acoustic benefits.

8. All finishes specified are to be low in Volatile Organic Compounds (VOCs).

For benefit of the comfort and health of occupants and staff it is advised that low VOC materials be used in this construction of this development. This includes using low VOC boards, sealants, adhesives, paints and floor coatings/coverings.

Benchmarks and Supporting Evidence

The initiatives proposed relating to indoor environment quality were formed utilising the legislative requirements of the National Construction Code 2015. CIBSE Environmental Design Guide was used as guidance documents.

3.2 ENERGY EFFICIENCY

Energy efficiency is considered critical for ensuring that usage of non-renewable forms of energy is minimised, such that continued population growth and consumption does not continually damage the environment. Additionally, energy efficiency has a direct financial benefit, as it reduces exposure to the rapidly increasing cost of utility supplied electricity and gas, as well as associated CO₂ emissions. Residents of energy efficient developments can enjoy reduced expenditure on power bills (in both tenant owned areas and common areas), whilst also reducing their impact on the environment.

35-39 Regent St, Mount Waverley, focuses on passive design features to improve energy efficiency; such features do not consume operational energy and generally last the lifetime of the building > 50 years. Furthermore, mechanical air conditioning systems comprising electric driven, refrigeration cycle equipment are responsible for as much as 50% of residential greenhouse gas emissions and contribute significantly to the issues of peak electrical demand which has a negative impact on the cost of electrical infrastructure, cost of electricity network charges and the (in) efficiency of electrical energy generation and transmission during these periods.

These operational effects of buildings further demonstrate the importance of passive design and access to natural daylight and effective natural ventilation. The following pie chart demonstrates a breakdown of energy consumption within a typical home.

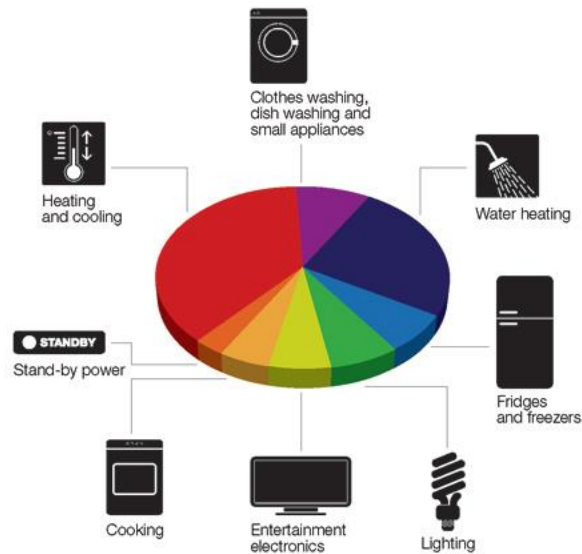


Figure 3.2 – Where energy is used in the home.
Source: Government of SA, Home Energy Efficiency.

Issues

The issues relevant to energy efficiency for 35-39 Regent St, Mount Waverley, include: -

- Operating Energy
- Energy Sub-Metering
- Lighting Power Density
- Lighting Zoning
- Peak Energy Demand Reduction
- Air leakage minimised
- Efficient Shading
- Building Fabric enhanced over minimum BCA requirements
- HVAC zoning
- Efficient HVAC system
- Efficient onsite generation of electricity
- Allowance for efficient fans and pumps (e.g. VSD)
- Encouraging occupants to utilise energy more efficiently

The proposed initiatives aim to deal with the above issues.

Proposed Initiatives

1. High efficiency lighting is provided to aged care suites and common areas, including automated lighting control to common areas only.

The development is to incorporate high efficiency light fittings coupled with time switches, motion sensors in communal areas where applicable, to ensure that lighting energy consumed is minimised.

2. All heating and cooling systems to incorporate high efficiency thermal plant.

Where feasible, centralised Variable Refrigerant Flow (VRV) systems incorporating Heat Recovery and with a co-efficient of performance (COP) of greater than 3.0 will be implemented for cooling and heating purposes. Additionally, it is suggested that hydronic panels with a central boiler be used to heat individual habitable rooms.

3. All hot water systems are to have an energy star rating of 5 stars

Hot water systems are to be of the instantaneous gas fired 'condensing' type, leading to a highly effective and efficient domestic heating water system.

4. High efficiency lighting throughout; generally comprising of new generation T5 Fluorescent tubes to carparks, plantrooms and stairwells, and LED lighting to remaining areas. All general lighting will have an efficacy no less than 80 lumens / watt.

Common areas which require long hours of switched lighting are to have energy efficient fittings to reduce lighting consumption.

5. Gas metering at hot water plant to track gas consumption.

It is proposed to separately meter the hot water plant to allow for landlord gas consumption. This allows for a better picture to be gained as to how well the plant is operating, as well as assists in monitoring the consumption of the unit.

6. Variable speed drives and CO monitoring for car park exhaust and supply fans to reduce fan energy consumption.

It is proposed to utilise carbon monoxide sensing and variable speed drives to ensure that car park exhaust and supply fans only operate on an as needs basis, drastically reducing fan consumption.

7. Provide multi-stage pumps for potable water supply.

Potable water pumps are to be multi-stage, to reduce overall pumping energy.

8. Renewable energy generation through Solar PV.

The development will incorporate a solar PV system, which will be sized to offset at least 8% of total power consumption.

Benchmarks and Supporting Evidence

The initiatives proposed relating to energy efficiency were formed utilising the legislative requirements of the National Construction Code 2015 and the NatHERS requirements. Additionally, Sustainable Design in the Planning Process Fact Sheet and was used as guidance documents.

3.3 WATER EFFICIENCY

Water efficiency is deemed critical due to the growing needs of Melbourne's population, and the current wasteful actions of general households when it comes to potable water usage. Additionally, water is a costly resource which is in turn becoming a financial burden.

35-39 Regent St, Mount Waverley utilises high efficiency fixtures and fittings to minimise the consumption of the water used. Additionally, the development proposes extensive metering is utilised to effectively track consumption and manage the usage per resident.

Issues

The issues relevant to water efficiency for 35-39 Regent St, Mount Waverley, include: -

- Minimising Amenity Water Demand
- Water Metering
- Heat Rejection Water
- Fire Systems Check Water Consumption

The proposed initiatives aim to deal with the above issues.

Proposed Initiatives

1. All fittings and fixtures are to be installed with a WELS rating of within 1 star of the highest available at the time of council endorsement.

Selection of fittings, fixtures and water consuming equipment is paramount for achieving a water efficient building. All fixtures and fittings shall be selected as low flow with appropriate Water Efficiency Labelling (WELS) where relevant. The purchaser will be given the option to install fittings and fixtures with higher WELS rating.

- Shower heads with a WELS rating of not less than 3 stars (9.0 L/min)
- Water closets with a WELS rating of not less than 4 stars (3.5 L/flush)
- Basins and taps with a WELS rating of not less than 5 stars

The following table demonstrates the potential water savings achievable through the use of low flow equipment: -

Equipment	Average House				
	Flow Rate	Daily Consumption	WELS	Flow Rate	Daily Consumption
WC's	8.0 L/flush	48 L	4 Star	3.5 L/flush	21 L
Showers	15.0 L/min	135 L	3 Star	9.0 L/min	81.0 L
Basins, Taps, washing machine, dishwasher	-	73 L	-	-	73 L
Total		256 L			175 L

Table 3.3– Comparison of average residential water consumption (per person)

2. Water from sprinkler testing is to be re-captured, and monthly tests are to be adopted in lieu of weekly.

In order to reduce potable water consumption, it is recommended that all water used in fire systems testing be captured at re-used. This yields additional monetary benefits as it lessens the cost of potable water used in the testing of the sprinklers.

All test water used in both fire pump and sprinkler control valve will be collected in the detention tank for re-use. Note that remote testing has a tendency to have discoloured water and will be discharged to stormwater as it is not deemed suitable for re-use.

AS1851-2005 is to be adopted which allows for the testing of sprinkler systems to be a monthly occurrence, in-lieu of weekly – ensuring the development reduces potable water consumption whilst still adequately meeting Australian Standards for testing of fire safety systems.

3. Rainwater collection and re-use

It is proposed to provide a total of 90.0kL of rainwater storage capacity allowing capture of rainwater from all rooved areas. The water will then be reticulated for re-use to serve toilet flushing to the equivalent of 140 toilets, and will serve landscaped areas.



Benchmarks and Supporting Evidence

The initiatives proposed relating to water efficiency were formed utilising the legislative requirements of the National Construction Code 2015. Additionally, WELs Rating system and was used as guidance documents

3.4 STORMWATER MANAGEMENT

Issues

Due to the urban nature of Melbourne, a large proportion of the land which was once exposed soil has now been replaced with impervious surfaces such as roads, sidewalks and roofs. Stormwater discharge direct to Port Phillip Bay without natural filtration through plants and soil presents numerous pollution issues, as well as causes unsafe stormwater flooding due to the large quantities of water flowing.

35-39 Regent St, Mount Waverley, is proposed to replace 2 dwellings, which currently is providing a minimal level of stormwater management. As such, the net result of the development from a stormwater management perspective is a significant improvement.

The issues relevant to stormwater management for 35-39 Regent St, Mount Waverley, include: -

- STORM calculator

- Watercourse Pollution
- Stormwater capture and re-use

The proposed initiatives aim to deal with the above issues.

Initiatives

1. Victoria's best practice stormwater management objectives are assessed.

Melbourne Water's storm calculator will be used to assess the Stormwater rating of the development. Adequate initiatives will be used to ensure that the minimum rating of 100% is achieved and bettered. These initiatives are listed below:

- 90.0kL of rainwater storage to capture 100% of roof and terrace water
- Rainwater is the Council's number 1 Alternative Water Source and as such rainwater tanks are to be plumbed to for re-use to 140 toilets.
- Minimizing the overall impervious area.
- Water saving fittings and appliance (WELS)

Benchmarks and Supporting Evidence

The initiatives proposed relating to stormwater management were formed utilising the legislative requirements of the National Construction Code 2015, as well as Melbourne Water's STORM rating system and MUSIC modelling.

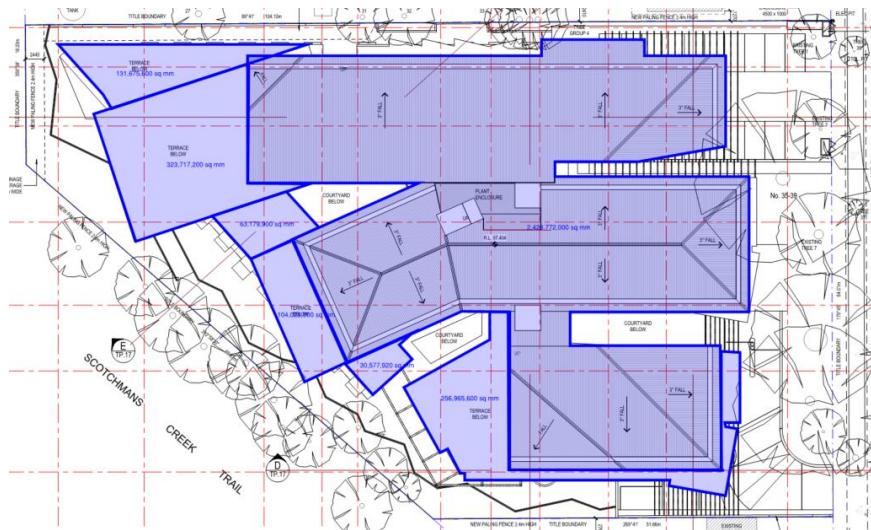


Figure 3.4 – Overlay of rainwater catchment areas to drain to rainwater tank

3.5 BUILDING MATERIALS

The building sector is a large consumer of raw materials, and the processes used, particularly in Australia, in constructing and transporting the materials to site is carbon emissions and energy usage intensive. As such, the need for concise selection of building materials which are fit for purpose, and not beyond what is considered to be required is critical.

As the scale of the development is large, and the level of building materials used is significant, the initiatives presented in the section are essential to the outcome.

Issues

The issues relevant to building materials for 35-39 Regent St, Mount Waverley, include:-

- Storage for Recycling Waste
- Reuse of Materials and other Recycled Materials
- Embodied Energy of Concrete
- Embodied Energy of Steel
- Sustainable Timber
- Design for Disassembly
- Environmental toxicity

The proposed initiatives aim to deal with the above issues.

Proposed Initiatives

1. Limited usage of high embodied energy metals and materials (such as zinc, etc.).

The project will aim to minimise usage of high embodied energy metals and materials where applicable.

2. Reduced use of Portland cement.

It is proposed that an overall 30% reduction in the amount of Portland cement used in in-situ concrete mixes be implemented in this development.

3. Unsustainable timber will be excluded from this project.

This includes Oregon, Western Red Cedar, Meranti, Luan, Teak and Merbau (as well as others) unless Forestry Stewardship Council certified (or equivalent). Refer Ecospecifier technical guidelines.

4. Materials used within the project are selected to be recyclable/reusable where applicable.

Construction materials are to be selected with an intention to re-use or re-cycle materials.

5. The project is to avoid the use of materials which are toxic in manufacture or use.

The project will aim to completely avoid the usage of materials which are considered toxic, and are manufactured from such processes where toxic chemicals are used.

6. In general, products which are locally manufactured are to be sourced and implemented where feasible. Products which are sourced from overseas are to be shipped in lieu of transportation by air where feasible.

Building materials are to be selected with transportation environmental and carbon footprint in mind, as well as efficiency of the form of transportation. A preference will be given to locally sourced materials.

7. All materials selected are deemed suitable for their intended application.

The building is to be appropriately designed to ensure all materials are correctly selected and used in the construction.

8. Materials have been selected with consideration of maintenance/durability. Materials which require toxic/polluting/high energy using cleaning methods are minimised.

Materials are to be selected with maintenance and durability in consideration.

9. Increase percentages for recycled material usage, or commit to avoid the use of certain materials. A construction waste minimisation plan is to be completed.

Benchmarks and Supporting Evidence

The initiatives proposed relating to building materials were formed utilising the legislative requirements of the National Construction Code 2015.

3.6 TRANSPORT

Car usage within Australia is responsible for approximately 50% of total transport greenhouse gas emissions. Additionally, the level of car usage within Melbourne greatly dominates over other forms of transport as the most commonly used. Car usage additionally contributes to a number of noxious airborne pollutants, which can significantly affect air quality within cities where congestion is an issue. Consumption of limited oil resources also make car usage an unsustainable and costly form of transport, as such, the need for suitable alternatives to be provided is critical.

The construction/residential industry can respond well to the above issues by ensuring that developments are adequately serviced by existing or proposed public transport, and that suitable alternative forms (such as cycling) is well accommodated for. 35-39 Regent St, Mount Waverley, provides cycling facilities and is within a short distance of existing public transport infrastructure.

Issues

The issues relevant to transport for 35-39 Regent St, Mount Waverley, include:-

- Providing secure bike storage facilities
- Green Travel Plan

The proposed initiatives aim to deal with the above issues.

Proposed Initiatives

1. Secure cyclist storage is provided with 26 Bike Racks

Encouraging visitors and also residents to utilise cycling as an alternative form of transportation. Bike storage is to comply with clause 52.34 of the Monash Planning Scheme.

2. End of Ride changing facilities to be provided

Showers and change rooms will be provided to further encourage cycling, particularly for staff members to and from work.

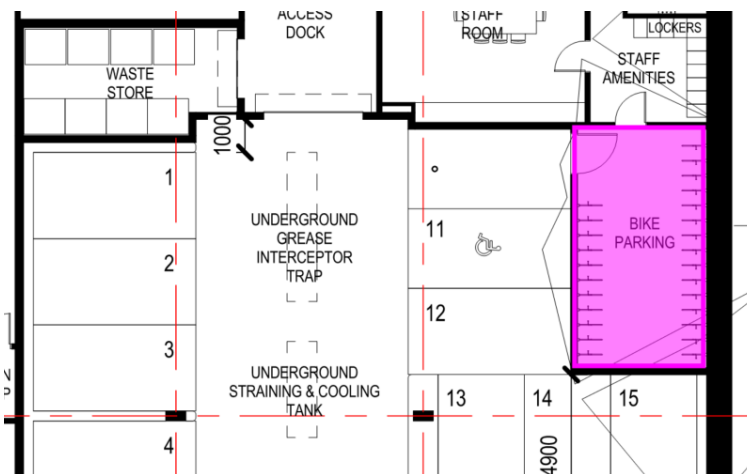


Figure 3.6 – Proposed Basement bicycle rack locations on Ground Floor

3. Detailed information on nearest public transport options, as well as details of public amenities within walking/cycling distance is to be provided to occupants, to reduce reliance on cars.

It is proposed to provide to occupants details of all nearby public transport, as well as nearby public amenities within walking/cycling distance, to ensure occupants are completely aware of the facilities which are within reach without the need for car usage. The below demonstrate that building occupants can reach Mount Waverley Station within 6 minutes by bike.

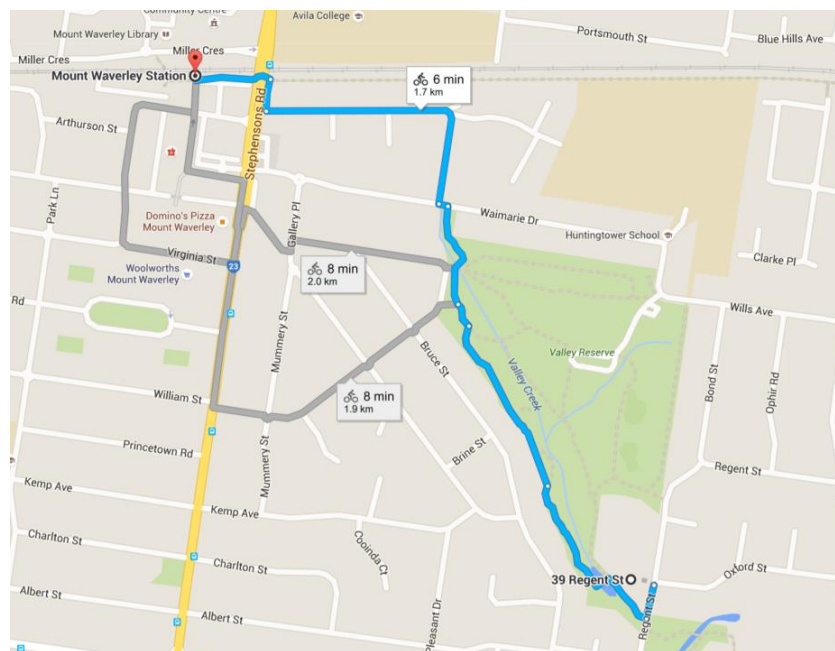


Figure 3.6b – The time and path to Mount Waverley Station by bike

3.7 WASTE MANAGEMENT

Construction waste management is considered critical as up to 40% of landfill in Australia can be attributed to the construction and demolition of buildings. On top of this is the on-going building occupant waste as a result of everyday living and consumption. Managing and planning for such waste is necessary to act on reducing the quantity of going to landfill, whilst also ensuring that materials which can be appropriately recycled are treated separately.

35-39 Regent St, Mount Waverley, proposes to manage waste during construction and throughout the lifespan of the building through the setting of recycling targets, providing facilities for occupant waste separation.

Issues

The issues relevant to waste management for 35-39 Regent St, Mount Waverley, include:-

- Construction Waste Management Plan
- Construction Environmental Management Plan
- Operation Waste Management Plan
- Operation Environmental Management Plan
- Storage spaces for recycling and green waste
- Contractor has valid ISO14001 accreditation

The proposed initiatives aim to deal with the above issues.

Proposed Initiatives

1. A recycling target of 70% of all demolition and construction waste is to be adopted.

A recycling target of 70% of all demolition and construction waste (by mass) is proposed to ensure that all materials collected which are appropriate for reuse are suitably recycled, in-lieu of being disposed of in landfills.

2. Adequate facilities for occupant waste separation are provided.

The development is proposed to include a separate general waste, recycling and green waste disposal points on the ground floor (connected to a separate garbage chutes), to allow for occupants to dispose of their waste correctly.

3. Recycling targets are to be reviewed throughout the construction period and a Waste Minimisation Plan (WMP) is to be completed, to ensure all recyclable material is correctly recycled/re-used.

It is proposed to periodically review recycling targets throughout the construction phase, such that any additional recyclable materials can be disposed of appropriately. The builder will be responsible for providing the WMP prior to the commencement of construction works.

3.8 URBAN ECOLOGY

Urban ecology is about promoting and protecting ecosystems and biodiversity. Urban and agricultural development has caused displacement of species and degradation of natural environments.

Issues

- Protection of water resources
- Soil formation & protection
- Nutrient storage & recycling

- Pollution breakdown
- Ecosystem maintenance

1. Provision of significant landscaped areas promoting urban ecology.

The development will be surrounded by significant sized landscaped areas. This will further promote ecology as well as increase the comfort of building occupants and help mitigate rain water loss.



Figure 3.8 – Site Plan showing considerable landscaped areas within site boundary

3.9 CONSTRUCTION AND BUILDING MANAGEMENT

The process of delivering, commissioning and managing a sustainable building can often be challenging. In many cases, the sustainable initiatives are heavily reliant on commissioning and installation aspects which can be easily overlooked. Additionally, without appropriate maintenance, systems may end up operating inefficiently or in a wasteful manner.

35-39 Regent St, Mount Waverley aims to set and review recycling targets and prepare a stormwater pollution reduction strategy during construction, as well as the planning for on-going maintenance.

Issues

The issues relevant to construction and building management for 35-39 Regent St, Mount Waverley, include:-

- Construction Environmental Management Plan
- Contractor has valid ISO14001 accreditation
- Operation Environmental Management Plan
- Building Tuning
- Building User's Guide

The proposed initiatives aim to deal with the above issues.

Proposed Initiatives

1. Building User Guide

A building user guide will be produced and issued to occupants, helping them to use their building systems efficiently.

2. The site will commit to regular fine tuning of building services and on-going maintenance.

Maintenance contracts will be created to ensure that all systems within the building are operating as intended, and that no systems are operating wastefully/inefficiently.

4. SUMMARY OF SUSTAINABILITY INITIATIVES

INDOOR ENVIRONMENT QUALITY	<i>Sufficient daylight will be provided to the majority of habitable rooms of single aspect aged care suites.</i>
	<i>The majority of living rooms and private open spaces will receive a minimum of 3 hours direct sunlight between 9am and 3pm in mid-winter.</i>
	<i>100% of aged care suites have access to cross ventilation (either directly or in-directly).</i>
	<i>Windows/openings to aged care suites are appropriately positioned with acoustics in mind. Windows are sealed appropriately to avoid noise transmission.</i>
	<i>Lighting in aged care suites will be provided with high colour rendition index and warm white colour to increase occupant comfort levels.</i>
	<i>Aged care suite bathroom and kitchen exhaust to balconies for discharge to ambient in-lieu of recirculating range hood type kitchen hood.</i>
	<i>Aged care suites to have double glazed windows to increase occupant comfort.</i>
	<i>All finishes specified are to be low in VOCs.</i>
ENERGY	<i>High efficiency lighting is provided to aged care suites and common areas, including automated lighting control to common areas only.</i>
	<i>All heating and cooling systems are to have a COP of greater than 3.0.</i>
	<i>All hot water systems are to have an energy star rating of 5 stars.</i>
	<i>High efficiency lighting throughout; generally comprising of new generation T5 carparks, plantrooms and stairwells, and LED lighting to remaining areas. All general lighting will have an efficient no less than 80 lumens / watt.</i>
	<i>Gas metering at hot water plant to track gas consumption.</i>
	<i>Variable speed drives and CO monitoring for car park exhaust fans to reduce fan energy consumption.</i>
	<i>Provide multi-stage pumps for potable water and rainwater supply.</i>
	<i>Solar PV to reduce grid power consumption.</i>
WATER	<i>All fittings and fixtures are to be installed with a WELS rating of within 1 star of the highest available at the time of council endorsement.</i>

	<p><i>Water from sprinkler testing is to be re-captured, and monthly tests are to be adopted in lieu of weekly</i></p>
	<p><i>Rainwater capture and re-use. 90kL storage capacity and re-use for toilet flushing to an equivalent of 140 toilets.</i></p>
	<p><i>Melbourne Water's best practice guidelines are achieved, with a score of 104 using the STORM calculator.</i></p>
BUILDING MATERIALS	<p><i>Limited usage of high embodied energy metals and materials (such as zinc, etc.).</i></p>
	<p><i>It is proposed that an overall 30% reduction in the amount of Portland cement used in in-situ concrete mixes be implemented in this development.</i></p>
	<p><i>Unsustainable timber will be excluded from this project.</i></p>
	<p><i>Materials used within the project are selected to be recyclable/reusable where applicable.</i></p>
	<p><i>The project is to avoid the use of materials which are toxic in manufacture or use.</i></p>
	<p><i>In general, products which are locally manufactured are to be sourced and implemented where feasible. Products which are sourced from overseas are to be shipped in lieu of transportation by air where feasible.</i></p>
	<p><i>All materials selected are deemed suitable for their intended application.</i></p>
	<p><i>Materials have been selected with consideration of maintenance/durability. Materials which require toxic/polluting/high energy using cleaning methods are minimised.</i></p>
	<p><i>Increase percentages for recycled material usage or commit to avoid the use of certain materials. A construction waste minimisation plan is to be completed.</i></p>
TRANSPORT	<p><i>Secure cyclist storage is provided with 26 Bike parks to encourage the usage of sustainable forms of transport.</i></p>
	<p><i>End of Ride changing facilities to be provided.</i></p>
	<p><i>Detailed information on nearest public transport options, as well as details of public amenities within walking/cycling distance is to be provided to occupants, to reduce reliance on cars.</i></p>
WASTE MAMAGEMENT	<p><i>A recycling target of 70% of all demolition and construction waste is to be adopted.</i></p>
	<p><i>Adequate facilities for occupant waste separation provided.</i></p>

	<i>Recycling targets are to be reviewed throughout the construction period and a waste minimisation plan is to be completed, to ensure all recyclable material is correctly recycled/re-used.</i>
URBAN ECOLOGY	<i>Provision of significant landscaped areas promoting urban ecology.</i>
CONSTRUCTION AND BUILDING MANAGEMENT	<i>Building user guides will be provided.</i>
	<i>The site will commit to regular fine tuning of building services and on-going maintenance</i>

5. APPENDIX A – SUSTAINABLE DESIGN SCORECARD

6. APPENDIX B - STORM ASSESSMENT

7. APPENDIX C - WASTE MANAGEMENT