



**CIRCUIT**

**DEEP DIVE  
INTO THE  
PROJECT'S 5  
PILOT  
COUNTRIES**





From cutting-edge digitalization to innovative energy solutions, **CIRCUIT's pilot countries are reshaping the future of roads, bridges, and tunnels.**

CIRCUIT's groundbreaking technologies will be rigorously tested in operational environments across five pilot locations in the European Union. Each pilot aligns with one or more of the four strategic pillars.





# PILOT CROATIA



## **Location:**

- Section on Zagreb-Rijeka Highway



## **Pillar:**

- Digitalisation



## **Key Technology:**

- Digitalization of existing assets
- UAVs for the inspection of structures
- Application of circularity KPIs



## **Pilot Leader:**

- Croatian Motorways (HAC)

## **Support Partners:**

- InfraPlan
- University of Zagreb
- DigitalTwin Technology (DTT)
- Acciona



## **Infrastructure:**

- Roads
- Bridges

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HAC is leading the way in drone-based inspections **to enhance safety, efficiency, and digitalization of highway infrastructure.**

UAVs are being used to develop digital twin models, allowing for accurate, real-time inspections.





### **Location:**

- N-623 National Road
- A8 Motorway (Hoz Tunnel)
- Cantabria



### **Pillar:**

- Recycling
- Green Solutions



### **Key Technology:**

- Adaptive lighting and ventilation systems
- Smart traffic systems
- Innovative asphalt materials



### **Pilot Leader:**

- Spanish Ministry of Transport

### **Support Partners:**

- University of Cantabria
- Acciona
- UB
- Ingevity
- Algorab



### **Infrastructure:**

- Roads
- Tunnels

This pilot is focused on **delivering more circular and greener asphalt technologies and on reducing energy consumption** in tunnels and improving traffic systems.

Recycling asphalt using innovative materials, and applying energy efficiency and smart traffic management solutions will help to reduce the environmental impact and boost sustainability of roads.



# PILOT SPAIN





PILOT

NETHERLANDS



**Pilot Leader:**

- Waterschap Hollandse Delta (WSHD)

**Support Partners:**

- INGEO
- University of Zagreb
- InfraPlan



**Location:**

- Oostmolendijk



**Pillar:**

- Recycling



**Key Technology:**

- Soil Stabilization
- Use of Secondary raw materials for soil stabilisation
- Numerical Modeling



**Infrastructure:**

- Roads
- Embankments

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In the Netherlands, innovative soil stabilization methods are being tested to reinforce dikes using sustainable materials, aiming to **prevent erosion and increase the resilience of embankments.**





# PILOT SLOVENIA



## Location:

- Črna na Koroškem Municipality
- Meža River



## Pillar:

- Reuse
- Recycling
- Digitalisation



## Key Technology:

- GRS Abutments
- 3D Printing
- Modular Prefabricated Superstructure



## Pilot Leader:

- Municipality of Črna na Koroškem

## Support Partners:

- ZAG
- Beton Lučko
- InfraPlan



## Infrastructure:

- Bridges
- Local Roads
- Geotechnical Structures

Slovenia is piloting the **bridge construction** using the Geosynthetic Reinforced Soil (GRS) abutments to improve **infrastructure resilience**, reusing beams in the modular superstructure to **reduce the environmental impact** and is showcasing **digital fabrication in construction** through 3D printed safety wall.





# PILOT ITALY



## **Location:**

- Rome Motorway A90 & A91



## **Pillar:**

- Energy



## **Key Technology:**

- Adaptive lighting and ventilation systems



## **Pilot Leader:**

- ANAS

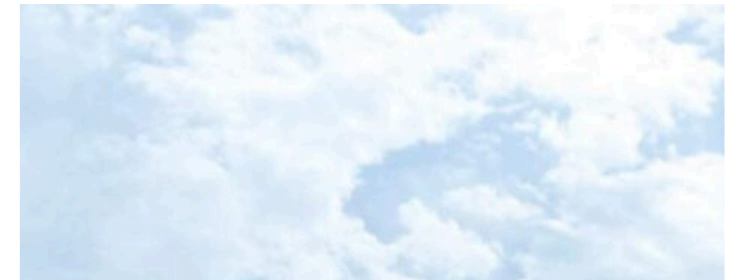
## **Support Partners:**

- Algorab
- Acciona



## **Infrastructure:**

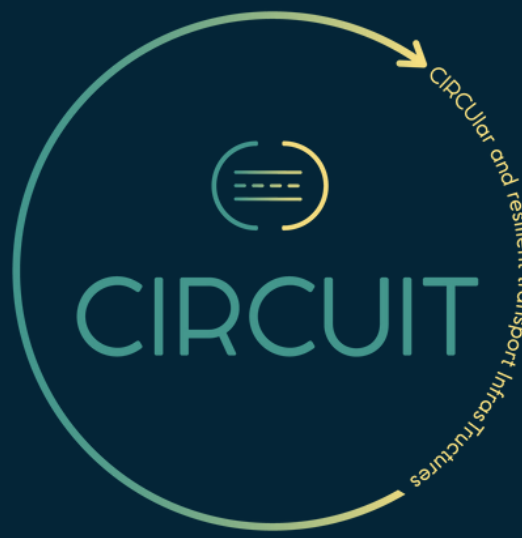
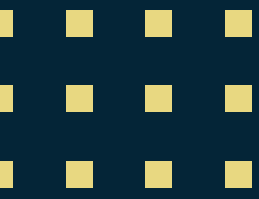
- Roads
- Tunnels



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Italy's pilot focuses on **cutting-edge energy-saving solutions** for road lighting and tunnel ventilation. Solar and wind-powered lighting poles, along with adaptive lighting and fan control systems are key **to reducing operational costs and energy consumption.**





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