

## 1.1 NOx Concentrations at Organic Farms

- 1.1.1 As has been explained in Chapter 29, there is no requirement in the DMRB to assess impacts of air quality on farming activities. Furthermore, the organic status of farmland is not jeopardised by the presence of a road (See Chapter 37: Land Use). It is, however, recognised that land-owners might be concerned about the potential for traffic-related air pollution to affect farmland. Since there is no set methodology for assessing the potential for such impacts, the pragmatic approach has been taken of treating all organic farmland within the Southern Leg corridor as if it were a SSSI, SAC, SPA or Ramsar Site. This provides a working method for assessing air quality impacts on particularly sensitive vegetation. It is, however, recognised that the pollutants that might be relevant to these habitats might be different from those that are relevant for organic farming. The effects of nitrogen enrichment to farmland have thus not been assessed; since they are not considered to be relevant in this context. The assessment focuses on NOx concentrations. NOx is generally used as the key indicator of traffic pollution. Thus assessing NOx impacts provides a clear indication of traffic pollution levels in general.
- 1.1.2 NOx concentrations for the base year (2005) and the year of opening, both with and without the proposed scheme, were calculated using unadjusted background concentration maps (Defra and the DAs 2006a) and using the DMRB Screening Model which is recommended in IAN 61/05. For the purposes of the IAN 61/05 method, the DMRB model is sufficiently robust, and it is not necessary to use the AAQURE model. Concentrations are predicted at the edge of each site that is closest to the proposed scheme, and then along a 50m transect of increasing distances from the centre of the road.
- 1.1.3 There are two organic farms within the Southern Leg corridor. These are Auchlea and Craiglug. NOx concentrations are presented in Table 1. They show that the proposed scheme would cause a very large increase in NOx concentrations at the edge of each site closest to the proposed scheme, but that concentrations would remain below the critical level. More than 50m from the centre of the road, concentrations will remain less than half of the critical level, thus representing very clean air in a national context.

**Table 1 – Predicted NOx Concentrations at Organic Farmland within the Southern Leg Corridor**

Site	Road	Distance from Road Centre (m)	Annual Mean NOx ( $\mu\text{g}/\text{m}^3$ )		
			2005	2011 Without Scheme	2011 With Scheme
Auchlea	AWPR	25	5	4	21
		50	5	4	14
		100	5	4	7
		150	5	4	5
		200	5	4	5
Craiglug	AWPR	30	5	4	23
		50	5	4	14
		100	5	4	7
		150	5	4	5
		200	5	4	4
<b>Critical Level</b>			<b>30</b>	<b>30</b>	<b>30</b>