

**Darebin City Council  
Northland Urban Renewal  
Project (NURP)  
ESD Scoping report**

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# 1 Executive Summary

To investigate how the principle of incorporating best practice “sustainable urbanism” within the Northland Urban Renewal Precinct (NURP) project could be facilitated, Darebin engaged Swinburne University and their research partner, specialist ESD consultancy Urban Digestor to conduct an ESD scoping study. Based on Darebin’s needs the research team chose to investigate how the One Planet Living framework could be piloted to provide a robust yet flexible methodology for Darebin to plan, communicate and deliver positive long term social, economic and environmental outcomes for NURP.

The One Planet living initiative was developed to address the complex social, environmental and economic challenges we are collectively facing within the context of living beyond the carrying capacity of the planet to sustain future generations. The One Planet Framework (OPF) utilises 10 principles and ecological foot printing to provide a holistic framework to help organisations and project teams examine the sustainability challenges and develop appropriate solutions that will enable us to live within the carrying capacity of One Planet.

The assessment of the OPF and its ability to be used to guide long term triple bottom line outcomes within the NURP project established that it can provide a simple and understandable communications platform to facilitate engagement both within Council and externally (NURP stakeholders). The inherent flexibility of the OPF also revealed that it can complement and enhance existing Council policies and strategies, as well as, informing an overall project implementation plan that can embed SMART (Specific, Measurable, Achievable, Realistic and Time-related) indicators across all 10 OP principles. Additionally, the OPF enables multiple stakeholders such as but not limited to developers to use the same methodology to demonstrate how they can plan, deliver and monitor their performance against the OP principles to enable people to lead one-planet lifestyles.

Some of the key benefits arising out of applying the OPF to the NURP project are summarised below.

**Overall vision, project & implementation plan in one** – Provides council with a holistic long term sustainability vision for the precinct supported by clear planning, implementation and monitoring processes that can be used by other NURP stakeholders. This approach would mitigate the risks of an ad hoc approach and provide clarity to all stakeholders to ensure the long term success of the NURP project.

**Decision Support matrix** – A decision support matrix that is linked to the implementation plan can be developed to prioritise and rank decisions to deliver sequenced outcomes across the life cycle of the project. Thus enabling council to avoid the inherent risks of short term decision making or out of sequence activities because it will be better placed to understand and control key project activities and priorities.

**Integrated planning approach** – by implementing a OPF approach Councils delivery of the NURP project can move beyond being a purely a land use based approach to one that can leverage opportunities across economic, social and environmental activities. This approach would avoid the potential of significant redundancies and replication of work both for council and NURP stakeholders if a purely land use based approach was used to deliver the project.

**Flexibility** - The significant body of work carried out by Darebin on the NURP project can be embedded into the OPF and can be used to develop specific implementation plans according to the OP principle that can feed into the overall project vision and implementation plan. Furthermore, the OPF is flexible enough to integrate and support Councils Sustainable Design in the Planning Process (SDAPP) program and tools.

**Evidence based decision making & measurability** – The OPF enables multiple stakeholders to develop implementation plans that demonstrate a specific response to the NURP sustainability vision and detail processes to demonstrate how the vision is being delivered. The structure and format of the OPF will also provide a common evidence based platform that will provide certainty for all stakeholders as the goals are clear and measurable

In order to capitalise on the benefits offered by an OPF approach a series of next steps were identified and are summarised below.

**One Planet - Council endorsement, Gap Analysis & Action Plan** – The OPF can provide Council with a valuable flexible and long term methodology to communicate, plan and implement a triple bottom line approach to delivering the NURP project. Consequently, Council will need to endorse the use of the OPF to enable it to be used on the NURP project. Endorsing the use of the OPF will enable council to conduct a gap analysis to inform how to address project shortfalls across the 10 OP principles. Post gap analysis Council will be able to develop a project specific implementation plan that records the aspirations, commitments and delivery mechanisms associated with the project against the organising framework of the OP Principles.

**ESD assessment tools gap analysis** - As a due diligence exercise Council should conduct a high level gap analysis against industry leading ESD tools to assess if the overarching ESD principles and objectives being proposed for NURP using the OPF are adequate or need to be expanded.

**Master planning for sustainability outcomes** – Council should conduct advanced environmental modelling in the development of the NURP master plan to critically inform the format of built form to deliver optimised sustainability outcomes from the outset. This work will provide council with a sound evidence base to inform the development of design guidelines and other strategic and statutory planning mechanisms to leverage long term sustainability outcomes for the precinct.

**Developing a decision support matrix** – To assist Council in making decisions that deliver prioritised sequenced outcomes across the life cycle of the project it will need to develop a decision support matrix based on multiple project criteria that are linked to the OPF.

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## 2 Introduction

This report outlines the ESD scoping work undertaken by Swinburne University in partnership with Urban Digestor (referred to herein as the research team) for Darebin City Council. The report introduces the One Planet living framework, a flexible yet robust sustainability methodology that can be used to vision, plan and implement positive economic, social and environmental outcomes. The report outlines the elements of the One Planet Framework (OPF), how it can be used and the benefits it offers as a holistic methodology to drive project outcomes and create continual improvement feedback loops.

The report then focuses on what high level strategic benefits the use of the OPF offers Darebin. To contextualise the benefits and to demonstrate how the OPF could be applied by Darebin, the research team piloted the OPF on Darebin's current Northland Urban Renewal Precinct (NURP) project. The pilot focused on the potential of using the OPF as a useful mechanism to expand and strengthen the NURP vision and turn the discussion on environmental, social and economic sustainability into practical and replicable actions for projects and organisations within the precinct. The pilot tested aspects of the NURP project against some OPF principles to determine if it could provide Darebin with a flexible yet robust long term method to plan, communicate, deliver and monitor sustainability outcomes for NURP.

The report concludes by identifying critical next steps Darebin can take to use the OPF as a methodology to begin planning, implementing and monitoring triple bottom line outcomes for the life cycle of the NURP project. Additionally, further areas of work that can be conducted to improve the delivery of the NURP project are also identified.

### 3 One Planet Living

We live in a global society in which our consumption of energy, natural resources and our production of waste are ever-increasing. WWF's Living Planet Report states we are collectively living beyond our means and need the equivalent of 1.5 planets to support ourselves at current rates of consumption. Furthermore, if everyone on the planet were to consume natural resources and pollute the environment as we currently do in Australia, we would need 4 planets to support us.



Living unsustainably beyond the regenerative carrying capacity of the earth is resulting in the degradation of our environment and diminished human wellbeing which may ultimately leave future generations with a planet that is unable to sustain human life.

Consequently, to help communicate the challenge we all face in reducing our environmental impact, and to facilitate change at local and global levels, the One Planet Living initiative was developed. The initiative aims to promote the concepts of sustainable development and ecological foot printing to provide a holistic framework to help organisations and project teams examine the sustainability challenges and develop appropriate solutions that will enable us to live within the carrying capacity of One Planet.

<http://oneplanetliving.org.au/>

#### 3.1 What is the One Planet Framework (OPF)

The One Planet Framework (OPF) is a flexible sustainability framework that was developed to enable multiple stakeholders to plan, communicate and implement sustainability initiatives across diverse projects. The core aim of OPF is to facilitate the creation of a sustainable future that enhances economic, social and environmental outcomes.

#### 3.2 One Planet - The Ten Principles








The OPF is structured according to 10 guiding principles and three overarching environmental drivers that are derived from and relate directly to key Ecologically Sustainable Development (ESD) themes and objectives. Rooted in the science and metrics of ecological and carbon foot printing, the 10 One Planet principles are used to structure thinking and inform holistic action. Together, the principles provide a holistic framework to help organisations and project teams examine the sustainability challenges being faced, develop appropriate solutions and to communicate the actions being taken to key stakeholders such as colleagues, the supply chain, clients, customers and local and national government.

The three overarching environmental drivers behind the One Planet initiative are:

- o sustainable ecological footprint;
- o sustainable carbon footprint; and
- o Clean (non-polluting) activities.

(Please refer to Appendix 1 for a detailed description of these overarching environmental drivers).

The ten key principles that form the OPF are outlined in the table below.

|                            |   |   |
|----------------------------|---|---|
| Zero Carbon                |    | Enabling access to energy, making buildings more energy efficient and delivering all energy with renewable technologies.  |
| Zero Waste                 |    | Reducing waste, reusing where possible, creating products & employment through recycling and ultimately sending zero waste to landfill.   |
| Sustainable Transport      |    | Encouraging low carbon modes of transport and public transport, reducing the need to travel, ensuring a good range of local facilities within walking and cycling distance.                   |
| Sustainable Materials      |    | Using sustainable and healthy products, such as those with low embodied energy, sourced locally, made from renewable or waste resources.  |
| Local and Sustainable Food |    | Sustainable and humane agriculture and farming, access to nutritious low impact, local, seasonal and organic diets and reducing food waste.   |
| Sustainable Water          |  | Access to safe drinking water and sanitation. Using water more efficiently in farming, buildings and in the products we buy. Designing to avoid local flooding and water course pollution.    |
| Land and Wildlife          |  | Protecting and restoring existing biodiversity and natural habitats through appropriate land use and integration into the built environment.  |
| Culture and Community      |  | Respecting and reviving local identity, wisdom and culture; Access to education for all; valuing and encouraging the involvement of the community in shaping their community and their lives. |
| Equity and local economy   |  | Creating strong, diverse local economies that meet people's needs and support fair employment and international fair trade.   |
| Health and Happiness       |  | Promote good health and well being through access to healthcare. Encourage active, sociable, meaningful lives to promote good health and well being.  |



### 3.3 One Planet – how to apply it

The OPF principles and environmental drivers as outlined above form the core facilitation mechanism of the OP approach. They are used to shape a project visions, identify gaps and to develop project implementation plans that are referred to as a One Planet Action Plans (OPAP).

The OPF approach uses staged activities to inform the creation of project specific solutions for achieving the goal of One Planet Living. These activities are outlined and discussed briefly below.

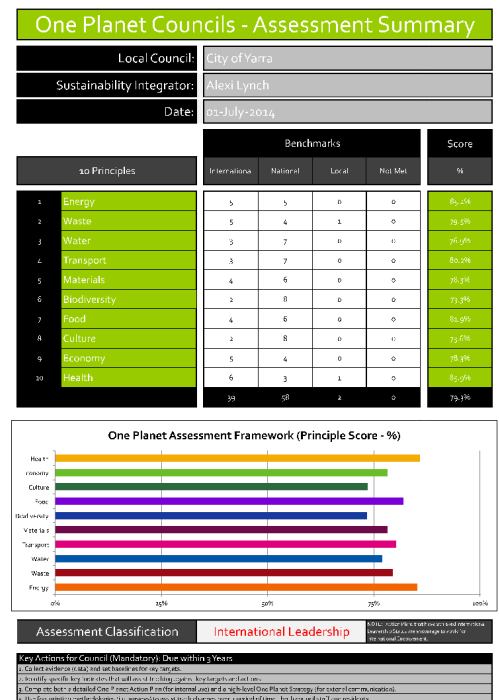
- Gap analysis
- One Planet Action Plans (OPAP)
- Indicators & Monitoring

#### Gap analysis

A critical first step in applying the OPF is to conduct a gap analysis to assess a project’s sustainability performance, strategies and actions against OP principles. The purpose of the gap analysis is to:

- Assess the project against One Planet
- Highlight the projects achievements
- Identify gaps and opportunities for the project
- Provide recommendations for the project

The image to the right is an example of the assessment framework that is used to conduct the gap analysis.



#### One Planet Action Plans (OPAP)

Once the gap analysis has been completed project specific implementation plans for each OP principle can be developed. Each principle’s implementation plan embeds benchmarks, sets specific targets and sets up monitoring mechanisms to guide implementation. Each implementation plan is often supported by more comprehensive and technical reports produced under each principle for the project. The combination of all the principle specific implementation plans then form the project’s OPAP that records the aspirations, commitments and delivery mechanisms associated with the project against the organising framework of the OP Living Principles.

Outlined below is an example of the beginnings of an implementation plan for the Sustainable Transport principle.

Sustainable Transport

*Reducing the need to travel and encouraging low carbon modes of transport to reduce emissions*

| Target | Monitoring | Indicator | Baseline |
|--------|------------|-----------|----------|
|        |            |           |          |

| One Planet Principle         | Target  | Proposed strategies   |
|------------------------------|---|---|
| <b>Sustainable Transport</b> | 75% reduction in commute to work emissions          | Alternative transport modes will be promoted and incentives provided for residents to use such options: <ul style="list-style-type: none"> <li>• Information and education program will assist in changing traditional behavioural patterns.</li> <li>• Promoting use of alternative fuel vehicles, such as providing recharge-parking space for electric vehicles.</li> <li>• Residents will be able to offset residual emissions, via accredited offset providers.</li> </ul> |
|                              | 75% reduction in personal transport emissions       | <ul style="list-style-type: none"> <li>• Onsite facilities and linkage to local amenities to reduce the need for travel - create 5min living zones.</li> <li>• Support and promote integrated public transport</li> <li>• Promoting soft modes of transport (walking, cycling)</li> </ul>   |
|                              | Max 10% of trips to work by fossil fuel private car | Car share schemes – Flexi Car / Go-Get (membership for all residents)   |
|                              | All household will own more than 1 car              | Limit in parking spaces per household.  |

**Indicators & Monitoring**

A critical part of a project’s OPAP is establishing robust indicators and ensuring successful, cost-effective monitoring of performance against these is critical to measuring progress towards meeting objectives and informing decision-making on future issues. To facilitate the measurement and analysis of a project’s progress over time, a set of indicators – not necessarily exhaustive, but addressing key aspects of performance - must be developed or each of the 10 One Planet principles. These indicators will need to be SMART (Specific, Measurable, Achievable, Realistic and Time-related).

It is understood that not all OP principles can be easily distilled down to a SMART metric, (e.g. Culture and Heritage principle) but it is expected that some form of indicator and monitoring strategy will be put in place.

Outlined below is an example of some of the indicators and monitoring methods that can be used for the Zero Waste principle.

### 3.4 One Planet – Case study snapshot

The strength of the OPF is that it provides a flexible methodology that can be tailored to be project specific. The flexibility of the OPF means it can be used in a myriad of ways to plan, implement and monitor sustainability initiatives on a diverse range of projects. To provide some preliminary insight and evidence to demonstrate its flexibility, what follows are a few case studies of how the OPF is currently being used within Australia in varying contexts.

**Councils** - Are using the OPF to develop comprehensive sustainability strategies and actions, enabling them to be recognised internationally.

#### CITY OF YARRA – NATIONAL CERTIFICATION



The City of Yarra is jointly recognised as the first local government in Australia, to be officially certified as a One Planet Council against the OP National Assessment Standard. This recognition is reserved for exemplary local authorities throughout Australia that are leading the charge on sustainable living

Please refer to Appendix 2 for more information on how the OPF is being applied by councils.

**Organisations** – Are using the OP framework to improve their corporate social responsibility and gain a competitive market advantage by future proofing their businesses.

#### FISHERMANS BEND INDUSTRIAL PRECINCT



Key companies in Fisherman’s Bend are working towards becoming certified against One Planet – they include NewsCorp, Boeing, Boral and Kraft. This approach will help them lobby the government and various key stakeholders in the area such as utility providers, South East Water and the Metro Planning Authority to deliver better precinct outcomes.

**Communities** – Are using the OP framework to support the development of flagship sustainable communities where residents can live a One Planet lifestyle by 2020,

THE COMMONS - NATIONAL CERTIFICATION



The Commons is the first Nationally Certified One Planet Community in Australia to be completed. It is home to 24 high quality apartments. It is well located in the heart of Melbourne inner suburb Brunswick, between Sydney Road and the Upfield Railway Line. Its position exemplifies the concept of five-minute living and smart site selection.

### 3.5 The Benefits of a One Planet approach

The OPF provides a holistic sustainability approach that enables the intrinsic links between environmental, social and economic factors to be better understood to help identify, plan and deliver sustainability initiatives. Too often sustainability related objectives are communicated in isolation rather than as a holistic vision and this results in a poor understanding and appreciation of the value in pursuing sustainability objectives by stakeholders. Consequently, one of the key benefits of utilising the OPF is that it provides a structured yet simple methodology to communicate sustainability objectives and their benefits to multiple stakeholders across the whole lifecycle of a project from inception to delivery and beyond.

The holistic nature of the OPF can be used to not only facilitate stakeholder engagement across the 10 principles but it also provides a methodology to coordinate planning and implementation. Traditionally establishing sustainability visions has been a critical but easy first step, however, translating the vision into practical, actionable and measureable outcomes has been a major stumbling block in achieving successful outcomes. The OPF approach addresses this issue through a structured planning, implementation and monitoring process that has been developed as part of the OPF. Therefore, the OPF provides a complete tool kit that enables its proponents to develop practical implementation plans referred to as One Planet Action Plans (OPAP) that embed specific targets and monitoring mechanisms to ensure the successful delivery of a desired sustainability vision.

## 4 One Planet Living for Darebin

To provide a practical understanding of how the OPF could be used by Darebin as a method to plan, deliver and monitor sustainability outcomes and to demonstrate its benefits. The research

team in collaboration with Darebin's strategic planning department chose to pilot aspects of the OPF on the Northland Urban Renewal Precinct (NURP) project that is currently underway.

#### **4.1 Northland Urban Renewal Precinct (NURP) project.**

The NURP project attempts to provide a long term plan for the transformation of underperforming industrial areas and a shopping centre to a thriving urban town centre in a greater urban renewal precinct as part of the Emerging La Trobe Employment Cluster. In the future, this precinct will attract high intensity employment for businesses and urban forms of housing via a high quality public realm and investment into alternative transport modes such as light rail and bicycle infrastructure for Melbourne's north.

To date Darebin has undertaken a significant amount of work on NURP ranging from stakeholder engagement sessions, to precinct based water and transport studies and the development of a master plan that is being used to inform the precinct Structure Plan (refer to Appendix 3 for further information). NURP's significance is acknowledged by the state government, council, land owners, businesses and the broader Darebin community.

Therefore, the NURP project provides a fantastic opportunity to create a precinct that has the capacity to act as an exemplar project that showcases how sustainable communities can be delivered both now and into the future. Consequently, the research team viewed NURP as a key project to contextualise and pilot how the OPF can be applied and the benefits it could offer both Darebin and the broader community.

#### **4.2 NURP & One Planet – the benefits**

Given the scale, complexity and long term nature of the NURP project the OPF was viewed as an appropriate methodology to assist Darebin in developing a holistic long term vision, communication and implementation plan. All of which could be used to coordinate efforts across Council, engage stakeholders and guide relevant decisions that will shape the development of the precinct over time. What follows is a brief discussion of some of the high level strategic benefits that applying the OPF presents within the context of the NURP project. These benefits will be supported by a more detailed analysis of how aspects of the OPF can bring value to both Darebin and NURP stakeholders in Section 6 of this report.

#### **Overall vision, project & implementation plan in one**

The OPF can be used to provide council with a holistic long term sustainability vision for the precinct. The vision would be supported by clear processes that would enable Council to develop a robust yet flexible project plan that could also be used to engage stakeholders to create a shared understanding and ownership of the vision. As a result of this work Council will be able to develop a clear implementation plan that is supported by stakeholders and provides clarity on the economic, social and environmental aspects of the NURP project. This approach would mitigate the clear risks of an ad hoc or uncoordinated approach that would result in council operating inefficiently in delivering aspects of the project, as well as, negatively affecting stakeholder engagement and potentially jeopardising the long term success of the project.

#### **Decision Support matrix**

Another benefit that can be attributed to developing an all in one delivery framework as outlined above is that a decision support matrix could be integrated into it. Given the complexity, multiple stakeholders and time scales involved in a project like NURP, it is essential that decisions guiding the implementation of the project can be ordered and ranked to assist in delivering sequenced outcomes across the life cycle of the project. By embedding a decision support matrix within the overall project framework council will be able to better understand and control key project activities and priorities to drive successful outcomes over time.

The risks that can be attributed to the lack of a decision support matrix are ambiguity surrounding the importance, sequencing and effects of project decisions. This ambiguity would negatively affect the successful and efficient delivery of the NURP project for both Council and NURP stakeholders.

### **Integrated planning approach**

The breath of coverage embedded in the OPF coupled with the development of a decision support matrix would enable Council to deliver an integrated planning approach that moves beyond purely a land use based approach to NURP, to one that encompasses and balances economic, social and environmental considerations. Typically projects of this nature are divided into isolated sub projects that fail to identify interrelated aspects to leverage better outcomes for all stakeholders. Although such an approach may be acceptable for projects of a smaller scale and shorter time line, for a project of NURP's scale and life cycle (30 years) it could cause significant redundancies and replication of work both for council and other stakeholders.

### **Flexibility**

The flexibility of the OPF enables the significant body of work that has already been carried out by Darebin on the NURP project to be embedded within it. Specific council strategies, research and work can be ordered under the relevant OPF principles to begin developing a NURP project implementation plan / One Planet Action Plan (OPAP). For example the transport studies that have been conducted for NURP to date can directly link to and inform the development of the benchmarks, targets and monitoring objectives of the OPF Transport principle implementation plan.

The OPF will not only be able to assist council in planning, communicating and delivering its sustainability objectives but it can also be used by NURP stakeholders such as developers for the same purposes. Thus it would also establish a common platform and language for communication and understanding for all stakeholders.

Additionally, the OPF is also flexible enough to allow other tools such as the Sustainable Design in the Planning Process (SDAPP) tools to be used to determine, quantify, and measure how the targets embedded within an OPAP can be achieved. The flexibility of the OPF means that there is no risk associated with locking stakeholders into specific solutions that can arise when using other industry based ESD assessment tools that are more prescriptive and rigid.

### **Evidence based decision making & measurability**

Through the development of OPAP's that have the flexibility to evolve and be refined over time, multiple stakeholders will be able to both express their specific response to the NURP sustainability vision in addition to detailing processes to demonstrate how the vision is being delivered.

The common evidence based platform the OPF creates will enable multiple stakeholders to understand and compare the benefits and interdependencies of ESD options against measurable targets. The clarity the framework provides will make it easy for both Council and stakeholders to communicate using a common language and this will avoid the risks of ambiguity that can arise without a common framework / methodology to communicate actions and their outcomes.

## 5 NURP & ESD assessment tools

The scoping work carried out by the research team focussed on the use of the OPF because of its unique flexibility to be applied in a myriad of ways from vision setting, to a communications framework, action plan creation and assessment / verification tool.

However, the research team acknowledges that there are a number of industry based precinct & building ESD assessment tools available for use in the market such as but not limited to those listed below that could be applied within the NURP context to varying degrees and at different stages in the project's life cycle.

- Green Star suite of tools – range from communities to building specific rating tools – <http://www.gbca.org.au/green-star/rating-tools/>
- Eco Districts – <http://ecodistricts.org/>
- Living Building Challenge – <http://living-future.org/lbc>
- EnviroDevelopment – <http://www.envirodevelopment.com.au/>
- Etool – <http://etoolglobal.com/>

Therefore, the research team recommends that Darebin undertakes a high level gap analysis against industry leading ESD tools to assess if the overarching ESD principles and objectives being proposed for NURP using the OPF are adequate or need to be expanded. Urban Digestor have identified and conducted a preliminary comparative analysis of precinct based tools to demonstrate what further work can be conducted. This information is contained in Appendix 4.

### 5.1 Sustainable Design in the Planning Process (SDAPP) & One Planet

In discussing the use of ESD assessment tools it is important to highlight that Darebin is a founding member of the Council Alliance for a Sustainable Built Environment (CASBE) and active participant in the Sustainable Design in the Planning Process (SDAPP) program. The SDAPP program actively engages with developers through the statutory planning framework to advocate for and measure the sustainability performance of developments using the STEPS & SDS ESD assessment tools. Given the SDAPP program and its associated tools have been actively used by Darebin since 2006, the research team thought it would be valuable to conduct a comparative analysis between the SDAPP program and OPF.

The purpose of the comparative analysis was twofold, firstly it sought to identify any gaps between the SDAPP program and OPF, and secondly to gauge whether the flexibility of the OPF would enable the two approaches to be used within the NURP context.

It is important to note that the SDAPP program and its associated tools (STEPS & SDS) focus on the assessment of building based ESD strategies. Additionally, the local ESD policies lodged by Banyule, Moreland, Yarra, Whitehorse & Stonnington Councils that are currently with the Minister of Planning for approval post Advisory Committee/Panel hearing held in late 2013 reference the SDAPP program as the key mechanism to achieve the sustainability objectives contained in the policy. Therefore, the comparative analysis provides Darebin with a litmus test on how flexible the OPF is and how it could align with the recent local policies.

Figure 1 shows the 10 OP principles that form the core structuring mechanism of the OPF. The principles highlighted by the red dashed boxes identify what principles are not explicitly covered by the SDAPP program, namely; Sustainable Food, Culture & Community, Equity & Local Economy and Health & Happiness.





**Figure 1** – One Planet principles

Figure 2 shows the various themes / principles covered by the SDAPP program and its associated tools.



**Figure 2** – SDAPP categories

The principles contained in the OPF that are above and beyond those covered by the SDAPP program tie into the social and economic aspects of sustainability. The OPF’s breadth of coverage highlights its potential to enable project teams to advocate and plan for holistic triple bottom line solutions that move beyond buildings and land use based considerations.

The table below provides a high level comparative summary detailing the attributes of SDAPP & OPF based on a series of criteria that are considered relevant to the NURP context.

| Criteria                                     | SDAPP  | OPF  |
|--|--|--|
| Vision setting                               |  |  |
| Implementation plan development              |  |  |
| Flexibility                                  | Limited to building based assessments  | Highly flexible framework that can be used in diverse projects   |
| Precinct based assessment                    | SDAPP is not scalable  |  |
| Buildings based assessment                   |  | OPF is scalable  |
| Local ESD policy alignment                   | Policies reference SDAPP   | Offers the potential to enhance local policies   |
| Communications & engagement potential        | At building stage only (developers & designers only)                           | Can be used across all delivery stages & to multiple & diverse stakeholders                                    |
| Council policy / strategy alignment          | Specifically relating to building based environmental impacts & advocacy       | Enables multiple council policies and strategies to be embedded with it.                                       |
| Integration with other ESD tools and methods | Limited to specific building stage assessment tools such as STORM & First Rate | The SDAPP tools can be used within an OPF approach to benchmark performance against certain OP principles      |
| User base                                    | Wide spread industry use through CASBE Councils implementing the SDAPP program | Limited use however the simplicity and flexibility of the framework suggest a very broad and diverse user base |
| Targets and benchmarks                       | Limited to predicted performance of buildings only                             | Continual monitoring across all OP principles through project specific action plans                            |

**Legend:**

|  |                   |  |                |
|--|-------------------|--|----------------|
|  | Applicable        |  | Limited        |
|  | Further potential |  | Not applicable |

The high level comparative analysis contained in the table above demonstrates the flexibility inherent in the OPF. The SDAPP program is buildings focused whereas the OPF is scalable and does not exclude the use of the SDAPP program to be utilised as part of an OP approach. Therefore, the OPF clearly offers council a flexible yet holistic methodology to communicate, plan and implement triple bottom line objectives within the NURP project without affecting its long term use and involvement in the SDAPP program and its associated tools.

## 6 Piloting One Planet on NURP

To support the earlier discussion of the high level benefits the OPF offers Darebin within the NURP context. The research team chose to pilot selected OP principles using a combination of NURP and non NURP specific information. The following principles were piloted with a view to providing council with some insight into how the OPF could be applied within NURP to generate OP principle specific strategies, outcomes and benefits.

- Zero Carbon
- Master planning for sustainability outcomes

- Foot printing – Zero Water & Zero Waste
- Zero Carbon, Equity & Local Economy and Culture & Community
- Cross cutting themes – creating strategic partnerships

What follows is a discussion on the ideas arising based on the piloting exercise.

## 6.1 Zero Carbon

The objective of the Zero Carbon principle in the OPF is to ‘make buildings more energy efficient and to deliver all energy with renewable technologies’ so that they achieve net zero emissions (no CO2 equivalent emissions over a typical year). This principle is perhaps the most challenging to achieve within the OPF. Consequently, the research team chose to pilot how this could be achieved within the NURP context using the current concept master plan and its associated data on a low employment build out scenario. Refer to Appendix 3 for the data used to carry out the work outlined below.

Using the data supplied by Darebin on the NURP build out scenarios Urban Digester conducted some high level modelling of the predicted emissions by land use type based on a low employment scenario. The emissions modelling was conducted to determine how NURP would perform against the Zero Carbon principle under Business As Usual (BAU) conditions and what improvements on BAU would enable NURP to meet the objective of the Zero Carbon principle. The results of the emissions modelling based on land use type are discussed and illustrated in figures 1-3.

Figure 1 - Predicted emissions breakdown by land use type shows that the residential and retail sectors would have the highest emissions profile.

Figure 2 – Predicted greenhouse gas emissions breakdown for various energy efficiency benchmarks shows how varying energy efficiency improvements on BAU can be used to reduce the emissions profile of the precinct towards a zero carbon target as articulated within the OPF.

**Figure 1**

**Figure 2**

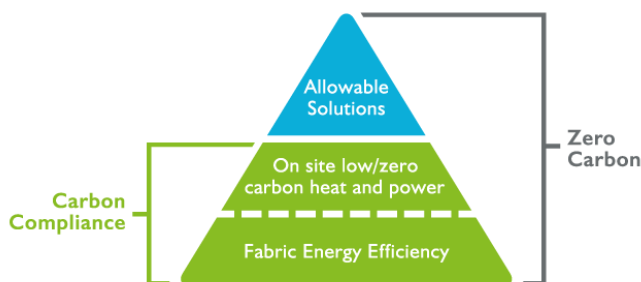
### Figure 3

Figure 3 – Available Roof area of precinct with PV to offset emissions of various energy efficiency benchmarks shows at a high level how the use of PV's could be used to reduce emissions.

This high level emissions foot printing exercise was conducted to demonstrate to council that through a combination of energy efficiency benchmarks and use of PV systems developments in NURP could realistically address the most challenging OPF principle - Zero Carbon.

If Darebin chose to pursue a Zero Carbon target for NURP, the modelling results suggest that a staged approach to improvements on BAU scenarios similar to the approach taken in the United Kingdom through the Code for Sustainable Homes should be investigated. The Code for Sustainable Homes is a planning based mechanism linked to the building approvals process that has set a target for zero carbon by 2016 for residential developments. The approach consists of 3 core requirements for a home to qualify as zero carbon, namely:

1. Minimum efficiency for thermal fabric
2. Remaining CO<sub>2</sub> emissions less than or equal to a Carbon Compliance limit (an energy benchmark)
3. Further remaining CO<sub>2</sub> emissions must be reduced to zero (through improving upon Steps 1 & 2, or through Allowable Solutions – offsets, green power purchases etc.



**Figure 4** – Code for Sustainable Homes requirements hierarchy

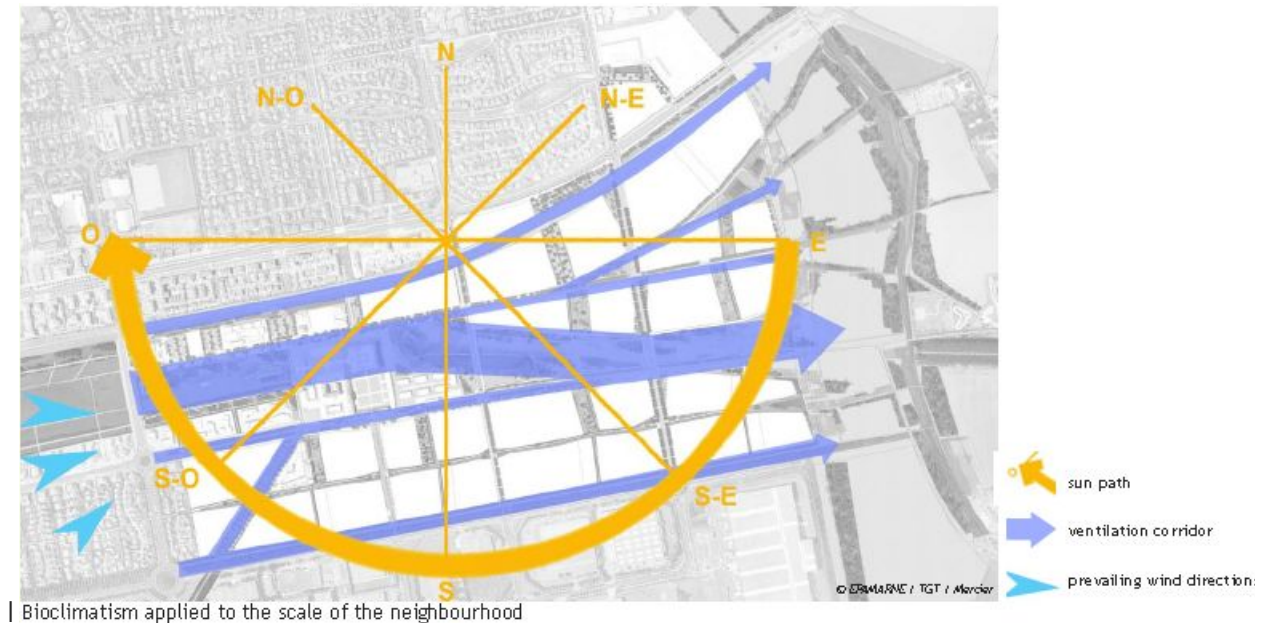
The results of the Zero Carbon principle piloting exercise illustrates that the OPF offers both Council and NURP stakeholders the opportunity to implement a methodology that can be used to demonstrate that NURP can achieve a best practice level of performance that would be unmatched by similar precincts locally. That is, there are no precincts of NURP's scale locally that have articulated a Zero Carbon target. The immediate and long term marketing advantage of

using the OPF to drive such targets would provide NURP stakeholders with a competitive edge that would attract astute investors and drive the long term success of the precinct.

## 6.2 Master planning for sustainability outcomes

As discussed previously, the emissions foot printing work carried out and discussed in the section above was based on build out scenarios data that was linked to the concept NURP master plan. An assessment of the NURP master plan revealed that there is a clear opportunity to start incorporating sustainable design considerations such as but not limited to optimising orientation, block layouts and building heights to capitalise on sustainable design strategies that can contribute significantly towards minimised energy and emissions footprints and improved amenity of built form within NURP.

A current case study in France that supports such an approach to precinct masterplanning is called the Eco Neighbourhood Sycomore located in the town of Bussy Saint Georges covering an area 117ha. The Eco Neighbourhood Sycomore has utilised a bioclimatic master plan approach amongst other strategies to embed sustainable design into the development of the precinct to revitalize the territory by providing a strong sustainability focus.



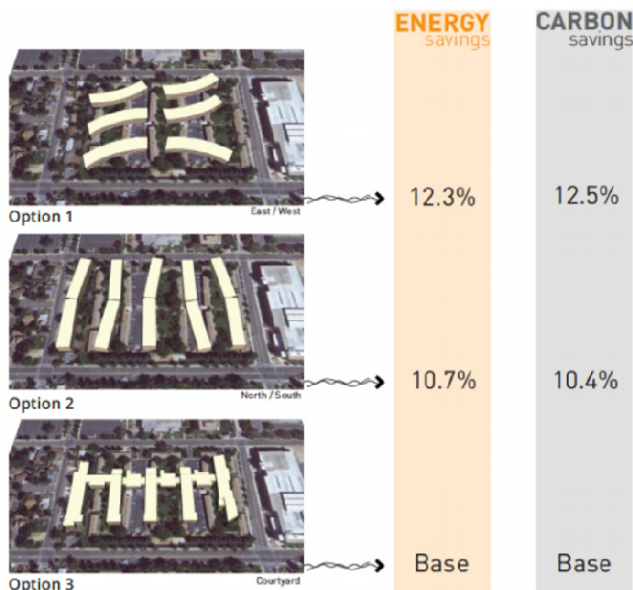
**Figure 5** – France – Bussy Saint Georges – bioclimatic master plan

Based on the French case study briefly discussed above and the opportunity identified by the research team, Darebin has a unique opportunity to integrate sustainability into the development of the NURP master plan. Through the use of advanced environmental modelling software packages Darebin can drive the refinement of the master plan to embed sustainable built forms that deliver superior ESD performance from the outset. To demonstrate the potential of using advanced environmental modelling to drive more sustainable built forms at a master planning stage, the simple case study presented below graphically illustrates how varying built form layouts impact on their energy and emissions footprints.

45% less energy use than ASHRAE 90.1-2007



## Energy Use Reduction



Comparing design options

**Figure 6** – Built form impacts on energy & emissions

By actively pursuing an evidence based approach to assessing built form within the NURP project and linking it to the OPF principles and project implementation plan, Darebin can show its leadership in the sphere of sustainable urban renewal projects.

Please refer to the Next Steps section of this report for a more detailed discussion of the outputs and benefits that can be achieved through advanced environmental modelling.

### 6.3 Foot printing – Zero Water & Waste

By using a similar foot printing approach to the one piloted on the Zero Carbon principle, Darebin could carry out similar studies for the Zero Water and Waste principles contained in the OPF. The research team understands that Darebin has already undertaken some work with regard to water within NURP and also has existing policies in relation to waste that would enable this work to be carried out effectively to inform the development of implementation plans under these principles. Carrying out this work using the OPF would enable Council to clearly communicate its objectives and targets to NURP stakeholders from the outset to facilitate positive engagement.

Additionally, the immediate and ongoing competitive and marketing advantage offered by utilising the OPF principles would enable NURP to become a case study of sustainable urban renewal.

## 6.4 Zero Carbon, Equity & Local Economy and Culture & Community

One of the strategic benefits identified earlier in the report outlined how the OPF could be used to leverage the intrinsic links across multiple OP principles to deliver holistic triple bottom line outcomes. To demonstrate the potential of the OPF to facilitate such outcomes, the research team chose to frame a current Victorian case study of a multi partner, green business development and job creation enterprise using OP principles.

The case study called 'Eureka's Future' is being led by Earthworker a community-led initiative to provide sustainable, wealth-creating jobs that empower local communities and provide clean energy solutions. In terms of the OPF, Earthworker is engaging with the Zero Carbon, Equity & Local Economy and Culture and Community principles.

Eureka's Future Worker's Co-operative will produce and install high-quality Australian-made solar hot water systems. Its first worker-owned factory will be in Morwell, in Victoria's coal-dominated Latrobe Valley, and will provide much needed jobs for the Valley community whilst producing much needed renewable energy technology.

Eureka's Future is based on an innovative business model, whose centrepiece draws on the strength of collective organising (Earthworker) and the trade union movement (Electrical Trades Union) to support a collective market for solar hot water systems. Additionally, through partnering with the credit union Bank MECU, low interest loans are available to support households get the solar hot water systems.



For further information refer to <http://earthworkercooperative.com.au/eurekas-future/>

The aforementioned case study demonstrates how the OPF can be used to link sustainability initiatives across multiple OP principles. This case study also demonstrates how the OPF can be used to move the NURP project beyond simply a land use project to one that starts to facilitate and coordinate broader objectives for the precinct such as local jobs. By doing so the NURP project can relate more effectively to state government objectives and the drivers of NURP stakeholders.

## 6.5 Strategic partnerships in education

Another strategic benefit of the OPF that was outlined early in the report was its potential to create a common communications platform to engage multiple stakeholders. To demonstrate how the OPF could facilitate this within the NURP context, the research team chose to do some blue sky thinking around how strategic partnerships around the themes of education & business could be developed.

The research team identified the opportunity for Darebin to engage with La Trobe University and NMIT as potential long term strategic partners in the development of NURP's skill and employment base. Given there are targets being set by the state government in relation to job creation with NURP. The research team viewed a strategic partnership with educational institutions as a critical opportunity because the education sector is a universally accepted vehicle for delivering and boosting knowledge, skills and capacity within the workforces of multiple sectors of the economy. Therefore, by fostering a strategic partnership with these local educational institutions an opportunity exists to potentially shape the long term skill and employment base of the precinct.



o

Through this strategic partnership curriculums and courses could be tailored overtime to not only feed the needs of traditional existing local business sectors but also to incubate niche businesses that can feed into the longer term economy of the precinct as it develops.

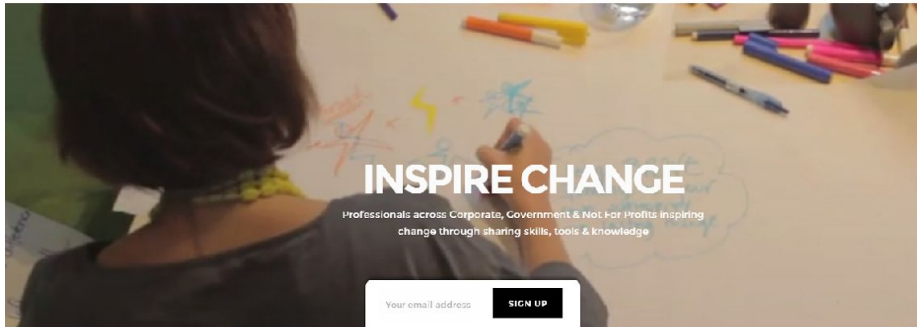
For example, under the OPF Zero Carbon principle the key objective is to achieve zero emissions. While this target is audacious but feasible to achieve as demonstrated in Section 6 it will require the implementation of innovative strategies to enable buildings across various typologies to achieve the goal. An analysis of the typical energy and emissions footprint of residential buildings shows that building heating ventilation and air conditioning systems and water heating systems form a significant part of their energy signature. Within this space there are emerging technologies that can enable buildings to actually achieve the target of net zero emissions similar to the Eureka's Future case study discussed previously. Therefore, the OPF can be used as a mechanism to facilitate not only skills development but also provides an opportunity to influence and develop new green businesses and industries.

### Alternative education models

In addition to partnering with existing institutions alternative education models could also be explored to foster innovation in skills development and employment options within NURP. A snapshot of emerging alternative education models that Council could support is presented below.

o Peer academy learning - <https://peeracademy.org/>





o Festivals and expos - <http://changemakersfestival.org/events/category/states/vic/photo/>



#### rapid enterprise development – 1 day workshop by sse



**How To: Rapid Enterprise Development – Take your idea from concept to business case in one day.**

Through this interactive one-day workshop Dr Guy Turnbull will take participants through a range of tools and case study examples to develop ideas from initial 'hunch' to a position where participants understand what will be required to make it 'all stack up'.

**This Workshop is ideal for:** People with an idea, an enterprise in early start-up or anyone interested in understanding what makes a viable social enterprise.

Dr Guy Turnbull (Managing Director and Board Member, CASSA) Guy is a leading social entrepreneur with vast experience working in the disability sector in the UK. Guy has been involved in the co-operative and social enterprise sector since 1988 and is currently the full-time Managing Director of Care and Share Associates Limited (CASA). Previously, Guy worked across the UK as a social economy consultant, specialising in business planning, training, research and strategic planning.

#### event details

October 17 - November 23

cost: \$165 to \$280

state: New South Wales South Australia Victoria

#### venue

venue name: Various locations around Australia

address:

city:

#### organiser

organisers name: Joshua Stockwell

phone:

email: [joshua@sse.org.au](mailto:joshua@sse.org.au)

#### website & bookings

bookings: [Make a booking](#)

Add this event to your calendar:

+ Google Calendar

+ iCal Import

Event Tags: Adelaide, Melbourne, social enterprise, Sydney, workshop

## Research partnerships

Furthermore, in collaboration with educational partners such as Swinburne University, Council could identify and part fund research into specific NURP opportunities as has been done with this preliminary body of work.

Additionally, Council could lend its support to innovative local thought leaders through educational funding applications such as those offered by the International Specialised Skills Institute (ISSI).

<http://www.issinstitute.org.au/>

### Case study partnership models

To provide a reality check on the blue sky thinking exercise discussed within this section of the report. Outlined below are some successful local partnership models that Council can research.

- Manningham & Box Hill Institute of TAFE
- Monash University & Myer Foundation founding members of Climate Works Australia

<http://climateworks.com.au/>

<http://monash.edu/sustainability-institute/>



This section of the report demonstrates that the OPF can be used to assist Council in developing strategic partnerships that can leverage their collective capacity to generate localised solutions that can contribute to the long term development of knowledge, skills and labour. All of which will contribute to the long term success and sustainability of NURP.

## **7 Next Steps**

This report details the ESD scoping work carried out by the research team to introduce the OPF, its application and benefits as a methodology to deliver sustainability outcomes. The report discusses how the OP approach offers council a viable method to develop a clear vision and shared goals for sustainability strategy, policy and development against a simple concept: One Planet Living. The findings of the scoping work suggest that the OPF can provide a feasible approach to achieving this end subject to further work being undertaken by Council. This section of the report briefly outlines the areas of further work that the research team believes are required to progress the sustainability agenda of NURP.

### **7.1 One Planet - Council endorsement, Gap Analysis & Action Plan**

The report has highlighted that the OPF can be a valuable flexible long term methodology for Darebin to communicate, plan and implement a triple bottom line approach to delivering the NURP project. Therefore, to be able to apply the OPF to the NURP project this approach will need to be endorsed by Council. Once the OP approach has been endorsed by Council, the NURP project team can begin to conduct a more detailed analysis of the project using the OPF to start developing a holistic project implementation plan that can facilitate positive social, economic and environmental outcomes for the life cycle of NURP.

#### **Gap Analysis**

Post Council endorsement the NURP project team will need to carry out an independent gap analysis of the project against the OPF. The OP gap analysis will involve an assessment of councils sustainability related goals/targets, strategies, plans, actions and programs. Research and analysis of these documents will be used to determine how council related information performs against each of the 10 principles and One Planet Common International Targets. This information will then be used to develop a rating out of 100% for each principle against world's best practice. Based on the cumulative result for each principle, an averaged overall rating can be determined to ascertain how the project is performing and where gaps exist and how they can be addressed.

#### **One Planet Action Plan**

Once the gap analysis has been completed the NURP project team can start to develop project specific implementation plans for each OP principle. Each principle's implementation plan will establish relevant benchmarks, sets specific targets and identify appropriate monitoring mechanisms to guide implementation. Each implementation plan will need to be supported by more comprehensive and technical reports produced under each principle for the project. The combination of all the principle specific implementation plans will then collectively form the project's OPAP that records the aspirations, commitments and delivery mechanisms associated with the project against the organising framework of the OP Living Principles.

For further information on One Planet related work please contact Urban Digestor directly. Urban Digestor staff are certified One Planet Sustainability Integrators

## 7.2 ESD assessment tools gap analysis

As discussed under Section 5, the NURP project team needs to be aware that there are other building and precinct based ESD assessment tools available on the market. These tools can be used to benchmark sustainability performance at different stages in NURPs delivery. Therefore, the research team strongly recommends that Darebin undertakes a high level gap analysis against industry leading ESD tools to assess if the overarching ESD principles and objectives being proposed for NURP using the OPF are adequate or need to be expanded. The research team views this work as a due diligence exercise to ensure that the proposed methodology is not omitting any critical elements.

To the knowledge of the research team a similar piece of work was carried out by Aurecon for the Green Building Council of Australia (GBCA) as part of the initial scoping work for the development of the Green Star Communities rating tool in 2010. The research team is presently not aware of any similar recent studies that have been completed to assess more recent precinct based ESD tools.

To provide Council with some insight into what other precinct based ESD tools assess, Urban Digestor have identified and conducted a preliminary comparative analysis of some precinct based tools. This information is contained in Appendix 4.

## 7.3 Master planning for sustainability outcomes

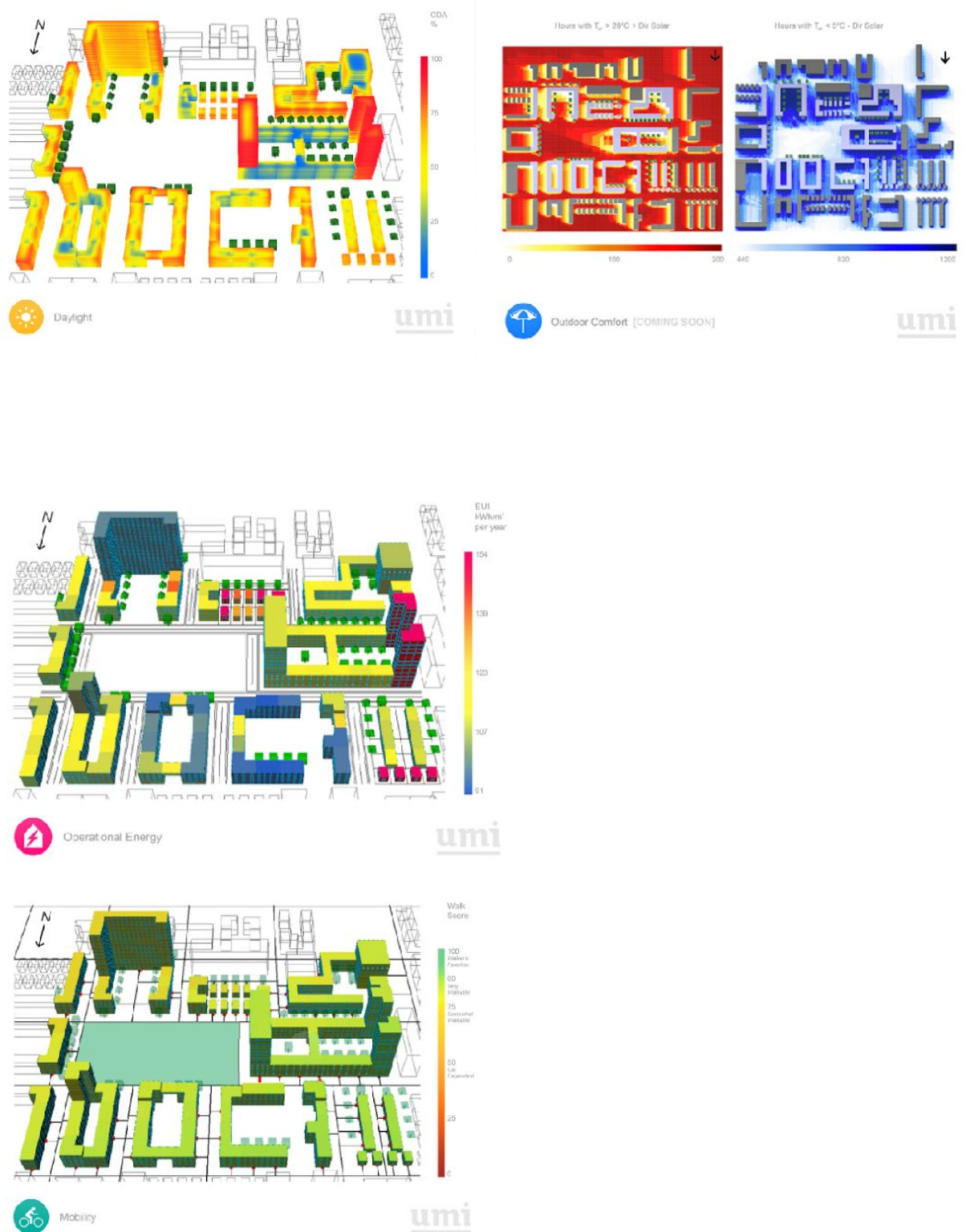
The emissions footprint modelling discussed under Section 6 of the report identified the opportunity for Darebin to apply advanced environmental modelling in the development of the NURP master plan. The research team views this as a critical next step in embedding sustainability outcomes within the built form strategies being developed for NURP.

Advanced environmental computer modelling can provide usable outputs that can critically inform the development of design guidelines and other strategic and statutory planning regulations that Darebin can use to leverage sustainability outcomes within the precinct.

Modelling can be used to conduct sensitivity analyses with regard to the following aspects of the NURP project.

- building heights and their overshadowing impacts
- built form energy and emissions foot printing
- built form daylighting assessments
- renewable energy and precinct based energy demand forecasts

Please note that depending on the scope and desired outputs modelling can be used to generate other outputs that Council may find of value.



**Figure 7** – Images showing a range of modelling outputs

The value that modelling can bring to the NURP project is viewed as a critical opportunity to start creating an evidence based approach for the project. For example modelling the energy and emissions impacts of built form provides a rationale for decision making whose benefits can be passed on to the eventual inhabitants of buildings. This approach would also enable life cycle costing to be used compare how improvements on a BAU approach can benefit the long term

success of the precinct. This approach would also assist both council and NURP stakeholders in understanding the impacts and benefits associated with various decisions relating to built form.

The scope of work and desired outputs in relation to modelling will need to be refined through discussions with the NURP project team and Urban Digestor should council seek to pursue this work.

## 7.4 Developing a decision support matrix

As discussed under Section 4.2, the OPF provides a robust platform to enable council to develop a project specific decision support matrix that can be integrated into an OP approach. The creation of a decision support matrix will enable council to order and rank decisions to deliver sequenced outcomes across the life cycle of the project. The decision support matrix will also allow council to better understand and control key project activities and priorities to drive successful outcomes over time. The added benefit of a decision support matrix is that it can also be used to identify when decisions are not within council's control.

Although a conceptual idea at present the research team sees great value in such an approach because it would also assist in mapping and engaging stakeholders, identifying alliances and partnerships.

The research team identified the following key criteria that could be feed into the proposed matrix.

- Sphere of influence ranking based on land ownership – Linked to GIS maps of precinct land ownership
- Stakeholder identification ordered according to One Planet Principles
- Partnership and Alliance identification ordered according to One Planet Principles
- Stakeholder, Partnership and Alliance alignment ratings - i.e. if multiple stakeholders are engaged this gets a high ranking
- Time scaling / staging - identify and rank initiatives based on timing - high ranking for short term etc.
- One Planet Principle alignment – i.e. if initiatives or actions address multiple themes they receive a higher ranking/rating
- Regulatory and non-regulatory mechanisms – identifying and ranking them according to applicability & degree of influence / best fit for outcomes generation
- Inclusion of all one planet themes - zero energy, waste etc.
- Cultural / historical significance ratings
- Council strategy alignment ratings
- Identification and ranking of funding opportunities

It is envisaged that additional criteria can be identified and developed to be feed into the decision support matrix and a conceptual graphic of the output is shown below.

| Actions/Project  |        | Criteria |              |                       |                     |                |                          |                 |                          |            |               |                   |          |            |                 | Weighting |       | Ranking |   |   |
|--|--------|----------|--------------|-----------------------|---------------------|----------------|--------------------------|-----------------|--------------------------|------------|---------------|-------------------|----------|------------|-----------------|-----------|-------|---------|---|---|
| Project  | Timing | 1        | 1            | 1                     | 2                   | 1              | 1                        | 1               | 1                        | 1          | 1             | 1                 | 1        | 1          | 1               | 1         | 1     | 1       | 1 | 1 |
|  |        | Meet Use | Lower Energy | Sustainable Transport | Commercially Viable | Only/Effective | Community/Social Benefit | Health Outcomes | Connectivity (as a rail) | Employment | Place Outcome | Multiple Outcomes | Low Cost | Low Carbon | Housing Density | Viability | Score | Rank    |   |   |
| Deliver construction   | Now    | 3        | 3            | 3                     | 3                   | 3              | 2                        | 3               | 3                        | 3          | 3             | 3                 | 1        | 2          | 3               | 3         | 70    | 1       |   |   |
| Deliver community facilities   | Now    | 4        | 3            | 4                     | 3                   | 3              | 3                        | 4               | 3                        | 2          | 3             | 2                 | 3        | 4          | 4               | 3         | 61    | 3       |   |   |
| Pedestrian paths and crossings alongside the line to key destination land uses | Next   | 4        | 3            | 3                     | 2                   | 3              | 3                        | 4               | 2                        | 2          | 3             | 4                 | 2        | 3          | 4               | 4         | 61    | 3       |   |   |
| Deliver Place Management Framework   | Now    | 4        | 3            | 3                     | 3                   | 3              | 3                        | 4               | 3                        | 3          | 3             | 4                 | 4        | 4          | 3               | 4         | 62    | 2       |   |   |
| Deliver schools  | Now    | 4        | 3            | 4                     | 2                   | 4              | 3                        | 4               | 3                        | 2          | 3             | 3                 | 3        | 4          | 4               | 4         | 58    | 5       |   |   |
| Deliver average density of 30 d/m  | Next   | 3        | 4            | 3                     | 3                   | 4              | 3                        | 4               | 3                        | 3          | 4             | 3                 | 2        | 2          | 4               | 3         | 58    | 5       |   |   |
| Deliver neighbourhood centre 1 (north)   | Later  | 4        | 4            | 3                     | 4                   | 3              | 3                        | 4               | 3                        | 2          | 3             | 2                 | 1        | 2          | 2               | 3         | 58    | 5       |   |   |
| Deliver bus services   | Next   | 3        | 4            | 3                     | 1                   | 4              | 4                        | 4               | 4                        | 3          | 2             | 4                 | 1        | 4          | 3               | 4         | 56    | 11      |   |   |
| Deliver end of road bike paths connect to key destinations                     | Later  | 3        | 4            | 3                     | 2                   | 3              | 3                        | 3               | 4                        | 2          | 3             | 4                 | 4        | 4          | 2               | 3         | 57    | 3       |   |   |
| 100km productive green space per 1000 residents                                | Later  | 2        | 4            | 4                     | 2                   | 3              | 3                        | 3               | 3                        | 3          | 3             | 4                 | 3        | 3          | 1               | 3         | 57    | 3       |   |   |
| Establish the local food economy   | Later  | 2        | 4            | 4                     | 2                   | 3              | 3                        | 3               | 3                        | 3          | 4             | 4                 | 2        | 3          | 1               | 3         | 57    | 3       |   |   |
| Deliver well sign walking circuits and loops                                   | Later  | 2        | 4            | 4                     | 2                   | 3              | 3                        | 3               | 4                        | 1          | 3             | 3                 | 3        | 3          | 2               | 4         | 56    | 11      |   |   |
| Regular farmers market in local area   | Next   | 2        | 4            | 3                     | 2                   | 3              | 3                        | 3               | 3                        | 3          | 3             | 4                 | 2        | 3          | 2               | 3         | 56    | 11      |   |   |
| Many terraces and residential units to low/medium density to occupy town space | Later  | 4        | 2            | 4                     | 4                   | 3              | 3                        | 3               | 4                        | 3          | 3             | 3                 | 3        | 3          | 1               | 3         | 55    | 14      |   |   |
| Open spaces to be within 400 metres of all residences                          | Next   | 2        | 3            | 3                     | 3                   | 4              | 4                        | 3               | 3                        | 1          | 4             | 3                 | 3        | 3          | 3               | 4         | 54    | 15      |   |   |
| Deliver open space   | Next   | 2        | 3            | 3                     | 1                   | 4              | 3                        | 3               | 2                        | 1          | 4             | 3                 | 4        | 3          | 1               | 4         | 53    | 16      |   |   |
| Design public realm to CPFI standards  | Later  | 2        | 1            | 3                     | 2                   | 3              | 3                        | 4               | 4                        | 1          | 4             | 4                 | 3        | 3          | 2               | 4         | 52    | 17      |   |   |
| Deliver pedestrian bridges across all water courses                            | Later  | 2        | 3            | 3                     | 2                   | 3              | 4                        | 4               | 4                        | 1          | 4             | 3                 | 1        | 3          | 2               | 3         | 51    | 18      |   |   |
| Deliver 20% social housing   | Next   | 3        | 2            | 3                     | 1                   | 4              | 3                        | 4               | 2                        | 2          | 4             | 1                 | 4        | 3          | 3               | 2         | 51    | 18      |   |   |
| Deliver footpaths on both sides of roads                                       | Later  | 2        | 4            | 4                     | 3                   | 2              | 4                        | 4               | 4                        | 1          | 4             | 4                 | 3        | 4          | 2               | 4         | 51    | 18      |   |   |
| Deliver neighbourhood centre 2 (east)  | Later  | 4        | 4            | 3                     | 1                   | 4              | 4                        | 4               | 3                        | 2          | 4             | 2                 | 1        | 2          | 2               | 4         | 50    | 21      |   |   |

Figures 8 – Conceptual image of a decision support matrix.

## 8 Appendix 1 - One Planet additional information

### 8.1 Common International Targets

The One Planet framework uses a set of *Common International Targets* against each of the ten One Planet principles to determine levels of performance. In recognition that the solutions for a sustainable future are context specific, the *Common International Targets* are not intended to be prescriptive but instead provide a guide of how the vision of One Planet can be translated into reality.

The *Common International Targets* are supported by a set of guidance notes and position papers, which cover the application of these targets in more detail.

### 8.2 Environmental Drivers

#### Sustainable ecological footprint

Ecological footprinting measures our consumption of natural resources in global hectares of land and sea. Research tells us that our global footprint now exceeds the world's capacity to regenerate by about 50%. If our demands on the planet continue at the same rate, by 2030 we will need the equivalent of two planets to maintain our lifestyles. One Planet Communities make it easy, attractive and affordable for their residents to live within a fair share of the earth's resources which, according to current calculations, will be no more than 1.2gha per person by 2020. The graph below shows the trajectory for the global ecological footprint if we continue to consume at current levels in comparison to a rapid reduction in footprint.

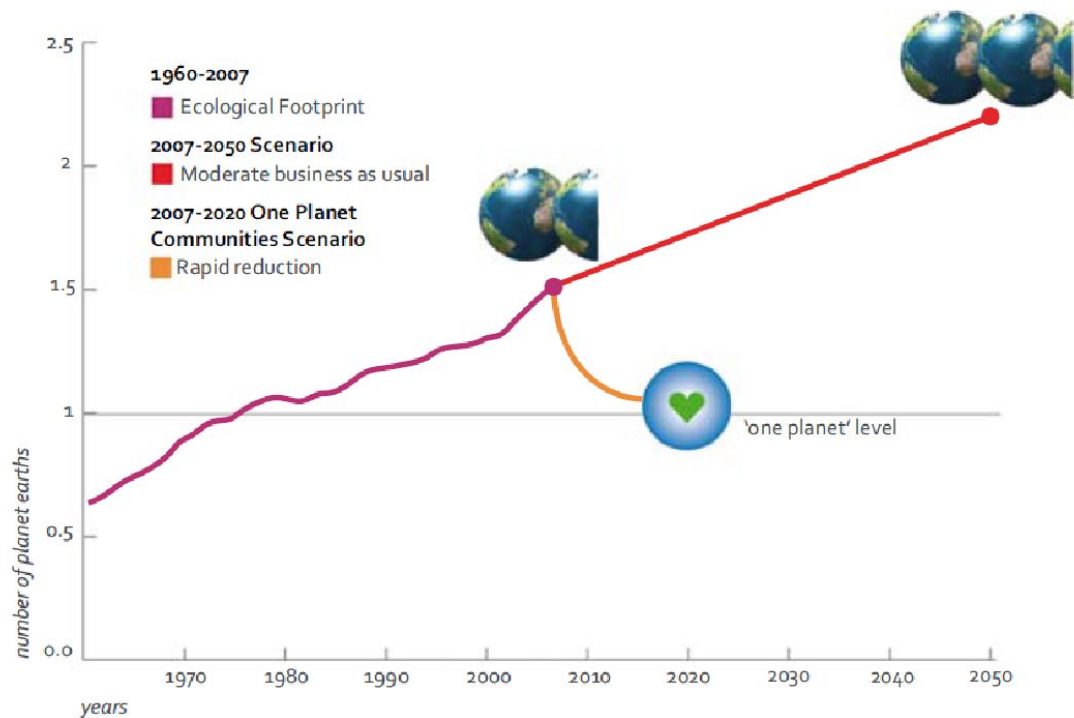


Figure 1: Ecological Footprint trajectory to one planet level (source: adapted from Global Footprint Network 2010).

This global trajectory, however, masks the fact that the goal of achieving a One Planet level of consumption will require trajectories which vary greatly depending on the country in which the community is based. For example, in the USA the average footprint is currently 8.0 gha per person whereas in China it is only 2.2 per person. Furthermore average national footprints themselves



mask great differences within a country. For example in China the footprint in urban areas is close to the European average of 4.7 gha per person but in rural areas it may be lower than 2.0 gha per person.

One Planet Communities aim to follow country specific trajectories, agreed with BioRegional, which take into account differences between and within countries.

1. Global Footprint Network, WWF & Zoological Society of London (2010). Living Planet Report.
2. Based on a population of 7.67 billion, a bio capacity of 1.6gha per person and allowing 20% space for wildlife

### **Sustainable carbon footprint**

The One Planet initiative uses 'consumption-based' carbon foot printing to inform a holistic picture of what causes our greenhouse gas emissions and the most appropriate strategies for reducing them. Consumption based emissions are those that arise all the way through the supply chain. These include not just 'direct emissions' caused by fuel and electricity consumption, but also embodied emissions in goods and services purchased including food, manufactured items and construction materials.

Climate science tell us that in order to avoid runaway climate change, global greenhouse gas emissions need to be reduced by 50% from 1990 levels by 2050. In order for this to happen CO2 emissions will have to be no more than 1 tonne per person per annum. What is more, we know that emissions are building up cumulatively in the atmosphere which leads to the use of a carbon budget over time<sup>4</sup>. Carbon budgeting shows us that the faster emissions cuts can be made the greater chance there is of stabilising atmospheric concentrations. This means we have to create communities as fast as possible that are powered by renewable technologies and are not locked into ongoing fossil fuel use.

In line with this, the One Planet initiative adopts the principle of Contraction and Convergence which means that countries with high per capita emissions will have to reduce their emissions much more rapidly than countries that currently have low per capita emissions. The end result being that per capita emissions from each country will converge at a more equitable level and the global total of emissions will contract.

BioRegional will work with partners to agree community specific trajectories. For example, for communities in developing countries a suitable trajectory will have to take into account whether the development is targeted at residents with high impact lifestyles or very low income residents with low carbon emissions.

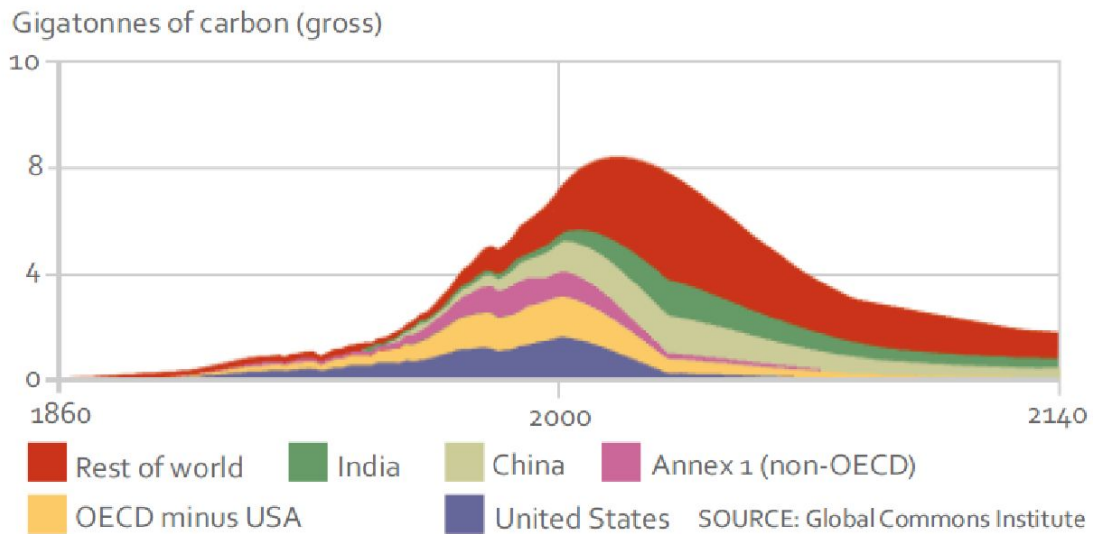


Figure 2: Illustration of contraction and convergence trajectories (source: Global Commons Institute).

3. Climate Change Committee.  
<http://www.theccc.org.uk/topics/science-and-environment/climate-targets-a-global-emissions-trajectories>.
4. Based on work done by both the Tyndall Centre, University of Manchester on UK carbon budgets and Meinshausen et al on the global budget.

### Clean activities

Each One Planet Community has an ongoing and evolving strategy for avoiding any pollution to air, land or water as a result of activities associated with the community. Energy generation equipment, construction or refurbishment activities, transport vehicles, domestic and non-domestic activities all aim to meet international best practice on pollution prevention. Purchasing systems for materials, equipment, goods or food should check for upstream pollution impacts and choose suppliers with strong environmental track records supporting the emergence of a green supply chain.

## 9 Appendix 2 - What is a One Planet Council

One Planet Councils are local government global sustainability leaders recognised by the businesses and residents of their municipality, their local government peers and the rest of industry. They have had their existing sustainability performance, strategies, policies and plans assessed against the One Planet Assessment Framework. They are also working towards drafting a comprehensive sustainability strategy and action plan based on the Common International Targets used for the One Planet Councils Program – enabling them to be recognised internationally.

Since its launch in July 2013, One Planet Councils Program has had the greatest uptake with two local councils formally certified at the national level, nine local councils now members of One Planet Councils Program and over two dozen local councils at various stages of applying One Planet Living.

### City of Yarra – National Certification



The City of Yarra is the jointly recognised as the first local government in Australia, to be officially certified against the National Assessment Standard, as a One Planet Council. This recognition is reserved for exemplary local authorities throughout Australia that are leading the charge on sustainable living.

### City of Fremantle – National Certification



| Issue   | Responsibility                                     | Cost  | Initiated / Substantiated  | Timeline    | Level of Completion |
|---|--|-------|--|-------------|---------------------|
| Renewable Energy Investment Fund (RIF)                    | Corporate Services (Finance)                       | \$ 8M | Commitment in place for the next four years to support all actions under the City Plan | Autumn 2012 | 100%                |
| Energy efficiency and water savings City Plan initiatives | Community Strategy & Infrastructure Sustainability |       | Investment in place for the next four years to support all actions under the City Plan | Autumn 2012 | 100%                |

The City of Fremantle is the jointly recognised as the first local government in Australia, to be officially certified against the National Assessment Standard as a One Planet Council. This

recognition is reserved for exemplary local authorities throughout Australia that are leading the charge on sustainable living.

## 10 Appendix 3 - Northland Urban Renewal Precinct (NURP)

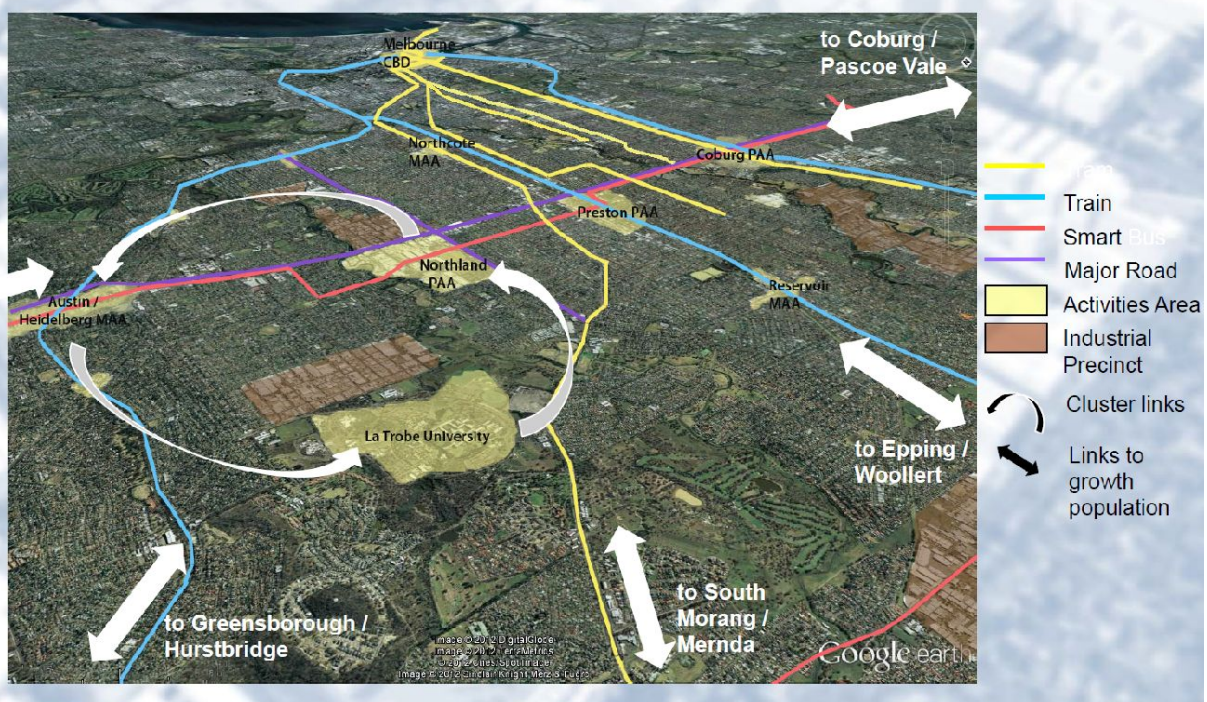
NURP is located within the municipality of Darebin and consists of a mix of industrial, commercial and residential land. It has been identified by the Victorian State government as an area of National significance because it forms part of the Emerging La Trobe Employment Cluster.



MAP 18 - EMERGING LA TROBE EMPLOYMENT CLUSTER  
SOURCE: DEPARTMENT OF TRANSPORT, PLANNING AND LOCAL INFRASTRUCTURE. 2013

Images: Joint Darebin Banyule NURP Briefing 3 June 2014.pdf

It is also forms part of the north regional network of Melbourne's major and primary activity areas.



Images: Joint Darebin Banyule NURP Briefing 3 June

## 10.1 NURP Vision

The vision for NURP as detailed in the Darebin / Banyule NURP briefing presentation document dated 3 June 2014 is:

*'Where people gather, attracted by choice and prosperity. Harnessing local and global knowledge to create, innovate, learn and heal. A place that connects its communities with new opportunities, the environment and each other for generations.'*

## 10.2 NURP Principles

The Darebin / Banyule NURP briefing presentation document dated 3 June 2014 also identified the following guiding principles:

- o Creation of a new employment precinct
- o An overtly Urban environment
- o Minimum setbacks, active ground floors
- o **Incorporate best practice "sustainable urbanism"**
- o Streets to be designed to fulfil designated functions
- o Support Walking as a priority
- o Balance increased residential with recreation space quality
- o Incorporate best practice water quality management
- o Remove height restrictions to support employment generation potential

## 10.3 NURP Modelling data

The data summarised in the table below was used by Urban Digestor to conduct the high level emissions foot print modelling presented under Section 6 of this report.

### Modelling Results – Short Summary

|                            | Low Employment | Medium Employment | High Employment |
|----------------------------|----------------|-------------------|-----------------|
| Office Floor               | 47,040         | 221,129           | 536,650         |
| <b>Office Jobs</b>         | <b>2,613</b>   | <b>12,285</b>     | <b>29,814</b>   |
| Retail Floor               | 47,200         | 55,500            | 121,600         |
| <b>Retail Jobs</b>         | <b>1,573</b>   | <b>1,852</b>      | <b>4,053</b>    |
| Showroom Floor             | 115,782        | 102,340           | 110,161         |
| <b>Showroom Jobs</b>       | <b>1,158</b>   | <b>1,023</b>      | <b>1,102</b>    |
| <b>Total Jobs</b>          | <b>5,344</b>   | <b>15,160</b>     | <b>34,969</b>   |
| Retail floor space demand* | 7,100          | 23,560            | 43,820          |
|                            |                |                   |                 |
| Residential units          | 1,951          | 7,419             | 11,907          |
| <b>Population</b>          | <b>3,121</b>   | <b>10,243</b>     | <b>19,051</b>   |

\*Based on 2.3m<sup>2</sup>/per person resident population. Worker population not considered

Source: Revised Northland Land Use Concept Plan dated August 2013

## **11 Appendix 4 – Precinct ESD tools summary**

## 12 Appendix 5 – Relevant documents

This report is based on the following documentation:

- o Northland East Preston Structure Plan (November 2013)
- o Joint Darebin Banyule NURP Briefing 3 June 2014.pdf
- o NURP Modelling Scenario Summary Tables - December 2013.pdf
- o Plan Melbourne – Victorian State Government
- o Northland Structure Plan – Summary of Principles
- o Green Business Attraction Strategy (2012)
- o Council Meeting minutes extract (July 2014)