



# Road Infrastructure and Future Mobility

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# Contributions of infrastructure to future transport and mobility.

1. **Safety:** Provide safety to all road users - Forgiving, Self-explaining, Climate resilient
2. **Physical complemented by digital infrastructure:** Provide the foundations for robust ODD's – Assist to achieve higher levels of automation
3. **Connectivity:** vehicle within a multi-modal transport network: data!
4. **Sustainability :** Reduced environmental footprint  
– Enable the decarbonisation of transport.



# Foster innovation as part of the eco-system(1)

## Role of DG MOVE & DG RTD: Boosting new technologies and solutions in the transport system

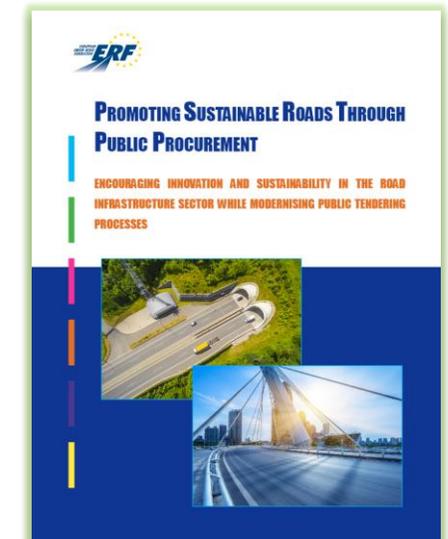
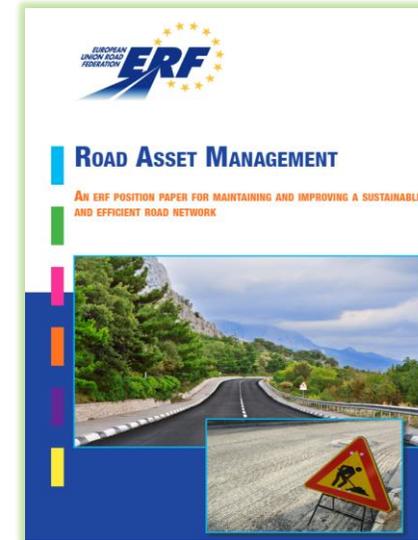
- Integral component of EU funded projects : “Horizon” by CINEA
- Longer term R&I input via CCAM Single Platform and Partnership
- European Innovation Council – SME --- support in access to EU single market?
- Next generation funds – Recovery plans, JTF , .... Where is the road?
- Create a liveable urban environment – VRU – Safe micro-mobility.



# Foster innovation as part of the eco-system(2)

## Role of DG GROW: Revision of the Construction Product Regulation within the Green Deal

- Recognize innovation based on performance-based standards (CEN) for public procurement in the EU single market: fast publication into the EUOJ !!
- Role of EOTA to allow access to market for brand new technology
- Environmental footprint as part of CEN standards leading to green public procurement



# Solve today's issues and prepare for tomorrow

## Full implementation of the General Safety Regulation (GSR) and the Road Infrastructure Safety Management (RISM) Directive.

- Optimum synergy between new ADAS and road infrastructure to reduce accidents
  - Full benefits of LDWS and ELKS rely on detection of road markings.
  - Full benefits of ISA depend on easy traffic sign recognition
  - Improved infrastructure and maintenance will benefit all road users, incl VRU
  
- Requires engagement of all stakeholders, while driver is still in control (SAE Level 2)
  - Roles and responsibilities
  - Socio-economic benefits
  
- Essential foundation for successful higher levels of automation. (ISAD levels - Inframix)

	Level	Name	Description	Digital information provided to AVs			
				Digital map with static road signs	VMS, warnings, incidents, weather	Microscopic traffic situation	Guidance: speed, gap, lane advice
Digital infrastructure	A	Cooperative driving	Based on the real-time information on vehicles movements, the infrastructure is able to guide AVs (groups of vehicles or single vehicles) in order to optimize the overall traffic flow	X	X	X	X
	B	Cooperative perception	Infrastructure is capable of perceiving microscopic traffic situations and providing this data to AVs in real-time	X	X	X	
	C	Dynamic digital information	All dynamic and static infrastructure information is available in digital form and can be provided to AVs	X	X		
Conventional infrastructure	D	Static digital information / Map support	Digital map data is available with static road signs. Map data could be complemented by physical reference points (landmarks signs). Traffic lights, short term road works and VMS need to be recognized by AVs	X			
	E	Conventional infrastructure / no AV support	Conventional infrastructure without digital information. AVs need to recognise road geometry and road signs				

# Innovation examples

- Road markings visible under rainy weather conditions (better human and machine detection)
- Road markings surviving harsh winter conditions
- Bio- or recycled material-based traffic signs and restraint systems
- Active lighting for urban pedestrian crossings

