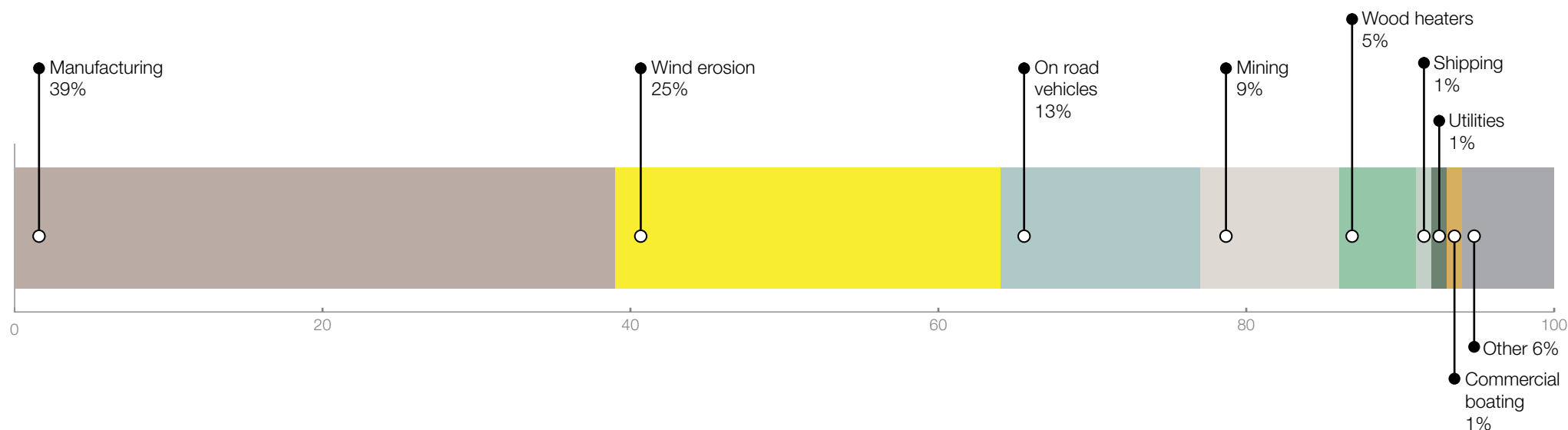




Perth Air Emissions Study 2011–2012: Toxic equivalency potential (TEP)

The Perth Air Emissions Study 2011–2012 estimated emissions from natural and man-made sources, and assessed the significance of these emissions. Emissions were also spatially allocated to identify major emission source areas.

Emissions for 78 different substances were estimated for the study. All the substances are toxic to some extent, but some substances are more toxic than others. This inventory used a scoring method called toxic equivalency potential (TEP) to assess emission estimates equally. TEP assigns a score to all emission estimates based on their toxicity and risk to human health. This allows emission sources to be compared against each other, even if they emit different substances.



► What is an air emissions inventory?

Air emission inventories assess the emissions that occur in an area. While some emissions are measured directly, others are estimated by combining activity data with scientifically developed emission factors.

► Biggest toxic equivalency potential source?

Commercial and industrial activities were the most significant emission sources (50%) in Perth.

Wind erosion was a significant source of particulate matter (PM₁₀ and PM_{2.5}). Wind erosion from unpaved road surfaces was the second-most significant individual emission source.

Road vehicle emissions were responsible for 13% of the total score and were the most significant sources of carbon monoxide and oxides of nitrogen. Passenger vehicles and light diesel commercials were identified as the main contributors to vehicle pollution.

Wood heater emissions were the fifth-most significant individual source (5%) in Perth.

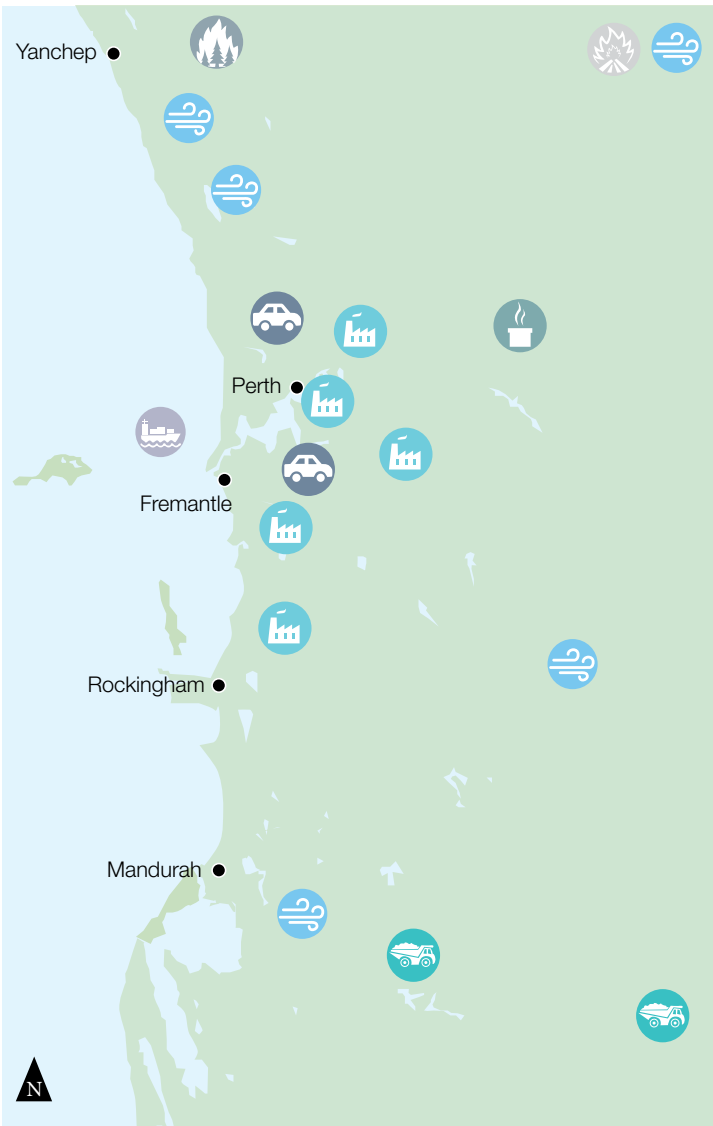
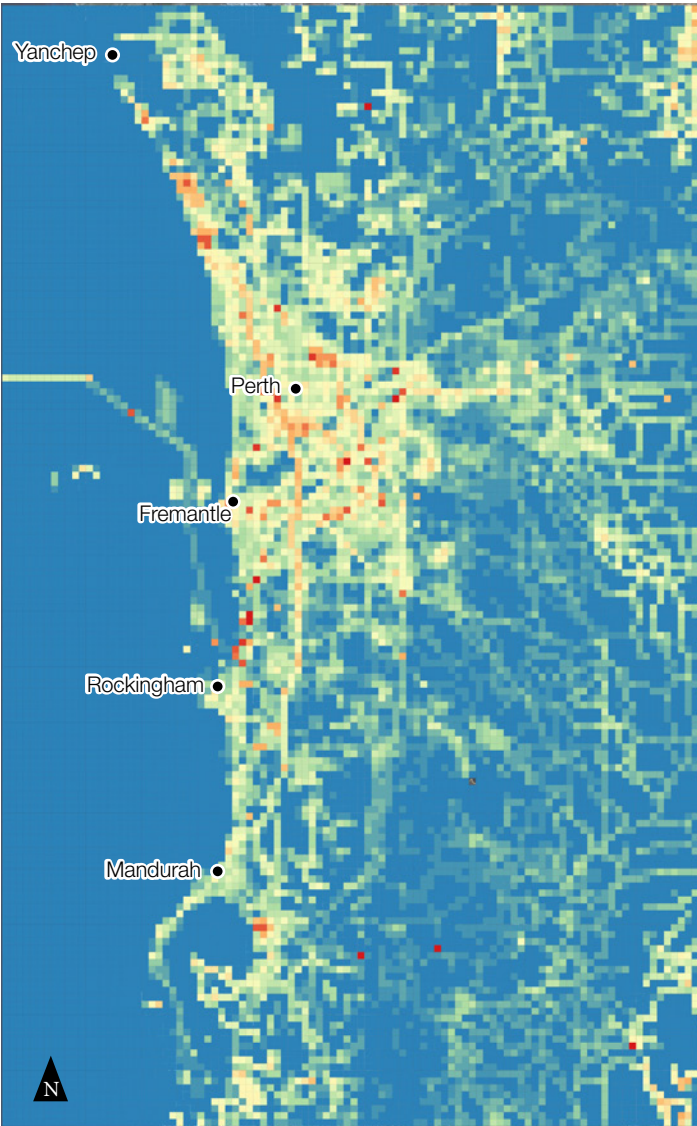
Boating, shipping, rail and aircraft operations represented 3% of the total score, with shipping activities being a major source of sulfur dioxide.

► For more information









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Emission Hotspots



Legend

-  Significant fire events in August, October and November 2011
-  Shipping emissions are concentrated into single channel. Anchorage zones, where ships “park” until a berth is available, can also be seen.
-  Wind erosion emissions from cleared, cut and filled land for urban development. Wind erosion from the unpaved road network.
-  The Kwinana Industrial Area is home to several heavy industries that are major emission sources and report to the National Pollutant Inventory. Emissions are more concentrated in industrial zones than surrounding suburban areas.
-  Agricultural wind erosion and burning for weed management.
-  Mining and industrial activities are to the south of Perth.
-  Wood smoke emissions are most notable from suburbs in the Perth Hills, where wood heater ownership is greater than other areas of Perth.
-  Emissions from vehicles along major roads is a significant TEP source.

