# *DMRB: Assessment of Local Air Quality*

# INPUT SHEET

| | | | | | |
|---|---|---|---|---|---|
| *Step 1* | Receptor name | R1 without dev | Receptor number | 1 | *Step 6* |
| *Step 2* | Year | 2010 | | | *Step 7* |
| *Step 3* | Number of links | 1 | | | |

*Step 4*

| Background concentrations for 2010 | | | | | |
|---|---|---|---|---|---|
| CO (mg/m$^3$) | Benzene (µg/m$^3$) | 1,3-butadiene (µg/m$^3$) | $NO_x$ (µg/m$^3$) | $NO_2$ (µg/m$^3$) | $PM_{10}$ (µg/m$^3$) |
| 0 | 0 | 0 | 14.2 | 11.6 | 14.1 |

*Step 5*

| Link number | Distance from link centre to receptor (m) | Traffic flow & speed | | Traffic composition | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AADT (combined, veh/day) | Annual average speed (km/h) | Road type (A,B,C,D) | Vehicles <3.5t GVW (LDV) | | | Vehicles>3.5t GVW (HDV) | | | |
| | | | | | % passen-ger cars | % light goods vehicles | Total % LDV | % buses and coaches | % rigid HGV | % articulated HGV | Total % HDV |
| 1 | 9 | 1879 | 42 | B | | | 95.8 | | | | 4.2 |
| 2 | | | | | | | | | | | |
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# *DMRB: Assessment of Local Air Quality*

# OUTPUT SHEET

## Current receptor

| Receptor Name | R1 without dev | Receptor number | 1 |
|---|---|---|---|
| Assessment year | 2010 | | |

## Results

| Pollutant | Annual mean | | | | For comparison with Air Quality Standards | | |
|---|---|---|---|---|---|---|---|
| | Background concentration | Road traffic component | Total | Units | Metric | Value | Units |
| CO | 0.00 | 0.01 | 0.01 | $mg/m^3$ | Annual mean* | 0.01 | $mg/m^3$ |
| Benzene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| 1,3-butadiene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| $NO_x$ | 14.2 | 1.7 | 15.9 | $\mu g/m^3$ | Not applicable | | |
| $NO_2$ | 11.6 | 0.6 | 12.2 | $\mu g/m^3$ | Annual mean* | 12.2 | $\mu g/m^3$ |
| $PM_{10}$ | 14.1 | 0.19 | 14.29 | $\mu g/m^3$ | Annual mean | 14.3 | $\mu g/m^3$ |
| | | | | | Days >50$\mu g/m^3$ | 0 | Days |

* See Footnote 4 in DMRB Volume 11 Chapter 3

## Contribution of each link to annual mean

| Link number | CO ($mg/m^3$) | Benzene ($\mu g/m^3$) | 1,3-butadiene ($\mu g/m^3$) | NOx ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|
| 1 | 0.01 | 0.01 | 0.01 | 1.67 | 0.19 |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
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| 14 | | | | | |
| 15 | | | | | |

## All receptors

| Receptor number | Name | Year | Pollutant concentrations at receptor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | CO * | Benzene | 1,3-butadiene | $NO_x$ | $NO_2$ * | $PM_{10}$ | |
| | | | Annual mean $mg/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Days >50$\mu g/m^3$ |
| 1 | R1 without dev | 2010 | 0.01 | 0.01 | 0.01 | 15.87 | 12.17 | 14.29 | 0.00 |

* See Footnote 4 in DMRB Volume 11 Chapter 3

# *DMRB: Assessment of Local Air Quality* — INPUT SHEET

| | | | | | |
|---|---|---|---|---|---|
| *Step 1* | Receptor name | R1 with dev | Receptor number | 1 | *Step 6* |
| *Step 2* | Year | 2010 | | | *Step 7* |
| *Step 3* | Number of links | 1 | | | |

*Step 4*

| Background concentrations for 2010 | | | | | |
|---|---|---|---|---|---|
| CO ($mg/m^3$) | Benzene ($\mu g/m^3$) | 1,3-butadiene ($\mu g/m^3$) | $NO_x$ ($\mu g/m^3$) | $NO_2$ ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) |
| 0 | 0 | 0 | 14.2 | 11.6 | 14.1 |

*Step 5*

| Link number | Distance from link centre to receptor (m) | Traffic flow & speed | | Traffic composition | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AADT (combined, veh/day) | Annual average speed (km/h) | Road type (A,B,C,D) | Vehicles <3.5t GVW (LDV) | | | Vehicles>3.5t GVW (HDV) | | | |
| | | | | | % passen-ger cars | % light goods vehicles | Total % LDV | % buses and coaches | % rigid HGV | % articulated HGV | Total % HDV |
| 1 | 9 | 2005 | 42 | B | | | 95.8 | | | | 4.2 |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
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# *DMRB: Assessment of Local Air Quality*

# OUTPUT SHEET

## Current receptor

| Receptor Name | R1 with dev | Receptor number | 1 |
|---|---|---|---|
| Assessment year | 2010 | | |

## Results

| Pollutant | Annual mean | | | | For comparison with Air Quality Standards | | |
|---|---|---|---|---|---|---|---|
| | Background concentration | Road traffic component | Total | Units | Metric | Value | Units |
| CO | 0.00 | 0.01 | 0.01 | $mg/m^3$ | Annual mean* | 0.01 | $mg/m^3$ |
| Benzene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| 1,3-butadiene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| $NO_x$ | 14.2 | 1.8 | 16.0 | $\mu g/m^3$ | Not applicable | | |
| $NO_2$ | 11.6 | 0.6 | 12.2 | $\mu g/m^3$ | Annual mean* | 12.2 | $\mu g/m^3$ |
| $PM_{10}$ | 14.1 | 0.20 | 14.30 | $\mu g/m^3$ | Annual mean | 14.3 | $\mu g/m^3$ |
| | | | | | Days >50$\mu g/m^3$ | 0 | Days |

* See Footnote 4 in DMRB Volume 11 Chapter 3

## Contribution of each link to annual mean

| Link number | CO ($mg/m^3$) | Benzene ($\mu g/m^3$) | 1,3-butadiene ($\mu g/m^3$) | NOx ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|
| 1 | 0.01 | 0.01 | 0.01 | 1.78 | 0.20 |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

## All receptors

| Receptor number | Name | Year | Pollutant concentrations at receptor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | CO * | Benzene | 1,3-butadiene | $NO_x$ | $NO_2$ * | $PM_{10}$ | |
| | | | Annual mean $mg/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Days >50$\mu g/m^3$ |
| 1 | R1 with dev | 2010 | 0.01 | 0.01 | 0.01 | 15.98 | 12.21 | 14.30 | 0.00 |

* See Footnote 4 in DMRB Volume 11 Chapter 3

***This spreadsheet calculates the nitrogen dioxide concentration from the modelled oxides of nitrogen concentrations***

**1). Confirm that the General inputs spreadsheet has been completed**
The input selections are shown at the head of the Table below.
**2.) Type in (or paste and copy from another spreadsheet)**

**1) the receptor identifier (Receptor ID) and its Easting and Northing. [Optional]**
**2) the modelled contribution from roads to oxides of nitrogen concentrations (Road increment $NO_x$)**
**3) the local background concentration as $NO_2$**
You may alternatively enter the local background as $NO_x$, for example, if you have modelled a regional background.
Leave the redundant background $NO_x$ or $NO_2$ columns blank as appropriate

**3). The default set-up is to use the fraction of oxides emitted as $NO_2$ from the General Inputs spreadsheet**
**Leave the "Fraction emitted as $NO_2$" column empty to use the default set up.**
**However, you can overwrite the defaults by typing appropriate values (0-1) into this column.**
**The fNO2 spreadsheet provides additional values.**

**4) Click the mouse on the run button to run the model.**
Run $NO_x$ to $NO_2$
The model will calculate:
a) the total nitrogen dioxide concentration at the receptor (Total $NO_2$)
b) the incremental contribution to nitrogen dioxide concentrations from the road vehicle emissions (Road $NO_2$)

Copy and paste the results to another spreadsheet.

**5) Click the mouse on the Clear button to clear the spreadsheet**
Clear spreadsheet

| **Local Authority: STAFFORDSHIRE MOORLANDS** | | | | | **Year:** | | **2010** | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Traffic Mix:** | | **All UK traffic** | | |
| **Receptor ID** | **Easting,m** | **Northing, m** | **Road increment $NO_x$ µg $m^{-3}$** | **Background µg $m^{-3}$** | | **Fraction emitted as $NO_2$** | **Total $NO_2$ µg $m^{-3}$** | **Road $NO_2$ µg $m^{-3}$** | **Notes** |
| | | | | **$NO_x$** | **$NO_2$** | | | | |
| R1 without 2010 | | | 1.7 | | 11.6 | | 12.43 | 0.83 | |
| R1 with 2010 | | | 1.8 | | 11.6 | | 12.48 | 0.88 | |
| | | | | | | | | | |

# *DMRB: Assessment of Local Air Quality*

# INPUT SHEET

| | | | | | |
|---|---|---|---|---|---|
| *Step 1* | Receptor name | R1 without dev | Receptor number | 1 | *Step 6* |
| *Step 2* | Year | 2014 | | | *Step 7* |
| *Step 3* | Number of links | 1 | | | |

*Step 4*

| Background concentrations for 2014 | | | | | |
|---|---|---|---|---|---|
| CO (mg/m$^3$) | Benzene (µg/m$^3$) | 1,3-butadiene (µg/m$^3$) | $NO_x$ (µg/m$^3$) | $NO_2$ (µg/m$^3$) | $PM_{10}$ (µg/m$^3$) |
| 0 | 0 | 0 | 12.4 | 10.3 | 13.8 |

*Step 5*

| Link number | Distance from link centre to receptor (m) | Traffic flow & speed | | Traffic composition | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AADT (combined, veh/day) | Annual average speed (km/h) | Road type (A,B,C,D) | Vehicles <3.5t GVW (LDV) | | | Vehicles>3.5t GVW (HDV) | | | |
| | | | | | % passen-ger cars | % light goods vehicles | Total % LDV | % buses and coaches | % rigid HGV | % articulated HGV | Total % HDV |
| 1 | 9 | 1970 | 42 | B | | | 95.8 | | | | 4.2 |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
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| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |

# *DMRB: Assessment of Local Air Quality*

# OUTPUT SHEET

## Current receptor

| Receptor Name | R1 without dev | Receptor number | 1 |
|---|---|---|---|
| Assessment year | 2014 | | |

## Results

| Pollutant | Annual mean | | | | For comparison with Air Quality Standards | | |
|---|---|---|---|---|---|---|---|
| | Background concentration | Road traffic component | Total | Units | Metric | Value | Units |
| CO | 0.00 | 0.01 | 0.01 | $mg/m^3$ | Annual mean* | 0.01 | $mg/m^3$ |
| Benzene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| 1,3-butadiene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| $NO_x$ | 12.4 | 1.4 | 13.8 | $\mu g/m^3$ | Not applicable | | |
| $NO_2$ | 10.3 | 0.5 | 10.8 | $\mu g/m^3$ | Annual mean* | 10.8 | $\mu g/m^3$ |
| $PM_{10}$ | 13.8 | 0.15 | 13.95 | $\mu g/m^3$ | Annual mean | 14.0 | $\mu g/m^3$ |
| | | | | | Days >50$\mu g/m^3$ | 0 | Days |

* See Footnote 4 in DMRB Volume 11 Chapter 3

## Contribution of each link to annual mean

| Link number | CO ($mg/m^3$) | Benzene ($\mu g/m^3$) | 1,3-butadiene ($\mu g/m^3$) | NOx ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|
| 1 | 0.01 | 0.01 | 0.01 | 1.40 | 0.15 |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

## All receptors

| Receptor number | Name | Year | Pollutant concentrations at receptor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | CO * | Benzene | 1,3-butadiene | $NO_x$ | $NO_2$ * | $PM_{10}$ | |
| | | | Annual mean $mg/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Days >50$\mu g/m^3$ |
| 1 | R1 without dev | 2014 | 0.01 | 0.01 | 0.01 | 13.80 | 10.79 | 13.95 | 0.00 |

* See Footnote 4 in DMRB Volume 11 Chapter 3

# *DMRB: Assessment of Local Air Quality* — INPUT SHEET

| | | | | | |
|---|---|---|---|---|---|
| *Step 1* | Receptor name | R2 without dev | Receptor number | 2 | *Step 6* |
| *Step 2* | Year | 2014 | | | *Step 7* |
| *Step 3* | Number of links | 1 | | | |

*Step 4*

| Background concentrations for 2014 | | | | | |
|---|---|---|---|---|---|
| CO (mg/m$^3$) | Benzene (µg/m$^3$) | 1,3-butadiene (µg/m$^3$) | $NO_x$ (µg/m$^3$) | $NO_2$ (µg/m$^3$) | $PM_{10}$ (µg/m$^3$) |
| 0 | 0 | 0 | 12.4 | 10.3 | 13.8 |

*Step 5*

| Link number | Distance from link centre to receptor (m) | Traffic flow & speed | | Traffic composition | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AADT (combined, veh/day) | Annual average speed (km/h) | Road type (A,B,C,D) | Vehicles <3.5t GVW (LDV) | | | Vehicles>3.5t GVW (HDV) | | | |
| | | | | | % passen-ger cars | % light goods vehicles | Total % LDV | % buses and coaches | % rigid HGV | % articulated HGV | Total % HDV |
| 1 | 14 | 1992 | 40 | B | | | 95.2 | | | | 4.8 |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
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| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |

# *DMRB: Assessment of Local Air Quality*

# OUTPUT SHEET

## Current receptor

| Receptor Name | R2 without dev | Receptor number | 2 |
|---|---|---|---|
| Assessment year | 2014 | | |

## Results

| Pollutant | Annual mean | | | | For comparison with Air Quality Standards | | |
|---|---|---|---|---|---|---|---|
| | Background concentration | Road traffic component | Total | Units | Metric | Value | Units |
| CO | 0.00 | 0.01 | 0.01 | $mg/m^3$ | Annual mean* | 0.01 | $mg/m^3$ |
| Benzene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| 1,3-butadiene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| $NO_x$ | 12.4 | 1.3 | 13.7 | $\mu g/m^3$ | Not applicable | | |
| $NO_2$ | 10.3 | 0.5 | 10.8 | $\mu g/m^3$ | Annual mean* | 10.8 | $\mu g/m^3$ |
| $PM_{10}$ | 13.8 | 0.14 | 13.94 | $\mu g/m^3$ | Annual mean | 13.9 | $\mu g/m^3$ |
| | | | | | Days >50$\mu g/m^3$ | 0 | Days |

* See Footnote 4 in DMRB Volume 11 Chapter 3

## Contribution of each link to annual mean

| Link number | CO ($mg/m^3$) | Benzene ($\mu g/m^3$) | 1,3-butadiene ($\mu g/m^3$) | NOx ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|
| 1 | 0.01 | 0.01 | 0.01 | 1.31 | 0.14 |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

## All receptors

| Receptor number | Name | Year | Pollutant concentrations at receptor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | CO * | Benzene | 1,3-butadiene | $NO_x$ | $NO_2$ * | $PM_{10}$ | |
| | | | Annual mean $mg/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Days >50$\mu g/m^3$ |
| 1 | R1 without dev | 2014 | 0.01 | 0.01 | 0.01 | 13.80 | 10.79 | 13.95 | 0.00 |
| 2 | R2 without dev | 2014 | 0.01 | 0.01 | 0.01 | 13.71 | 10.76 | 13.94 | 0.00 |

* See Footnote 4 in DMRB Volume 11 Chapter 3

# *DMRB: Assessment of Local Air Quality* — INPUT SHEET

| | | | | | |
|---|---|---|---|---|---|
| *Step 1* | Receptor name | R1 with dev | Receptor number | 1 | *Step 6* |
| *Step 2* | Year | 2014 | | | *Step 7* |
| *Step 3* | Number of links | 1 | | | |

*Step 4*

| Background concentrations for 2014 | | | | | |
|---|---|---|---|---|---|
| CO (mg/m$^3$) | Benzene (µg/m$^3$) | 1,3-butadiene (µg/m$^3$) | $NO_x$ (µg/m$^3$) | $NO_2$ (µg/m$^3$) | $PM_{10}$ (µg/m$^3$) |
| 0 | 0 | 0 | 12.4 | 10.3 | 13.8 |

*Step 5*

| Link number | Distance from link centre to receptor (m) | Traffic flow & speed | | Traffic composition | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AADT (combined, veh/day) | Annual average speed (km/h) | Road type (A,B,C,D) | Vehicles <3.5t GVW (LDV) | | | Vehicles>3.5t GVW (HDV) | | | |
| | | | | | % passen-ger cars | % light goods vehicles | Total % LDV | % buses and coaches | % rigid HGV | % articulated HGV | Total % HDV |
| 1 | 9 | 3090 | 42 | B | | | 97.3 | | | | 2.7 |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
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| 15 | | | | | | | | | | | |

# *DMRB: Assessment of Local Air Quality*

# OUTPUT SHEET

## Current receptor

| Receptor Name | R1 with dev | Receptor number | 1 |
|---|---|---|---|
| Assessment year | 2014 | | |

## Results

| Pollutant | Annual mean | | | | For comparison with Air Quality Standards | | |
|---|---|---|---|---|---|---|---|
| | Background concentration | Road traffic component | Total | Units | Metric | Value | Units |
| CO | 0.00 | 0.01 | 0.01 | $mg/m^3$ | Annual mean* | 0.01 | $mg/m^3$ |
| Benzene | 0.00 | 0.02 | 0.02 | $\mu g/m^3$ | Annual mean | 0.02 | $\mu g/m^3$ |
| 1,3-butadiene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| $NO_x$ | 12.4 | 1.9 | 14.3 | $\mu g/m^3$ | Not applicable | | |
| $NO_2$ | 10.3 | 0.7 | 11.0 | $\mu g/m^3$ | Annual mean* | 11.0 | $\mu g/m^3$ |
| $PM_{10}$ | 13.8 | 0.23 | 14.03 | $\mu g/m^3$ | Annual mean | 14.0 | $\mu g/m^3$ |
| | | | | | Days >50$\mu g/m^3$ | 0 | Days |

* See Footnote 4 in DMRB Volume 11 Chapter 3

## Contribution of each link to annual mean

| Link number | CO ($mg/m^3$) | Benzene ($\mu g/m^3$) | 1,3-butadiene ($\mu g/m^3$) | NOx ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|
| 1 | 0.01 | 0.02 | 0.01 | 1.92 | 0.23 |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
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| 15 | | | | | |

## All receptors

| Receptor number | Name | Year | Pollutant concentrations at receptor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | CO * | Benzene | 1,3-butadiene | $NO_x$ | $NO_2$ * | $PM_{10}$ | |
| | | | Annual mean $mg/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Days >50$\mu g/m^3$ |
| 1 | R1 with dev | 2014 | 0.01 | 0.02 | 0.01 | 14.32 | 10.97 | 14.03 | 0.00 |

* See Footnote 4 in DMRB Volume 11 Chapter 3

# *DMRB: Assessment of Local Air Quality* — INPUT SHEET

| | | | | | |
|---|---|---|---|---|---|
| *Step 1* | Receptor name | R2 with dev | Receptor number | 2 | *Step 6* |
| *Step 2* | Year | 2014 | | | *Step 7* |
| *Step 3* | Number of links | 1 | | | |

*Step 4*

| Background concentrations for 2014 | | | | | |
|---|---|---|---|---|---|
| CO (mg/m$^3$) | Benzene (µg/m$^3$) | 1,3-butadiene (µg/m$^3$) | $NO_x$ (µg/m$^3$) | $NO_2$ (µg/m$^3$) | $PM_{10}$ (µg/m$^3$) |
| 0 | 0 | 0 | 12.4 | 10.3 | 13.8 |

*Step 5*

| Link number | Distance from link centre to receptor (m) | Traffic flow & speed | | Traffic composition | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AADT (combined, veh/day) | Annual average speed (km/h) | Road type (A,B,C,D) | Vehicles <3.5t GVW (LDV) | | | Vehicles>3.5t GVW (HDV) | | | |
| | | | | | % passen-ger cars | % light goods vehicles | Total % LDV | % buses and coaches | % rigid HGV | % articulated HGV | Total % HDV |
| 1 | 14 | 2609 | 40 | B | | | 95.7 | | | | 4.3 |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |

# *DMRB: Assessment of Local Air Quality*

# OUTPUT SHEET

## Current receptor

| Receptor Name | R2 with dev | Receptor number | 2 |
|---|---|---|---|
| Assessment year | 2014 | | |

## Results

| Pollutant | Annual mean | | | | For comparison with Air Quality Standards | | |
|---|---|---|---|---|---|---|---|
| | Background concentration | Road traffic component | Total | Units | Metric | Value | Units |
| CO | 0.00 | 0.01 | 0.01 | $mg/m^3$ | Annual mean* | 0.01 | $mg/m^3$ |
| Benzene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| 1,3-butadiene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| $NO_x$ | 12.4 | 1.6 | 14.0 | $\mu g/m^3$ | Not applicable | | |
| $NO_2$ | 10.3 | 0.6 | 10.9 | $\mu g/m^3$ | Annual mean* | 10.9 | $\mu g/m^3$ |
| $PM_{10}$ | 13.8 | 0.18 | 13.98 | $\mu g/m^3$ | Annual mean | 14.0 | $\mu g/m^3$ |
| | | | | | Days >50$\mu g/m^3$ | 0 | Days |

* See Footnote 4 in DMRB Volume 11 Chapter 3

## Contribution of each link to annual mean

| Link number | CO ($mg/m^3$) | Benzene ($\mu g/m^3$) | 1,3-butadiene ($\mu g/m^3$) | NOx ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|
| 1 | 0.01 | 0.01 | 0.01 | 1.64 | 0.18 |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

## All receptors

| Receptor number | Name | Year | Pollutant concentrations at receptor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | CO * | Benzene | 1,3-butadiene | $NO_x$ | $NO_2$ * | $PM_{10}$ | |
| | | | Annual mean $mg/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Days >50$\mu g/m^3$ |
| 2 | R2 with dev | 2014 | 0.01 | 0.01 | 0.01 | 14.04 | 10.87 | 13.98 | 0.00 |

* See Footnote 4 in DMRB Volume 11 Chapter 3

# *DMRB: Assessment of Local Air Quality* — INPUT SHEET

| | | | | |
|---|---|---|---|---|
| *Step 1* | Receptor name | R3 with dev | Receptor number | 3 |
| *Step 2* | Year | 2014 | | |
| *Step 3* | Number of links | 2 | | |

*Step 6*

*Step 7*

*Step 4*

| Background concentrations for 2014 | | | | | |
|---|---|---|---|---|---|
| CO (mg/m$^3$) | Benzene (µg/m$^3$) | 1,3-butadiene (µg/m$^3$) | $NO_x$ (µg/m$^3$) | $NO_2$ (µg/m$^3$) | $PM_{10}$ (µg/m$^3$) |
| 0 | 0 | 0 | 12.4 | 10.3 | 13.8 |

*Step 5*

| Link number | Distance from link centre to receptor (m) | Traffic flow & speed | | Traffic composition | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AADT (combined, veh/day) | Annual average speed (km/h) | Road type (A,B,C,D) | Vehicles <3.5t GVW (LDV) | | | Vehicles>3.5t GVW (HDV) | | | |
| | | | | | % passen-ger cars | % light goods vehicles | Total % LDV | % buses and coaches | % rigid HGV | % articulated HGV | Total % HDV |
| 1 | 8 | 751 | 24 | B | | | 96.5 | | | | 3.5 |
| 2 | 15 | 2339 | 42 | B | | | 100 | | | | 0 |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |

# *DMRB: Assessment of Local Air Quality*

# OUTPUT SHEET

## Current receptor

| Receptor Name | R3 with dev | Receptor number | 3 |
|---|---|---|---|
| Assessment year | 2014 | | |

## Results

| Pollutant | Annual mean | | | | For comparison with Air Quality Standards | | |
|---|---|---|---|---|---|---|---|
| | Background concentration | Road traffic component | Total | Units | Metric | Value | Units |
| CO | 0.00 | 0.01 | 0.01 | $mg/m^3$ | Annual mean* | 0.01 | $mg/m^3$ |
| Benzene | 0.00 | 0.02 | 0.02 | $\mu g/m^3$ | Annual mean | 0.02 | $\mu g/m^3$ |
| 1,3-butadiene | 0.00 | 0.01 | 0.01 | $\mu g/m^3$ | Annual mean | 0.01 | $\mu g/m^3$ |
| $NO_x$ | 12.4 | 1.5 | 13.9 | $\mu g/m^3$ | Not applicable | | |
| $NO_2$ | 10.3 | 0.5 | 10.8 | $\mu g/m^3$ | Annual mean* | 10.8 | $\mu g/m^3$ |
| $PM_{10}$ | 13.8 | 0.21 | 14.01 | $\mu g/m^3$ | Annual mean | 14.0 | $\mu g/m^3$ |
| | | | | | Days >50$\mu g/m^3$ | 0 | Days |

* See Footnote 4 in DMRB Volume 11 Chapter 3

## Contribution of each link to annual mean

| Link number | CO ($mg/m^3$) | Benzene ($\mu g/m^3$) | 1,3-butadiene ($\mu g/m^3$) | NOx ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|
| 1 | 0.01 | 0.01 | 0.00 | 0.59 | 0.08 |
| 2 | 0.01 | 0.01 | 0.01 | 0.92 | 0.13 |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

## All receptors

| Receptor number | Name | Year | Pollutant concentrations at receptor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | CO * | Benzene | 1,3-butadiene | $NO_x$ | $NO_2$ * | $PM_{10}$ | |
| | | | Annual mean $mg/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Annual mean $\mu g/m^3$ | Days >50$\mu g/m^3$ |
| 1 | R1 with dev | 2014 | 0.01 | 0.02 | 0.01 | 14.32 | 10.97 | 14.03 | 0.00 |
| 2 | R2 with dev | 2014 | 0.01 | 0.01 | 0.01 | 13.81 | 10.79 | 13.96 | 0.00 |
| 3 | R3 with dev | 2014 | 0.01 | 0.02 | 0.01 | 13.91 | 10.83 | 14.01 | 0.00 |

* See Footnote 4 in DMRB Volume 11 Chapter 3

***This spreadsheet calculates the nitrogen dioxide concentration from the modelled oxides of nitrogen concentrations***

**1). Confirm that the General inputs spreadsheet has been completed**

The input selections are shown at the head of the Table below.

**2.) Type in (or paste and copy from another spreadsheet)**

**1) the receptor identifier (Receptor ID) and its Easting and Northing. [Optional]**

**2) the modelled contribution from roads to oxides of nitrogen concentrations (Road increment $NO_x$)**

**3) the local background concentration as $NO_2$**

You may alternatively enter the local background as $NO_x$, for example, if you have modelled a regional background.

Leave the redundant background $NO_x$ or $NO_2$ columns blank as appropriate

**3). The default set-up is to use the fraction of oxides emitted as $NO_2$ from the General Inputs spreadsheet**
**Leave the "Fraction emitted as $NO_2$" column empty to use the default set up.**
**However, you can overwrite the defaults by typing appropriate values (0-1) into this column.**
**The fNO2 spreadsheet provides additional values.**

**4) Click the mouse on the run button to run the model.**

Run $NO_x$ to $NO_2$

The model will calculate:

a) the total nitrogen dioxide concentration at the receptor (Total $NO_2$)

b) the incremental contribution to nitrogen dioxide concentrations from the road vehicle emissions (Road $NO_2$)

Copy and paste the results to another spreadsheet.

**5) Click the mouse on the Clear button to clear the spreadsheet**

Clear spreadsheet

**Local Authority: STAFFORDSHIRE MOORLANDS** **Year: 2014** **Traffic Mix: All UK traffic**

| Receptor ID | Easting,m | Northing, m | Road increment $NO_x$ µg $m^{-3}$ | Background µg $m^{-3}$ | | Fraction emitted as $NO_2$ | Total $NO_2$ µg $m^{-3}$ | Road $NO_2$ µg $m^{-3}$ | Notes |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $NO_x$ | $NO_2$ | | | | |
| R1 without 2014 | | | 1.4 | | 12.4 | | 13.09 | 0.69 | |
| R2 without 2014 | | | 1.3 | | 12.4 | | 13.04 | 0.64 | |
| R1 with 2014 | | | 1.9 | | 12.4 | | 13.34 | 0.94 | |
| R2 with 2014 | | | 1.6 | | 12.4 | | 13.19 | 0.79 | |
| R3 with 2014 | | | 1.5 | | 12.4 | | 13.14 | 0.74 | |
| | | | | | | | | | |
| | | | | | | | | | |