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Autonomous shared vehicles and their interactions with other road users – insight from Oslo, Norway

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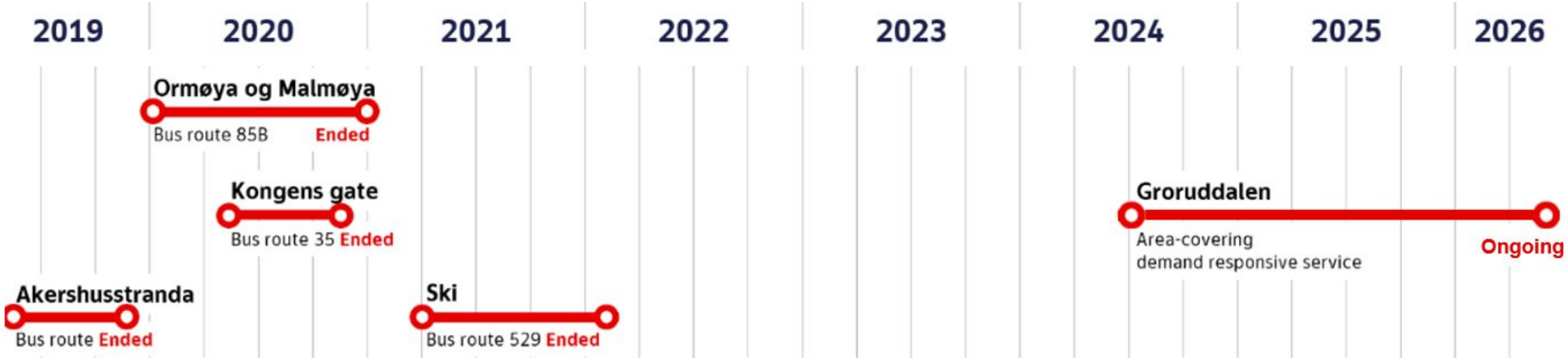
Silnička 32

Autonomous vehicles/transport and TØI

- Passengers' acceptance
- Interactions with other road users (safety, eHMI)
- Future scenarios/Pathways for AV introduction/Modelling
- Impacts on logistic procedures (MODI)
- Cybersecurity

Timeline of Oslo pilots



First pilots (2019-2022)

Observatory analyses in various settings and scenarios

- signalised intersections equipped with V2X technology
- T-intersection with a bicycle lane
- Shared space in a harbour area
- Narrow road with limited overtaking possibilities
- Residential roads without any sidewalks

Main findings

- AVs were struggling in urban traffic.
- Reasons: predefined trajectories; “standard” situations only; defensive driving style.
- We observed many situations that resulted in stops of AVs, followed by an intervention from safety driver.
- Some of these stops were hard and sudden and thus not pleasant for passengers inside AVs. Increased risk of rear-end collisions.
- Slow and defensive driving style of AVs irritated some car drivers, which led to several types of negative behavioural adaptation.

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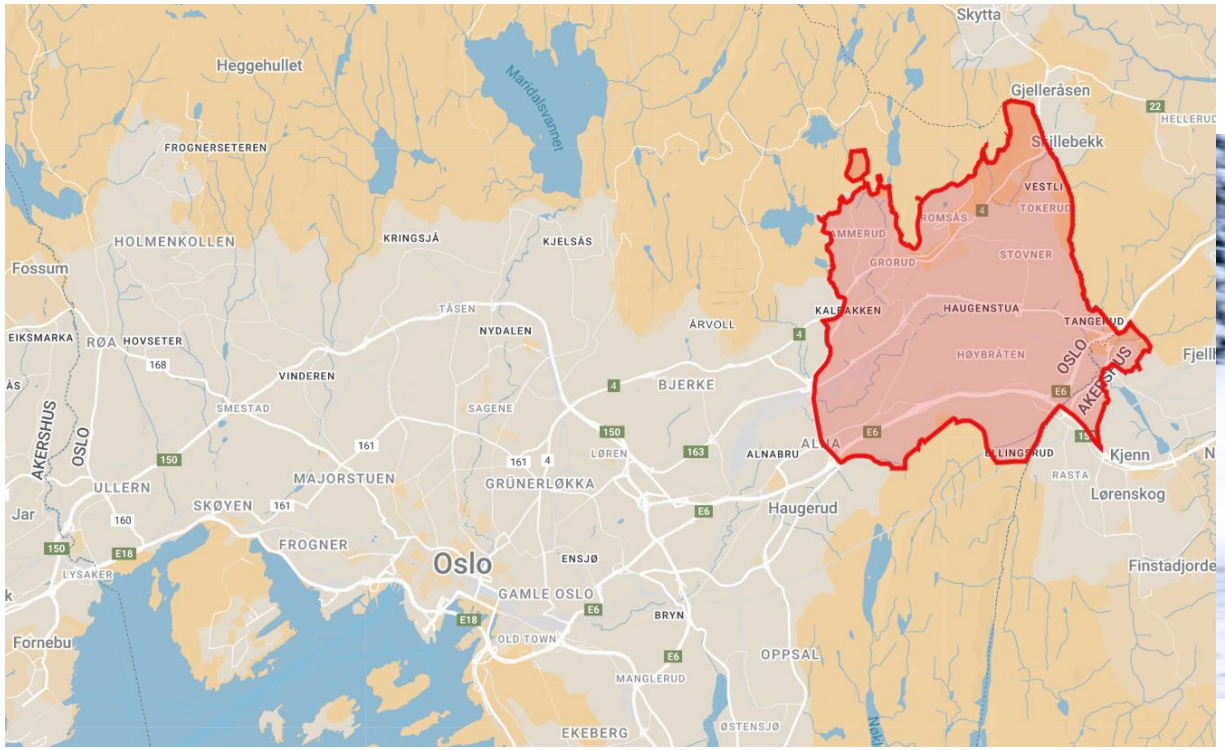
Latest pilot – Grorud Valley (2024-2026)



- **Right-of-way interactions on T-intersection regulated by right-hand rule, under winter conditions**
- **AVs performance in traffic interactions, while considering local traffic rulers, norms and culture**

Video observations + AV log data + insight from AV provider

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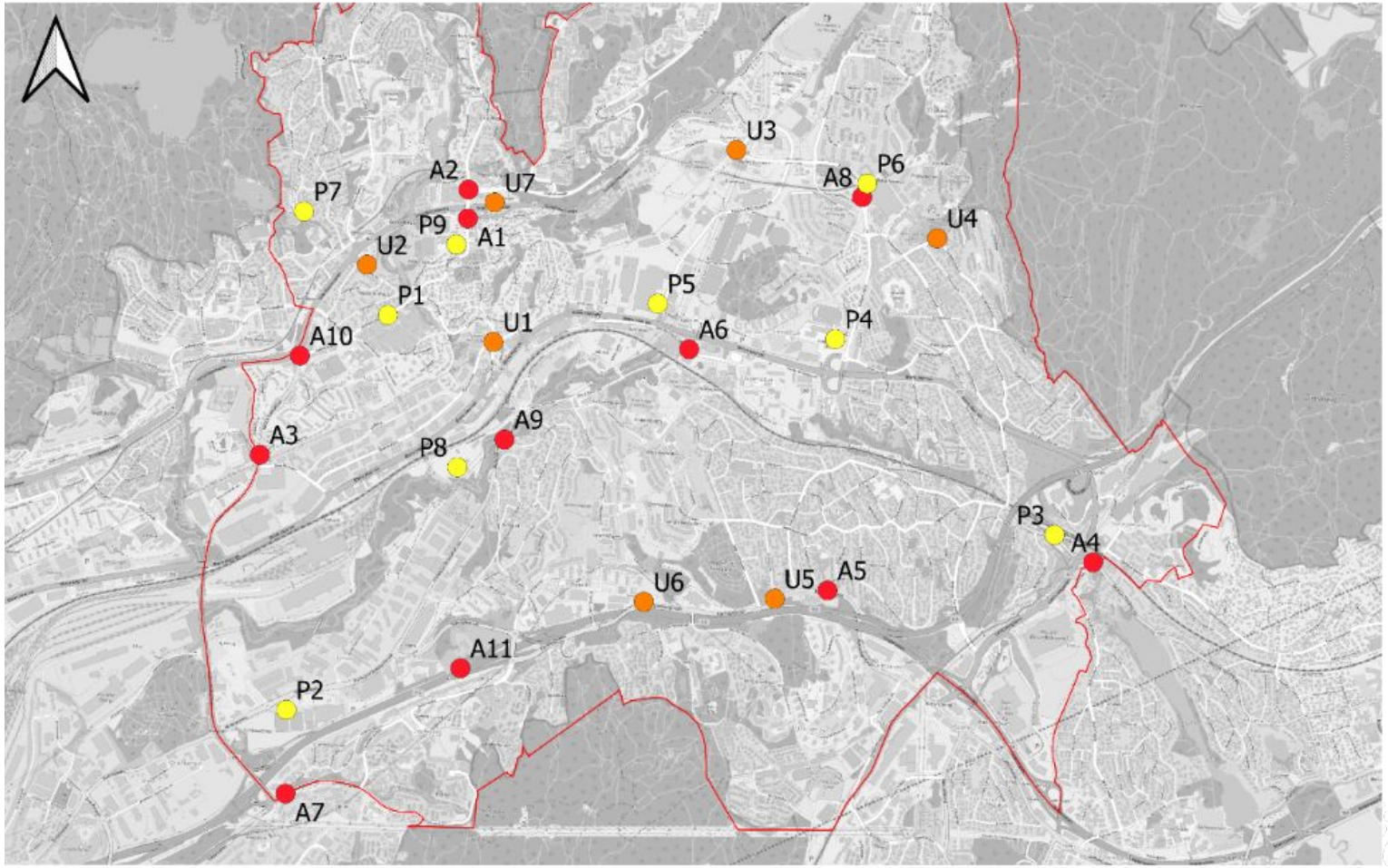
Sites - canditates for observations



The total amount of recorded video data was **3103 hours** collected at **13 sites**

Due to limited availability of operational data from AVs earlier in the project and specifications of the testing phase, the observational analyses utilised only the data collected in **final stage of the project**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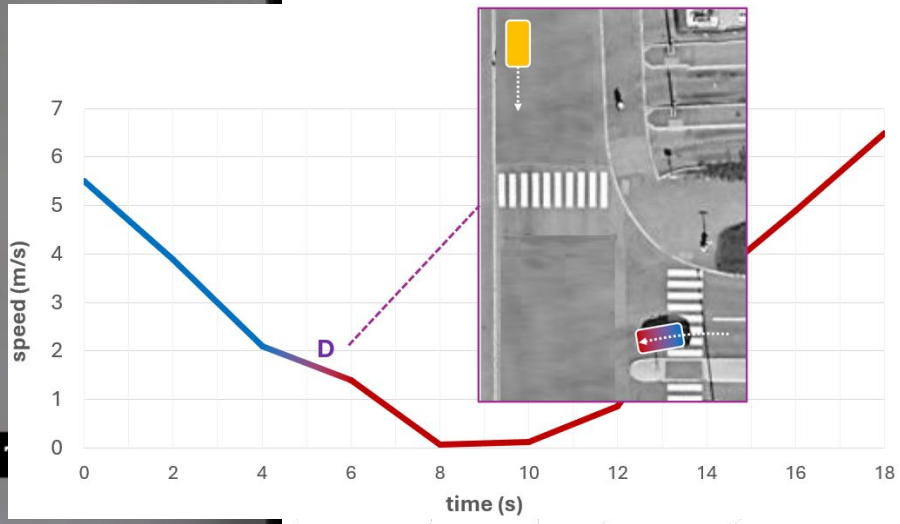
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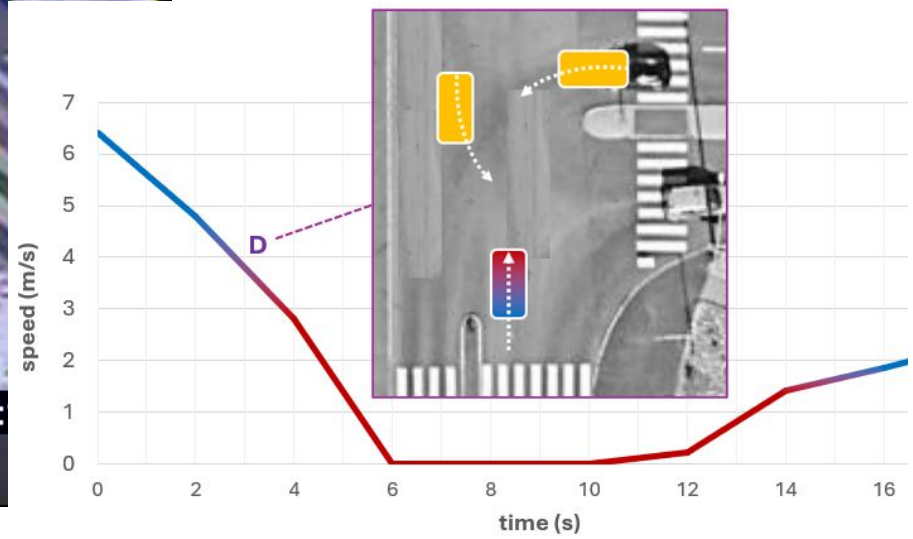
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Main findings

- Limited validity. The findings should not be interpreted as indicative of how AVs would perform in routine operations without an on-board human operator.
- Compared with earlier pilots, the AVs in this pilot demonstrated notable improvements in their ability to operate in complex traffic environments.
- However, the dependency of AVs on predefined routes and maps updates makes their applicability in urban environment questionable.
- No observations of any behavioural adaptation
- Local traffic culture vs. software from abroad (cyclists on crosswalk; right-hand rule; level of assertiveness of AVs)

Děkuji za pozornost

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