National Report to CGSIC Date: September 2004

Report from Australia

National activities

The Hon John Anderson MP, Deputy Prime Minister and Minister for Transport and Regional Services, established the Australian GNSS Coordination Committee (AGCC) in May 2000 to have a role in: developing and facilitating national GNSS policy; promoting the efficient and effective development of national GNSS infrastructure; promoting the further penetration and application of GNSS technology to all modes of transport and maintaining informed GNSS developments.

The 14th meeting of the Australian GNSS Coordination Committee was held in Canberra, Australian Capital Territory, on 18 August 2004. Presentations and reports given to the meeting included those by:

- Ms Julie Karner, US State Dept, visiting at the invitation of the Chair, AGCC, gave an informative and well received presentation on the EU/US GPS-Galileo Cooperation Agreement.
- Mr Mike Rothery, Director Policy, Critical Infrastructure Protection Branch, Attorney General's Dept gave a valuable presentation on the national approach to critical infrastructure as it related to GNSS.
- The Chair, Prof Don Sinnott, reported on the introduction of Automatic Dependant Surveillance – Broadcast (ADS-B).
- The Privacy Issues working group reported on the outcomes of its findings on privacy issues concerning the use of GNSS-enabled applications, concluding that present safeguards are adequate and that there was no need for further work.

A summary of the 14th meeting will be posted to the AGCC website in October 2004. The next (fifteenth) meeting of the AGCC will be held in Sydney in conjunction with the GNSS 2004 symposium of 6-8 December 2004. A summary of the outcomes of the 13th meeting of the AGCC held 31 March 2004 is available on the AGCC website, which can be accessed at www.agcc.gov.au.

GPS Jammers Banned by the Australian Communications Authority

Devices that can be used to jam the Radionavigation Satellite Service (RNSS) have been prohibited under section 190 of the *Radiocommunications Act 1992* (the Act) given the widespread use of the GPS and its vulnerability to interference.

RNSS jammers transmit signals that interfere with RNSS signalling and reception. Jammers can affect services over significant distances. The ACA's spectrum management responsibilities are to facilitate access to the radiofrequency spectrum for all forms of radiocommunications. These responsibilities include provisions relating to minimising intentional and unintentional interference to radiocommunications.

It is a requirement of the Act that the operation of all radiocommunications transmitters within Australia be authorised by a radiocommunications licence. While jammers are

transmitters, the operation of which would require a licence, the interfering and disruptive nature of these devices means that they could not be licensed under normal circumstances.

Following a request from the Australian GNSS Coordination Committee, the ACA began public consultation in August 2003 about a proposal to prohibit the operation or supply, or possession for the purposes of operation or supply, of devices designed to:

- have an adverse effect on the reception by RNSS receivers of RNSS radiocommunications; and
- would be likely substantially to interfere with, disrupt or disturb the reception by RNSS receivers of RNSS radiocommunications.

As required under section 191 of the Act, the ACA published a notice seeking public comments about the matter in the *Commonwealth of Australia Gazette* of 13 August 2003.

Following consideration of comments received, the ACA decided to make a declaration prohibiting the operation or supply, or possession for the purposes of operation or supply, of RNSS jammers on 25 August 2004. The declaration was given effect by advertisements appearing in *The Australian* on 28 August 2004 and commenced on gazettal on 1 September 2004.

From 1 September 2004, a person who supplies, or possesses a jamming device for the purpose of supply, can be prosecuted under the Act. Penalties range from fines of up to AU$165, 000, to imprisonment. It is already an offence to operate or possess such devices.

ACA Acting Chairman Dr Bob Horton said publicising the ban would also increase both public and supplier awareness of RNSS jamming device prohibitions which would possibly minimise the need for regulatory action after the event.

Further information is found at
http://www.aca.gov.au/aca_home/publications/reports/info/prohibit.htm

The Australian Strategic Air Traffic Management Group (ASTRA)

ASTRA is Australia's whole of industry Air Traffic Management (ATM) planning body, and is responsible for developing the Australian ATM Strategic Plan. The second edition of the Plan was released in September 2003.

Several working groups and implementation teams have been established to support ASTRA. While the primary focus of these groups is to implement the Australian ATM Strategic Plan, they also contribute to the ongoing development of the Plan. The third edition of the Plan is scheduled for publication in late 2005.

Three key teams have been established to implement aspects of the Strategic Plan:

- **GNSS Implementation Team** – supports the evolution of Australia's navigation infrastructure towards a Global Navigation Satellite System (GNSS)-based system. This Team will harness the combined resources of stakeholders to enhance GNSS-based operational procedures in all phases of flight.

- **Operational Strategies Implementation Team** – will develop programs to support the introduction of User Preferred Trajectories (UPTs) in Australia. UPTs will allow all users to optimise flight trajectories in alignment with their business or operational priorities.

- **ADS-B Implementation Team** – has initiated a project for the mandatory fitment of ADS-B equipment to all aircraft operating in Australian airspace where commercial airliners, especially regional airliners operate. ADS-B in Australia will potentially increase aviation safety and efficiency by enhancing surveillance capabilities outside radar coverage.

These initiatives are pivotal to the implementation of the ATM Strategic Plan and will have far reaching consequences for the management of airspace and the way air traffic management is delivered in Australia.

VicRoads' Report on the Intelligent Access Program (IAP)

What is IAP?

The Intelligent Access Program (IAP) is a voluntary program that jurisdictions may utilise as an operating condition to provide improved heavy vehicle utilisation of the road system.

How does it operate?

1. Heavy vehicles are fitted with sensors to enable monitoring of a number of vehicle parameters – vehicle identity, location, time and speed. Some or all of these parameters may be used to ensure that the transport operator works within the conditions set by a jurisdiction.

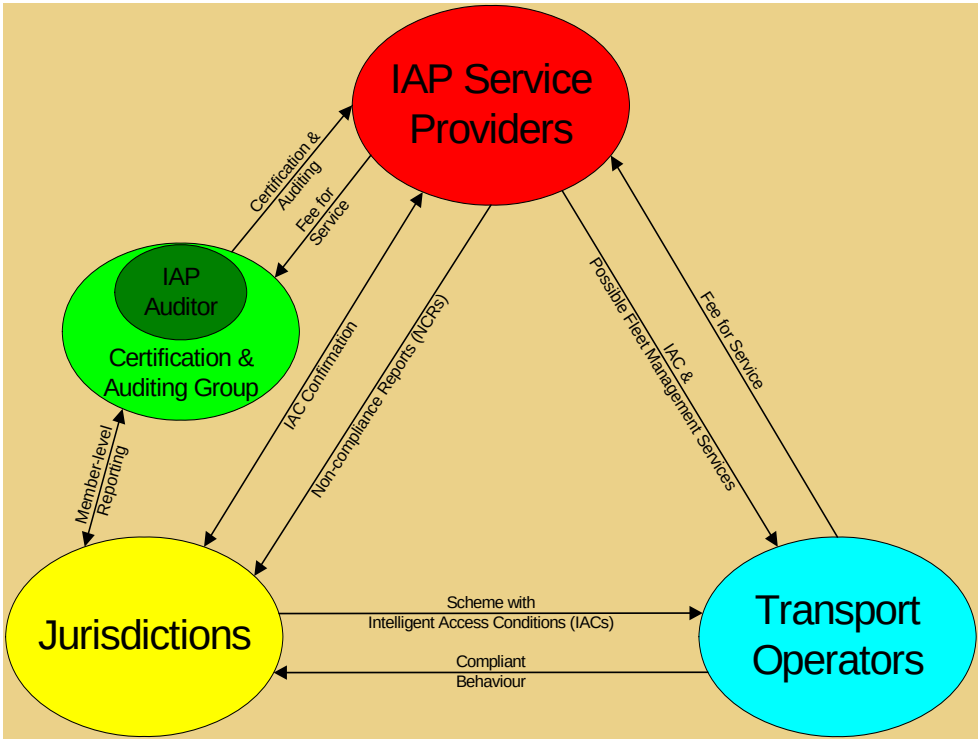
2. Private sector companies provide the compliance monitoring services. Ideally, they combine these services with other services that they currently provide to a transport operator, eg fleet management.

3. A transport operator joins the IAP through a jurisdiction to gain access to the benefits being offered. They engage a private sector company on a fee-for-service basis.

4. The private sector company notifies the jurisdiction whenever the transport operator is in breach of the conditions, i.e. an incident of 'non-compliance'.

5. The Certification and Auditing Group (C&A Group), a national group established by governments, ensures that the private sector monitoring company meets the agreed monitoring and reporting requirements.

The interactions between participants are shown diagrammatically below.



Why was it needed?

An initial feasibility assessment concluded that there was a need to introduce the IAP because:

- The freight task is projected to double over the next fifteen to twenty years.
- Government needed to improve the management of the road network asset and its associated use.
- Jurisdictions needed smarter compliance mechanisms to keep pace with the introduction of alternative and differing heavy vehicle types.
- Transport operators (TOs) seek improved access to the road network.

What about implementation?

The telematics services that the IAP makes use of are nationally consistent, allowing a vehicle to have an IAP compliance solution anywhere in Australia. However it is under the authority of the various jurisdictions (that is, states and territories, and local government where applicable) that TOs enter schemes, permits or applications with an IAP compliance solution.

This national approach:

- Enables the telematics industry to position itself to provide IAP services on the basis of the current technical capabilities.
- Enables jurisdictions access to a compliance-monitoring tool to manage heavy vehicle network access, which is limited in application by the existing technical capabilities and the economic viability of some compliance parameters.
- Demonstrates to the transport industry how IAP can assist them in gaining access to some operational concessions associated with improved productivity.

The IAP will be implemented in stages to allow applications to be delivered as soon as practical.

Survey/geodesy/GIS

Victoria's GPS base station network (GPSnet) is a co-operative GPS network facilitated by Spatial Information Infrastructure of the Department of Sustainability and Environment (www.land.vic.gov.au/gpsnet) in co-operation with industry and academia. The network currently consists of 19 active base stations as at August 2004. Additional cooperative base stations are under consideration or construction and in particular at least one site in the western districts of the state in support of precision agriculture.

The network records, distributes and archives GPS satellite correction data for accurate position determination by differential post-processing and real time correction techniques, 24 hours a day statewide.

Each GPSnet site consists of a dual frequency GPS receiver with a geodetic quality antenna. GPSnet is connected to the Australian Regional GPS Network (ARGN). Data for post processing is sent from base stations to the GPSnet Central Server which in turn supports distribution to users via the Internet. Custom quality checking software (GQC - http://www.sli.unimelb.edu.au/geodesy/GQC.htm) is used to assess all data received at the GPSnet Central Server. GQC is used to assess the quality of raw GPS data in the RINEX format. It has the ability to operate in automatic mode allowing it to automatically process data generated by the GPSnet reference network. GQC will generate summaries and send alerts via email to the GPSnet Operations Manager if required quality conditions are not met.

The network also incorporates two sites providing a multimodal capability in relation to weather research (GPSmet site) and geodesy (joint GPSnet/ARGN site). Additionally, seven base stations are also configured to propagate local real time kinematic correction signals via UHF and VHF radio. Four of these sites are currently dedicated to public access.

A research project is currently underway which is focusing on continuous monitoring of the network itself. In particular, daily position solutions will be automatically computed for each GPSnet station. The coordinate computations will be carried out using the Bernese GPS software.

Additionally one week of GPSnet data has been sent to Geoscience Australia for processing in support of an application for regulation 13 certification in relation to the National Measurement Act for all GPSnet sites which will establish a legally traceable position.

A networked differential real time GPS correction service from the infrastructure with statewide coverage is also now being implemented across mainland Victoria. Six base stations will initially be networked using Trimble network processing software. Receiver upgrades are being made to incorporate Trimble NetRS receivers at key sites and Trimble GPS Base software is being rolled out across the bulk of the network. Access is expected to be through appropriate communication mediums including mobile phone, Internet and other wireless techniques.

The last Victorian Reference Group meeting on the 7th April 2004 in Melbourne hosted around 45 industry representatives, experts and leading practitioners discussing the following topics:

1. Galileo and GPS in Victoria
2. Co-operative Research Centre for Spatial Information (CRC-SI)
3. Precision Agriculture
4. Advanced GPS Positioning applications (Australian Grand Prix)

GNSS2004:

The GNSS2004 conference to be held at the University of New South Wales, Sydney, Australia, 6-8 December, is shaping up as the premier GNSS/GPS event in the Asia Pacific region this year. In the ten year history of this annual series of GNSS symposia this is the first time the conference will be held outside the North Asian region. The technical program will feature oral sessions, interactive poster sessions, workshops and a trade exhibition. The conference will attract many research and industry leaders from the Asia Pacific region and beyond. Over 230 abstracts from 25 countries have been received. On the 6th December there will also be a half day meeting of the US Civil GPS Service Interface Committee. Web site: http://www.gnss2004.org/ for more details.

National Responsible Authorities

A number of Australian Government agencies have roles in GNSS management within Australia, and these include:

- Airservices Australia;
- Australian Communications Authority;
- Australian Maritime Safety Authority;
- the National Mapping Division of Geoscience Australia;
- Civil Aviation Safety Authority;
- Commonwealth Scientific and Industrial Research Organisation;
- Department of Communications, Information Technology and the Arts;

- Department of Defence (incl. Defence Science and Technology Organisation);
- National Measurement Institute, Department of Industry, Tourism and Resources; and
- Department of Transport and Regional Services.

National point of contact:

Chair of the Australian GNSS Coordination Committee is:

Prof Don Sinnott
c/o AGCC
Policy and Research Group
Department of Transport & Regional Services
GPO Box 594
Canberra ACT 2601 AUSTRALIA
Email: don.sinnott@ieee.org

Secretary of the Australian GNSS Coordination Committee is:

Ms Merilyn Bassett
Policy & Research Group
Department of Transport & Regional Services
GPO Box 594
Canberra ACT 2601 AUSTRALIA
Email: merilyn.bassett@dotars.gov.au
Phone: +61 2 6274 7928