

AIR POLLUTION

This document has been prepared by a group of experts under the “European Urban Mobility Observatory and Support” contract. It does not reflect or anticipate the position of the Commission. It does not constitute a legal proposal. The purpose of this document is to outline the indicators and the data required to calculate them, which the experts consider to be most appropriate for urban nodes to measure in the respective area. This document is intended to serve as a basis for reflection and further work on relevant indicators required by the TEN-T Regulation.

Data requirements

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|----|--|---|---|---|---|--|
| D1 | O1. Annual mean NO2 pollution concentration at the traffic-oriented sampling point that reported the highest value in the urban area (city/FUA) [$\mu\text{g}/\text{m}^3$] | <p>Preferred dataset Data provided for Ambient Air Quality Directives (dataset) for average yearly concentrations. Reported in the EEA database and viewer at measuring station level: https://www.eea.europa.eu/data-and-maps/dashboards/air-quality-statistics</p> <p>Alternative dataset Data from traffic-oriented sampling point within the city / FUA. Estimated complying to data quality in the EU directive 2008/50/EC – Annex I https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0050</p> | Cities, Province, Region, Member States | Sampling point for monitoring air pollution | Data reported every year (collected hourly during the year at measuring stations) | <p>Survey: 120 total at city and/or FUA level, not distinguished (56% of respondents)</p> <p>EEA dataset: data available (at least one traffic monitoring station) in 290 urban nodes in 2022.</p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|----|--|---|---|---|---|--|
| D2 | O2. Annual mean PM10 pollution concentration at the traffic-oriented sampling point that reported the highest value in the urban area (city/FUA) [$\mu\text{g}/\text{m}^3$] | <p>Preferred dataset Data provided for Ambient Air Quality Directives (dataset) for average yearly concentrations. Reported in the EEA database and viewer at measuring station level: https://www.eea.europa.eu/data-and-maps/dashboards/air-quality-statistics</p> <p>Alternative dataset Data from traffic-oriented sampling point within the city / FUA. Estimated complying to data quality in the EU directive 2008/50/EC – Annex I https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0050</p> | Cities, Province, Region, Member States | Sampling point for monitoring air pollution | Data reported every year (collected hourly during the year at measuring stations) | <p>Survey: 121 total at city and/or FUA level, not distinguished (56% of respondents)</p> <p>EEA dataset: data available (at least one traffic monitoring station) in 278 urban nodes in 2022</p> |
| D3 | O3. Annual mean PM2.5 pollution concentration at the traffic-oriented sampling point that reported the highest value in the urban area (city/FUA) [$\mu\text{g}/\text{m}^3$] | <p>Preferred dataset Data provided for Ambient Air Quality Directives (dataset) for average yearly concentrations. Reported in the EEA database and viewer at measuring station level: https://www.eea.europa.eu/data-and-maps/dashboards/air-quality-statistics</p> <p>Alternative dataset Data from traffic-oriented sampling point within the city / FUA. Estimated complying to data quality</p> | Cities, Province, Region, Member States | Sampling point for monitoring air pollution | Data reported every year (collected hourly during the year at measuring stations) | <p>Survey: 113 total at city and/or FUA level, not distinguished (53% of respondents)</p> <p>EEA dataset: data available (at least one traffic monitoring station) in 244 urban nodes in 2022.</p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|----|---|---|---|---|---|--|
| | | in the EU directive 2008/50/EC – Annex I https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0050 | | | | |
| D4 | R1. Number of days per year where the daily PM10 concentration exceeded the WHO recommended level of 45 µg/m3 at any traffic-oriented sampling point in the city/FUA [days] | <p>Preferred dataset Data provided for Ambient Air Quality Directives (dataset) for average yearly concentrations. Reported in the EEA database and viewer at measuring station level: https://www.eea.europa.eu/data-and-maps/dashboards/air-quality-statistics</p> <p>Alternative dataset Data from traffic-oriented sampling point within the city / FUA. Estimated complying to data quality in the EU directive 2008/50/EC – Annex I https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0050</p> | Cities, Province, Region, Member States | Sampling point for monitoring air pollution | Data reported every year (collected hourly during the year at measuring stations) | <p>Survey: The survey didn't include a specific question on this particular aspect. It could be assumed the same as D2.</p> <p>EEA dataset: data available (at least one traffic monitoring station) in 269 urban nodes in 2022.</p> |
| D5 | R2. Number of traffic-oriented sampling points where the annual mean concentration of PM2.5 exceeded the WHO | <p>Preferred dataset Data provided for Ambient Air Quality Directives (dataset) for average yearly concentrations. Reported in the EEA database and viewer at measuring station level: https://www.eea.europa.eu/data-and-maps/dashboards/air-quality-statistics</p> | Cities, Province, Region, Member States | Sampling point for monitoring air pollution | Data reported every year (collected hourly during the year at | <p>Survey: The survey didn't include a specific question on this particular aspect. It can be assumed the same as D3</p> <p>EEA dataset:</p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|----|--|---|---|---|---|---|
| | recommended level of 35 µg/m3 in the city/FUA [hours] | and-maps/dashboards/air-quality-statistics Alternative dataset Data from traffic-oriented sampling point within the city / FUA. Estimated complying to data quality in the EU directive 2008/50/EC – Annex I https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0050 | | | measuring stations) | data available (at least one traffic monitoring station) in 244 urban nodes in 2022. |
| D6 | R3. Number of hours per year where the hourly NO2 concentration exceeded the WHO recommended level of 200 µg/m3 at any traffic-oriented sampling point in the city/FUA [hours] | Preferred dataset Data provided for Ambient Air Quality Directives (dataset) for average yearly concentrations. Reported in the EEA database and viewer at measuring station level: https://www.eea.europa.eu/data-and-maps/dashboards/air-quality-statistics Alternative dataset Data from traffic -oriented sampling point within the city / FUA. Estimated complying to data quality in the EU directive 2008/50/EC – Annex I https://eur-lex.europa.eu/legal- | Cities, Province, Region, Member States | Sampling point for monitoring air pollution | Data reported every year (collected hourly during the year at measuring stations) | Survey: The survey didn't include a specific question on this particular aspect. It can be assumed the same as D1 EEA dataset: data available (at least one traffic monitoring station) in 275 urban nodes in 2022 (64% of total 430 urban nodes). |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|----|---|--|--|-------------------------------|----------------------------------|--|
| | | content/EN/TXT/PDF/?uri=CELEX:32008L0050 | | | | |
| D7 | O4, O5, O8, O9 public transport bus/coach vehicle stock composition by fuel engine and Euro Emission standard (diesel, gasoline only) [<i># vehicles</i>] | <p>Preferred dataset Reports of public transport operator serving the city/FUA, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ CNG ○ LPG ○ Hydrogen ○ Battery electric ○ Plug-in hybrid <p>Euro emission standard (for diesel only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | Public transport authorities or operators | Vehicle registration | Yearly | <p>Survey:</p> <p><u>By fuel only</u> 22 city, 15 FUA (includes 9 both city and FUA) 28 total at city and/or FUA level (13% of respondents)</p> <p><u>By Euro norm only</u> 12 city, 5 FUA (includes 3 both city and FUA) 14 total at city and/or FUA level (7% of respondents)</p> <p><u>By both fuel and Euro norm</u> 90 city, 44 FUA (includes 26 both city and FUA) 108 total at city and/or FUA level (50% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 112 city, 59 FUA (includes 35 both city and FUA) 136 total at city and/or FUA level (63% of respondents)</p> <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u></p> |
| | | <p>Alternative dataset Database at the more aggregated NUTS level with respect to the city/FUA level, disaggregated by engine fuel and Euro emission standard as above.</p> | ACEA, Offices for national or local statistics | Vehicle registration | | |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|----|--|---|---|-------------------------------|----------------------------------|--|
| | | | | | | 102 city, 49 FUA (includes 29 both city and FUA) 122 total at city and/or FUA level (57% of respondents) |
| D8 | O6, O7, O10, O11 Total bus/coach vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]) | <p>Preferred dataset Database of registered vehicle stock at city/FUA level, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ CNG ○ LPG ○ Hydrogen ○ Battery electric ○ Plug-in hybrid <p>Euro emission standard (for diesel only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | Vehicle registration entities, Offices for national or local statistics | Vehicle registration | Yearly | <p>Survey:</p> <p><u>By fuel only</u> 28 city, 14 FUA (includes 7 both city and FUA) 35 total at city and/or FUA level (16% of respondents)</p> <p><u>By Euro norm only</u> 10 city, 5 FUA (includes 4 both city and FUA) 11 total at city and/or FUA level (5% of respondents)</p> <p><u>By both fuel and Euro norm</u> 61 city, 32 FUA (includes 22 both city and FUA) 71 total at city and/or FUA level (33% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 89 city, 46 FUA (includes 29 both city and FUA) 106 total at city and/or FUA level (49% of respondents)</p> |
| | | <p>Alternative dataset Database of registered vehicle stock at more aggregated NUTS level with respect to the city level, disaggregated by engine fuel and Euro emission standard as above.</p> | | | | |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|----|--|---|---|-------------------------------|----------------------------------|--|
| | | | | | | <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 71 city, 37 FUA (includes 26 both city and FUA) 82 total at city and/or FUA level (38% of respondents)</p> |
| D9 | O12, O13 Public transport water bus stock composition by engine fuel and Euro Emission standard (diesel only) [# vehicles] | <p>Reports of public transport operator serving the city/FUA, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ Hydrogen ○ Battery electric ○ Hybrid <p>Euro emission standard (for diesel only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | Public transport authorities or operators | Vehicle registration | Yearly | <p><i>Inland waterways service is available as a transport mode in a limited number of urban nodes; therefore, data availability should be evaluated considering where the service is effectively in place.</i></p> <p>Survey: <u>By fuel only</u> 5 city, 5 FUA (includes 3 both city and FUA) (7 total at city and/or FUA level (3% of respondents)</p> <p><u>By Euro norm only</u> 1 city, 1 FUA (includes 0 both city and FUA) 2 total at city and/or FUA level (1% of respondents)</p> <p><u>By both fuel and Euro norm</u> 17 city, 13 FUA (includes 9 both city and FUA)</p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|-----|---|--|---|-------------------------------|----------------------------------|--|
| | | | | | | <p>21 total at city and/or FUA level (10% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 22 city, 18 FUA (includes 12 both city and FUA) 28 total at city and/or FUA level (13% of respondents)</p> <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 18 city, 14 FUA (includes 9 both city and FUA) 23 total at city and/or FUA level (11% of respondents)</p> |
| D10 | O14, O15 Private moped vehicle stock composition by engine fuel and Euro Emission standard (diesel, gasoline only) [# vehicles] | <p>Preferred dataset Database of registered vehicle stock at city/FUA level, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ Gasoline ○ CNG ○ LPG ○ Ethanol ○ Hydrogen ○ Battery electric ○ Plug-in hybrid <p>Euro emission standard (for diesel and gasoline only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 | Vehicle registration entities, Offices for national or local statistics | Vehicle registration | Yearly | <p>Data on mopeds Survey:</p> <p><u>By fuel only</u> 22 city, 9 FUA (includes 4 both city and FUA) (27 total at city and/or FUA level (13% of respondents)</p> <p><u>By Euro norm only</u> 3 city, 3 FUA (includes 0 both city and FUA) 6 total at city and/or FUA level (3% of respondents)</p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|-----|--|---|---|-------------------------------|----------------------------------|---|
| | | <ul style="list-style-type: none"> ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | | | | <p><u>By both fuel and Euro norm</u> 48 city, 18 FUA (includes 12 both city and FUA) 54 total at city and/or FUA level (25% of respondents)</p> |
| | | <p>Alternative dataset Database of registered vehicle stock at more aggregated NUTS level with respect to the city level, disaggregated by engine fuel and Euro emission standard as above.</p> | | Vehicle registration | | <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 70 city, 27 FUA (includes 16 both city and FUA) 81 total at city and/or FUA level (38% of respondents)</p> <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 51 city, 21 FUA (includes 12 both city and FUA) 60 total at city and/or FUA level (28% of respondents)</p> |
| D11 | O16, O17 Private motorcycle vehicle stock composition by engine fuel and Euro Emission standard (diesel, gasoline only) [# vehicles] | <p>Preferred dataset Database of registered vehicle stock at city/FUA level, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ Gasoline ○ CNG ○ LPG ○ Ethanol ○ Hydrogen ○ Battery electric | Vehicle registration entities, Offices for national or local statistics | Vehicle registration | Yearly | <p>Data on motorcycles Survey:</p> <p><u>By fuel only</u> 24 city, 10 FUA (includes 5 both city and FUA) (29 total at city and/or FUA level (13% of respondents)</p> <p><u>By Euro norm only</u></p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|-----|--|--|---|-------------------------------|----------------------------------|---|
| | | <ul style="list-style-type: none"> ○ Plug-in hybrid <p>Euro emission standard (for diesel and gasoline only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | | | | <p>8 city, 4 FUA (includes 2 both city and FUA) 10 total at city and/or FUA level (5% of respondents)</p> <p><u>By both fuel and Euro norm</u> 58 city, 23 FUA (includes 15 both city and FUA) 66 total at city and/or FUA level (31% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 82 city, 33 FUA (includes 20 both city and FUA) 95 total at city and/or FUA level (44% of respondents)</p> <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 66 city, 27 FUA (includes 17 both city and FUA) 76 total at city and/or FUA level (35% of respondents)</p> |
| | | <p>Alternative dataset Database of registered vehicle stock at more aggregated NUTS level with respect to the city level, disaggregated by engine fuel and Euro emission standard as above.</p> | | | | |
| D12 | O18, O19 Private car vehicle stock composition by engine fuel (and Euro Emission standard (diesel, | <p>Preferred dataset Database of registered vehicle stock at city/FUA level, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ Gasoline | Vehicle registration entities, Offices for national or local statistics | Vehicle registration | Yearly | <p><u>Making reference to data on total cars</u></p> <p>Survey: <u>By fuel only</u></p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|---|-----------------------------|---|-------|-------------------------------|----------------------------------|--|
| | gasoline only) [# vehicles] | <ul style="list-style-type: none"> ○ CNG ○ LPG ○ Ethanol ○ Hydrogen ○ Battery electric ○ Plug-in hybrid <p>Euro emission standard (for diesel and gasoline only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | | | | <p>36 city, 13 FUA (includes 7 both city and FUA) (42 total at city and/or FUA level (20% of respondents)</p> <p><u>By Euro norm only</u> 9 city, 5 FUA (includes 2 both city and FUA) 12 total at city and/or FUA level (6% of respondents)</p> <p><u>By both fuel and Euro norm</u> 69 city,31 FUA (includes 20 both city and FUA) 80 total at city and/or FUA level (37% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 105 city,44 FUA (includes 27 both city and FUA) 122 total at city and/or FUA level (57% of respondents)</p> <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 78 city, 36 FUA (includes 22 both city and FUA) 92 total at city and/or FUA level (43% of respondents)</p> |
| | | <p><u>Alternative dataset</u> Database of registered vehicle stock at more aggregated NUTS level with respect to the city level, disaggregated by engine fuel and Euro emission standard as above.</p> | | Vehicle registration | | |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|-----|--|---|---|-------------------------------|----------------------------------|---|
| D13 | O20, O21 Light commercial vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]) | <p>Preferred dataset Database of registered vehicle stock at city/FUA level, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ Gasoline ○ CNG ○ LPG ○ Ethanol ○ Hydrogen ○ Battery electric ○ Plug-in hybrid <p>Euro emission standard (for diesel and gasoline only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | Vehicle registration entities, Offices for national or local statistics | Vehicle registration | Yearly | <p>Survey:</p> <p><u>By fuel only</u> 16 city, 9 FUA (includes 4 both city and FUA) (21 total at city and/or FUA level (10% of respondents))</p> <p><u>By Euro norm only</u> 4 city, 2 FUA (includes 1 both city and FUA) 5 total at city and/or FUA level (2% of respondents)</p> <p><u>By both fuel and Euro norm</u> 47 city, 21 FUA (includes 13 both city and FUA) 55 total at city and/or FUA level (26% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 69 city, 30 FUA (includes 17 both city and FUA) 76 total at city and/or FUA level (35% of respondents)</p> <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 51 city, 23 FUA (includes 14 both city and FUA) 60 total at city and/or FUA level (28% of respondents)</p> |
| | | <p>Alternative dataset Database of registered vehicle stock at more aggregated NUTS level with respect to the city level, disaggregated by engine fuel and Euro emission standard as above.</p> | | Vehicle registration | | |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|-----|---|---|---|-------------------------------|----------------------------------|---|
| D14 | O22, O23 Heavy goods vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]) | <p>Preferred dataset Database of registered vehicle stock at city/FUA level, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ Gasoline ○ CNG ○ LPG ○ Ethanol ○ Hydrogen ○ Battery electric ○ Plug-in hybrid <p>Euro emission standard (for diesel and gasoline only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | Vehicle registration entities, Offices for national or local statistics | Vehicle registration | Yearly | <p>Survey:</p> <p><u>By fuel only</u> 23 city, 10 FUA (includes 4 both city and FUA) (29 total at city and/or FUA level (13% of respondents))</p> <p><u>By Euro norm only</u> 8 city, 3 FUA (includes 2 both city and FUA) 9 total at city and/or FUA level (4% of respondents)</p> <p><u>By both fuel and Euro norm</u> 50 city, 23 FUA (includes 16 both city and FUA) 57 total at city and/or FUA level (27% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 73 city, 33 FUA (includes 20 both city and FUA) 86 total at city and/or FUA level (40% of respondents)</p> <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 58 city, 26 FUA (includes 18 both city and FUA)</p> |
| | | <p>Alternative dataset Database of registered vehicle stock at more aggregated NUTS level with respect to the city level, disaggregated by engine fuel and Euro emission standard as above.</p> | | Vehicle registration | | |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|-----|--|---|-----------------------------------|-------------------------------|----------------------------------|---|
| | | | | | | 66 total at city and/or FUA level (31% of respondents) |
| D15 | <p>O24, O25 Taxi and ride-hailing vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [<i># vehicles</i>])</p> <p>O26, O27 Shared car vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [<i># vehicles</i>])</p> | <p>Taxi, ride-hailing and shared car data on vehicle stock composition, disaggregated by:</p> <p>Engine Fuel</p> <ul style="list-style-type: none"> ○ Diesel ○ Gasoline ○ CNG ○ LPG ○ Ethanol ○ Hydrogen ○ Battery electric ○ Plug-in hybrid <p>Euro emission standard (for diesel and gasoline only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | Cities, Shared mobility operators | Vehicle stock | Yearly | <p><u>Taxi and shared mobility vehicles (cars)</u></p> <p>Survey:</p> <p><u>By fuel only</u> 13 city, 7 FUA (includes 4 both city and FUA) (16 total at city and/or FUA level (7% of respondents))</p> <p><u>By Euro norm only</u> 3 city, 2 FUA (includes 1 both city and FUA) (4 total at city and/or FUA level (2% of respondents))</p> <p><u>By both fuel and Euro norm</u> 36 city, 18 FUA (includes 10 both city and FUA) 44 total at city and/or FUA level (20% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 49 city, 25 FUA (includes 14 both city and FUA) 60 total at city and/or FUA level (28% of respondents)</p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|-----|---|--|--------|-------------------------------|----------------------------------|--|
| | | | | | | <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 39 city, 20 FUA (includes 11 both city and FUA) 48 total at city and/or FUA level (22% of respondents)</p> <p><u>Total shared mobility vehicles (cars)</u> Survey: 87 city, 23 FUA (includes 16 both city and FUA) 94 total at city and/or FUA level (44% of respondents)</p> <p>only 56 respondents have access to data for all companies, 28 respondents have data for only some of them 17 respondents don't have a car sharing system in place</p> |
| D16 | O28, O29 Municipal service car vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]) | Municipal service car data on vehicle stock composition, disaggregated by: Engine Fuel <ul style="list-style-type: none"> ○ Diesel ○ Gasoline ○ CNG ○ LPG ○ Ethanol ○ Hydrogen ○ Battery electric | Cities | Vehicle stock | Yearly | <p><u>Cars - municipal vehicles</u> Survey:</p> <p><u>By fuel only</u> 22 city, 9 FUA (includes 5 both city and FUA) (26 total at city and/or FUA level (12% of respondents)</p> <p><u>By Euro norm only</u></p> |

| # | Indicator | Dataset | Owner | (Possible) collection methods | Timing & frequency of collection | Comments on data availability |
|---|-----------|--|-------|-------------------------------|----------------------------------|--|
| | | <ul style="list-style-type: none"> ○ Plug-in hybrid <p>Euro emission standard (for diesel and gasoline only)</p> <ul style="list-style-type: none"> ○ Euro norm 1-4 ○ Euro norm 5 ○ Euro norm 6a-c ○ Euro norm 6d ○ Euro norm 7 | | | | <p>8 city, 0 FUA (includes 0 both city and FUA) (8 total at city and/or FUA level (4% of respondents))</p> <p><u>By both fuel and Euro norm</u> 85 city, 26 FUA (includes 15 both city and FUA) 96 total at city and/or FUA level (45% of respondents)</p> <p><u>Total by fuel (= by fuel only + by both fuel and Euro norm)</u> 107 city, 35 FUA (includes 20 both city and FUA) 122 total at city and/or FUA level (57% of respondents)</p> <p><u>Total by Euro norm (= by Euro norm only + by both fuel and Euro norm)</u> 93 city, 26 FUA (includes 15 both city and FUA) 104 total at city and/or FUA level (48% of respondents)</p> |

Overview and analysis of data availability

Based on the analysis of responses to the urban mobility data and indicators survey, which was carried out in July-October 2023 and which collected responses from 215 urban nodes out of 430, the following considerations have been drawn for each dataset required for the indicators described above.

Summary and conclusions

From the aggregated results of the survey it is observed that more than half of respondents collect data on air pollutant concentration at traffic-oriented sampling points. Meanwhile, when looking at available data already reported under the Ambient Air Quality directive, it can be observed that 57% to 67% of urban nodes (depending on air pollutant) provided data in 2022. It would be beneficial to merge detailed data from both sources to have a complete overview related to sampling points. Regardless, even with the aggregated information available, it seems that a good level of availability could be achieved.

Concerning the composition of the vehicle fleet (in terms of registrations), more than half of the respondents reported that they collect data by fuel type for buses, coaches and passenger cars, when considering also reporting availability for both fuel and euro norm. For freight vehicles, mopeds and motorcycles, availability ranges from 35% to 44%. Therefore, the alternative Tier 1 calculation method based on the composition by fuel type is reported for indicators related to average air pollutant emissions per vehicle kilometre. The proposed calculation methods (Tier 1 and Tier 2) are directly based on the EMEP/EEA Air Pollutant Emission Inventory Guidebook 2023.

For some modes and vehicle types, it is also important to consider that not all modes are universally available or that some modes represent only a marginal share of transport demand in most urban nodes. Therefore, lower absolute values in terms of vehicle stock do not necessarily correspond to lower data availability. Examples include inland waterway transport and car sharing. In the case of car sharing, specific requirements for data sharing could be included in the service contracts.

It is important to highlight that data is collected in some cases by environmental agencies/departments and/or by authorities not related to city/FUA level, so cities might not be fully aware of availability or might not have direct access to this data (although the data is collected). Furthermore, some respondents mentioned that data on additional pollutants are collected.

Altogether, a good level of overall data availability is estimated for the indicators above. Furthermore, it should be noted that currently the Ambient Air Quality directive requires collection and online publication of this type of data every year; therefore, the burden of collecting the above information on an annual basis could be evaluated as already feasible for most urban nodes.

Detailed analysis

Please note that the figures provided do not always add up across questions, for example, in some cases respondents have replied only to the first of two related questions, or only to the second of two questions.

- D1. (O1) Annual mean NO₂ pollution concentration in the traffic-oriented sampling point that reported the highest value in the urban area (city/FUA)**
[µg/m³]
Survey results
- 120 respondents reported collection of/access this data:

- 56% of respondents
- not distinguished at city level or FUA level.

Data from EEA dataset (Ambient Air Quality Directive [6])

- According to the EEA dataset, data is available in 290 urban nodes in 2022 (67% out of 430 urban nodes). Nevertheless, not all urban nodes had reporting obligations according to the Ambient Air Quality directive.

D2. (O2) Annual mean PM10 pollution concentration in the traffic-oriented -oriented sampling point that reported the highest value in the urban area (city/FUA) [$\mu\text{g}/\text{m}^3$]

Survey results

- 121 respondents reported collection of/access this data:
 - 56% of respondents
 - not distinguished at city level or FUA level.

Data from EEA dataset (Ambient Air Quality Directive [6])

- According to the EEA dataset, data is available in 278 urban nodes in 2022 (65% out of 430 urban nodes). Nevertheless, not all urban nodes had reporting obligations according to the Ambient Air Quality directive.

D3. (O3) Annual mean PM2.5 pollution concentration in the traffic-oriented -oriented sampling point that reported the highest value in the urban area (city/FUA) [$\mu\text{g}/\text{m}^3$]

Survey results

- 113 respondents reported collection of/access this data:
 - 53% of respondents
 - not distinguished at city level or FUA level.

Data from EEA dataset (Ambient Air Quality Directive [6])

- According to the EEA dataset, data is available in 244 urban nodes in 2022 (57% out of 430 urban nodes). Nevertheless, not all urban nodes had reporting obligations according to the Ambient Air Quality directive.

D4. (R1) PM10: Number of days per year where the daily concentration exceeded the WHO recommended level of 45 $\mu\text{g}/\text{m}^3$ at any traffic-oriented sampling point in the city/FUA [days]

Survey results

- The survey didn't include specific question on this particular aspect. It could be assumed the same as D2. Therefore:
- 121 respondents reported collection of/access to this data

- 56% of respondents
- not distinguished at city level or FUA level.

Data from EEA dataset (Ambient Air Quality Directive [6])

- According to the EEA dataset, data is available in 269 urban nodes in 2022 (63% out of 430 urban nodes). Nevertheless, not all urban nodes had reporting obligations according to the Ambient Air Quality directive.

D5. (R2) PM2.5: Number of traffic-oriented sampling points where the annual mean concentration exceeded the WHO recommended level of 35 µg/m3 in the city/FUA [# points]

Survey results

- The survey didn't include specific question on this particular aspect. It could be assumed the same as D3. Therefore:
- 113 respondents reported collection of/access to this data
 - 53% of respondents
 - not distinguished at city level or FUA level.

Data from EEA dataset (Ambient Air Quality Directive [6])

- According to the EEA dataset, data is available in 244 urban nodes in 2022 (57% out of 430 urban nodes). Nevertheless, not all urban nodes had reporting obligations according to the Ambient Air Quality directive.

D6. (R3) NO2: Number of hours per year where the hourly concentration exceeded the WHO recommended level of 200 µg/m3 at any traffic -oriented sampling point in the city/FUA [# points]

Survey results

- The survey didn't include specific question on this particular aspect. It could be assumed the same as D1. Therefore:
- 120 respondents reported collection of/access to this data
 - 56% of respondents
 - not distinguished at city level or FUA level.

Data from EEA dataset (Ambient Air Quality Directive [6])

- According to the EEA dataset, data is available in 275 urban nodes in 2022 (64% out of 430 urban nodes). Nevertheless, not all urban nodes had reporting obligations according to the Ambient Air Quality directive.

D7. (O4, O5, O8, O9) Public transport bus/coach vehicle stock composition by fuel engine and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**

- 22 at city level only, 15 at FUA level only (including 9 at both city and FUA level)
- 28 total at city and/or FUA level (13% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 12 at city level only, 5 at FUA level only (including 3 at both city and FUA level)
 - 14 total at city and/or FUA level (7% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 90 at city level only, 44 at FUA level only (including 26 at both city and FUA level)
 - 108 total at city and/or FUA level (50% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 112 city, 59 FUA (including 35 both at city and FUA level)
 - 136 total at city and/or FUA level (63% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 102 city, 49 FUA (including 29 both at city and FUA level)
 - 122 total at city and/or FUA level (57% of respondents), excluding overlap

D8. (O6, O7, O10, O11) Total bus/coach stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 28 at city level only, 14 at FUA level only (including 7 at both city and FUA level)
 - 35 total at city and/or FUA level (16% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 10 at city level only, 5 at FUA level only (4 at both city and FUA level)
 - 11 total at city and/or FUA level (5% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 61 at city level only, 32 at FUA level only (including 22 at both city and FUA level)
 - 71 total at city and/or FUA level (33% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 89 city, 46 FUA (including 29 both at city and FUA level)
 - 106 total at city and/or FUA level (49% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 71 city, 37 FUA (including 26 both at city and FUA level)
 - 82 total at city and/or FUA level (38% of respondents), excluding overlap

D9. (O12, O13) Public transport water bus stock composition by engine fuel (diesel, hydrogen, battery electric, hybrid) and Euro Emission standard (diesel only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 5 at city level only, 5 at FUA level only (including 3 at both city and FUA level)
 - 7 total at city and/or FUA level (3% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 1 at city level only, 1 at FUA level only (0 at both city and FUA level)
 - 2 total at city and/or FUA level (1% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 17 at city level only, 13 at FUA level only (including 9 at both city and FUA level)
 - 21 total at city and/or FUA level (10% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 22 city, 18 FUA (including 12 both at city and FUA level)
 - 28 total at city and/or FUA level (13% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 18 city, 14 FUA (including 9 both at city and FUA level)
 - 23 total at city and/or FUA level (11% of respondents), excluding overlap
- *Note that Inland waterways are a transport mode in only a limited number of urban nodes. Therefore, data availability should be evaluated taking into consideration where the service is effectively in place.*

D10. (O14, O15) Private moped vehicle stock composition by engine fuel and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 22 at city level only, 9 at FUA level only (including 4 at both city and FUA level)
 - 27 total at city and/or FUA level (13% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 3 at city level only, 3 at FUA level only (0 at both city and FUA level)
 - 6 total at city and/or FUA level (3% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 48 at city level only, 18 at FUA level only (including 12 at both city and FUA level)
 - 54 total at city and/or FUA level (25% of respondents), excluding overlap

- collection of/access to this data **by fuel engine in total**
 - 70 city, 27 FUA (including 16 both at city and FUA level)
 - 81 total at city and/or FUA level (38% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 51 city, 21 FUA (including 12 both at city and FUA level)
 - 60 total at city and/or FUA level (28% of respondents), excluding overlap

D11. (O16, O17) Private motorcycle vehicle stock composition by engine fuel and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 24 at city level only, 10 at FUA level only (including 5 at both city and FUA level)
 - 29 total at city and/or FUA level (13% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 8 at city level only, 4 at FUA level only (2 at both city and FUA level)
 - 10 total at city and/or FUA level (5% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 58 at city level only, 23 at FUA level only (including 15 at both city and FUA level)
 - 66 total at city and/or FUA level (31% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 82 city, 33 FUA (including 20 both at city and FUA level)
 - 95 total at city and/or FUA level (44% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 66 city, 27 FUA (including 17 both at city and FUA level)
 - 76 total at city and/or FUA level (35% of respondents), excluding overlap

D12. (O18, O19) Private car vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 36 at city level only, 13 at FUA level only (including 7 at both city and FUA level)
 - 42 total at city and/or FUA level (20% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 9 at city level only, 5 at FUA level only (2 at both city and FUA level)

- 12 total at city and/or FUA level (6% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 69 at city level only, 31 at FUA level only (including 20 at both city and FUA level)
 - 80 total at city and/or FUA level (37% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 105 city, 44 FUA (including 27 both at city and FUA level)
 - 122 total at city and/or FUA level (57% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 78 city, 36 FUA (including 22 both at city and FUA level)
 - 92 total at city and/or FUA level (43% of respondents), excluding overlap
- *Note that the data availability reported is for total cars.*

D13. (O20, O21) Light commercial vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 16 at city level only, 9 at FUA level only (including 4 at both city and FUA level)
 - 21 total at city and/or FUA level (10% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 4 at city level only, 2 at FUA level only (1 at both city and FUA level)
 - 5 total at city and/or FUA level (2% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 47 at city level only, 21 at FUA level only (including 13 at both city and FUA level)
 - 55 total at city and/or FUA level (26% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 69 city, 30 FUA (including 17 both at city and FUA level)
 - 76 total at city and/or FUA level (35% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 51 city, 23 FUA (including 14 both at city and FUA level)
 - 60 total at city and/or FUA level (28% of respondents), excluding overlap

D14. (O22, O23) Heavy goods vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 23 at city level only, 10 at FUA level only (including 4 at both city and FUA level)
 - 29 total at city and/or FUA level (13% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 8 at city level only, 3 at FUA level only (2 at both city and FUA level)
 - 9 total at city and/or FUA level (4% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 50 at city level only, 23 at FUA level only (including 16 at both city and FUA level)
 - 57 total at city and/or FUA level (27% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 73 city, 33 FUA (including 20 both at city and FUA level)
 - 86 total at city and/or FUA level (40% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 58 city, 26 FUA (including 18 both at city and FUA level)
 - 66 total at city and/or FUA level (31% of respondents), excluding overlap

D15. (O22, O23) Taxi and ride-hailing vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 13 at city level only, 7 at FUA level only (including 4 at both city and FUA level)
 - 16 total at city and/or FUA level (7% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 3 at city level only, 2 at FUA level only (1 at both city and FUA level)
 - 4 total at city and/or FUA level (2% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 36 at city level only, 18 at FUA level only (including 10 at both city and FUA level)
 - 44 total at city and/or FUA level (20% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 49 city, 25 FUA (including 14 both at city and FUA level)
 - 60 total at city and/or FUA level (28% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**

- 39 city, 20 FUA (including 11 both at city and FUA level)
- 48 total at city and/or FUA level (22% of respondents), excluding overlap

D12. (O24, O25) Shared car vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**
 - 13 at city level only, 7 at FUA level only (including 4 at both city and FUA level)
 - 16 total at city and/or FUA level (7% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 3 at city level only, 2 at FUA level only (1 at both city and FUA level)
 - 4 total at city and/or FUA level (2% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 36 at city level only, 18 at FUA level only (including 10 at both city and FUA level)
 - 44 total at city and/or FUA level (20% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 49 city, 25 FUA (including 14 both at city and FUA level)
 - 60 total at city and/or FUA level (28% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 39 city, 20 FUA (including 11 both at city and FUA level)
 - 48 total at city and/or FUA level (22% of respondents), excluding overlap
- considering also data availability on **total fleet size of free-floating and station-based shared mobility services (cars):**
 - 87 at city level, 23 at FUA level (including 16 at both city and FUA level)
 - 94 total at city and/or FUA level (44% of respondents), excluding overlap
 - It should be noted that only 56 cities/FUAs (26% of respondents) have access to data for all companies providing the service, while 28 cities/FUAs (13% of respondents) have access to data for only some of them. *Also note that the data on total fleet size may be inconsistent with the number of cities/FUAs that have reported the availability of the data on vehicle stock composition; this discrepancy is due to the impossibility of tracing individual urban node responses back to the survey.*
- 17 cities/FUAs (8% of responders) declare that they **do not have a car sharing system**

D16. (O26, O27) Municipal service car vehicle stock composition by engine fuel (and Euro Emission standard (diesel, gasoline only) [# vehicles]

Survey results

- collection of/access to this data **by fuel engine only**

- 22 at city level only, 9 at FUA level only (including 5 at both city and FUA level)
- 26 total at city and/or FUA level (12% of respondents), excluding overlap
- collection of/access to this data **by Euro norm only**
 - 8 at city level only, 0 at FUA level only (0 at both city and FUA level)
 - 8 total at city and/or FUA level (4% of respondents), excluding overlap
- collection of/access to this data **by both fuel engine and Euro norm**
 - 85 at city level only, 26 at FUA level only (including 15 at both city and FUA level)
 - 96 total at city and/or FUA level (45% of respondents), excluding overlap
- collection of/access to this data **by fuel engine in total**
 - 107 city, 35 FUA (including 20 both at city and FUA level)
 - 122 total at city and/or FUA level (57% of respondents), excluding overlap
- collection of/access to this data **by Euro norm in total**
 - 93 city, 26 FUA (including 15 both at city and FUA level)
 - 104 total at city and/or FUA level (48% of respondents), excluding overlap

Survey: open-ended feedback

From the interpretation of the open-ended answers, it is reported that in 2 urban nodes, data is collected by authorities at provincial level, in 36 urban nodes at regional / state level, and in 10 at national level. Furthermore, 22 urban nodes underlined that data related to air pollutants are collected by Environmental agencies or departments rather than transport departments (irrespective of level). Finally, several respondents mentioned that data are collected on other pollutants too, namely ozone O₃ (13 respondents), carbon monoxide CO (10 respondents), sulfur dioxide SO₂ (14 respondents), and volatile organic compounds VOC (4 respondents).

Comment (air pollutant traffic-oriented sampling points)

The survey question considered air pollutant concentration measured at sampling points. It is assumed for the purpose of the proposed indicators that positive answers on data availability for these questions are representative also for the other questions involving indicators required by the Ambient Air Quality Directive.

Comment (vehicle stock composition by vehicle type, fuel and Euro norm)

The survey showed that data on fuel engine for buses, coaches and cars is available for more than half of respondents when taking the reporting availability for both 'by fuel engine' and 'by both fuel and Euro norm' into account. For freight vehicles, mopeds, and motorcycles, data availability ranges from 35% to 44%. On the other hand, data by euro standard generally show lower proportions of positive responses in terms of availability. The shares of total availability by Euro

standard (including both fuel and Euro standard) are only above 50% for bus and coach data, while for cars it is around 43% and for freight vehicles, mopeds, and motorcycles it is between 28% and 35%. Therefore, for the estimation of the average emission factor per vehicle-km, it is proposed to use data on vehicle stock by fuel engine as an alternative methodology (Tier 1), if more detailed data by both fuel engine and euro norm are not available to apply the Tier 2 estimation.

With reference to taxi and car shared vehicles, it should be considered that the lower availability of data on stock composition may be due to less stringent contracts with cities, where urban nodes are not informed about details of service characteristics. In the future, upon contract renewal, it is possible that a requirement could be introduced for operators to provide the requested data.

Concerning inland waterways ferries and waterbuses, the feedback may not look promising at first sight. However, it should be noted that inland waterway services are only available in a limited number of urban nodes. Therefore, data availability should be assessed taking into account where the service is actually provided.

Indicators

| Number | Indicator | To be calculated by: |
|--------------------------|--|----------------------|
| <i>Input indicators</i> | | |
| <i>None</i> | | |
| <i>Output indicators</i> | | |
| O1 | Annual mean NO2 pollution concentration at the traffic-oriented sampling point that reported the highest value in the urban area (city/FUA) [$\mu\text{g}/\text{m}^3$] | Urban node |
| O2 | Annual mean PM10 pollution concentration at the traffic-oriented sampling point that reported the highest value in the urban area (city/FUA) [$\mu\text{g}/\text{m}^3$] | Urban node |
| O3 | Annual mean PM2.5 pollution concentration at the traffic-oriented sampling point that reported the highest value in the urban area (city/FUA) [$\mu\text{g}/\text{m}^3$] | Urban node |
| O4 | Public transport bus vehicle stock composition by diesel engine fuel and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O5 | Public transport bus vehicle stock composition by engine fuel (CNG, LPG, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O6 | Total bus vehicle stock composition by diesel engine fuel and Euro emission standard in the city/FUA [# vehicles] | Urban node |

| | | |
|-----|--|------------|
| O7 | Total bus vehicle stock composition by engine fuel (CNG, LPG, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O8 | Public transport coach vehicle stock composition by diesel engine fuel and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O9 | Public transport coach vehicle stock composition by engine fuel (CNG, LPG, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O10 | Total coach vehicle stock composition by diesel engine fuel and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O11 | Total coach vehicle stock composition by engine fuel (CNG, LPG, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O12 | Public transport water bus stock composition by diesel engine fuel and Euro emission standard in the city/FUA vehicles] | Urban node |
| O13 | Public transport water bus stock composition by engine fuel (diesel, hydrogen, battery electric, hybrid) in the city/FUA [# vehicles] | Urban node |
| O14 | Private moped vehicle stock composition by engine fuel (diesel, gasoline) and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O15 | Private moped vehicle stock composition by engine fuel (CNG, LPG, ethanol, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O16 | Private motorcycle vehicle stock composition by engine fuel (diesel, gasoline) and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O17 | Private motorcycle vehicle stock composition by engine fuel (CNG, LPG, ethanol, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O18 | Private car vehicle stock composition by engine fuel (diesel, gasoline) and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O19 | Private car vehicle stock composition by engine fuel (CNG, LPG, ethanol, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O20 | Light commercial vehicle stock composition by engine fuel (diesel, gasoline) and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O21 | Light commercial vehicle stock composition by engine fuel (CNG, LPG, ethanol, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O22 | Heavy goods vehicle stock composition by engine fuel (diesel, gasoline) and Euro emission standard in the city/FUA [# vehicles] | Urban node |

| | | |
|--------------------------|--|------------|
| O23 | Heavy goods vehicle stock composition by engine fuel (CNG, LPG, ethanol, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O24 | Taxi and ride-hailing vehicle stock composition by engine fuel (diesel, gasoline) and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O25 | Taxi and ride-hailing vehicle stock composition by engine fuel (CNG, LPG, ethanol, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O26 | Shared vehicle stock composition by engine fuel (diesel, gasoline) and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O27 | Shared car vehicle stock composition by engine fuel (CNG, LPG, ethanol, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| O28 | Municipal service car vehicle stock composition by engine fuel (diesel, gasoline) and Euro emission standard in the city/FUA [# vehicles] | Urban node |
| O29 | Municipal service car vehicle stock composition by engine fuel (CNG, LPG, ethanol, hydrogen, battery electric, plug-in hybrid) in the city/FUA [# vehicles] | Urban node |
| <i>Result indicators</i> | | |
| R1 | Number of days per year where the daily PM10 concentration exceeded the WHO recommended level of 45 µg/m3 at any traffic-oriented sampling point in the city/FUA [days] | Urban node |
| R2 | Number of traffic-oriented sampling points where the annual mean concentration of PM2.5 exceeded the WHO recommended level of 35 µg/m3 in the city/FUA [# stations] | Urban node |
| R3 | Number of hours per year where the hourly NO2 concentration exceeded the WHO recommended level of 200 µg/m3 at any traffic-oriented sampling point in the city/FUA [hours] | Urban node |
| R4 | Average pollutant emissions per vehicle-km related to NO2 eq. of public transport bus vehicle stock [g /km] | EC |
| R5 | Average pollutant emissions per vehicle-km related to PM2.5 of public transport bus vehicle stock [g /km] | EC |
| R6 | Average pollutant emissions per vehicle-km related to PM10 of public transport bus vehicle stock [g /km] | EC |
| R7 | Average pollutant emissions per vehicle-km related to NO2 eq. of total bus vehicle stock [g /km] | EC |
| R8 | Average pollutant emissions per vehicle-km related to PM2.5 of total bus vehicle stock [g /km] | EC |
| R9 | Average pollutant emissions per vehicle-km related to PM10 of total bus vehicle stock [g /km] | EC |
| R10 | Average pollutant emissions per vehicle-km related to NO2 eq. of public transport coach vehicle stock [g /km] | EC |
| R11 | Average pollutant emissions per vehicle-km related to PM2.5 of public transport coach vehicle stock [g /km] | EC |
| R12 | Average pollutant emissions per vehicle-km related to PM10 of public transport coach vehicle stock [g /km] | EC |
| R13 | Average pollutant emissions per vehicle-km related to NO2 eq. of total coach vehicle stock [g /km] | EC |

| | | |
|-----|--|----|
| R14 | Average pollutant emissions per vehicle-km related to PM2.5 of total coach vehicle stock [g /km] | EC |
| R15 | Average pollutant emissions per vehicle-km related to PM10 of total coach vehicle stock [g /km] | EC |
| R16 | Average pollutant emissions per vehicle-km related to NO2 eq. of public transport water bus stock [g /km] | EC |
| R17 | Average pollutant emissions per vehicle-km related to PM2.5 of public transport water bus stock [g /km] | EC |
| R18 | Average pollutant emissions per vehicle-km related to PM10 of public transport water bus stock [g /km] | EC |
| R19 | Average pollutant emissions per vehicle-km related to NO2 eq. of private moped vehicle stock [g /km] | EC |
| R20 | Average pollutant emissions per vehicle-km related to PM2.5 of private moped vehicle stock [g /km] | EC |
| R21 | Average pollutant emissions per vehicle-km related to PM10 of private moped vehicle stock [g /km] | EC |
| R22 | Average pollutant emissions per vehicle-km related to NO2 eq. of private motorcycle vehicle stock [g /km] | EC |
| R23 | Average pollutant emissions per vehicle-km related to PM2.5 of private motorcycle vehicle stock [g /km] | EC |
| R24 | Average pollutant emissions per vehicle-km related to PM10 of private motorcycle vehicle stock [g /km] | EC |
| R25 | Average pollutant emissions per vehicle-km related to NO2 eq. of private car vehicle stock [g /km] | EC |
| R26 | Average pollutant emissions per vehicle-km related to PM2.5 of private car vehicle stock [g /km] | EC |
| R27 | Average pollutant emissions per vehicle-km related to PM10 of private car vehicle stock [g /km] | EC |
| R28 | Average pollutant emissions per vehicle-km related to NO2 eq. of light commercial vehicle stock [g /km] | EC |
| R29 | Average pollutant emissions per vehicle-km related to PM2.5 of light commercial vehicle stock [g /km] | EC |
| R30 | Average pollutant emissions per vehicle-km related to PM10 of light commercial vehicle stock [g /km] | EC |
| R31 | Average pollutant emissions per vehicle-km related to NO2 eq. of heavy goods vehicle stock [g /km] | EC |
| R32 | Average pollutant emissions per vehicle-km related to PM2.5 of heavy goods vehicle stock [g /km] | EC |
| R33 | Average pollutant emissions per vehicle-km related to PM10 of heavy goods vehicle stock [g /km] | EC |
| R34 | Average pollutant emissions per vehicle-km related to NO2 eq. of taxi ride-hailing vehicle stock [g /km] | EC |
| R35 | Average pollutant emissions per vehicle-km related to PM2.5 of taxi and ride-hailing vehicle stock [g /km] | EC |
| R36 | Average pollutant emissions per vehicle-km related to PM10 of taxi and ride-hailing vehicle stock [g /km] | EC |
| R37 | Average pollutant emissions per vehicle-km related to NO2 eq. of shared car vehicle stock [g /km] | EC |
| R38 | Average pollutant emissions per vehicle-km related to PM2.5 of shared car vehicle stock [g /km] | EC |
| R39 | Average pollutant emissions per vehicle-km related to PM10 of shared car vehicle stock [g /km] | EC |
| R40 | Average pollutant emissions per vehicle-km related to NO2 eq. of municipal service car vehicle stock [g /km] | EC |
| R41 | Average pollutant emissions per vehicle-km related to PM2.5 of municipal service car vehicle stock [g /km] | EC |
| R42 | Average pollutant emissions per vehicle-km related to PM10 of municipal service car vehicle stock [g /km] | EC |

Method of calculation of result indicators

Please note that the equations below could be applied centrally at European level to calculate the values of the result indicators based on input and output data provided by the urban nodes under the input and output indicators.

| # | Method name (component of indicator) | Indicator(s) | Equation | Variables |
|----|---|--------------|---|--|
| M1 | Average air pollutant emissions (related to NO ₂ eq. ¹ /PM _{2.5} /PM ₁₀) per vehicle-km of each vehicle type (PT bus/total bus/PT coach/total coach/PT water bus/private moped/private motorcycle/private car/light commercial vehicle/heavy goods vehicle/taxi and ride-hailing vehicle/shared car/municipal service car) considered [g/km] | R4 to R42 | <p>Based on Tier 2 method (vehicles by engine fuel f and Emission standard e)</p> $APE^{mp} = \left(\sum_{fe} PF_{fe}^{mp} * \frac{V_{fe}^m}{\sum_{fe} V_{fe}^m} \right)$ <p>The formula estimates air pollutant emissions per vehicle-km making reference to the technology-specific emission factor of pollutant for vehicle category and technology reported by the EMEP/EEA guidelines (Tier 2).</p> | <ul style="list-style-type: none"> - V_{fe}^m = Vehicles of engine fuel f and Emission standard e per vehicle type m [# vehicles] - m = Vehicle type (PT buses/ PT coaches/ PT water buses/ total buses / total coaches / taxi and ride-hailing / shared cars/ municipal service cars/ private mopeds / private motorcycles/ private cars/ light commercial vehicles/ heavy goods vehicles) - f = engine fuel (diesel, gasoline, CNG, LPG, hydrogen, battery electric, plug-in hybrid) - e = Emission standard of diesel / gasoline engine ((1) Euro norm 1-4, (2) Euro norm 5, (3) Euro norm 6a-c, (4) Euro norm 6d, Euro norm 7) - APE^{mp} = Average air pollutant emissions related to pollutant p per vehicle-km of each vehicle type m considered [g/km] - PF_{fe}^{mp} = technology-specific emission factor of pollutant p per vehicle-km by engine fuel f and emission standard e [g/km] - p = air pollutants (NO₂ eq., PM₁₀, PM_{2.5}) |

¹ Nitrogen oxides (NO_x) in vehicle exhaust mainly consist of NO and NO₂. The NO₂ mass fraction of total NO_x (primary NO₂) is of particular importance due to the higher toxicity of NO₂ compared to NO, therefore NO₂ equivalents (NO₂ eq.) are used to express nitrogen oxide concentrations in the result indicators.

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| | | | <p>Alternative calculation Based on Tier 1 method (vehicles by engine fuel f)</p> $APE^{mp} = \left(\sum_f PF_f^{mp} * \frac{V_f^m}{\sum_f V_f^m} \right)$ <p>The formula estimates air pollutant emissions per vehicle-km making reference to the technology-specific emission factor of pollutant for vehicle category by fuel reported by the EMEP/EEA guidelines (Tier 1). This approach introduces approximation with respect to Tier 2 method, due to lower level of segmentation of the vehicle type.</p> | <ul style="list-style-type: none"> - V_f^m = Vehicles of engine fuel f per vehicle type m [<i># vehicles</i>] - m = Vehicle type (PT buses/ PT coaches/ PT water buses/ total buses / total coaches / taxi and ride-hailing / shared cars/ municipal service cars/ private mopeds / private motorcycles/ private cars/ light commercial vehicles/ heavy goods vehicles) - f = engine fuel (diesel, gasoline, CNG, LPG, hydrogen, battery electric, plug-in hybrid) - APE^{mp} = Average air pollutant emissions related to pollutant p per vehicle-km of each vehicle type m considered [<i>g/km</i>] - PF_f^{mp} = technology-specific emission factor of pollutant p per vehicle-km by engine fuel f [<i>g/km</i>] - p = air pollutants (NO2 eq., PM10, PM2.5) |
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Definitions of terms and acronyms used

| Term | Definition | Source(s) |
|--|---|---|
| Air Pollutant emission factor per vehicle-km (Tier 1 and Tier 2) | Measure of the air pollutant emissions (in this document related to NO2 eq., PM10, PM2.5) of a vehicle category travelling one km, by engine fuel and Emission standard (Tier 2). For PM2.5 and PM10, also emissions from vehicle tyre, brake wear and surface wear are considered. Taken from literature. See link in the Annex. | <p><i>Road transport</i></p> <ul style="list-style-type: none"> - EMEP/EEA air pollutant emission inventory guidebook 2023 – Fuel consumption factors: https://www.eea.europa.eu/publications/emep-eea-guidebook-2023/part-b-sectoral-guidance-chapters/1-energy/1-a-combustion/1-a-3-b-vi/view <ul style="list-style-type: none"> o Tier 1 and Tier 2 Exhaust Emission factors, page 24 o Tier 1 PM Non-Exhaust Emission factors, page 14-15 <p><i>Inland waterways</i></p> <ul style="list-style-type: none"> - EMEP/EEA air pollutant emission inventory guidebook 2023: https://www.eea.europa.eu/publications/emep-eea-guidebook-2023/part-b-sectoral-guidance-chapters/1-energy/1-a-combustion/1-a-3-d-navigation/view <ul style="list-style-type: none"> o Tier 1, page 15 o Tier 2, page 19 |

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| Bus | A passenger road motor vehicle designed to carry more than 24 persons (including the driver), and with provision to carry seated as well as standing passengers. Refers to class I and class II of categories M2 and M3 of the UN Consolidated Resolution on the Construction of Vehicles (R.E.3). | - Eurostat Glossary for transport statistics, page 40, C9 (5th edition, 2019): https://ec.europa.eu/eurostat/documents/3859598/10013293/KS-GQ-19-004-EN-N.pdf/b89e58d3-72ca-49e0-a353-b4ea0dc8988f |
| Car | A vehicle used for carriage of passengers, comprising not more than eight seats in addition to the driver's (UNECE category M1). | - UNECE Consolidated Resolution on the Construction of Vehicles (R.E.3), Rev. 6, page 6: https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29resolutions/ECE-TRANS-WP.29-78r6e.pdf |
| City | A city is a local administrative unit where at least 50 % of the population lives in one or more urban centres (i.e., a cluster of contiguous grid cells of 1 km ² - excluding diagonals - with a population density of at least 1,500 inhabitants per km ² and collectively a minimum population of 50,000 inhabitants after gap-filling). | - Eurostat glossary (webpage): https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Category:Regions_and_cities_glossary |
| Coach | Passenger road motor vehicle designed to seat 24 or more persons (including the driver) and constructed exclusively for the carriage of seated passengers. Refers to class III of categories M2 and M3 of the UN Consolidated Resolution on the Construction of Vehicles (R.E.3). | - Eurostat Glossary for transport statistics, page 40 (5th edition, 2019): https://ec.europa.eu/eurostat/documents/3859598/10013293/KS-GQ-19-004-EN-N.pdf/b89e58d3-72ca-49e0-a353-b4ea0dc8988f |
| Emission standard of vehicles | The maximum amount of discharge legally allowed from a single source, mobile or stationary. Since 1992, the EU has introduced increasingly stricter exhaust emission limits for each new vehicle sold in the EU. The legal framework for road vehicles consists of a series of EU directives, providing the definition of the standard, defining when they come into force, and what they apply to. | |

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| Energy carrier (fuel type) | Substance or phenomenon that can be used to produce mechanical work or heat or to operate chemical or physical processes. For the purpose of this document, it includes: diesel, gasoline, Compressed Natural Gas (CNG), Liquefied Petroleum Gas (LPG), electricity, ethanol, bio-ethanol, bio-diesel, hydrogen | <ul style="list-style-type: none"> - ISO 14083:2023. Greenhouse gases — Quantification and reporting of greenhouse gas emissions arising from transport chain operations, Chapter 3.2.2: https://www.iso.org/obp/ui/#iso:std:78864:en |
| EU Air quality standards | <ul style="list-style-type: none"> - The standards and objectives for a number of pollutants present in the air, established by EU legislation, which define the pollutant concentration thresholds that shall not be exceeded in a given period of time, as well as maximum exceedances. The standards for different pollutants apply over differing periods of time because the observed health impacts associated with the various pollutants occur over different exposure times. The following applies to limits of average annual concentrations: <ul style="list-style-type: none"> - Nitrogen Dioxide NO₂: 40 µg/m³ - Particulate matter PM₁₀: 40 µg/m³ - Fine Particulate matter PM_{2.5}: 25 µg/m³ (20 µg/m³- indicative limit value as referred to in Directive 2008/50/EU) The following applies in terms of permitted exceedances: <ul style="list-style-type: none"> - exceeding hours per year related to hourly NO₂ concentration above 200 µg/m³: 18 hours per year - exceeding days per year related to daily PM₁₀ concentration above 50 µg/m³: 35 days per year | <ul style="list-style-type: none"> - European Commission - EU air quality standards: https://environment.ec.europa.eu/topics/air/air-quality/eu-air-quality-standards_en |
| Fuel type | <i>See definition of energy carrier.</i> | - |

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| Functional urban area (FUA) | A functional urban area consists of a densely inhabited city and a less densely populated commuting zone whose labour market is highly integrated with the city (OECD, 2012). | - Eurostat glossary (webpage): https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Category:Regions_and_cities_glossary |
| Heavy goods vehicle | A vehicle used for the carriage of goods and having a maximum mass exceeding 3.5 tonnes (UNECE categories N2 and N3). | - UNECE Consolidated Resolution on the Construction of Vehicles (R.E.3), Point 2.3.2. and 2.3.3, page 8: https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29resolutions/ECE-TRANS-WP.29-78r6e.pdf |
| Light commercial vehicle | A vehicle used for the carriage of goods and having a maximum mass not exceeding 3.5 tonnes (UNECE category N1). | - UNECE Consolidated Resolution on the Construction of Vehicles (R.E.3), Rev. 6, page 8: https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29resolutions/ECE-TRANS-WP.29-78r6e.pdf |
| Moped | A two-, three- or four-wheeled road motor vehicle which is fitted with an engine having a cylinder capacity of less than 50cc and a maximum authorized design speed in accordance with national regulations. Where limitations concerning the engine displacement are not applicable, a restriction in terms of motor power may be in force. Refers to categories L1 and L2 of the UN Consolidated Resolution on the Construction of Vehicles (R.E.3). For the purposes of this document, speed-pedelegs are also considered mopeds. | - Eurostat Glossary for transport statistics, page 37 (5th edition, 2019): https://ec.europa.eu/eurostat/documents/3859598/10013293/KS-GQ-19-004-EN-N.pdf/b89e58d3-72ca-49e0-a353-b4ea0dc8988f?t=1568383761000 |
| Motorcycle | A two-, three- or four-wheeled road motor vehicle not exceeding 400 kg of unladen weight. All such vehicles with a cylinder capacity of 50 cc or over are included, as are those under 50 cc which do not meet the definition of moped. Refers to categories L3, L4, L5, L6 and L7 of the UN Consolidated Resolution on the Construction of Vehicles (R.E.3). | - Eurostat Glossary for transport statistics, page 38 (5th edition, 2019): https://ec.europa.eu/eurostat/documents/3859598/10013293/KS-GQ-19-004-EN-N.pdf/b89e58d3-72ca-49e0-a353-b4ea0dc8988f?t=1568383761000 |

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| Municipal service car | A car owned by the city and used by city personnel who are authorized to operate such vehicles. | |
| Public transport (PT) | Service to a transport service user provided or planned/organized by public authorities for the transport of passengers from an origin to a destination. Here it includes the following modes: buses, trolleybuses, coaches, trams, light rail, metros, trains, water buses. | <ul style="list-style-type: none"> - ISO 14083:2023. Greenhouse gases — Quantification and reporting of greenhouse gas emissions arising from transport chain operations, Chapter 3.1.31: https://www.iso.org/obp/ui/#iso:std:78864:en |
| Shared (mobility service) | A transport system where users share a vehicle over time as personal rental, allowing them to access the service on an as-needed basis. For the scope of this document, it is generally intended for short-distance travels (within the city/FUA) and limited rental periods. | |
| Speed-pedelec | A type of pedal-assisted bicycle where the electric assistance cuts off when the vehicle reaches approximately 45 km/h (exact limit depends on local regulations). A speed-pedelec only provides assistance when the user is pedalling. | <ul style="list-style-type: none"> - International Transport Forum (ITF) - Measuring New Mobility Definitions, Indicators, Data Collection, p.20: https://www.itf-oecd.org/sites/default/files/docs/measuring-new-mobility-definitions-indicators-data.pdf |
| Taxi or ride-hailing (service) | A licensed passenger car for hire with a driver, without predetermined routes. Includes ride-hailing which refers to ordering a customised ride online, usually via a smartphone application, usually for immediate start of the service. Ride-hailing companies, via websites and mobile apps, match passengers with drivers. | <p><i>Taxi:</i></p> <ul style="list-style-type: none"> - Eurostat Glossary for transport statistics, page 39 (5th edition, 2019): https://ec.europa.eu/eurostat/documents/3859598/10013293/KS-GQ-19-004-EN-N.pdf/b89e58d3-72ca-49e0-a353-b4ea0dc8988f?t=1568383761000 <p><i>Ride-hailing:</i></p> <ul style="list-style-type: none"> - European Commission Notice on well-functioning and sustainable local passenger transport-on-demand (taxis and PHV) 2022/C 62/01, I. Introduction: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022XC0204%2803%29#ntr1-C_2022062EN.01000101-E0001 |
| Total population | Total number of inhabitants (usual resident population) of a given area (Functional Urban Area or city): the number of inhabitants on 1 st January of | <ul style="list-style-type: none"> - Eurostat glossary (webpage): https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Population_figure |

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| | the year in question (or, in some cases, on 31 st December of the previous year). | |
| Traffic-oriented sampling point | Sampling point for monitoring air pollution at fixed sites located in close proximity to a major road. See also: Traffic urban air monitoring station | <ul style="list-style-type: none"> - Committee on the Environment, Public Health and Food Safety of the European Parliament - Sampling points for air quality: https://www.europarl.europa.eu/RegData/etudes/STUD/2019/631055/IPOL_STU(2019)631055_EN.pdf - European Environment Agency (EEA) - Classification of monitoring stations and criteria to include them in EEA's assessments products: https://www.eea.europa.eu/themes/air/air-quality-concentrations/classification-of-monitoring-stations-and |
| Traffic urban air monitoring station | An air quality monitoring station included in the EEA dataset. Depending on the predominant emission sources, stations are classified; for traffic stations it is located in close proximity to a single major road. Depending on the distribution/density of building, the area surrounding the station is classified as follows: urban refers to continuously built-up urban area. | <ul style="list-style-type: none"> - European Environment Agency (EEA) - Classification of monitoring stations and criteria to include them in EEA's assessments products: https://www.eea.europa.eu/themes/air/air-quality-concentrations/classification-of-monitoring-stations-and |
| Water bus | An inland waterways passenger vessel (ferry) designed to transport passengers, and sometimes also vehicles and cargo, across or along waterways. A waterbus transports passengers only on a public scheduled service. | <ul style="list-style-type: none"> - Eurostat Glossary for transport statistics, page 65 (5th edition, 2019): https://ec.europa.eu/eurostat/documents/3859598/10013293/KS-GQ-19-004-EN-N.pdf/b89e58d3-72ca-49e0-a353-b4ea0dc8988f |