

An aerial photograph of a two-lane asphalt road winding through a dense green forest. A small blue car is driving on the road. The text 'HERE' is overlaid in large white letters on the left side of the image.

# HERE

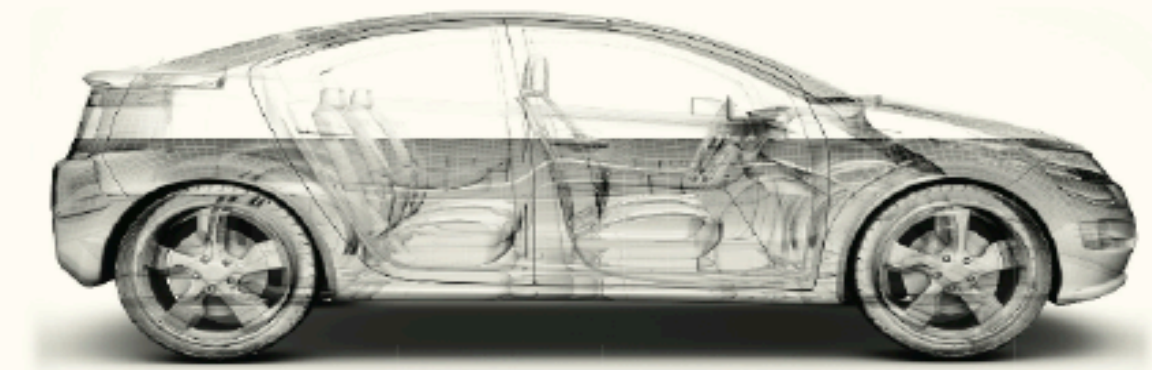
Ogi Redzic

SVP, Head of Connected Driving

HERE

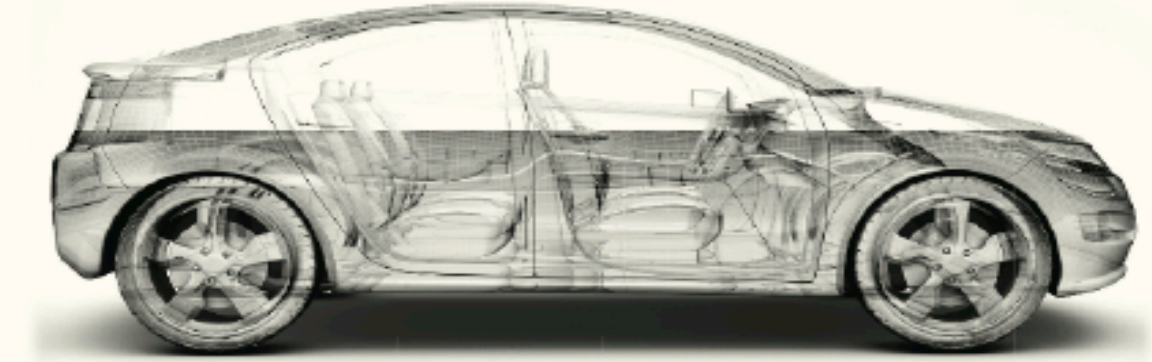


# The evolution of driving



## Basic navigation – key technology enablers

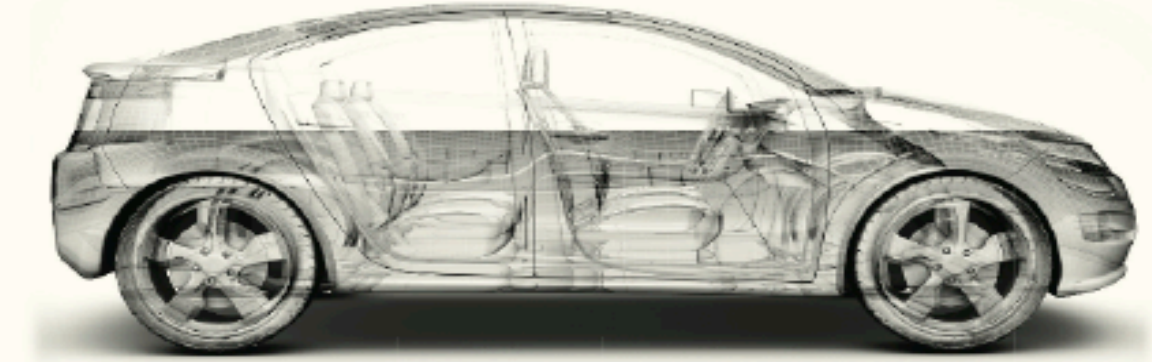
- **Automotive grade map**
- **Broadcast traffic**
- GPS sensor
- In-dash screen



## Connected Navigation – key technology enablers

- Automotive grade map
- HERE location cloud
- Automotive cloud services
  - real-time traffic
  - real-time parking availability

- Connectivity
- Multiple sensors
- Advanced Driver Assistance Systems

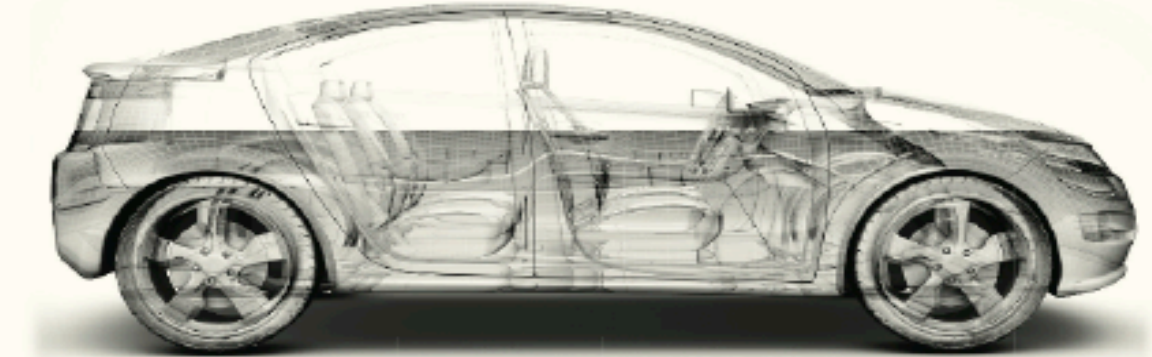




## Automated driving – key technology enablers

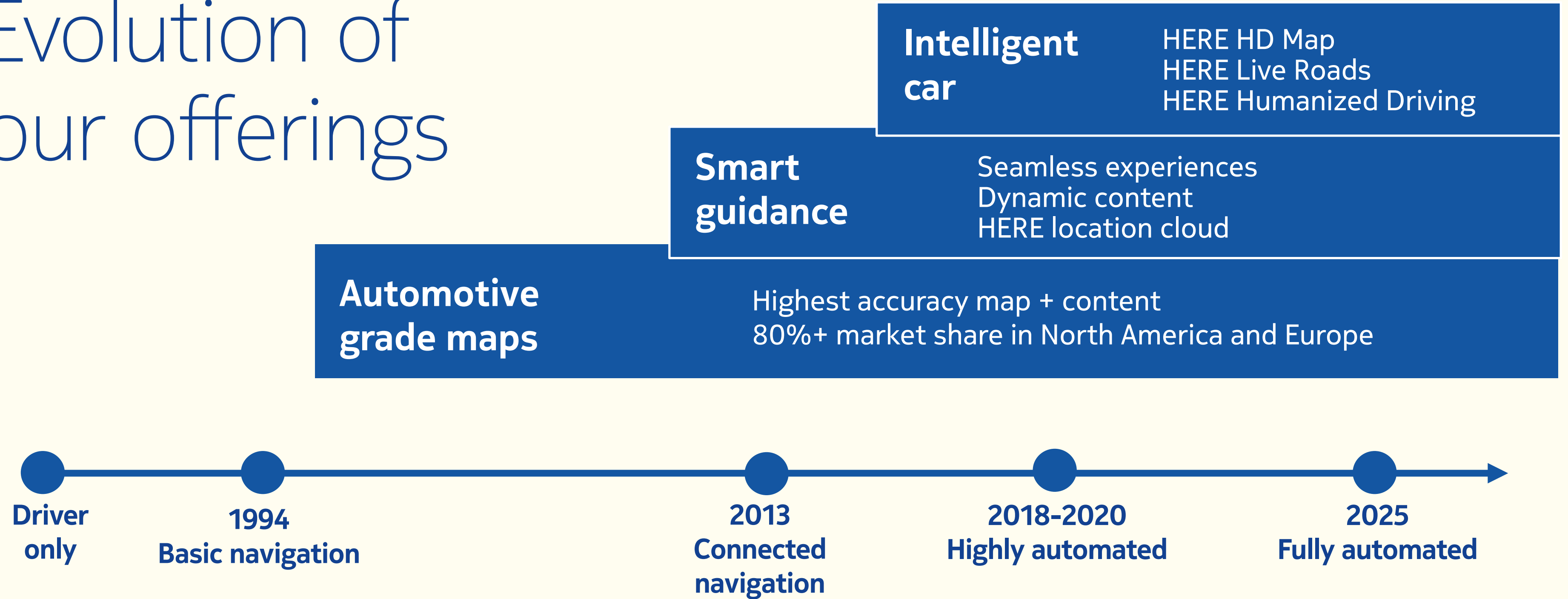
- **HERE HD Maps**
- **HERE location cloud**
- **Dynamic and predictive content**
  - **HERE Live Roads**
  - **HERE Humanized driving**
- **Connectivity**
- **Very many advanced sensors**

- **Advanced Driver Assistance Systems**
- **Powertrain actuators**
- **Steering actuators**





# Evolution of our offerings





HERE now – at the  
forefront of Smart  
Guidance



HERE now – at the forefront of Smart Guidance





HERE now – at the forefront of Smart Guidance



## Relevant

Contextual, dynamic, personalized maps powered by HERE location cloud



## Seamless

A complete end-to-end experience



HERE in the future –  
the Intelligent Car



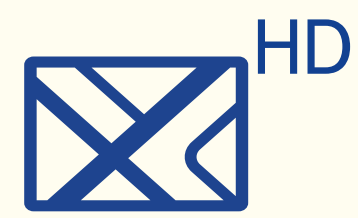
The problems  
we are solving



The problems we are solving

Problem	Key needs	HERE solution
Where exactly am I?	Precise positioning for lateral and longitudinal control of vehicle on the road surface	HD Map
What lies ahead?	Accurate planning of vehicle control maneuvers beyond sensor visibility	Live Roads
How can I get there comfortably?	Making automated driving comfortable for people	Humanized Driving

# Intelligent Car – HERE HD Map



## HD Map

Precise positioning for lateral & longitudinal control of vehicle on the road surface



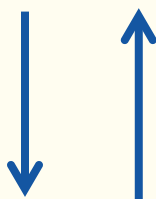
## Live Roads

Accurate planning of vehicle control maneuvers beyond sensor visibility.



## Humanized Driving

Making automated driving comfortable and acceptable for humans



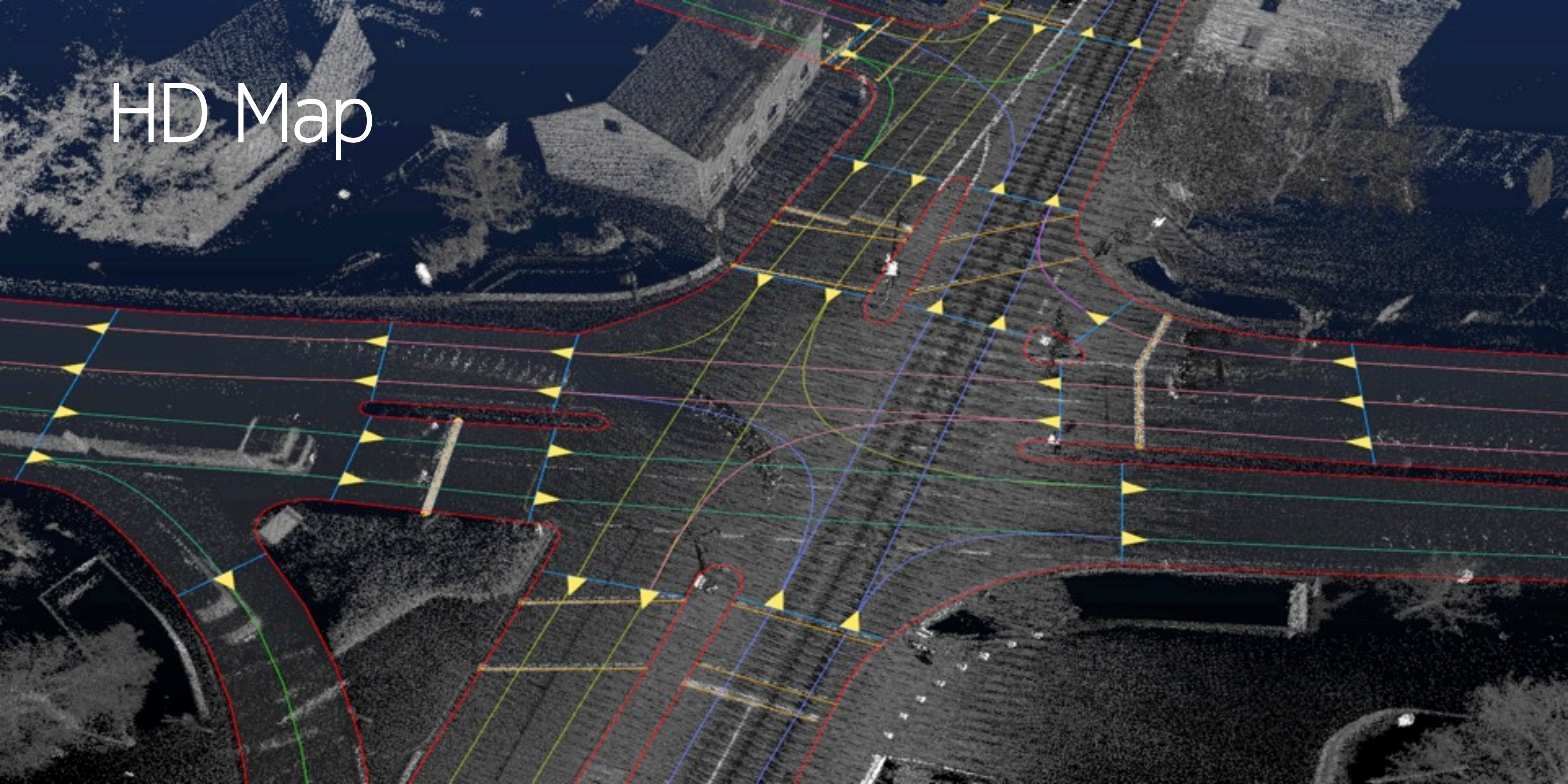


Standard Map



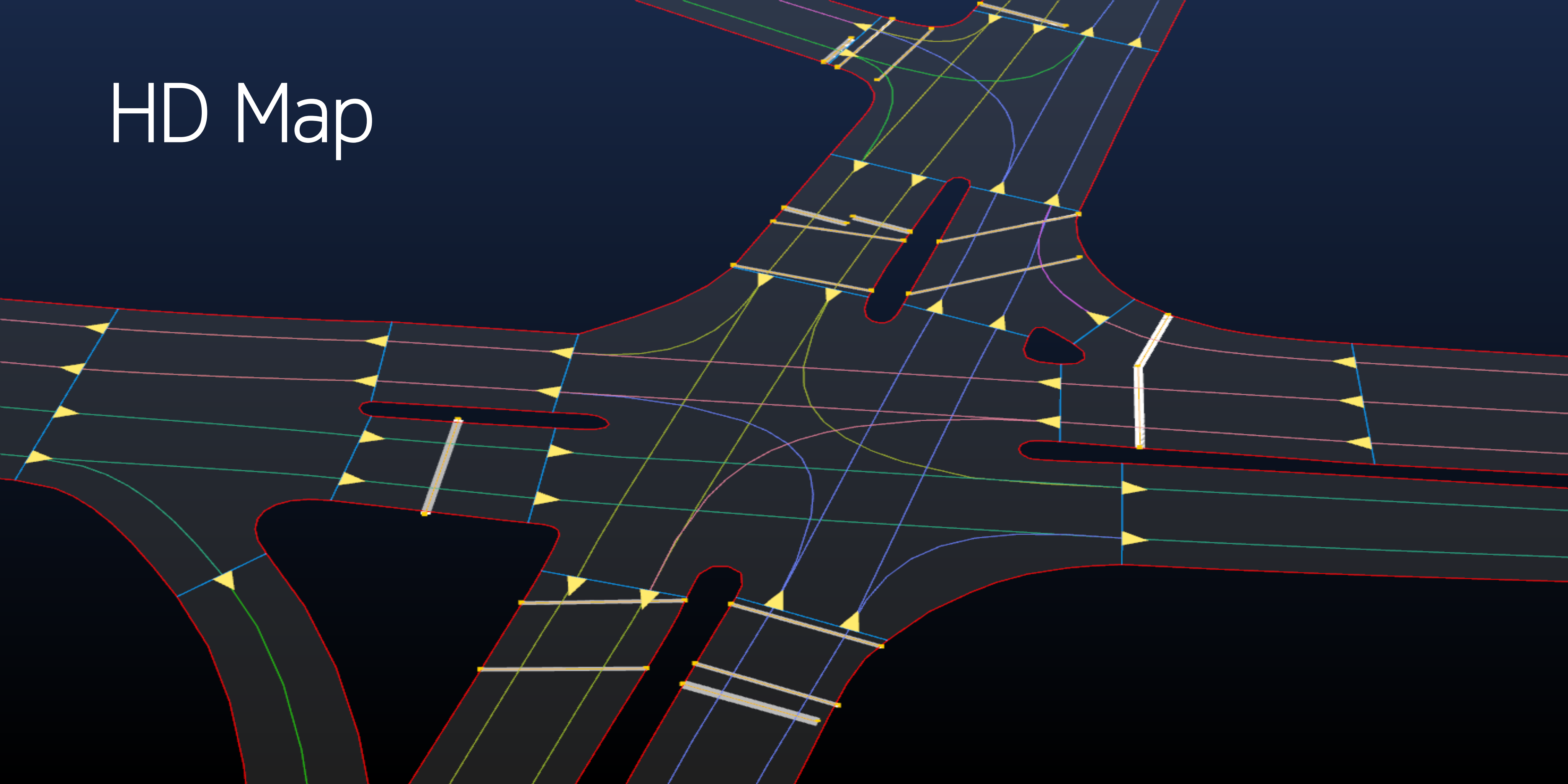


HD Map





# HD Map

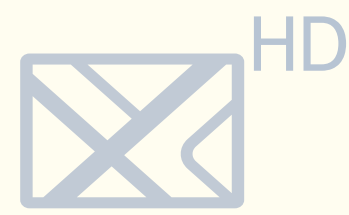


# HD Map & Standard Map Compared





# Intelligent Car – HERE Live Roads



## HD Map

Precise positioning for lateral & longitudinal control of vehicle on the road surface



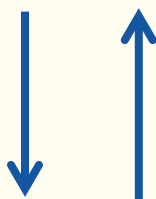
## Live Roads

Accurate planning of vehicle control maneuvers beyond sensor visibility.



## Humanized Driving

Making automated driving comfortable and acceptable for humans



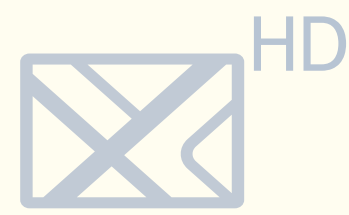


# HERE Live Roads Cloud as “Extended Sensor”





# Intelligent Car – HERE Humanized Driving



## HD Map

Precise positioning for lateral & longitudinal control of vehicle on the road surface



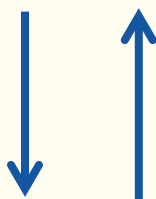
## Live Roads

Accurate planning of vehicle control maneuvers beyond sensor visibility.



## Humanized Driving

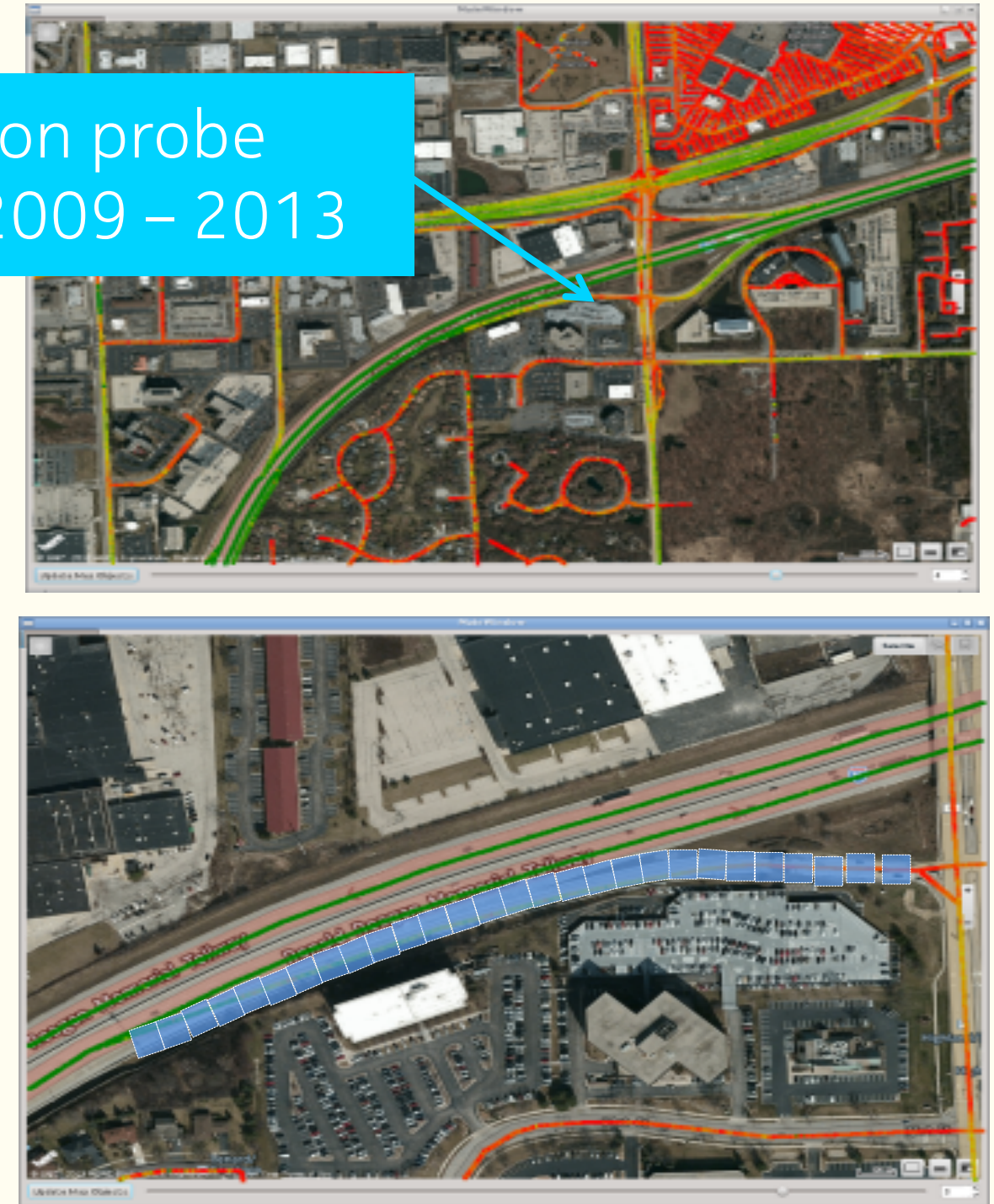
Making automated driving comfortable and acceptable for humans



## Intelligent Car – HERE Humanized Driving

- Speed profiles for link level road network
- Individualization based on driving behavior
- A personal identity for automated vehicles

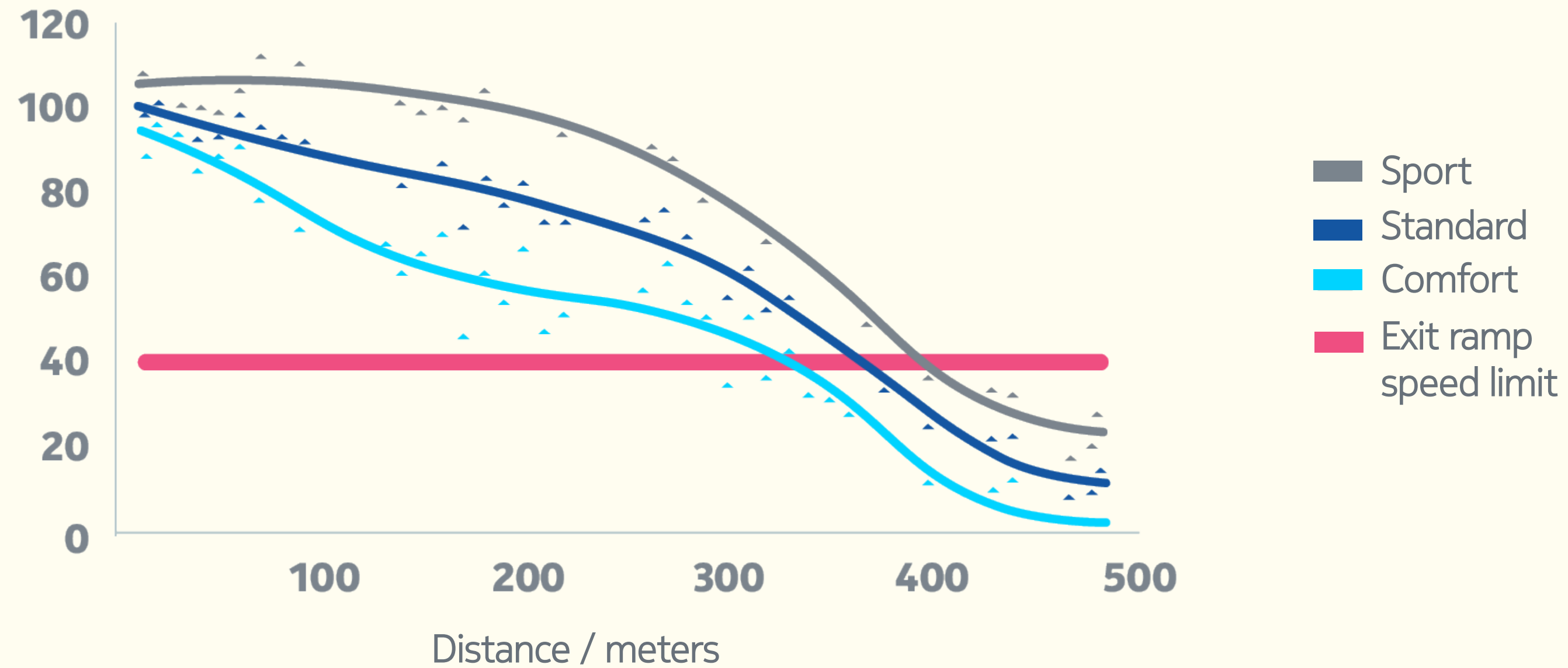
7.2 million probe points 2009 – 2013





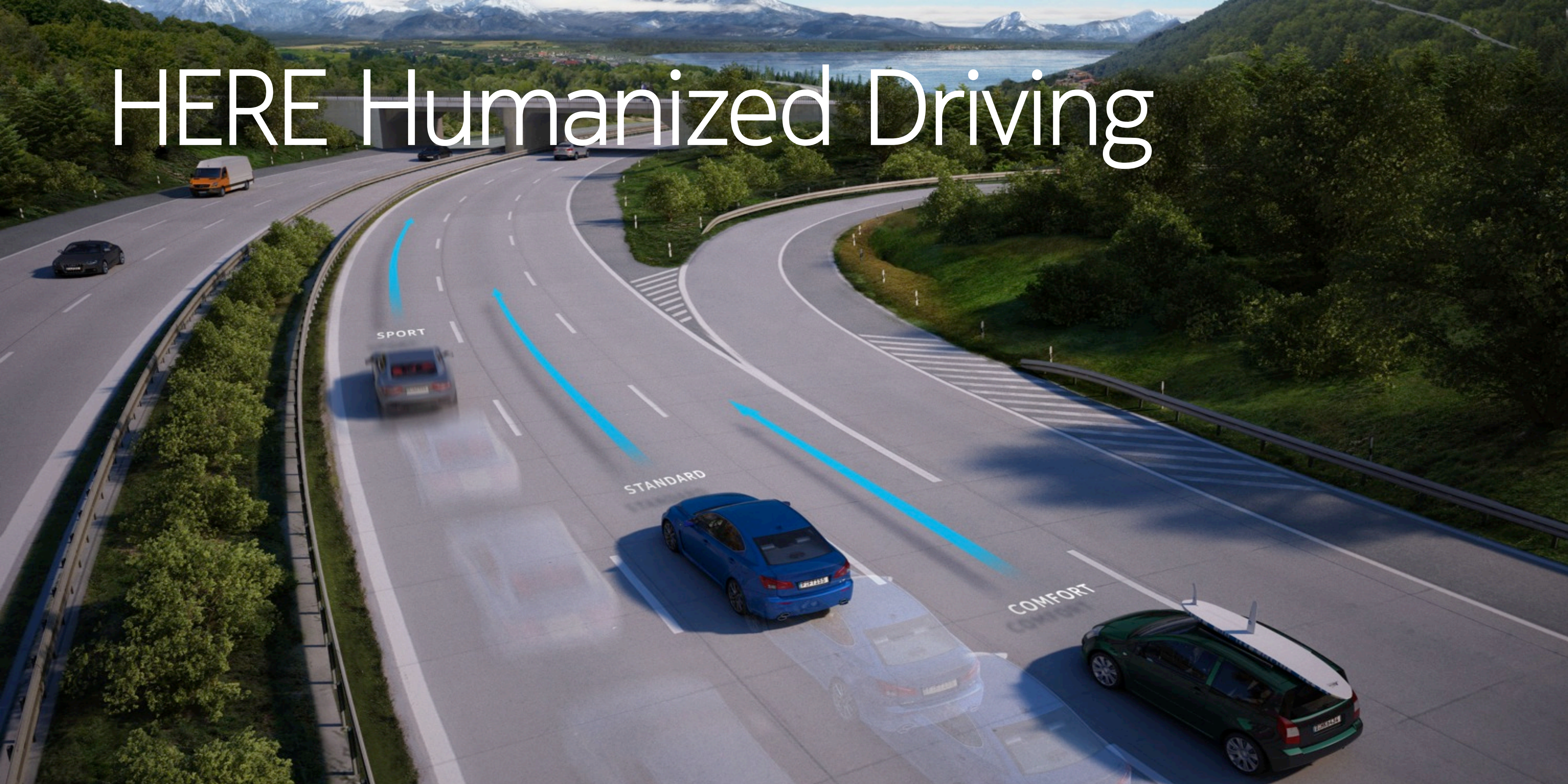
# Intelligent Car – HERE Humanized Driving

## Speed profiles





# HERE Humanized Driving







**Formula 1 driver**



**My Granny**





FIAT



Cadillac

Ferrari



ALPINE  
PORSCHE



Jeep



SAAB

Audi

CHRYSLER



NISSAN



DENSO



HARMAN



Panasonic

TELENAV

AI SIN



GARMIN

DELPHI



TechniSat





## Summary

**We are building key assets to bring the future intelligent car to life through**



### **HERE HD Map**

Precise vehicle positioning, with 10-20 centimeter accuracy



### **HERE Live Roads**

Leveraging the HERE Location Cloud, to provide critical information that is beyond the reach of sensors



### **HERE Humanized Driving**

Making automated driving more comfortable and acceptable to humans



# Disclaimer

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reported information for historical periods can be found in Nokia's respective results reports. Please see our issued Interim Reports for more information on our results and financial performance for the indicated periods as well as our operating and reporting structure.

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