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Inland Transport Committee

Working Party on Transport Trends and Economics

Group of Experts on cycling infrastructure module

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United Nations Economic Commission for Europe cycling network

Cycle route features for ITIO

Prepared by the European Cyclists' Federation and the secretariat

I. Introduction

1. The Group of Experts on cycling infrastructure module (GE.5) expressed a desire at its fifth meeting for the network to show in the future for each existing or planned route the features such as type of the network (e.g. cycle track, cycle lane, greenway, mixed traffic) and their specific parameters (e.g. width, surface quality, etc.). The secretariat and the European Cyclists' Federation (ECF) were requested to make a proposal for the route features to be reported in the future and uploaded to the ECE International Transport infrastructure Observatory (ITIO).
2. This document contains the proposal.

II. Possible features

3. The table 1 below lists the features that can characterize any cycle route.

Table 1

Cycle infrastructure features

Field	Type	Not null	Description	MMTIS [1]
Route category (target)	Enum	Yes	The desired standard for the segment of the route, as per "Guide for designating cycle route networks", table 1: <ul style="list-style-type: none">• cycle highway,• main cycle route,• basic cycle route.	
Route category (current)	Enum	Yes	Self-assessment of the current quality of infrastructure by the route administrator, with categories as above, with the addition of: <ul style="list-style-type: none">• provisional itinerary – segment does not meet even basic cycle route requirements	

			<ul style="list-style-type: none"> public transport connection – on this segment cycles need to be carried on board of a train, bus or ferry to continue along the route planned itinerary – segment not physically rideable. 	
Infrastructure type	Enum		As per “Agreed definitions for types of cycling infrastructure”, see also table 2 below.	
Infrastructure type (simplified)	Enum	Yes	Alternative classification with reduced number of types (5 instead of 11), see also table 2 below.	Yes
Bidirectional	Boolean	Yes	Whether the segment is uni- or bidirectional	
Width (typical)	Float		Positive values only; optional for mixed traffic segments and required/highly recommended for segregated segments. In case the width varies on the segment, most common value should be used.	
Width (minimum) [4]	Float		Minimum width on a given segment, including local narrowings, for example chicanes or bridges.	
Surface (type) [3]	Enum	Yes	See table 3 below.	
Surface (quality) [3]	Enum		As per “Guide for designating cycle route networks”, annex II, table 2.7.	Yes
Design speed	Int		[2]	
Minimum horizontal curve radii	Float		[2]	
Minimum stopping sight distance	Float		[2]	
Gradient (average)	Float		Positive for uphill section (in the direction indicated by segment geometry), negative for downhill. For longer segments can be estimated with a digital terrain model.	
Gradient (maximum)	Float		Positive for uphill section (in the direction indicated by segment geometry), negative for downhill. Generally not obtainable from digital terrain model.	
Traffic volume	Float		(Estimated) AADT; required for on-carriageway infrastructure only.	
Traffic speed (V85) [3]	Float		85-percentile speed in km/h; required for on-carriageway infrastructure only; alternatively posted speed limit can be used.	
Traffic speed (posted limit) [3]	Float		Posted speed limit in km/h; required for on-carriageway infrastructure only.	
Speed cycles allowed	Boolean		Are speed cycles allowed to use the infrastructure?	
Wide carrier cycles allowed	Boolean		Are wide carrier cycles allowed and physically able to use the infrastructure?	
Side-by-side cycling	Boolean		Combination of width and legal provisions (for example, even if a carriageway is 7 m wide, it might be forbidden to cycle side by side).	Yes
Scenic route	Boolean		Assessment whether the segment of the route is particularly attractive for the users.	Yes
EuroVelo route number(s)	List of int		List of EuroVelo routes the segment belongs to, represented as integers; for example [4, 12]; empty if the route does not belong to the EuroVelo network.	
EuroVelo signage	Boolean / Enum		Whether the segment is signed in line with the UNECE Consolidated Resolution on Road Signs and Signals (R.E.2). Alternatively: more details (which routes, which sign version).	
National signage	Boolean		Whether the segment is signed as a national cycle route in line with national guidelines.	
Notes	Text		Additional information as deemed useful. In particular information about limited accessibility of the segment, for example if the segment is prone to flooding or forest fires, crosses an area inaccessible in specific hours, requires permits, includes steps, dangerous crossings etc.	

Notes to Table 1:

[1] Listed as a parameter of the cycle network in Commission Delegated Regulation (European Union) 2017/1926 supplementing Directive 2010/40/EU with regard to the provision of EU-wide multimodal travel information services.

[2] Data on design speed, curve radii, and stopping sight distance will probably not be available for most the routes. However, these exact parameters are also included in the European Agreement on Main International Traffic Arteries (AGR) and it would be desirable to include them as quality requirements in the future cycling convention.

[3] Several quality parameters can be measured and represented in different ways, depending on the availability of data on the national/regional level (for example surface or traffic speed).

[4] The width (minimum) is a point-type feature. Such a feature may be crucial from the angle of route quality/usability, for example chicanes can make it impossible to pass with certain types of cycles. Another example of a point-type feature (not included in table 1) is a dangerous crossing, which can make a route unusable for certain categories of users.

5. A feature such as accessibility to public transport and/or segments requiring travelling by public transport can be also considered. This may further require adding parameters such as:

- types of cycles transported, capacity and access conditions for cycles.
- accessibility (stairs, ramps, lifts) of the public transport terminal (for example train station).

6. With reference to table 1, table 2 below lists values for infrastructure type and simplified values.

Table 2

Allowed values for Infrastructure type, Infrastructure type (simplified) and their equivalency

Infrastructure type	Infrastructure type (simplified)
Cycle track	Cycle track
Cycle and pedestrian track	On path shared with pedestrians
Footpath with cycling allowed	On path shared with pedestrians
Greenway	On path shared with pedestrians
Cycle lane	Cycle lane
Advisory cycle lane	Cycle lane
Bus-and-cycle lane	Bus-and-cycle lane
Cycle street	On road shared with vehicles
Street with contraflow cycling	On road shared with vehicles
Specific service road	On road shared with vehicles
Mixed traffic (other)	On road shared with vehicles

7. The table 3 below lists values for surface type.

Table 3

Allowed values for Surface (type) and their equivalency with the values of the surface key in OpenStreetMap

Surface (type)	OSM surface
Asphalt/concrete	asphalt, concrete, chipseal
Blocks/slabs	paving stones, bricks, wood, metal
Cobbles	sett, unhewn cobblestone, cobblestone
Stabilised gravel	compacted, fine gravel
Gravel/dirt	unpaved, gravel, rock, pebblestone, ground, dirt, earth, grass, mud, sand, woodchips

III. Proposed features

8. Given the multitude of features as presented in tables 1–3, collection of all these features may be very challenging when the establishment of cycle networks is in its early stage of development in many ECE countries. It is therefore proposed that while the features in table 1–3 above should be the future goal for data collection and cycle route monitoring purposes and be all considered when exploring a new Convention on cycle route network, a

list of a fewer features should be used to start with, as presented in table 4, for data reporting in ITIO:

Table 4
Selected cycle infrastructure features for reporting

Route category (target)	<ul style="list-style-type: none"> • cycle highway • main cycle route • basic cycle route <p>Where</p> <p>Cycle highway is a route serving high volumes of cycle traffic and responding to the needs of the most demanding cyclists.</p> <p>Main cycle route is a route serving typically moderate cycle traffic volumes or high volumes for highly skilled cyclists only. At the same time is not responding fully to the needs of the most demanding cyclists.</p> <p>Basic cycle route is route advised for low cycle traffic volumes typically for use by highly skilled cyclists.</p> <p>See further the Guide for designating cycle route networks, Step 2 and Annex II, tables II.4, II.5, II.6, II.9, II.10, II.11 and Annex III, tables III.1, III.2 and III.3 on how to determine cycle highway, main cycle route and basic cycle route.</p>
Route category (current)	<p>Self-assessment of the current quality of infrastructure by the route administrator, with categories as below</p> <ul style="list-style-type: none"> • cycle highway • main cycle route • basic cycle route • provisional itinerary – segment does not meet even basic cycle route requirements • public transport connection • planned itinerary – segment not physically rideable.
Type of infrastructures	<ul style="list-style-type: none"> • cycle track • on path shared with pedestrians • cycle lane • bus-and-cycle lane • on road shared with vehicles (30km/h zone) • on road shared with vehicles
Type of surface	<ul style="list-style-type: none"> • asphalt/concrete • blocks/slabs • cobbles • stabilised gravel • gravel/dirt
EuroVelo route number(s)	List of EuroVelo routes the segment belongs to (if any)
EuroVelo signage	Whether the segment is signed in line with UNECE R.E.2
National signage	Whether the segment is signed as a national cycle route in line with national guidelines.

9. GE.5 is invited to consider this proposal, adjust it as deemed appropriate and make its recommendation for inclusion in its final report.

10. GE.5 is also invited to consider whether to develop a recommendation on the range of lengths of cycle route segments to be represented in ITIO.

11. At the same time, GE.5 may wish to recommend tables 1–3 for consideration in the work aimed at exploring the elaboration of a convention on cycle route network and include this recommendation in its final report.
