

Mr Paul Robilliard  
Director, Housing Land Release  
Department of Planning and Environment  
GPO Box 39  
Sydney NSW 2001

Email: [community@planning.nsw.gov.au](mailto:community@planning.nsw.gov.au)

Dear Mr Robilliard

**Re: Riverstone East Precinct Plan**

I write in response to your letter dated 14 August 2015 inviting comment from the NSW Ministry of Health on the Riverstone East precinct plan. Western Sydney Local Health District is pleased to make the enclosed submission on behalf of the Secretary, NSW Ministry of Health, to acknowledge the potential positive health benefits for future residents of the planned developments for this precinct.

Your letter was distributed for comment within Western Sydney Local Health District. Comments received viewed the proposal as positive from a health impact perspective. Planning for the precinct incorporates many of the key principles of healthy urban planning and addresses population health goals by promoting physical activity and employment opportunities, provision of open space and sports and community facilities, and the provision of public transport linkages and active transport enablers (cycle ways and pedestrian pathways).

A number of recommendations are made in relation to promoting optimal health for residents (Appendix 1). These include: minimising negative impacts from location of the employment zone in close proximity to residential areas, limiting the number of fast food outlets, establishment of community gardens, provision for childcare amenities, the incorporation of shade planning and design principles for open spaces and ensuring public transport connectivity and active transport enablers.

Western Sydney Local Health District continues to plan and develop health services to meet the needs of the growing population. Blacktown and Mount Druitt Hospitals Stage 1 Expansion is due for completion in 2016, and planning has commenced for Stage 2 Expansion. This is complemented by comprehensive planning for Redevelopment of the Westmead Precinct, development of the future Rouse Hill Hospital and the provision of a range of community based and integrated care initiatives, all of which will further enhance the health of western Sydney's population.

Thank you for inviting us to provide comment on this draft precinct plan. If you wish to obtain further information, please contact Maureen Fitzpatrick, Director, Health Service Planning and Development, WSLHD on Tel: (02) 8890 7543 or [Maureen.Fitzpatrick@health.nsw.gov.au](mailto:Maureen.Fitzpatrick@health.nsw.gov.au)

Yours sincerely,



Danny O'Connor  
**Chief Executive**

Date: 22/09/2015



## **Appendix 1**

Comments from a population health perspective on:

**Riverstone East Draft Precinct Plan**  
**North West Growth Centre**

Prepared by WSLHD Centre for Population Health  
September 2015

## Table of Contents

<b>Executive Summary</b> .....	<b>2</b>
<b>Key Recommendations</b> .....	<b>4</b>
Land Use / Zoning .....	4
Community facilities .....	4
Open space .....	4
Transport and access .....	5
<b>The Riverstone East Precinct Proposal</b> .....	<b>6</b>
Built Form: .....	6
Housing .....	6
Community and other Facilities .....	7
<b>Detailed Comments on Proposal and their Health Impacts</b> .....	<b>7</b>
Public Domain .....	7
Land Use .....	8
Recommendations: .....	9
Community Facilities .....	9
Open space .....	10
Transport and Access .....	11
Off- Road Shared Paths and other cycling requirements .....	11
Footpaths and verges .....	13
Road safety for pedestrians and other issues associated with increased traffic .....	13
Environmental Health Issues .....	15
Safe use of rainwater .....	15
Vector control .....	15
<b>References</b> .....	<b>16</b>

## EXECUTIVE SUMMARY

---

This document identifies potential health issues and health impacts from the proposed new urban developments as set out in the *Land Use and Infrastructure Delivery Plan* for Riverstone East in the North West Growth Centre. All comments are based on this document. The extensive array of other reports and technical documents provided about the Riverstone East Precinct has not been reviewed.

The focus of this document is on the health of the population of the new community rather than the provision of and access to health services.

Population health can be understood as a domain of activity “that seeks to improve the health and wellbeing of the whole population” by addressing some of the underlying causes of acute and chronic illness and injury (SWAHS: 2007). These include diseases and injuries which are influenced by lifestyle factors such as cardiovascular disease, Type 2 diabetes, depression, obesity, some cancers, asthma and fall injuries. Increasingly there is an appreciation that the form of built/urban environments exerts a critical influence on some of the modern epidemics, such as those listed above. It can do this by reducing opportunities for physical activity (for all ages), reducing access to affordable and healthy food choices, and by isolating families and communities from each other and from essential services such as transport.

Part of the work program of the WSLHD Centre for Population Health (the Centre) concerns the links between built/urban environments and disease causation. The work of the Centre is about the prevention of ill health and disease. New evidence is continually emerging that demonstrates strong associations between the environment and some diseases (Lucas and McMichael: 2005). Research also indicates that changes in how built/urban environments are planned can positively impact on health, after the plans are implemented (Giles-Corti: 2007). There is evidence that people are more likely to make healthy choices when these are easily available to them, and conversely are less likely to make these choices when there are barriers and disincentives (NSW Health: 2008). Comments are based on a range of sources of evidence linking aspects of the urban environment to population health factors. These sources include: Barton and Tsourou: 2000; Johnson: 2004; Frumkin: 2003; Gebel et

al: 2005; Humpnel et al: 2002; Hoehner et al: 2003; Northridge et al: 2003 and Schmid: 2002.

The planning for the Riverstone East Precinct incorporates many of the key principles of healthy urban planning. Riverstone East is to comprise a mix of low density houses, townhouses and low rise apartments. It will also contain schools, a neighbourhood centre, sporting fields, parks, a small employment zone and mixed use areas. The precinct plan addresses population health goals by:

- Promoting physical activity by providing pedestrian paths and cycle ways within the open space network and riparian corridors that will create links across the Precinct. The road designs will provide for on-road cycle lanes and off-road pedestrian/shared paths;
- Provision of open space for passive and active recreational uses and provision of sports and community facilities;
- Provision of public transport through new bus services connecting the Cudgegong Rd Railway Station (due for completion in 2019) and the residents and workers, thus discouraging car use, which supports less air pollution and reduced injury arising from motor vehicle accidents.

The Centre anticipates that the transport infrastructure plans for this precinct will significantly reduce utilisation of cars and increase incidental physical activity, with a range of positive population health impacts.

However there are a number of issues which, if addressed either through the precinct planning processes or local government processes, could enhance the population health benefits of these developments and mitigate any potentially negative impacts. This considers the role of urban planning and development in contributing to improving the health and wellbeing of the population, as explained earlier. The role of this submission is to provide evidenced based health recommendations to the relevant authorities and hope that future decisions are made that reflect this evidence and thus will have positive health impacts, when implemented.

## **KEY RECOMMENDATIONS**

This section outlines 'key' recommendations only. A list of full recommendations is provided in the body of the document.

### ***Land Use / Zoning***

- Creation of employment zones within proximity to the rail station and adjoining residential areas is supported. A positive feature is that the employment zone for the Riverstone East precinct is proximal to Cudgegong Rd Railway Station. However it is important that employment zones in close proximity to residential areas do not negatively impact on residential amenity, including the health of residents (air quality, odour, noise, safety).
- The Centre strongly encourages limiting the number of fast food outlets and giving preference to food outlets that encourage healthy food choices for residents and workers in this Precinct, to the extent that this is possible through the planning/zoning system.
- Given the loss of land for food production, particularly the loss of market gardens, land allocation for community gardens within open space areas could be considered.

### ***Community facilities***

- Provision for child care facilities are likely to be required in Riverstone East to cater to the childcare needs of the working population.
- Employers, particularly larger businesses, should be encouraged to provide physical activity/ recreational facilities for staff on site, such as space for exercise classes, a gym and swimming pool, with potential access to these facilities by staff of smaller businesses.
- Urban planning should consider physical access by foot, bicycle and public transport to community facilities in other Precincts.

### ***Open space***

- The incorporation of shade planning and design principles into planning approvals for non-residential development, including open space and recreational areas, will

increase open space usage. Also the addition of bubblers and shaded seating in open space areas creates an environment for people of all ages.

- It is vital that adequate summer shade be provided in open space areas of the precinct, as without shade, the high temperatures experienced in Western Sydney, including the Riverstone area, will discourage physical activity and general open space usage for other outdoor activities during the hotter months.

### ***Transport and access***

- The provision of a permeable network of physically separated off-road pedestrian and cycle lanes is recommended to be constructed for all precinct roads that connect major destinations such as transport links, schools, workplaces, parks and community facilities. This should be easily achieved in a Greenfield precinct such as Riverstone East.
- Though separated cycle ways do need greater funding initially, the increase in safe physical activity for people of all ages, with subsequent health benefits and thus health savings, far outweigh the initial cost of providing the separated cycle ways.
- Due to the predicted increase in heavy vehicles on roads in this precinct during construction works, it is recommended on safety and usage grounds that these pedestrian and cycling pathways are physically separated by barriers such as a high gutter or a vegetation border (e.g. similar to that found on the Blacktown LGA side of Windsor Road in NW sector).
- Broad planning needs to occur to connect Riverstone West with Riverstone East, separated as it is by the railway line. This should include adequate pedestrian and cycle access to key destinations in these precincts, so as to encourage integration with adjoining residential development. Pedestrian and cyclist links that involve overpasses need to provide adequate access for the less mobile (i.e. to provide alternatives to stairs).
- As a general principle, the Centre wishes to encourage the existing transport planning for the North West Growth Centre. Adequate public transport infrastructure, when completed, will contribute to viable healthy communities by encouraging increased physical activity through walking or cycling to and from public transport, improved access to employment opportunities and reduced car usage.

## THE RIVERSTONE EAST PRECINCT PROPOSAL

---

The proposed Riverstone East Precinct is 656 hectares in area and is bound by Windsor Road to the east, the Area 20 Precinct to the south east, and Schofields Road to the south and First Ponds Creek to the west. Blacktown LEP 1988 is the principal planning instrument affecting land use within the Blacktown LGA. The current zoning of land in the Precinct is Zone RU1 (a) General Rural.

Historically, the Precinct was generally used for residential and agricultural uses and today the land is predominantly characterised by rural residential properties interspersed with some agriculture such as market gardens, poultry sheds, a meat rendering plant, and minor commercial activities.

The *Land Use and Infrastructure Delivery Plan* for the Riverstone East Precinct, in the North West Priority Growth Area, outlines the proposed changes for the precinct:

### **Built Form:**

- A mix of housing types ranging from single dwellings on a range of lot sizes to townhouses, terrace style houses and low scale flat buildings.
- Minimum residential densities are to encourage efficient use of land and infrastructure and encourage diverse housing options.
- High density residential areas will be concentrated close to Cudgegong Station and the new Town Centre in the neighbouring Area 20 Precinct.
- Medium residential density will be located surrounding the village centre on Guntawong Road, and also along the sub-arterial road.

### **Housing**

- The Stage 1 Indicative Layout Plan (ILP) provides potential for approximately 1,800 dwellings out of a potential 5,800 dwellings across the entire Precinct, with a mix of low, medium and high density dwellings.
- Stage 1 dwellings will be serviced and the land rezoned by late 2015, allowing for the commencement of development.
- The high density dwellings are within the walking catchment of the station on Cudgegong Road in the neighbouring Area 20 Precinct.

- The Stage 2 proposal for the precinct includes 1,400 homes, with their delivery dependent on infrastructure availability.

### **Community and other Facilities**

- Three schools are proposed for the precinct (Stage2)
- A community facility will be provided, and is required to service the combined population catchments of Riverstone East and Area 20 and will be accommodated within the adjacent Area 20 Town Centre.
- One neighbourhood centre, providing retail and commercial floor space (4,500 sq. m.) is proposed for Stage 2 of the precinct.
- Numerous parks and open space provision (20 hectares).
- The location of Rouse Hill Regional Park within the precinct will be of substantial benefit for residents and workers, as it presents opportunities for many outdoor activities including diverse physical activities.
- An employment zone of 6.3 hectares offers local employment opportunities.
- Conservation of environmentally sensitive land along creek lines, with 30m riparian corridors.

### **DETAILED COMMENTS ON PROPOSAL AND THEIR HEALTH IMPACTS**

---

#### **Public Domain**

In order to facilitate access to the public domain by older people and people with disabilities, including the proposed neighbourhood centre and passive and active open space in this Precinct, the public domain design needs to encourage use by older people and people with disabilities. For example buildings should be accessible by ramps and rails, even and wide footpaths need to be provided, comfortable seating needs to be provided at frequent intervals, traffic calming devices and adequate lighting are also required.

#### **Recommendation:**

Ensure all public spaces and facilities encourage access by older people and people with disabilities.

## Land Use

A number of features for the proposed land use planning within the Precinct are positive from a population health perspective:

- The grid street pattern, as health evidence suggests, encourages walking and cycling to destinations as well as makes accessing those destinations easier;
- The creation of a diverse urban form in relation to the variety of housing options, the neighbourhood centre, the schools and open space provision, will contribute to an improved aesthetic environment for walking and cycling;
- This means it is likely that more people will walk and/or cycle as the new urban environment is likely to be perceived as pleasant;
- The generous open space provision and proximity to Rouse Hill Regional Park will encourage diverse outdoor activities including physical activities;
- Access to the rail link, the proposed new bus services and the employment zone near the rail link are all positive health features of the precinct, as transport availability and employment are both important determinants of health;
- The new North West Rail is very important for the wellbeing of people that will live in the Precinct, as it will connect them up to jobs, educational opportunities, and social and cultural activities across all of Sydney;
- A positive feature of the proposal is that the multi-unit development planned for the Riverstone East precinct is within the walking catchment of the Cudgegong Road Railway Station.

The Centre also notes that the urbanisation of the Riverstone East Precinct will result in the cumulative loss of land that is currently used for market gardens. While some intensive agricultural uses such as meat rendering can conflict with urban amenity, the loss of market gardens is not in conflict and is regrettable. It is noted that this is to occur despite the fact that the draft Subregional Strategy emphasises the need to maintain rural productivity. These changes on the local availability of fresh, affordable healthy food may impact the health of the population. Mitigation strategies such as the creation of a community garden on any suitable local open space could be considered as an approach to addressing this loss of fresh food.

Though this is difficult to achieve within the current planning/zoning system, it is noted that there is no consideration of the desirability of restricting the density of fast food outlets. Access to healthy reasonably priced food needs to be facilitated through strategies such as facility arrangements which give preference to outlets which sell nutritious food and which dissuade excessive numbers of fast food outlets. The development and implementation of a community nutrition and food security policy, which aims to improve access to good nutrition, and discourages over-use of inappropriate foods is recommended. The Centre understands that this work is currently under development by Blacktown City Council, and encourages its application in this area.

**Recommendations:**

- The Centre supports the creation of employment zones within proximity to the rail station and adjoining residential areas. A positive feature is that the employment zone for the Riverstone East precinct is proximal to Cudgegong Rd Railway Station. However it is important that employment zones in close proximity to residential areas do not negatively impact on residential amenity, including the health of residents (air quality, odour, noise, safety).
- The WSLHD Centre for Population Health strongly encourages limiting the number of fast food outlets and giving preference to food outlets that encourage healthy food choices for residents and workers in this Precinct, to the extent that this is possible through the planning/zoning system.
- Given the loss of land for food production, particularly the loss of market gardens, land allocation for community gardens within open space areas could be considered.

**Community Facilities**

The Riverstone East Land and Infrastructure Plan indicates a number of community facilities to be built to serve the local population. Development of this infrastructure will be positive for the new community residents. Having local facilities discourages car travel and encourages walking and cycling.

It is likely that additional childcare may be needed within the Precinct, particularly to cater to the needs of families with parents in paid employment. It will also be important to ensure direct routes of access to these facilities by footpath and cycle path.

In addition, the Centre would like to suggest that employers moving into this area be encouraged to consider the physical activity/ recreation needs of staff, and provide onsite facilities such as gyms, swimming pools and facilities for exercise classes.

**Recommendations:**

- Provision for child care facilities are likely to be required in Riverstone East to cater to the childcare needs of the working population.
- Employers, particularly larger businesses, should be encouraged to provide physical activity/ recreational facilities for staff on site, such as space for exercise classes, a gym and swimming pool, with potential access to these facilities by staff of smaller businesses.
- Urban Planning should consider physical access by foot, bicycle and public transport to community facilities in other Precincts

***Open space***

The open space provision within the precinct is positive from a population health perspective as it will provide opportunities for physical activity, relaxation and social interaction, with physical and mental health benefits.

The Centre would suggest that adequate shade is provided in both active and passive open space in the proposed Precinct, both in the form of shade trees and built shade structures. It is particularly important that shade be provided in areas that will be used by children and young people such as children's playgrounds, child care centres and sportsgrounds. Consideration of shade provision is particularly important in sports grounds that are used by children and young people. Provision of shade is an important strategy to reduce exposure to UV rays, prevent skin cancer and cataracts. It also important to avoid heat related illness and encourage physical activity for the whole year. We would also

suggest that bubblers and seating be provided in open space and sports areas<sup>1</sup>. The Cancer Council of NSW provides a free resource for built environment professionals to assist with shade planning: see *The Shade Handbook* at [www.nswcc.org.au](http://www.nswcc.org.au). An online resource is also available at [www.webshade.com.au](http://www.webshade.com.au).

#### **Recommendations:**

- The incorporation of shade planning and design principles into planning approvals for non-residential development, including open space and recreational areas, will increase open space usage. Also the addition of bubblers and shaded seating in open space areas creates an environment for people of all ages.
- It is vital that adequate summer shade be provided in open space areas of the precinct, as without shade, the high temperatures experienced in Western Sydney, including the Riverstone area, will discourage physical activity and general open space usage for other outdoor activities during the hotter months.

### ***Transport and Access***

The Riverstone East proposals are generally positive from the perspective of transport and access. The Centre notes streets will be based predominantly on a grid network, improvements to public transport networks are planned and underway, and that new shared walking and cycling paths will be provided both for transport and recreational purposes.

#### **Off- Road Shared Paths and other cycling requirements**

Shared paths will lead to destinations such as railway stations and bus interchanges, where it is indicated that facilities for bicycle parking will be provided. Bicycle parking facilities such as bicycle lockers should also be provided at other key destinations such as workplaces. There is evidence that the expansion of shared paths is likely to greatly increase the number of local trips by cycle.

It appears that on-road cycling is proposed for local roads, which is not a strategy supported by the Centre. To improve safety of cyclists and pedestrians, particularly

---

<sup>1</sup> Provision of shade and bubblers is particularly important in the context of global warming and climate change, to prevent associated illnesses such as heat stress, (Australian Greenhouse Office: 2007).

children and young people, it is preferable that all cycle paths be provided off-road and that shared paths be as wide as possible.

It is also unlikely that vulnerable groups in the community, such as children, will use these pedestrian and cycling paths (due mostly to safety issues in part related to high level of heavy vehicle traffic) unless there a physically separated boundary between the road, the cycleway and the pedestrian footpath. These goals should be highly achievable in Greenfield developments such as this that involve the construction of roads (Titze et al: 2008) where few currently exist. Moving from off-road to on-road networks is also likely to create an impermeable cycling network, and thus reduce connectivity and should be avoided.

**Recommendations:**

- Provision of a permeable network of physically separated off-road pedestrian and cycle lanes constructed for all precinct roads that connect major destinations such as transport links, schools, workplaces, parks and community facilities. This should be easily achieved in a Greenfield precinct such as Riverstone East.
- Though separated cycle ways do need greater funding initially, the increase in safe physical activity for people of all ages, with subsequent health benefits and thus health savings, far outweigh the initial cost of providing the separated cycle ways.
- Due to the predicted increase in heavy vehicles on roads in this precinct during construction works, it is recommended on safety and usage grounds that these pedestrian and cycling pathways are physically separated by barriers such as a high gutter or a vegetation border (e.g. similar to that found on the Blacktown LGA side of Windsor Road in NW sector).
- Broad planning needs to occur to connect Riverstone West with Riverstone East, separated as it is by the railway line. This should include adequate pedestrian and cycle access to key destinations in these precincts, so as to encourage integration with adjoining residential development. Pedestrian and cyclist links that involve overpasses need to provide adequate access for the less mobile (i.e. to provide alternatives to stairs).
- As a general principle, the Centre wishes to encourage the existing transport planning for the North West Growth Centre. This transport infrastructure, when completed, will contribute to viable healthy communities by encouraging increased

physical activity through walking or cycling to and from public transport, improved access to employment opportunities and reduced car usage, all because of adequate public transport provision.

### **Footpaths and verges**

To enable good pedestrian access and improve walkability, it is a positive feature when footpaths are built on both sides of all streets. It is suggested that footpaths should maximise convenience with appropriate surfaces, avoid trip hazards, avoid steep hills, steps and kerbs that may inhibit physically less mobile people and people who use wheelchairs and strollers (Barton & Tsourou: 2000).

Verges on the side of roads should be wide enough to grow large shade providing trees with contained root systems that do not cause disruption to paths resulting in trip hazards or restrict driveway vision. These should eventually fully shade footpaths and/or cycle ways as well as making walking more enjoyable due to the visual enhancement of walking tracks.

In addition, signage providing appropriate information about walking & cycling routes, including destinations, distance and travel time, should be provided. To be fully accessible to the aged and people with a disability, walking routes should include adequate rest stops, such as shaded seating areas and bubblers.

### **Recommendations:**

- Provide signage with appropriate information about walking & cycling routes, including destinations, distance and travel time at appropriate locations.
- Walking routes, including footpaths, should include adequate rest stops, such as shaded seating areas.

### **Road safety for pedestrians and other issues associated with increased traffic**

This Precinct is to provide over 5,000 homes, three schools, a neighbourhood centre and an employment zone plus other associated works. This is large scale development and will generate significantly higher volumes of traffic, including heavy vehicle traffic.

Therefore there will be noise and safety issues over an extensive period of time, however it is recognised that these may need to be assessed at DA stage, which, it is believed, will be the responsibility of Blacktown City Council. Consideration of strategies for mitigating or avoiding increased traffic in residential areas to avoid stress associated with traffic noise, to allow for physical activity and address safety issues, are highly recommended at an appropriate stage in implementation of these plans.

Other implications from heavier traffic volumes are that they will lead to higher vehicle emissions, with associated health problems such as higher levels of mortality and morbidity resulting from air pollution<sup>2</sup>, death and injury as a consequence of possible motor vehicle accidents.

Strategies to discourage traffic, particularly heavy vehicle traffic, on residential areas adjoining and within Riverstone East need to be considered. Heavy vehicle traffic discourages pedestrian activity and it is perceived as unsafe, especially by parents. This will happen during construction and from business and related activities in adjacent precincts. Any potential for negative impacts on residential development adjoining and within Riverstone East, from commercial and industrial uses in the adjacent Riverstone West employment zone, also needs to be carefully considered. Negative impacts should be mitigated or avoided wherever possible.

**Recommendations:**

- Utilise appropriate traffic calming measures, speed limitations, and provide safe pedestrian crossings, such as wombat crossings (i.e. raised crossings).
- Ensure provision of adequate bus bays for safe put-down and pick-up, and kiss-and-drop places for parents to briefly sit down and see off their children to schools and child care facilities.
- Give consideration to setting lower traffic speeds on major roads in areas of high pedestrian activity.

---

<sup>2</sup> Motor vehicle pollution is associated with mortality from lung cancer and cardiorespiratory disease and higher levels of mortality arising from asthma and chronic obstructive pulmonary disease, (Kjellstrom et al: 2002).

- Assess noise issues associated with increased traffic associated with the proposed land use and develop mitigation measures at an appropriate stage.

## ***Environmental Health Issues***

---

### **Water Cycle Management**

#### **Safe use of rainwater**

The collection and use of rainwater is encouraged for non-potable use such as watering gardens, flushing toilets and for use in the laundry. Water used for drinking, food preparation or bathing should meet drinking water quality guidelines. If rainwater is reticulated to outlets where persons may inadvertently use the water for drinking purposes, such a water supply should be either tested and/or treated to ensure that it is of potable quality. The provision of good quality water depends on correct design and installation including the roof catchment materials, the collection pipes and the rainwater tank. This needs to be followed by sensible ongoing maintenance of the tank and catchment area. More information can be found in the NSW Health website for the use of Rainwater tanks<sup>3</sup>.

#### **Recommendation:**

- Ensure roof catchment areas are of a material that will not taint or contaminate the rainwater. Ensure first flush devices are installed and access by mosquitos to the tank is prevented. Ensure colour coded taps are used to indicate the source of the supply and signposting is erected to warn potential users that the rainwater may not be of potable quality.

### **Wetlands and waterways**

#### **Vector control**

An extensive trapping program undertaken by local councils and the Institute of Clinical Pathology and Medical Research in the Sydney outskirts has already demonstrated that Ross River and Barmah Forest viruses can occur in local mosquito populations. Potential breeding sites include stormwater control mechanisms such as retention ponds or

---

<sup>3</sup> <http://www.health.nsw.gov.au/public-health/ehb/water/rainwater.html>

constructed wetlands. Notifications of Ross River and Barmah Forest virus are reported to the Public Health Unit and investigations have shown that some of these cases may have been locally acquired. Details of the ICPMR/NSW Health Mosquito surveillance program can be found at the New South Wales Arbovirus Surveillance and Mosquito Monitoring Program website.<sup>4</sup>

**Recommendation:**

- Consider risk assessment and management approach to control mosquito populations when designing urban wetlands/stormwater management systems.
- Develop and undertake a program throughout the urban area to monitor and manage mosquito breeding appropriately.

**REFERENCES**

---

Ashe M., D.Jernigan, R.Kline, R.Galaz, (2003), 'Land use Planning and the Control of Alcohol, Tobacco, Firearms, and Fast Food Restaurants', *American Journal of Public Health*, Sept, 2003, vol.93, no.9: pp.1404 – 1408.

ABS (2006), *2006 Census of Population and Housing*,  
<http://www.abs.gov.au/websitedbs/d3310114.nsf/home/Census+data>, accessed 4/11/08.

Australian Local Government Association (ALGA) (2004), *Australian Local Government Population Ageing Action Plan 2008-2008*, ALGA: Canberra.

Australian Greenhouse Office (2007), *Climate Change- Adaption Actions for Local Government*, Australian Greenhouse Office, Department of Environment & Water Resources, Commonwealth of Australia: Canberra.

Barton H. and Tsourou C. (2000), *Healthy Urban Planning- A WHO guide to planning for people*, WHO Regional Office for Europe: London.

---

<sup>4</sup> <http://www.arbovirus.health.nsw.gov.au/>

Bauman A. (2004), 'Updating the evidence that physical activity is good for health: an epidemiological review 2000-2003', *Journal of Science and Medicine in Sport*; Vol 7 (1): 6-9.

Brown W. J. (2004), 'Physical Activity and Health: updating the evidence', *Journal of Science and Medicine in Sport*; Vol 7 (1): 1-5.

Commonwealth Department of Health and Ageing (1999), *National Physical Activity Guidelines*, AGPS: Canberra.

Commonwealth, State and Territory Housing Ministers' Working Group on Indigenous Housing (1999), *The National Indigenous Housing Guide, Healthabitat*, AGPS: Canberra.

Disney J (2007) *Affordable Housing in Australia- Some Key Problems and priorities for Action*, [http://www.ahuri.edu.au/downloads/2007\\_Events/AHURI\\_Conf/Julian\\_Disney.pdf](http://www.ahuri.edu.au/downloads/2007_Events/AHURI_Conf/Julian_Disney.pdf), accessed 4/11/08.

Engwicht D, *Intrigue & Uncertainty, Towards New Traffic - Taming Tools*, Version 2.1, Creative Communities International, <http://www.lesstraffic.com/Articles/Traffic/Intrigue.pdf>

Elton, B. (2006), 'Building sustainable communities: planning for social sustainability' Ch. 6 in *Talking about Sydney-Population, Community and Culture in Contemporary Sydney* eds. Freestone R. Randolph, B. Butler-Bowden, C. UNSW /Historic Houses Trust: Sydney.

Elton Consulting, (1998) *Draft Community Plans for the Western and Central Precincts*, <http://www.penrithcity.nsw.gov.au/index.asp?id=5421>, accessed 5/11/08.

Frumkin H., Lawrence F & Jackson R (2004), *Urban sprawl and public health: designing, planning and building for healthy communities*, Island Press, Washington DC.

Fukuyama F. (1999), *Social Capital and Civil Society*, <http://www.imf.org/external/pubs/ft/seminar/1999/reforms/fukuyama.htm#1> , accessed 12/11/08.

Gebel K., King L., Bauman A., Gill T., Rigby A. & Capon A. (2005), *Creating healthy environments: A review of links between the physical environment, physical activity and obesity*, NSW Department of Health & NSW Centre for Overweight and Obesity: Sydney.

Giles-Corti, B. et al. (2007), 'Can the impact of health of a government policy designed to create more liveable neighbourhoods be evaluated? An overview of the RESidential Environment Project', *NSW Public Health Bulletin*; 18:238-242.

Growth Centre, NSW Planning and Environment. 2015. *Riverstone East Land Use and Infrastructure Delivery Plan*

<https://majorprojects.affinitylive.com/public/4a2294e0be51178a3e74d4720006e43b/Land%20Use%20and%20Infrastructure%20Delivery%20Plan.pdf> (Accessed 11/09/2015)

Hoehner, C.M., Brennan, L.K., Bownson, R.C., Handy, S.L. & Killingsworth, R. (2003), 'Opportunities for Integrating Public Health and Urban Planning Approaches to Promote Active Community Environments', *American Journal of Health Promotion*, vol 18 (1): 14-20.

Humpel N, Owen N & Leslie E (2002), 'Environmental Factors Associated with Adults' Participation in Physical Activity: A Review. *American Journal of Preventive Medicine*, Vol 22 (3).

Jackson RJ, Kochtitzsky C (2002), *Creating a healthy environment: the impact of the built environment on public health*, Centres for Disease Control and Prevention, <http://www.sprawlwatch.org/health.pdf>, accessed 12/11/08.

Johnson C. (ed) (2004), *Healthy environments- 11 Essays*, Government Architect's Publications (GAP): Sydney.

Kjellstrom T., Neller A., Simpson R., (2002), 'Air pollution and its health impacts: the changing panorama', *Medical Journal of Australia*, 2002, 177 (11/12): 604- 608.

Liverpool City Council (1993), *Women's Safety Audit*, Liverpool City Council: Liverpool.

Lucas, R.M. McMichael, A.J. (2005) 'Association or causation: evaluating the links between environment and disease', *Bulletin of the World Health Organisation*, Vol.83 No.10 October 2005 (p.721-800).

NSW Cancer Council & NSW Health (1998), *Undercover-Guidelines for Shade Planning and Design*, Cancer Council NSW and NSW Health, 1998 (an online tool is available via [www.webshade.com.au](http://www.webshade.com.au)).

NSW Cancer Council (2008), *Sun-Smart Early Childhood*, <http://www.nswcc.org.au/editorial.asp?pageid=413> .

NSW Health (2003), *Management Policy to reduce fall injury among older people- Detailed Strategies and Performance Requirements 2003-2007*, NSW Health: Sydney.

NSW Health (2003), *NSW Chronic Disease Prevention Strategy 2003-2007*, NSW Department of Health: Sydney.

NSW Health (2004), *NSW Health & Equity Statement 'In all Fairness- Increasing equity in health across NSW'*, NSW Department of Health: Sydney.

NSW Health (2006), *The Health of the People of New South Wales- Report of the Chief Health Officer*, <http://www.health.nsw.gov.au/public-health/chorep/>, accessed 3/11/08.

NSW Health, (2008), *NSW Community Mental Health Strategy 2007-2012- From prevention to early intervention and recovery*, NSW Department of Health: Sydney.

Northridge ME, Sclar ED & Biswas P (2003), 'Sorting Out the Connections Between the Built Environment and Health: A Conceptual Framework for Navigating Pathways and Planning Healthy Cities', *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, vol 80 (4): 556-567.

Premiers' Council for Active Living, *Designing Places for Active Living*, [http://www.pcal.nsw.gov.au/planning\\_and\\_design\\_guidelines](http://www.pcal.nsw.gov.au/planning_and_design_guidelines), accessed 12/11/08.

Schmid TL & Killingsworth RE (2002), *How Land Use and Transportation Systems Impact Public Health: A Literature Review of the Relationship Between Physical Activity and Built Form*, Active Community Environments Initiative Working Paper # 1, [www.cdc.gov/nccdphp/dnpa/pdf/aces-workingpaper1.pdf](http://www.cdc.gov/nccdphp/dnpa/pdf/aces-workingpaper1.pdf) accessed on 3/09/2004.

Sydney West Area Health Service (2007), *HealthFirst-healthy people, places & communities*, SWAHS: Penrith.

Titze S., Stronegger W. J., Janschitz S., Oja P., (2008), 'Association of built environment, social environment and personal factors with cycling as a mode of transportation among Austrian city dwellers', *Preventive Medicine*, 47: 252-259.

US Department of Health and Human Services (1996), *Physical Activity and Health: A report of the Surgeon General*. US Department of Health and Human Services, *Public Health Service, CDC, National Centre for Chronic Disease Prevention and Health Promotion: Atlanta*.