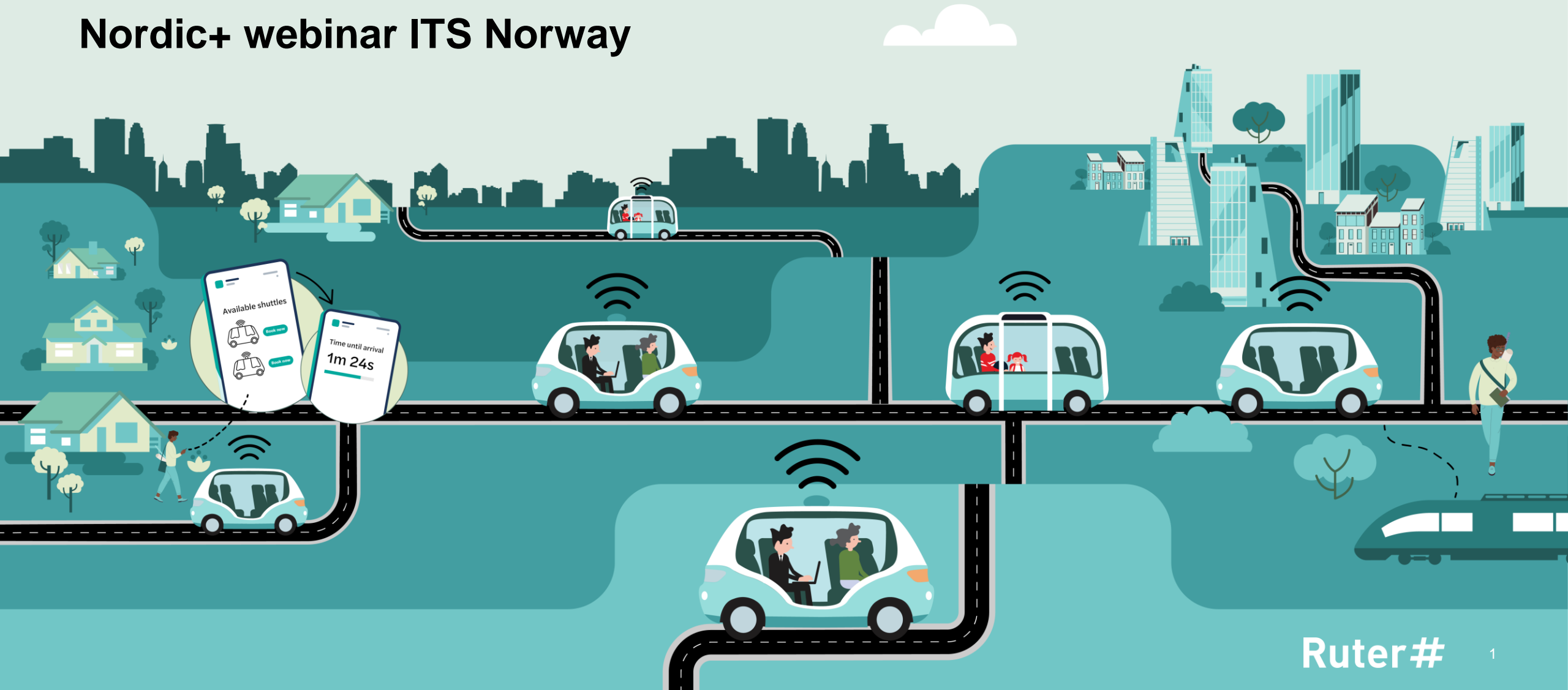


Shared Autonomous Vehicles - Sustainable freedom of movement

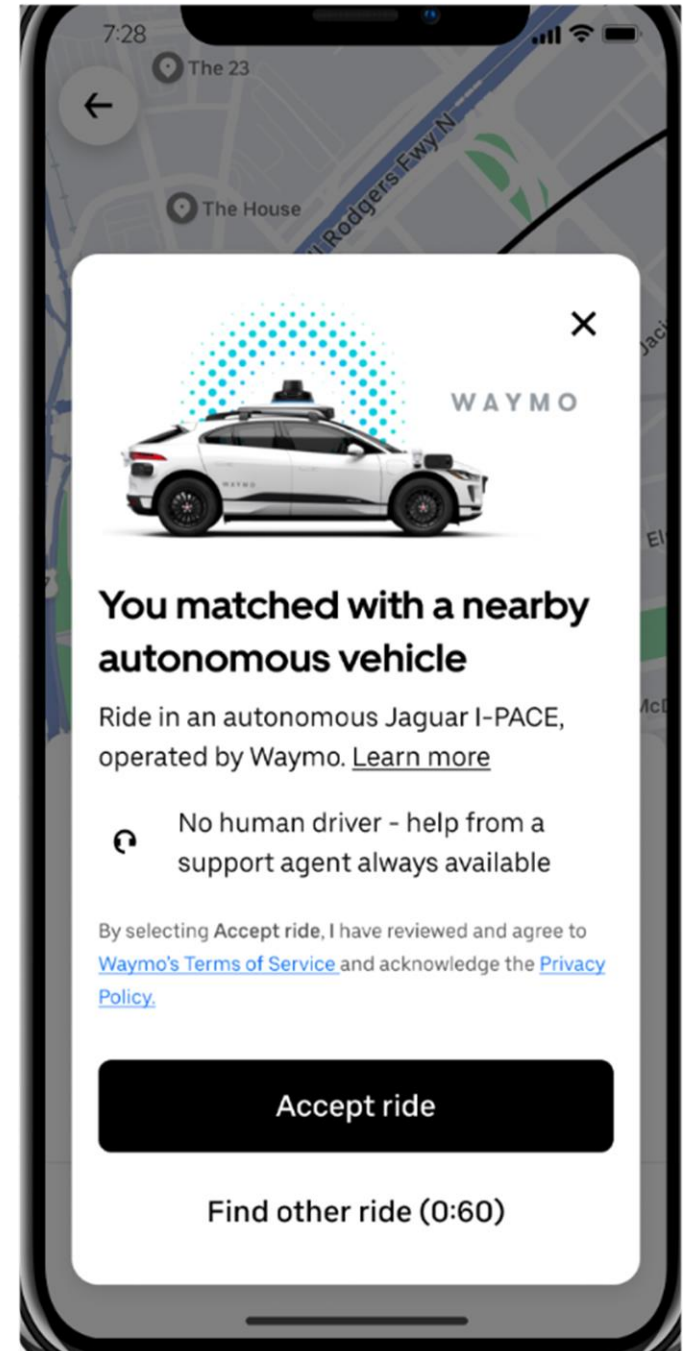
Nordic+ webinar ITS Norway



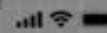
The Waymo Driver: now available on Uber in Phoenix



Uber



9:41



715 E Illinois Ave → Earnest Ice Cream

Pickup 3 min



ON-DEMAND OPTIONS



MetroAccess

10:13 AM - 10:21 AM arrival

\$2.50



MetroAccess Autonomous

10:12 AM arrival

\$2.50

OTHER OPTIONS

🚶 4 > 🚌 99 > 🚗 701 > 🚶 4

10:44 PM arrival

Pay transit agency

👤 1 Rider

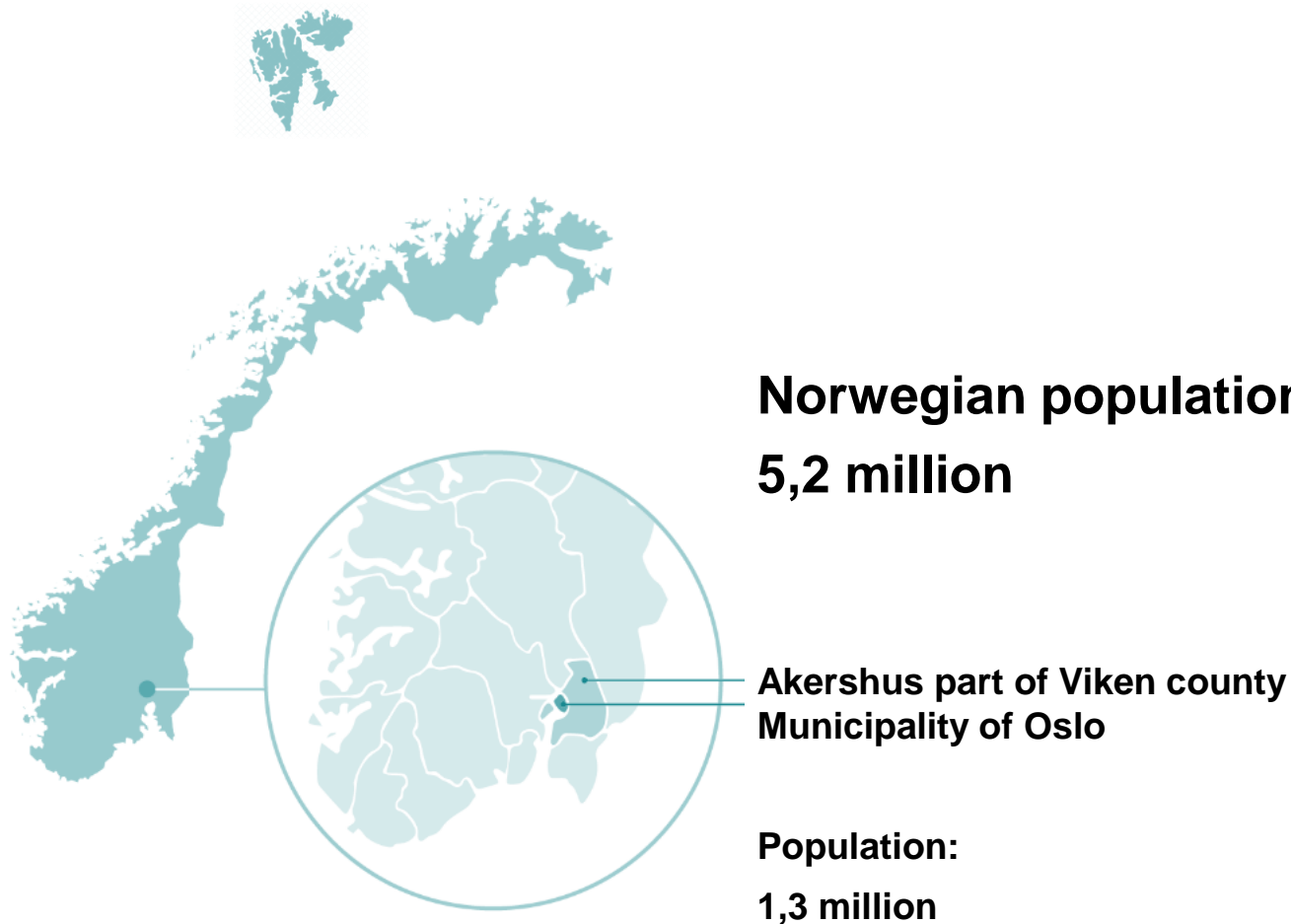
♿ Accessibility

🕒 Leave now

💳 VISA • 4242

Select MetroAccess Autonomous

Ruter, the PTA in the Norwegian capital region



- Owned by the municipality of Oslo Region
- Oslo aiming for 95% emission reduction by 2030
- Favorable political, financial and digital conditions for PT
- Ruter's zero emission goals for Oslo will be reached by 2023

Private cars are designed to be too attractive



The Oslo study

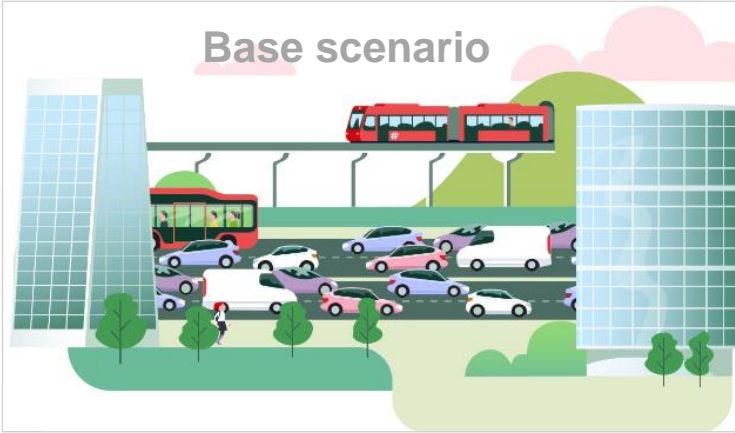
How autonomous cars may
change transport in cities



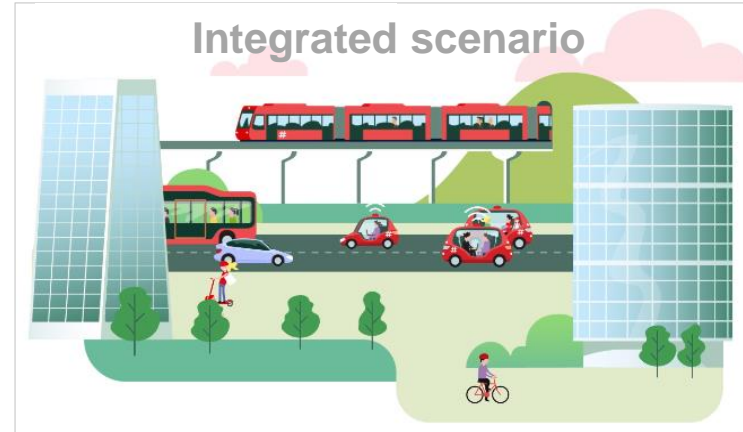
Public
Transport
Strength



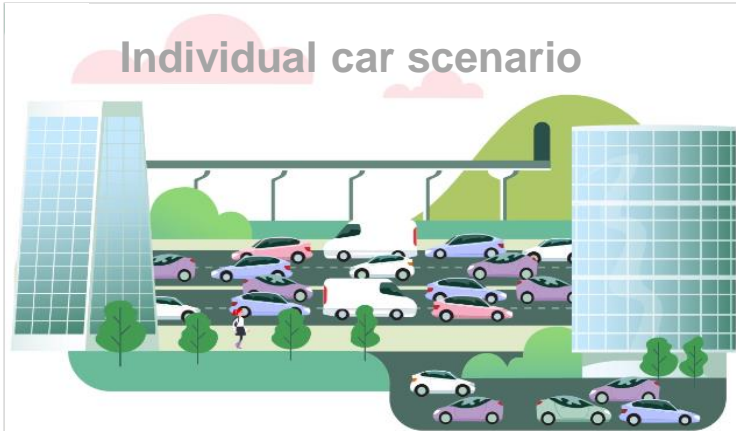
Base scenario



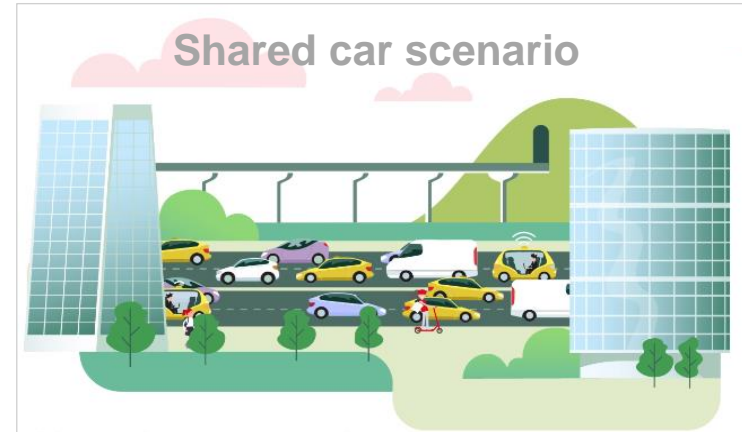
Integrated scenario



Individual car scenario



Shared car scenario



Level of shared vehicles

Ruter# 7

Results from the study

Individual car scenario



Traffic increase

+ 100 %

Results from the study

Integrated car scenario



Fleet size reduction



*The shared, integrated public transport scenario



Existing mass public transport as used today



Going from 600K private vehicles to 30K shared autonomous vehicles



Average occupancy per car from 1.14 to 1.62



More efficient system. Reduced congestion, reduce the need for parking spots, reduce traffic and road incidents.



[*The Oslo study](#)



In Ruter we believe that **shared autonomous vehicles** will be a significant part of future public transport

Ruter has purchased and tested AV technology since 2018

Akershusstranda



22 000 +
Passengers in
5 months

9 000
Km driven



Ormøya & Malmøya



6 717
Passengers in
10 months

23 000
Km driven



Kongens gate



1 560
Passengers in
4 months

2 600 **V2X**
Km driven Communication



Ski



Increased speed
Winter conditions

9 000 +
Km driven



The Grorud pilot concept



15 – 30 Vehicles for 3-5 persons



On demand and shared automated vehicles



Speed up to 90 km/t



SAE Level 4 in mixed traffic



Ordered via smartphone app



Predefined and delimited area with virtual stops





Ruter#

Shared Autonomous Vehicles

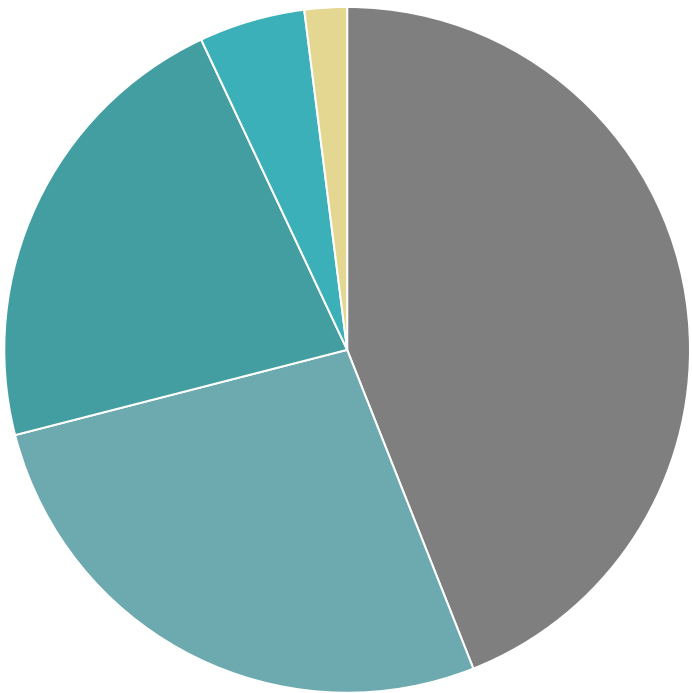
Our scope

Create a **competitive alternative** to the private vehicle journey and complement **existing public transport**

Reduce congestion and emission, and increase **freedom of movement**

SAVs will reduce PV usage and improve urban mobility

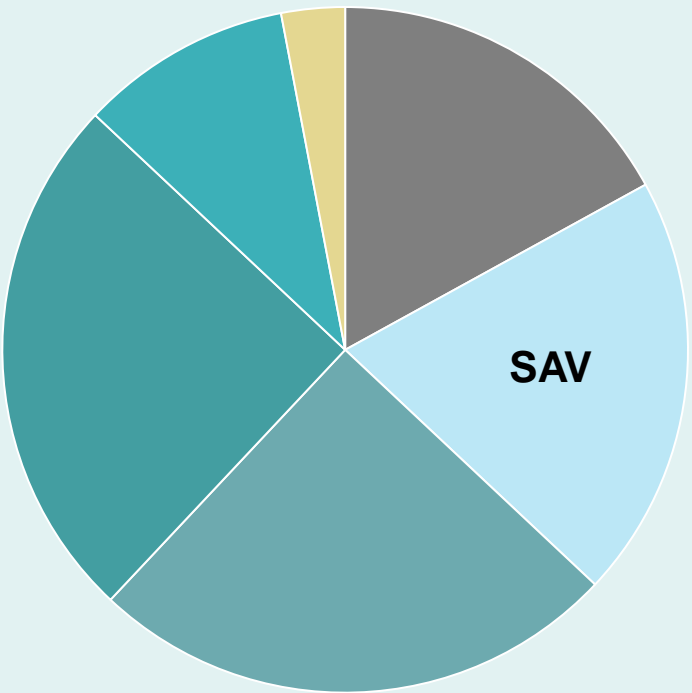
of trip by mode in Ruter's area – a day in September 2022



SAV = Shared Autonomous Vehicles



How we see the future of mobility, by 2030



The Shared Autonomous service will be...



On demand 24/7



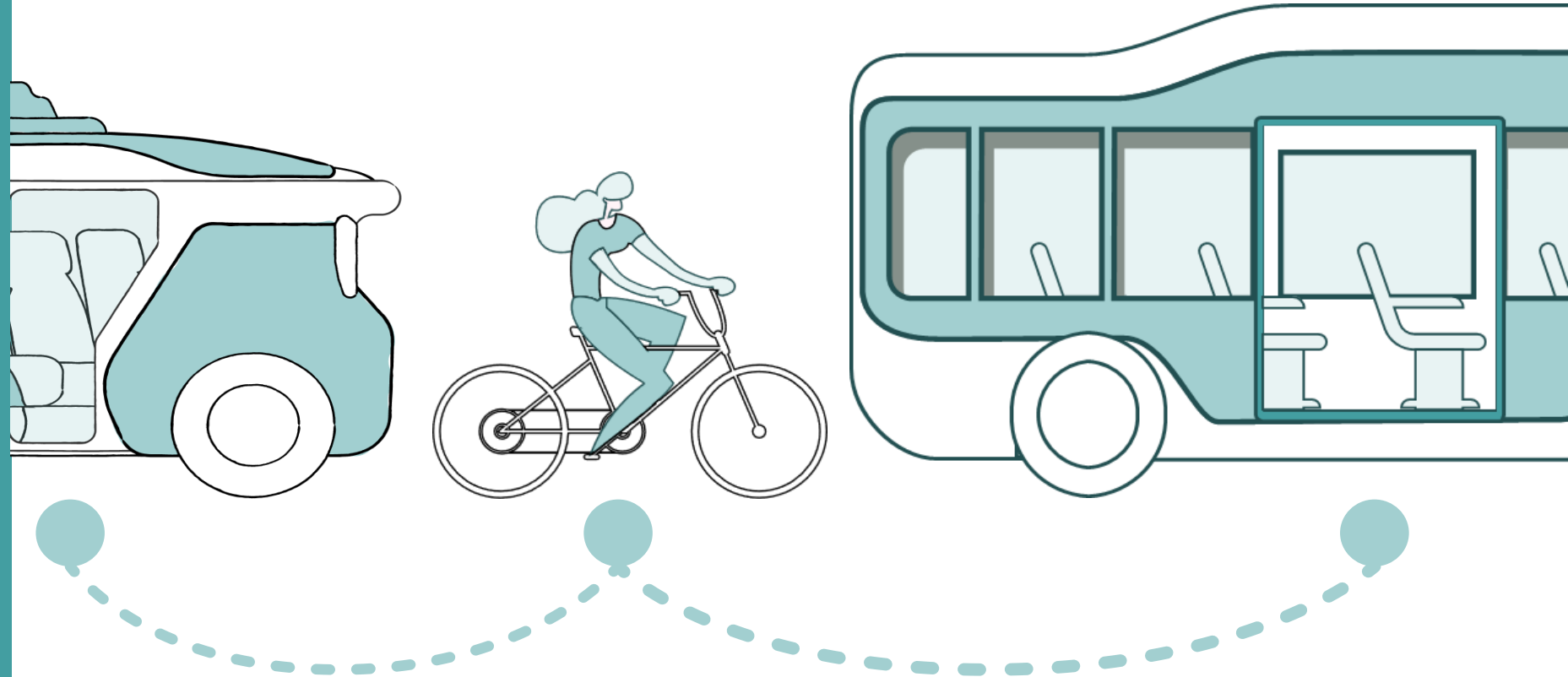
Point-to-Point



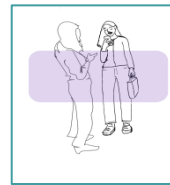
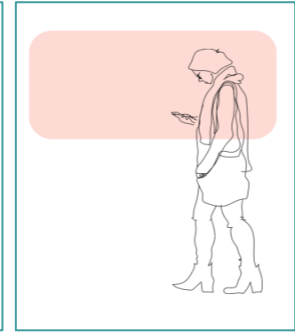
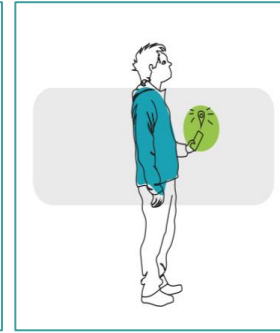
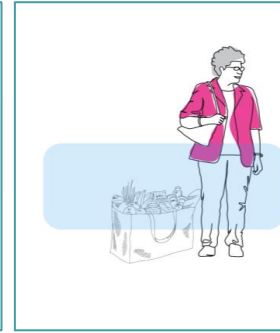
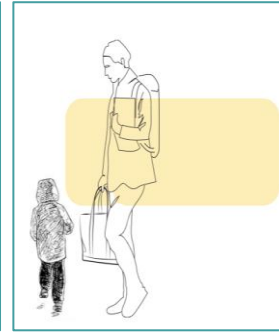
Integrated with public transport

Seamless
integrating.....

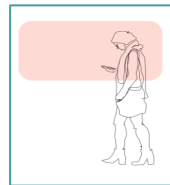
...dramatically
enhancing
freedom of
mobility for all
citizens



Who we are solving it for



Laura and Michelle going to Yoga before work.



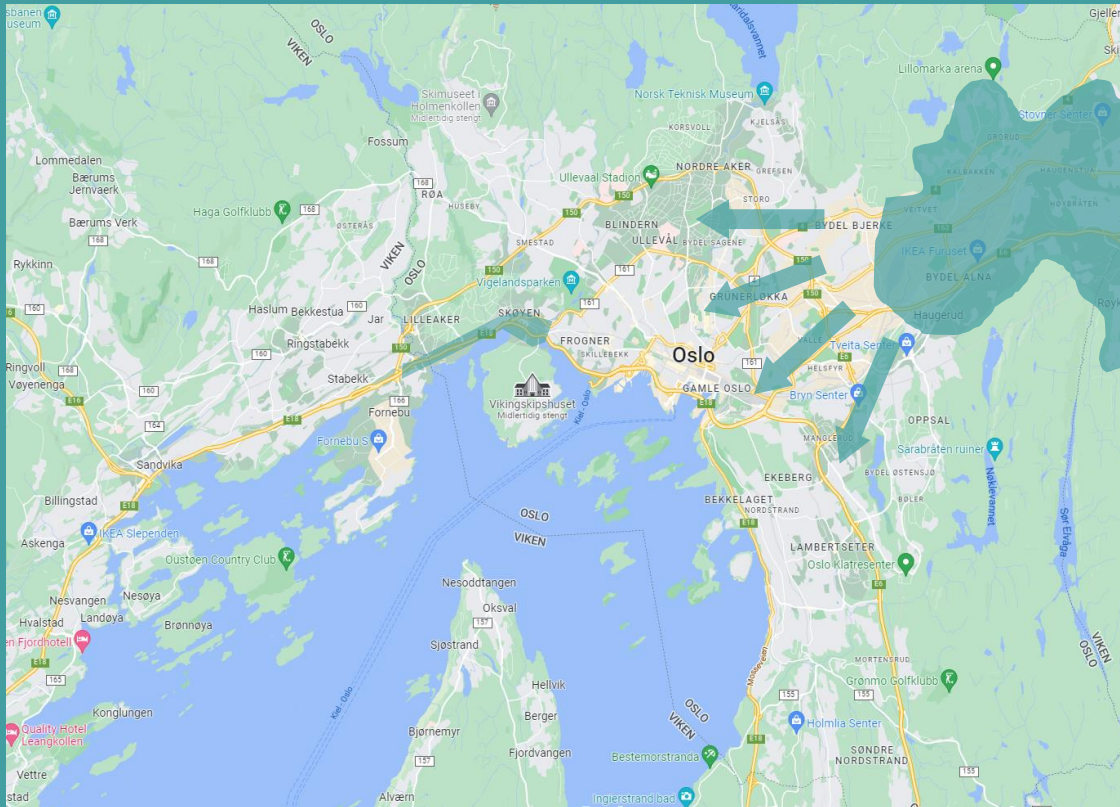
Sara 16 years is going home alone late on a Friday.



Jim is picking up his child after work.

Transforming the transportation system – our roadmap

Gradual scaleup in close cooperation with local authorities, road authorities and public transport authorities



Steady state

+ 30 000 SAVs in regions

Scaling operations

~ 20 000 SAVs in region

Business viability

20 – 500 SAVs in municipality

Technology implementation

15 – 20 SAVs in local areas

1970



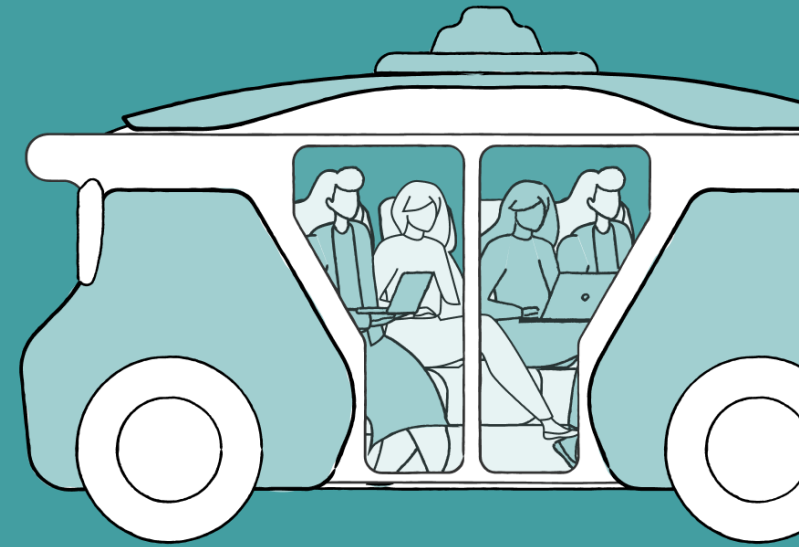
2023



Ruter#

Thank you!

We will be happy to further elaborate about our vision and ongoing project with you



Ruter#