



C-ITS – THE ROAD OPERATORS' PERSPECTIVE

10th of March 2021



Co-financed by the Connecting Europe
Facility of the European Union

www.c-roads.eu | [@cRoadsPlatform](https://twitter.com/cRoadsPlatform)



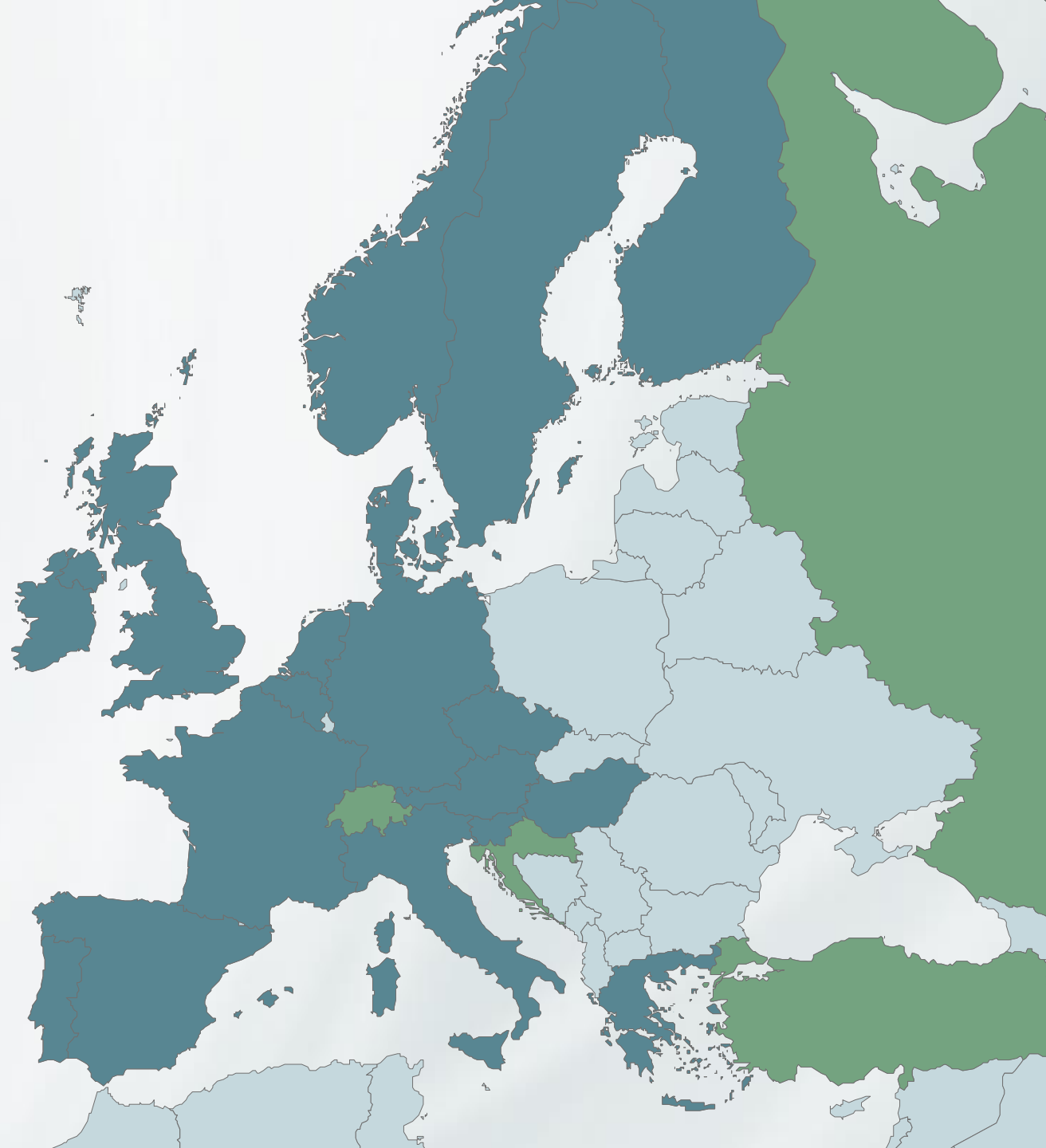
2016: Eight founding Member States

2017: Enlargement to 16 States

2019: Further enlargement to 18 States

Associated Members

- Croatia
- Israel
- New Zealand
- Queensland/Australia
- Russia
- Switzerland
- Turkey



Co-financed by the Connecting Europe
Facility of the European Union



43 European cities

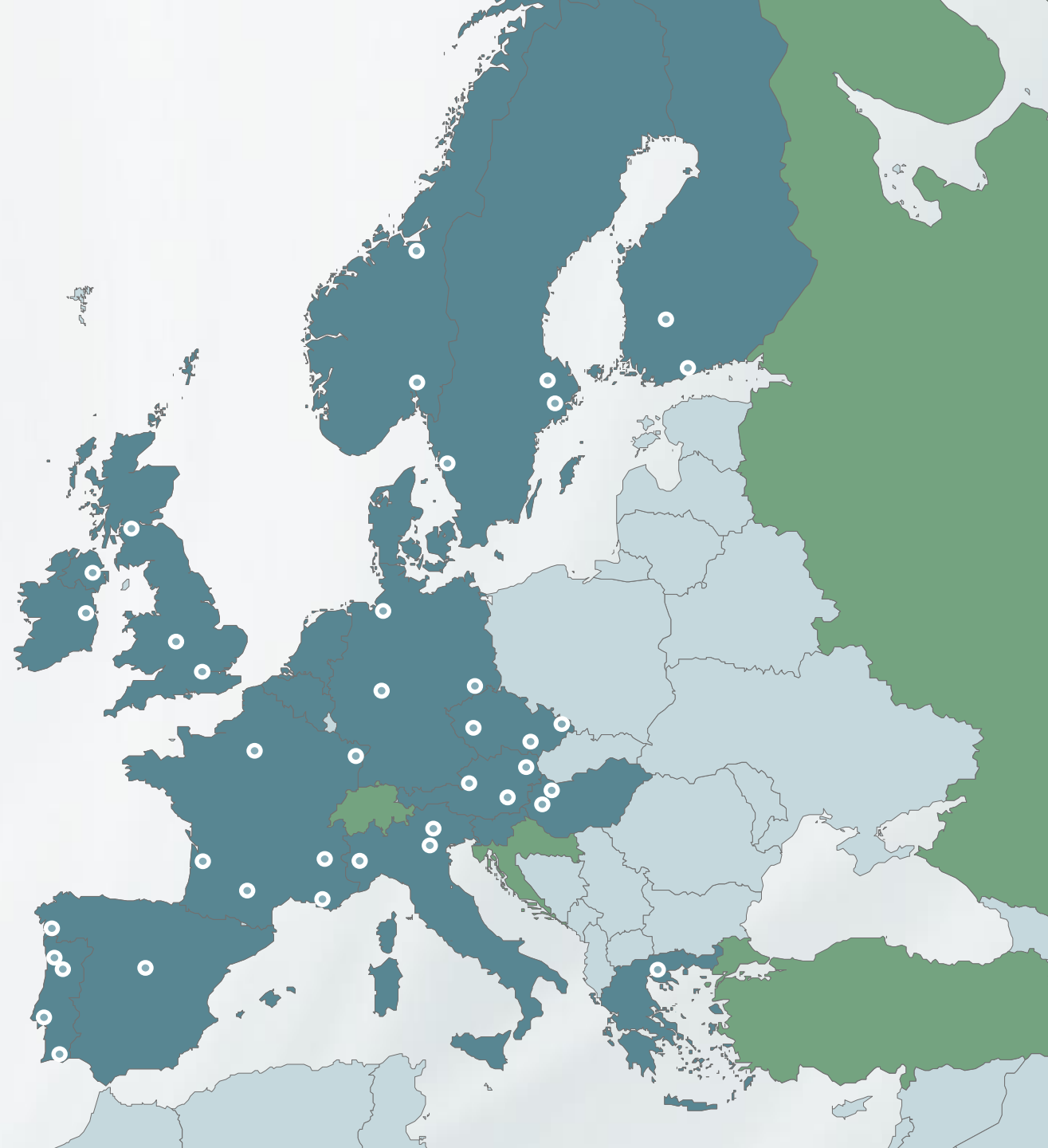
Starting with C-ITS deployment in urban areas

By 2020

6,000 km of European road sections
will be equipped with C-ITS equipment

By 2020

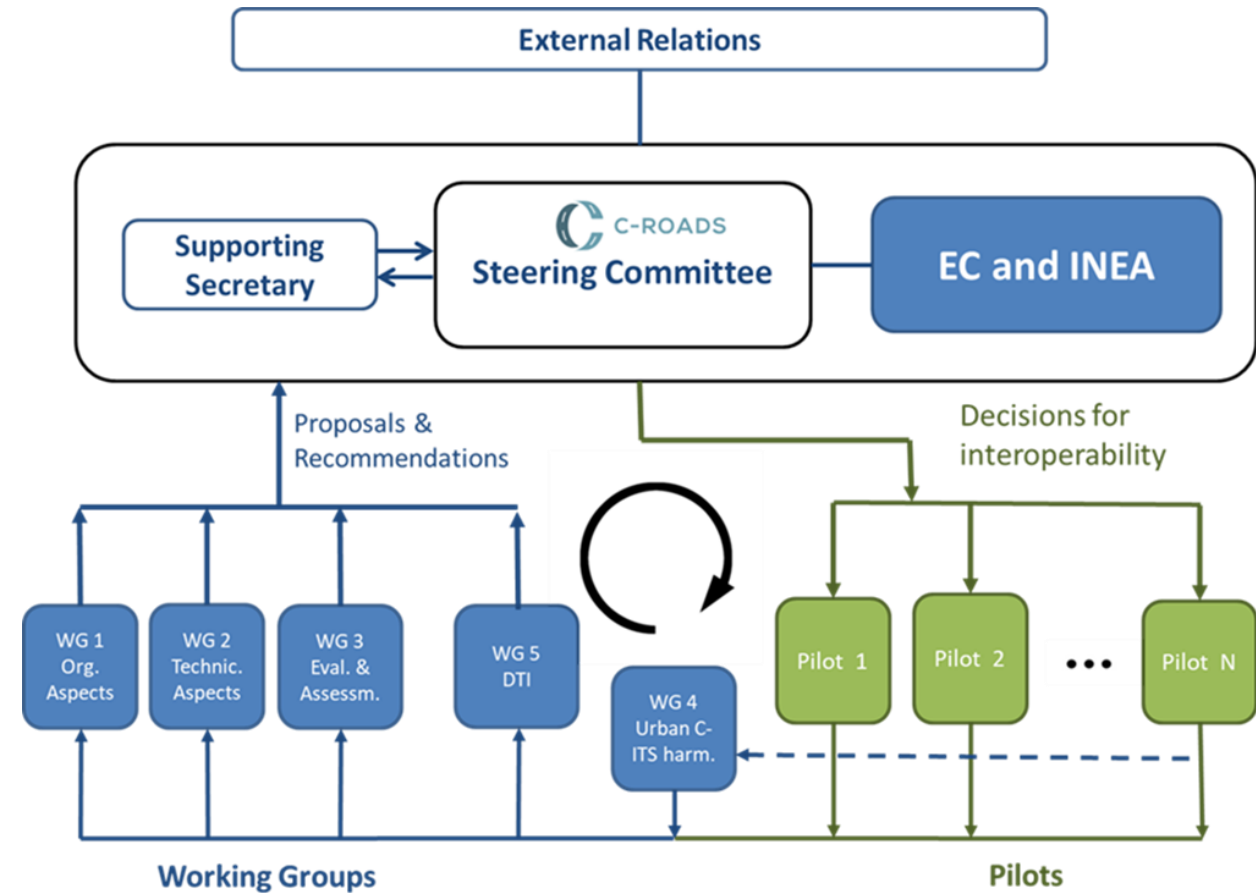
100,000 km of European roads in total
will be covered by C-ITS services



Co-financed by the Connecting Europe
Facility of the European Union

The aim of the C-Roads Platform

- linking all C-ITS deployments across Europe
- develop, share and publish common **technical specifications** (including the common communication profiles) – available at www.c-roads.eu
- planning intensive **cross-testing** to verify interoperability
- develop system tests based on the common communication profiles by focusing on **hybrid communication mix**, which is a combination of ETSI ITS-G5 and operational cellular networks.



Working together

- Ⓒ A Steering Committee, chaired by France
- Ⓒ A General Secretariat, chaired by Austria
- Ⓒ WG1 : Organisational aspects, chaired by the Czech Republic
- Ⓒ WG2 : Technical aspects, chaired by France
 - Ⓒ TF1 : Security, chaired by Germany
 - Ⓒ TF2 : Functional specs, chaired by the Netherlands
 - Ⓒ TF3 : Technical specs, chaired by Austria
 - Ⓒ TF4 : Hybrid, chaired by Sweden
 - Ⓒ TF5 : Cross-site testing and validation, chaired by France
- Ⓒ WG3 : Evaluation, chaired by Italy
- Ⓒ WG4 : Urban C-ITS, chaired by Portugal
- Ⓒ WG5 : DTI, chaired by UK

C-ITS Services in deployment

Day 1 C-ITS services list

Hazardous location notifications:

- Slow or stationary vehicle(s) & traffic ahead warning;
- Road works warning;
- Weather conditions;
- Emergency brake light;
- Emergency vehicle approaching;
- Other hazards.

Signage applications:

- In-vehicle signage;
- In-vehicle speed limits;
- Signal violation / intersection safety;
- Traffic signal priority request by designated vehicles;
- Green light optimal speed advisory;
- Probe vehicle data;
- Shockwave damping (falls under European Telecommunication Standards Institute (ETSI) category 'local hazard warning').

Day 1.5 C-ITS services list

- Information on fuelling & charging stations for alternative fuel vehicles;
- Vulnerable road user protection;
- On street parking management & information;
- Off street parking information;
- Park & ride information;
- Connected & cooperative navigation into and out of the city (first and last mile, parking, route advice, coordinated traffic lights);
- Traffic information & smart routing.

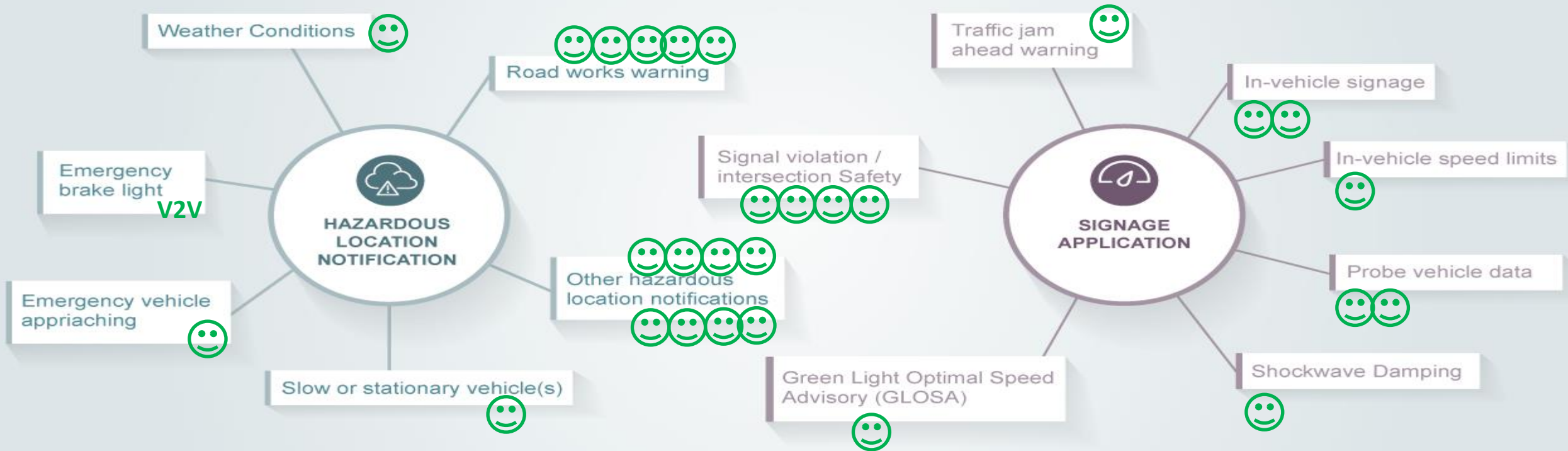


Brussels, 30.11.2016
COM(2016) 766 final

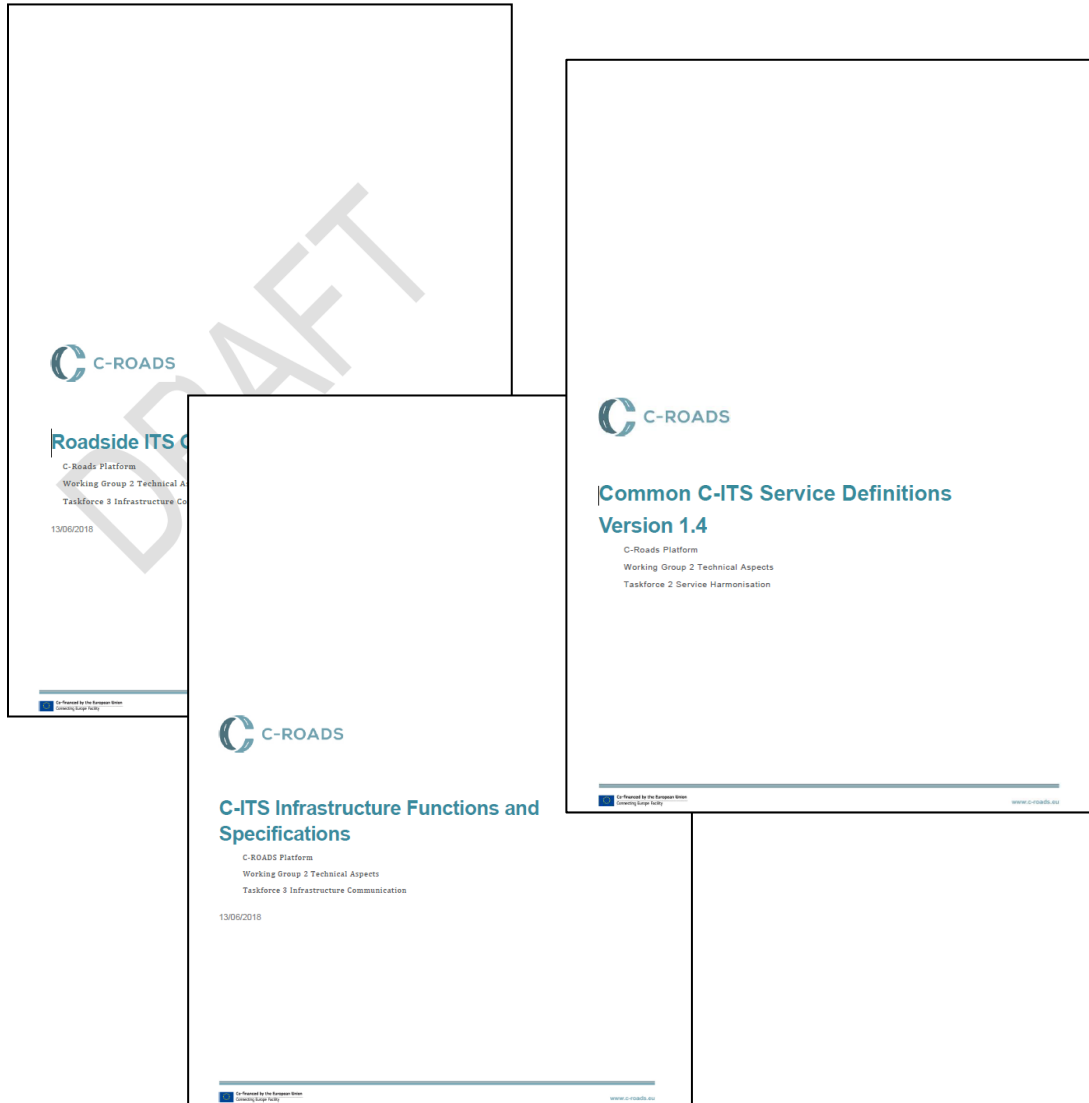
COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS

A European strategy on Cooperative Intelligent Transport Systems, a milestone towards
cooperative, connected and automated mobility

„Day 1 C-ITS Services“ – Published specifications

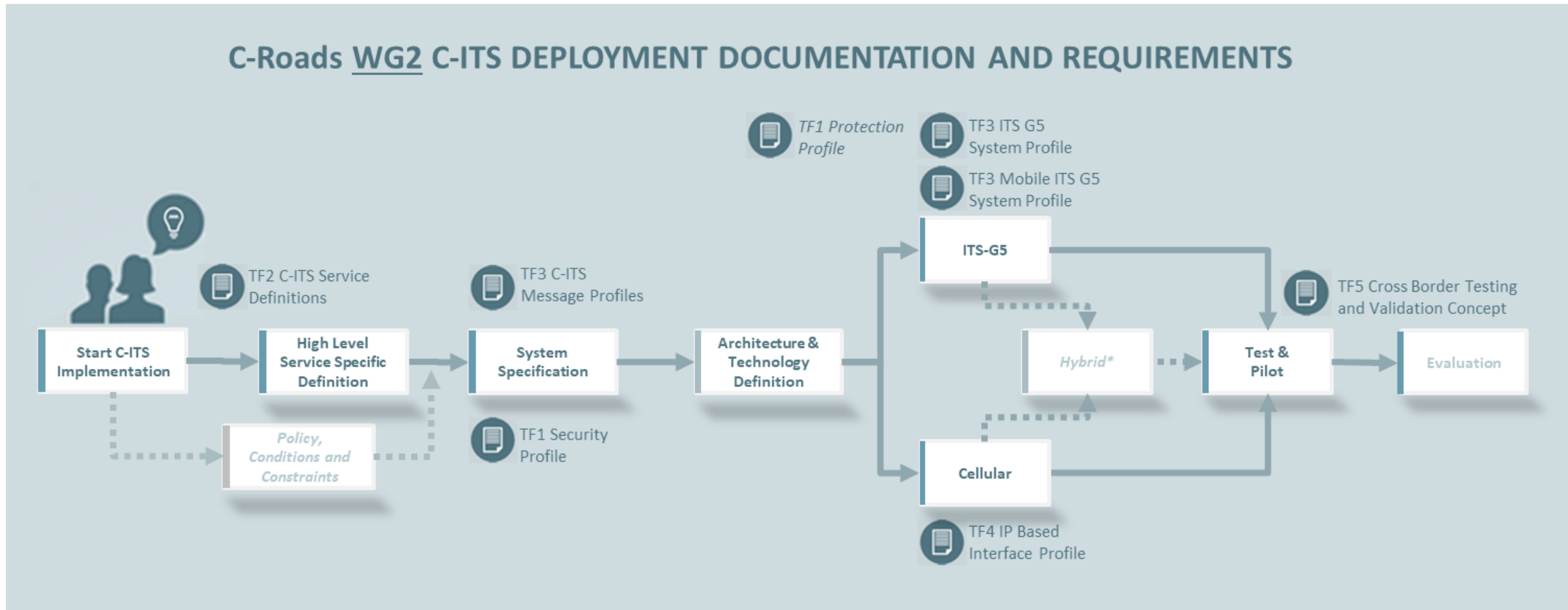


Publication of the Communication Profile



- Ⓒ Rel. 1.0 published on 14th of September 2017
- Ⓒ Rel. 1.1 published on 23rd of April 2018
- Ⓒ Rel. 1.2 published on 9th of July 2018
- Ⓒ Rel. 1.3 published on 23rd of October 2018 (harmonised with the Car 2 Car Communication Consortium)
- Ⓒ Rel. 1.4 published on 31st of January 2019
- Ⓒ Rel. 1.5 published on 8th of July 2019 – including the specification for interoperability of backend hybrid C-ITS communication
- Ⓒ Rel. 1.6 published on 6th of March 2020
- Ⓒ Rel. 1.7 published on 7th of August 2020 – includes the “Cross-Border Testing and Validation Concept”
- Ⓒ Available via www.c-roads.eu

C-Roads: Links between specification documents



Overview document inserted to guide through the common specifications

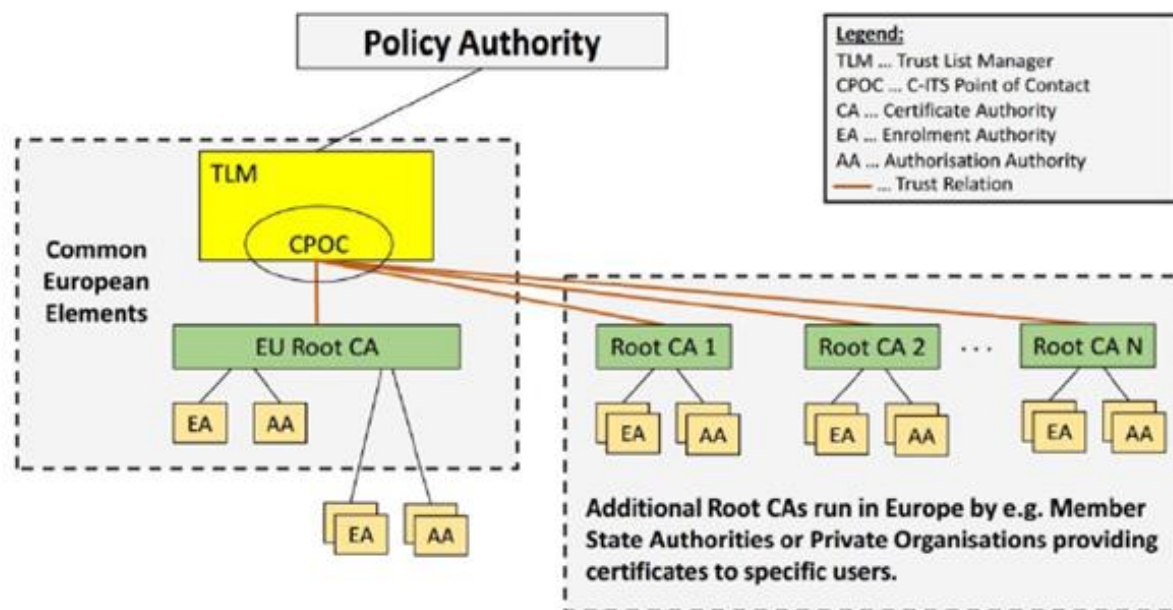
C-ITS based on a hybrid communication mix...

Short and long range communication complement each other:

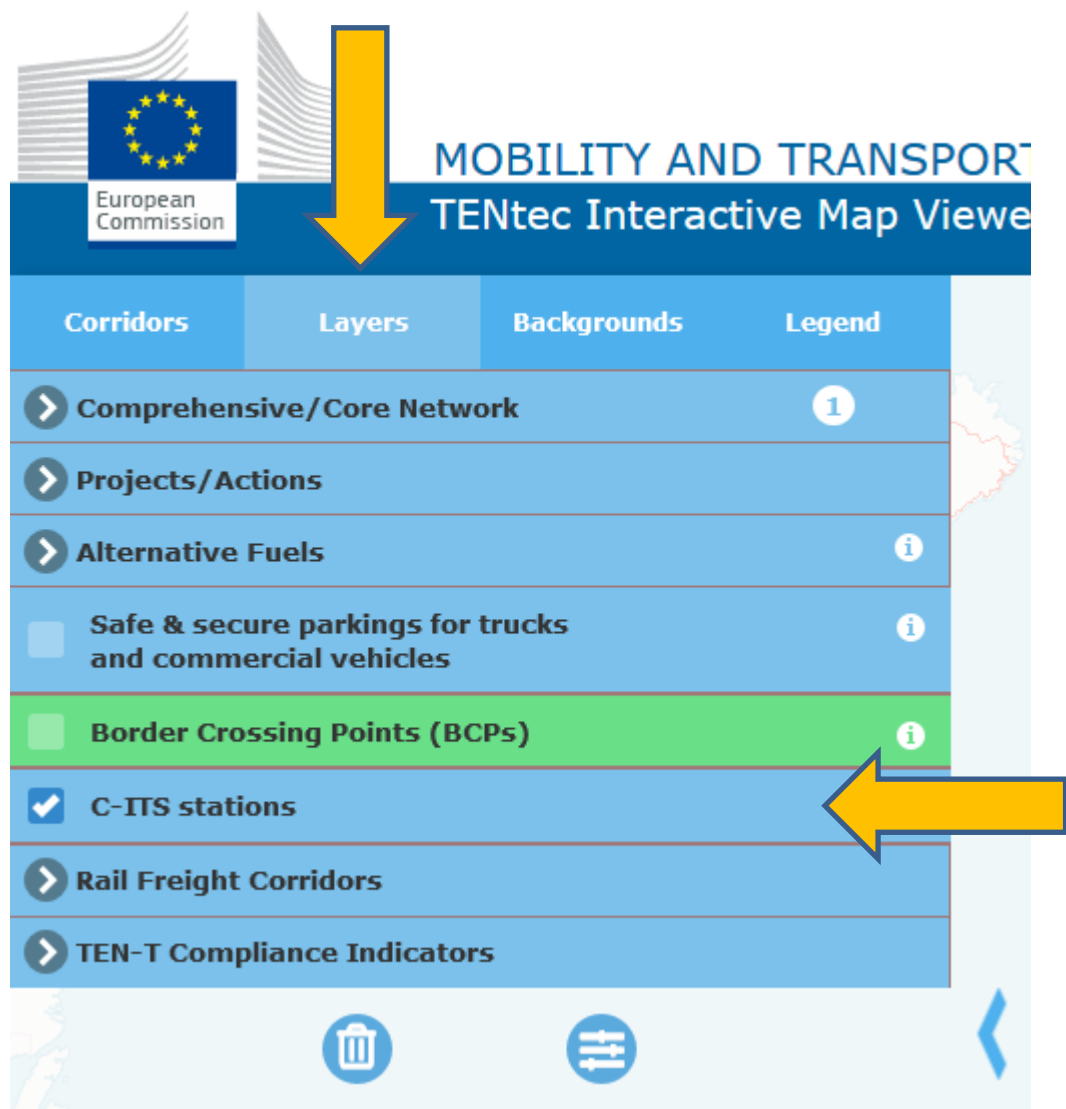


...and includes security as core element.

- with one single trust domain
- security elements for message transmission between C-ITS stations based on a PKI – Public Key Infrastructure
- Linking to the EU CCMS - EU C-ITS security credential management system



Current deployment status of ITS-G5 road side units

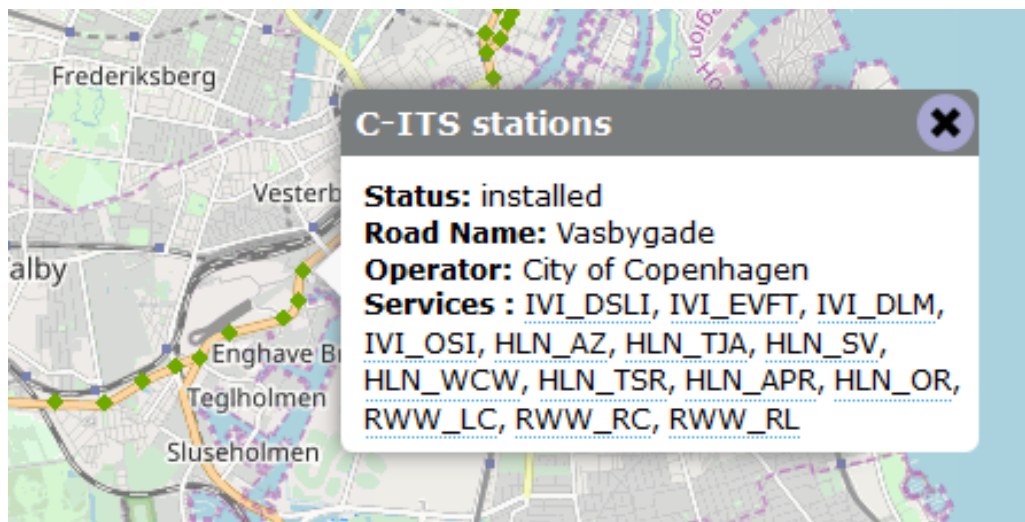


All active and running C-ITS RSUs can be identified on the TENtec Interactive Map Viewer:

<https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/map/maps.html>

Will be updated on a quarterly basis

Current deployment status of ITS-G5 road side units



Hosted by the European Commission and holding data from the single road operators:

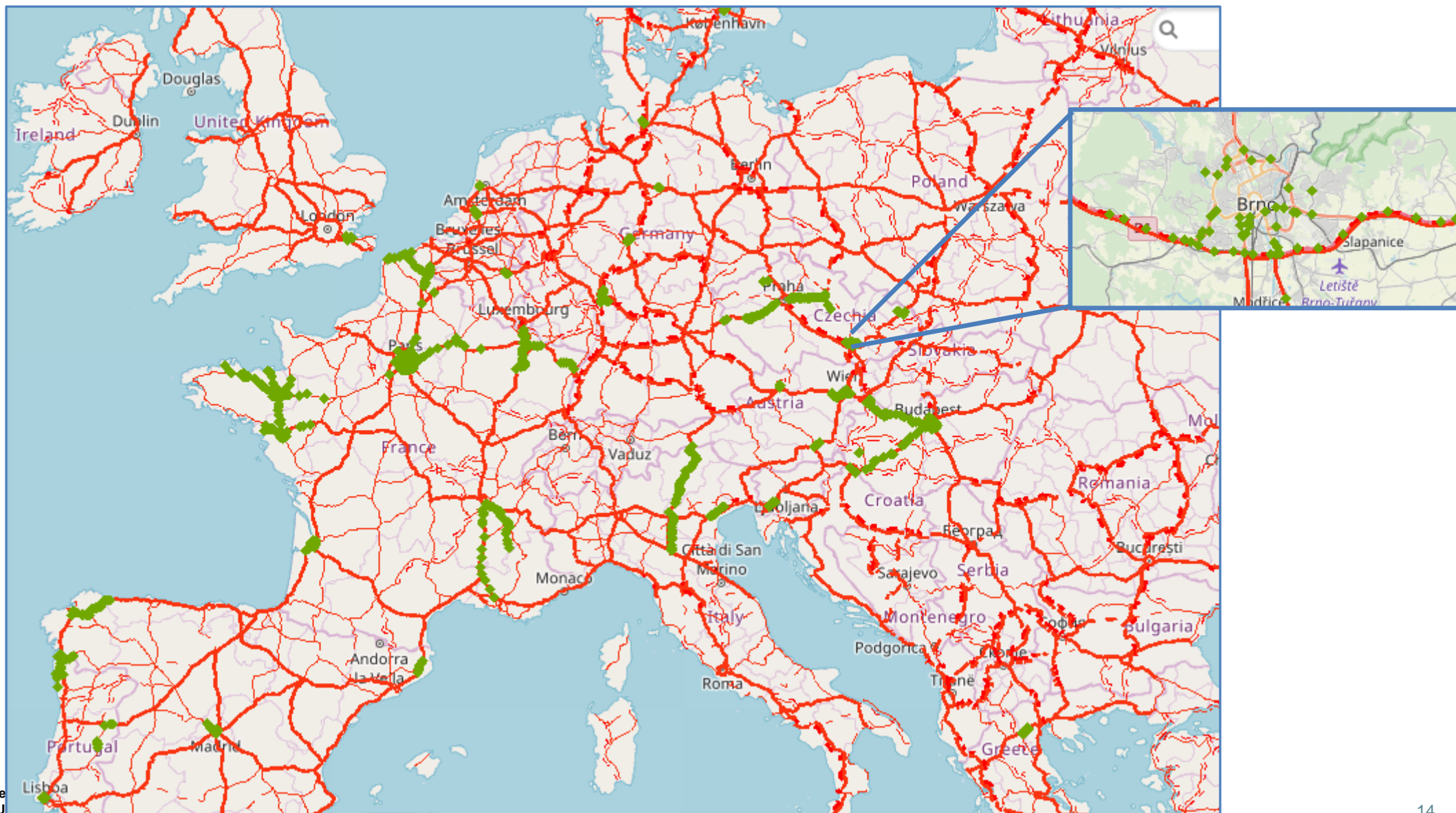
 Road name / number

 Status

 Operator (RSU owner)

 Service(s) offered

Current deployment status of ITS-G5 road side units



- Ⓒ Continuous procurement all across Europe
- Ⓒ First C-ITS services operative

- Ⓒ Enlargement of the C-Roads Platform with new Member States
- Ⓒ Inclusion of further City Authorities and linkage with urban platforms
- Ⓒ Definition and Inclusion of future C-ITS services supporting
 - Ⓒ Urban C-ITS services, e.g. public transport, vulnerable road users, parking
 - Ⓒ automated functions in vehicles
- Ⓒ Strengthening existing cooperation (C2C CC, ASECAP ...)

- Ⓒ C-ITS Roadshow (#SafeRoadsToday) planned for 4th of June 2021 as hybrid event in Brno (in conjunction with the URBIS smart city fair)



THANK YOU!

Martin Boehm

martin.boehm@austriatech.at



Co-financed by the Connecting Europe
Facility of the European Union

www.c-roads.eu | [@cRoadsPlatform](https://twitter.com/cRoadsPlatform)