



***ERDF and Cohesion Fund result indicators in the field of transport post 2020***

***Indicator RCR55 : Road Passenger-Km***

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## ***Key Details of the Indicator***



- **Indicator RCR55**  
Annual Users of newly built, reconstructed, upgraded or modernised roads
- **Overview of the indicator**
  - Measures the total number of passenger-km travelled on roads newly built, reconstructed, upgraded or modernised due to ERDF or CF financial support
  - Provides a measurement of the intensity of use of a road investment (intervention) at a given point in time
  - Takes into account all passengers (including also the driver) in the vehicles travelling on the road
- **Scalable to programme level (sum over all road interventions)**

## ***Data Required for RCR55***

- **Traffic volumes**

Annual Average Daily Traffic (AADT) describes the average daily traffic flow on a defined section of road



- **Lengths of Sections**



- **Vehicle Occupancy Rates**

Data necessary to convert from Road Vehicle-Km to Road Passenger-Km




## Data Sources - 1

Data source	Description	Relevance to the indicator
<b>Field surveys</b>	Short-period count data for traffic volumes: <ul style="list-style-type: none"> <li>• Manual counts (Personnel)</li> <li>• Installed Technology (Temporary Counters).</li> </ul>	Main source of data for AADT estimation.
<b>Installed Technology</b>	Permanent Counters	Assistance in converting short period field surveys into longer duration estimates of transport activity.
<b>Published Datasets</b>	Published datasets describing current and past conditions on the road network.	These datasets can provide long-term traffic count information to assist in the calculation of AADT, and can also sometimes support in the definition of vehicle occupancy rates.


## Data Sources - 2

Data source	Description	Relevance to the indicator
<b>Other Online Tools</b>	N/A	Limited Relevance to this indicator.
<b>Operator Data</b>	N/A	Road networks are open systems and hence operator information is of no relevance.
<b>Other sources</b>	<p>Feasibility Study (FS) prepared as part of the project application for financing from EU funds)</p> <p>Road asset management database</p>	<p>These FS can provide information of the length of the project sections, and it may sometimes contain estimates of vehicle occupancy rates.</p> <p>This source can provide information on lengths of sections for count measurement in km.</p>


## Traffic volumes data collection - 1

Method	Pros	Cons
<b>Manual Counts</b> 	<ul style="list-style-type: none"><li>• Normally the cheapest way to undertake counts on a limited number of sites.</li><li>• Simplest, least risky method of data collection.</li><li>• Produces an accurate estimate of traffic flow over a limited time span (typically 1 day).</li><li>• Easy for human to categorise traffic into defined vehicle types.</li><li>• Road authorities will normally have considerable experience with this method.</li></ul>	<ul style="list-style-type: none"><li>• Can be labour intensive.</li><li>• Survey period normally limited to daylight hours.</li><li>• Need to ensure safe location for surveyors.</li><li>• Estimate is only valid for the short period of time surveyed, which then requires conversion to an estimate of AADT.</li></ul>

## Traffic volumes data collection - 2

Method	Pros	Cons
<b>Temporary Counters</b> 	<ul style="list-style-type: none"><li>• Produces an accurate estimate of traffic flow over a limited period (typically between 1-2 weeks).</li><li>• Relatively easy for temporary counters to categorise traffic into various vehicle types (with small margin of error).</li><li>• Road authorities will normally have considerable experience with this method.</li></ul>	<ul style="list-style-type: none"><li>• Estimate is only valid for the short period of time surveyed, which then requires conversion to an estimate of AADT.</li><li>• Not all road authorities may have access to temporary traffic count devices and it may be relatively expensive to hire a private company to undertake them.</li></ul>

## Traffic volumes data collection - 2

Method	Pros	Cons
<b>Permanent Counters</b> 	<ul style="list-style-type: none"><li>• Capable of producing estimates of AADT with little data processing.</li><li>• Relatively easy for permanent counters to categorise traffic into various vehicle types (with small margin of error).</li><li>• Extremely accurate estimate of AADT, being able to fully account for issues such as seasonality.</li><li>• Data from permanent counters is very useful for road authorities to understand traffic patterns and growth of traffic on the network.</li><li>• Once up and running, ongoing operational costs are likely to be low.</li><li>• Road authorities will normally have considerable experience with this method.</li></ul>	<ul style="list-style-type: none"><li>• High investment and installation costs.</li><li>• Permanent counters cannot be easily moved from one location to another.</li><li>• Requires personnel with specialist skills to monitor network of permanent counters and complete required maintenance.</li></ul>



## Calculating the Indicator - 1

### ○ AADT estimation

$$[AADT] = [COUNT] \times \boxed{[PC_{DT}] / [PC_H]} \times \boxed{[PC_{AADT}] / [PC_{DT}]}$$

*Expansion*

*Conversion*

Where *AADT:* *Annual Average Daily Traffic*  
*COUNT:* *The traffic volume observed for the selected period*  
*PC<sub>DT</sub>:* *The 24-hour count from the Permanent Counter for the survey day(s)*  
*PC<sub>H</sub>:* *The count from the Permanent Counter for the short period*  
*PC<sub>AADT</sub>:* *The AADT from the Permanent Counter for the survey year*

## Calculating the Indicator - 2

### ○ Passenger-Km estimation

$$[\text{Passenger-Km}] = \sum_{j=1}^n [\text{AADT}]_j \times [\text{Length}]_j \times \text{Occupancy} \times 365$$

Where *Passenger-Km*:

*The value of the Indicator*

*[AADT]<sub>j</sub>:*

*The Average Annual Daily Traffic on section j of the scheme*

*[Length]<sub>j</sub>:*

*The length of section j of the scheme*

*n:*

*The number of sections defined for the scheme*

## ***Main Considerations***

- **Counting Method**  
Manual or Automatic Counts, depending on the period, labour costs and number of projects.  
It might be possible to include project sections as part of annual programmes of traffic counting carried out by some road authorities
- **Generation of AADT**
  - The AADT concept is familiar to road authorities, as it generally forms the basis for road design and planning
  - Practitioners should be very familiar with the methodologies
- **Forecast (Target) Values**  
Use of targets based on benchmarking or experience.