European Commission Directorate - General for Regional And Urban Policy

Assessment of Unit Costs for Road Capital Investment Projects

Structure of the database

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General/ technical characteristics

Tier 1 - General/ technical characteristics

TIER 1 - General and technical characteristics			
Macro category	**Category**	**Value**	**Description of the information to be included**
General characteristics	**Project ID**	ID	The standard identification code assigned to the project by the EC
	Project title	Title	The name of the project
	Country	Country	The country where the project is located. In case of cross-border projects or projects located in more than one country, the project should be entered as two (or more) separate projects, one for each country
	Road type	- Motorway - Express road - Ordinary road	Following the classification of the United Nations (ECE/TRANS/SC.1/2016/3/Rev.1 of the Economic and Social Council), road types in Europe are divided in: - Motorway: Motorway means a road specially designed and built for motor traffic, which does not serve properties bordering on it, and which: i) Is provided, except at special points or temporarily, with separate carriageways for the two directions of traffic, separated from each other by a dividing strip not intended for traffic or, exceptionally, by other means; ii) Does not cross at level with any road, railway or tramway track, or footpath; and iii) Is specially sign-posted as a motorway. - Express road: An express road is a road reserved for motor traffic accessible from interchanges or controlled junctions only and which: i) Prohibits stopping and parking on the running carriageway(s); and ii) Does not cross at level with any railway or tramway track, or footpath - Ordinary roads: An ordinary road (local road) is one open to all categories of users and vehicles. It may have a single carriageway or separate carriageways
	Type of intervention	- New construction/ reconstruction; - Heavy upgrading and renewal - Light upgrading and renewal;	The type of works for a road project can be classified in: - New Construction: works related to the construction of a new road with all parts (i.e. greenfield project): e.g. subgrade, pavement, civil engineering structures or to the total replacement of the pavement and subgrade of an existing road. - Heavy upgrading and renewal: projects aiming to reinstall or improve the design parameters of an existing road including deep interventions on the road structure: i.e. changing the road subgrade (to improve the structural capacity of the road, to reinstall the original structural capacity of the road and/or to widen shoulders), eliminating level crossings, constructing new interfaces and/or by-passes and/or constructing additional travel lanes - Light upgrading and renewal: projects aiming to reinstall or improve the design parameters of an existing road, including light interventions on the road structure: i.e. improvements of grades and curves,, strengthening and/or replacing the current surface of the road (without changing the subgrade)

Design parameters	**Total length**	[km]	Total length of the project
	Design speed (or safe speed)	[km/h]	The limit of speed allowed by law for road vehicles
	Maximum road grade (slope)	[%]	Maximum angle of inclination for the road calculated between the tangent to the surface of the street and the horizontal line. Zero indicates horizontality. The ranges proposed for the maximum road grade are: - lower than 5% - between 5% and 10%; - between 10% and 20%; - between 20% and 30%; - more than 30%
	Total number of traffic lanes	[#]	Number of traffic lanes per carriageway. A lane is defined as the part of a carriageway that is designated to be used by a single line of vehicles
	Average lane width	[metres]	Average width of a traffic lane
	Number of emergency lanes (hard shoulders)	[#]	An emergency lane (hard shoulder) is a lane dedicated to emergency situations, where vehicles can stop only: i) if the vehicle is broken down; ii) in case of emergency; iii) if the vehicle is stopped by the Police
Environmental characteristics	**Predominant environment**	- length of the project in urban environment [km] - length of the project in rural environment [km]	- length of the road passing through a urban environment (i.e. characterised by contiguous built-up areas, where houses are typically not more than 200 m apart) - length of the road passing through a rural environment
	Type of terrain	- length of the project in mountainous environment [km] - length of the project in hilly environment [km] - length of the project in flat environment [km]	- length of the project running in mountainous terrain (higher than 600 m above sea level) - length of the project running in hilly terrain (between 200 and 600 m above sea level); - length of the project running in flat terrain (lower than 200 m above sea level)
	Environmental and other constraints	Please specify (if relevant)	Project crossing/ affecting protected areas, gorges or other type of constraints potentially affecting the costs of the project

Tier 2 - Technical characteristics

TIER 2 - Technical characteristics			
Macro category	**Category**	**Value**	**Description of the information to be included**
Large Infrastructure works	**Bridges/ Viaducts**	[#]	Total length of bridges and viaducts included in the project
		[km]	Total number of bridges and viaducts included in the project
	Tunnels	[#]	Total number of tunnels included in the project
		[km]	Total length of tunnels included in the project
Base infrastructure[1]	**Simple, complexity-free road infrastructure**	[km]	Total length of the simple complexity-free road infrastructure (base length): i.e.length of the infrastructure excluding large infrastructure works (i.e. bridges/ viaducts and tunnels)

Tier 3 - Technical characteristics

TIER 3 - Technical characteristics			
Macro category	**Category**	**Value**	**Description of the information to be included**
Arch bridges	**Number of arch bridges**	[#]	Number of arch bridges included in the project
	Length of arch bridges	[metres]	Total length of arch bridges included in the project
Beam bridges	**Number of beam bridges**	[#]	Number of beam bridges included in the project
	Length of beam bridges	[metres]	Total length of beam bridges included in the project
Cable stayed bridges	**Number of cable stayed bridges**	[#]	Number of cable stayed bridges included in the project
	Length of cable stayed bridges	[metres]	Total length of cable stayed bridges included in the project
Cantilever bridges	**Number of cantilever bridges**	[#]	Number of cantilever bridges included in the project
	Length of cantilever bridges	[metres]	Total length of cantilever bridges included in the project
Rigid-frame bridges	**Number of rigid-frame bridges**	[#]	Number of rigid-frame bridges included in the project
	Length of rigid frame bridges	[metres]	Total length of rigid-frame bridges included in the project
Suspension bridges	**Number of suspension bridges**	[#]	Number of suspension bridges included in the project
	Length of suspension bridges	[metres]	Total length of suspension bridges included in the project

[1] Simple, complexity-free road infrastructure, excluding large infrastructure works: i.e. bridges, viaduct and tunnels.

Truss bridges	**Number of truss bridges**	[#]	Number of truss bridges included in the project
	Length of truss bridges	[metres]	Total length of truss bridges included in the project
Conventional and mechanised tunnels[2]	**Number of conventional and mechanised tunnels**	[#]	Number of tunnels excavated with conventional and mechanised techniques included in the project.
	Length of conventional and mechanised tunnels	[meters]	Total length of tunnels excavated with conventional and mechanised techniques included in the project.
Cut and cover tunnels	**Number of cut and cover tunnels**	[#]	Number of tunnels excavated with cut and cover techniques included in the project.
	Length of cut and cover tunnels	[meters]	Total length of tunnels excavated with cut and cover techniques included in the project.
Minor structure works	**Total length of minor structure works**	[metres]	Total length of minor structures included in the project (i.e. pipes, boxes, small bridges, etc.) with a length significantly smaller than the other structures in the project and which have impact on the total cost
Site preparation	**Total length of site preparation**	[meters]	The length of site preparation works included in the projects coincides with the total length of the project
Earthworks	**Earthworks total length**	[km]	The length in kilometres of works related to tracking, roading, cleanfill sites, cut and fill operations, quarrying/ mining, transport, re-contouring and any other earthworks included in the project
Interfaces and interferences	**Total number of interfaces/ interferences**	[#]	Total number of auxiliary lanes (e.g. acceleration lane, deceleration lane, turn lane, ramps) and crossings and junctions included in the project
	Total length of interfaces/ interferences	[metres]	Total length of auxiliary lanes (e.g. acceleration lane, deceleration lane, turn lane, ramps) and crossings and junctions included in the project
Pavement	**Total length of the pavement**	[km]	Total length of pavement built/ upgraded/ renewed within the project
Landscaping	**Total length of landscaping**	[meters]	The length of landscaping works included in the project coincides with the total length of the project
Equipment	**Lightening**	[km]	The length of lightening installed within the project
	Road signs	[km]	The length of road signs equipped within the project
	Safety barriers	[km]	The length of safety barriers installed within the project
	Noise barriers	[km]	The length of noise barriers installed within the project
	Technology installed	Type of technology	Type of technology installed within the project (e.g. telecommunication network)

[2] Tunnels excavated with conventional and mechanised techniques

Cost items

Each level of detail described in the table below, refers to both the estimated/ costs (i.e. those reported in the pre-work studies or assessed in the planning and design phase) and the final costs (i.e. those reported in the contracts). Depending on the segmentation level of the data available, the estimated costs and final costs will be reported to the highest level of detail possible.

Tier 1 - Cost items

TIER 1 - Cost items			
Macro category.	**Category**	**Value**	**Description of the information to be included**
Total Costs	**Planning and design**	[MEUR]	Costs related to opportunity study, preliminary design, feasibility study and final/detailed design related to the project
	Construction	[MEUR]	Sum of the costs for the construction of main project components: - Large Infrastructure Works costs; - Minor structure Works costs; - Earthworks costs; - Interfaces and interferences; - Pavement costs; - Equipment costs.
	Ancillary/ Indirect	[MEUR]	Costs that do not belong to any of the previously stated categories, but have significant influence on the total project cost. It is composed of the sum of these cost categories: - Land acquisition costs - Indirect cost - Project Management and supervision costs - Contingencies

Tier 2 - Cost items

TIER 2 - Cost items			
Macro category	**Category**	**Value**	**Description of the information to be included**
Planning and Design	**n/a**	n/a	The level of information required stops at previous tier
Construction	**Large infrastructure works**	[MEUR]	Costs related to all the bridges/viaducts and tunnels included in the project
	Base infrastructure[3]	[MEUR]	Costs related to the simple, complexity-free road infrastructure, including costs for site preparation, earthworks, pavement, minor infrastructure works, interfaces and interferences, landscaping and equipment
Ancillary/ Indirect	**Land Acquisition**	[MEUR]	Costs related to the fees for the expropriation of terrain/other private property
	Indirect	[MEUR]	Other costs that can be attributed to the project realisation
	Project Management and Supervision	[MEUR]	Costs of project management, project supervision and publicity measures
	Contingencies	[MEUR]	Cost of the contingencies of the project

[3] Simple, complexity-free road infrastructure, excluding large infrastructure works: i.e. bridges, viaduct and tunnels.

Tier 3 - Cost items

TIER 3 - Cost items			
Macro category	**Category**	**Value**	**Description of the information to be included**
Arch bridges	**Arch bridges**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of arch bridges included in the project
Beam bridges	**Beam bridges**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of beam bridges included in the project
Cable stayed bridges	**Cable stayed bridges**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of cable stayed bridges included in the project
Cantilever bridges	**Cantilever bridges**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of cantilever bridges included in the project
Rigid-frame bridges	**Rigid-frame bridges**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of rigid-frame bridges included in the project
Suspension bridges	**Suspension bridges**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of suspension bridges included in the project
Truss bridges	**Truss bridges**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of truss bridges included in the project
Conventional and mechanised tunnels[4]	**Conventional and mechanised tunnels**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of conventional and mechanised tunnels included in the project
Cut and cover tunnels	**Cut and cover tunnels**	[MEUR]	Costs related to the realisation/ upgrading/ renewal of cut and cover tunnels included in the project
Minor Structure Works	**Minor Structure Works**	n/a	The level of information required stops at previous tier
Site preparation	**Site preparation**	[MEUR]	Total cost of site preparation works within the project
Earthworks	**Earthworks**	[MEUR]	Total cost related to the realisation of earthworks included in the project
Interfaces/ Interferences	**Interfaces/ Interference**	[MEUR]	Total cost of interface and interferences included in the project
Pavement	**Pavement**	[MEUR]	Total cost of pavement works included in the project
Landscaping	**Landscaping**	[MEUR]	Total cost of landscaping works included in the project
Equipment	**Lightning**	[MEUR]	Total cost of the lightning systems installed/ upgraded/ renewed within the area of the project
	Road signs	[MEUR]	Total cost of road signs installed/ upgraded/ renewed within the area of the project
	Safety barriers	[MEUR]	Total cost of safety barriers installed/ upgraded/ renewed within the area of the project
	Noise barriers	[MEUR]	Total cost of noise barriers installed/ upgraded/ renewed within the area of the project
	Technology installed	[MEUR]	Total cost for the installation of technology on the road infrastructure included in the project

[4] Tunnels excavated with conventional and mechanised techniques