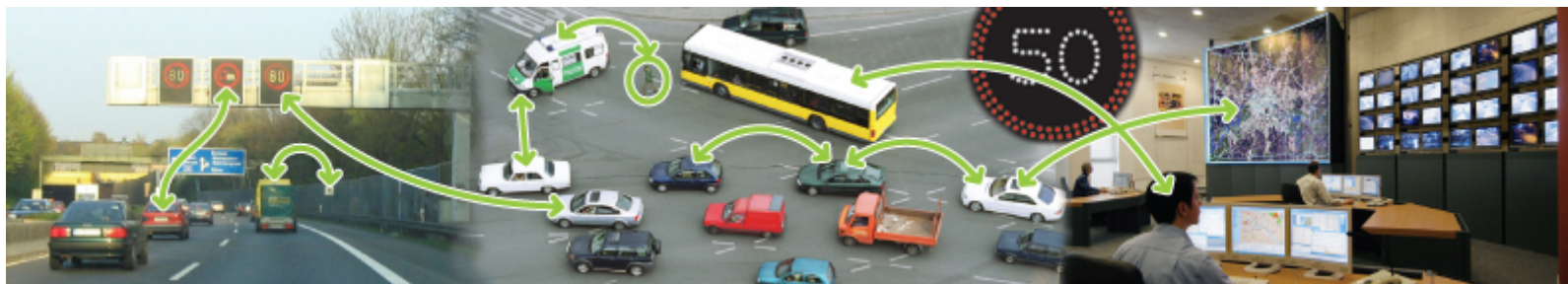




**VOLVO**

# Preparing a Cooperative Systems Test Site

David Rylander,  
Project Manager, Volvo AB, Sweden





# Test Site objectives



- Validate a number of applications where heavy goods vehicles cooperate with public infrastructure to gain transport efficiency, safety, security and environmental benefits
- Integrate several ITS / Cooperative Systems projects into a common test site
- Create a demonstration site that can continue after the end of the CVIS project, for dissemination to the research community and the general public



# CVIS applications

## Test Site Sweden



- CF&F: Dangerous goods monitoring and route guidance, where the truck driver gets the support to select the proper route through a city, and traffic managers get an overview of sensitive transports in the region
- CINT: Enhanced Driver Awareness, allowing drivers to be up-to-date with the latest traffic rule information for the local area and safety critical events. Examples:
  - Ghost Driver detection
  - Dynamic speed alert
- COMO: Cooperative Monitoring, in which the vehicles and drivers effectively share real-time traffic information between themselves and the public authorities



# Challenges in building the test site

- Realistic test scenarios on public roads
- Wireless communication infrastructure
- Co-location / technology sharing with Safespot





# First step: Beta Integration site



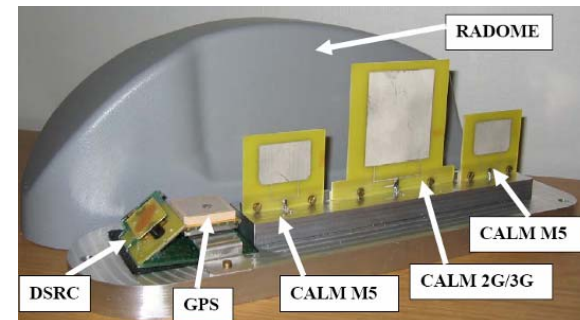
- The Swedish Test Site has been appointed CVIS Beta Integration Site
- This means early integration and testing of
  - Core technologies (positioning, communication etc.) integrated into a common target platform
  - Integration tests in vehicles / road side units
- => the CVIS hardware is prepared for a smooth integration into the other Test Sites



Special Session 22 - CVIS



ITS Europe, Geneva, 2008

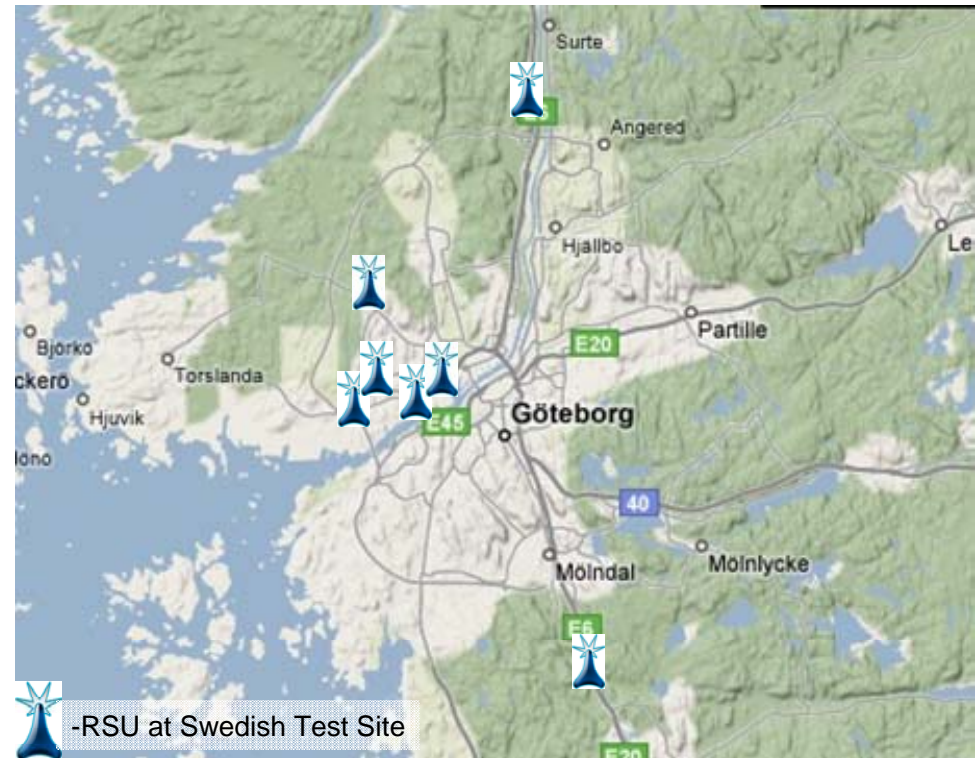




# Swedish Test Site Characteristics

Location: Gothenburg, Sweden

- Demo Site - Lindholmen Science Park
- Road tunnels
- Urban roads
- E6 Highway
- Closed Test Track



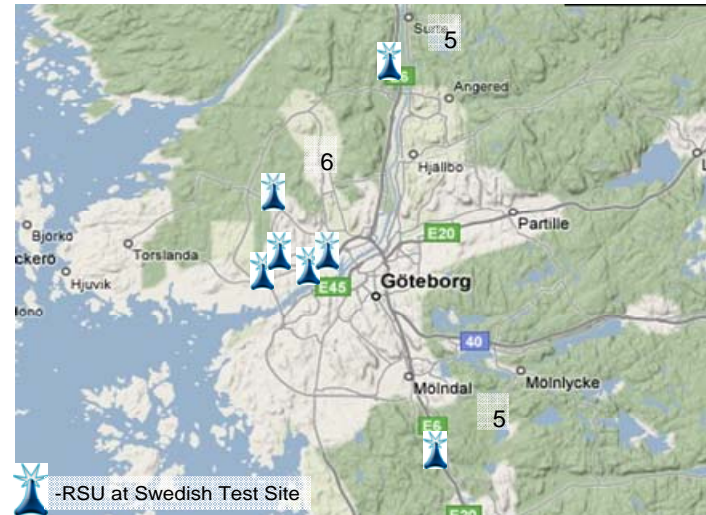
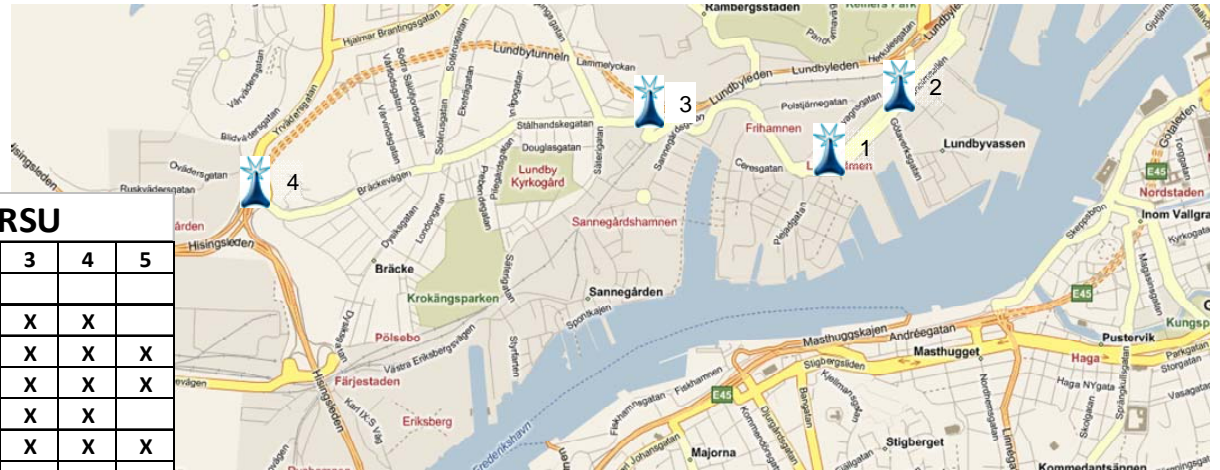




# RSU Locations



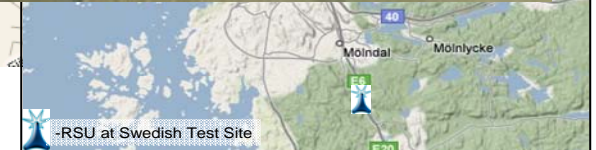
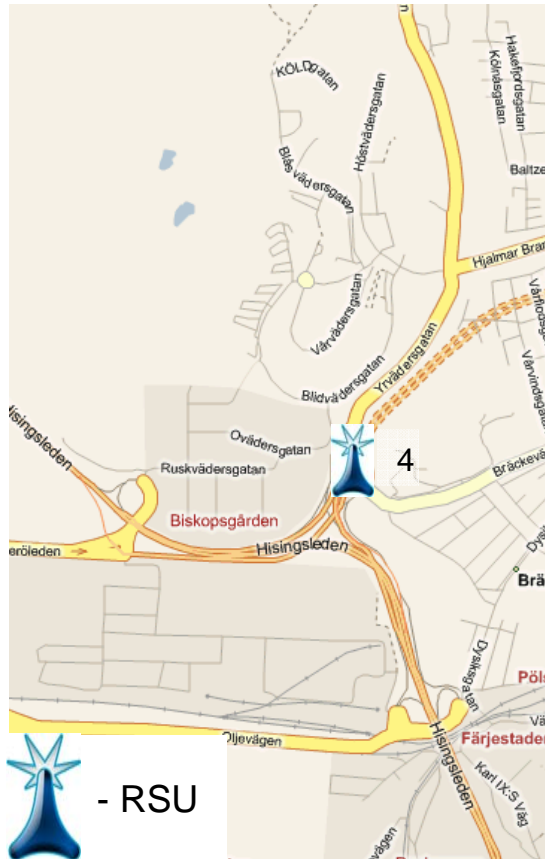
	RSU				
	1	2,6	3	4	5
<b>Legacy system</b>					
Queue detection			X	X	
Speed alert variable VMS			X	X	X
Weather databases for road condition			X	X	X
Obstacle detection			X	X	
Route travel time			X	X	X
Accidents & road works					X
<b>SafeSpot System</b>					
Road condition camera (VTT)	X				
License Plate reg (Kapsch)			X		
<b>CVIS System</b>					
Ghost Detection (Kapsch)	X				
<b>SafeSpot Applications</b>					
Frontal Collision Warning		X	X	X	
Road Condition Status	X				
Vulnerable Road User/Pedestrian	X	X			
Speed Limitation and Safety Distance			X	X	
<b>CVIS Applications</b>					
CF&F DG Monitoring					X
CF&F DG Route Guidance					X
CINT EDA Dynamic speed alert			X	X	
CINT Ghost Driver	X	X			
COMO EFCD Extended Floating Car Data	X	X	X	X	



RSU 2 & 6 is same mobile RSU



# RSU cabinet at Lindholmen Science Park







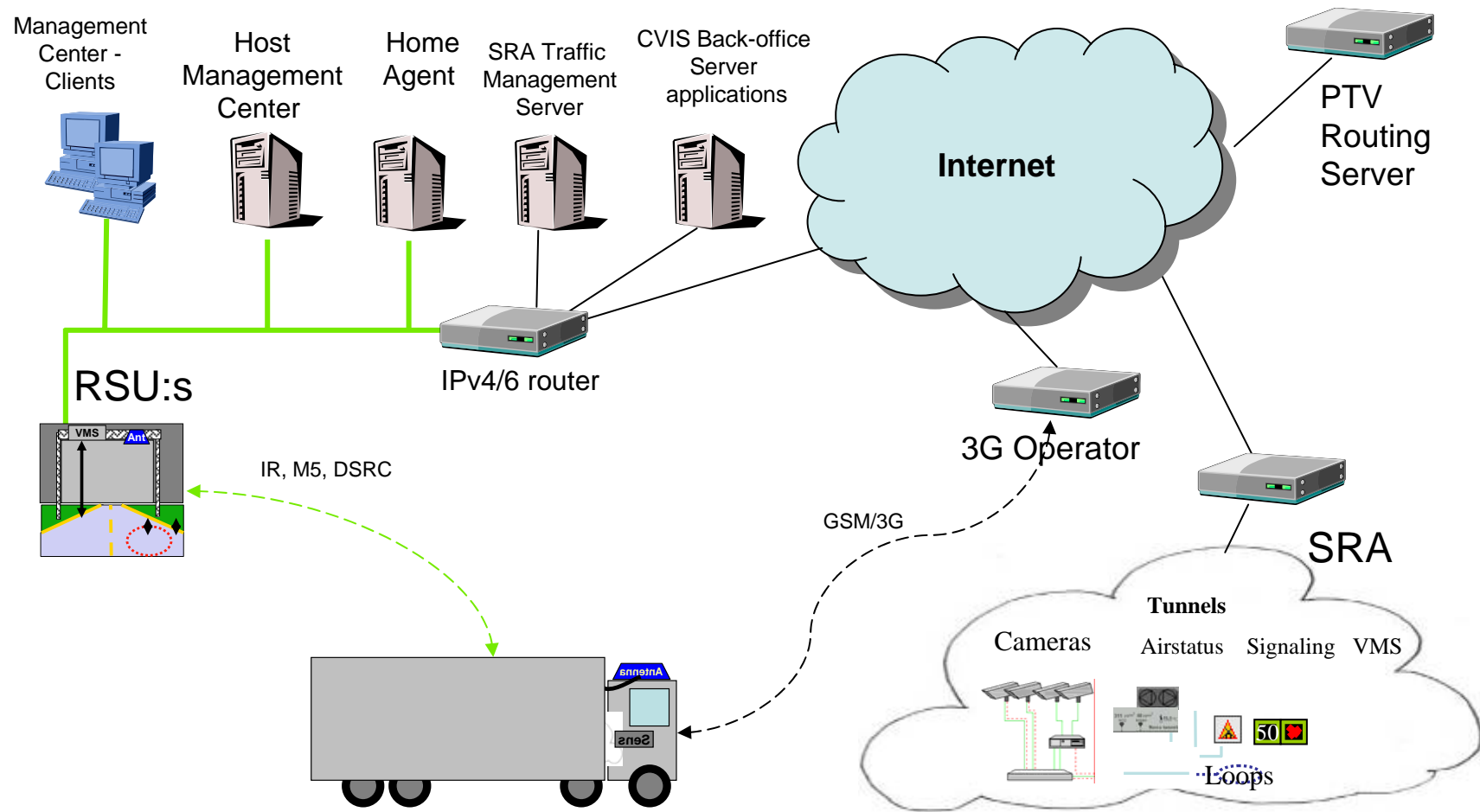
# Vehicles



- Sub meter Accurate positioning
- LDM (Real time geo-database)
- CALM & VANET communication
- Vehicle Gateway for CAN data
  
- Truck + car



# CVIS Test Site, Sweden Management architecture





# Challenge for the Test Sites!



How to use Test Sites to create awareness of Cooperative Systems and their benefits to policy makers, industry and the general public?



**VOLVO**

Thanks for your attention...

[www.cvisproject.org](http://www.cvisproject.org)

