37) Name: Allocation to route segment based on NOx emission (buses)

Considering the allocation of traffic emissions from buses used in public transport, there are three different route types, depending on the maximum speed allowed:

- NO2 emission route maximum speed <60km/h
- NO2 emission route maximum speed >=60 and <100km/h
- NO2 emission route maximum speed >= 100km/h

For each of these categories, the spatial distribution is based on the NOx emission per route segment, calculated from vehicle kilometres and specific emission factors. Route segments are derived from General Transit Feed Specification (GTFS) data. These data make it possible for public transportation companies to publish their routes, departure and arrival times on Google Maps. Google provided DATMobility traffic consultants with GTFS data of all transport lines in the Netherlands for three specific days (a Tuesday, Saturday and Sunday in 2013). From these data, a global route map for the Netherlands was drawn up.

For each particular route segment, vehicle kilometres are calculated as the mean number of vehicles per day multiplied by the segment length in kilometres. Emission factors are obtained from research carried out by the Netherlands Organization for Applied Scientific Research (TNO). No separate distribution is calculated for other traffic emissions as particulate matter (PM10), SO2 and VOC, as they have a high correlation with NOx. Emissions from touring cars are not included, but allocated in the same way as those from heavy traffic (see document 27).

Example

Map 37a: route map public transport based on GTFS, different colors indicate specific bus companies
Map 37b: spatial allocation NOx emission bus routes maximum speed <60km/h

Institutes involved
DAT Mobility
TNO

Currency of data
2013

Background documents
Databases verkeer 2014 voor milieumodellering
Technische rapportage RIV004/Ztk/0012.01
DATMobility Deventer, 2016