

Research and Practice from Australia's Fast Growing Outer Suburbs

2019 SYMP  SIUM REPORT



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Introduction

From the
Executive Officer



The National Growth Areas Alliance, representing 21 Councils across Australia's fast growing outer suburbs, has developed a comprehensive evidence base over its ten year history. Using that evidence, we have successfully advocated to the Federal Government on a range of policy and infrastructure issues all geared towards making the outer suburbs more liveable, productive and resilient for the 5 million people who call them home.

As we embark on the next stage of our Alliance's journey, we are excited to also launch a new approach to building our evidence base using the core strength of our Alliance - the knowledge, expertise and experience of our Member Councils who grapple every day with the challenges and opportunities of rapid and sustained population growth.

The inaugural Symposium showcased that knowledge and expertise, direct from the local government officers who are helping to plan, design and build communities of the future. Our newly-established Research and Practice Reference Group, comprising highly skilled and qualified practitioners from within our Member Councils, will use the findings presented at the Symposium to create a roadmap that will guide NGAA's research agenda over coming years.

This will build on our existing evidence base – including highly regarded research such as the demographic study *The State of Australia's Fast Growing Outer Suburbs* (2018), *Transformational Infrastructure in Australia's Fast Growing Outer Suburbs* (2018) undertaken with our Universities Reference Group, and previous studies such as *Dedicated Infrastructure Fund for Australia's Growth Areas* (2016), *Community Infrastructure* (2013), *Skills and Employment Gaps* (2012) and *Cost Benefit Analysis of Investment in Growth Areas* (2010).

We will continue to work with our academic research partners such as the Australian Housing and Urban Research Institute, the Life Course Centre and our Universities Reference Group to ensure the communities of Australia's outer suburbs are included in longer term studies.

I hope that the research presented in this report will assist you and your organisation, and help you to identify opportunities for collaboration in the future.

Bronwen Clark
Executive Officer NGAA

Inaugural NGAA Research and Practice Reference Group

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NGAA

Maria Cooke, Director City Regulation,
City of Kwinana

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Dr Robin Visser, Senior Research Analyst,
Wyndham City Council

About the Symposium

The inaugural National Growth Areas Alliance (NGAA) Symposium, Research and Practice from Australia's fast growing outer suburbs, was held on Thursday, 4 July 2019 at Wyndham City Council in Victoria. It was attended by growth area councils from around the nation, and representatives from government departments and industry. Fifty five participants attended at Wyndham Council and groups in another 10 locations joined via webinar.

Why a Symposium?

The NGAA's vision for communities in Australia's fast growing outer suburbs, home to more than five million people, is for equal access to liveable, resilient and productive communities. Every citizen deserves access to safe, sustainable, high amenity places with the opportunity to work and study close to home or in connected centres that are regionally accessible.

The NGAA's policy platform has **five pillars** to support this vision:

Rebalancing our cities

Creating places for people

Connecting communities

Growing Jobs

Innovative, governance, planning and financing

The NGAA has built a credible reputation on evidence based policy recommendations. The aim of the Symposium was to extend this role and catalyse the sharing of knowledge, research and practice between growth councils so that the NGAA is best positioned to continue to advocate for policy settings that support growth communities nationally. In tandem with this, the new Research and Practice Group (RAP), six competitively selected local government officers, is identifying and connecting common areas of policy and practice to inform our national policy platform.

The Symposium process began in February 2019, with a call for NGAA members to profile their innovative research and practice addressing specific problems for growth areas. Symposium submissions revolved around the themes of innovative planning, governance and financing, and building liveable and resilient communities. The resulting program was curated by the RAP Group to showcase ten presentations, summarised in this report.

Symposium outcomes

The **four key step changes** that were evident in the work by the growth area councils included:

1. City building is all about the **people** who live and work in our communities
2. Collaboration and **Partnerships** are the clear way forward for tackling the wicked problems that come with rapid growth
3. **Place-led** (including natural places) planning and a re-think of urban form design are foundational
4. An informed **process** of co-design using spatial decision support systems is critical.

Collectively, these four step changes are the critical ingredients for planning better communities, so that the right people are at the table, making the best decisions with the best information available, enabling iterative city shaping. Importantly, this only occurs where there is a shared vision (or problem to solve), a clear accountability framework with appropriate institutional support and a commitment to transformational change.

Next steps

In addition to advocating for infrastructure funding in growth areas, as an Alliance we need to advocate for, initiate and share new ways of building our cities based on innovative governance, planning and financing. We can do more collective work to form collaborations and partnerships to leverage this in strategic areas which mirror our collective member priorities. The actionable steps for the NGAA are to:

- a. Use the symposium outputs, with the RAP Group, to develop a program of priority exemplar research and practice initiatives to expand nationally.
- b. Foster collaboration between NGAA members, academia, government and industry on key priorities.
- c. Investigate amplification of key projects being undertaken by our members.
- d. Consolidate a 'Community of Practice' within the NGAA to leverage innovative research and practice.

Australia's growth area councils are tackling the issues of an exploding population and changing climate head-on with innovative partnerships, collaborations and smart tools and processes aimed at making the outer suburbs liveable and resilient places for people. Collectively, we have much to do.

Partnering for better planning outcomes

LESSONS FROM THE WESTERN SYDNEY PLANNING PARTNERSHIP

HIGHLIGHTS FROM KEYNOTE ADDRESS BY ANDREW JACKSON DIRECTOR WESTERN SYDNEY PLANNING PARTNERSHIP

About the Western Sydney City Deal

The Western Sydney City Deal (WSCD) is a partnership between the Australian Government, New South Wales (NSW) Government, and local governments of the Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly. It provides a tri-level government commitment to the regional development of Western Sydney over the next 20 years. The 38 commitments that form the deal centre on connectivity via rail, aviation and digital infrastructure, jobs for the future, skills and education, livability and environment, and planning and housing. Core to the WSCD is the new Western Parkland City (location of 200,000 new jobs) and the new Badgery's Creek Aerotropolis. Following the signing of the WSCD on 4 March 2018, the three tiers of government worked collaboratively in a co-design process to negotiate a commitments framework which contains 38 implementation initiatives, milestones and key performance indicators (WSCD Implementation Plan). This was signed in December 2018.

The role of the Western Sydney Planning Partnership

The Western Sydney Planning Partnership (WSPP) is a partnership between local government and the NSW State Government and was established as a governance mechanism to focus on delivering better planning outcomes in Western Sydney. It comprises the 8 local governments that form the Western Sydney City Deal, the City of Blacktown and five NSW state agencies.

The WSPP reports to a Board of 14 which consists of senior

representatives from each of the state agencies and local governments. It operates under a Heads of Agreement which sets out guiding operating principles including:

1. Delivering great places for Western Sydney
2. Keeping citizens informed and community engaged
3. Ensure solutions can scale to a region

The WSPP is not a legal entity and can't hire staff or procure services. This allows the 23 seconded staff of the WSPP to focus on delivering better planning outcomes via a "client-provider" model rather than adding another layer to the planning bureaucracy. The priorities set for the WSPP are directed by the Board, and currently include 3 priorities:

- 1. Uniform local engineering and design standards**
The aim is to simplify development process to provide better outcomes for residents and reduced costs to homebuyers. Whilst the alignment of engineering standards for housing supply is a Commonwealth driven initiative within the Western Sydney City Deal, the WSPP aims to take the opportunity to establish best practice urban design in Western Sydney. It re-thinks the approach to urban form so that urban design is not only place-led but also informed by landscape features providing for sustainable design for communities well into the future.
- 2. Common planning assumptions**
A key to planning for thriving communities is aligning population, job growth and housing assumptions across state government, state government agencies and local government. The WSPP is playing a key role in brokering



these assumptions to inform the planning over the next 20 years for the entire region.

3. Planning for the Aerotropolis

The biggest task that has been assigned to the WSPP is the land use planning around the airport. Through the WSPP, local government has been delegated responsibility for the planning around the Aerotropolis, which marks a step change in planning responsibilities. Through the WSPP's client-provider model, it has been asked to deliver the structure plan and start the re-zoning for some of the new areas on behalf of the Minister for Planning.

While it is early days and there will be tough decisions for the partnership moving forward, the trust established and maturity of the conversations will stand the partnership in good stead. For growth areas around the nation, the lessons from the establishment and operation of the WSPP will inform future collaboration to make great communities in other states.

What does this mean for Growth Areas?

The WSPP heralds a new way of working collaboratively across and within tiers of government to deliver better planning outcomes for communities at scale. At the same time, it preserves the recognized roles and responsibilities of local, state and commonwealth governments.

The results of enhanced collaboration across the councils, with state agencies and the Commonwealth (as an observer and participant as needed) are becoming apparent.

First, having the right people at the table is enabling earlier connections during the development cycle which can positively influence planning outcomes, particularly when considering infrastructure planning such as transport, water and energy. Second, Councils - whilst retaining a clear voice for local community needs - are also "lifting their narrative to a regional level". Finally, the Planning Partnership is bringing together "know how", and leveraging this for the greater region.



Building the case for active playing space and community infrastructure

PRESENTER:

**DANIEL SIMMS, CHIEF EXECUTIVE OFFICER
CITY OF WANNEROO**

What is the problem?

Seventy five per cent of Perth's population growth is in the outer suburbs, yet these communities have a significant shortage of public open space and sports facilities. Faced with long commutes to sporting precincts, many forgo active recreation, entrenching a pattern of disadvantage. GAPP have a methodical approach to building the case for active playing spaces and community infrastructure.

Why is this important?

The GAPP is a group of 11 outer metropolitan councils who have consistently advocated for more open space and local sporting facilities at a regional level. GAPP represents more than 50 per cent of Perth's population and 70 per cent of Perth's population growth is occurring in the outer metropolitan communities.

What is the evidence?

The GAPP group engaged Curtin University's Centre for Sport and Recreation to undertake a study of the needs assessment of active playing spaces in the outer suburbs. The study resulted in a report the "Unintended socio-economic consequences of reduced active open space."

The research found that the implementation of the liveable neighbourhoods, Bush Forever and water sensitive urban design programs had the unintended consequence of reducing the number of active playing fields in new suburbs and in particular the number of regionally significant active open playing spaces in outer metropolitan areas.

The study identified the flow-on effects of the lack of access of open playing fields on communities. These included reduced participation in sport leading to reduced physical

activity overall and resultant health impacts, reduced social capital due to lack of social connectedness, disproportionate effects on lower social-economic communities and a detrimental impact on the environment due to the significant increase of travel by private vehicle to participate in sport. It is common for residents of Wanneroo and other outer metropolitan communities in Perth to travel more than 60 minutes, round trip, to access a regional sporting facility.

This research provided the evidence to inform a business case that the GAPP group are seeking to submit to Infrastructure Australia. To participate in this process a business case is required that positions the nationally significant problem statement. The problem statement included the lack of spatial equity of access to active playing spaces and regionally significant centres in outer growth communities, resulting in reduced quality of life and productivity and increased health costs for Australia. The root causes of the problem were outlined as:

- the historic undersupply of facilities over time
- the increasing demand that has been associated with the fast growth of the outer metropolitan communities
 - compounded by funding constraints of local and state government and finally
- the uneven distribution of state funding.

The cost of addressing this issue meets Infrastructure Australia's requirement of a \$30 million per annum national significance problem test. Over time, it is forecast that the cost of this problem will grow from \$70 million in 2019 to \$108 million in 2026 and to \$150 million in 2036.



What does this mean for growth areas?

The GAPP group have an evidence-based approach together with an unwavering regional leadership position to advocate for a dedicated funding stream within Infrastructure Australia for active playing spaces and regional facilities in outer metropolitan Perth. This provides a strong foundation for further national leadership by growth areas for policy settings for investment in active playing spaces nationally.

Place Planning in a growth context

LESSONS FROM SELANDRA RISE ESTATE

PRESENTER:

**NICOLA WARD, SENIOR ADVISOR, CITY PLANNING AND REGIONAL PARTNERSHIPS
CITY OF CASEY**

What is the problem?

Growth Councils face the continual challenge of developing 'places' for new residents in a new estate to meet, connect and build community. Unlike infill development, green fields developments don't have the character or framework of existing towns and activity centres to build from. The job of Council, from planners through to community development officers, is to create 'something' from nothing that helps build community, creates activated and safe built form, and helps new town centres to develop a positive, vibrant character of their own (in time). How to spatially plan for this desired future outcome, in the context of long population density timeframes and economic maturation of a 'place', is the challenge.

Why is this important?

Poorly planned 'places' do not support organic, dynamic maturation of an estate, town centre or suburb. Poor planning results in places that are not vibrant and don't attract people. If this occurs in a town centre, it leads to lack of economic activity (small businesses are unviable), lack of retail competition, lack of local jobs. At a broader scale the economics of greenfield housing development means securing diverse housing types is a challenge. All these point to the need for a sophisticated approach to 'planning for place' differently.

About Selandra Rise

Selandra Rise is a new housing development located in Melbourne's south-east growth corridor.

A partnership between Stockland as developer, City of Casey, (the then) Metropolitan Planning Authority, VicHealth, and the Planning Institute of Australia aimed to plan, design and deliver Selandra Rise as a demonstration project for healthier, more liveable urban environments. Since 2016 the estate has won several awards for master-planned development.

The following five guiding principles have provided a foundation for place planning in a greenfield context in the City of Casey through the Selandra Rise development:

1. Active collaborative and partnerships. Forming collaborative partnerships with the developer and other stakeholders is vital for place planning. This includes gaining a commitment to a shared vision for the place and a willingness to experiment and try and do things differently. In the case of Selandra Rise Estate, the outcome has been a shared vision of a vibrant community which provided for the community and developer outcomes.
2. A commitment to better integrate delivery of built form by the private sector with delivery by Council. Starting from the planning/subdivision phase of the development, a focus on attractive urban design and a high amenity public realm, provides a foundation for strong community development outcomes such as being able to meet neighbours easily.
3. A commitment to a long term outcome of increased density around a town centre. A shared long term vision for a vibrant higher density town centre, allowed for constructive planning discussions about town centre land uses from short, medium to long term. The



outcome was a phased development that allowed the town centre to mature over time, and support economic viability, diverse local business and job closer to homes.

4. Planning, design and building of a community facility in a way that was cognisant of surrounding land uses, and allows for the town centre to mature over time. The outcome was an award winning community hub that is highly flexible and has been embraced by the community and contributes to the built form outcome of a more dense town centre
5. An effort from Council to continue to push the boundaries on a community facility and stay true to the early vision and partnership, even as the estate development was concluding. Strong community engagement in the sustainable design and activation of the community hub resulted in a facility where energy efficiency goals have been delivered to the community.

What does this mean for growth areas?

'Place planning' in a greenfield site, in a way that is cognisant of good urban design, progresses sustainable building design, and is sensitive to development economics, is a step change in understanding how to plan for outcomes in a growth area context.

The City of Casey has melded multiple, distinct, siloed roles and responsibilities within the organisation to think about the 'place' – rather than the outputs of the discipline such as landscape design, urban design, construction, economic development, statutory planning, and created "Something" – a very special space for the community – from nothing.

Advocating for the 'principles' of this model to be understood and supported by the private sector, academia, state and federal government is critical for future development in growth areas.

References:

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<https://www.stockland.com.au/media-centre/media-releases/selandra-rise-named-best-masterplanned-development-in-victoria>

<https://www.casey.vic.gov.au/facilities-hire/selandra-community-hub>



A NEW WAY TO VISUALISE THE IMPACT OF STRATEGIC PLANNING ON WYNDHAM

PRESENTER:

**DR ADAM MOWLAM, MANAGER SMART CITY OFFICE
WYNDHAM CITY COUNCIL**

What is the problem?

Many local government systems and processes relating to planning and citizen engagement remain largely analogue. Digital and technology transformation can radically transform how citizens and council co-design communities.

Why is it Important?

PlanTech describes the use of digital and emerging technology for planning. Together they allow city planners and other stakeholders to create better places by using new visualisation tools, artificial intelligence and data analytics to enhance the experience, and therefore, engagement of communities in the planning process.

The CityLens project sought to improve planning outcomes by allowing all stakeholders to better visualise local surroundings and related information using interactive and immersive methods.

What is the research or practice?

CityLens uses extended reality to visualise in three dimensions current and future major developments in Wyndham using holographic form. It displays buildings currently being advertised, approved for development, under construction and newly completed.

Based on the Microsoft HoloLens technology and other immersive technology, such as the HTC Vive, it provides stakeholders with the opportunity to visualise an otherwise abstract, two-dimensional and paper-based visualisation. The solution is extended further than building models by integrating cloud-hosted open data such as traffic information, weather, bin fill levels and parking bay occupancy.

The CityLens project improves decision making and planning outcomes by allowing residents to visualise local surroundings using interactive 3D and immersive landscapes and enhances community engagement.

What does this mean for growth areas?

Technology-enabled planning processes and community engagement provide new ways to visualise complex built environment information that impacts the strategic planning on growth areas that are undertaking long term and vast masterplanned developments. By bringing community, industry and government together to explore data driven decisions about the future urban form of growth areas will deliver better outcomes for our cities.



Value Australia

A TOOLKIT FOR ANALYSING AND VISUALISING LAND VALUATION IN DIFFERENT DEVELOPMENT SCENARIOS.

PRESENTERS:

DR ANNE HURNI, RESEARCH AND PARTNERSHIPS OFFICER, PENRITH CITY COUNCIL
PHIL DELANEY, CHIEF INNOVATION AND DELIVERY OFFICER, FRONTIER SI

What is the problem?

Governments and businesses have access to unprecedented amounts of information to guide their decisions: big, diverse and rapidly changing data. And they increasingly have to turn to spatial data tools to combine and process it all. But to harness collective intelligence and foster transparency in decision making, these tools must also enable that data to be analysed in collaborative ways.

New data analytics tools like the Rapid Analytics Interactive Scenario Explorer (RAISE) toolkit, which allow interactive scenario exploration can support collaborative analysis and decision making. Interactive scenario exploration would allow users to rapidly formulate and test hypotheses and options. The spatial data tools draw together and analyse the data with automated modelling; and offer immediate visual feedback on how scenarios compare with each other.

Understanding factors that influence property values and land value uplift are important for building reliable business cases for new development and infrastructure. In rapidly growing urban areas being able to plan by testing different scenarios can improve decision making and value for money from government investment as well as determining best outcomes for communities.

What is the research or practice?

New approaches to using data analytic tools that incorporate spatial information to estimate value uplift have emerged in response to the need to improve value for money from investment. These include a suite of property valuation, land valuation, value uplift and urban feasibility models available from within RAISE toolkit.

Rapid Analytics Interactive Scenario Explorer (RAISE)

RAISE is a data driven toolkit that enables users to quickly estimate and visualise property value. Property values are rapidly calculated using any one of the automated valuation models available in the toolkit. The generated values are visualised on a map and can be overlaid with other geospatial information layers relevant to investigating trends in property price.

The RAISE Toolkit development and research has been led by Professor Chris Pettit at UNSW's City Futures Research Centre, in partnership with QUT's Creative Industries Design Lab. The project team is working with industry partners which include: Australian Property Monitors and Omnilink, and government partners NSW Land & Property Information, Office of the Valuer General NSW, Landcom, Parramatta City Council, Blacktown City Council and Brisbane City Council.

Along with financial and in-kind contributions from the project partners, RAISE was funded by the Cooperative Research Centre for Spatial Infrastructure (now FrontierSI).

Value Australia

Value Australia is a multi-million dollar project that will create a suite of national, automated land valuations data products, as well as software to analyse and interpret the data. It is a collaborative project funded through the federal CRC-Projects programme. The key partners of the project include: FrontierSI, UNSW, Commonwealth Bank of Australia, Omnilink, NSW Land and Property Information, Office of the Valuer General NSW Liverpool City Council. Value Australia will involve a diverse team of data scientists, urban modellers, economists and software developers, in order to create flexible data, models (including artificial intelligence

RAISE Rezoning Tool – Development Scenarios



and machine learning) and software tools that can serve the needs of diverse users, from the banks through to state and local governments.

Outcomes

The RAISE toolkit as a research project has initially been evaluated by Councils and State Government to explore a number of what if? scenarios across Sydney. For example, the likely value uplift of light rail options in Paramatta, new train station locations in Blacktown and the likely value increase around the North West Metro line. The RAISE Toolkit is also been evaluated by NSW Land and Property Information and the Office of the Valuer General as a mechanism for making the land valuation process more transparent and accessible to the community.

What does this mean for growth areas?

NGAA members can ask to participate in the user advisory committee for the Value Australia project. The development of the Data Analytic tools in collaboration with NGAA members will help ensure they respond to the specific characteristics and challenges of new urban growth areas. NGAA members can explore opportunities to partner with Value Australia initiative to co-design, develop and evaluate future city and precinct scenarios based on credible data, model and visualisation interfaces to help solve some of the growth challenges facing Australia cities and regions. Finally, NGAA members can propose side projects which will leverage the data and insights from the core project, but be applied in a unique way to meet specific needs within a council.

FrontierSI (formerly the CRC for Spatial Information), is a not-for-profit applied research and innovation centre focused on spatial data and technology projects. FrontierSI provides the connection point and collaborative framework that allows multiple organisations to work together to solve shared challenges. Its mission is that through our partnerships, FrontierSI's collaborative spatial research will lead to accelerated industry growth, better government services and a more sustainable environment.

UNSW City Futures Research Centre is the lead research and development partner for Value Australia. NGAA members have the opportunity to collaborate in partnership with FrontierSI and UNSW City Futures Research Centre in working towards data driven city solutions.



Creativity and youth services

PRESENTER:

**DR ALI ELDER, RESEARCHER AND PROJECT MANAGER SPECIALIST
CITY OF PLAYFORD**

What is the problem?

The problem we are solving is lack of accessibility and barriers to creative opportunities for young people in the City of Playford to develop their life-skills and employability skills.

Why is this important?

Disengagement by youth from schooling and higher unemployment rates is a challenge for all growth area councils. The City of Playford has a very high rate of youth unemployment – in some places it is as much as 61%. We have intergenerational unemployment and poverty which contributes to this statistic.

In 2016, 11.6% of 15 to 24 year olds in the National Growth Areas Alliance (NGAA) were disengaged with employment and education, compared to 9.6% in Australia. (.id 2018)

What is the research or practice?

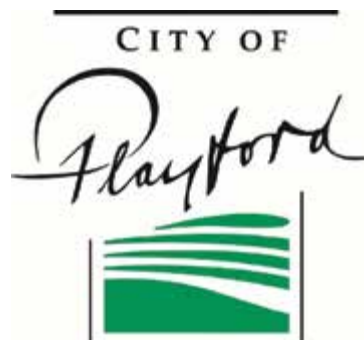
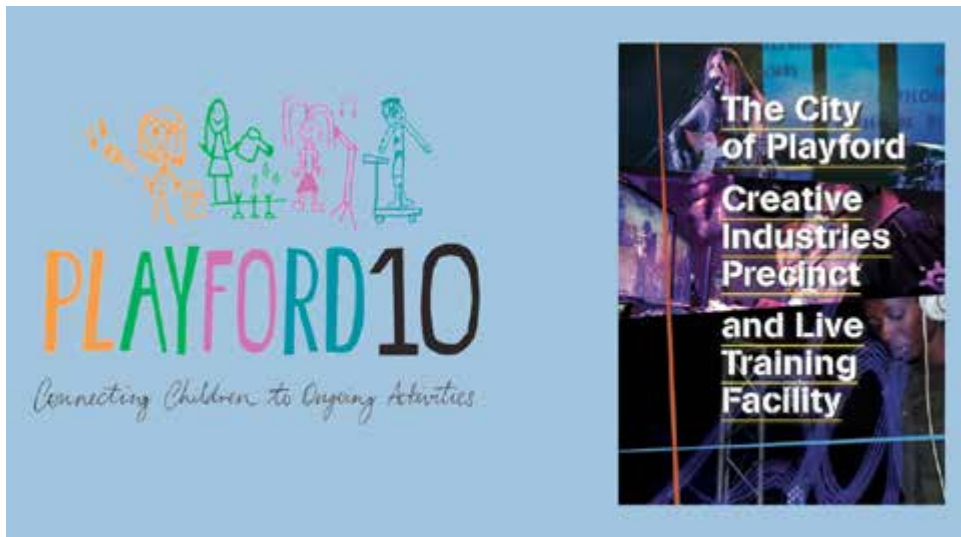
The original research took a strengths-based approach and looked for 'golden threads' where young people had done well socially and economically in the City of Playford. We applied this research to a number of pilot projects both within a primary school setting and for young people in the creative industries. We are using the thread of creativity to bring hope, inspiration and improve aspirations of young people and give them real-world experiences and life – skill capability building to support them on a better more positive path.

We take a strong practice – policy approach, reflecting on the wisdom, knowledge and practice of workers in the field to inform our delivery. This is to ensure that our programs and services are inclusive and respectful of the diversity of young people and their circumstances.

What does this mean for growth areas?

Building the creative capability of young people has the potential to improve the outcomes of future generations of the community through social connectedness and social inclusion as well as provide a future workforce and build industry in the creative industries. This is a universal aim across all Growth areas.

This research and practice breaks new ground by illustrating that by taking the "village" approach by drawing resources towards the community and encouraging cross sector collaboration to work for a common purpose. The result is early intervention programs and a creative pipeline for young people connected to a broader innovation ecosystem.



Street tree and public open space spatial data capture

PRESENTER:

**MARIA COOKE, DIRECTOR CITY REGULATION
CITY OF KWINANA**

What is the problem?

The City of Kwinana (the City) has a significant tree canopy that the City wishes to retain and nurture in the context of continuing growth and development. The data capture and spatial representation aims to provide a tool with detailed baseline data on the City's tree canopy to inform decision making around maintenance, planting, removal to reduce risk and identify real opportunities for improved linkages and habitat corridors.

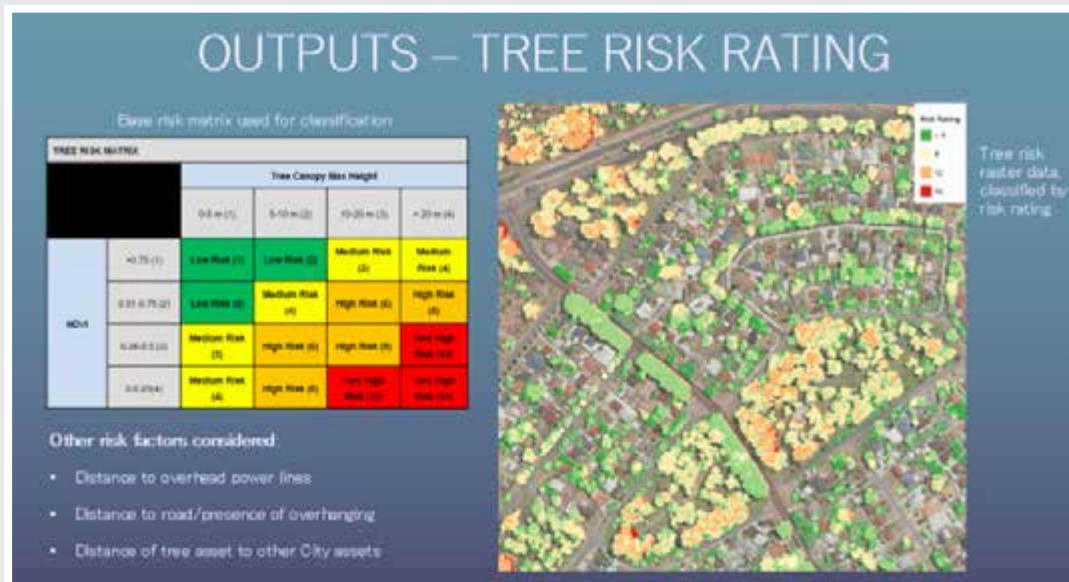
Why is this important?

The City currently has approximately 25% tree canopy coverage. The City has been subject to clearing over the last 5 years as a result of significant development. This data will assist in recording the trees that currently exist to enable more informed decisions around trees to be removed to ensure that the highest quality trees are retained where possible. This data set enables the City to maximise its limited resources through a prioritisation program for the management of its tree assets. For example trees that pose a public risk due to species, age and condition may require further maintenance and support to ensure that any potential risk to the public is minimised. Conversely, the City is more informed to identify development risk to trees which are important for the environmental resilience and amenity of the area.

What is the research or practice?

The City engaged a team to generate a high resolution data set for Tree and Canopy analysis using LIDAR (data capture methodology)¹ over the City, including:

- a. Identifying >80% of individual trees within the City extent - creating a vector point feature per individual tree with the following attributes:
 - i. ID number
 - ii. Height
 - iii. Health classified into 4 categories:
 - Low risk
 - Medium Risk
 - High Risk
 - Very High Risk
 - iv. Species
 - v. Approximate age
- b. Identifying all tree canopies within the City and derive a vector polygon feature per canopy from the captured raster data with the following attributes:
 - i. Maximum height of canopy
 - ii. Canopy area
 - iii. All attributes stated above (perform join with individual tree data)
- c. Providing raster data used to undertake above analysis in the following two layers:
 - i. Raster displaying tree canopies classified by height (z) value
 - ii. Raster displaying tree canopies classified by health



A detailed 3D textured mesh was produced for the entire City from the raw LIDAR point cloud data captured. The visualization via the proprietary software will enable analysis of the City's street tree canopy.

What does this mean for growth areas?

The rate of new development in Growth suburbs places pressure on the decision-making cycle. Integrating spatial data with the City's GIS enables Urban and Environmental Planners, and Engineers to assess Local Structure Plans, Subdivisions and Development Applications with the best available data providing a stronger position for improved negotiated outcomes with developers and the best outcomes for communities.

The quality and the extent of this data is unique to local government and will result in a data set that will be invaluable in policy formulation, decision making, negotiation, program management and monitoring and will enable ongoing measurement and monitoring.



¹ LIDAR (Light Detection and Ranging) technology, a sensor mounted to a plane, uses light detection and ranging to detect the height of surfaces by projecting a laser from the sensor. The distance between where the laser hits a surface and the sensor gives the height of the object. In our scan we measured 10 points per square metre.



Auditing the built environment for determinants of health

**PRESENTERS: MONIQUE DESMACHELIER, HEALTH PARTNERSHIP OFFICER
PENRITH CITY COUNCIL**

**ASSOCIATE PROFESSOR BRADLEY FORSSMAN, DIRECTOR PUBLIC HEALTH
NEPEAN BLUE MOUNTAINS LOCAL HEALTH DISTRICT**

What is the problem?

The fast growing outer suburbs (FGOS) have relatively higher rates of obesity (the Penrith rate is 33% ¹), death from heart disease, and psychological distress, and lower rates of physical exercise than the Greater Capital City averages. These health and wellbeing outcomes are directly related to poor social and environmental conditions, and result in reduced quality of life, increased healthcare costs and increased productivity costs to local businesses.

Auditing the determinants of health in our communities will highlight the strengths of the built environment and social infrastructure in supporting good health, and uncover opportunities for local government, in collaboration with other levels of government and the community, to support better health and wellbeing outcomes for our residents and workers.

Why is this important?

People's health outcomes are largely determined by their physical and social environments and the opportunities available to them, such as:

- their level of education
- where they work, or whether they work
- the quality and location of their housing
- their ability to connect socially and form networks of support
- whether they have access to opportunities for active living
- the availability of fresh, healthy food options.

There is a huge body of evidence indicating that healthy eating and physical activity contribute to health and wellbeing. However, these are not the only contributors in mortality, increasing healthcare and decreasing productivity. There is increasing evidence that social isolation is a

significant concern². Loneliness can affect all ages, and is exacerbated in FGOS by long travel times for work or recreation.

By providing and supporting education pathways, a diversity of local employment, good quality affordable housing, and the other infrastructure needed for people to be active, eat healthily and form and maintain social connections, we invest in a healthier community with more social and economic resilience.

What is the research or practice?

Developing the Tool: The Healthy Built Environment (HBE) Audit tool was developed due to a unique collaboration between all levels of Government. Council, the Greater Western Aboriginal Health Service, Nepean Blue Mountains Local Health District and the Nepean Blue Mountains Primary Health Network came together in 2016 to work on priorities to improve the health and wellbeing of the residents of Penrith. We formed a Healthy Built Environment Sub Committee, integral in the development and implementation of the tool.

After considering a range of existing policies, recommendations, literature and tools, we decided to develop a Healthy Built Environment Tool that is specific to the needs of Penrith City. In 2018, we launched the Penrith Community Profile, which we used to analyse the demographics, needs and characteristics of Penrith suburbs and as a City. Through this, we utilised a variety of robust tools to gather information and ultimately develop an instrument with 3 key themes; Physical Activity, Healthy Eating and Social Inclusion.

We consulted with the Nepean Blue Mountains Local Health District and the Nepean Blue Mountains Primary Health Network throughout this process. Likewise, we incorporated the social determinants of health as well as the social ecological model to inform our work. This provided a foundation to connect health and wellbeing with the environment in which people live, work and play.



Choosing the suburbs: Suburb A is an older suburb experiencing significant gentrification and change, with larger blocks being developed into apartments. It is planned to be included in the proposed North-South railway link to the Western Sydney Airport, which will bring further change and opportunity. Suburb B is a fairly new suburb, less than 20 years old, with challenges such as a heavy reliance on cars and limited access to public transport. By auditing two differing suburbs we have the ability to compare and contrast the three themes; Physical Activity, Healthy Eating and Social inclusion, both within and across suburbs.

Using the Tool: Auditing a suburb with the HBE Audit tool involves 3 modes of evaluation including; collecting existing data, a visual audit of the environment and a community survey. For the community survey, we focused on questions that cannot simply be answered by data sets – for example, a sense of community connection and levels of social interaction. The visual audit draws on the existing environment and assesses indicators such as connectivity and quality of paths. Finally, data sets were used to collect existing information on indicators including weather patterns, education and suburb assets.

Analysing the results: We analysed the results according to existing recommended standards required for optimal health. Data indicators were assessed based on their healthiness using traffic light system. A low number of services, facilities or items in the built environment were given a red score. Those with some services were given an amber score and those with many were given a green score. We followed this process with all the indicators.

Each theme, was then given an average score of 'healthiness' using the same traffic light system. Thus a suburb being audited will have 3 scores corresponding to each of the themes. For example, when analysing the availability of healthy food, we looked at whether grocery stores were open to the hours required, accessible by public transport and whether people shopped locally. This process has been systematically recorded so we can duplicate it in neighbouring suburbs. Following the pilot, the indicators will be reviewed to establish those most appropriate for future audits.

Outcomes

Both Suburbs 'A' and 'B' produced similar results for some of the indicators and themes. For example they rated similarly for perception of safety during the day and feelings of connection to their suburb and neighbours.

Other indicators and themes showed the two suburbs are experiencing some challenges, for example, despite having a lower crime rate than suburb 'A', the perception of safety at night was quite low in Suburb B.

These results and more detailed analysis will be used to identify areas for improvement and opportunities to target resources for maximum benefit. The resulting scores can be used as an evidence-base to inform prioritisation of capital or asset renewal works, providing a process to improve health outcomes in suburbs of need.

What are the opportunities for other growth areas?

An auditing tool for the social determinants of health, based on the physical activity, healthy eating and social inclusion, is universally applicable for any Australian suburb. It may require some modest adjustments depending on the characteristics of a local government area. However, given the similarities between the FGOS the adjustments may be minimal if any are required at all.

References:

¹ Health tracker atlas, <http://www.atlasesaustralia.com.au/ahpc/atlas/atlas.html?indicator=i2>

² The Loneliness report, <https://psychweek.org.au/loneliness-study/>



Where we build, What we build

PRESENTERS:

**GREG SARRE, MANAGER ECONOMIC DEVELOPMENT AND SUSTAINABLE FUTURES,
DISTRICT COUNCIL OF MOUNT BARKER**

JEN ST JACK, CO-FOUNDER, JACK JENSEN

What is the problem?

Australia's housing stock is often poorly sited and designed to account for local climatic factors such as flood, heat and fire. Vulnerable homes – those that are located in high-risk areas and are not designed to mitigate the risks – already have poor outcomes for occupant health and wellbeing and household running costs. Now, as climate hazards intensify, it is getting more expensive to insure vulnerable homes.

That's because the insurance and finance sectors recognise the material risks posed by climate change, and are factoring them into their pricing and decision-making. Escalating and potentially unsustainable insurance costs are not yet widely understood. Nor are the long-term affordable living benefits of resilient homes. This project seeks to address that gap.

The risks for growth areas

The decisions we make now will lock in our housing stock for decades. Councils have a choice, right now, to build in resilience, or to build in vulnerability. If we continue to build vulnerable homes, we run the risk that insurance premiums will tip the affordability threshold. If our communities can't afford insurance, they'll be less resilient when disasters hit. Vulnerable houses also risk becoming stranded assets – if a house cannot be insured, it cannot be mortgaged either.

The opportunities for growth areas

Councils plan for and approve developments, and we have a stake in emergency management, health and wellbeing, affordability and housing resilience outcomes for our communities. We therefore have both an opportunity and a responsibility to improve those outcomes by reducing the vulnerability of our housing stock.

Liveability – Resilient homes are more liveable day-to-day because they are better-suited to the climate, generally require less heating and cooling, and have health and wellbeing benefits.

Affordability – Insurance premiums are a big cost, which will increase as the climate changes. Resilient homes are more affordable to live in because they can reduce insurance costs, reduce heating and cooling costs, and improve the health of their occupants.

Resilience – Resilient homes are less exposed to natural hazards, and/or less sensitive to those hazards. Resilient communities have lower and cheaper emergency response requirements, and bounce back more readily when disaster strikes.

The opportunities for our region

The Resilient Hills and Coasts Region aims to attract growth and investment by positioning ourselves as a resilient region – a leader in empowering climate-ready and disaster resilient communities. Our region is already experiencing significant urban development, particularly in growth hotspots like Mount Barker, Goolwa and Victor Harbor. We have an opportunity to encourage building and retrofitting of homes that are climate resilient – that is, homes that are well-suited to a warmer and drier climate and robust against extreme events. By doing so, we can make our region more liveable, more affordable, and more resilient.

What is the practice or research?

Where We Build What We Build is in the early stages of what will be a 12-month project. At its completion, the project will enable assessment of the resilience (or vulnerability) of homes, and encourage better risk management by Councils, developers and communities.



At its core, the project design breaks down to this equation:

Exposure (Where We Build) + Sensitivity (What We Build) = Vulnerability/Resilience.

Stage 1: Exposure (Where We Build)

Comparing climate hazard maps (for bushfire, flood and heat) used by Councils with those used by the insurance industry, identifying the gaps, and identifying hotspots in our region that are exposed to multiple hazards.

Stage 2: Sensitivity (What We Build)

Identifying the five most common housing 'archetypes' in our region, and defining the most common characteristics of those archetypes (eg. wall structure and cladding, ground floor structure and height, roof covering and pitch, insulation type, guttering) to understand their sensitivity to hazards.

Stage 3: Resilience Rating

Overlaying housing archetypes on hazard hotspots to understand how each one performs in that hotspot. Designing an ideal 'resilient house' archetype to allow a cost-benefit comparison between all the different archetypes.

Stage 4: Knowledge Portal

Providing a framework and knowledge portal applicable to both new builds and retrofits, that can be used by Councils, developers and home owners and buyers.

The partners

The project is an initiative of Resilient Hills and Coasts, and is being delivered by Seed Consulting Services and Edge Environment. The project was jointly funded by the Commonwealth and South Australian Governments under

the South Australian Disaster Resilience Grant Program, and the Insurance Council of Australia. The scope covers Adelaide Hills Council, Alexandrina Council, District Council of Mount Barker, City of Victor Harbor and District Council of Yankalilla.

The Insurance Council of Australia is the peak industry body for the insurance sector. It estimates that South Australians pay 18% more than they need to on insurance because of a lack of hazard data. The Council is partnering with Resilient Hills and Coasts because it wants local premiums to reflect the best available information, not the worst-case scenario.

What does this mean for growth areas?

Project partners welcome input from NGAA members on the objectives and outcomes of this project and are happy to share information.



Turn Down the Heat

PRESENTER:

CHARLES CASUSCELLI, CEO OF WESTERN SYDNEY REGIONAL ORGANISATION OF COUNCILS IN CONJUNCTION WITH BLACKTOWN CITY COUNCIL

What is the problem?

Universally, extreme heat, defined by the Climate Council as temperatures 40 degrees and over, and Urban Heat Island effect, has been prioritised as a key issue of concern for governments, organisations, businesses and communities alike. Western Sydney, a geographic area that has no sea breeze and has unprecedented urban development, is already hot and is set to get hotter. Western Sydney can be 10 degrees hotter than the city during extreme heat events, residents use 100% more energy to cool their homes than Sydney's East and there has been a 250% increase in very hot days (35+ degrees) over the past three decades.

How we respond to the challenge of urban heat spans the roles and responsibilities of many different organisations and public sector agencies. There is a very real deficit of understanding the economic, environmental and social impacts of urban heat across Greater Sydney. While local government and health providers are often closest to the community impact of urban heat on residents, they are not always empowered from a regulatory or resource perspective to develop and drive adaptation outcomes.

Why is this important?

This strategy is needed to facilitate a broader and more coordinated response to the challenges of urban heat in the absence of coherent state or national policy.

While urban heat is recognised by many organisations serving the Greater Western Sydney region, implementation of action is fragmented, often due to differences in administrative boundaries or misalignment of priorities. Strategic planning documents such as the Greater Sydney Commission District Plans look to integrate urban heat considerations into strategic planning, but divide the Greater Western Sydney region between the Western City and

Central City Districts. NSW Health's successful Beat the Heat program is working to reduce community health impacts but is managed via three Local Health District Boards; Nepean Blue Mountains, Western Sydney, and South Western Sydney. Local councils also run targeted programs in their own Local Government Areas.

In this space, the Turn Down the Heat Strategy aims to complement existing policies and strategies to create local, practical and coordinated action in the short, medium and long term. It aims to build on existing efforts and looks to advance the recognition that urban heat is a priority regional issue in Western Sydney.

What is the practice or research?

Turn Down the Heat seeks to go beyond the focus of current approaches on the internal environment (for example, BASIX, energy star ratings) and emergency response (Heatwave response plans) to bring together the many new approaches to our external environments that are being developed by a range of stakeholders from a diverse range of sectors including health, infrastructure, academia, planning, utilities and non-profit. The Western Sydney Regional Organisation of Councils' (WSROC) role is to facilitate the strategy development and in doing so leverage existing best practice, acknowledge the limits of the current policy framework and propose a series of priority actions.

The process involved establishing a steering group and council working group to direct the strategy development process involving 55 organisations. The outcome was local, practical and coordinated action on urban heat in Western Sydney to make our communities cool, liveable and resilient. Ambitious provisional targets were set including:



- Reduce ambient temperatures in Western Sydney by 1.5 degrees Celsius through water, greening and cool materials strategies by 2023.
- Zero net increase in economic impacts of heatwaves by 2023.
- Zero net increase in morbidity and mortality impacts of heatwaves in Western Sydney by 2023.

The strategies emerging from the collective efforts of stakeholders have brought together a shared understanding of the effectiveness of a variety of urban heat mitigation technologies ranging from building materials (roof colour and material selection), paved and permeable surfaces, greening trees and other vegetation (verge widths, species selection, growing time, community attitudes) and water sensitive design.

Furthermore, Turn Down the Heat is working with local and state government to prioritise urban heat as a first order consideration in development planning including integrating urban heat objectives into local planning documents (currently ongoing process) and advocating to State Government to work closely with local Governments to review the overall planning system in order to achieve better outcomes on the ground.

Importantly, Western Sydney University (WSU) is taking the lead on setting up an online repository of Urban Heat research (not limited to WSU) to make it more accessible to practitioners. WSROC and WSU are working together to identify ways in which we can better link up research with practitioners. The repository is a start, but it will also include workshops, seminars and events.

What does this mean for growth areas?

Turn Down the Heat, via the strategic facilitation role of WSROC, has provided a very important agreed vision and brought together knowledge about interventions which can inform future policy settings at a local, state and commonwealth level. The issue is not limited to Western Sydney, but also impacts growth area communities within the fast growing outer suburbs of Australia's capital cities.

Reference:

Western Sydney Regional Organisation of Councils,
<https://wsroc.com.au/projects/project-turn-down-the-heat>



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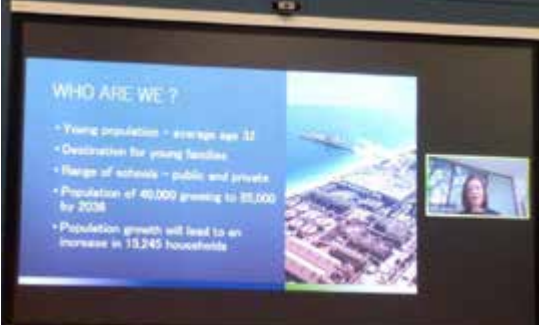
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