Australian Government
Department of Infrastructure and Regional Development

Health risk assessment

The Western Sydney Airport Environmental Impact Statement (EIS) found that any health risks associated with the proposed airport will largely be within acceptable national and international health standards.

The health risk assessment measures the potential health risks arising from exposure to environmental pollution. The assessment considers the current health profile of Western Sydney, identifies potential sources of health risk associated with the construction and operation of the proposed airport and how the proposed airport may increase the risk of existing health issues.

How do you measure impacts on human health?

The health risk assessment is based on Australian and international standards including the Australian Government Guidelines for Health Risk Assessment, the National Health and Medical Research Council's Approach to Hazard Assessment for Air Quality, and World Health Organization (WHO) guidelines. It also includes a review of scientific studies on health risks from environmental pollution. The health risk assessment is based on the findings of the local and regional air quality studies, the aircraft and ground-based noise assessments and the surface water quality studies completed for the EIS.

The health risk assessment considers:

- noise: from overhead aircraft and ground-based operations at the airport site;
- air quality: emissions from the airport site as well as aircraft, trucks and cars accessing the airport site. Emissions include nitrogen dioxide, sulphur dioxide, particulate matter, air toxics and diesel, as well as the creation of ozone; and
- water quality: potential leakages of contaminants from the airport site and emissions from aircraft, including hydrocarbons and heavy metals.

A health risk assessment is made up of five stages:

1. *Issue identification—identifies relevant issues through technical reviews and stakeholder consultation.*
2. *Hazard assessment—activities associated with the project that may present a hazard and how they may impact on health.*
3. *Exposure assessment—how and in what quantity a population may be exposed to the hazardous activities identified.*
4. *Risk characterisation—brings together the findings from the previous steps and quantifies the potential risks to health.*
5. *Uncertainty assessment—identifies potential sources of uncertainty and the expected effects on risk estimates.*

What are the findings?

Noise

The health factors associated with noise impacts as a result of the proposed airport may include annoyance, sleep disturbance, increased likelihood of cardiovascular disease and impacts on learning and cognitive development in children.

The assessment found that the increased risk of these impacts, if any, would be confined to areas around the airport site and would be largely within accepted international and national standards. In developing final flight paths, opportunities to minimise noise impacts on communities will be a key consideration.

Planning controls have been in place in the areas surrounding the airport site for nearly three decades, minimising the amount of noise sensitive development near the airport site.

Air quality

The health risk assessment reviewed any increased risk of mortality, hospital admissions for respiratory and cardiovascular diseases, and asthma in children as a result of air quality impacts. Overall, health risks associated with air quality would be within acceptable levels. The health risk assessment found:

- the health risk from exposure to diesel and particulate matter during construction will be low;
- emissions of nitrogen dioxide and ozone will increase health risks, particularly when taking into account background road traffic associated with other developments in the region;
- emission of diesel during airport operations will increase health risks but these increased risks will largely occur on the airport site itself; and
- the health risks from exposure to pollutants during airport operations such as sulfur dioxide, carbon monoxide and benzene will be low or very low.

Local water quality and the drinking water catchment

Risks to water quality as a result of the proposed airport are low, as are any associated health risks. The health risk assessment considers the risk associated with any potential contamination of groundwater, nearby domestic water tanks, Prospect Reservoir or Warragamba Dam. The key activities assessed included spillage on the airport site, emissions from aircraft and emergency fuel jettisoning. The assessment found that:

- the emission of air toxics and particulate matter from aircraft, cars and trucks near surface water would be low, resulting in a very low risk to health;
- emergency fuel jettisoning is extremely rare – in 2014 there were only 10 instances of civilian aircraft jettisoning fuel in Australia (of 730,201 total air traffic movements), representing approximately 0.001 per cent. If undertaken, strict regulations are enforced by Airservices Australia about where it can be undertaken. As fuel evaporates before reaching the ground, the associated health risk will be very low; and
- mitigation measures to minimise impacts on surface and ground water mean that associated health risks will be low.

Managing health risks

Mitigation measures to reduce noise, air quality and water quality impacts are identified in the EIS. These measures will in turn reduce the health risks identified in the health risk assessment.