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NSW Department of Planning and Environment
(Attention: Brendon O'Brien)
Executive Director, Infrastructure, Housing and Employment
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GPO Box 39
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Dear Sir

GREATER MACARTHUR PRELIMINARY STRATEGY

I am writing to provide comment on the Greater Macarthur Preliminary Strategy (the Strategy) and associated information received by the Environment Protection Authority (EPA) on 25 September 2015.

Based on a review of the proposed strategy, please find attached comments (**Attachment A**) for the Department of Planning and Environment's (DPE) consideration. These comments include recommended environmental outcomes and approaches in relation to the following:

- Air Quality
- Water Quality
- Noise
- Contaminated Land Management
- Waste Management
- Coal Seam Gas Infrastructure.

We have also provided additional information (**Attachment B**) to assist further in guiding future development in the Greater Macarthur Area that supports the need for the above outcomes.

The EPA recommends the attached outcomes be included in the planning framework to help ensure future sustainable growth is delivered (if the Strategy is approved). This includes provision setting in the *State Environmental Planning Policy (Sydney Region Growth Centres)* 2006 and/or any associated supporting instruments.

The EPA is able to meet with DPE at a mutually convenient time to discuss any of the above issues. If you have any questions regarding this matter, please contact Mr Paul Wearne on (02) 4224 4100.

Yours sincerely

A handwritten signature in black ink, appearing to read 'G Sheehy', followed by the date '7/12/2015' written in a similar style.

GREG SHEEHY
Acting Director Metropolitan
Environment Protection Authority

Attachment

ATTACHMENT A

1. AIR QUALITY

1.1 Environmental Outcomes

The Strategy should deliver the following environmental outcomes:

- *Minimise impacts on air quality, to maintain or improve air quality in line with national air quality goals, and minimise exposure of populations to air pollution emissions*
- *Ensure new potential sources of air emissions use best practice controls*
- *Avoid land use conflict.*

1.2 Recommended Approaches

Priority Growth Area Air Technical Working Group

The Strategy states that population growth in Western Sydney could worsen air quality and contribute to population exposure, if not carefully managed. It also states that the development presents opportunities for improving urban design in terms of air quality outcomes. The EPA is committed to working with DPE through the Priority Growth Area Air Technical Working Group to identify air issues and develop options to reduce emissions and impacts through sound planning decisions. The working group could identify and consider opportunities to improve air outcomes at successive stages of planning processes.

Transport

Transport planning for the new release area will play a major role in managing air quality and its impacts. This involves considering transport changes in terms of potential emission impacts on local and regional air quality and exposure risks for sensitive land uses. This should include developing and implementing urban design and transport options to minimise transport emissions and exposure. The EPA supports a focus on public transport connections and well-designed active transport infrastructure that integrates effectively with services, for the benefits to air quality as well as to public health and liveability. The EPA has developed valuation tools to support and inform decision-making that involves changes to particle emissions, including specifically from transport and land use changes. These are available on its website at: <http://www.epa.nsw.gov.au/air/costcurves.htm>.

Management of exposure to air pollution

The EPA supports the proposal to use best practice to minimise emissions in the Greater Macarthur area. Key pollutants of concern are particles, nitrogen oxides and volatile organic compounds. Key pollution sources include construction activities, residential wood heaters, vehicles, distributed energy and other commercial, domestic and industrial sources. Measures for addressing these pollutants and sources can be found in [Managing particles and improving air quality in NSW](#), the EPA's [Diesel and Marine Emissions Management Strategy](#) and the [Government Resource Efficiency Policy](#).

Human exposure to air pollution and odours from regional pollution and from local impacts (for example busy roads, construction, industry and agriculture) should be minimised. The strategy involves proposed urban land uses in the vicinity of the Maldon Industrial Estate and the proposed Glenlee Industrial Park. Odour from existing waste facilities has resulted in land use conflict in relation to the encroachment of new urban development at Spring Farm.

Managing exposure of future residents to air pollution from vehicles and other local sources can best be managed during the planning stages of development. Consideration should be given to where roads are likely to carry increased traffic and involve road widening. This should include the provision of measures including buffer areas to protect sensitive development. The EPA is working with DPE to strengthen and modernise requirements for siting and design of sensitive developments near major transport corridors.

Based on indicated land uses, there is a potential risk of odour impacts to future residents from a range of existing activities. The EPA supports conducting an odour impact assessment in order to quantify risks and guide approaches to inform the Strategy. The EPA recommends that reference be made to the EPA's

*Technical Framework: Assessment and Management of Odour from Stationary Sources in New South Wales*¹(EPA Technical Framework) A comprehensive odour assessment should ideally include odour emission rates based on measured data and detail proposed mitigation options. This framework also provides information on strategic planning approaches for the management of odour. In particular it recognises the importance of engagement and negotiation between all relevant stakeholders to develop approaches to reduce and mitigate the risk of odour impacts.

Land Use Conflict And Interface Issues With Agriculture

There is a potential risk of land use conflict as housing encroaches on existing agricultural land uses in the Macarthur area. This is currently a key planning issue in both the South West and North West priority growth areas where new housing is encroaching on existing poultry operations and market gardens. The operation of these agricultural activities have a range of environmental issues relating to odour, noise and pesticide management. For example the recent Marsden Park North Precinct environmental assessment identified that approximately 95 per cent of the Marsden Park North precinct would be at risk of adverse odour impacts if all existing poultry farms continue operations.

A number of the Western Sydney Councils have also approached the EPA seeking guidance and policy approaches that could be used to inform land owners, developers and the communities on this issue as areas transition. The ability to address environmental issues including noise and odour issues retrospectively following development can be challenging and expensive and can result in community complaint.

Action 4.1.2 in a *Plan for Growing Sydney* requires the preparation of a strategic framework for the metropolitan rural area to enhance and protect its broad range of environmental, economic and social assets. Complimenting this framework will be important as understanding where and how agriculture will be managed into the future in the Macarthur area needs to be understood to inform the strategy. This will also assist in guiding approaches needed to manage any interface issues with future sensitive land uses. For example this may require restricting intensive agricultural activities in areas and/or placing specific environmental requirements on future agricultural activities.

The Strategy includes an outline of a process required to be undertaken where urban development is proposed on land encumbered by agriculture activities. The EPA supports the development of this process but also recommends that it should also include but not be limited to the following:

- Recognising and applying guidelines including the Department of Primary Industry (DPI) guideline *Land Use Conflict Risk Assessment Guide* (Oct 2011). This guideline details a risk based framework that can be used to inform strategic planning decisions
- The development of a negotiated transitional approach with all existing agricultural operators, land owners and developers. This approach should outline a transitional timeframe and detail actions, including the implementation of mitigation options at the farms or other odour producing facilities and/or a staged release as areas transition over time. Such a process would provide a proactive approach to mitigate land use conflict. Further information on these approaches is available in the EPA *Technical Framework*⁵.

The Sydney Agriculture Strategic Approaches Working Group has convened a technical working group with key agencies including Department of Primary Industries; DPE, EPA and Councils to explore approaches to manage land use conflict to guide land use change as part of growth. DPE may wish to seek further information from this group regarding the development of the above process.

2. WATER QUALITY

2.1 Environmental Outcome

The Strategy should deliver the following environmental outcomes:

¹ <http://www.epa.nsw.gov.au/air/odour.htm>

- *Promote development that protects, maintains or restores the community's environmental values and uses of waterways (including human and environmental health) through the achievement of relevant NSW Water Quality and Flow Objectives.*
- *Promotes integrated water cycle management that includes sustainable water supply, wastewater and stormwater management and reuse initiatives where it is safe and practicable to do so and provides the best environmental outcome.*

2.1 Recommended Approaches

The above outcomes should be secured in the Growth Centres SEPP. These outcomes can then underpin any Structure and Infrastructure Plans, Precinct Plans and associated Development Control Plans (DCP) to ensure they contain appropriate water quality and flow provisions. This will ensure the community's uses and values for waterways are considered in conjunction with future land use and infrastructure decisions. They will also assist in meeting actions in a *Plan for Growing Sydney* (DPE 2014).

Water Quality Targets

The submitted information does not appear to provide details of expected water quality outcomes. It does state that post-development water quality will comply with generic per cent load reductions based on the Growth Centre DCP and other general guidelines (that is, Gross Pollutants 90 per cent, TSS 85 per cent, TP 65 per cent, TN 45 per cent).

Ambient water quality targets for the receiving waters should be developed rather than applying generic per cent load reductions that have no reference to receiving water outcomes that support the NSW WQOs. Furthermore, these generic targets do not reflect contemporary Water Sensitive Urban Design performance and may not deliver improvements in the health of waterways. EPA also notes that the Growth Centre Codes are currently under review.

The supporting information also proposes the use of the Neutral or Beneficial Effect (NoRBE) Criteria to guide growth. EPA does not support the use of NoRBE for this purpose as this criteria has the potential to constrain the achievement of the environmental values of waterways. It also limits opportunities for improvement where waterways do not currently meet community expectations. For example, adoption of NoRBE would permit a proponent to discharge to a degraded waterway at a quality equivalent ('neutral') to that waterway. This approach may not provide an opportunity for consideration of firstly avoiding discharge or reducing the concentration of pollutants through adoption of appropriate mitigation measures. This approach could also lead to a situation where industry best practice is not adopted and where innovation is stifled.

EPA recommends that appropriate water quality targets be developed that support the NSW WQOs and determine whether proposed mitigation measures including WSUD are adequate. Further information on contributing to improving the health of waterways through strategic planning can be found at:

<http://www.environment.nsw.gov.au/water/planningusingwqos.htm>.

Strategic Planning and Waterway Outcomes

Water quality and waterway health is closely linked to the surrounding environment and land use. EPA considers it appropriate that planning authorities adopt a risk-based approach considering the link between urban development, waterway health and the community's uses and values of waterways. This approach can then consider land use scenarios and treatment measures required to achieve desired outcomes. By considering waterway health in combination with strategic planning decisions, planning authorities can better manage the impacts of development while supporting locally relevant management objectives.

As part of planning for growth in the Illawarra region agencies developed a risk-based decision framework for integrating water quality outcomes in the strategic planning process. Adoption of the framework has been included as an action in the Draft Illawarra Regional Growth and Infrastructure Plan and the same risk-based framework is being considered as part of the current planning reforms for the Sydney region.

The framework combines existing NSW government policy and processes with contemporary catchment and ecosystem response modelling in a structured, risk-based decision making framework that delivers Ecological Sustainable Development (ESD) and provides planning authorities with the ability to:

- gauge the potential impact on waterways of land use scenarios and assess trade-offs
- inform and support community and government decision making by providing a structured approach to considering waterway outcomes in planning decisions
- identify locations that are more suited to particular development types and densities, and where landscape conditions could minimise resulting impacts on water quality
- drive cost-effective delivery of environmental outcomes
- support healthy communities by maintaining natural assets.

EPA recommends that the above framework should also be adopted in the Strategy to support consideration of water quality outcomes. It also compliments the Green Grid Approach identified in a *Plan for Growing Sydney*.

Integrated Water Cycle Management

EPA considers contemporary approaches such as Integrated Water Cycle Management, which includes WSUD, should be encouraged as they can provide a least cost approach to:

- meeting waterway health and urban amenity needs of the community
- the safe conveyance of local flood waters
- increased opportunities to reduce potable demand through the use of innovative lot and/or precinct scale alternative sources, including sewage effluent recycling and stormwater harvesting and use.

While EPA supports an integrated approach to water management including the proposed use of water conservation and WSUD techniques, they are reliant on effective maintenance and monitoring into the future. EPA recommends that DPE explore opportunities through Special Infrastructure Contribution (SIC) to secure any management arrangements, financial contributions and accountable parties. This will ensure that the integrated system will have an effective governance structure in place maintained in perpetuity and will continue to meet the expected environmental performance outcomes into the future.

Sewage Management

There has been significant investment to consolidate sewerage infrastructure to reduce the environmental impact of local sewage outfalls, improve the quality of local waterways and provide recycled water to industrial users in the region. Growth across Western Sydney will utilise either existing sewerage system capacity or require new treatment capacity. There are a range of approaches for the provision of new sewerage infrastructure, including private sector involvement.

Since the introduction of the *Water Industry Competition Act (WICA) 2006* and its associated regulations there has been an increase in privately owned and operated sewerage management schemes being developed and constructed for new urban release areas. EPA considers that this trend may increase in the future. This was highlighted with the Wilton Junction Precinct proposal which involved the development of a privately owned scheme. This scheme was supported by EPA as it provided an integrated water management approach that contributed to the achievement of key WQOs for the Hawkesbury/Nepean River.

Infrastructure planning for the area should include clear direction for the provision of sewerage services. It should also consider whether proposed growth will result in increased loads of pollution on the receiving environment as a result of additional sewage capacity. It should also identify what practical and cost effective measures can be taken to maintain or restore the community's uses and values of waterways and protect public health. This would include sewage overflows from any existing sewage pumping stations and discharges from any existing STP. EPA's policy is that for new systems there should be no pollution of waters as a result of overflows during dry weather and that overflows during wet weather should be avoided. Sewage overflows have been identified as one of the major contributors to diffuse source water pollution in urban environments.

The Growth Centres SEPP also encourages water recycling and water reuse initiatives. EPA supports such initiatives in particular, proposed integrated approaches to managing sewage effluent and stormwater. These approaches present a significant opportunity to meet the community's environmental objectives for the lowest cost and provide a source of water to improve the liveability of the development.

The EPA is currently examining a potential framework for the regulation of nutrient discharges in the Hawkesbury Nepean River system. The intent of this framework is to ensure that population growth in the catchment does not cause further deterioration in the condition of the river and its ability to meet the community's desired uses. Several options are being considered including a catchment based nutrient load limit. In the interim, EPA recommends that infrastructure planning for the new area should deliver an outcome that ensures any new sewage treatment scheme will achieve no net increase in nutrient load to the river. Offsets and other measures such as integrated approaches to water management can be used to achieve this outcome. In addition any proposed discharge would need to be assessed in accordance with the ANZECC (2000) *Guidelines for Fresh and Marine Water Quality*.

3. NOISE

3.1 Environmental Outcome

The Strategy should deliver the following environmental outcome:

- *Promotes development and provides strategies at a local level that ensures that noise emissions do not cause adverse impacts upon the community's amenity or health and prevents land use conflict.*

3.2 Recommended Approaches

EPA considers that implementing noise control at a strategic planning level provides the most effective means of minimising noise impacts on communities. This is best achieved by applying the following hierarchical approach to noise control:

- Spatial separation of incompatible land use through appropriate zoning and placement of activities to minimise noise-related land use conflicts.
- Minimising noise emissions at source through best practice selection, design, siting, construction and operation as appropriate.
- Reducing noise impacts at receivers through best practice design, siting and construction.

4. CONTAMINATED LAND MANAGEMENT

4.1 Environmental Outcome

The Strategy should deliver the following environmental outcome:

- *To ensure land contamination is assessed and managed so that land is suitable for its proposed use and that the contamination does not present an unacceptable risk to human health or any other aspect of the environment.*

4.2 Recommended Approaches

The investigation of land contamination is an important consideration that should be delivered through the land use change process at a local level. A range of activities can result in land contamination and cause significant environmental and health risks if the land is not appropriately investigated, remediated and validated for its proposed land use. There has been no assessment of contaminated land undertaken to inform the strategy. *State Environmental Planning Policy 55 – Remediation of Land* states that it is important that the likelihood of land contamination is assessed as early as possible in the planning and development control process.

In cases where land is potentially contaminated, the investigation and any remediation and validation work is to be carried out in accordance with the guidelines made or approved by EPA under Section 105 of the *Contaminated Land Management Act 1997*. It should also be in accordance with the requirements and procedures in the following:

- *Contaminated Land Management Act 1997*
- *Contaminated Land Management Regulation 2013*
- *State Environmental Planning Policy 55 – Remediation of Land.*

5. WASTE MANAGEMENT

5.1 Environmental Outcome

The Strategy should deliver the following environmental outcomes:

- *Provides sound waste management strategies at a local level which are implemented to achieve the NSW Waste Avoidance and Resource Recovery Strategy (WARR Strategy) addressing the waste management hierarchy of:*
 - *avoidance of unnecessary resource consumption*
 - *resource recovery (including reuse, reprocessing, recycling and energy recovery)*
 - *disposal*
- *Compliments NSW Government's Waste Less, Recycle More initiatives and EPA waste and recycling programs.*

5.2 Recommended Approaches

Regional Waste Strategy

As part of recent waste initiatives the Regional Organisation of Councils obtained grant monies to develop and implement a regional waste strategy by 2017. It is anticipated that this strategy will identify the range of wastes managed and handled across the LGAs. This includes waste management and recycling constraints, identify opportunities for their improvement, and to provide key recommendations to inform EPA and councils on future infrastructure needs and improvements. Ensuring these initiatives are implemented will deliver waste actions in a *Plan for the Growing Sydney*.

The management of waste will be a significant challenge in LGAs where there will be an expected increase in employment, population and housing growth over the next 20 years. EPA considers development provides an opportunity to include appropriate provisions to guide the management of waste to accommodate future growth, especially future waste and recycling infrastructure needs. Existing waste facilities are important to meet recycling needs and the NSW government's objectives and targets. EPA recommends DPE engage with the Macarthur Regional Organisations of Councils (MACROC) to explore opportunities for waste management to inform the strategy.

Specific Regional Funding for MACROC

Projects to support communities in MACROC include \$276,298 funding for a Community Recycling Centre at the Campbelltown City Council Waste Depot. This will provide a convenient and accessible drop-off solution for household problem wastes for nearby councils. Residents will be able to drop off free of charge paint, oils and batteries year round. As well as the permanent centre, council will also be trialling '*recycling cluster stations*' for the disposal of batteries, mobile phones and compact fluorescent lights. The stations will be located at various locations throughout the city.

Development Control Plan

EPA has developed information to improve waste management associated with new development. DPE should consult the *Waste Not Development Control Plan Guideline* (EPA 2008): <http://www.epa.nsw.gov.au/resources/warrlocal/080353-model-waste-not-dcp.pdf> to assist in guiding the development of provisions in any proposed DCP. This guideline also provides suggested planning approaches and conditions for planning authorities to consider at the development application phase in relation to waste minimisation and resource recovery. This includes consideration of demolition and construction waste and the provision of facilities and services to allow the ongoing separation, storage and removal of waste and recyclables. In particular these provisions should include but not be limited to:

- Any waste generated during demolition and construction needs to be classified in accordance with EPA's Waste Classification Guidelines and managed in accordance with that classification.
- Waste management planning for the new development needs to consider any regional waste management strategies.

In addition, EPA also recommends that any DCP include the following guidelines to assist the development of waste management strategies:

- *The Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities* (EPA, December 2012). This guide can be accessed at: <http://www.epa.nsw.gov.au/warr/BPGuideCIFacilities.htm>.
- *The Better Practice Guide for Multi-Unit Dwellings provides waste management strategies for multi-unit residential developments* (DECC 2008). This guide can be accessed at: <http://www.epa.nsw.gov.au/warr/BetterPracticeMUD.htm> ; and
- *The Better Practice for Public Place Recycling* (DEC 2005) provides information on standards for recycling systems in public places, such as parks, shopping centres, footpaths, bus-stops, etc. This guideline can be accessed at: <http://www.epa.nsw.gov.au/warr/publicrecycling.htm>.

6. COAL SEAM GAS INFRASTRUCTURE

EPA Role in Coal Seam Gas

The NSW government announced the NSW Gas Plan in November 2014. The NSW Gas Plan sets a framework for the future of the state's gas industry and ensures a consistent and transparent approach to compliance and enforcement. A key feature of the plan has been the appointment of the EPA as the lead regulator for compliance with and enforcement of conditions of approval for gas activities in NSW, including consent conditions and activity approvals issued by other agencies.

Urban Encroachment on Existing Coal Seam Gas Infrastructure

The supporting information states that urban development can only occur on land within 200 metres of coal seam gas operations once:

- The coal seam gas wells have been closed and sealed
- The Rosalind Park Gas Plant has finalised its operation
- The Appin East and Appin West (Tower) gas/power stations have finalised their operations.

It is unclear if the 200 metre buffer would apply to the gas reticulation system and the Rosalind Park Gas Plant and Appin East/Appin West (Tower) gas/power stations. EPA is seeking clarification from DPE on the application of this separation distance.

Currently there are inconsistencies in the land use planning approaches to the separation distances between existing coal seam gas (CSG) wells and proposed development. For example:

- The Mining SEPP does not permit petroleum (CSG development) within two kilometres of residential development.
- The Petroleum (Onshore) Act 1991 restricts operations within 200 metres of residential dwellings except with written consent of owners and occupiers.
- The "Locational Guidelines – Development in the Vicinity of Operating Coal Seam Methane (CSM) Wells" (NSW Department of Infrastructure, Planning and Natural Resources, May 2004) guideline includes separation distances between existing CSM wells and proposed development. Depending on well configuration and operating conditions, separation distances for residential development range from five to ten metres. Similarly for sensitive development, separation distances range from eight to 20 metres.
- There are a range of current situations where existing infrastructure associated with the Camden Gas Scheme is located in close proximity to existing or already approved residential development in the area.
- The Strategy is now proposing a buffer of 200 metres from coal seam gas operations.

Any guidance on recommended separation distances should be evidence based and demonstrate human health, safety and the environment will be protected at all times. This includes air, water and noise emissions. Risk assessments should take into account all scenarios relating to CSG emissions. This is to ensure all scenarios are identified and assessed and the associated probability and consequences are documented.

In order to ensure a consistent approach to land use planning in the vicinity of existing CSG infrastructure there should be clear and agreed guidance on siting residential development near existing CSG

infrastructure. While the *“Locational Guidelines – Development in the Vicinity of Operating Coal Seam Methane Wells”* provides guidance, the status and application of this 2004 document is unclear. As it does not reflect recent information and findings that has arisen in the NSW Chief Scientists CSG Review. It also conflicts with the Petroleum (Onshore) Act and the Mining SEPP. Guidance material needs to be evidence based, citing relevant risk assessments, and demonstrate that human health, safety and the environment will be protected at all times.

In the absence of such comprehensive guidance material, justification should be documented on the use of a 200 metre buffer from coal seam gas operations. This justification should likewise be evidence based, cite relevant risk assessments and demonstrate that human health, safety and the environment will be protected at all times.

ATTACHMENT B

1. AIR QUALITY

Sydney air quality is good by international standards, with national air quality standards met 80-90% of the time. Considerable progress has been made in improving air quality across the Sydney region, but there are two remaining air quality issues of concern in South Western Sydney. These are photochemical smog (ground-level ozone) and particle pollution.

Ozone

Photochemical smog (ground-level ozone) is a secondary pollutant formed in the atmosphere by the reaction of volatile organic compounds (VOC) and oxides of nitrogen (NO_x) in hot, sunny weather conditions. In south western Sydney in the last decade, national ozone standards have been exceeded up to 15 days per year (1 hour ozone standard exceedences). The data show no clear trend for these exceedences, with the gains from technological improvements being generally offset by the continuing growth in other sources.

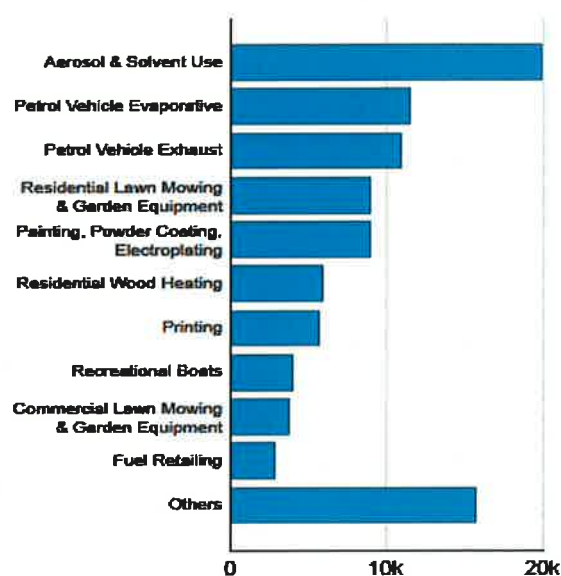


Figure 1: VOC Emissions – Sydney Region (tonnes/year)

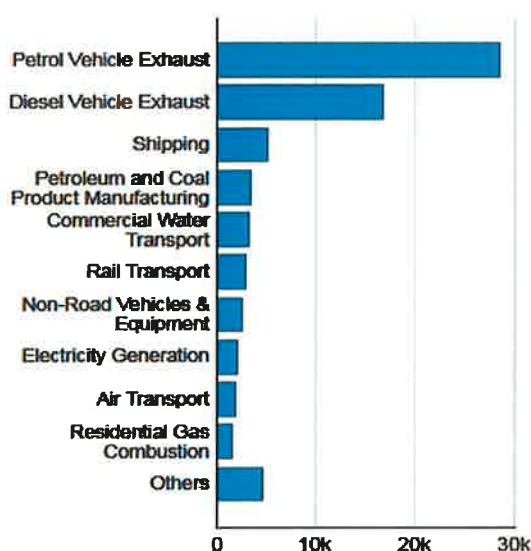


Figure 2: NO_x Emissions – Sydney Region (tonnes/year)

Registered motor vehicles and non-road diesel engines (e.g. bulldozers, diggers, cranes, and so on) are significant human-made sources in Sydney, contributing around 84 per cent of NO_x and 31 per cent of VOC. Other sources of ozone precursors include EPA-licensed industry, households and commercial businesses. Figures 1 and 2 show the main Sydney sources of ozone precursor emissions.

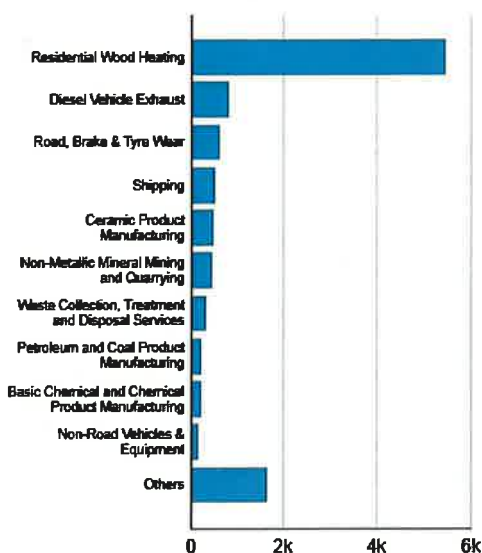


Figure 3: PM_{2.5} Emissions – Sydney Region (tonnes/year)

Particles

In south western Sydney, the national standard for ambient air particles less than 10 micrometres (PM₁₀) has been exceeded up to 11 days per year in the last decade. The current advisory standard for fine particles less than 2.5 micrometres (PM_{2.5}) can also be exceeded on multiple days per year. Exceedences of the national air quality standards can be at times associated with extreme events such as bushfires and dust storms.

Wood heaters, EPA-licensed industry, registered motor vehicles and non-road engine sources (particularly diesel engines) are the most significant human sources of particles in the region. Figure 3 shows the main human sources of PM_{2.5} emissions in Sydney.

The EPA publication, [*Managing Particles and Improving Air Quality in NSW*](#)² outlines evidence for health impacts from particle pollution, the principles adopted by the EPA to manage particle pollution and a set of actions targeted to priority locations and sources to achieve the greatest public benefits.

Health impacts of air pollution

Health research indicates photochemical smog (ozone) and particle pollution can cause acute and chronic respiratory and cardio vascular conditions (such as bronchitis, asthma and heart attack). Increased air pollution results in increased school and sick leave, increased emergency room visits, increased hospitalisation and premature death. These pollutants are of particular concern in the western area of Sydney.

Health costs of pollution levels in Sydney are estimated to be approximately \$6.3 billion per annum or \$1,200 per person per year (converted to 2014 dollars).³ Recent reviews supporting proposed new national air quality standards found long-term exposure to current ambient levels of particles are associated with around 1,600 premature deaths per annum, with an estimated 520 occurring in Sydney.^{4 5}

National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM)

The Ambient Air Quality National Environment Protection Measure (AAQ NEPM) establishes standards and goals for key air pollutants. The AAQ NEPM is currently under review. States and Territories have agreed, in-principle, to tighter air quality standards for PM₁₀ and PM_{2.5}. These new standards will likely be finalised by the end of 2015. NSW is required to report annually to the National Environment Protection Council on compliance with these standards and how they are implemented.

NEPM air pollutants are monitored at a number of sites in urban and regional NSW, including at Camden and Campbelltown West. Air quality data from these sites are available at: <http://www.environment.nsw.gov.au/aqms/index.htm>.

Air pollutant emissions in NSW are tracked through the EPA Air Emissions Inventory, with data available from the EPA website: <http://www.epa.nsw.gov.au/air/airinventory2008.htm>. The *My Community* web-based tool can provide data for different regions, local government areas and specific postcodes: <http://www.epa.nsw.gov.au/air/airemissionsinmycommunity.htm>.

Population growth will lead to more emissions

Meeting national air quality standards in Sydney will be a significant challenge, particularly given further pressure on air quality from increased population, development and economic activity. Air shed modelling of potential impacts of increase in the population of Sydney from 3.8 million to 5 million by 2026 showed that in future, photochemical smog (ozone) events will increase, in line with population related ('area-based') air pollution emissions. The [*Plan for Growing Sydney*](#) (December 2014) recognises that:

"Urban development has implications for air quality, with exposure to air pollution associated with the incidence of respiratory problems, heart and lung disease and risks to children and the elderly. Through urban layout, we can improve air quality in residential areas to improve our health and wellbeing".

CSIRO modelling shows that the conditions associated with climate change are also likely to result in an increase in the number of days exceeding the ozone standard in Sydney. Changes to rainfall, temperature and weather patterns may also increase the frequency of dust storms and bushfire-related pollution events, leading to higher particle levels. Given the current challenges in meeting air quality standards, it is important that any development in Sydney supports air quality improvements.

² <http://www.epa.nsw.gov.au/air/20130784ManPartStr.htm>

³ Air Pollution Economics: Health costs in the Greater Sydney Metropolitan Region available at <http://www.epa.nsw.gov.au/aqms/index.htm>

⁴ <http://www.environment.gov.au/protection/nepc/nepms/ambient-air-quality/variation-2014/impact-statement>

⁵ <http://www.environment.gov.au/system/files/pages/dfe7ed5d-1eaf-4ff2-bfe7-dbb7ebaf21a9/files/summary-policy-makers-hra-air-pollution-australia.pdf>

2. WATER QUALITY

A healthy water environment includes elements of water quality and quantity, riparian values, and aesthetic and urban amenity considerations. Healthy rivers and catchments are integral to the economy and lifestyle of the people of NSW and are essential for maintaining and improving the community uses and values of local waterways, including supporting more sustainable and liveable cities and communities. It is an important consideration in a *“Plan for Growing Sydney”* (DPE 2014).

The proposed area is located in the catchments of the Hawkesbury-Nepean and Georges River Systems. A range of issues continue to place pressure on the health of these waterways. There are several sources of pollutants within these catchments that can contribute to the degradation of their waterway health, including urban stormwater runoff, sewage and industrial discharges.

The NSW WQOs provide a framework and benchmarks for the community uses and values of waterways and the water quality that is needed to support these. They were developed using the *Australian and New Zealand guidelines for fresh and marine water quality* (2000) and are the NSW Government endorsed environmental values and long-term goals for NSW's surface waters.

Although there have been a range of programs and initiatives for the above waterways, improvement in water quality still has a long way to go before the NSW WQOs will be met. For example, despite decreasing trends in nitrogen levels at sites along the Hawkesbury-Nepean River, nitrogen levels often remain well above the ANZECC/ARMCANZ Guideline levels throughout the river system. In addition there are also emerging issues such as conductivity levels increasing at many sites. (*Hawkesbury-Nepean River Environmental Monitoring Program Final Technical Report*, DECC 2009)

3. NOISE

The *NSW State of Environment Report 2012* notes that noise pollution is the second most common type of complaint received by EPA Environment Line. Noise is both a human health and amenity issue. The *NSW State of Environment Report 2012* recommends integrated approaches to strategic planning to manage noise impacts associated with population growth and noise generating development for metropolitan and non-metro areas of NSW.

State and local governments need co-ordinated strategies to ensure that land use compatibility is considered upfront in all planning processes, and unless appropriately managed, further growth of employment generating activities, infrastructure and residential developments in the region can lead to land use conflicts and potential development constraints.

EPA considers that the Strategy should seek to avoid land use conflicts between noise generating and noise sensitive development. Noise management strategies need to be considered where development of new noise transport infrastructure near existing noise sensitive land uses and/or the development of noise sensitive land use around existing transport infrastructure is proposed. This is best achieved by avoiding noise-related land use conflicts through appropriate separation of incompatible uses. Urban renewal should be located and designed to minimise noise impacts on residents while recognising the benefits of concentrating housing around transport nodes or corridors. The planning of new release areas should consider potential noise impacts from existing adjoining land uses.

Greenfield sites offer the greatest flexibility to separate incompatible land uses. Management strategies should be developed and goals derived for new noise generating development to provide an equitable distribution of noise while protecting the amenity of noise sensitive areas.

Sustainable land use planning and careful design and location of development offers the greatest opportunity to manage noise. Noise generating activities and noise sensitive areas should be separated by zoning where practicable. For example separating incompatible land uses with commercial buildings or

recreation space or similar will provide a physical barrier and/or spatial separation. Retrospective control options are usually limited and more expensive.

This type of approach has been applied successfully to provide an early indication to potential developers of expected noise emission requirements, and to preserve the noise amenity in adjacent areas. Examples where this approach has been adopted include the Ingleburn Industrial Estate, Campbelltown; Glendenning Industrial Estate, Blacktown and Breamer Industrial Estate, Mittagong. A further example is the “*West Kembla Grange Employment Lands Strategic Environmental Noise Approach*” commissioned by the former Department of Planning in 2002.

Guidelines including the *Rail Infrastructure Noise Guideline* (EPA, 2013) and the *NSW Road Noise Policy* (DECCW, 2011) provide guidance in relation to land use planning regarding rail and road noise issues.

The *Development Near Rail Corridors and Busy Roads—Interim Guideline* (Department of Planning, 2008) provides planning guidance and recognises the need for judicious land use planning, architectural design, building orientation and good internal layout to achieve acceptable acoustic amenity in close proximity to busy transport corridors.

A range of noise mitigation strategies can also be implemented at the subdivision design stage to manage unavoidable noise impacts. This can include the application of noise control measures into the building design to ensure internal noise levels are acceptable. Advice is provided in the *Noise Guide for Local Government* (EPA, 2013) and the Department of Planning’s *Development Near Rail Corridors and Busy Roads—Interim Guideline*.

Proposed industrial development should be assessed in accordance with the *NSW Industrial Noise Policy* (INP) (EPA, 2000). The INP outlines a strategic approach to ensure noise amenity is not eroded due to the cumulative impact of a group of developments. The benefit of this approach is it can be applied at a precinct stage to inform, for example:

- what industry types could be suitable for particular locations within the precinct
- appropriate noise limits for industries within the precinct - particularly for those established earlier in the process so as to provide scope for noisy industries that may come later to operate without causing amenity levels to be exceeded.

4. CONTAMINATED LAND

Contaminated land can have major economic, legal and planning implications for the community and can limit land use potential or increase costs for developers and government. Their investigation and clean-up is important to protect human health and the environment.

The Strategy should reference *State Environmental Planning Policy 55* (SEPP 55) and associated guidelines *‘Managing Land Contamination Planning Guidelines SEPP 55—Remediation of Land’* (Managing Land Contamination Planning Guidelines). In particular land cannot be rezoned until the requirements of SEPP 55 are satisfied. SEPP 55 states that as part of the development process the following key considerations should be addressed when preparing an environmental planning instrument:

- Whether the land is contaminated
- If the land is contaminated whether it is suitable in its contaminated state (or will be suitable, after remediation) for all the purposes to which the land will be used

5. WASTE

Waste Less, Recycle More: Waste and Resource Recovery Initiative is a five year \$465.7 million package that is transforming waste and recycling in NSW. This package is funding new and innovative recycling infrastructure, food and garden organics processors and community drop-off centres, as well as tackling litter and illegal dumping and supporting businesses to improve recycling. The initiative will deliver

economic, employment and environmental benefits for local communities. The package focuses on the following key areas:

- waste and recycling infrastructure package
- supporting local communities
- combating illegal dumping
- tackling litter
- improving the operation of the waste levy.

The initiative includes a Waste and Recycling Infrastructure Package that commits \$250 Million over five years to assist in the planning and implementation of key infrastructure. This includes new large-scale waste and recycling infrastructure to support communities that pay the waste levy, recycling facility upgrades, drop-off centres, food and garden organics processing, and recycling innovation, as well as support for businesses to increase recycling on site. In addition, the initiative also provides approximately \$138 Million over five years to help councils support their own waste and recycling initiatives for their local communities, and makes available at least a further \$219 Million in contestable grants.

Non-contestable funding is available to local councils and groups of councils in the waste levy regulated area. This fund is distributing \$70 million over four years to support a broad range of projects that improve recycling, engage communities, reduce waste generation, tackle littering and illegal dumping, and contribute to achieving the NSW recycling targets. Participating organisations tailor these projects and programs for their local communities in response to local waste priorities.

The Regional Coordination Support package provides \$6 million over four years to regional organisations of councils and council groups in the metropolitan levy area. The funding supports regional waste coordinators, waste infrastructure planning and the development and implementation of regional waste strategies. Regional collaboration is essential as regional groups of councils are better able to access services and infrastructure that may be out of reach for individual councils due to financial or geographic reasons.

EPA considers that giving the highest priority to waste avoidance would encourage more efficient and sustainable use of resources. Resource recovery maximises the options for reuse, recycling, reprocessing and energy recovery at the highest net value of the recovered material. This encourages the efficient use of recovered resources while supporting the principles of improved environmental outcomes and ecologically sustainable development. Resource recovery can also embrace new and emerging technologies. In addition it also assists in extending the life of landfills by reducing waste input rates. In this regard planning provides an opportunity to drive sustainable waste management outcomes.

Waste and its management will be an important consideration and requires careful planning as land is developed to ensure activities are undertaken to meet legal requirements. EPA legislation and guidelines should be consulted. The use of recovered and recycled resources should also be considered and encouraged wherever possible; from inception through to design, specification, procurement, construction and operation.