ERDF and Cohesion Fund : Result indicators in the field of transport post-2020

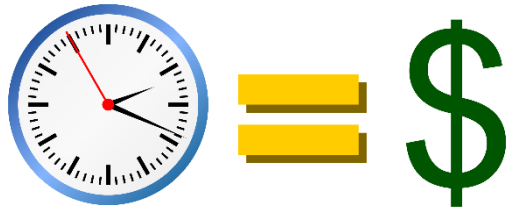
Indicator RCR101 :

Time savings due to improved rail infrastructures

Brussels, 24 January 2020.

Paul Riley

Definition of the Indicator RCR101



- **Indicator RCR101**
  - Time savings due to improved rail infrastructures (person-hours per year)

- **What does it Measure ?**
  - Total yearly time savings over all passengers using improved rail infrastructure due to improvements in rail infrastructure compared to the state in the base-line measurement
  - Number of passengers (users) X Time saved by a passenger
  - Number of passengers comes from RCR 58

- **Scalable to programme level (sum over all interventions)**

Basic Data Required for the Indicator RCR101

Travel time per section / hour / train type

- Derived from detailed assessment of official timetables
- Train type e.g. IC express, regional all-stopping
- Timetables will be needed for the whole year

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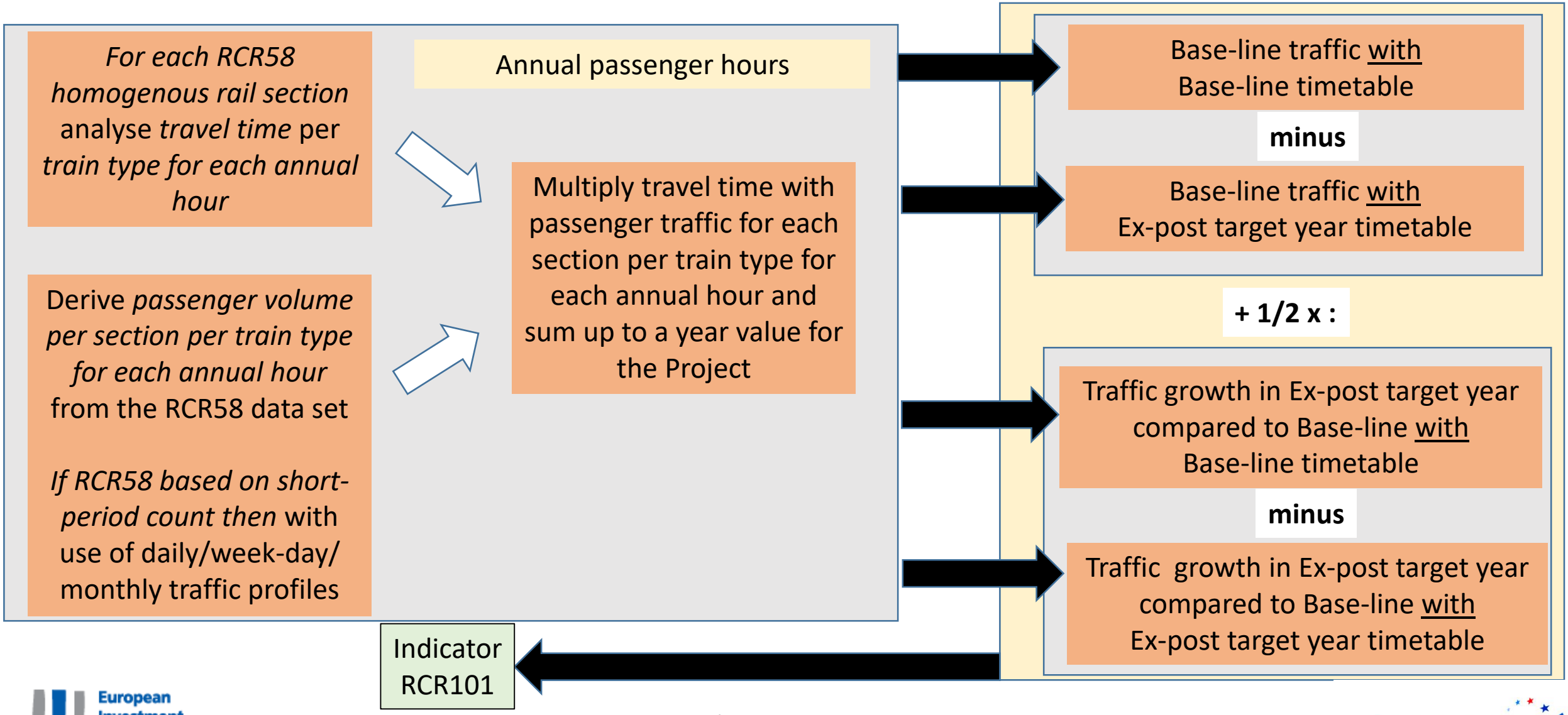
Panvel-Nerul-Thane time table 29th May 2010

LEAVING PANVEL AT	LEAVING NERUL AT	REACHING THANE AT
4.40		5.34
5.09 (From Belapur)		5.49
5.45		6.38
_	6.32	7.04
6.45		7.38
6.47 (From Belapur)		7.19
_	7.09	7.41
7.24		8.17
_	8.02	8.34
8.06 FAST	**8.27**	**8.52**
_	8.32	9.03
_	9.24	9.56
9.16	9.40	10.11
_	9.51	10.22
9.56		10.49

Passenger Volumes per rail section / hour / train type

- Derived from passenger volumes data collected for indicator RCR58 (rail passenger kms)

Graphical diagram of the Indicator RCR101 structure



Basic data sources for the Indicator RCR101

Data source	Relevance to the Indicator	Typical availability / suitability
Field surveys	*Count data from RCR58 may be utilised*	*See RCR58*
Permanent Installed Technologies	*Count data from RCR58 may be utilised*	*See RCR58*
Published data sets	Officially published passenger timetables used as basis for travel time savings per section/train/hour	**Usually publically available**
Passenger Service Operator	*Count/sales data from RCR58 may be utilised*	*See RCR58*
Infrastructure manager	Will generally have first-hand knowledge of officially published passenger timetables (due to access charges)	**May provide if necessary**
Other on-line tools	Journey-planners with officially published passenger timetables can be used	**Usually publically available**

Travel time savings in a project often means less time spent in-train, however there may be other important/dominant Project benefits related to door-to-door travel time and its reliability !!

Optional additional time savings elements for consideration ?

Other types of time savings that might also be considered (1)

If Project leads to improvements of service frequency

- Often regional rail investments with capacity increase
  - leads to increase in train service frequency or less/easier transfers at stations
- Can be converted into equivalent in-train travel time e.g.
  - interval in-train time equivalent = 0.3:1 x interval
- Research/practice available (e.g. UK PDFH rail standards)
- Needs **data on passenger boardings at stops**
- Timetable implemented at time of ex-post measurement
- Avoid doubling-counting if change related to many Projects

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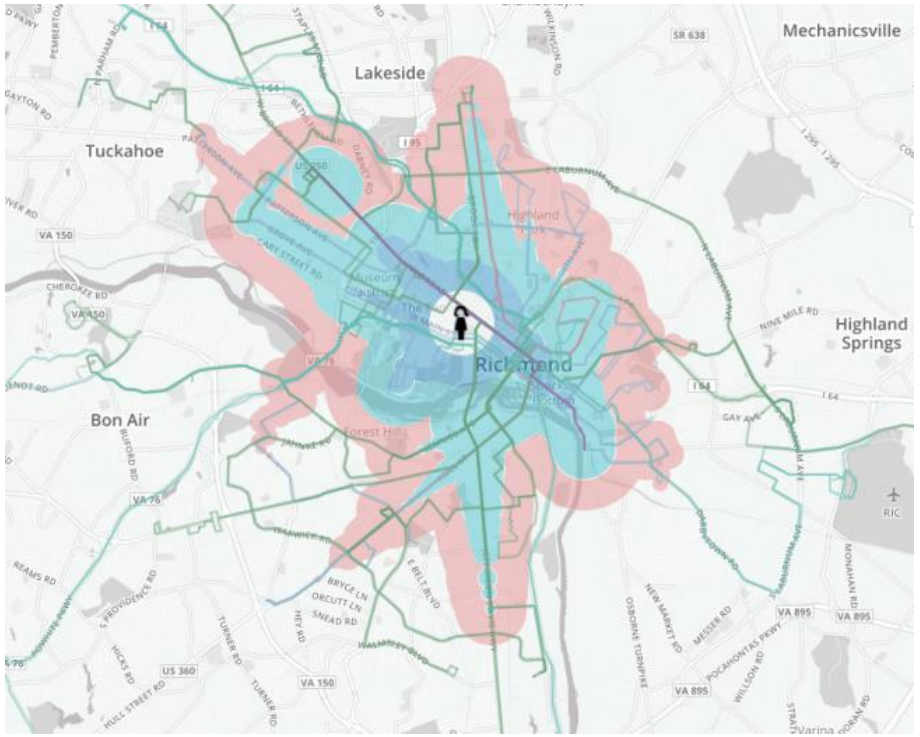
Other types of time savings that might also be considered (2)

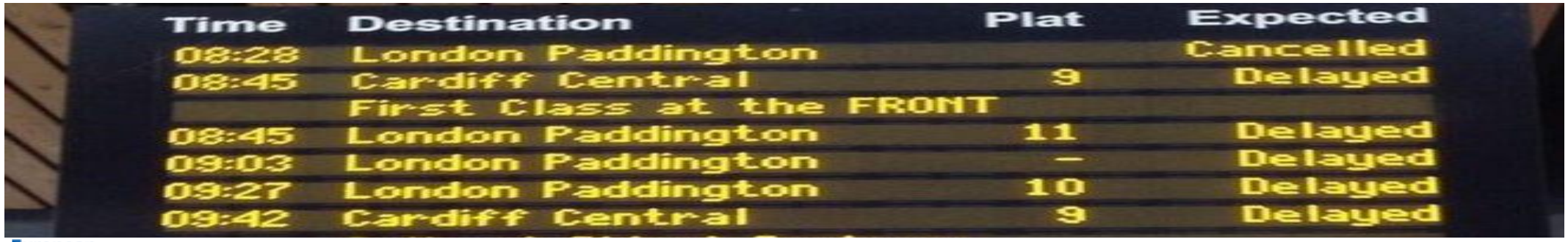
If Project leads to improved rail stop access

- Often regional rail investments with new stops or stop relocations or transfer improvements
- Improvements in time to access rail stops can be calculated
- Can be standardly converted into equivalent in-train travel time based on international research e.g. access time = 2*in-train time
- Best estimated through transport network model containing measured traffic data and the implemented timetable



Other types of time savings that might also be considered (3)
If Project contributes strongly to travel time reliability

- Changes to average train delay and standard deviation of delay can be measured
- Standard ways to convert time reliability into equivalent time savings e.g. UK PDFH guidance :
  - Average delay VoT (ALVoT)= 2.5 X In-train VoT
  - Variability of delay VoT = 1.4 X SD (Average delay)
- Requires systematic monitoring and assessment of delay (data collected by institutions or operators)



Conclusions/summary on the Indicator RCR101

What is needed as a minimum ?

- ➢ Count data and daily/week-day/monthly conversion profiles measured and compiled regarding passenger volumes for Indicator RCR58
- ➢ Mainly passenger timetables for the base-line and ex-post target future years

Technology / Feasibility

- ✓ See comments on RCR58 for passenger volume data
- ✓ Timetable data easily accessible for in-train and service frequency benefits
- ✓ Limited additional cost to RCR58
- ? Optional additional elements rail stop access time improvement / reliability assessment require transport modelling / delay monitoring respectively