[L8.10] OPERATIONAL DOMAIN
METHODOLOGY FOR SPLITTING A PREDETERMINED ROUTES INTO SECTIONS BASED ON PRISSMA'S TAXONOMY

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Abstract.
This document proposes a methodology for implementing the ODD (Operational Design Domain) description taxonomy elaborated within the framework of the PRISSMA project, for describing the predefined route (Operational Domain) of an automated road transport system. A description support model and application rules are proposed. Finally, the document provides concrete examples of application on POCs of the PRISSMA project.

Résumé.
Ce document propose une méthodologie de mise en œuvre de la taxonomie de description de l'ODD (Operational Design Domain) élaborée dans le cadre du projet PRISSMA, pour décrire le parcours prédéfini (Operational Domain) d'un système de transport automatisé. Un modèle de support de description ainsi que des règles d'application sont proposés. Enfin, des exemples concrets d'application sur des POC du projet PRISSMA sont fournis.

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1   INTRODUCTION

The operational design domain (ODD) defines the conditions under which a given Automated Road Transport System (ARTS) (or a driving automation system or feature thereof) is specifically designed to function.

In addition to the automation level, the ODD description plays a pivotal role in assessing the performance of Automated Driving Systems (ADS). The ADS's ability to safely handle dynamic driving tasks is evaluated within the specific operational constraints defined by the ODD. Automated and autonomous vehicles may face limitations within their ODD, encompassing factors like speed ranges, environmental variables, traffic conditions, road conditions, and more. Consequently, it becomes imperative to continuously monitor the ODD, with any departure from it necessitating a minimal risk manoeuver response.

It is imperative that the definition of ODD provides an unequivocal depiction of the external environment in which the ADS can execute the Dynamic Driving Task (DDT). The manner in which the ODD is articulated (including terms, scales, and quality) will find widespread application throughout the entire ADS specification, design, validation, and operational phases, making it a foundational cornerstone of the entire process.

In the context of the subsequent text, the term "Ego vehicle" pertains to automated and autonomous passenger transportation shuttles and to automated and autonomous goods delivery vehicles. These vehicles constitute the targeted use cases for PRISSMA.

2   PRESENTATION OF PRISSMA'S TAXONOMY

2.1 Introduction

Defining a taxonomy for the fundamental terms used in describing an Operational Design Domain (ODD) is a crucial undertaking. Indeed, this taxonomy establishes a common set of terms that define the operational aspects and attributes of driving scenarios. Creating a shared language for ODD definitions is essential as it enables Automated Road Transport System (ARTS) or Automated Driving System (ADS) manufacturers to specify and integrate safety requirements into their designs. Additionally, it allows users, operators, and regulators to reference a standardized set of ODD attributes and performance criteria in their procurement processes.

Furthermore, this taxonomy serves the purpose of enabling manufacturers, developers, and component suppliers to delineate the operational capabilities and compile evidence sets that enhance confidence in the safety of the end product. This evidence may include component specifications and data from rigorous testing and verification procedures. Subsequently, this standardized language is also utilized for specifying and configuring various tests and scenarios employed in the evaluation process.

The taxonomy acts as a universal language, serving as the bridge that fosters cohesion and relevance across all activities related to ODD. In constructing this taxonomy tailored to ODD descriptions,

it is imperative to ensure its compatibility with the Operational Domain (OD) description and associated scenarios. The OD represents the real world, describing the genuine operating conditions that a vehicle encounters. While the ODD pertains to a system's capabilities in handling these conditions, both OD and ODD must utilize a common taxonomy structure and attributes to facilitate seamless alignment and verification.

This taxonomy must possess the precision and clarity required to describe the real world with granularity tailored to each specific activity. Additionally, it should have an adaptable structure that allows for ongoing enhancements and enrichments. The initial taxonomy is built upon an extensive review of academic, standard, institutional, and Work Group (WG) documents related to ODD taxonomy.

It should nevertheless be noticed that the proposed taxonomy has been elaborated in an agnostic way: the description attributes have been selected only for their ability for describing the real world, and the taxonomy may need to be supplemented by the addition of other attributes required by AI-based functions specificities.

In this document, we present our efforts in developing this foundational taxonomy, with the intention of making it applicable for defining both the Operational Domain (OD) and the Operational Design Domain (ODD).

2.2 Reading template

Based on the results presented in Deliverable 8.9, we developed the taxonomy in group meetings. The first general idea was to propose a large enough tree structure, able to cover the different components identified in the literature and presented in L8.9. Then this components list was challenged with the different usages of taxonomy: definition of the operational domain (OD), definition of the operational design domain (ODD), definition of tests and scenarios.

The choice was made to cover the different possible usages of the taxonomy. General idea has been to propose a set of components as large as needed, first for ODD description, second for OD and scenarios description. For instance, the component "Roadway geometry" includes a component "Length" which describe the length of the area. This component will be useful for the OD description (e.g., description of the length of a roadway slice in the real world, but will not be used for the ODD to describe the conditions under which the system is designed to perform the dynamic driving task (see component "1304 Length of the link section" in the following tables).

2.3 Description of the proposed taxonomy

The proposed structure for the taxonomy includes three levels.
We will present the taxonomy in the form of an overall tree structure with level 1 and level 2 components.
Refer to the PRISSMA project document L8.11 OPERATIONAL DESIGN DOMAIN for L3 level components.

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Taxonomy – Level L1 and L2

TAXONOMY	

LEVEL 1

| Physical infrastructure | Scenery | Environmental conditions | Traffic conditions | Digital infrastructure | Operational constraints |

LEVEL 2

Physical infrastructure	Scenery	Environmental conditions	Traffic conditions	Digital infrastructure	Operational constraints
Roadway type	Specific zones	Weather conditions	Traffic density	Type of information	Transportation usage
Roadway edge	Region/State	Particulates	Road-users (type-speed)	Connectivity	Speed range
Roadway geometry	Geo-fencing	Weather-induced roadwad conditions	Traffic safety		Possible maneuvers
Junctions		Illumination			Vehicle geometry (dimensions)
Temporary structures		Temperature			Specific technical constraints on the infrastructure or operation
Fixed surrounding structures		Air humidity			Specific road-users response
Special structures					
Signage					

2.4 Description of the attributes of the taxonomy

2.4.1. Description of the different levels of the taxonomy:

Level 1

The proposed taxonomy, resulting from the work carried out within Task 8.6/7/8 of PRISSMA Project is composed of six main themes (level L1):

- **Theme 1 - Physical infrastructure** - includes all the information related to the configuration, the state and the equipment of the physical infrastructure : Roadway type, roadway surface, roadway edge, roadway geometry, junctions, temporary structures, fixed surrounding structures, special structures and characteristics, signage;
- **Theme 2 - Scenery** - includes all the information related to the scene, going beyond the physical infrastructure : specific zones, region/states, geo-fencing;
- **Theme 3 - Environmental conditions**- includes all information related to weather conditions, particulates, illumination, temperature, weather-induced roadway conditions , air humidity ;
- **Theme 4 - Traffic conditions** - includes all information related to traffic conditions :traffic density, road users , traffic safety;
- **Theme 5 - Digital infrastructure** - includes all information related to digital infrastructure and connectivity (which are necessary to safely perform the dynamic driving task): type of information, connectivity;
- **Theme 6 - Operational constraints** - includes all information related to vehicle capabilities : maximal/authorized speed, maneuvers, vehicle dimensions, etc.;

Levels L2 and L3

For each of the main themes described above, the tables presented in the remainder of this deliverable describe only the set of L2 level attributes. Please refer to L8.11 OPERATIONAL DESIGN DOMAIN for L3 level attributes.

2.4.2. Theme 1 Physical Infrastructure

N°	Level 2	Description
1.1	Roadway type	Road layout description
1.2	Roadway edge	Road side description
1.3	Roadway geometry	Roadway geometrical characteristics
1.4	Junctions	Type of junctions that may be encountered in the area /that may be supported by the vehicle
1.5	Temporary structures	Type of temporary structures that may be encountered in the area and that can be supported by the vehicle (constructions, works, etc.), i.e. movable structures in the area which may impact the vehicle driving task
1.6	Fixed surrounding structures	Fixed structures in the area which may impact the vehicle driving task
1.7	Special structures	Special structure in the area which may impact the vehicle driving task
1.8	Signage	Road signage that may be encountered in the area and that can be supported by the vehicle (traffic signs, traffic lights, etc.)

2.4.3. Theme 1 Scenery

N°	Level 2	Description
2.1	Specific zones	Corresponds to areas that may have specific speed or mobility restrictions (school, hospital, etc.), or that may lead to specific behaviors and scenarios
2.2	Region/State	Corresponds to constraints that may be related to the region/department/state in which the vehicle is travelling (speed, traffic lane, etc.)
2.3	Geofencing	Corresponds to a limitation of the areas in which the travel of ego vehicle is allowed

2.4.4. Theme 1 Environmental conditions

N°	Level 2	Description
3.1	Weather conditions	type of weather (precipitation level) that may be encountered in an area/supported by the vehicle (rain, snow, etc.)
3.2	Particulates	type of particulates that may be encountered in an area/supported by the vehicle (smoke, fog, sand, etc.)
3.3	Weather-induced roadway conditions	Roadway conditions that may be experienced in an area/supported by the vehicle (slippery road - rain, ice, snow -, snowy road, submerged road, etc.)
3.4	Illumination	
3.5	Ambient air temperature	temperature range that may be experienced in an area/supported by the vehicle
3.6	Humidity rate(level) in the air	

2.4.5. Theme 1 Environmental conditions

N°	Level 2	Description
4.1	Traffic Density	Level of traffic possibly encountered on the road
4.2	Road Users (Speed & type)	Type and speed of the other road users
4.3	Traffic Safety	Any specific behavior of road users that may impact the safety

2.4.6. Theme 1 Digital infrastructure

N°	Level 2	Description
5.1	Information type	Type of information expected or provided through connectivity
5.2	Connectivity	Category and technology of the connectivity

2.4.7. Theme 1 Operational requirements

N°	Level 2	Description
6.1	Transportation usage	Transport general system type
6.2	Speed range	Ego vehicle speed range
6.3	Possible/required maneuvers	Ego vehicle maneuvers capabilities
6.4	Vehicle geometry (dimensions)	Ego vehicle
6.5	Specific technical requirements on the infrastructure or operation	Any specific equipment needed
6.6	Response to the specific road-users	Ego vehicle capabilities for interacting with specific road users

3 GENERAL PRESENTATION OF METHODOLOGY AND RULES TO FOLLOW

3.1 Introduction

PRISSMA's Taxonomy for Automated Driving Systems (ADS) has been created with the intention of detailing both the Operational Design Domain (ODD) – which encompasses the conditions enabling the ego vehicle to safely execute dynamic driving tasks – as well as providing a description of the Operational Domain (OD) and its corresponding scenarios.
Within the framework of the Operational Domain, this specific deliverable focuses on outlining the methodological approach for dividing a predetermined route into consistent sections. This division aims to establish homogenous segments in terms of some specific L3 attributes that will be used to structure the testing scenarios phase effectively.

3.2 Presentation of the methodology

Preparatory work

Prior to commencing the task of dividing the route into consistent sections, there are preliminary activities that involve the following tasks.
Initially, a comprehensive analysis of the route is carried out, encompassing an understanding of essential aspects such as the route's starting and ending points, stations, intersections, possible obstacles, and relevant traffic regulations. Precise map data allowing to estimate the slope and cross fall, and ideally, a video recording of the predetermined route, are then gathered to establish a foundational understanding of the route and its characteristics.
Subsequently, the process involves identifying potential segments along the route that offer cohesion and can facilitate safe navigation for Automated Driving Systems (ADS). Factors like road attributes, intersections and traffic patterns are considered during this segment identification process. Additionally, an assessment may also be conducted to evaluate crucial factors like road conditions, visibility, pedestrian presence, and potential collision risks.

Moreover, some general complementary information to the pathway description must be collected related to the environment of the route. This information will be useful for describing both the route general attributes and sections attributes e.g.:
- region/state, i.e. geographical attributes of the route
- type of weather conditions that are generally encountered
- type of illumination the Ego vehicle will face with during operation
- digital infrastructure present in the route area
- potential characteristics of the route area that may cause connectivity faults
- various specificities of the route.

Segment identification

A section is a consistent zone in terms of traffic risks, encompassing factors like speeds, exposure, road markings, visibility, and reasonably foreseeable events. It is defined by a set of attributes.
Any modification to the attributes describing the section results in a change of section, including:

- Section type

- Ego vehicle manoeuvre
- Ego vehicle speed
- Separation of left and right lanes of the Ego lane
- Speed (maximum) of the ADS lane and third-party Car/Truck/Utility Vehicle lanes
- Exposure to traffic from third-party Car/Truck/Utility Vehicle lanes
- Visibility: occasional obstruction, sharp turns, and more.

Homogeneous decomposition

In order to achieve this homogeneous decomposition, a template is extracted from the taxonomy. It is used to identify and characterize the attributes of a section, enabling each section to be described in a consistent way. This pathway description activity must comply with the related high-level requirements (see document "PRISSMA Method System Requirements "– Annex to document WP1 - STATE OF THE ART).

- The route description must comply with the qualification requirements for annotated data (see requirement PM-1022 "Qualification of pathway / OD") ;
- The human annotation done using the template must follow a qualification process (see requirement PM-925 "Qualification of human annotation").

Chapter 4 presents hereafter the template.

4   PRESENTATION OF THE TEMPLATE

The template is based on the taxonomy presented in the chapter 2. In order to facilitate the description of the route characteristics, adjustments are performed:

4.1 Eliminating of irrelevant/unnecessary attributes from the taxonomy

As explained in the in the document L8.11 OPERATIONAL DESIGN DOMAIN, the detailed tables of the taxonomy specify the possible uses of each level L3 component, distinguishing between three cases ODD/OD/SCEN:

- **Case "ODD":**

> ODD = Conditions that allow ego vehicle to perform safely the dynamic driving tasks (system capabilities).
> The L3 component can be used to describe the ODD
> The attributes of ODD address the question "Which conditions may the system accept while operating safely?"

- **Case "OD":**

> OD = real operating conditions that are encountered by the ego vehicle.
> The L3 component can be used to describe the operational domain.
> The attributes of OD address the question "Which conditions does the system encounter on its current route?"

- **Case "SCEN":**

> The L3 component can be used to describe the scenery and the environment of the different driving scenarios. The SCEN attributes answer to question, "Which conditions should we imagine the system may encounter in its operational domain?"

Depending on these possible uses of the L3 components, some attributes can be deemed irrelevant due to different reasons as follows:

- As the route is located in real world, its description is related to the Operational Domain (OD).
- Consequently, only the L3 attributes related to OD as described in document L8.11 §4.3 will be used for the route description. So the attributes that do not refer to OD, ie which refers either only to ODD (used to describe conditions that allow ego vehicle to perform safely the dynamic driving tasks), either only to SCENARIOS (used to describe the scenery and the environment of the different driving scenarios), won't be used in the template;

- some attributes are clearly part of the OD but can't be described at the route description level because there are either non-permanent (work zones for instance 1), either time-dependent (weather conditions for instance);

- some attributes are clearly part of OD but can neither be described neither measured in a simple manner at the route description level (connectivity quality and coverage for instance);

- Some attributes are part of the OD and could be described at the route description level, but they describe general characteristics, which are global to the whole route. For this reason, they have been removed from the template. However, this general information must be described at the general description of the route step. They are here after sum up for information:
  - Region/state: geographical location
  - Transportation Usage : type of transport , transport capacity, type of management
  - Vehicle geometry (dimensions)
  - Specific technical requirements for the infrastructure or operation
  - Response to specific road users

The following tables list for each family the attributes removed from the template, and present the reasons for these deletions.

Theme Physical infrastructure

L2	L3	Explanation of the removal
Roadway Type	Use of the ego lane	The use of each traffic lane is described lane by lane (see attributes 1107)
	Use of the left lane	
	Use of the right lane	
	direction of left traffic lane	The direction of each traffic lane is described lane by lane (see attributes 1108)
	direction of right traffic lane	
	possible element on the ego traffic lane not preventing traffic	The elements not preventing traffic are described lane by lane (see attributes 1109)
Signage	vertical traffic signs	hypothesis: the static signage relevant to the ego vehicle is known through the HD cartography
	guidance equipment	
	boundary markers	

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[1] Work zones: it is assumed that any work area that may exist during the route description will be completed when the operation of the system takes place; it is assumed that the possible working area that may appear during the operation of the system will be anticipated and analysed before the Ego vehicle has to face with it. Consequently, the route description will only tag the presence of a work zone, for a further detailed analysis.

L2	L3	Explanation of the removal
	temporary signs	The temporary signage is not permanent and won't be described with permanent attributes.

Theme Scenery

L2	Explanation of the removal
Region/state	The region/state attribute is a general attribute global to the whole route.
Geo-fencing	The attribute is a technical characteristic of the system can not be described in the route description.

Theme Environmental conditions

L2	L3	Explanation of the removal
Weather conditions	Rain	The weather conditions are time dependent and can't be described through the route description.
	Snow	
	Hail	
	Fog	
	Wind	
Particulates		This attribute is time dependent and can't be described through the route description.
Weather-induced roadway conditions		This attribute is time dependent and can't be described through the route description.
Illumination	Illumination level	This attribute is time dependent and can't be described through the route description.
	illumination conditions	
	interfering illuminances	
Minimum/Maximum ambient air temperature		This attribute is time dependent and can't be described through the route description.
Maximum humidity rate in the air		

Theme Traffic conditions

L2	L3	Explanation of the removal
Traffic density	Traffic density on the ego direction traffic lane(s)	Traffic density is described lane by lane (see attributes 4101)
	Traffic density on the opposite direction lane(s)	
	Traffic density on the crossing lane(s)	
Road-users (type & speed)	Road users type on the ego direction traffic lane(s)	Road users type is described lane by lane (see attributes 4201)
	Road users type on the opposite direction traffic lane(s)	
	Road users type on the crossing traffic lane(s)	
	Road users speed on the ego direction traffic lane(s)	Road users speed is described lane by lane (see attributes 4202)
	Road users speed on the opposite direction traffic lane(s)	
	Road users speed on the crossing traffic lane(s)	

Theme Digital infrastructure

L2	L3	Explanation of the re-moval
Information type	GPS signal	The attribute is a technical characteristic of the system cannot be described in the route description.
	Radio landmark for geo positioning recalibration	
	information expected by the vehicle	
	information expected by the system	
connectivity	V2V (Vehicle to vehicle)	The quality of the required connectivity requires measurements and field tests. This is not covered by the route description and will be checked at another step.
	V2FLEET (Vehicle to fleet)	
	V2PCC (Vehicle to supervision)	
	V2SEN (Vehicle to infrastructure sensors)	
	V2DEV (Vehicle to infrastructure devices)	
	V2P (Vehicle to emergency vehicles)	
	V2FO (Vehicle to law enforcement)	

**Theme Operational requirements**

L2	L3		Explanation of the removal
Transportation Usage	Type of transport		The attribute is a technical characteristic of the system cannot be described in the route description
	transport capacity		
	type of management		
Possible maneuvers	Condition of achievement (for each maneuver)		The attribute is a technical characteristic of the system cannot be described in the route description
Vehicle geometry (dimensions)	turning radius		The attribute is a technical characteristic of the system cannot be described in the route description
	height		
	width		
	length		
Specific technical requirements for the infrastructure or operation	Specific requirements for infrastructure		The attribute is a technical characteristic of the system cannot be described in the route description. The presence of the required equipment will be checked at another step.
	Specific requirements for operation		
Response to specific road users	Emergency vehicles	type	The attribute is a technical characteristic of the system cannot be described in the route description. The presence of the required equipment will be checked at another step.
		injunction nature	
		equipment	
	Agents	type	
		injunction nature	
		equipment	

4.2 Practical adjustments

Identification

The route description may necessitate some iterations between the data (field observations, map, video recordings, etc) and the segment attributes. Each segment must then be identified by a specific number and its geographical limits.
- Each segment is described by a column of the template, identified by its number;
- The landmark attributes define the limits of the segment: distance from the route starting point, (x,y) coordinates on map, GPS coordinates , etc.

Attribute number

Each attribute has been identified by 4 digits "X X   X X "

L1

L2

L3
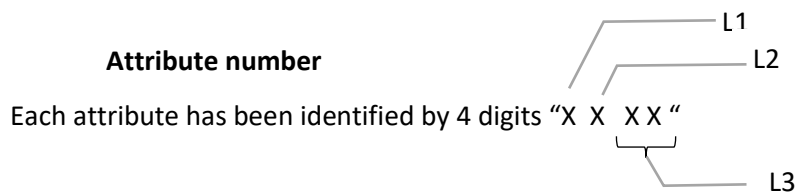
4.3 Reading keys

- The "Scale" column proposes a scale for each attribute. The scale can be adapted and the list of choice must be completed for each case.
- The "Comment" column gives details for the attribute setting.
- The mention "a multiple choice is possible" set in this column means that different value of the attribute can be set in the same section
- For each section (1,2,x …) the attributes are set in the corresponding column of the template.
- NA means "Not Applicable"
- Left and Right sides of the road are assigned when looking in the direction the ego vehicle is traveling forward
- The "ego direction" and "the opposite direction are defined with reference to the ego vehicle moving direction
- Hereafter, a "branch" of the section is a segment of the section: e.g. a T junction has 3 branches while a X junction has 4 branches.   .

4.4 Defining the Template Model to Implement the Methodology for splitting a Predetermined Route into Segments

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	**L2**	**L3**	**Scale**	**comments**			
0 Identification	00 landmarks	0001 Beginning landmark	Distance, video time step video, GPS coordinates, …				
		0002 End Landmark	Distance, video time step video, GPS coordinates, …				
1 Physical Infra-structure	11 Roadway Type	1101 Section type	current junction station				
		1102 Road category	One-way roads Two-way roads Divided Roads Roads with variable lane assignment				

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ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
		1103 Specific infrastructure configuration	NA Current traffic (not appli-cable) Distress lane Storage lane Parking Toll booth bridge/viaduct tunnel/underpass ramp intersection Railroad cross-ing tramway intersection				
		1104 Roadway general orientation	Eastbound South-East bound South bound South-West bound Westbound North-West bound Northbound North East bound	The orientation of the entrance of the segment is described here.			

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	**L2**	**L3**	**Scale**	**comments**			
		1105 Eventual roadway use type	NA Roads open to all traffic types (no restriction) Ego-only road Car-only lanes Meeting Zone "30" zone Pedestrian walkways Roads closed to motor vehicles	Multiple choice possible			
		1106 Ego allowed to drive on lane	Ego allowed to drive on traffic lane n°1	NA Yes/no	This attribute concerns only lanes in the axis of Ego vehicle (lane n°1 et n°4)			
			Ego allowed to drive on traffic lane n°2					
			Ego allowed to drive on traffic lane n°3					
			Ego allowed to drive on traffic lane n°4					
		1107 Use of lanes	Use of traffic lane n°1	NA Ego only traffic lane all traffic lane pedestrian zone / soft modes	This attribute concerns all lanes: lane n°1 et n°4, and lane n°5 to n°8.			
			Use of traffic lane n°2					
			Use of traffic lane n°3					
			Use of traffic lane n°4					

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
		Use of traffic lane n°5	Ego lane shoulder Bus Lane Bicycle lane				
		Use of traffic lane n°6					
		Use of traffic lane n°7					
		Use of traffic lane n°8					
	1108 Traffic lanes direction	direction of traffic lane n° 1	NA ego direction opposite direction both directions Crossing Right (e.g. lane in intersection on the right) Crossing Left (e.g. lane in intersection on the left)	This attribute concerns all lanes: ego direction lanes n°1 to n°4, and crossing lanes n°5 to n°8.			
		direction of traffic lane n° 2					
		direction of traffic lane n° 3					
		direction of traffic lane n° 4					
		direction of traffic lane n° 5					
		direction of traffic lane n° 6					
		direction of traffic lane n° 7					
		direction of traffic lane n° 8					
	1109 Element on the lanes not preventing traffic	element on the traffic lane n° 1 not preventing traffic	NA - rutting - subsidence - pothole - manhole covers - fillings - speed bump	This attribute concerns only lanes in the axis of Ego vehicle (lane n°1 et n°4)			
		element on the traffic lane n° 2 not preventing traffic					
		element on the traffic lane n° 3 not preventing traffic					

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
		element on the traffic lane n° 4 not preventing traffic	- speed bump with sound strip - chicane speed bump - lock speed bump - tight curve retarder - cushion-type speed bump - trapezoidal type speed bumps - roadway elevation - railway level crossing platform - parking bumps				
		1110 type of pavement surface	Asphalt pavement Concrete Composite pavement Gravel surface Pavers Thin geotextile membrane Unpaved Other				
		1111 Luminance of the road surface	yes/no	This attribute allows tagging the eventual areas where the luminance may cause faults for the system vision equipment.			

ROUTE DESCRIPTION						n°1	n°2	n°x
L1	L2	L3		Scale	comments			
		1112 Pavement grip coefficient		yes/no	This attribute allows to tag the eventual areas where the pavement characteristics may cause problem for adherence.			
		1113 Road marking contrast		yes/no	This attribute allows to tag the eventual road marking eventual bad or abnormal condition.			
	12 Roadway Edge	1201 Element of Infrastructure adjacent to the lane	Element of Infrastructure adjacent to the lane 1 on its RIGHT side	NA nature (sidewalk, central reservation, fence, wall, building, tree, angle parking, parallel parking, path, ditch, river, ravine, dividing island, …)	This attribute concerns only lanes in the axis of Ego vehicle (lane n°1 et n°4)			
				NA position X (m)				
				NA position Y (m)				
				NA height (m)				
				NA length (m)				
				NA opaque (yes/no)				

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ROUTE DESCRIPTION					n°1	n°2	n°x
L1	**L2**	**L3**	**Scale**	**comments**			
		Element of Infrastructure adjacent to the lane 1 on its LEFT side	NA nature (sidewalk, central reservation, fence, wall, building, tree, angle parking, parallel parking, path, ditch, river, ravine, dividing island, …)				
			NA position X (m)				
			NA position Y (m)				
			NA height (m)				
			NA length (m)				
			NA opaque (yes/no)				

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ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
		Element of Infrastructure adjacent to the lane 2 on its LEFT side	NA nature (sidewalk, central reservation, fence, wall, building, tree, angle parking, parallel parking, path, ditch, river, ravine, dividing island, …)				
			NA position X (m)				
			NA position Y (m)				
			NA height (m)				
			NA length (m)				
			NA opaque (yes/no)				
		Element of Infrastructure adjacent to the lane 3 on its LEFT side	NA nature (sidewalk, central reservation, fence, wall, building, tree, angle parking, parallel parking, path, ditch, river, ravine, dividing island, …)				
			NA position X (m)				

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
			NA position Y (m)				
			NA height (m)				
			NA length (m)				
			NA opaque (yes/no)				
		Element of Infrastructure adjacent to the lane 4 on its LEFT side	NA nature (sidewalk, central reservation, fence, wall, building, tree, angle park-ing, parallel parking, path, ditch, river, ravine, dividing island, …)				
			NA position X (m)				
			NA position Y (m)				
			NA height (m)				
			NA length (m)				

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
			NA opaque (yes/no)				
		1202 Type of shoulder on RIGHT side of the road	no shoulder hard shoulder for emergency use grass gravel zebra road marking asphalt(junction)				
		1203 Type of shoulder on LEFT side of the road	no shoulder hard shoulder for emergency use grass gravel zebra road marking asphalt(junction)				
	13 Roadway geometry	1301 Width of the lanes	Width of the lane n° 1	NA 1: >3,5m ; 2: [3,5m-3,25m] ; 3: [3,25m-3m] ; 4: [3m ;2,75m] ; 5: [2,75m -2,5m] ; 6: < 2,5m	This attribute concerns only lanes in the axis of Ego vehicle (lane n°1 et n°4)		
			Width of the lane n° 2				
			Width of the lane n° 3				
			Width of the lane n° 4				
		1302 Cross slope		Yes/no	This attribute allows to tag the eventual cross slope of the road.		

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
		1303 Radius of curvature	0 (left/right) X m	The attribute concerns the maximal radius of curvature for the whole segment and its direction Left/Right			
		1304 Length of the link section	m				
		1305 Slope	0 : <-10% ; 1 : [-10%; -5%]; 2: [-5% ;-2%] ; 3: [-2% ; 2%] ; 4: [2% ;5 %] ; 5: [5% ;10%] ; 6: [8% ;10%] ; 7: >10%	The attribute concerns the maximal slope for the whole segment and its sign +/-			
		1306 Unsuitable area for stopping the vehicle	yes/no	The attribute allows to tag the areas where a Minimal Risk Manoeuver can hardly be undertaken, due to the width of the road, the absence of edge, the traffic density, etc. ...			

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	**L2**	**L3**	**Scale**	**comments**			
	14 Junctions	1401 configuration of the intersection	X intersection T-intersection Y-intersection star intersection single traffic round about double traffic round about triple traffic round about Left turn Merging lane merging of lanes roundabout railway level crossing plat-form Tramway lane intersection	,			

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
		1402 Number of branches of the intersection	number	Hereafter, a "branch" of the section is a segment of the section: e.g. a T junction has 3 branches while a X junction has 4 branches.			
		1403 Angle of the crossing lanes	Angle of crossing lane n°5	NA -180/+180 °	The angle is measured starting from ego direction in the direct sense			
			Angle of crossing lane n°6					
			Angle of crossing lane n°7					
			Angle of crossing lane n°8					
		1404 Priority rules	Right priority lane priority roundabout traffic lights flashing light R24 light YIELD STOP Tramway line priority Exit only None	Priority rule applicable for the ego vehicle lane Hypothesis is assumed that the same rules apply to each lane where the ego vehicle can possibly drive			
		1405 particularity of the intersection	NA Expanded bicycle line				
	15 Temporary structures	1501 Work zone	yes/no	Tag the presence of a work zone, for a further detailed analysis			

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
	16 Fixed surrounding structures	1601 constraints on masks from the visibility point of view	yes/no	Tag a configuration that may cause visibility problems (for the Ego vehicle of for the others vehicles), for a further detailed analysis			
		1602 constraints on masks from the geo-positioning point of view	yes/no	Tag a configuration that may cause geo positioning problems, for a further detailed analysis (tunnel, garage, toll booth, GPS/GNSS disturbance zone, …)			
		1603 constraints on masks from the connectivity point of view	yes/no	Tag a configuration that may cause connectivity problems, for a further detailed analysis (tunnel, garage, toll booth, urban canyon, multiple reflections, dense vegetation cover, GPS/GNSS disturbance zone, …)			
	17 Special structures	1701 Crossing of vulnerable users	NA Crosswalk Bicycle crossing shared zone crossing	a multiple choice is possible			
		1702 Marking of cycle zone on the ego lane	Yes/no				
	18 Signage	1801 traffic lights	yes/no	In order to notice that the capacity for Ego vehicle to know the light state has to be checked			

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	**L2**	**L3**		**Scale**			
			comments				

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	**L2**	**L3**	**Scale**	**comments**			
		1802 road markings (horizontal markings)	marking lane 1 RIGHT side	NA broken line solid line				
			marking lane 1 LEFT side	NA broken line solid line				
			marking lane 2 LEFT side	NA broken line solid line				
			marking lane 3 LEFT side	NA broken line solid line				
			marking lane 4 LEFT side	NA broken line solid line				
		1803 closing devices		NA Type of closing device	In order to notice that the capacity for Ego vehicle to know the device state has to be checked			
		1804 dynamic signs		NA Type of equipment	In order to notice that the capacity for Ego vehicle to perceive the dynamic sign state has to be checked			

ROUTE DESCRIPTION						n°1	n°2	n°x
L1	L2	L3		Scale	comments			
		1805 connected equipment		NA Type of equipment	In order to notice that the capacity for Ego vehicle to communicate with the connected equipment has to be checked			
2 Scenery	21 Specific zones	2101 Specific zones		NA school, retirement home hospital stadium exit > X people exit from a theater > X people shopping center exit animal crossing fire station etc.				
3 Environmental conditions	31 Illumination	3101 Illumination variation		Yes/no	To tag a point where the illumination can suddenly change: tunnel entrance/exit, area with/without artificial lighting,....			
4 Traffic conditions	41 Traffic density	4101 Traffic density	Traffic density lane n° 1	NA Low Low/Middle depending on the conditions Low/Middle/High on the conditions	The attribute describes the maximum traffic density generally encountered on the segment. This attribute concerns all lanes: Ego direction lanes n°1 to n°4, and crossing lanes n°5 to n°8.			
			Traffic density lane n° 2					
			Traffic density lane n° 3					
			Traffic density lane n° 4					
			Traffic density lane n° 5					

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	L2	L3	Scale	comments			
		Traffic density lane n° 6					
		Traffic density lane n° 7					
		Traffic density lane n° 8					
	42 Road-users (type & speed)	4201 Road users type	Road users type lane n° 1	NA pedestrian, bicycle , 2 Wheel Drive , Light vehicles Heavy vehicles	a multiple choice is possible This attribute concerns all lanes: ego direction lanes n°1 to n°4, and crossing lanes n°5 to n°8.			
			Road users type lane n° 2					
			Road users type lane n° 3					
			Road users type lane n° 4					
			Road users type lane n° 5					
			Road users type lane n° 6					
			Road users type lane n° 7					
			Road users type lane n° 8					
		4202 Road users speed	Road users speed lane n° 1	NA km/h	Speed means here "maximal allowed speed" This attribute concerns all lanes: ego direction lanes n°1 to n°4, and crossing lanes n°5 to n°8.			
			Road users speed lane n° 2					
			Road users speed lane n° 3					
			Road users speed lane n° 4					
			Road users speed lane n° 5					
			Road users speed lane n° 6					
			Road users speed lane n° 7					
			Road users speed lane n° 8					

ROUTE DESCRIPTION					n°1	n°2	n°x
L1	**L2**	**L3**	**Scale**	**comments**			
	43 Traffic safety	4301 Risky behavior of third parties	Yes/no	Tag a zone where risky behaviors have been observed, for a further detailed analysis			
		4302 Particularly accident-prone areas	Yes/no	Tag a zone where accidents have occurred, for a further detailed analysis			
5 Operational requirements	51 Ego speed	5101 Ego speed	km/h	Maximal speed de ego sur la section.			
	52 Possible maneuvers	5201 Maneuvers type	straight ahead straight ahead reverse Ramp insertion U Turn Lane change left Lane change right Turn left Turn right Herringbone parking maneuver In-line parking maneuver Station stop	Nominal maneuvers only.			

5 OVERALL ILLUSTRATION ON PRISSMA USE CASES

As previously announced, this work introduces a standardized template for describing each section of the route after it has been divided into homogenous segments. The methodology and template have been employed to document the routes of two PRISSMA use cases. Subsequently, this discussion highlights the most noteworthy aspects raised by these two applications, serving as concrete examples to illustrate the methodology.

5.1 General information for using the methodology

The present document proposes some principles, rules and elements for using the methodology. As these are proposals that have been stated during the concrete applications on the PRISSMA use cases, they will have to be adapted to each particular situation and to each system characteristics.

- Left/right

Left and Right sides of the road are assigned with reference to the direction in which the ego vehicle is traveling.

- Lanes numbering :
    - it is assumed in the template that there are maximum 4 lanes parallel to the Ego lane direction : i = 1 to 4; the numbering starts from the right side of the road looking in Ego direction ;

    - it is assumed in the template that there are maximum 4 lanes crossing the Ego lane direction : j = 5 to 8; the numbering starts from the right side of the road looking in Ego direction.
    The template will have to be adapted when a section has more than 4 parallel or crossing traffic lanes.

- Lanes parallel to the Ego direction

The methodology involves describing all parallel lanes adjacent to the lanes where the Ego vehicle can travel, including lanes going in the opposite direction, even in the case of divided roads. Lanes that are not relevant to the scenarios, meaning they cannot interact with the Ego vehicle, are not included. In practical terms, a lane going in the opposite direction of the Ego vehicle can interact with it if there is no physical barrier, such as a wall or a fence, separating the two. (As previously explained, the template initially considered up to 4 parallel lanes to the Ego lane, but it can certainly be expanded to cover other configurations.)
For each of these parallel lanes, the attribute 1106, "Ego allowed to drive on lane," helps differentiate which lanes are permissible for the Ego vehicle to use.

- Crossing lanes

All lanes crossing the Ego lane(s) are described.
(As prior explained, the template assumed at most 4 crossing lanes but the template can obviously be extended for covering other configurations).
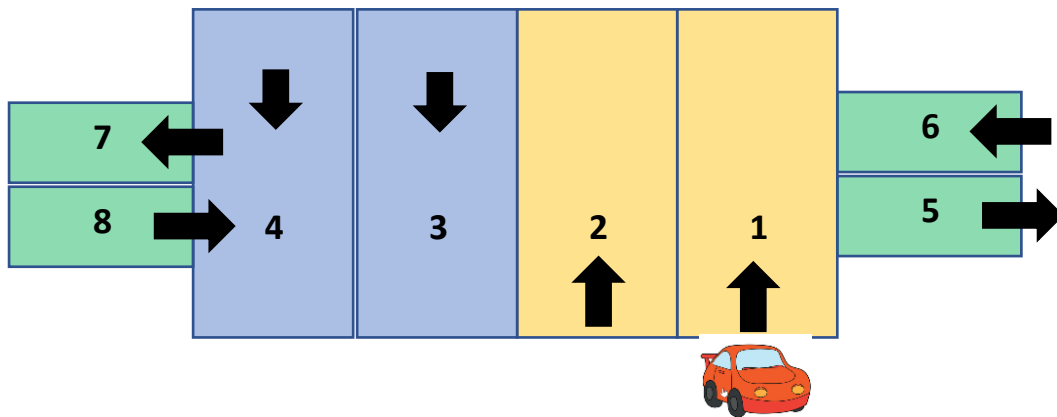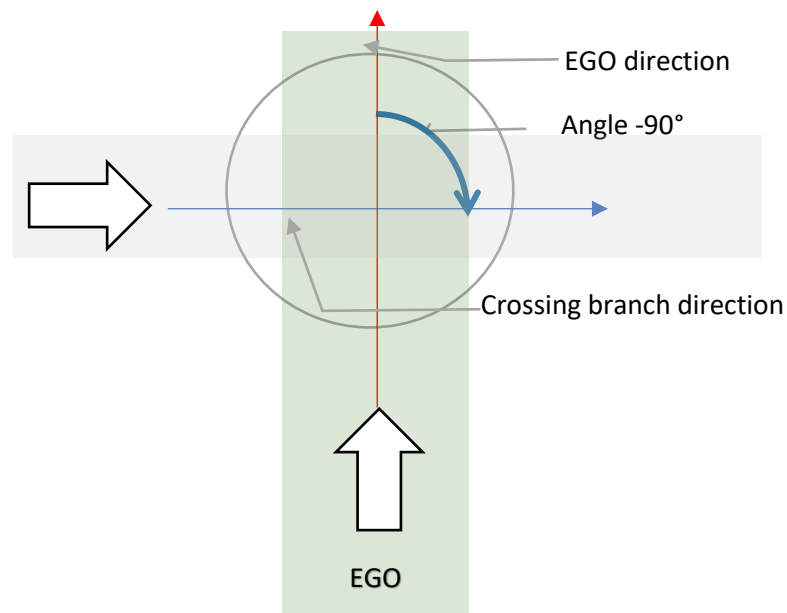

- Angle of the crossing lanes (see attribute 1403) :
    - The value must be given within 10°
    - The angle measurement scale is as follows :
    The angle is measured starting from ego direction in the direct sense

- Priority rules (1404):
  The priority rule is the general rule applying for the Ego vehicle on the entire junction, i.e. for all crossing lanes. At this stage, it is assumed that the Ego vehicle must follow the same rule for all the lanes, it encounters (i.e. stop, yield, traffic lights...).

5.2 Complementary information about specific attributes

In the following illustrations, the Ego lane is tagged with blue arrow.

- 1104 Roadway general orientation

Only orientation of the section entrance is set.

- 1110 type of pavement surface

The pavement may have small variations. In practice, it is considered not to create a new section when there is such small variation. A same section can have different types of pavement and thus a multiple choice may be possible for this attribute.
A new section must be set when a real and permanent change in the type of pavement exists.

- 1113 Road marking contrast

The attribute aims to tag the points where the horizontal marking is bad condition or difficult to perceive. See below for instance the marking on the left side of Ego lane.

- 1201 Element of Infrastructure adjacent to the lane

For each lane, the attribute 1201 describes the nature and the size of the eventual elements, which are situated, on the left and right side of the lane.

Elements as sidewalks, fence, wall, trees, parking, and river … are expected in order to provide context elements, which could affect the traffic scenarios. It could be for instance the presence of masks (link with "1601 constraints on masks from the visibility point of view"), or obstacles.

The obstacles located more than 4m from the outer edge of the Ego lane are not described by this attribute.[2]

Complementary, the edges of the road are described by attributes 1202/1203 "Type of shoulder on right/left sides of the road".

- 1306 Unsuitable area for stopping the vehicle

The attribute allows identifying the areas where a Minimal Risk Manoeuver (MRM) will be impossible or difficult to carry.
There can be various reasons like railway level crossing, narrow lane with fences, road without edge and with a high traffic, etc.

For illustration, the hereafter configuration has been set to 1306 = yes due to the presence of a fence without edge on right side, to the presence of solid line on left side.

- 1601 constraints on masks from the visibility point of view

There is not specific rules to define the configurations that can create visibility problems.

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[2] This 4 meters distance is proposed with reference to the distance, the trees located on the road side have to be treated according CEREMA document « Traitement des obstacles latéraux sur les routes principales hors agglomération" (2002 edition - chapter III.3.)

In the configuration presented here after, we can see there are 2 crossing lanes (in red) on the right side of the Ego lane (in blue). The fence would possibly mask the eventual vehicle arriving from the 2nd crossing lane.
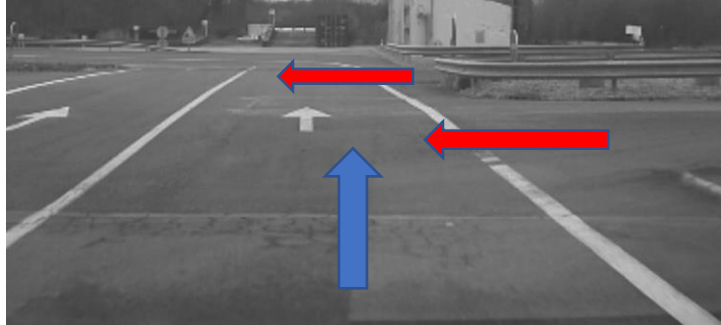
-   4101 Traffic density

The proposed scale is "Low, Low/Middle depending on the conditions, Low/Middle/High depending on the conditions".
It is assumed that the worst case for the scenario will be the situation with the maximum traffic density. This hypothesis and the scale can be questioned.

5.3   Examples for junctions

Every junction has specificities and can be complex to describe. Therefore, different examples of junctions' descriptions using the proposed taxonomy are given here for illustration.
In the following cases:

-   On the schemes, the ego lane is tagged by a blue arrow as the crossing lanes are tagged with red arrow;
-   The table are is an extract of template with the attributes specific to the junction.

Case of simple T junction
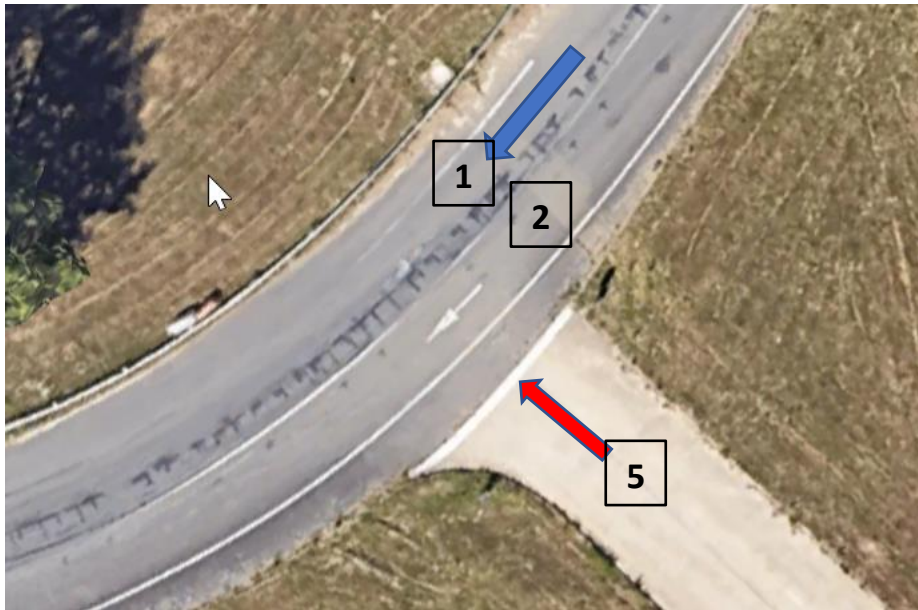
L1	L2	L3		value
Physical Infra-structure	Roadway Type	Road category		One-way road
		Specific infrastructure configuration		Current traffic
		Ego allowed to drive on traffic lane n°1		yes
		Ego allowed to drive on traffic lane n°2		yes
		Traffic lanes direction	lane n° 1	ego direction
			lane n° 2	ego direction
			lane n° 5	Crossing Left
	Junctions	configuration of the intersection		T-intersection
		Number of branches of the intersection branch		3
		Angle of the crossing lanes	lane n°5	-120
		Priority rules		STOP
	Special structures	Crossing of vulnerable users		no
		Marking of cycle zone on the ego lane		no
	Signage	traffic lights		no
Operational requirements	Possible maneuvers	Maneuvers type		straight ahead

Case of simple T junction
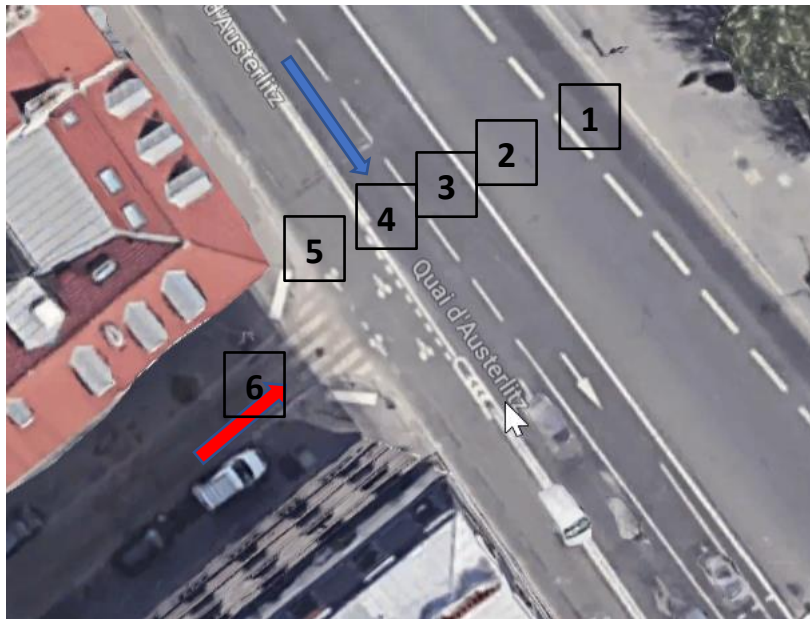
L1	L2	L3		value
1 Physical Infra-structure	11 Roadway Type	1101 Section type		**junction**
		1102 Road category		2 way road
		1105 Eventual roadway use type		Bus lane All Traffic Bicycle road
		1106 Ego allowed to drive on lane	lane n°1	NO
			lane n°2	YES
			lane n°3	NO
			lane n°4	NO
			lane n°5	NO
		1107 Use of lanes	lane n°1	Bus lane
			lane n°2	Ego Lane
			lane n°3	All traffic
			lane n°4	All traffic
			lane n°5	Bicycle lane
			lane n°6	All traffic
		1108 Traffic lanes di-rection	lane n° 1	Ego direction
			lane n° 2	Ego direction

L1	L2	L3		value
			lane n° 3	Opposite direction
			lane n° 4	Opposite direction
			lane n° 5	Opposite direction
			lane n° 6	Crossing right
	14 Junctions	1401 configuration of the intersection		T-intersection
		1402 Number of branches of the inter-section		3
		1403 Angle of the crossing lanes	lane n°6	90
		1404 Priority rules		None
		1405 particularity of the intersection		NA

Case of simple X junction with crosswalk
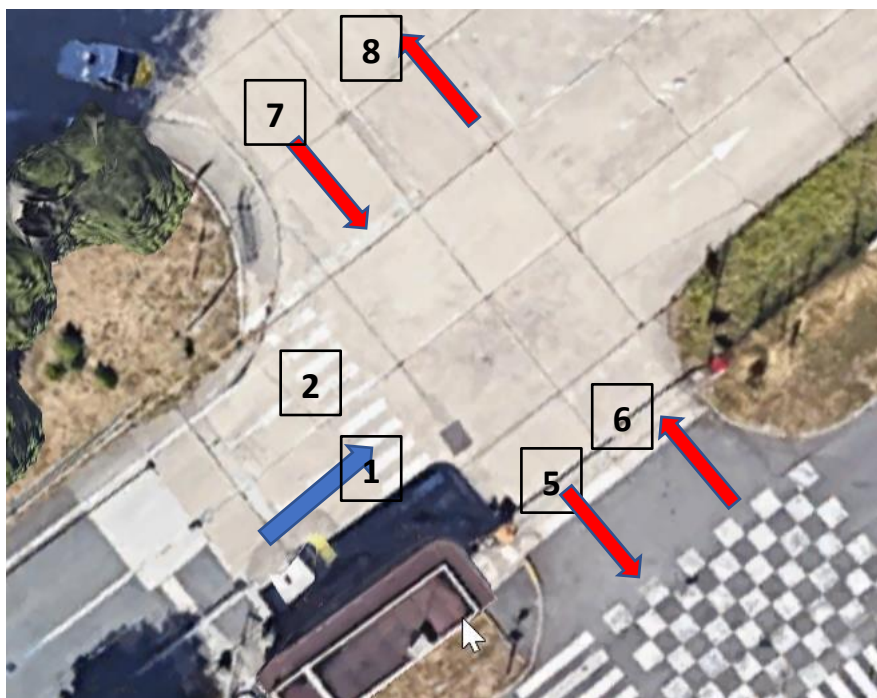
L1	L2	L3	
Physical In-frastructure	Roadway Type	Road category	One-way road
		Specific infrastructure configuration	Current traffic

L1	L2	L3		
		Ego allowed to drive on traffic lane n°1		yes
		Ego allowed to drive on traffic lane n°2		yes
		Ego allowed to drive on traffic lane n°3		NA
		Ego allowed to drive on traffic lane n°4		NA
		Traffic lanes direction	lane n° 1	ego direction
			lane n° 2	ego direction
			lane n° 5	Crossing Right
			lane n° 6	Crossing Right
			lane n° 7	Crossing Left
			lane n° 8	Crossing Left
	Junctions	configuration of the intersection		X-intersection
		Number of branches of the intersection branch		4
		Angle of the crossing lanes	lane n°5	-90
			lane n°6	+90
			lane n°7	-90
			lane n°8	+90
		Priority rules		STOP
	Special structures	Crossing of vulnerable users		Crosswalk
		Marking of cycle zone on the ego lane		no
	Signage	traffic lights		no
		closing devices		no
		dynamic signs		no
		connected equipment		no
Operational requirements	Possible maneuvers	Maneuvers type		straight ahead

Case of X junction with turn right maneuver
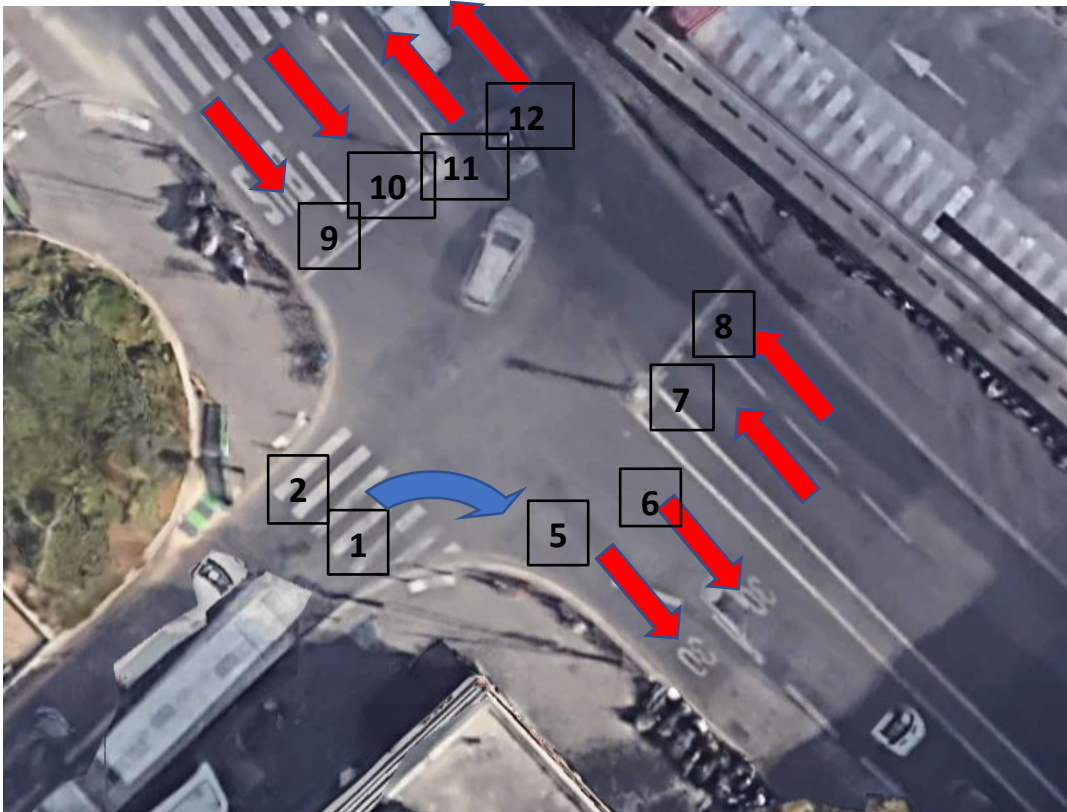
L1	L2	L3		values
1 Physical Infrastruc-ture	11 Roadway Type	1101 Section type		junction
		1102 Road category		2 way road
		1105 Eventual roadway use type		All Traffic
		1106 Ego allowed to drive on lane	lane n°1	Yes
			lane n°2	No
		1107 Use of lanes	lane n°1	All traffic lane
			lane n°2	All traffic lane
			lane n°5	All traffic lane
			lane n°6	All traffic lane
			lane n°7	All traffic lane
			lane n°8	All traffic lane
			lane n°9	All traffic lane
			lane n°10	All traffic lane

L1	L2	L3		values
			lane n°11	All traffic lane
			lane n°12	All traffic lane
		1108 Traffic lanes direction	Lane n°1	Ego
			Lane n°2	Ego
			lane n°5	Crossing right
			lane n°6	Crossing right
			lane n°7	Crossing right
			lane n°8	Crossing right
			lane n°9	Crossing left
			lane n°10	Crossing left
			lane n°11	Crossing left
			lane n°12	Crossing left
	14 Junctions	1401 configuration of the intersection		T intersection
		1402 Number of branches of the intersection		3
		1403 Angle of the crossing lanes	Angle of crossing lane n°5	-90
			Angle of crossing lane n°6	-90
			Angle of crossing lane n°7	90
			Angle of crossing lane n°8	90
			Angle of crossing lane n°9	-90
			Angle of crossing lane n°10	-90
			Angle of crossing lane n°11	90
			Angle of crossing lane n°12	90
		1404 Priority rules		None / Right priority
		1405 particularity of the intersection		Expanded bicycle line
	52 Possible maneuvers	5201 Maneuvers type		turn right / crossing

5.4 Description of crossing paths

The section of the crossing path is limited by the blue area.
In the following configuration, the Ego vehicle can travel on 3 lanes (2,3 & 4).
The assumption that there are maximum 4 lanes parallel to the Ego lane direction is not true here (5 lanes)
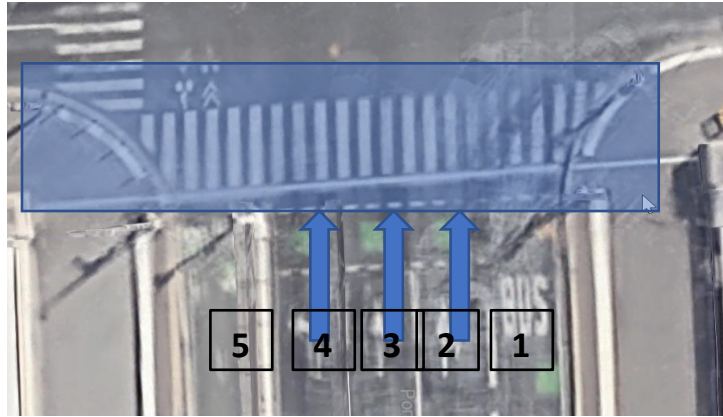
L1	L2	L3		values
1 Physical Infrastructure	11 Roadway Type	1101 Section type		current
		1102 Road category		1 way road
		1105 Eventual roadway use type		NA
		1106 Ego allowed to drive on lane	lane n°1	NO
			lane n°2	YES
			lane n°3	YES
			lane n°4	YES
			Lane n°5	NO
		1107 Use of lanes	lane n°1	Bus lane
			lane n°2	Ego Lane
			lane n°3	Ego Lane
			lane n°4	Ego Lane
			lane n°5	Bicycle lane
		1108 Traffic lanes direction	lane n° 1	Ego direction
			lane n° 2	Ego direction / turn right
			lane n° 3	Ego direction
			lane n° 4	Ego direction / turn left
			lane n° 5	Both
	17 Special structures	1701 Crossing of vulnerable users		Crosswalk

6   SPECIFIC ILLUSTRATION ON PRISSMA USE CASES - POC WP2 SATORY

6.1 Phase 1 – collecting the necessary inputs

As mentioned in the previous chapters, before starting the task of dividing the route into manageable sections, there are preliminary activities that need to be undertaken such as the necessary data collection. Therefore, for this specific use case of Satory, below are the data we were able to gather before start the segmentation process.

Input 1 - General Map of Satory's route

Input 2 – Google Earth view of Satory's route

Input 3 – Starting point of Satory's route

Input 4 - video recording of the route

6.2 Preliminary analysis and splitting the route into sections

Preliminary analysis

Hypotheses Made
- No description of stops for the ego shuttle station.
- Distance scale based on Google Earth.
- Description of the ego lane's sidelines.
- Hypotheses made about traffic densities 'traffic density.'
- Hypotheses made about ego speed.

Feedback
- Practical need to identify each descriptor by a number.

Specific Points (identified in the video recording of the route)

Specific point description	View
Unsuitable area for stopping the vehicle": when there are 2 lanes in the same direction, it is considered possible to stop in a lane following an MRM; conversely, stopping is impossible if (NO shoulder AND continuous line - section 17 t=38").	
Identifying the presence of cross slope is difficult (see section #12 t = 29").	
Masking by safety barrier in section #13 t=30".	

Specific point description	View
Masking on the right and left in section 29 t=1'01".	
Road marking defects "Road marking contrast" in sections 20, 21, 23, 25, and 29 (old markings t = 46" or faded markings, poor quality t=1'01").	
Poor road luminance/adherence in sections 35-39 t=1'12" to the end.	

Splitting the route into sections (39 sections)
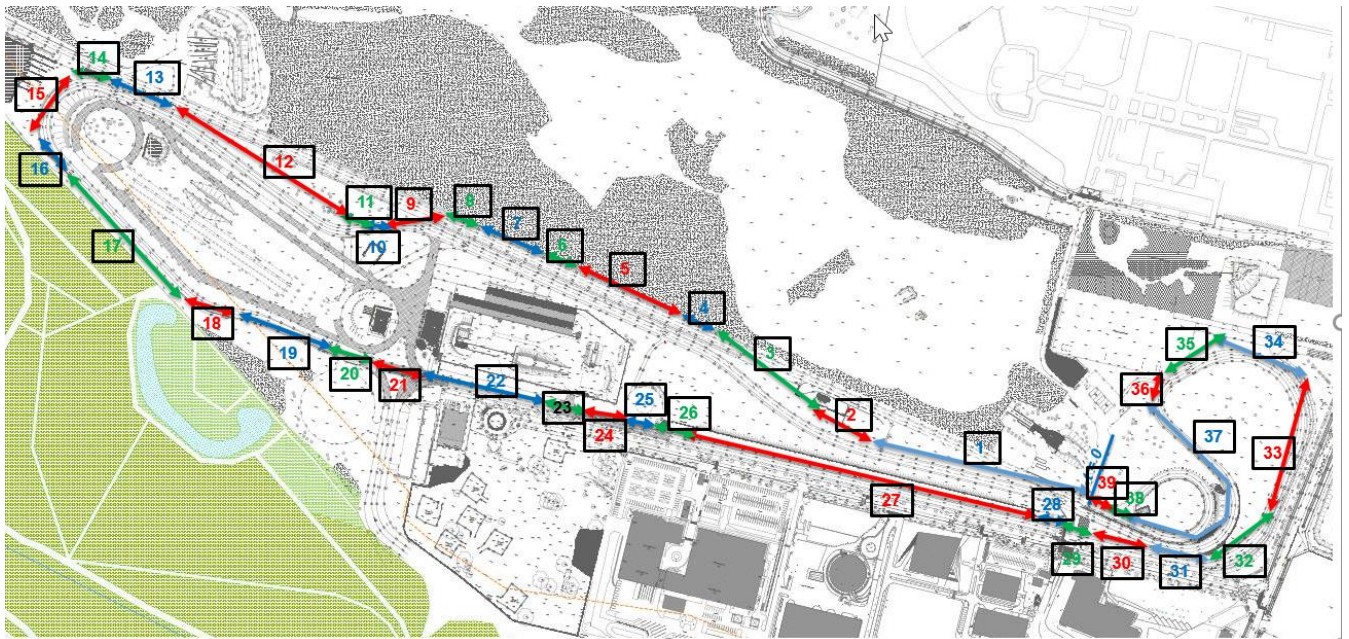
Picture of the road divided into segments

Extract from the completed template for the POC Satory use case.

L1	L2	L3		Scale	comments	SECTION n°1	SECTION n°2	SECTION n°3	SECTION n°4	SECTION n°5	SECTION n°6	SECTION n°7	SECTION n°8	SECTION n°9	SECTION n°10	SECTION n°11	SECTION n°12	SECTION n°13	SECTION n°14
			repère début section	min sec ou m	time step video ou distance sur plan	00:00													
			repère fin section	min sec ou m	time step video ou distance sur plan	00:10	00:13	00:14	00:15	00:17	00:18	00:19	00:20	00:22	00:23	00:24	00:29	00:30	00:31
		Road category		One-way roads / Two-way roads / Divided Roads / Roads with variable lane assignment		One-way road	One-way road	One-way road	One-way road	One-way road	One-way road	One-way road	One-way road	One-way road	One-way road	One-way road	One-way road	One-way road	One-way road
		Specific infrastructure configuration		NA / Current traffic (not applicable) / Distress lane / Storage lane / Parking / Toll booth / bridge/viaduct / tunnel/underpass / ramp / intersection Railroad crossing / tramway intersection		Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic	Current traffic
		Roadway general orientation		Eastbound / South-East bound / South bound / South-West bound / Westbound / North-West bound / Northbound / North East bound		North-West bound	North-West bound	North-West bound	North-West bound	North-West bound	North-West bound	North-West bound	North-West bound	West bound	West bound	North-West bound	North-West bound	North-West bound	West bound
		Eventual roadway use type		NA / Roads open to all traffic types (no restriction) / Ego-only road / Car-only lanes / Meeting Zone / "30" zone / Pedestrian walkways / Roads closed to motor vehicles		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Ego allowed to drive on traffic lane n°1		NA / Yes/no	pour toutes les voies parallèles à la voie ego	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
		Ego allowed to drive on traffic lane n°2				yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
		Ego allowed to drive on traffic lane n°3				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Ego allowed to drive on traffic lane n°4				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Roadway Type	Use of lanes	Use of traffic lane n°1	NA / Ego only traffic lane / all traffic lane / pedestrian zone / soft modes / Ego lane / shoulder / Bus Lane	pour toutes les voies, i.e. voies parallèles à la voie ego et voies en intersection	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane
			Use of traffic lane n°2			all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane	all traffic lane
			Use of traffic lane n°3			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Use of traffic lane n°4			NA	NA	NA	all traffic lane	NA	all traffic lane	NA	all traffic lane	NA	all traffic lane	NA	NA	all traffic lane	all traffic lane
			Use of traffic lane n°5			NA	NA	NA	NA	NA	NA	NA	all traffic lane	NA	NA	NA	NA	NA	NA
			Use of traffic lane n°6			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Use of traffic lane n°7			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Use of traffic lane n°8			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Traffic lanes direction	direction of traffic lane n° 1	NA / ego direction / opposite direction / Crossing Right (e.g. lane in intersection on the right) / Crossing Left (e.g. lane in intersection on the left)		ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction
			direction of traffic lane n° 2			ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction	ego direction
			direction of traffic lane n° 3			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			direction of traffic lane n° 4			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			direction of traffic lane n° 5			NA	NA	NA	Crossing Left	NA	Crossing Left	NA	Crossing Left	NA	Crossing Left	NA	NA	Crossing Right	Crossing Right
			direction of traffic lane n° 6			NA	NA	NA	NA	NA	NA	NA	Crossing Left	NA	NA	NA	NA	NA	NA
			direction of traffic lane n° 7		pour toutes les voies, i.e. voies parallèles à la voie ego et voies en intersection	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			direction of traffic lane n° 8			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Element on the lanes not preventing traffic	element on the traffic lane n° 1 not preventing traffic	NA / - rutting / - subsidence / - pothole / - manhole covers / - fillings / - speed bump / - speed bump with sound strip / - chicane speed bump / - lock speed bump / - tight curve retarder / - cushion-type speed bump / - trapezoidal type speed bumps / - roadway elevation / - railway level crossing platform / - parking bumps	pour toutes les voies parallèles à la voie ego	fillings	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			element on the traffic lane n° 2 not preventing traffic			fillings	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			element on the traffic lane n° 3 not preventing traffic			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			element on the traffic lane n° 4 not preventing traffic			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Comment (JOUVE Pierre): raccord de chaussée important entre 155 m et 175 m

7 POC WP4 PARIS 2 CONNECT

In the context of implementing the POC WP4 - Paris To Connect, a decomposition has been carried out using the template structure derived from the taxonomy, as presented in this deliverable. All the work stages related to POC WP4 are detailed in a dedicated deliverable (see PRISSMA Project Document L4.3 "REAL CONDITION TESTS METHODS: INFRASTRUCTURE ANALYSES, PATHWAY SELECTION CRITERON").