DATEX II

Applying DATEXII

In your operational context

Paal Aaserud

6TH FORUM
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Overview

- DATEX is the electronic language used in Europe for the exchange of traffic information and traffic data.
- DATEX was developed because of the need for data exchange (DATEX) of traffic related information between traffic centers and road operators.
- The development of DATEX was initiated in the early 90s as DATEX I and from the millennium it became DATEX II.
- DATEX II 3.x is latest version of the standard and is bound to European Transport Policy, in line with the ITS Action Plan of the European Commission.

DATEX II

CEN - Standard

DATEXII v3.x is a multipart CEN - standard with the following parts:

- 16157 – 1 v3.0 : Context and framework (EN)
- 16157 – 2 v3.0 : Location Referencing (EN)
- 16157 – 3 v3.0 : Situation Publication (EN)
- 16157 – 4 v3.1 : VMS Publication (Final approval process EN)
- 16157 – 5 v3.1 : Measured and elaborated data publications (EN)
- 16157 – 6 v3.2 : Parking Publication (Alignment to APDS)
- 16157 – 7 v3.0 : Common data elements (EN)
- 16157 – 8 v3.1 : Traffic management publications (TS) and extensions dedicated to the urban environment
- 16157 – 9 v3.1 : Traffic signal management publications (TS) dedicated to the urban environment
- 16157 – 10 v3.2: Energy infrastructure
- 16157 – 11 v3.2: Management for Electronic Traffic Regulations METR

DATEX II model

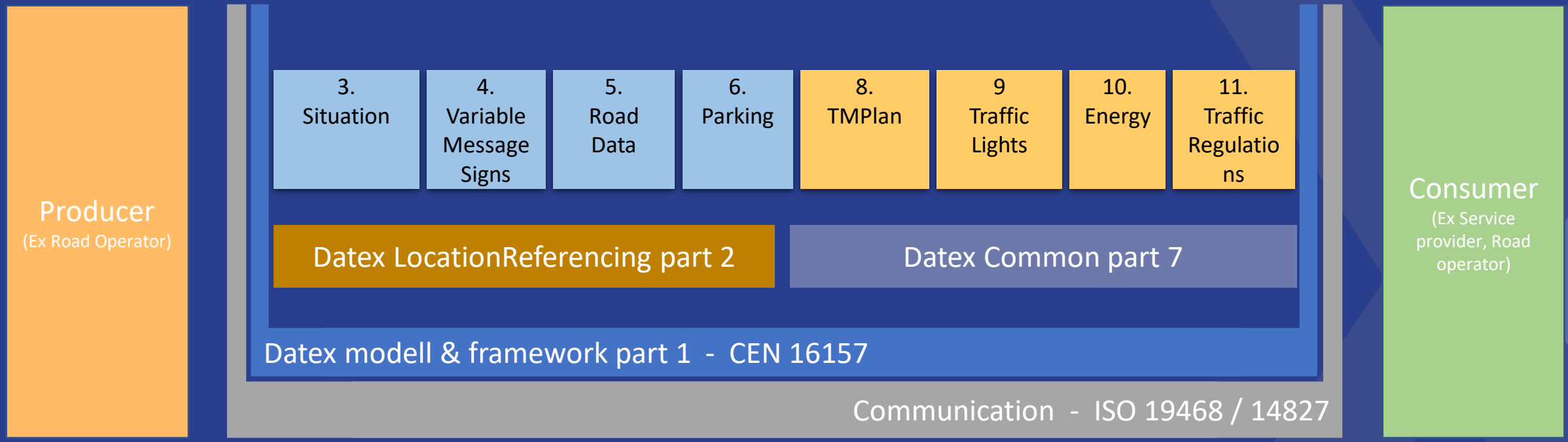
- DATEX II consist of an information model, which in simple terms model the information content to be transferred between two or more parties.
- DATEX II is using a formal modelling language (UML), that will prevent the different parties from misunderstanding the information content.
- The different parts in the DATEX II standard, make up the different information packages that a payload of information content can consist of.
- DATEX II can be extended to further needs and has an own process for making extension as a future part of the standard.
- The DATEX information content, as “what” you want to publish, are specified separately from the exchange protocols, as “how” you technically transfer the information, allowing flexible use of the content specifications with any defined exchange protocols. Version 3.x will align against such standards from ISO TC/204.

DATEXII - National Access Points

- Member States are setting up their National Access Points; to facilitate access, easy exchange and reuse of transport related data, in order to help support the provision of EU-wide interoperable travel and traffic
- NAP can take various forms, such as a database, data warehouse, data marketplace, repository, and register, web portal or similar depending on the type of data concerned and provide discovery services, making it easier to fuse, crunch or analyze the requested data sets.
- Adopted under directive Directive 2010/40/EU. Many of the priority areas and services mentioned in the directive are covered by DATEX II.

DATEX II

DATEX II model



DATEX II

Stakeholders

- Road operator
  Responsible for handling incidents on the road network, in collaboration with emergency services and publish relevant traffic information on DATEXII. Can also publish end user services ex through a website.
- Service provider
  Will consume data published on DATEXII and make domain specific tailored services for the end user.
- End user
  Use services from a service provider, ex websites, integrated map solutions in cars or handheld devices like a smartphone, pads etc.

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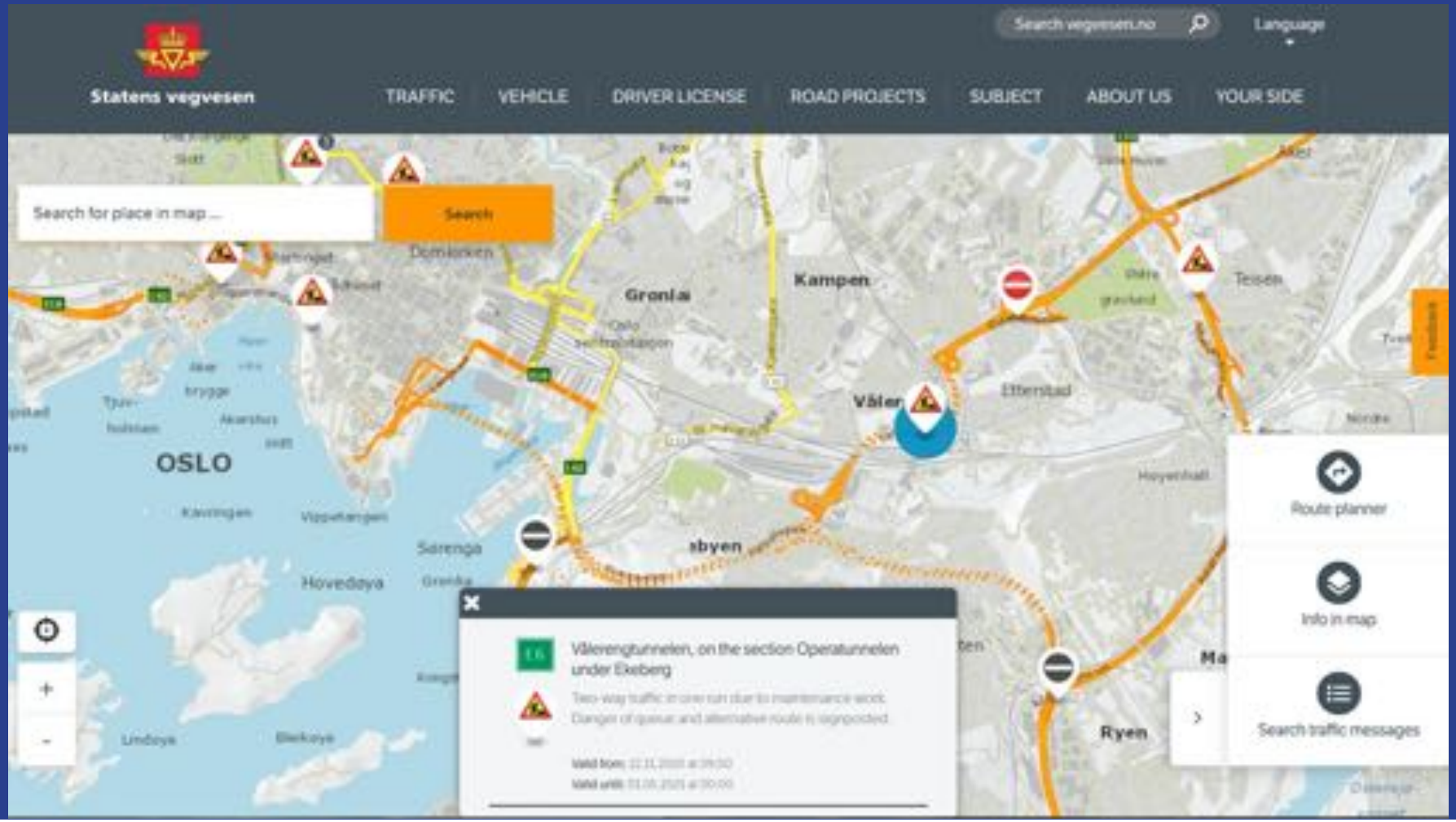
DATEX II – Road operator, Situation



- Official traffic information from road operator (NPRA), based on DATEXII - Situation part 3.
- Map is showing the traffic situation registered by road operator.
- Symbols with color are active incidents, and grey symbols are future incidents.

DATEX II

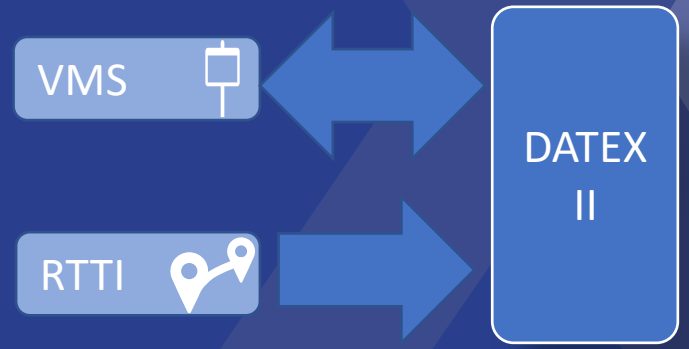
DATEX II – Road operator, Situation

- Internal TMC-client based on DATEXII - Situation part 3.
- Map is showing the traffic situation, registered by the road operator in DATEXII format both for Norway and Sweden.

DATEX II

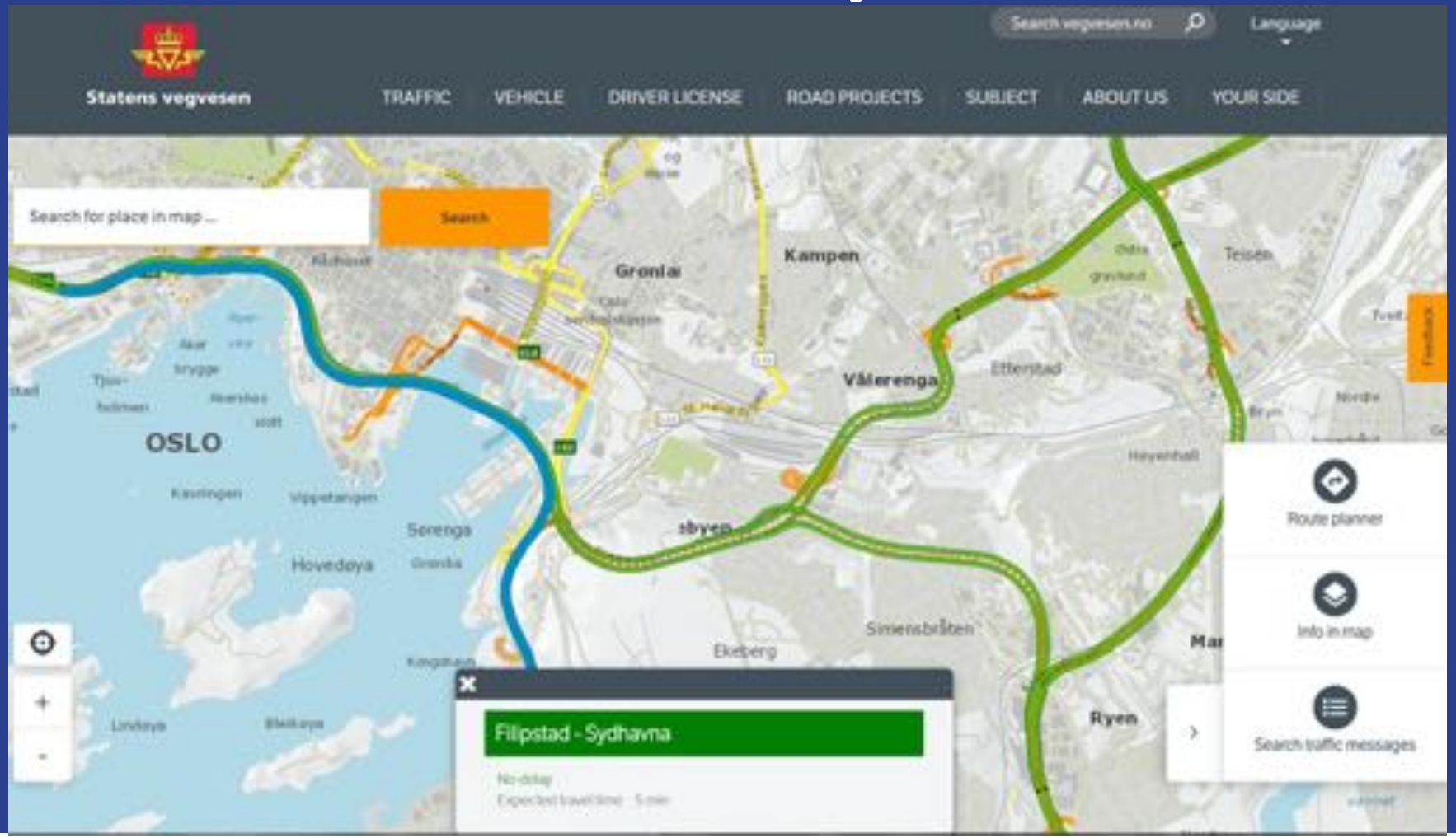
DATEX II – Road operator, VMS

- Internal TMC-client based on DATEXII - Variable Message Sign (VMS) part 4.
- Map is showing VMS-signs in urban area of Oslo.



DATEX II

DATEX II – Road operator, RoadData



- Official traffic information from NPRA based on DATEXII - Measured and elaborated data part 5.
- Map is showing travel times in urban area of Oslo based.

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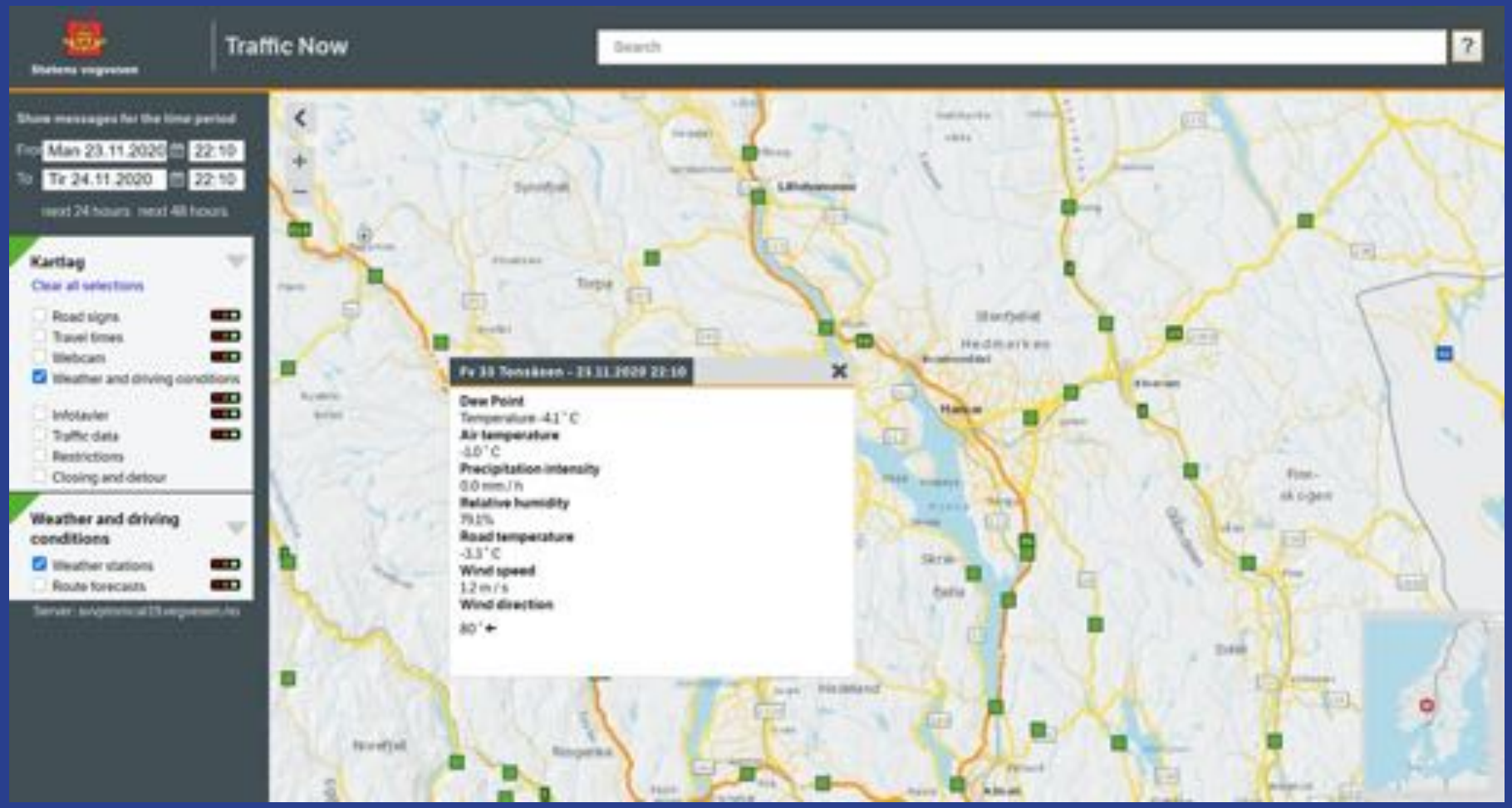
DATEX II – Road operator, RoadData



- Client is based on DATEXII - Measured and elaborated data part 5.
- Map is showing weather stations and observations from Norway.

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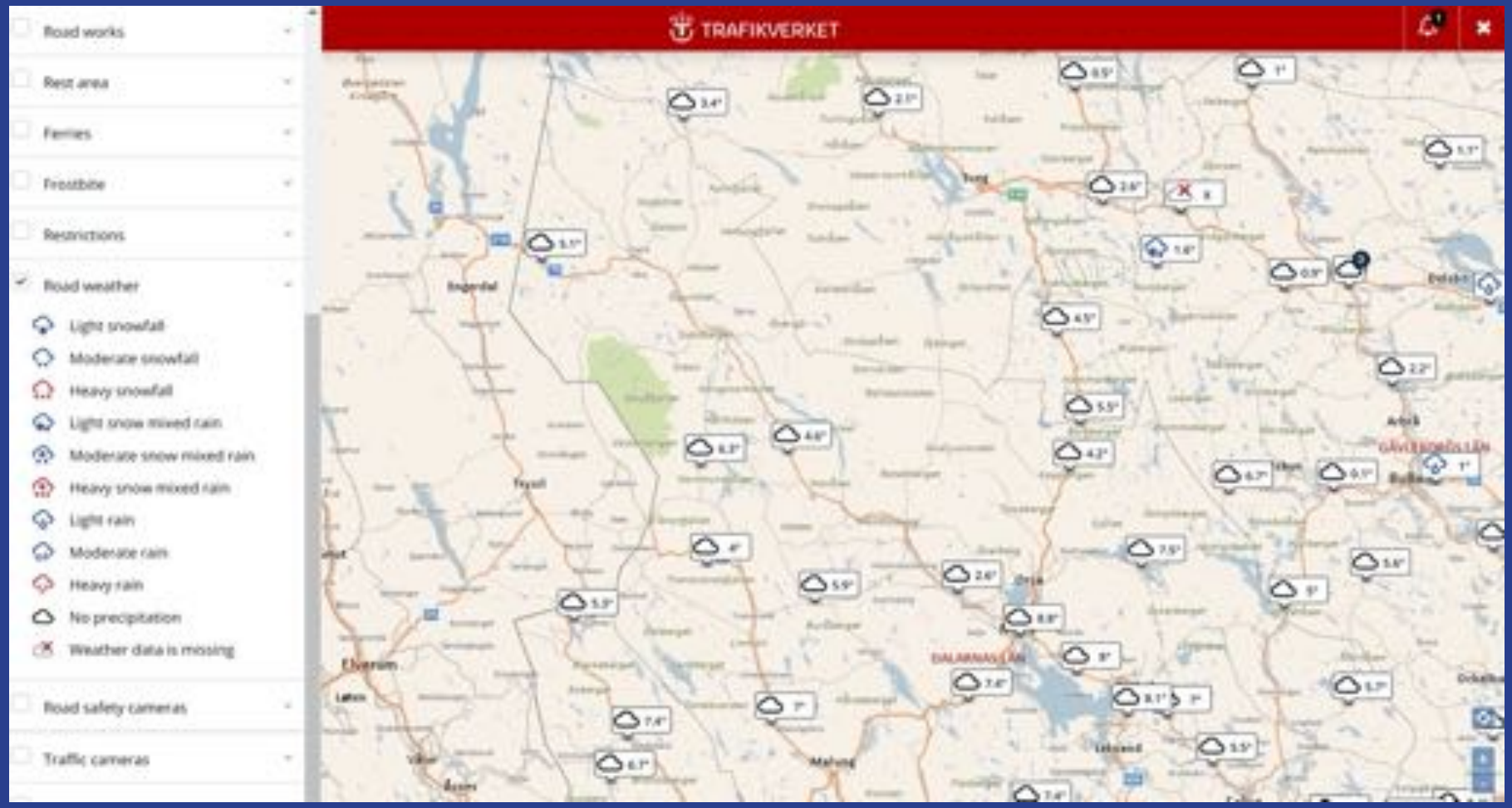
DATEX II – Road operator, RoadData



- Client is based on DATEXII - Measured and elaborated data part 5.
- Map is showing weather stations and observations from Sweden.

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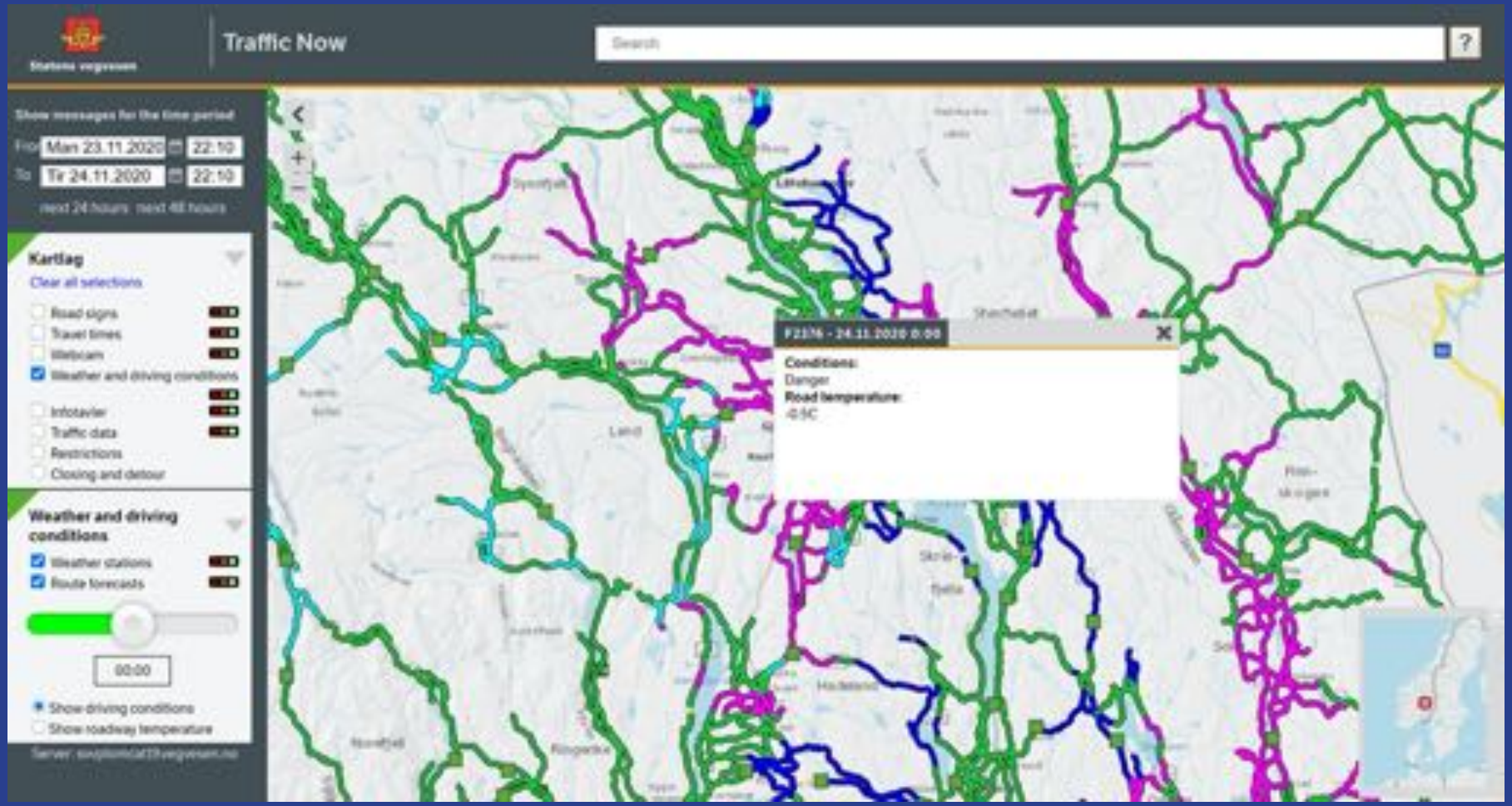
DATEX II – Roadoperator, RoadData



- Internal TMC client based on DATEXII - Measured and elaborated data part 5.
- Map is showing road weather forecast +4 hours.

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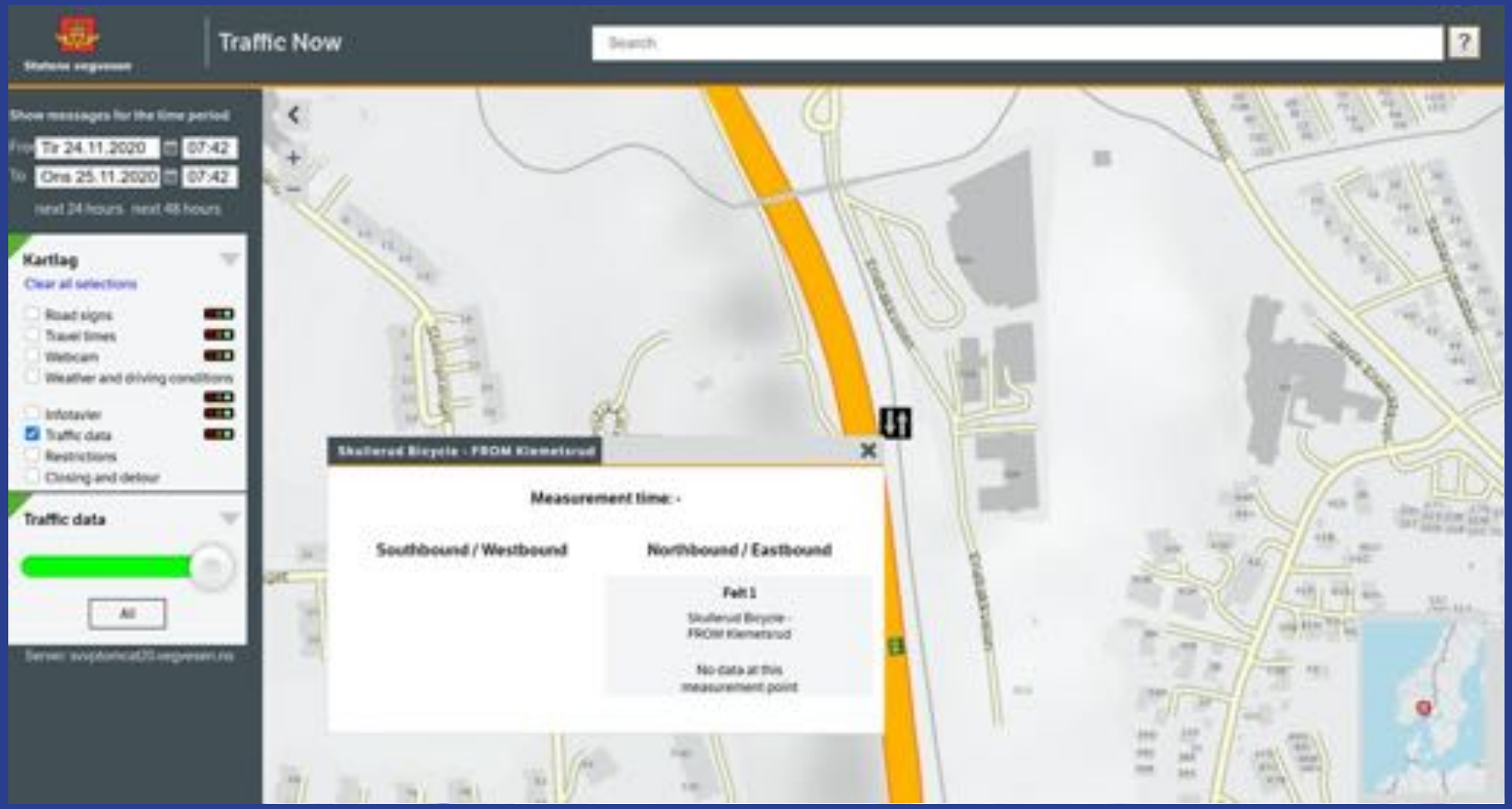
DATEX II – Road operator, RoadData



- Internal TMC client based on DATEXII - Measured and elaborated data part 5.
- Map is showing traffic data through average speed and number of vehicles and bicycles.

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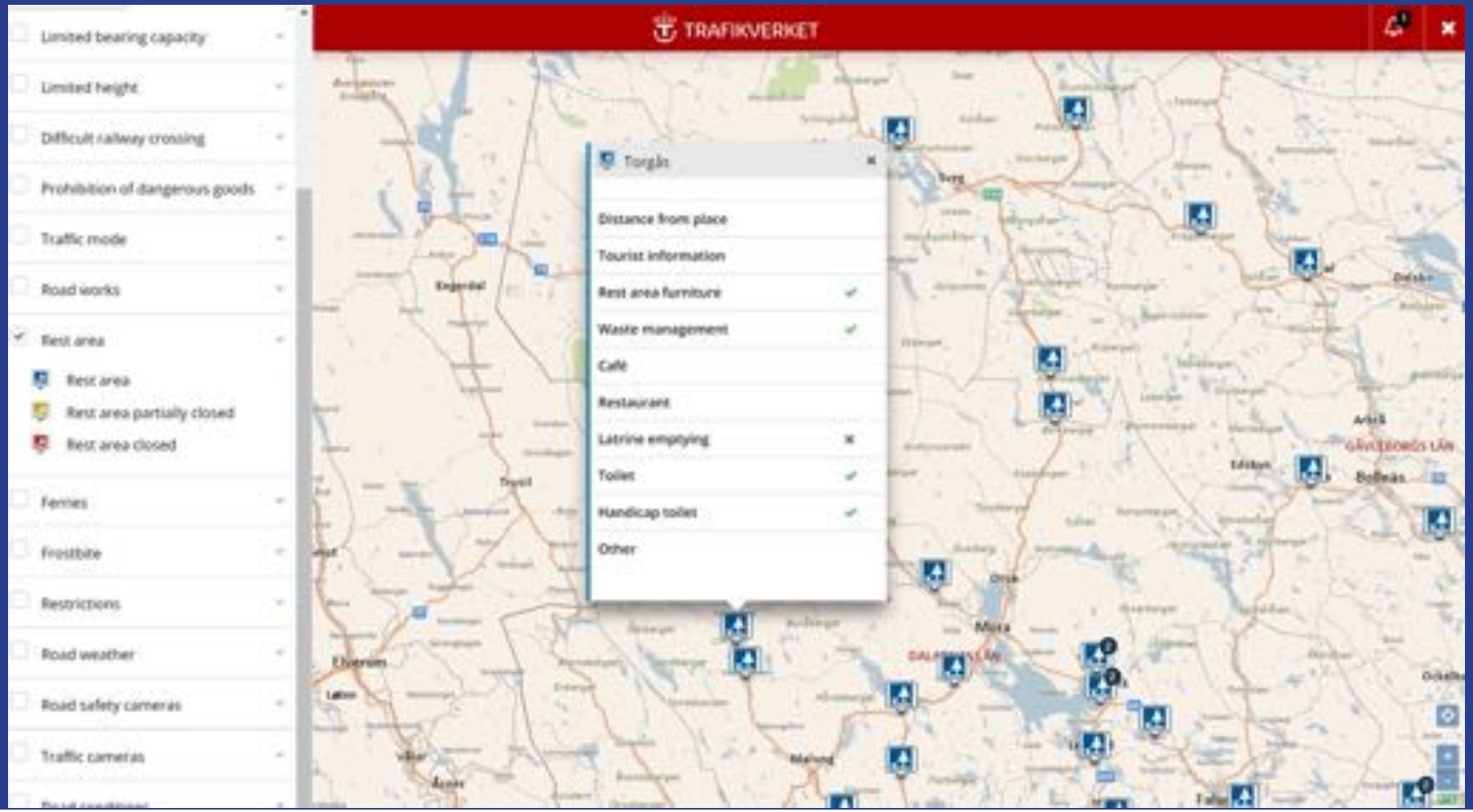
DATEX II – Road operator, Parking



- Client is based on DATEXII – Parking publication part 6.
- Map is showing resting areas from Sweden.

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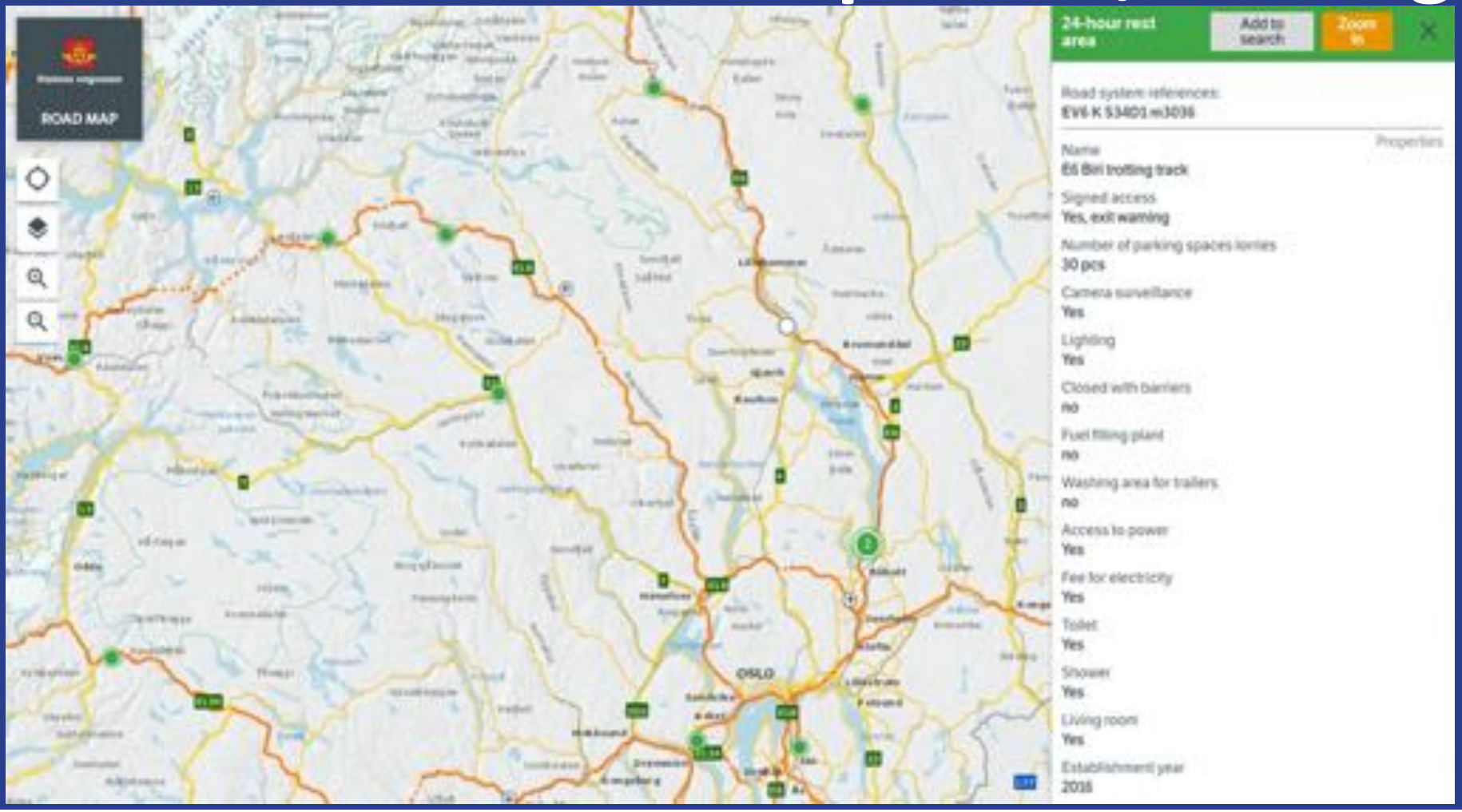
DATEX II – Road operator, Parking



- Map is showing 24H resting areas specific for trucks from NAP in Norway, similar data can be published using DATEXII – Parking publication part 6.

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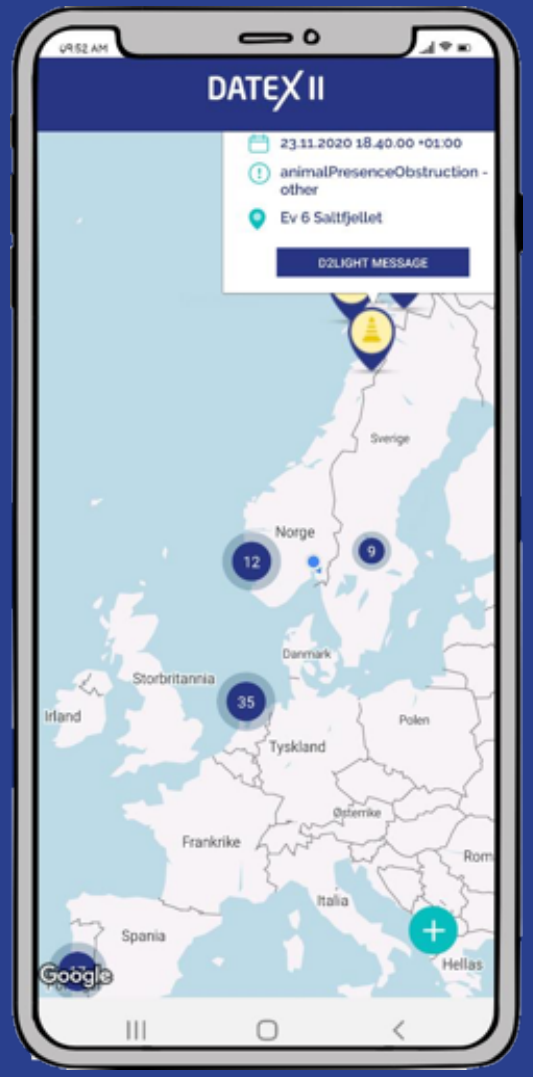
DATEX II - Light



- DATEXII Light is actually a simplified version of the DATEXII information model.
- An app has been developed to demonstrate this simplified version as an end user alternative.

To temporarily get a taste of what D2Light can be used like, scan the QR-code above on your mobile phone to get the D2Light app

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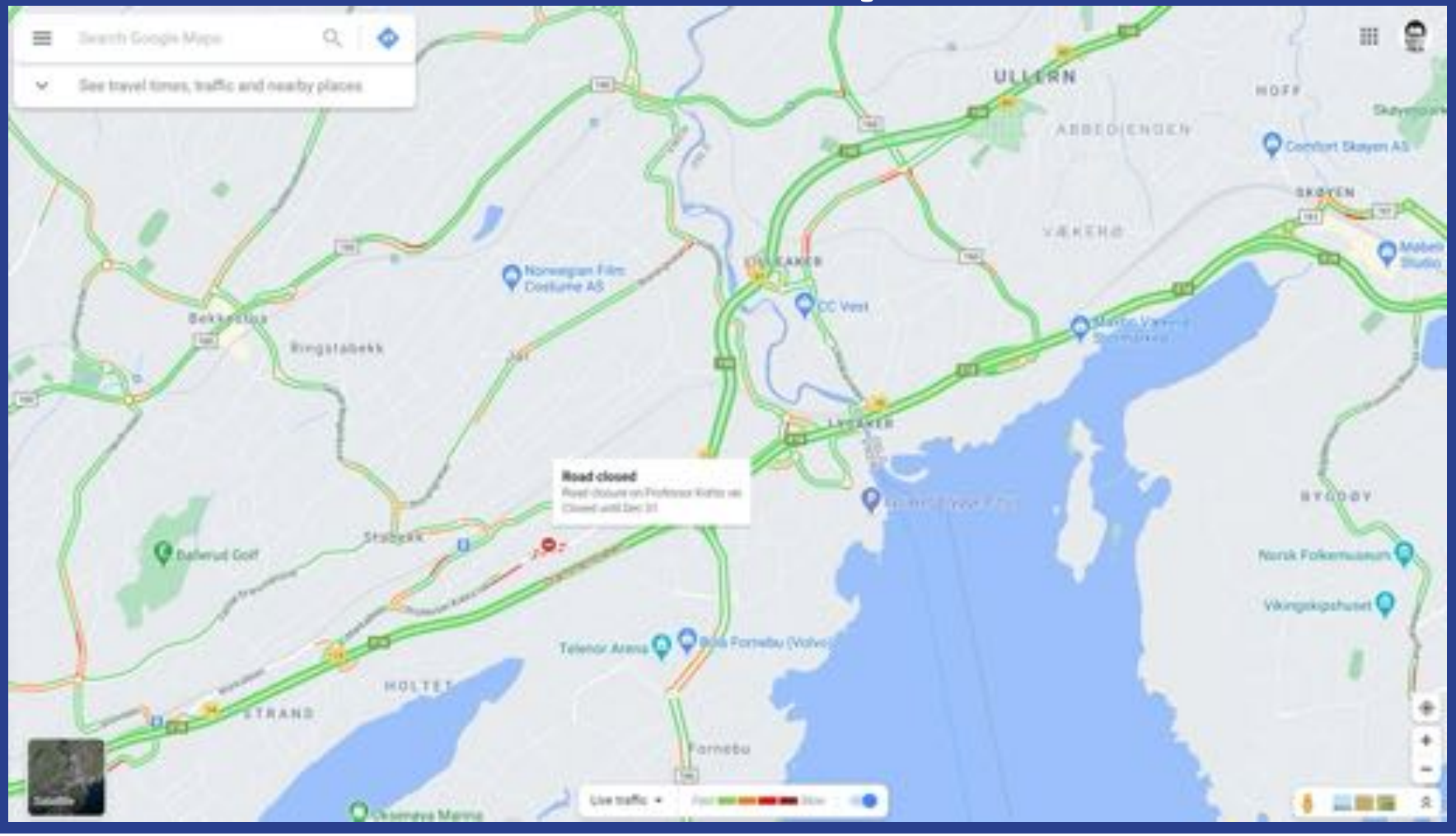
DATEX II – Service providers



- Google Maps – traffic information.
- Map is showing road closures, based on DATEXII - Situation part 3.
- Map is showing travel times from Google.

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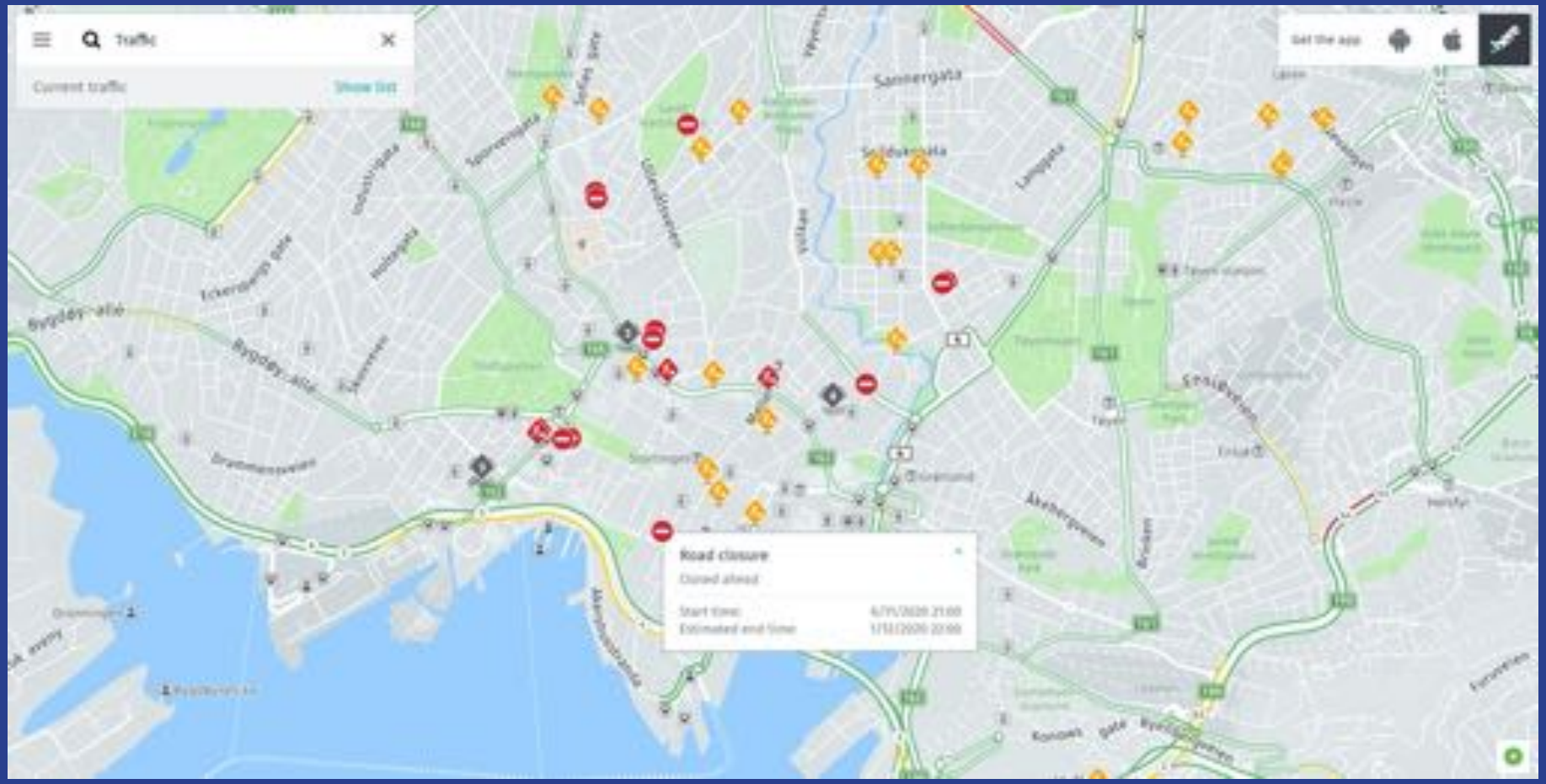
DATEX II – Service providers



- HERE We Go- traffic information.
- Map is showing road closures, based on DATEXII - Situation part 3.
- Map is showing travel times from HERE.

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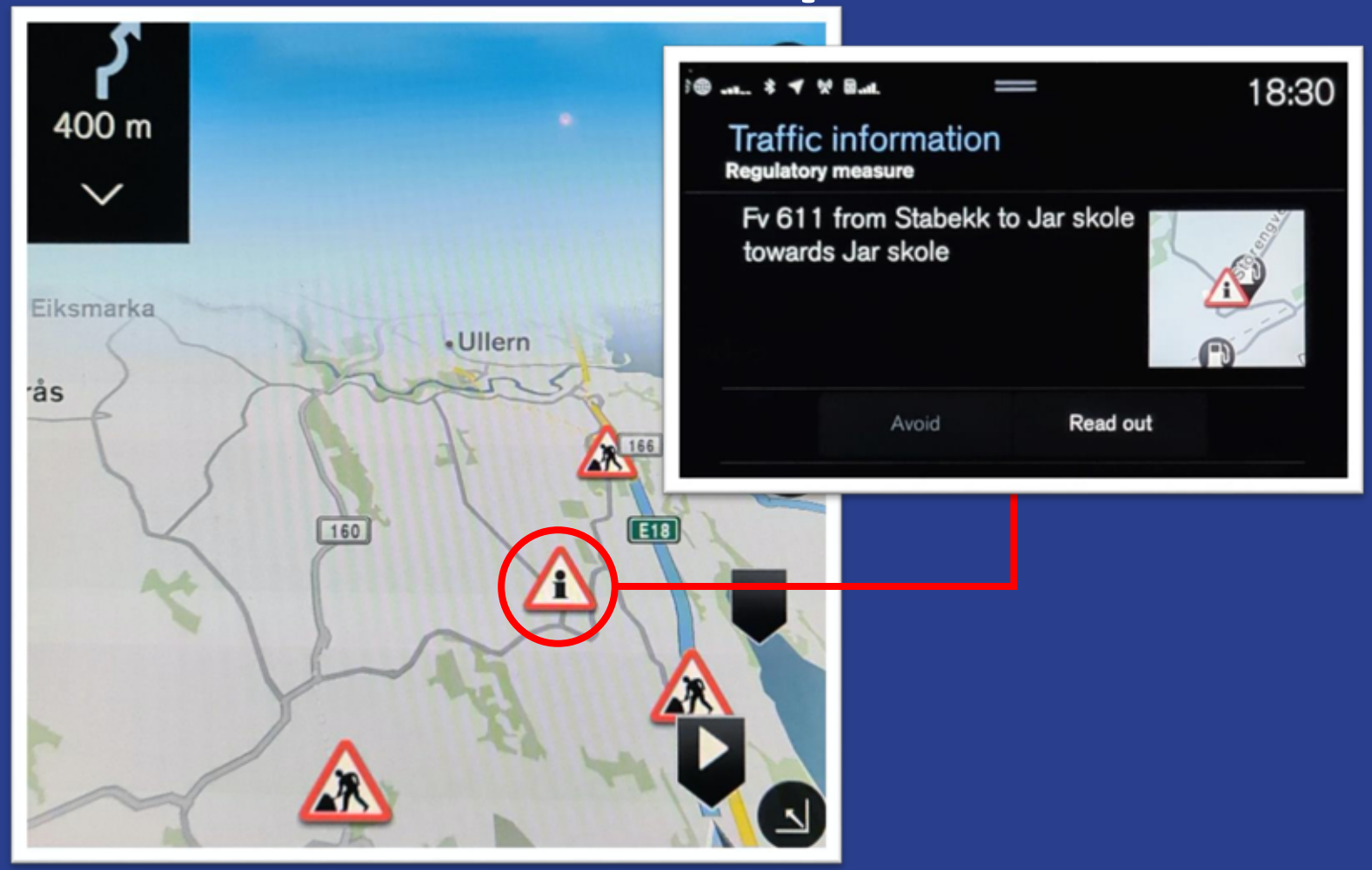
DATEX II – Service providers



- Volvo infotainment.
- Map is showing situation based on distribution from Inrix.

DATEX II – New parts

16157 – 8 Traffic management publications (TS) urban environment

- Managing traffic around events, or recurring heavy traffic conditions in an area, is often based on a set of traffic management actions in a coherent way, which has been prepared by traffic engineers upfront. Like closing a tunnel with bars, wigwags and vms turn in order to establish a reroute if available.

16157 – 9 Traffic signal management publications (TS) urban environment

- The traffic light status publication is providing the traffic light fase schedules of each and every traffic-light setting one can think of.

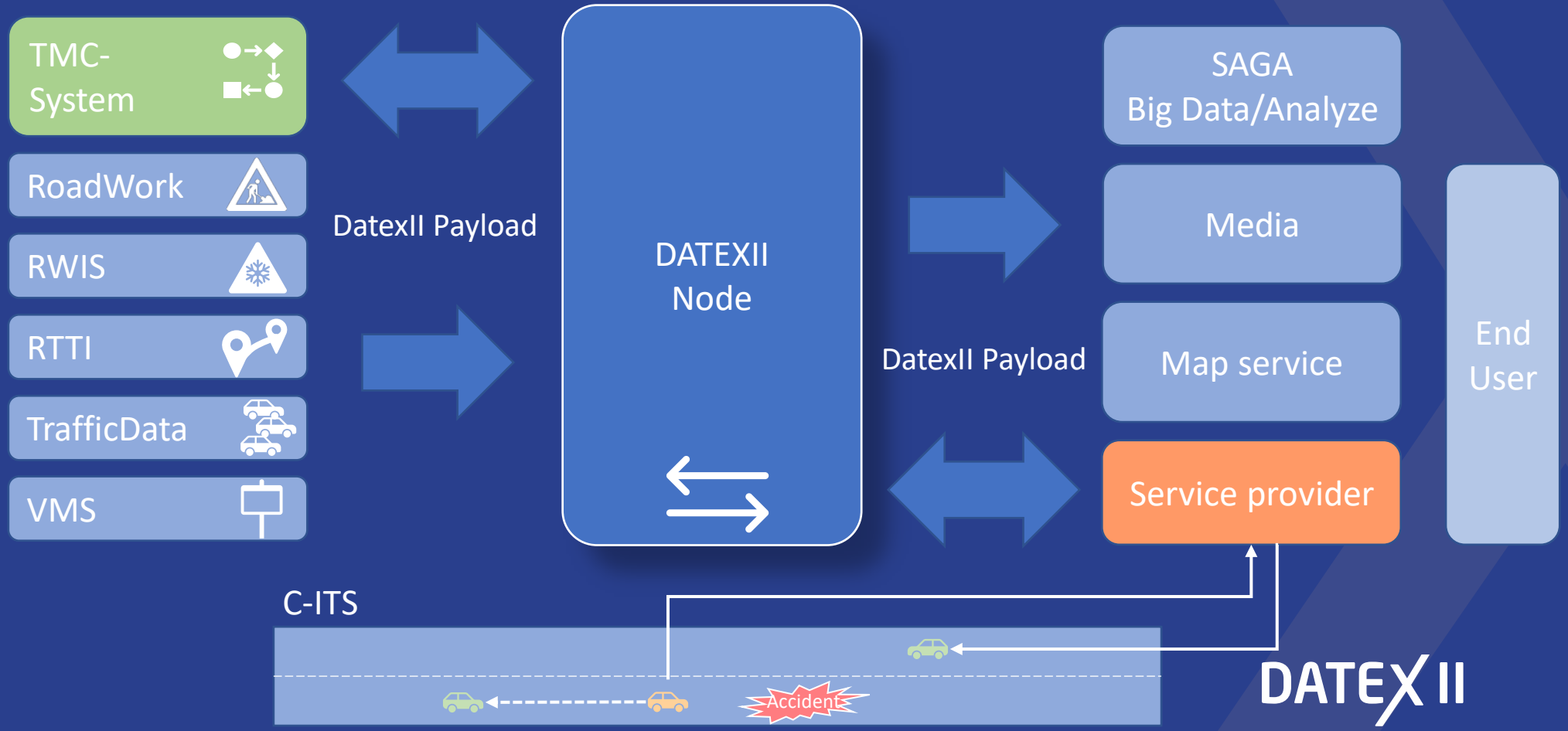
16157 – 10 Energy infrastructure

- This publication aims at publishing charging points, charge type, charge capacity for electro mobile vehicles.

16157 – 11 Management for Electronic Traffic Regulations

- The traffic regulation provides support of the formal digitalisation of traffic regulation orders, both dynamically as longer lasting. It does not encode road-traffic laws, just the impact of traffic signs restricting or altering the default use of a road. This is focused on the development of the METR-ecosystem and more specifically on enabling automated driving.

DATEX II in TMC



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Thank you for your attention

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