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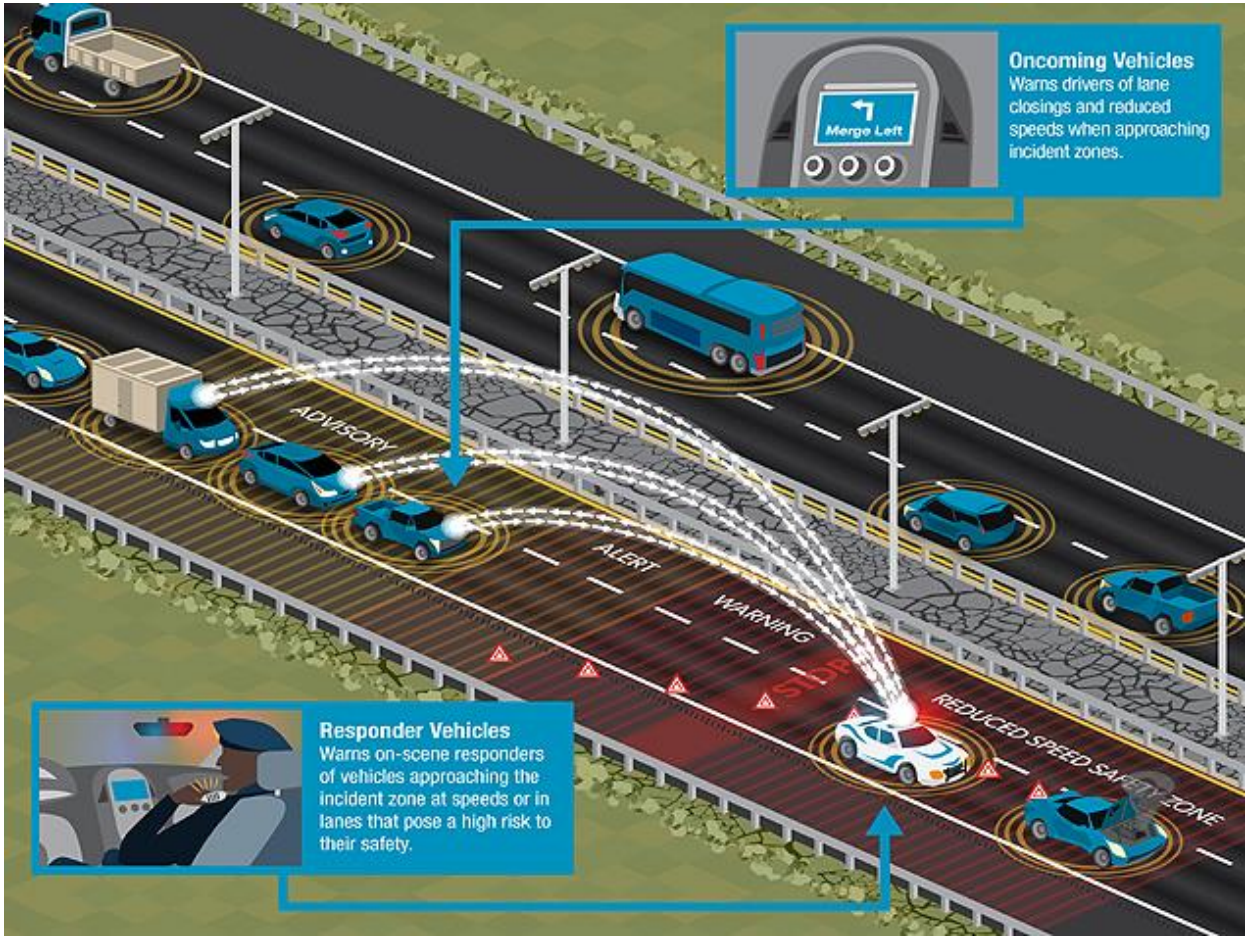
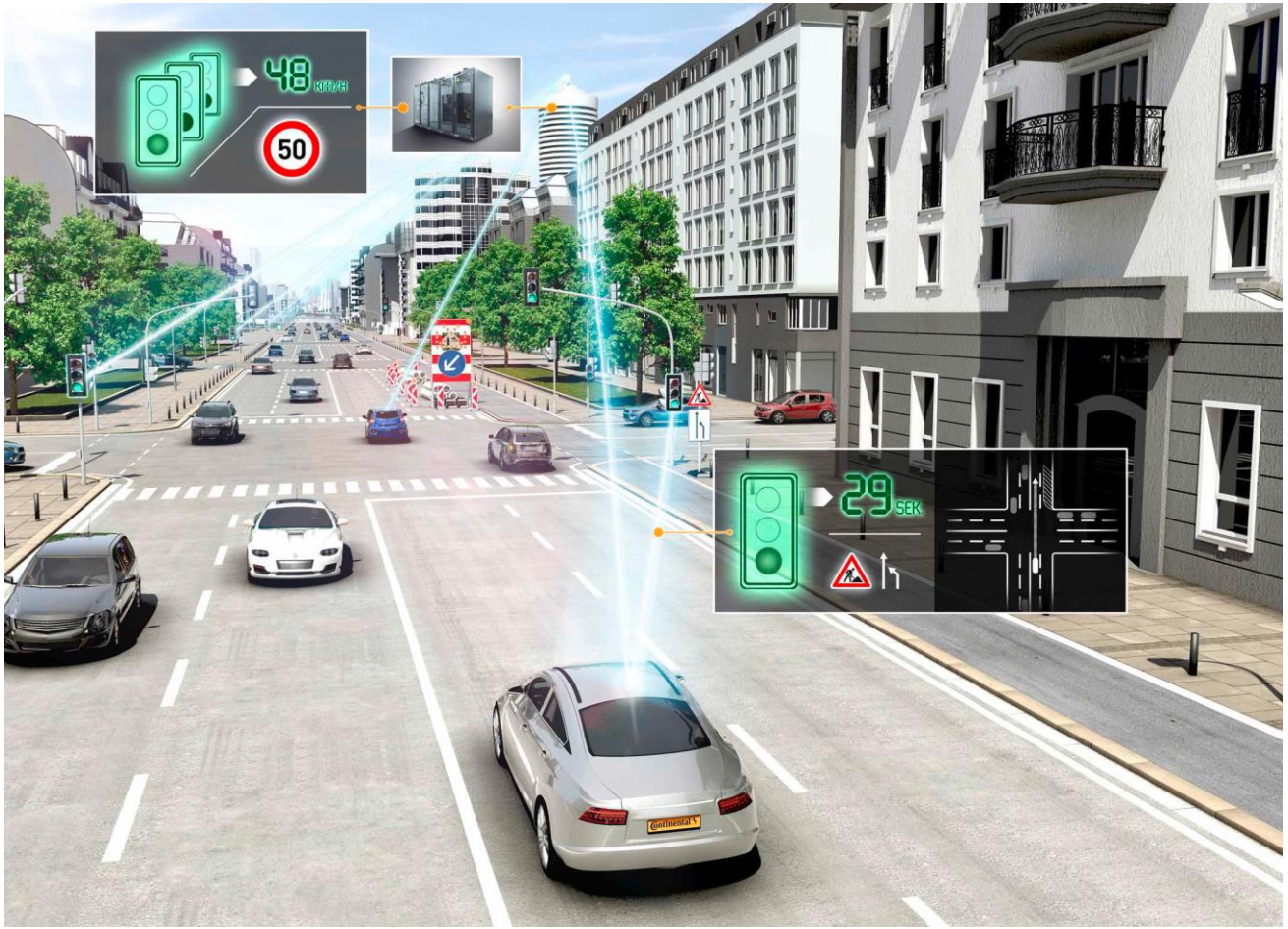
Australia – New Zealand SBAS Demonstrator

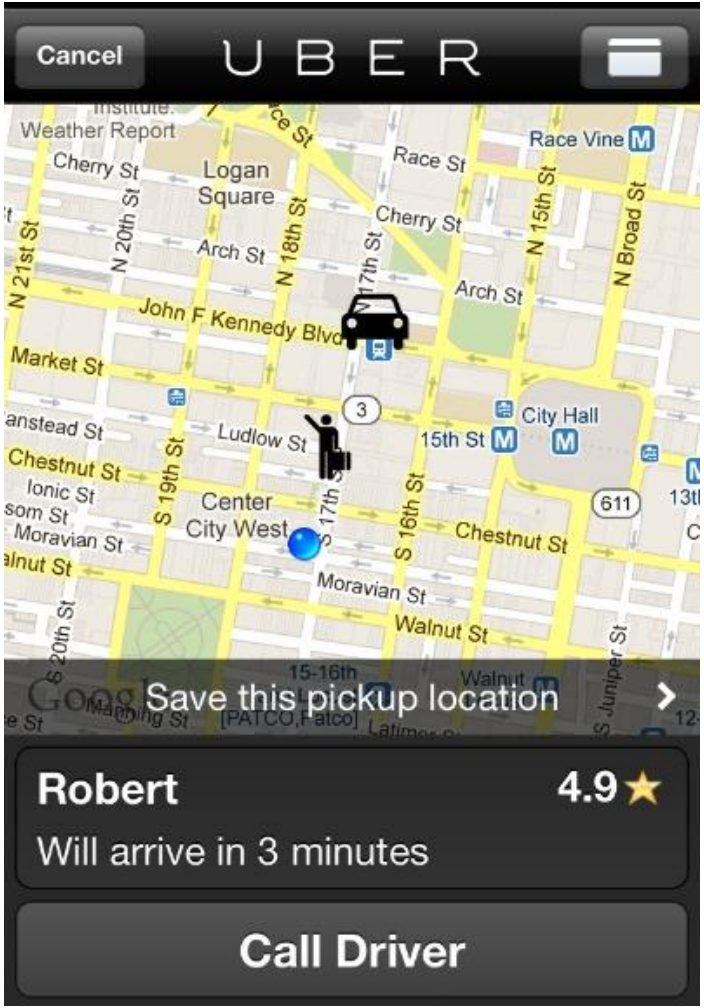
Matt Amos | Deputy Chief Geodesist

NZIS Conference 2017, Napier, 23 June 2017

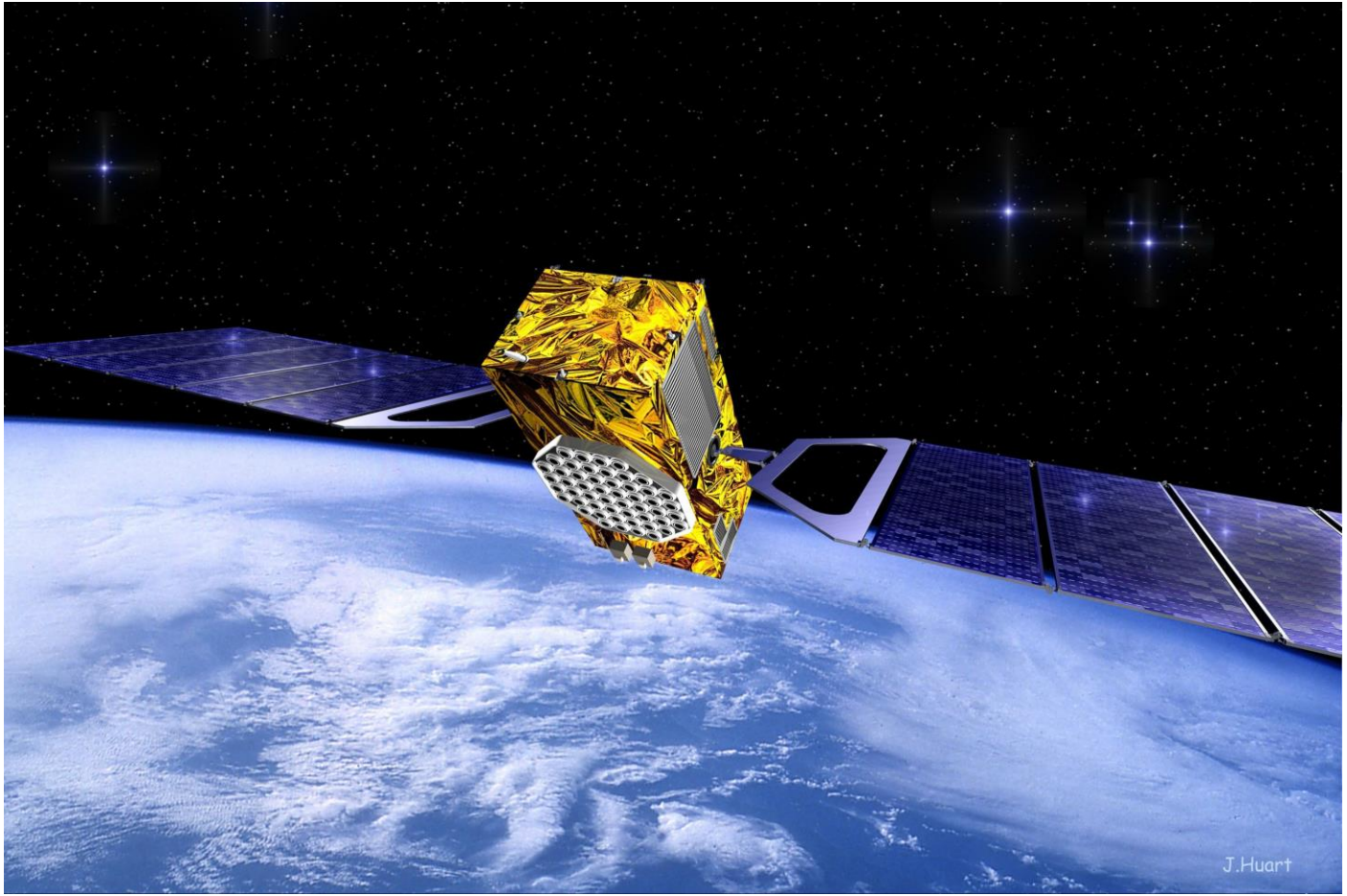
HLF
Life Flight
WELLINGTON FREE AMBULANCE
AMBULANCE
©111Emergency 2012


Merge Left
Oncoming Vehicles
Warns drivers of lane closings and reduced speeds when approaching incident zones.
ADVISORY
ALERT
WARNING
REDUCED SPEED SAFETY ZONE
Responder Vehicles
Warns on-scene responders of vehicles approaching the incident zone at speeds or in lanes that pose a high risk to their safety.


48 KM/H
50
29 SEK


Cancel
UBER
Weather Report
Cherry St
Logan Square
Race St
Race Vine
N 20th St
N 18th St
N 17th St
N 15th St
N Broad St
N 21st St
Arch St
Cherry St
Arch St
John F Kennedy Blvd
Market St
3
City Hall
15th St
Ludlow St
anstead St
Chestnut St
Ionic St
som St
Moravian St
lnut St
S 19th St
Center City West
S 17th St
S 16th St
611
Chestnut St
Moravian St
Walnut St
S 20th St
15-16th
Walnut
Save this pickup location
Robert
4.9
Will arrive in 3 minutes
Call Driver

Cancelled
BA 5170
6:55p Cancelled AA 564
4:55p Cancelled AA 366
5:55p Cancelled AA 4592
2:15p Cancelled BA 6547
3:55p Cancelled BA 7847
1:29p Cancelled AA 4656
3:10p Cancelled AA 4653
5:00p Cancelled


J.Huart

Global Navigation Satellite Systems

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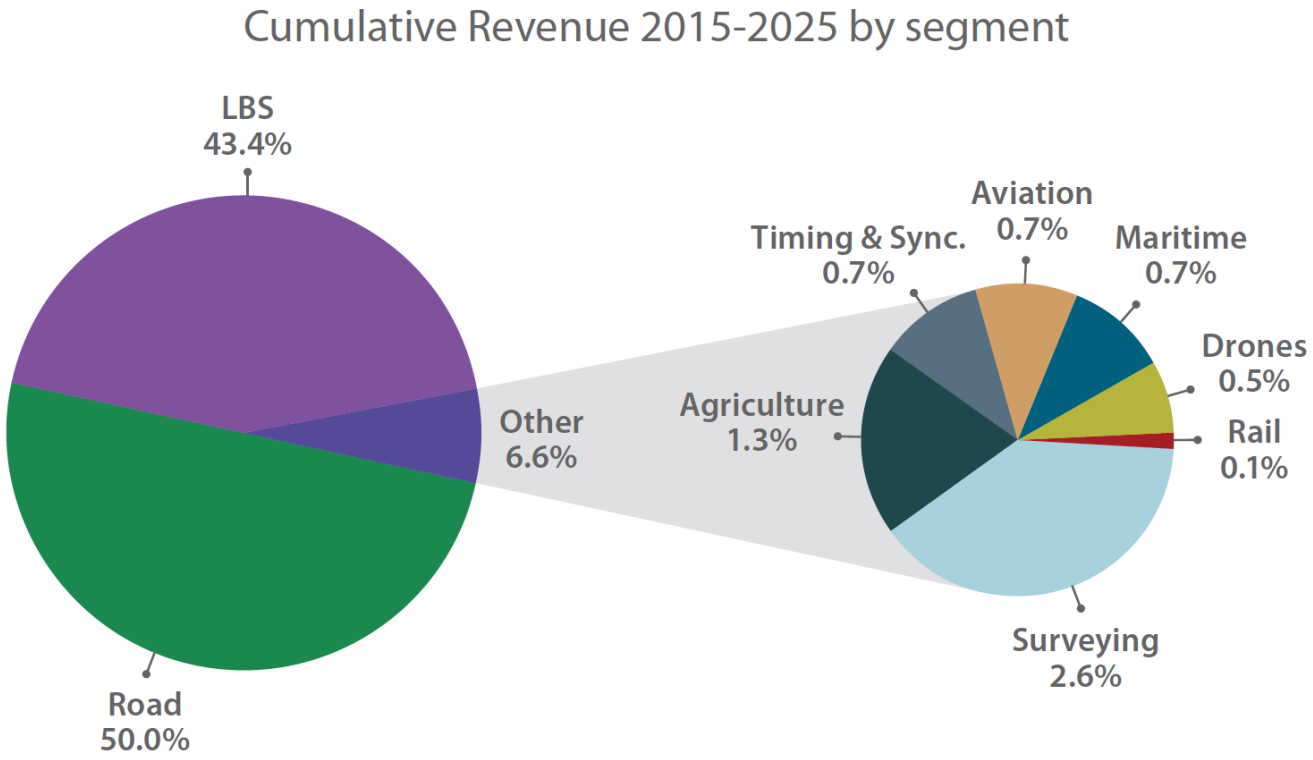
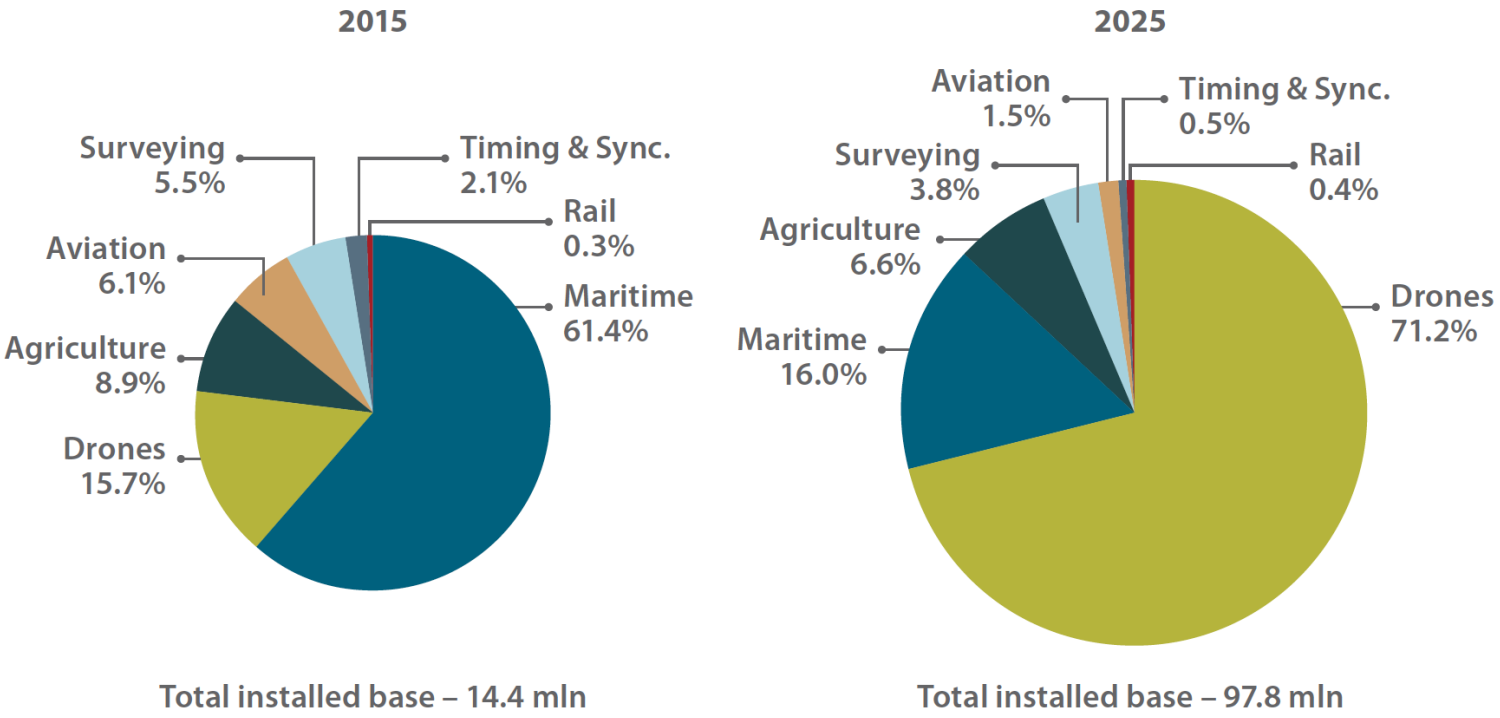


€50 bn Devices and augmentation services (2017), €75 bn (2025)
€75 bn Added value services (2017), €195 bn (2025)

Installed base of 'Professional' segments



Accuracy or Precision?

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SBAS Basics

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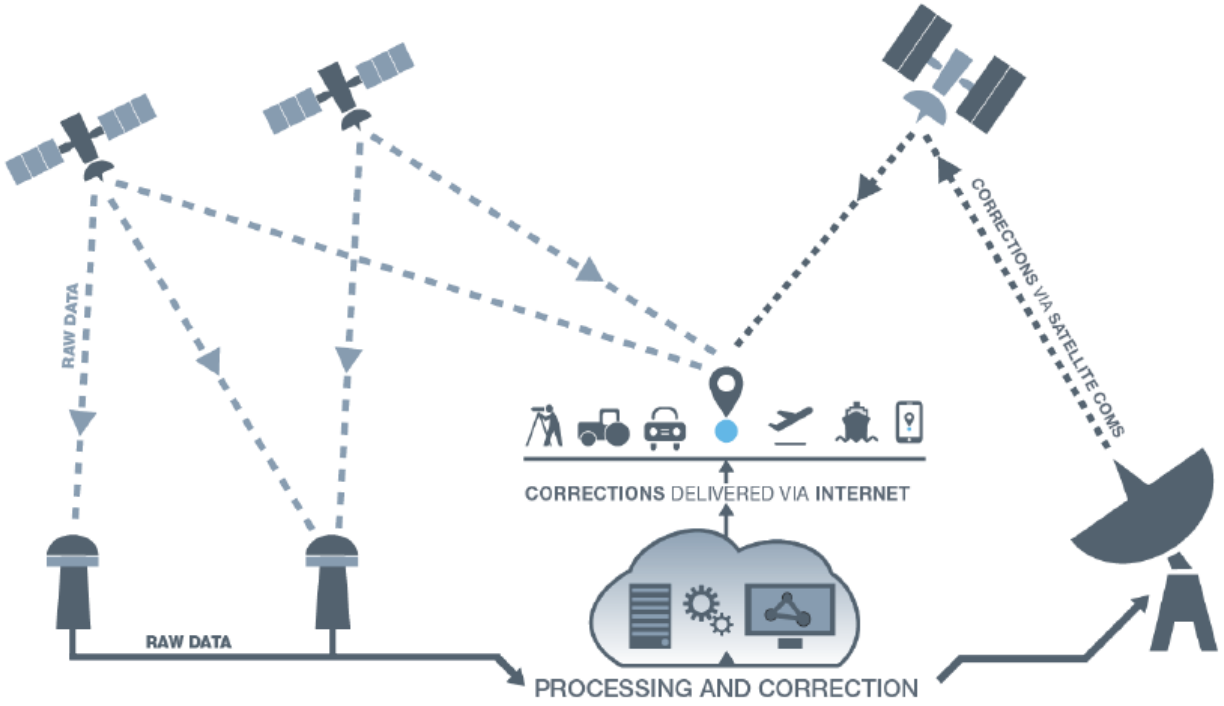

Global SBAS Coverage

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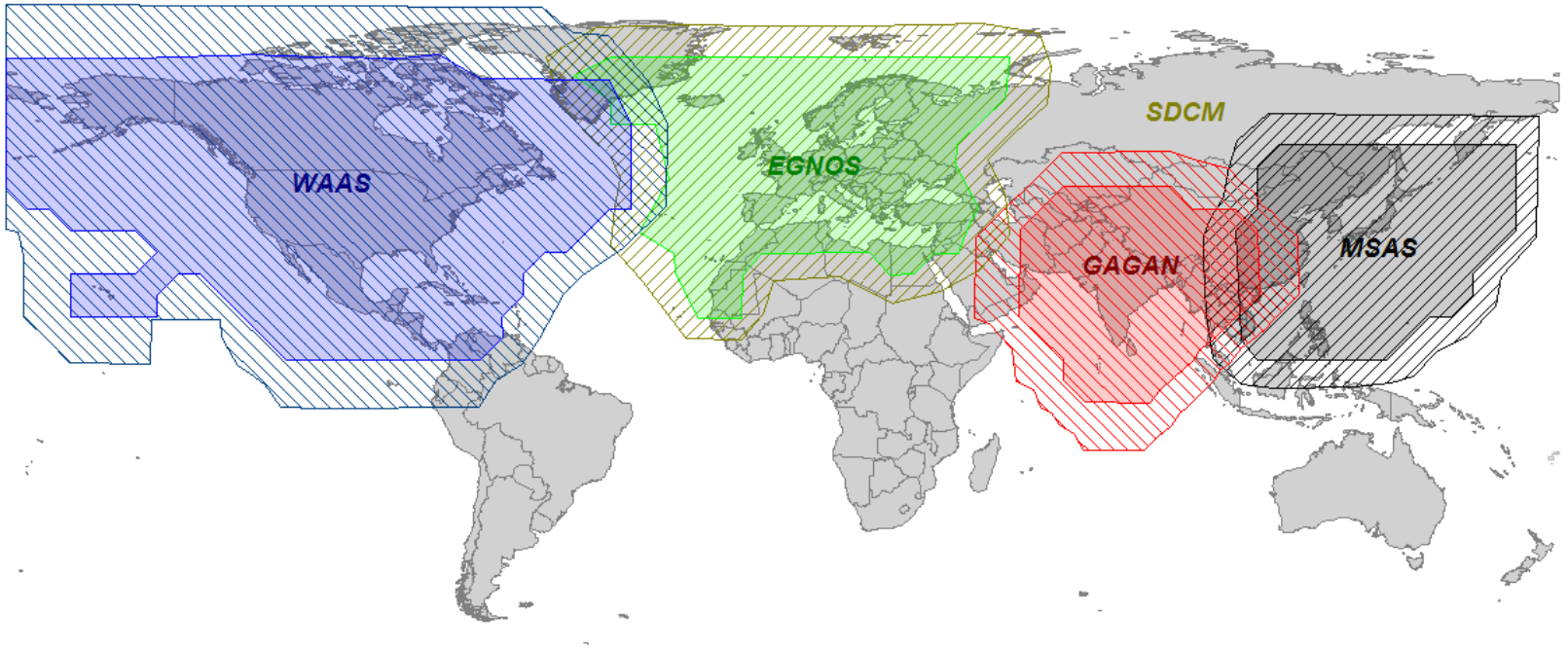

“The Prime Ministers welcomed the signature today of the Australia New Zealand Science, Research and Innovation Cooperation Agreement. Agreed to … test a second-generation Satellite-Based Augmentation System in both countries.”

Joint Statement by Prime Ministers the Rt Hon Bill English and the Hon Malcolm Turnbull MP, 17 February 2017

Trial Objectives

1. Assess current and future technology

2. Explore current industry positioning requirements

3. Explore industry innovations

Ultimately, determine if New Zealand should pursue the development of an operational SBAS

Australia – New Zealand SBAS Demonstrator

NZ Government Participants

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

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NZ TRANSPORT AGENCY
WAKA KOTAHI

CAA
CIVIL AVIATION AUTHORITY OF NEW ZEALAND

Ministry of Transport
TE MANATŪ WAKA

ON THE ROAD
ON THE WATER
ON THE TRAIN
ON THE AIR
GOING MOBILE
ON THE FARM
ON THE MAP
DURING AN EMERGENCY

What is being trialled?

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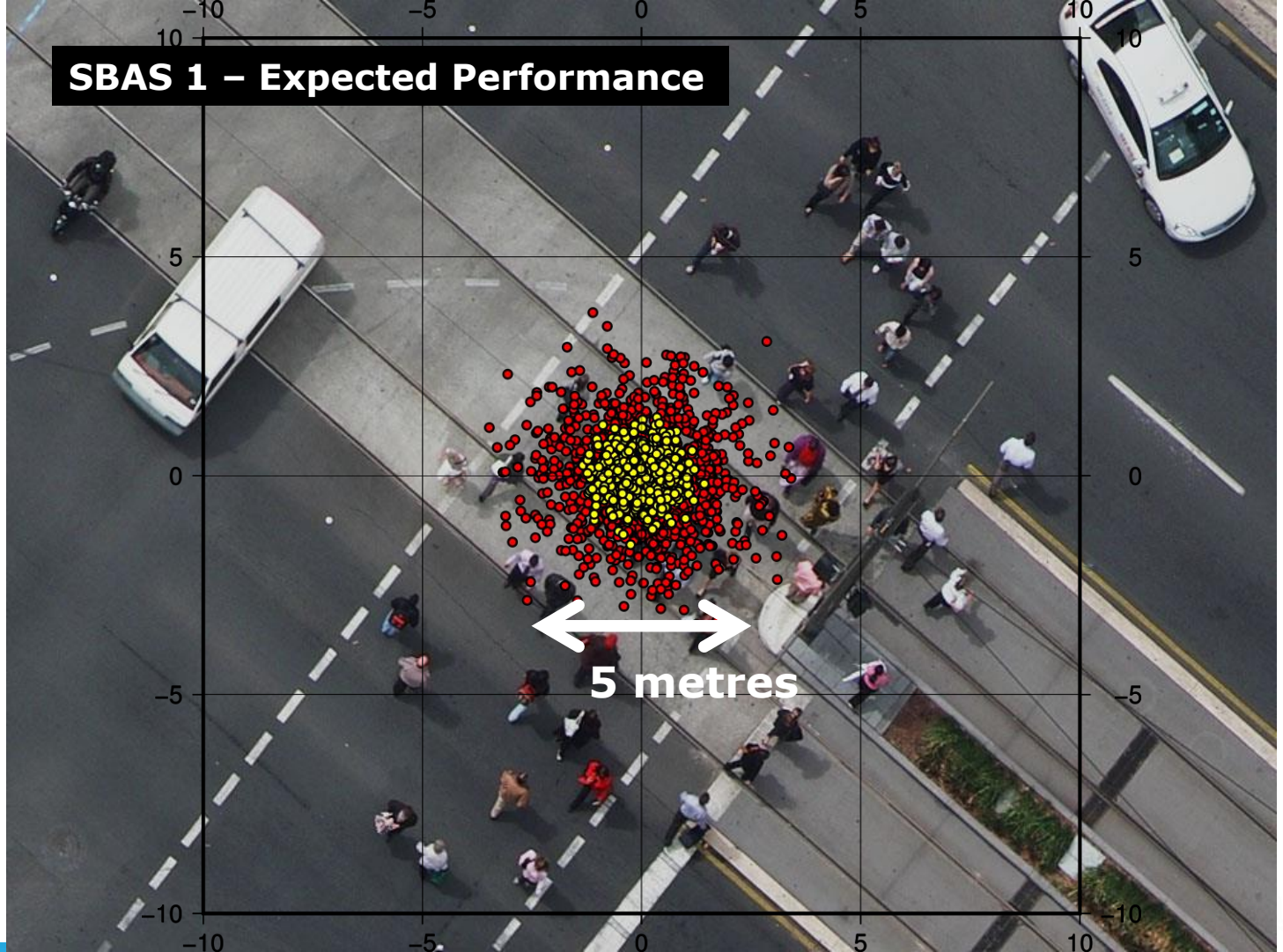
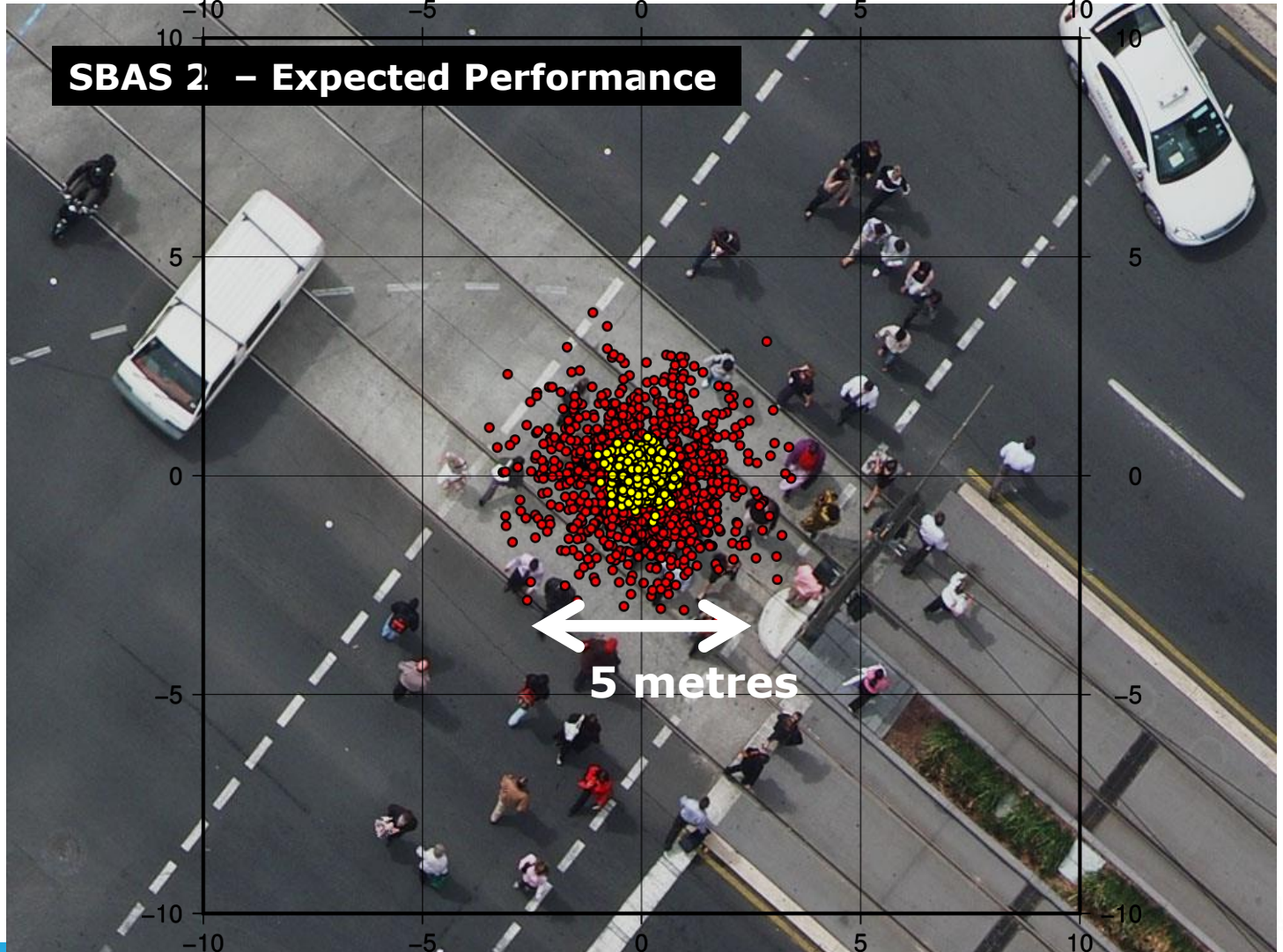
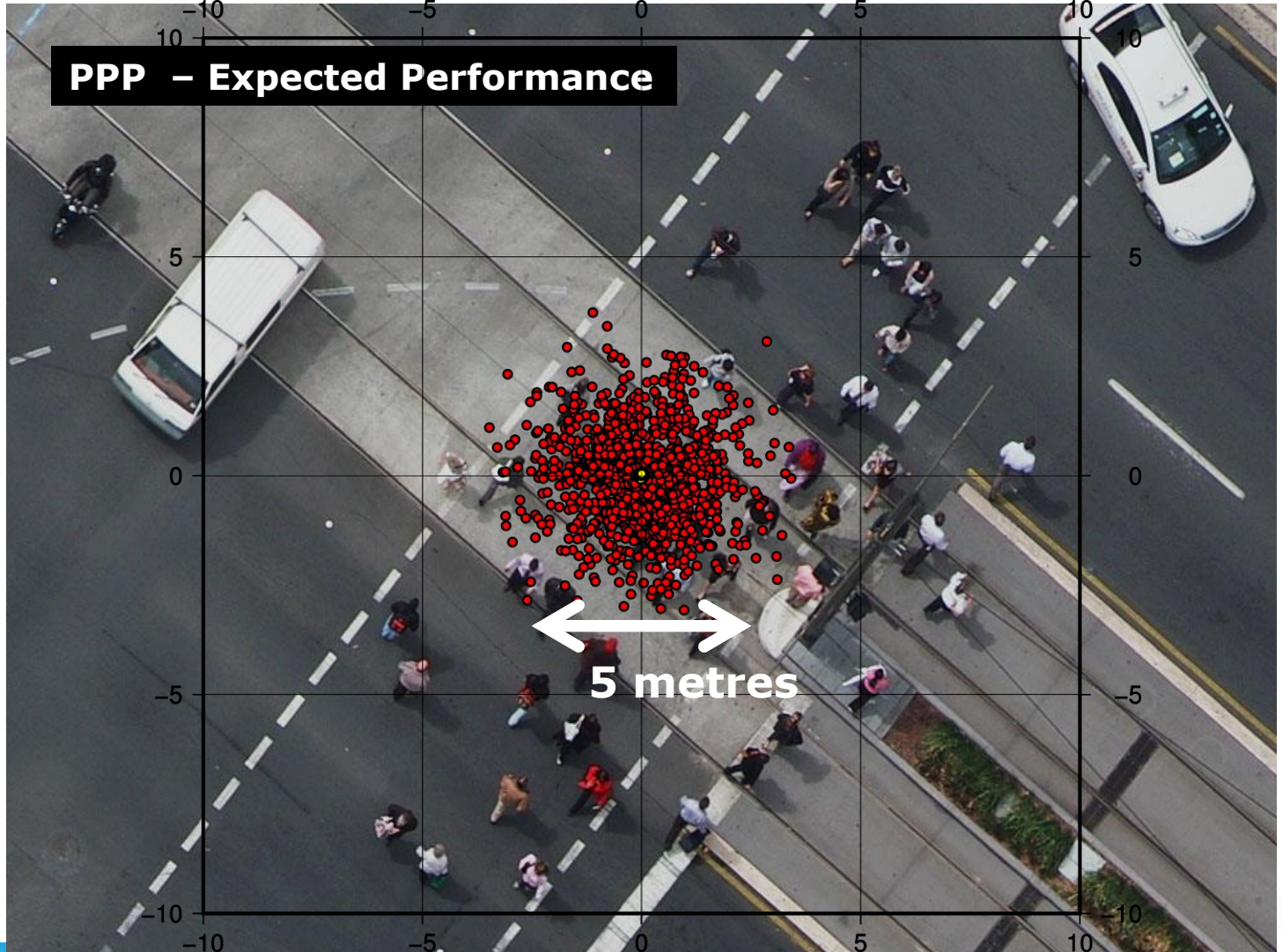
- Current Generation SBAS (L1 GPS)
  - EGNOS, WAAS, aviation certified
- Next-Generation SBAS (L1/L5 GPS/Galileo)
  - More satellites, better in urban canyons
- Precise Point Positioning (PPP) (L1 GPS)
  - Future of autonomous positioning


SBAS 1 – Expected Performance
5 metres
−10
−5
0
5
10


SBAS 2 – Expected Performance
5 metres
10
5
0
−5
−10
−10
−5
0
5
10


PPP – Expected Performance
5 metres
−10
−5
0
5
10

PPP – Expected Performance (after convergence)
5 centimetres

SBAS Service Availability

Trial Programme

- Demonstrator projects sought across Australia and New Zealand
- EOI process completed, proposals being developed
- Operative until January 2019
- Economic benefit analysis developed towards end of 2018
- Inform potential business case for operational service

Summary

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- GNSS is an essential component of many existing and emerging applications
- SBAS is a “hygiene factor” for several use cases
- NZ and Australia have partnered to investigate the benefit of a SBAS for the region
- Results of the project are expected in late 2018

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drives NZ's success

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