Operating Environments

EasyWay Operating Environment means the category of the road section classified according to types and service levels of ITS services typically expected to be operated and often provided on it by the road authorities and operators. Thereby, the Operating Environment is closely related to the expected service levels of the travellers and hauliers using the road section, the frequently occurring or threatening problems of the section, and the feasibility of possible ITS solutions to deal with these problems. The main properties of the road section affecting the Operating Environment are its physical characteristics, network typology, and the frequency and severity of traffic flow and road safety concerns on the section.

What are Operating Environments?

In essence, EasyWay has agreed on a set of 18 pre-defined Operating Environments where each Operating Environment is a combination of three main criteria and three voluntary additional attributes (weather, environment, freight relevance). The main criteria are:

- Physical characteristics – Motorways, other 3/4 lane roads or 2-lane roads;
- Network typology – Corridor, Network, Link or Critical spot;
- Traffic characteristics – Traffic flow and road safety situations (with optional additions).

Why do road authorities and operators benefit from a road network classification?

Classification means that road authorities and operators describe their actual road network as Operating Environments. By classifying their network into Operating Environments, they get an immediate link between the actual road and the status of Core European Services as the EasyWay Deployment Guidelines provide a recommended service composition and design for each Operating Environment.

Furthermore, network classification will give users a powerful tool to assess the current situation and discuss national and European deployment needs and strategies ahead.

OE	Explanation
C1	critical spots, local flow-related traffic impact and/or potential safety concerns
T1	motorway (link), no flow-related traffic impact and no major safety concerns
T2	motorway (link), no flow-related traffic impact, potential safety concerns
T3	motorway (link), seasonal or daily flow-related traffic impact, no major safety concerns
T4	motorway (link), seasonal or daily flow-related traffic impact, potential safety concerns
R1	two-lane road (link), no flow-related traffic impact, no major safety concerns
R2	two-lane road (link), no flow-related traffic impact, potential safety concerns
R3	two-lane road (link), seasonal or daily flow-related traffic impact, no major safety concerns
R4	two-lane road (link), seasonal or daily flow-related traffic impact, potential safety concerns
R5	three-/four-lane road (link), no flow related traffic impact, no major safety concerns
R6	three-/four-lane road (link), no flow related traffic impact, potential safety concerns
R7	three-/four-lane road (link), seasonal or daily flow related traffic impact, no major safety concerns
R8	three-/four-lane road (link), seasonal or daily flow related traffic impact, potential safety concerns
S1	motorway corridor or network, at most seasonal flow-related impact, possibly safety concerns
S2	motorway corridor or network, daily flow-related traffic impact, possibly safety concerns
N1	road corridor or network, at most seasonal flow-related traffic impact, possibly safety concerns
N2	road corridor or network, daily flow-related traffic impact, possibly safety concerns
P1	peri-urban motorway or road interfacing urban environment, possibly safety concerns

OE type	Number	Flow-related traffic impact NO	SEASONAL	DAILY		Potential safety concerns NO	YES
Critical spots							
C	1		X	X	and/or		X
Motorway links							
T	1	X			and	X	
	2	X			and		X
	3		X	X	and	X	
	4		X	X	and		X
Road links							
R	1	X			and	X	
2	2	X			and		X
lanes	3		X	X	and	X	
	4		X	X	and		X
R	5	X			and	X	
	6	X			and		X
3 or 4	7		X	X	and	X	
lanes	8		X	X	and		X
Motorway corridor or network							
S	1		X		and		(X)
	2			X	and		(X)
Road corridor or network							
N	1		X		and		(X)
	2			X	and		(X)
Peri-urban motorway or road							
P	1				and		(X)

How is network classification made?

The classification is usually carried out with the following steps.

Establish a classification task force

The first step in the process is to establish a task force (recommended 2-4 people) within the concerned road operators' organization to decide on which background information to use, which criteria for flow and safety to use etc. In practice, the task force should contain at least one traffic safety expert and one traffic flow / congestion expert.

Road network definition

The next step in the classification process is to decide on the extent of the road network concerned. In the European context, the classification is usually made for the TEN-T Road Network, with addition of other key road network elements, interfaces to urban networks etc. The precise extension of the network is decided by the road authority or operator concerned.

Classification

Classification is made through a link-by-link analysis supported by an excel-tool. The tool provides directly the resulting Operating Environment when the values of the three criteria are defined. For the classification, the network is to be divided into sections according to the basic factors determining the Operating Environment – physical layout, network typology, traffic flow impact and potential safety concerns as well as the additional attributes (weather, environment, freight), which the user chooses to apply. This means that a new section could start each time, when the category of at least one of these factors and attributes changes. This may result in road sections of very varying length (from hundreds of metres to hundreds of kilometres). The user may also cut the sections also at other points, according to their own purposes and preferences. The general recommendation is to use motorway exits and major junctions as the points of division for the road network, because this will simplify some later procedures such as map-matching.

Hence, a road section normally runs from one exit/junction to another, but not necessarily the next one.
Naturally road characteristics, traffic flow and road safety conditions evolve over time partly due to ITS deployments. Hence, the need to update the Operating Environment classification should be assessed at regular intervals.

How are the results used?

Following classification, the user will have a tool to compare the actual situation on his/her network with the recommended levels from the EasyWay Deployment Guidelines. This information can constitute valuable input to the user's deployment planning process as it reflects agreed European priorities. The user can also utilize the network model to compile information on existing service implementations, service levels etc. which will further increase the value of the work.

EIP+ contribution

In 2015, all corridor projects were requested to provide feedback on the application of Deployment Guidelines. Questionnaire on operating environments was added as annex to all the questionnaires related to individual TIS or TMS Deployment Guidelines. In total, 75 filled operating environments question-naires were returned covering 13 member states, eight corridors and one port. A new chapter 3.2 was added to Part B of the ICT-DG01 to summarise this feedback. Recommendations were also provided how to update the operating environments during the EU EIP project.

Further Information

dg.its-platform.eu

Questions and help

dg.its-platform.eu/user-support

www.its-platform.eu

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