C-ROADS
Antwerp-Helmond

CEF C-Roads Webinar: Traffic Light prioritisation

01/10/2024

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Agenda

1. Introduction
2. The C-Roads Antwerp-Helmond project
3. Traffic light prioritisation
   - Real-world examples and use cases
   - The current technical state of traffic light prioritisation
4. Lessons learned
5. Q & A

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Introduction to the C-Roads Antwerp-Helmond project

Gwynne van Kaauwen – Tractebel Engineering

October 2024

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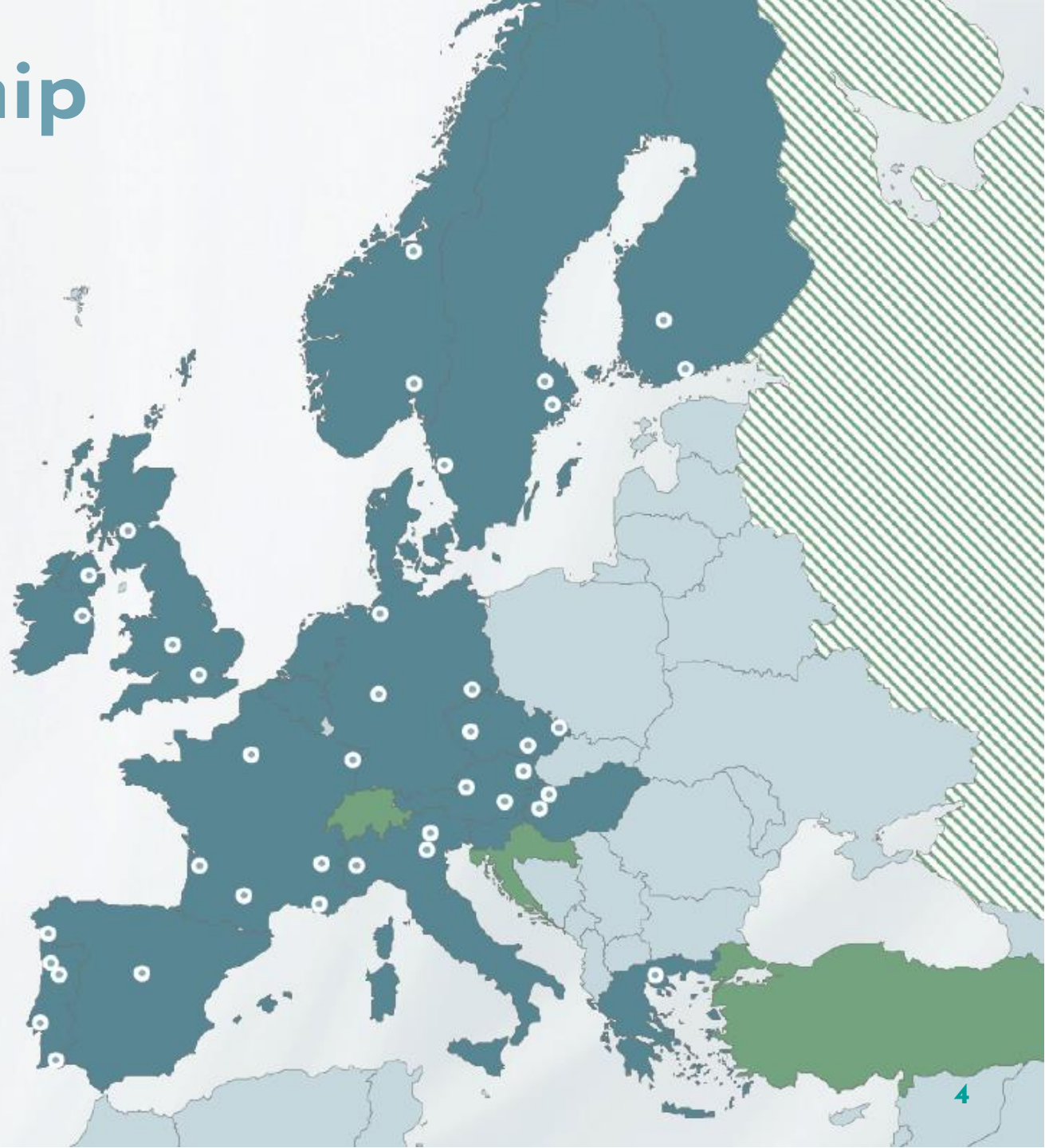
The C-Roads Partnership

- **50 European cities**
  Start with C-ITS roll out in urban areas

- **Short-range C-ITS**
  20,000 km European roads equipped with C-ITS

- **Long-range C-ITS**
  100,000 km European roads covered by C-ITS services



Goal of the C-Roads Platform

- Linking all C-ITS deployments
- Develop, share, and publish common technical specifications
- Planning intensive cross-testing to verify interoperability
- Develop system tests based on the common communication profiles, focusing on hybrid communication mix, which is a combination of ETSI ITS-G5 and operational cellular networks

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C-Roads Antwerp (BE) - Helmond (NL)

- November 2022 – October 2024
- Our consortium consists of the following 9 partners:

TRACTEBEL ENGIE

v-tron YOUR WAY IN INFOMOTIVES

STAD ANTWERPEN

TRANSPORT & MOBILITY LEUVEN

BEMOBILE a revolution in traffic

HOGESCHOOL PXL

lantis

Gemeente Helmond

YUNEX TRAFFIC

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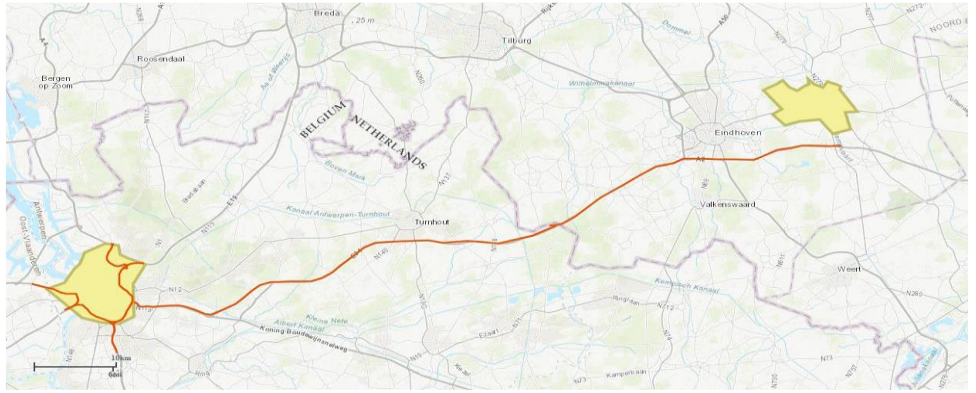
The project set-up

- Two cities involved:

Antwerp



Helmond

The project goals

- Deployment of **combined Day-1 and Day-1.5 C-ITS services** in Antwerp and Helmond
- Cross-border and **interoperability testing** of the services between Antwerp and Helmond
- **Evaluation** of the different services on:
  - Functional aspects
  - Impact assessment
  - User acceptance
- Development of **scalability and implementation strategies** for the different services.

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Project timing

- November 2022: Start project
- Spring 2024: Start pilots in Antwerp and Helmond
- Summer 2024: End of pilots
- September 2024: Evaluation results
- October 2024: Finalisation project

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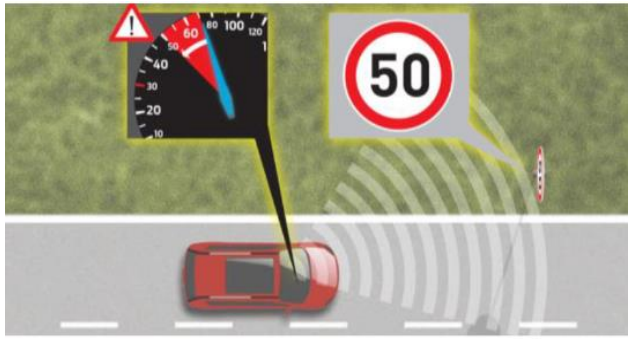
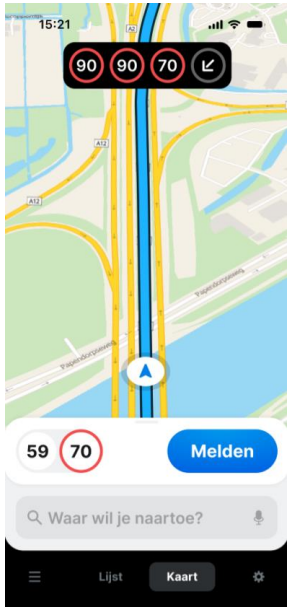
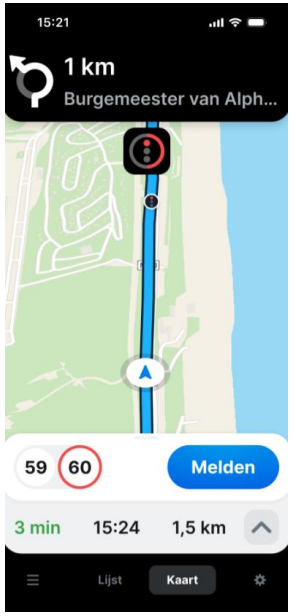
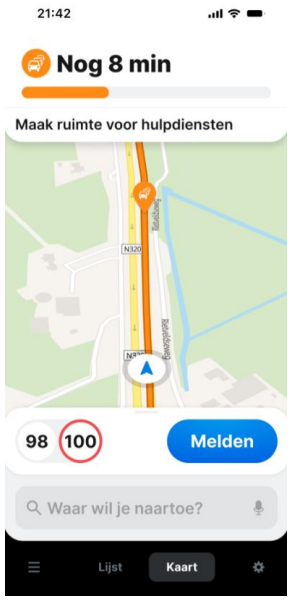
Pilots

- **C-ITS & ADAS** (Advanced Driving Assistance Systems)
  - Intelligent Speed Assistance: ISA-system
  - Real-time traffic information: Flitsmeister









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Pilots

- **C-ITS & UVAR** (Urban Vehicle Access Regulation)
  - Access restrictions for trucks
  - Cut-through traffic
  - Temporary speed restrictions near school areas
  - Tunnel height warnings
  - Speed restrictions for active mobility users (slow-speed zones)

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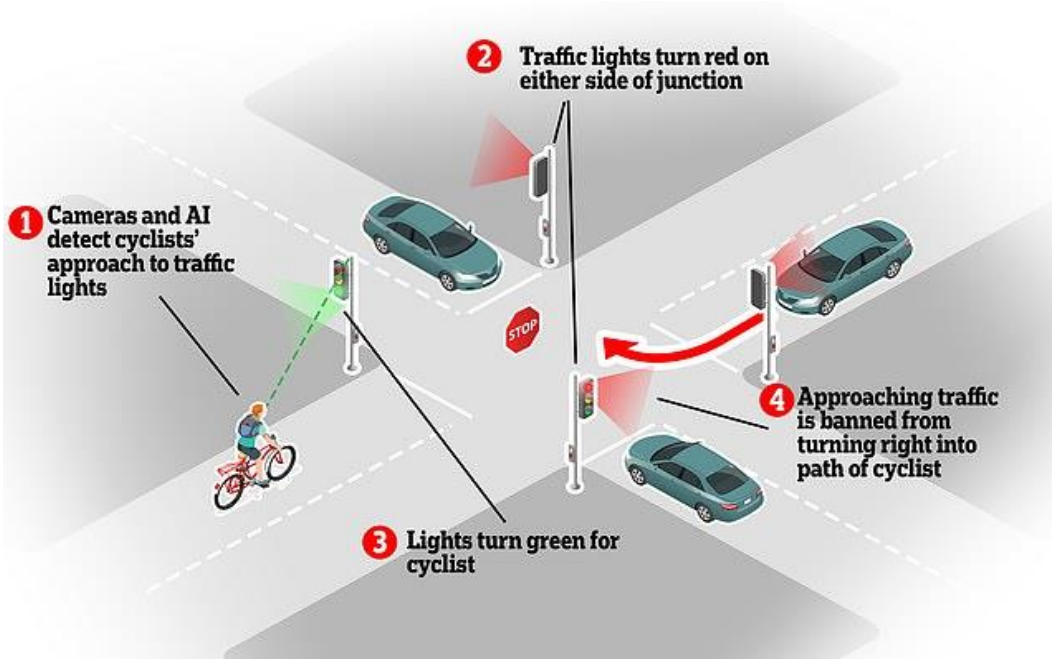
Pilots

- **C-ITS & (urban) mobility services**
  - Truck buffering
  - P&R information
  - Traffic light priority for trucks and bicycles



Traffic light coordination

Bikes

Improving the experience for bicyclists at traffic lights by shortening their waiting time for green light.

- Working on our Modal Shift
- Safety and red light negation

Trucks

Shorter waiting times for trucks at specific intersections can nudge drivers to take preferred freight routes and shorten idling time in the city.

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Antwerp's goals

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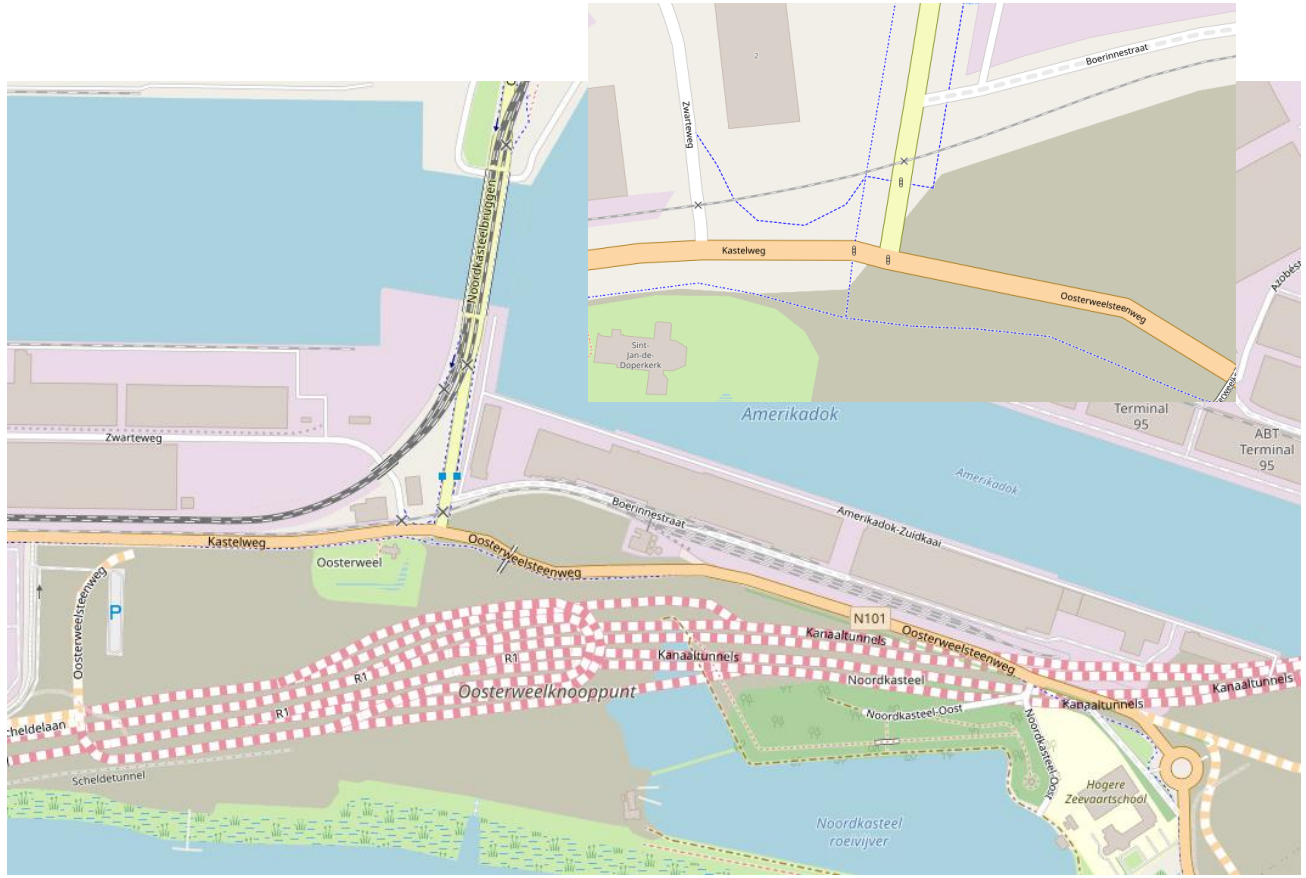
Signal coordination

- Overall goal: make biking more attractive, more comfortable and faster
- Limit frustration/time loss at lights
- Does the technology work? How do bicyclists experience the technology? Is it easily adapted?



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Traffic Light Prioritisation: Real-world examples and use cases

Wannes De Smet – Be-Mobile

October 2024

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Be-Mobile Cooperative Traffic

- Active in Western EU since **2017**
- Easy **integration** using international standards such as DATEX II, TN-ITS and ETSI
- Where possible compliance with C-ROADS TF2
- End-to-end latency of 1 second
- Supporting the **largest C-ITS rollout in the world** (NL and BE)

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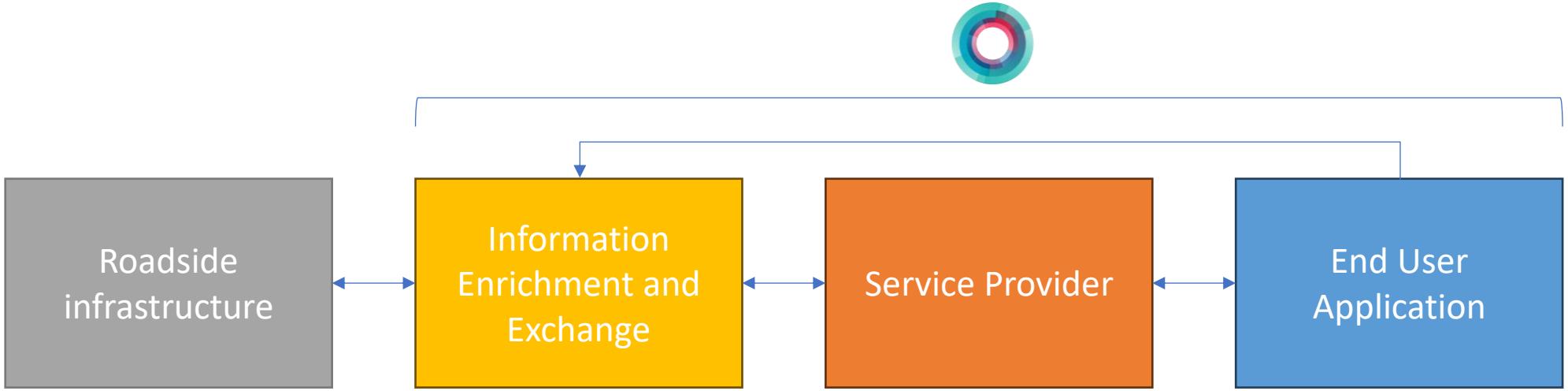
Be-Mobile in the Value Chain



YUNEX TRAFFIC

Royal HaskoningDHV
Enhancing Society Together

BE MobiliData

partnership talking traffic
NL

FM Flitsmeister
EU

Public infrastructure

Private service

Customer facing private service

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Traffic Light Applications

- Traffic lights coordination for:
  - motorized traffic
  - active road users
  - public transport
- Priority for emergency and rescue services
- Priority for a convoy of vehicles or cyclists under certain conditions
- Priority for trucks under certain conditions
- Priority for cyclists in bad weather

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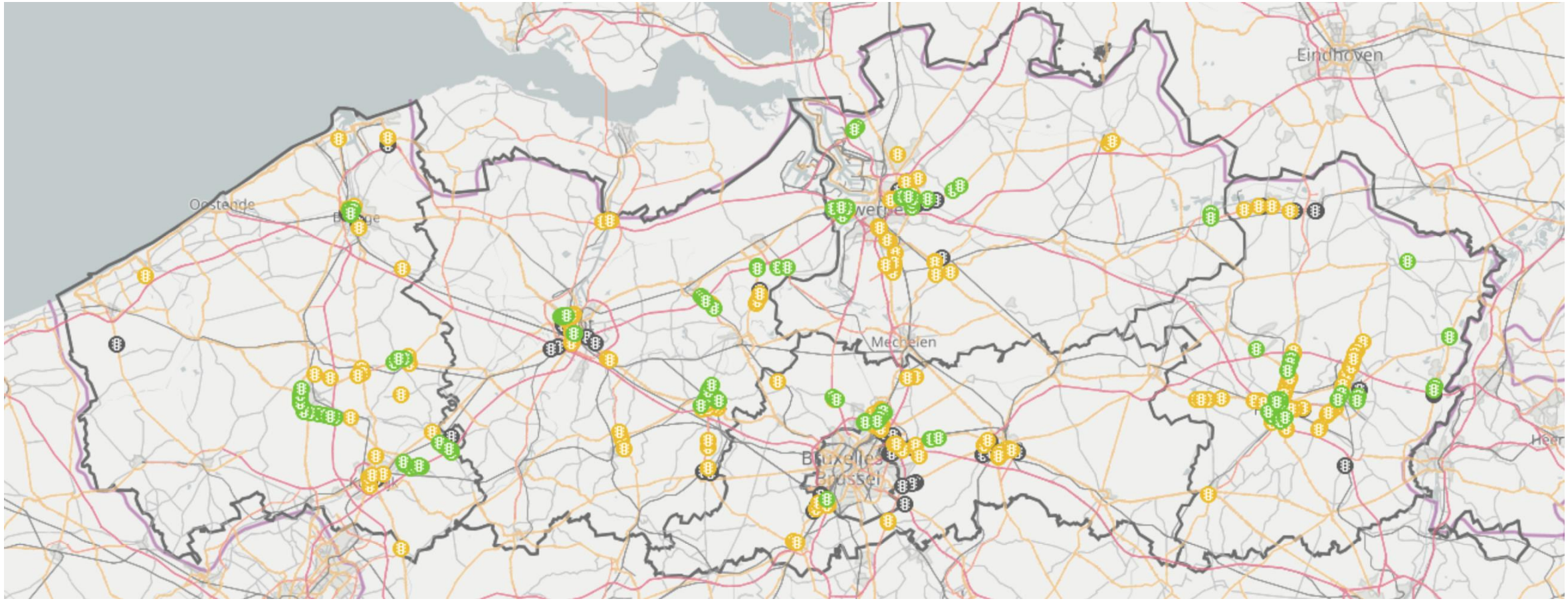
Smart traffic lights: Flanders



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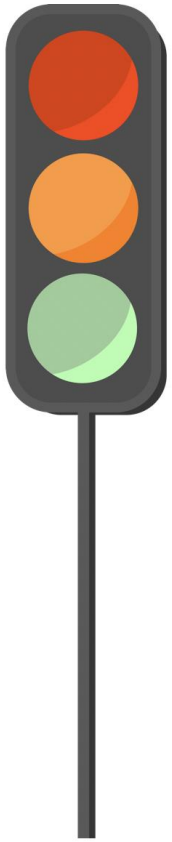
Traffic light optimization for cyclists

Faster green with Sway

Cycle smarter, cycle faster



Download Sway

Would you like to try the app?
Scan the QR code and
download the app.

Be an intelligent cyclist

Follow the **time-to-green** and
receive **faster green light** thanks to the
connection between Sway and the
intelligent traffic light.

Try it out yourself

Would you like to contribute to
smoother cycling traffic?
Cycle past one of our supported
intersections and experience the
convenience of Sway!

More info? Go to the: sway.bike

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Cycling with Sway

Time-to-green for the traffic signals on your route, visually and audibly
Traffic light coordination feedback

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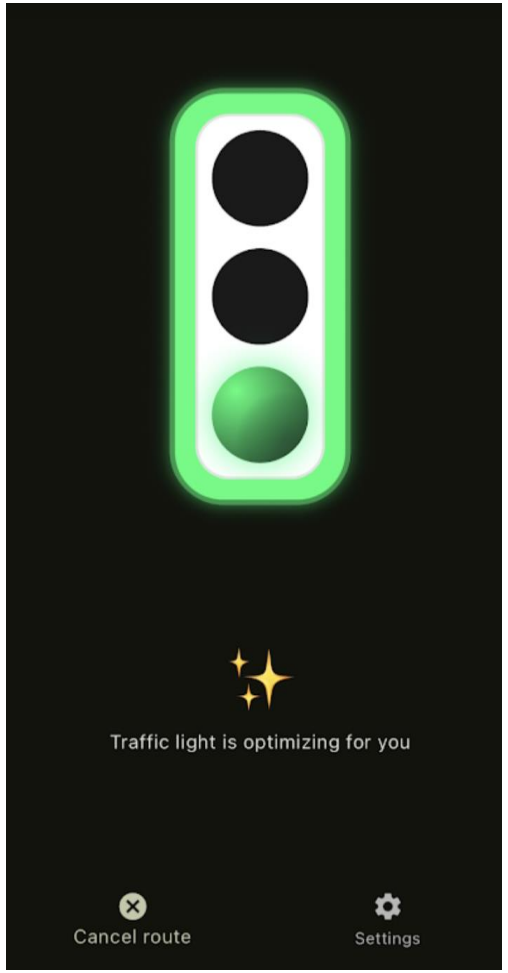
Traffic light interaction



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Traffic light prioritization for trucks

Stad Antwerpen
Be-Mobile
Yunex

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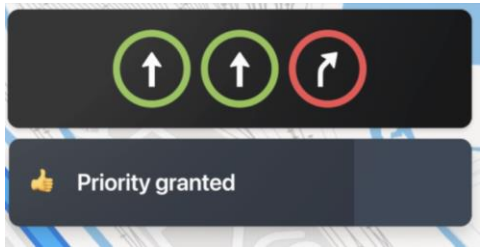
Traffic light prioritization for trucks



Test drivers: collaboration with Foodsavers (Stad Antwerpen)

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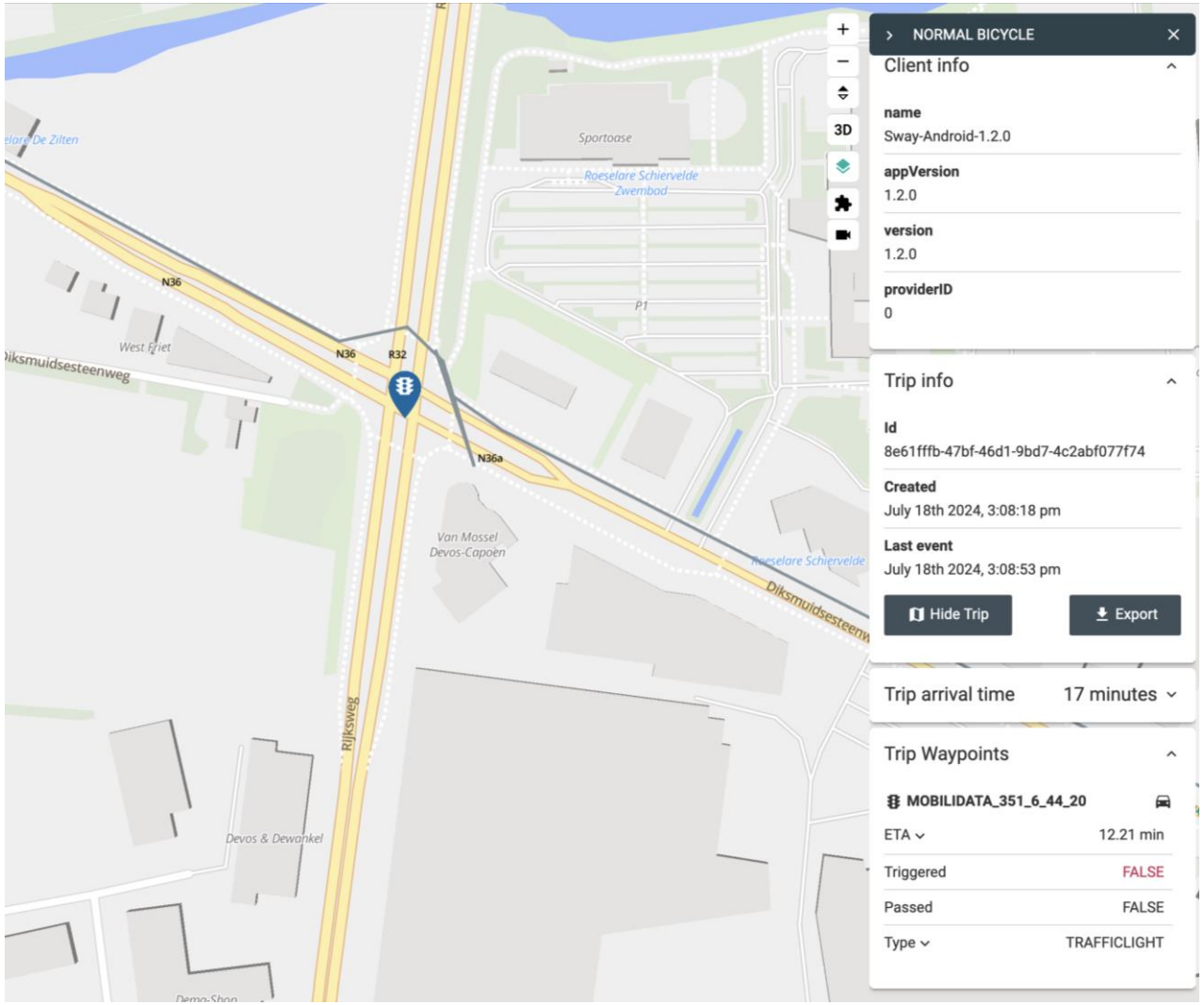
How does it work
Step 1: route determination

Sway tracks you locally and builds a common route profile

Route determined from navigation

How does it work
Step 2: map applicable signal groups

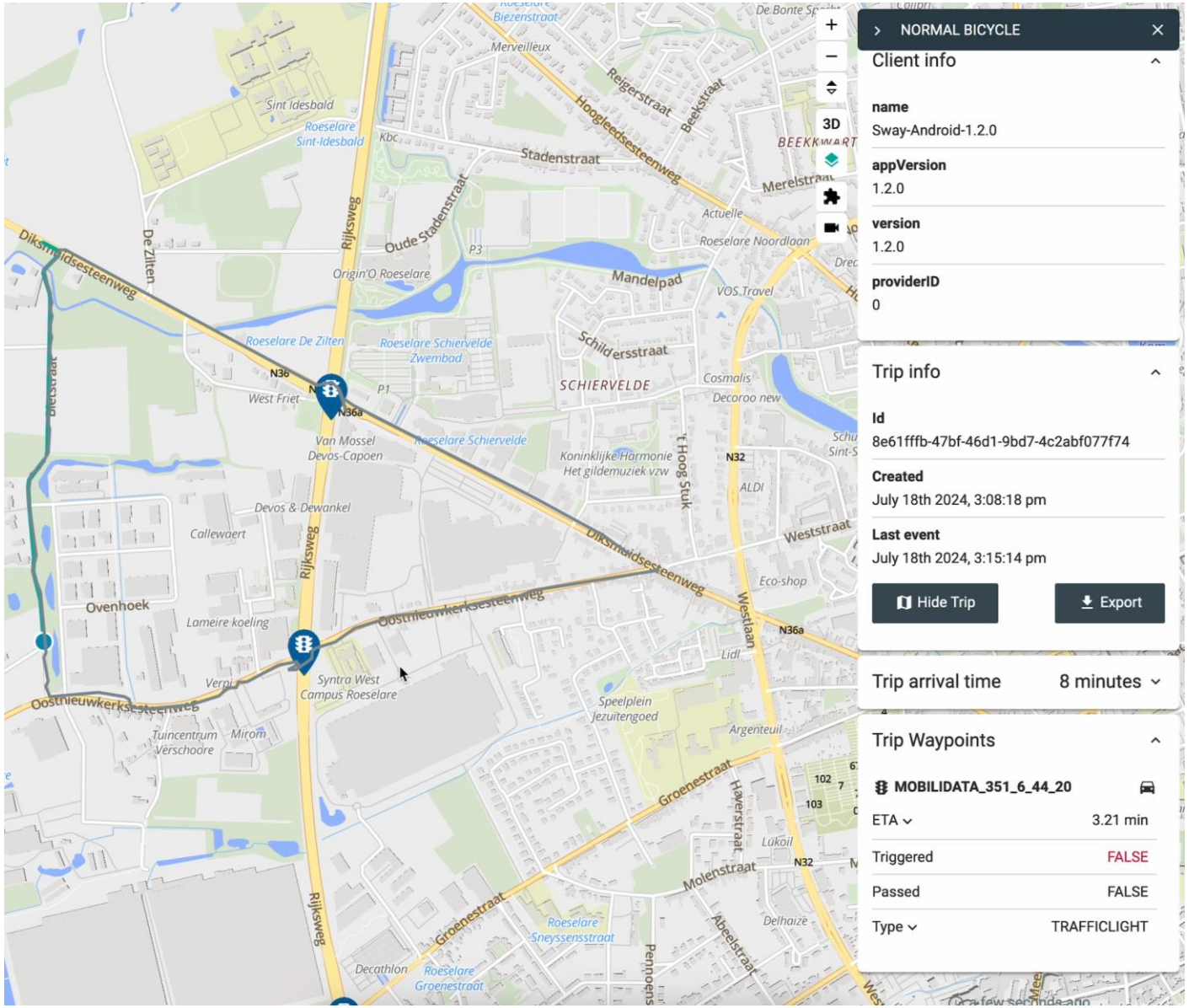


How does it work
Step 3: coordination

Be-Mobile platform checks whether you are approaching a traffic light.

When the ETA is within bounds and we are authorized to issue a signal request we issue one in real time.

Feedback of the signal interaction is visible to the end user, back office of the transport company and road operator.



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Traffic Light Prioritisation: Technical explanation

Johan Hellemans – Yunex Traffic

October 2024

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Yunex Traffic

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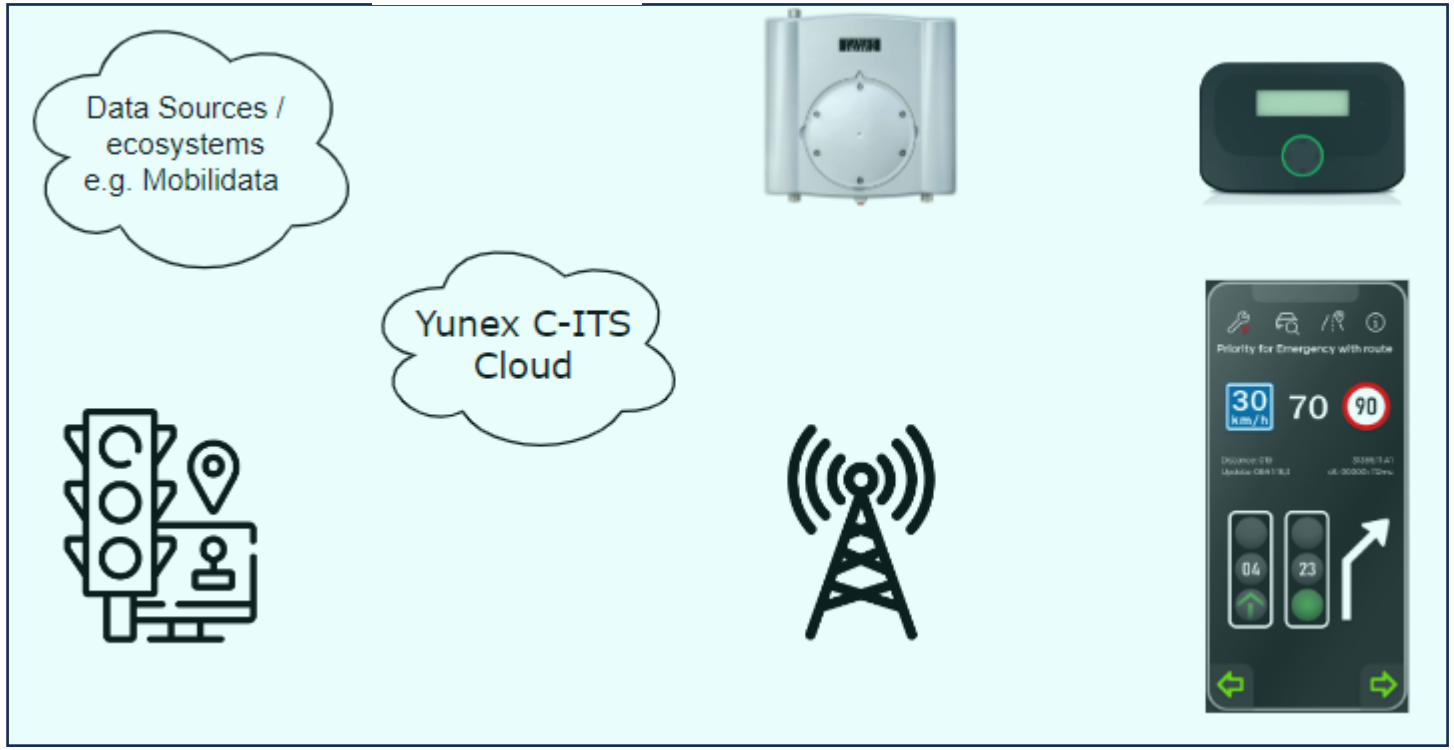

MobiliData

BEMOBILE
a revolution in traffic

lantis bouwen aan verbinding

Gemeente Helmond

Vlaanderen is wegen en verkeer

Wallonie service public SPW

DE LIJN

TEC

BRUSSELS MOBILITY
BRUSSELS REGIONAL PUBLIC SERVICE

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Yunex Traffic

YUNEX TRAFFIC

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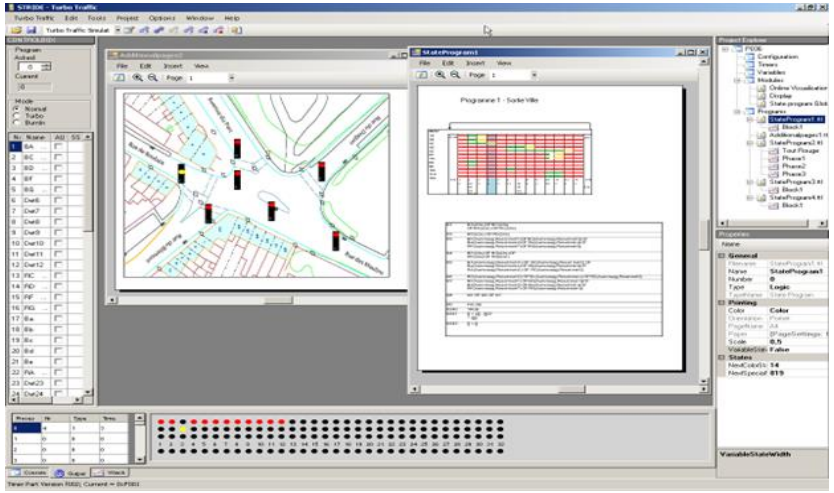
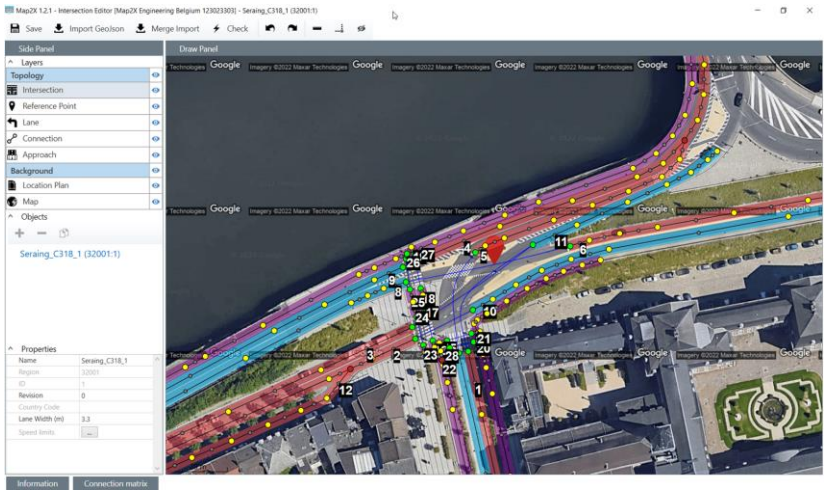
Traffic Light Prioritization (ARU / Trucks)

- Connection with Mobilidata ecosystem
  - Connection with Sway, Truckmeister
  - Connection with iVRI & Yunex VRI's
- Yunex Traffic Controller (Lantis, Stad Antwerpen) enabled for C-ITS
  - Communication Module made ETSI compatibel
  - Traffic Actuation program now shares SPAT
  - Traffic Actuation program now handles SRM, SSM -> C-ITS toolbox for traffic engineering





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Yunex Traffic

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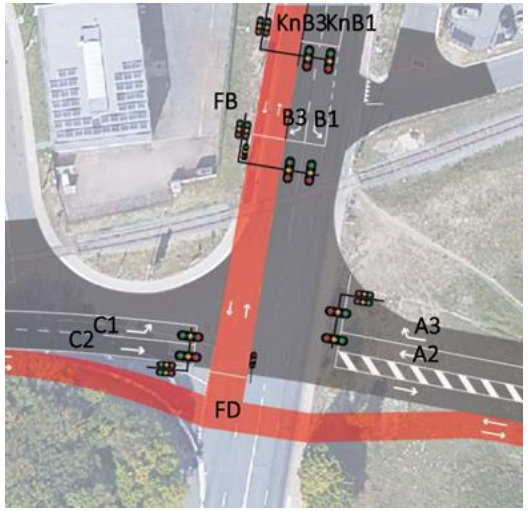
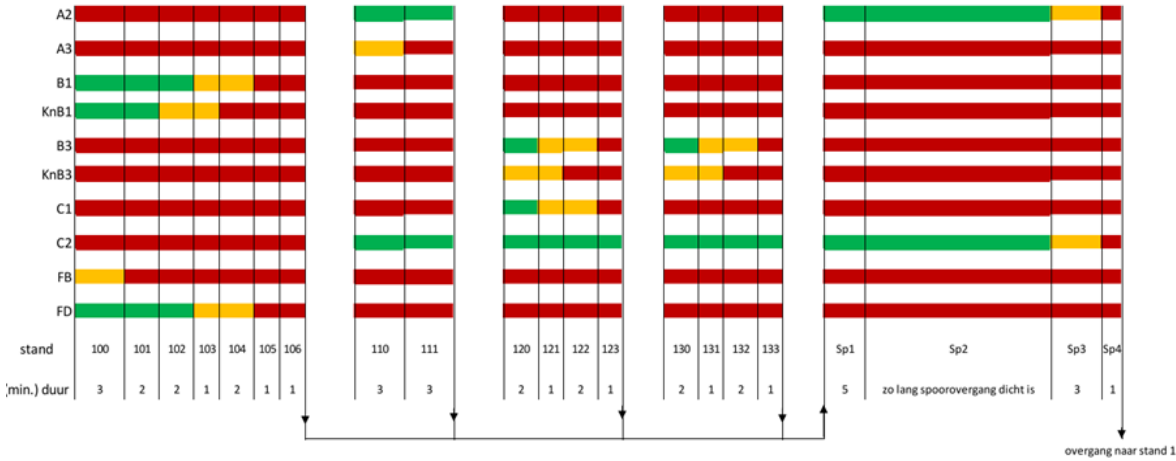
Plans and Traffic Actuation Tooling enabled for C-ITS

- Full ETSI information available
  - Fine grained priority levels
  - ETA & updates of ETA (instead of typical 1 physical trigger point)
  - Other info for use cases like platooning
- Early detection allows for
  - Emergency use cases (conflict area clearing)
  - Better balance: less impact on other road users
- Extending or shortening green
- Jumps (changing / skipping phase order)





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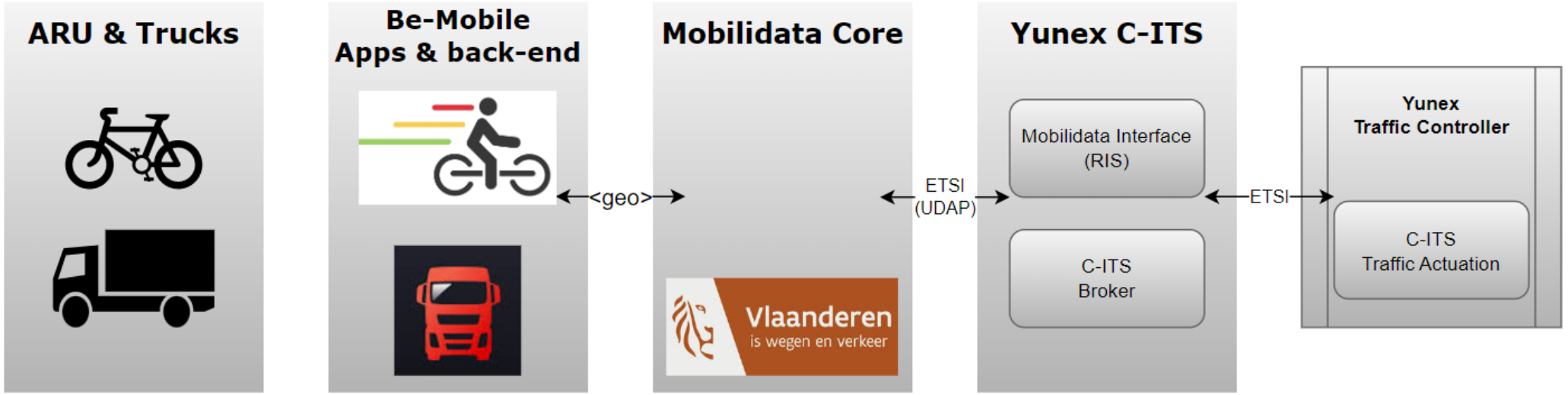
Yunex Traffic

Traffic Light Prioritization (Active Road Users / Trucks)



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BEMOBILE a revolution in traffic

Yunex Traffic

YUNEX TRAFFIC

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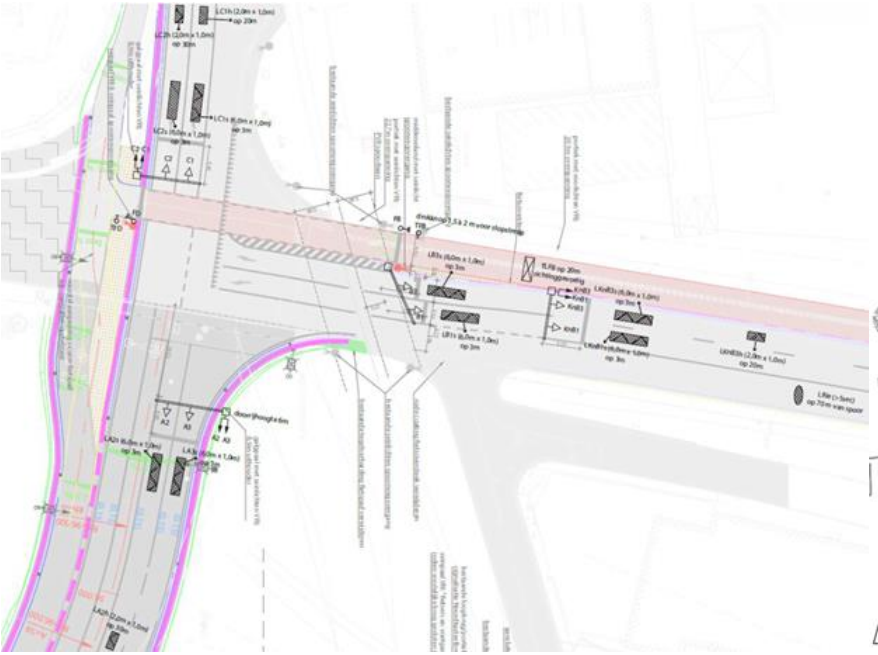
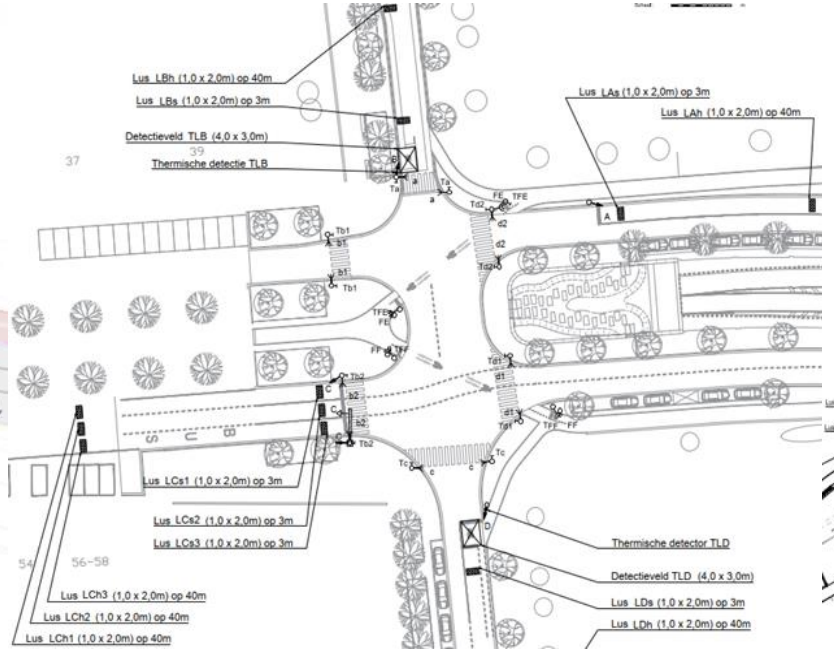
Traffic Light Priorization (ARU / Trucks)

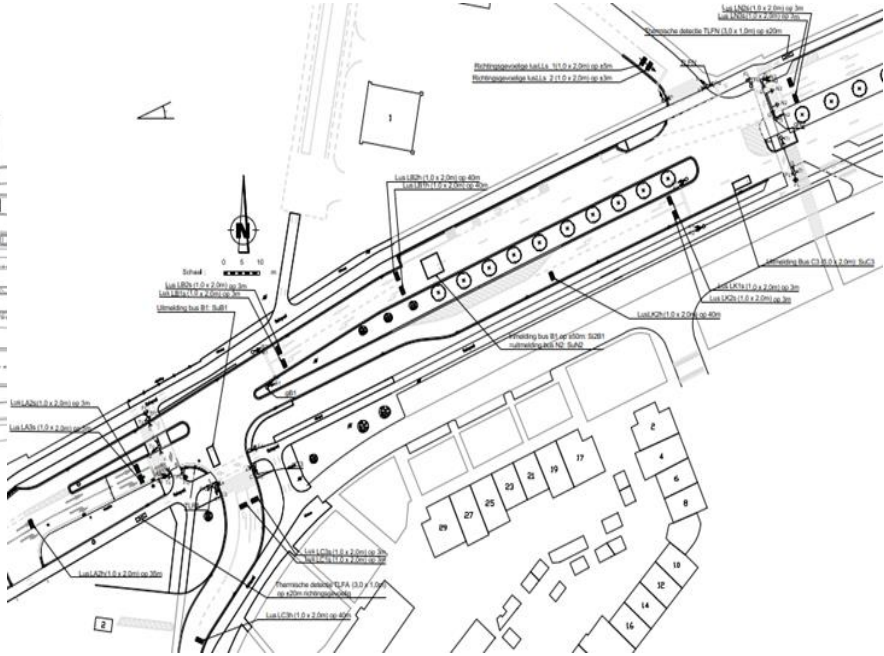
Lantis
Kastelweg - Oosterweelsteenweg



Antwerp
Ankerrui - OudeLeeuwenrui - Hessenplein



Antwerp
Emiel Vloorstraat - Kielsbroek - Schufstraat - Herenpolderbrug



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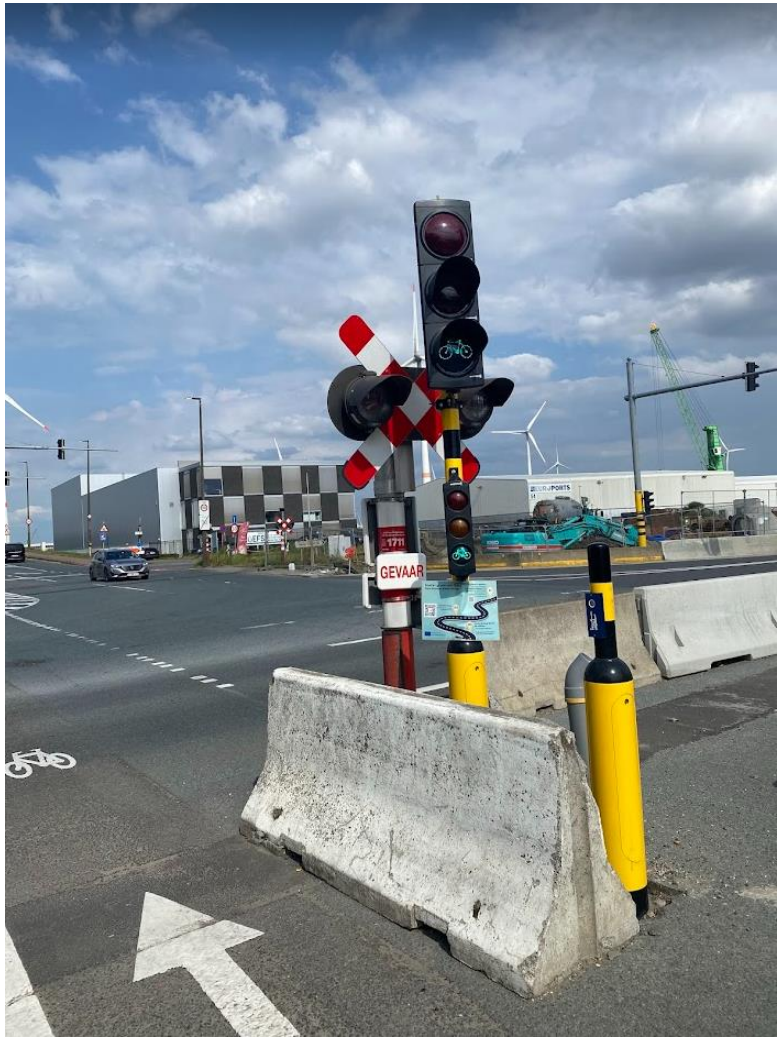
Kruispunt Oosterweelsteenweg



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Kruispunt Oosterweelsteenweg

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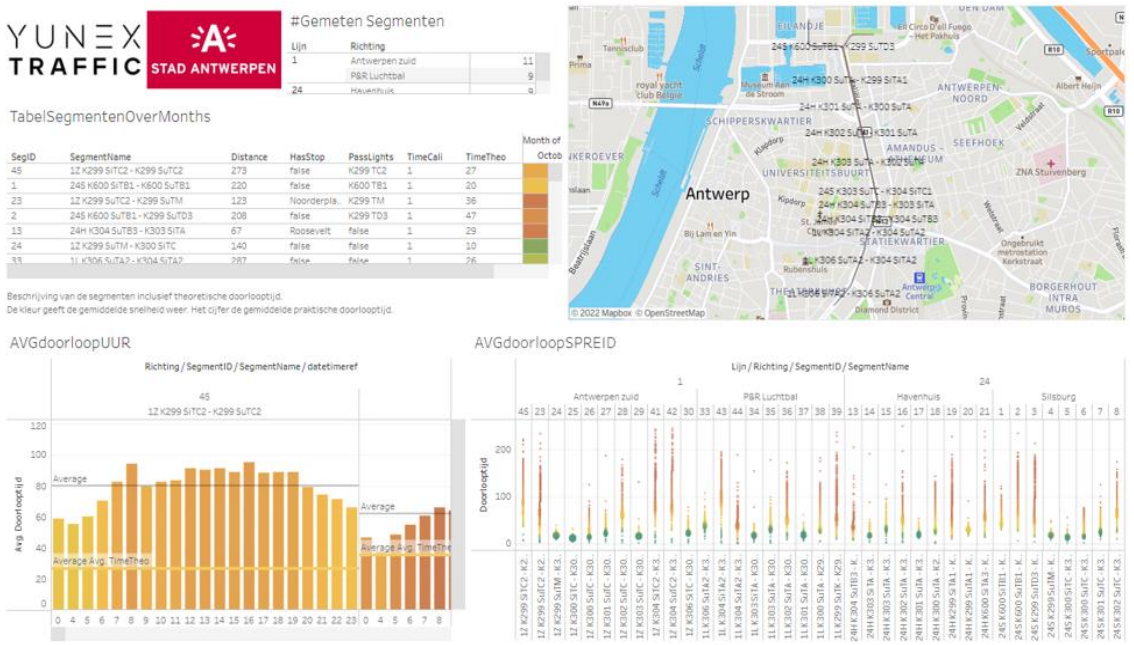
Yunex Traffic

Traffic Engineering KPI's based on C-ITS

- Based on Short Range & Long Range data
- Become less infrastructure dependent for obtaining Traffic Engineering KPI's like counting, travel times, origin destination matrices
- Evaluate & benchmark C-ITS compared to traditional priority systems



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Lessons Learned

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Lessons Learned

- Use cases are now fully implemented and ready to be scaled-up.
- C-ITS based technology allows for improved service and comfort for active road users.
- Road operator has new degrees of control on the relative priority of road users.

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Q & A

October 2024

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Join using the QR code below

or go to menti.com and use the code 6247 8291

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Mentimeter

Below you find a number of applications where light priority can be applied. Which application do you consider important and should be rolled out?

Contact information

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- **Project website**
  - https://www.croads-antwerpen-helmond.eu/
- **C-Roads Platform**
  - www.c-roads.eu