TEST SITE METROPOLITAN AREA AMSTERDAM

Practical Trial Amsterdam

Workshop 17 – 18 January 2018, Athens

Co-financed by the European Union
Connecting Europe Facility

Initiatief bij 6 organisaties:

- Operational roll-out through companies: 38 members
- Telco network operators: Deutsche Telekom, Eurofiber, KPN, Orange, Play, Post Luxembourg, Proximus, Vodafone, Telefonica, Telecom Italia, Telenor
- Telco suppliers: Nokia, Huawei, Ericsson
- Automotive OEMs: BMW, DAF, Daimler, Fiat Chrysler, Ford, Hyundai, Iveco, Jaguar Land Rover, Opel, PSA, Renault, Toyota, Volkswagen Group, Volvo Cars, and Volvo Group
- Automotive suppliers: Autoliv, Bosch, Kapsch, Continental, Denso, Delphi, Hella, Valeo

Associated partners

- Member States: DE, NL (RWS), ES, FR, BE
- Industry: CRF, Ford, Hyundai, PSA, Renault, Bosch, Deutsche Telekom, Eurofiber, KPN, Orange, Vodafone, Telefonica, Nokia, Huawei, Ericsson, NXP, ICCS, CTAG, iMec, KU Leuven
- Associated Industry: BMW, Daimler Toyota , VW, Autoliv,Continental, Denso, Kapsch
- Projectmanagement en Trekker: Ertico

EATA pad

	Use cases	Communication Technologies	Sites
STEP1	Enabling services for - Highway chauffeur (L2/3) - High density truck platooning	Pre Deployment: - hybrid communication : LTE, ITS G5 + LTE V, Mobile Edge Computing applications - Network slicing - LTE Broad casting: GNSS offset, hazards and HD-map updates Studies : business models responsibilities, safety concepts, Quality of service, Security and data protection Regulation and standardization	20..40 km tracks DE, FR,NL, ES, BE 
STEP2	As step 1 + Valet parking	Application above technologies and studies + 5G radio + Evaluation relative localization	Cross border motorways networks 
STEP3	As step 2 Automated driving	Deployment	Commercialisation on AD authorized motorways

Importance of dialogue and partnership with member states, C-ROADS and regions

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Aanleiding

“The European automotive and telecommunications industries wish to initiate and execute a public-private, co-financed, large-scale and cross-border pre-deployment project for connected and automated driving.”;

Doelstelling

As such the overall objective of the project is to address the practical, organizational and technical challenges faced due to the additional layer of complexity introduced by connected and automated vehicles.”

1.To assess the readiness of existing national C-ITS testbeds and C-ITS equipped roads to accommodate highly automated driving tests in real traffic situations, and to detail and recommend upgrades

2. To integrate, test and validate required technologies in support of the pre-deployment of set. Services, in light of the identification of gaps and recommended transition paths;

3. To test or simulate connected and automated functionalities in real-life circumstances to better understand and assess impacts on infrastructure requirements, network balancing, traffic safety and efficiency etc , in light of improving the digital infrastructure required and of paving the way for agreements, wider deployment and effective rule-making, if required;

4.To design, execute and evaluate a series of performance and interoperability tests, to feed discussions ongoing in a.o. C-ITS platform and C-Roads working groups

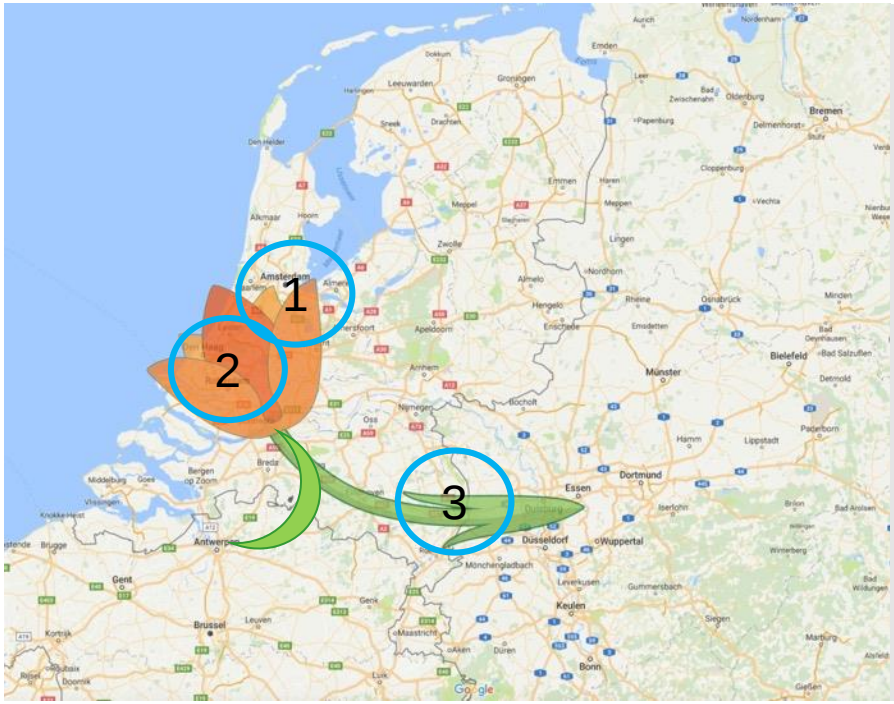
5.To set up an automated driving (test bed) guidance document describing best practices, methodologies and testing checklists

6.To contribute to and enhance a shared road-map for a European-wide implementation of CITS and autonomous functionalities

ACTIVITY NL

Dutch Tulip

Traffic flow, traffic safety and reduction of Emissions



An innovative corridor that will be ready for:

1. Highly dense truck platooning from the port of Rotterdam towards Belgium (Antwerp) and Germany (Ruhr-area) in 2019.
2. Connected and automated driving (L3-4) that will communicate with each other and the infrastructure.
3. Transition of Traffic management.

Connecting the main ports within the Netherlands with the green ports, brain ports. And we would like to cooperate internationally with Belgium and Germany.

Bundling the work: C-ITS corridor, Intercor, Concorda, …

- Work together with industry, European Commission and Member states.

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ACTIVITY NL

Overall activity objectives

- Declaration of Amsterdam
- Netherlands test country
- Ambitious on all kinds of test in relation to transition connected and Automated driving
- Technology and business, operation, implementation etc.
- Connected and Cooperated
- Integration in-car and road side
- Role of businesses and public authorities
- Different networks (city-> metropolitan->national->international corridors)
- Project driven approach (not just technical)
- Dutch projects and use cases complementary to Concorda project and further initiatives and projects (C-roads, Socrates, CDR, EATA, Ursa mayor etc.)
- Hybrid communication approach
- Engage and involve stakeholder user groups

Project consortium NL

Partners
FCA/CRF (Metropolitan Area Amsterdam)
NXP (Metropolitan Area Amsterdam)
Ministry of Infrastructure & Environment (Metropolitan Area Amsterdam)
Eurofiber (Metropolitan Area Rotterdam The Hague)
KPN (Noord-Brabant)
TU/e (Noord-Brabant)
OPTN (Noord-Brabant)
TASS (Noord-Brabant)
Others; Project partners not beneficiaries Concorda

- Hybride communicatie
- Testsites: Nederland, Belgie, Frankrijk, Duitsland, Spanje
- Interurban Chauffeur (highway)
- High density Truck Platooning
- Interoperabiliteit

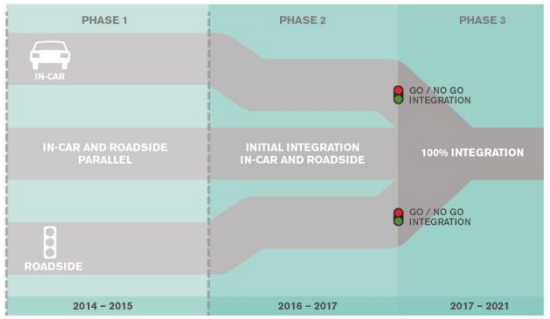
ACTIVITY METROPOLITAN AREA AMSTERDAM

Overall activity objectives

For the Metropolitan Area Amsterdam the focus is on cooperation with FCA/CRF and on defining concrete use cases together that will contribute to the development of the Interurban Chauffeur (also linked to highway scenario).

On behave of the integral Dutch plan in Amsterdam we focus on:

- **Integration of roadside and in car systems**
- **Hybrid Communication (pre) deployment and road side networks for automated driving Use cases**
- **Public role in relation to Automated driving and safety**
- **Road systems (RSU, and communication networks)**
- **Integration of communication and functionality in cars**
- **On interfaces of different networks urban to national (city/provincial/highway); extended tests, not only Amsterdam area but also e.g. A58, Brabant.**



Metropolitan Area Amsterdam has a practical perspective on the whole chain needed for Automated driving. For this reason in this plan we integrate the broader cooperation with companies and authorities in and outside of Concorda and their goals (Road operators, OEM, RDW, FCA/CRF, NXP, Technology integrators, Telecom)

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Activity Metropolitan Area Amsterdam

Input partners:

PPA: infrastructure, RSUs, Traffic management centers, vehicle acceptance (RDW)

CRF/FCA: test fleet, minimum 2 vehicles (the costs of vehicles are not eligible under this Action)

COM box provider(s) (NXP): A (limited number of) communication boxes, typically for in-car usage, will be developed and deployed in a phase 1 (LTE-A 802.11p) and phase 2 (LTE-V R14 +802.11p) time scale (part of activities 1,2.1,2.2,5)

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Activity Metropolitan Area Rotterdam The Hague

Activities:

- **Roll out of hybrid telecom infrastructure WiFi-p and LTE/5G**
- **MEC**
- **Parallel studies, review business and value case**

Partners:

- **Smartport/Port of Rotterdam**
- **TNO**
- **Huawei**
- **CGI**
- **Thales**
- **Supported by ”Real Life Cases” and “Roadmap Next Economy” program**

Activity Noord-Brabant

Activities:

- First Dutch roll out LTE-V (hybrid testbed)
- MEC
- Super GPS
- Use case agnostic

Partners:

- KPN (Telecom)
- TASS (a Siemens company)
- Technical University Eindhoven
- OPNT (super GPS)
- With support from Road Operator (RWS), Province and Municipalities

USE CASES AMSTERDAM (DRAFT)

APT has specific interests in the use cases:

Cooperative Adaptive Cruise Control (CACC) in combination with iVRI's (GLOSA en TSP use cases) on provincial roads.

GLOSA: Green Light Optimization Speed Advise

TSP: Traffic Signal Priority

SSV: Slow and stationary vehicle; warning of approaching vehicles (drivers) about a slow or stationary vehicle ahead. Processed by iVRI infrastructure on the provincial roads or by the RSU's along the highways. Communicated by wifi-p or LTE.

RVW: Red light violation warning; warning sent to approaching vehicles (drivers) about the violation of red lights. Processed by iVRI infrastructure. Communicated by ITS-G5 (wifi-p) or LTE.

IVS: In-vehicle signages; direct infrastructure to vehicle communication on variable message signs. (e.g. dynamic speeds limits, speed advice, lane configuration). Transmission through ITS-G5 or LTE

Under discussion

TEST SITE

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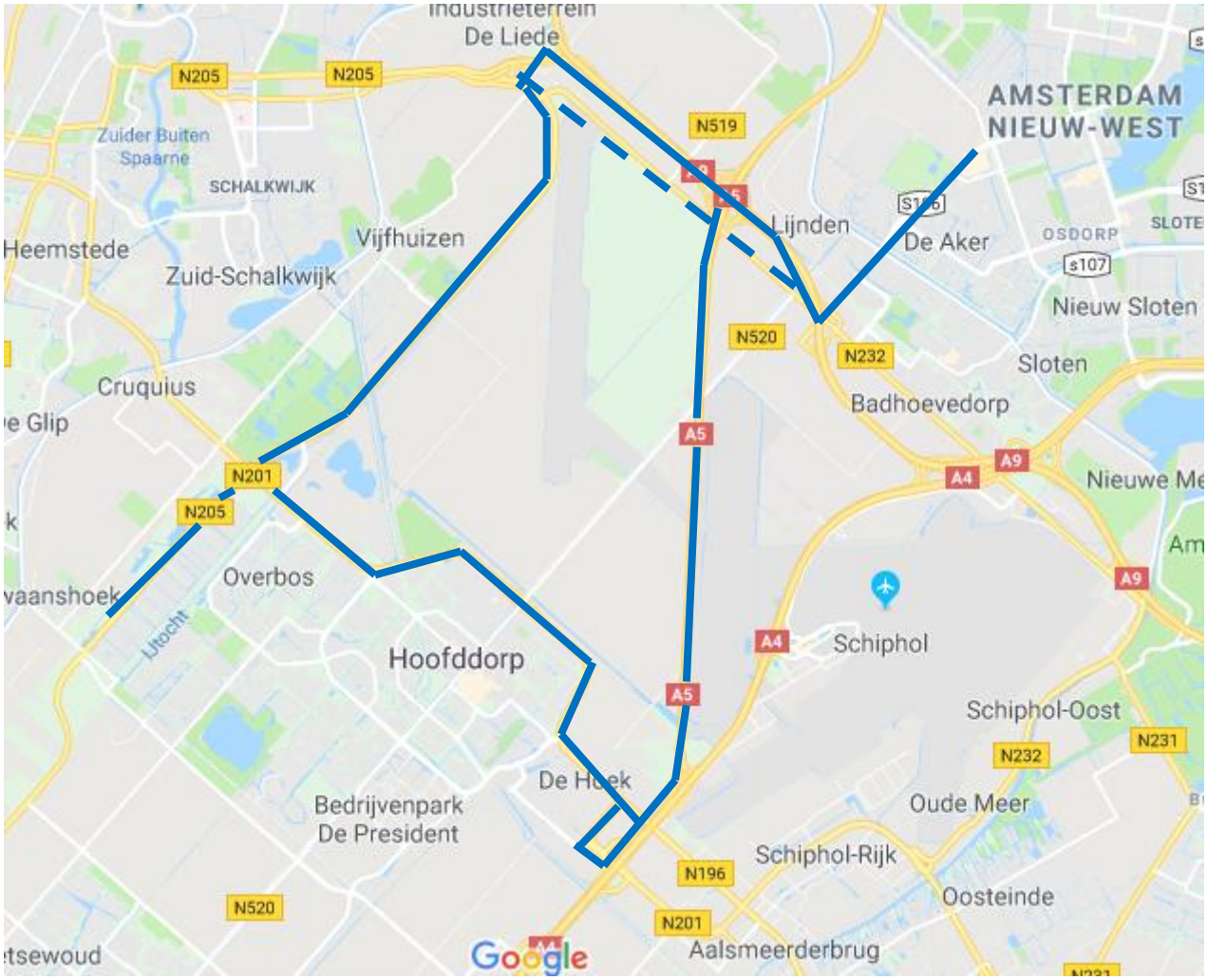
TEST LOCATION A



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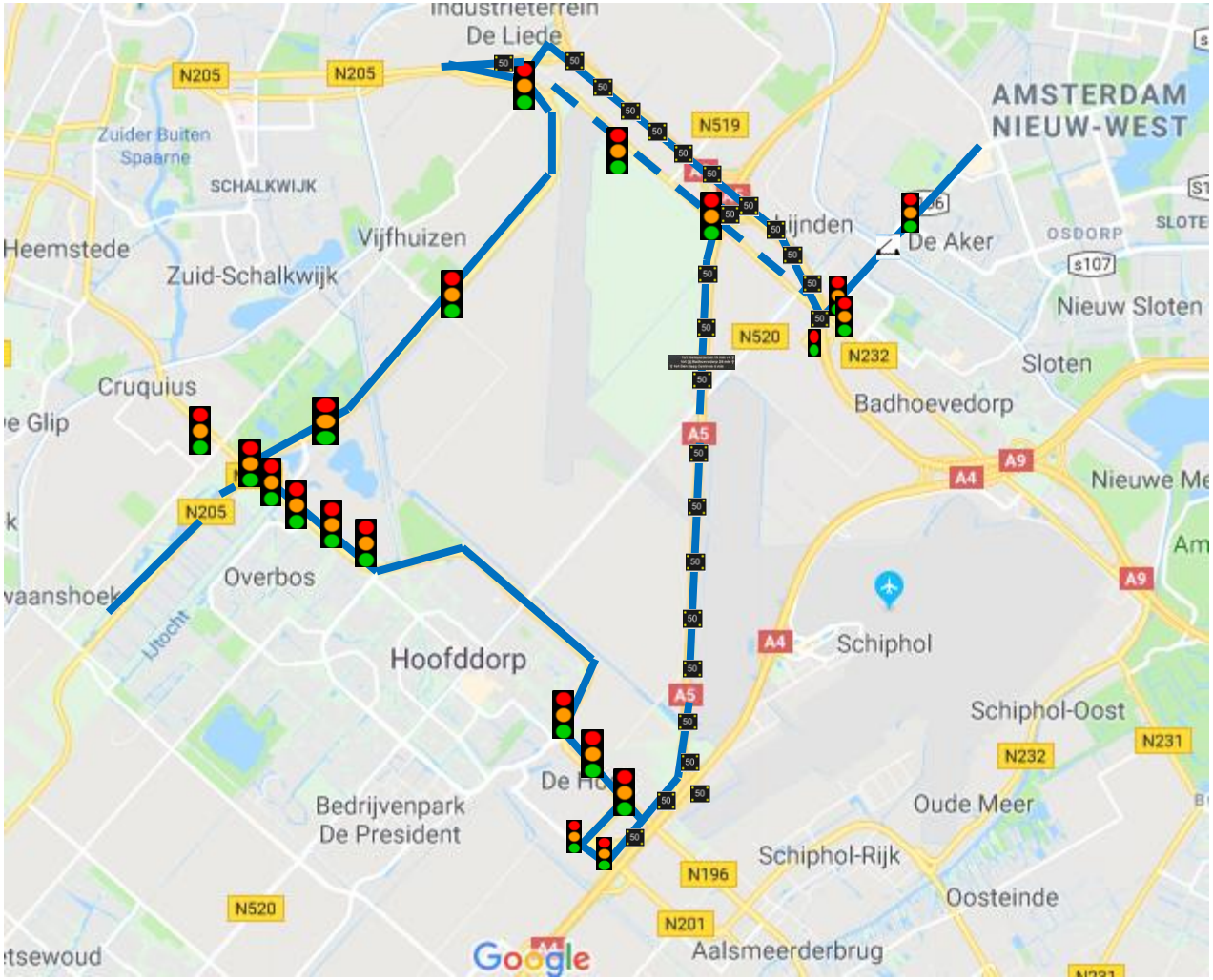

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TEST LOCATION A

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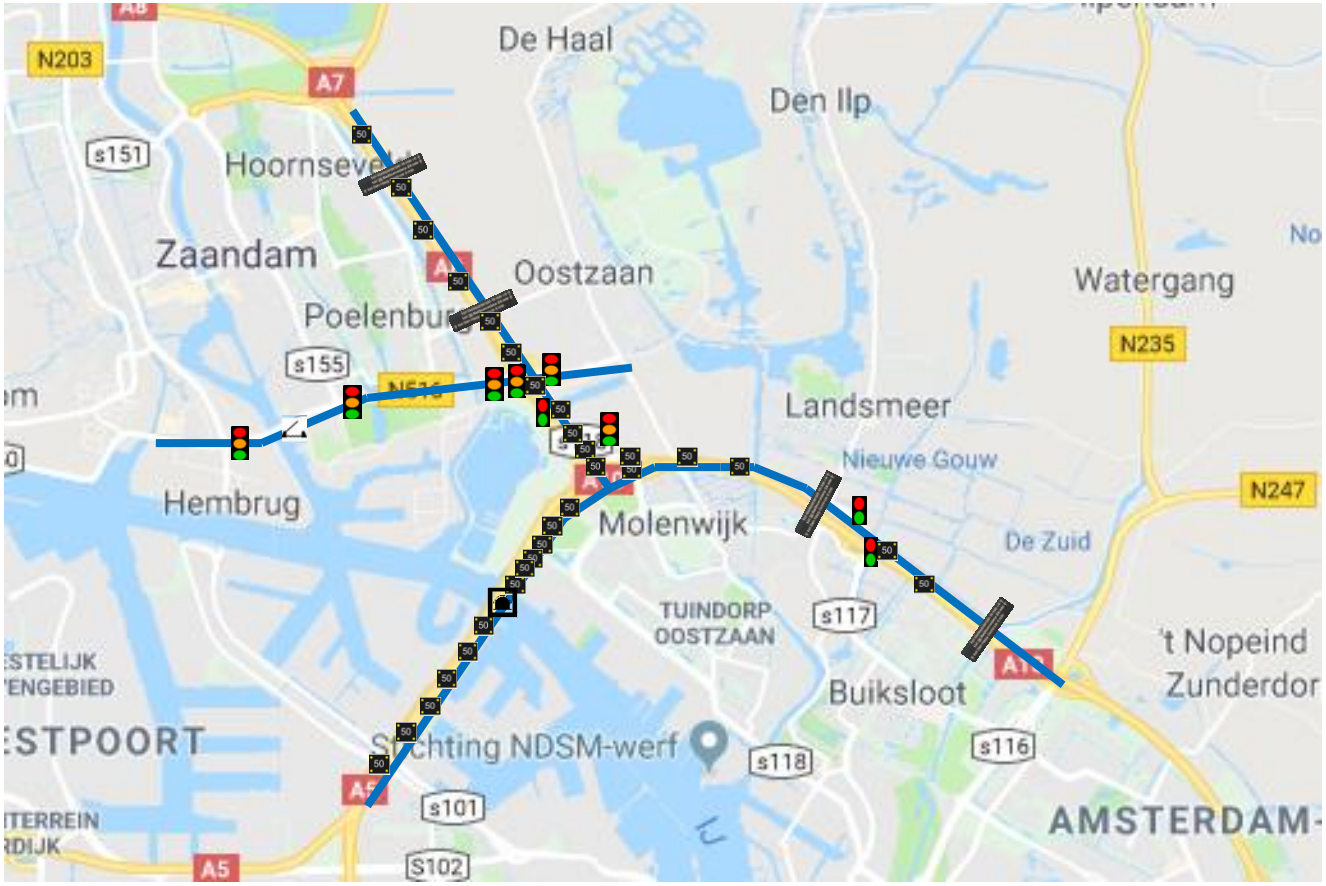
TEST LOCATION B



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TEST LOCATION B