



EasyWay

EasyWay Operating Environments

Risto Kulmala

**EasyWay ICT Infrastructure
Expert Group**

Operating environments

Tool for harmonisation: similar quality levels for roads with similar traffic problems – hence, should be used by all services

Tool for meeting user requirements: users expect similar service levels for road environments experienced in a similar manner

Need to be simple enough to be used

Note: relate to European ITS services only; not necessarily to national, regional or local services or objectives



Operating environments – what they are NOT

do not describe nor reflect the importance or quality of the road concerned

do not express need for upgrades or improvements.

not meant to be used to steer infrastructure investments

not meant for identification of network elements with certain needs as different categories should not be compared for such purposes.



Factors determining operating environment

Key factors:

- physical characteristics of the road
- network typology
- traffic flow characteristics
- existence of safety problems

Other factors with basic importance for the operating environments and applied services:

- environmental aspects
- freight relevance



Operating environments will probably be linked in defining the service levels

Service levels describe the quality levels of the service from the perspective of the user of the services or the road operator providing the services, e.g. in terms of:

- **coverage (% of road network length)**
- **availability (% of time available)**
- **timeliness (time difference between event and information)**
- **accuracy (% of information being correct enough)**
- **consistency (correctness of services in time and space)**



Physical characteristics of road

motorways

- two or more lanes in both driving directions with separation of the carriageways of each direction, no intersections with other roads (intersections are handled by over- and under-passes with interchanges), toll or no-toll motorway

two-lane roads

- one lane in each direction, no physical separation between driving directions, ground level intersections with other roads

three- or four-lane roads

- 3: one ordinary lane in each direction and one overtaking lane alternating from one direction to another usually with ca. 1-3 km intervals, driving directions separated with a fence and/or barrier;
- 4: a dual carriageway road with separation of the two carriageways of two lanes each allowing also level junctions

special sections or critical spots

- tunnels, bridges, sections with reversible lanes, and other sections with exceptional characteristics



Network typology

corridor

- the road is part of a long corridor connecting major cities and other key locations such as major ports; usually having at least two parallel roads of which at least one is a motorway

road/motorway network

- grid of roads, motorways or a mix of roads and motorways, usually within a densely populated area

peri-urban network/road

- the road is part of a motorway or road network integrating the TERN with the road/street network of major conurbations

link

- a road connecting two nodes in the TERN

spot (or short stretch)

- a specific part of the road differing from the surrounding part of the TERN (tunnels, bridges, etc.)

Traffic flow characteristics

daily traffic related problems

- recurring congestion problems affect traffic at least each working day, and incidents may also be quite frequent

seasonal traffic related problems

- severe traffic problems exist but only seasonally, for instance during weekends during vacation times and holidays

no traffic related problems

- traffic related problems are infrequent and are caused only by major incidents or events



Operating environments 1/2

C1 critical or black spots, local flow-related traffic and/or safety problems

T1 motorway (link), no flow-related traffic problems and no critical safety problems

T2 motorway (link), no flow-related traffic problems, safety problems

T3 motorway (link),, daily flow-related traffic problems, no critical safety problems

T4 motorway (link), daily flow-related traffic problems, safety problems

R1 two-lane roads, no flow-related problems, no critical safety problems

R2 two-lane roads, no flow-related traffic problems, safety problems

R3 two-lane roads seasonal flow-related problems, no critical safety problems

R4 two-lane roads, seasonal flow-related traffic problems, safety problems

R5 two-lane roads daily flow-related problems, no critical safety problems

R6 two-lane roads daily flow-related problems, safety problems



Operating environments 2/2

R7 three-/four-lane roads, seasonal or daily flow related traffic problems, no critical safety problems

R8 three-/four-lane roads, seasonal or daily flow related traffic problems, safety problems

S1 motorway corridor or network, seasonal flow-related problems

S2 motorway corridor or network, daily flow-related traffic problems

N1 road corridor or network, seasonal flow-related problems

N2 road corridor or network, daily flow-related problems

P1 peri-urban motorway or road interfacing urban environment



Example of use

Recommended service levels for incident detection for Core European ITS Services (Incidents lasting for more than 30 minutes, detection >95% of incidents)

Core European ITS Service	Operating Environment	Incident detection requirements
Pre-tip, On-trip and co-modal Traveller information	All except for T5-T6	Within 15 minutes
	T5, T6	Within 30 minutes
Incident Management	C1	Within 1 minute
	All except for C1, T5-T6	Within 15 minutes
	T5, T6	Within 30 minutes
Management of sensitive road segments	C1 with surroundings	Within 1 minute
	Others	Within 10 minutes
Strategic Traffic Management	All except for T5-T6	Within 15 minutes
	T5, T6	Within 30 minutes
Intelligent Truck Parking	C1 with surroundings	Within 15 minutes



Example of use: travel time monitoring

Operating environment	Core European ITS services *	Coverage of network**	Update frequency	Processing delay	Availability (% of time)
C1 critical or black spots, local flow-related traffic and/or critical weather problems	PTI, OTI	case by case	< 5 min	< 1 min	>99%
	CTI	case by case	< 5 min	< 1 min	>99%
	MSR	case by case	< 5 min	<1 min	>99 %
	IM	case by case	< 5 min	< 1 min	>99 %
	STM	case by case	< 5 min	< 1 min	>99 %
	ITP	case by case	< 5 min	< 1 min	>99 %
T1 motorway(link), No flow-related traffic probl., no critical weather problems	PTI, OTI	case by case	< 15 min	< 1 min	>99%
	IM	case by case	< 15 min	< 1 min	>95%
	STM	case by case	< 15 min	< 1 min	>95%
T2 motorway(link), no flow-related traffic problems, critical weather problems	PTI, OTI	case by case	< 15 min	<1 min	>95%
	IM	case by case	< 15 min	<1 min	>95%
	STM	case by case	< 15 min	<1 min	>95%
T3 motorway(link), daily flow-related traffic probl. no critical weather problems	PTI, OTI	100%	< 5 min	<1 min	> 99%
	IM	100%	< 1 min	<1 min	> 99%
	STM	100%	< 1 min	<1 min	> 99%
T4 motorway(link), daily flow-related traffic pr. critical weather problems	PTI, OTI	100%	< 5 min	< 1 min	>99%
	IM	100%	<1 min	<1 min	>99%
	STM	100%	<1 min	<1min	>99%
T5 two-lane roads, no flow-related traffic problems, no critical weather problems	PTI, OTI	on detours	<15 min	<1 min	>90%
	IM	on detours	<15 min	<1 min	>95%
T6 two-lane roads, no flow-related traffic problems, critical weather problems	PTI, OTI	on detours	<15 min	<1 min	>90%
	IM	on detours	<15 min	<1 min	>95%



Status of operating environments

Inventory throughout EasyWay: classification of whole network into operating environments

**Are all operating environments relevant for EasyWay?
Exclusion of unnecessary ones**

Operating environments may change in time with new developments in

traffic

core European ITS services

policy

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