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## Study focus: Sustainability

### Study authors:

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### What is the purpose of the study?

UrbanGrowth NSW commissioned Kinesis consultancy to review and analyse the Central to Eveleigh Urban Transformation and Transport Program vision, its ten key moves and themes to identify key sustainability activities that should be considered during the next stages of planning. The study found that the Program as it is currently planned, has the potential to add significant value in terms of sustainability when compared to the Sydney wide average in terms of car dependence, access to green space, water consumption, greenhouse gas emissions and the reduction of urban heat islands. It also identified a number of additional activities that could potentially further improve sustainability outcomes.

The Central to Eveleigh Urban Transformation and Transport Program project area comprises the 80 hectare corridor of government owned land between Central and Macdonaldtown and Erskineville Stations, and a broader study area that covers 500 hectares around the corridor. The Review includes an analysis of existing and future issues that face residents and businesses in Sydney, including travel patterns, household expenditure, local and future climate considerations and resource consumption.

### How has the study been prepared?

UrbanGrowth NSW has developed an award winning strategic planning and design tool, in partnership with Kinesis, that predicts the potential long term environmental, social and financial impacts of large, multiple-dwelling and mixed-use developments while they are

still at an early design stage. The Central to Eveleigh team engaged Kinesis to review the Program's vision, ten key moves and mid case population scenario against this tool, PRECINX.

- Four criteria were used in the assessment: Accessible and connected, environmentally sustainable and responsive, affordable housing and living, and a resilient community.
- The Program was benchmarked against the Sydney Metropolitan Average (transport, energy, water and cost of living profiles of all residents across metropolitan Sydney)
- Policy context was reviewed including NSW Government's Plan for Growing Sydney and the City of Sydney's Sustainable Sydney 2030 Plan.
- Key demographics and trends for the area were identified, including 'big picture' trends which might impact the transformation.
- An assessment was undertaken on planning to date across accessibility, environmental sustainability, greenhouse gas emissions, affordability and resilience.
- While the Program does not have targets for dwellings or floor space, there are a range of scenarios being used to test infrastructure capacity. For the Kinesis study, the mid range of these was used as a benchmark to inform the study (approximately 10,000 dwellings with an estimated residential floor area of 812,228 m<sup>2</sup> and non-residential floor area of 504,898 m<sup>2</sup>).
- Leading practice sustainability solutions were identified for large scale urban renewal, including building performance, district infrastructure, integrated transport and reducing the impacts of urban heat islands.

## What are the key findings?

The Central to Eveleigh Urban Transformation and Transport Program has the potential to add significant value in terms of sustainability when compared to the Sydney Metropolitan average. Under its current approach, the program is expected to deliver:

### Accessible and Connected

- **90% reduction in car dependence** and use when compared to the Sydney Metropolitan average.
- **60% reduction in household car ownership** when compared to the Sydney Metropolitan average.
- All residents will be located within a 15 minute walk of heavy rail.
- All residents will be located within 5 minutes or 400 metres of public open space.

### Environmentally Sustainable and Responsive

- **45% reduction in resident greenhouse gas emissions** when compared to the Sydney Metropolitan average.
- **40% reduction in resident water consumption** when compared to the Sydney Metropolitan average.

### Affordable Housing and Living

- **45% reduction in household cost of living** from energy, water and transport costs when compared to the Sydney Metropolitan average. Equivalent to more than \$6,000 saving per household per year.
- **15% reduction in total household costs** (cost of living and housing) when compared to the Sydney Metropolitan Average. Equivalent to nearly \$15,000 saving per household per year.

### Resilient Community

- The reduction in household costs improve the resilience and adaptive capacity of residents.

- Increased open space, green infrastructure and networks can improve resilience against a changing climate and the effects of urban heat islands.
- When compared to an un-vegetated public domain, a well-managed, lush tree canopy can reduce land surface temperature by up to 15 degrees on a 35 degree day.

## What does this mean for Central to Eveleigh?

The following additional interventions based on 21<sup>st</sup> Century innovation and trends have also been identified to further support sustainability during urban renewal:

### Transport

Low and alternative car ownership and parking models to increase public and active transport, and reduce car use. These include:

- Low on-site parking provision of, on average, 0.3 spaces per dwelling. This strategy would deliver:
  - Lower construction costs associated with excavation and construction of underground parking.
  - Lower housing costs - reducing parking by one space could equate to approximately \$50,000-100,000 off the sales price of a new apartment.
  - Improved street level public domain outcomes
  - Lower compliance costs with BASIX Energy Targets
  - Lower energy costs and associated strata fees.
- Parking sites close to but not within new apartment buildings.
- Car share as an alternative to traditional private vehicle ownership.

## Infrastructure and Public Domain

Recycled water throughout the precinct and linked to public domain design and management to both mitigate local climate challenges and off-set potential urban heat island impacts.

An increase in local green infrastructure and networks can improve resilience against changing climate and further reduce the effects of urban heat islands. When compared to an un-vegetated public domain, a well-managed, lush tree canopy can reduce land surface temperature by up to 15 degrees on a 35 degree day.

## High Performance Buildings

High environmental standards are established for all new developments. It is recommended that new development could potentially achieve BASIX Energy 45 (125% higher than current compliance) and BASIX Water 60 (50% higher than current compliance) through strategies such as:

- Efficient building design, fixtures and appliances
- Building or present scale low carbon energy including solar PV and cogeneration.
- Precinct level recycled water for irrigation, toilet and laundry

Note: BASIX: BASIX is implemented under the Environmental Planning and Assessment Act. BASIX applies to all residential dwelling types and is part of the development application process in NSW.

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