NIMSA
Annual Report
2001–02

Introduction

This report, published by the NIMSA Review Group, covers the third year of the National Interest Mapping Services Agreement (NIMSA), the period from 1 April 2001 to 31 March 2002. NIMSA is a not-for-profit agreement between Ordnance Survey and the Office of the Deputy Prime Minister (ODPM, formerly DTLR).

Since the establishment of its Trading Fund status, Ordnance Survey® has been required to operate in an increasingly commercial manner and, as some mapping activities that are required in the national interest cannot be justified on commercial grounds, the NIMSA was created. Under NIMSA the ODPM funds, or part funds activities that meet established criteria.

Managing NIMSA

To ensure that proper scrutiny and accountability is exercised in the spending of public funds, NIMSA is managed at a senior level by representatives of both the ODPM, representing the government, and Ordnance Survey. The governing body is called the NIMSA Review Group (NRG), which works in the public interest to ensure that the mapping services are provided to agreed standards and represent value for money to the nation. It meets quarterly to review:

- progress against specified targets;
- changes to agreed activities, taking into account their contribution to the national interest and the availability of funding; and
- other changes to the agreement.

In addition, Ordnance Survey Internal Audit provides an independent assurance that the agreed services are delivered to the agreed budget.

As can be seen in the body of this report, the national interest requirement for mapping services is quite diverse. Not only does it cover the availability of detailed and up-to-date mapping of remote areas in case of emergency, it also supports education, provides geodetic advice for the advancement of public services and sustains the underpinning infrastructure of British mapping that is widely used by various bodies and the public. The spirit of this agreement between Ordnance Survey and the ODPM is one of partnership to ensure that the national interest is served.

The ODPM contact at the end of this report can provide further details.

Efficiency

It is a fundamental principle of NIMSA that the activities to which NIMSA contributes are necessary in the national interest but also that they are carried out as efficiently as possible. The NRG rigorously considers the validity of each NIMSA activity and constantly seeks to ensure that qualifying activity is managed as efficiently as possible.

The activities expected to lead to efficiency savings reported last year have all been implemented successfully and have contributed to more efficient working. The numerous activities reported this year relating to improving the quality and currency of data will all further aid more efficient update processes.

Although not funded by NIMSA, a fundamental review of the boundary-making and maintenance process was initiated during the year. This review will deal with the processes undertaken by all parties and not just to those within Ordnance Survey. It is thought that there is scope for radical change that could offer significant efficiencies and a significant reduction in the need for a NIMSA contribution in due course, but not necessarily in the next year.

NIMSA achievements in 2001–02

This report from the NRG describes the operation of NIMSA from 1 April 2001 to 31 March 2002. During this third year of the agreement NIMSA contributed £16.0 million to the costs of agreed activities. The contribution in the first year was £14.6 million and in the second year £13.5 million.

1. Scientific geodesy and the development and maintenance of control networks

Aim and benefit: To allow modern positioning and location-based systems to be fully exploited in the interests of the nation by facilitating efficient and accurate surveys.

The creation in 2000–01 of the Active Global Positioning Systems (GPS) Network has been underpinned by a regular programme of maintenance to ensure the reliability of its operation. This included the establishment of a regular position-monitoring facility that is now operating with a weekly report available to users on demand. In exceptional cases, significant physical movement of a GPS station is flagged, for example, the station at St Catherine's Point on the Isle of Wight (see www.gps.gov.uk/faq.asp#faq12). To protect the credibility of the system as a whole, it was necessary, temporarily, to isolate the station from the network. This was done, without affecting network coverage, thanks to a sufficient degree of redundancy built into the system.

Collection of the data necessary for creating the definitive National Grid to GPS transformation was completed as was the National Geoid model to relate GPS height data to mean sea level height. This covered Great Britain, Northern Ireland and the Republic of Ireland and marked a successful collaboration between the Ordnance Surveys of Great Britain, Ireland and Northern Ireland.

A database, holding the latest positions of both the Active and Passive GPS network stations is maintained, together with supporting information regarding the passive stations that will be of use to users. Some of the old trig pillars remain useful, particularly to walkers in featureless locations, and these are selectively maintained as a public safety measure.

2. Modernising the National Topographic Database (NTD)

Aim and benefit: To provide data in a modern format that will be more versatile and relevant to the needs of traditional, as well as new users, by more easily allowing the association, integration and analysis of different datasets from various sources. This in turn will help ensure that geographic information (GI) is playing a full and effective role in reducing crime, mobilising emergency responses, eradicating social exclusion and many other benefits to the nation.

The major deliverable under this activity was the development of a new technical environment for storing and accessing the large-scale digital map data. This is known as the Geospatial Object Server (GOS) and provides a more efficient and flexible means of managing the large-scale data. A project management office was set up to monitor and control progress and costs of the GOS project.

3. Unlocking geographic information

Aim and benefit: To encourage population and the use of the AskGIraffe® web site that enables easy access to geographic information databases held by government and others.

During this year, management of the AskGIraffe web site was transferred to the Association of Geographic Information (AGI®) so that the service can be managed in a sustainable way in the future. The major effort during the year was to develop the service by increasing functionality, adding metadata nodes and increasing usage. As this ambitious service currently depends on a complex infrastructure, at the end of the year actions were in hand to review, update and simplify the technical infrastructure to improve performance.

4. Improving NTD data quality

Aim and benefit: To satisfy the needs of users and reduce non-conformance. The GPS and Positional accuracy improvement (PAI) programmes are addressing data differences. Other programmes are addressing inconsistencies within the databases.

A Quality Improvement Flowline (QIF) was set up in January 2001 to continue the task of data improvement, including the matching of edges of

map units held on the database. The target for completion of this stage was October 2001, which was met.

In addition to all the normal checks and controls, a programmed 1% of rural address records have been checked for potential errors using a new software package. As a result, all confirmed errors have been corrected. This was the pilot for an ongoing programme that will endeavour to check and confirm all rural addresses over the next few years.

A policy was created for correcting faults in the large-scale dataset. This provides guidance in the handling of reported problems. A plan was drawn up for the national rollout of the Defect Regulator, a system that logs defects and provides appropriate information to the field surveyors, who correct the fault according to the policy.

During 2001–02, Ordnance Survey worked closely with the Welsh Language Board and the Gaelic Names Liaison Committee to improve the interpretation and to correct inconsistencies of Welsh and Gaelic names on Ordnance Survey mapping, and to meet the requirements of the Welsh Language Act.

The PAI flowline was developed and implemented. This is a long-term solution, using the latest technology, to problems originating up to 60 years ago, originally caused by the conversion of the County Series mapping to the National Grid. It will improve the accuracy of Ordnance Survey rural mapping (1:2500 scale) from 2.7 metre RMSE[1] to 1.1 metre RMSE. The PAI production programme is running alongside the Cyclic Revision programme, as described in section 5.

Ordnance Survey has been archiving large-scale data for some years but, in a one-off exercise, and to take advantage of new technology, six-years-worth of *place of deposit* data were copied to structured storage and retrieval systems.

A study was completed to examine the types and quantity of defects in the ROADS dataset, and technical options for correcting them were developed.

1 Root Mean Square Error – the most usual measure of the average error that is likely to be experienced.

5. Improving the currency of NTD in rural, moorland and coastal areas

Aim and benefit: To meet the growing demands and aspirations of data users who expect better currency of data. Organisations now need more up-to-date data on which to base their businesses and the demand for improvements to currency of map data will grow.

Large-scale data currency improvements

The updating of Ordnance Survey mapping is conducted within two processes: continuous and cyclic revision. Continuous revision generally picks up significant change within six months in all areas, then cyclic revision picks up other, more scattered changes in rural areas in five-year sweeps, and in moorland areas every ten years.

This was a particularly difficult year for continuous revision in rural and moorland areas. The foot-and-mouth epidemic caused problems of access and staff were also seconded to DEFRA (formerly MAFF) to help with the provision of GPS techniques and resources to locate areas of infection. Nevertheless, all targets for the capture of major detail were achieved.

The PAI programme, mentioned in section 4, has introduced new processes that have caused a number of unforeseen problems with cyclic revision. As a result, progress on cyclic revision and positional accuracy improvements were 35% below target. Tighter controls and capacity increases have been introduced in the expectation that the programme will catch up with its schedule two years before its planned completion in 2006.

The cyclic revision programme is the key NIMSA activity. NIMSA contributes to the PAI and updating elements of the programme. This could include the acquisition of imagery where it is collected solely for the purposes of cyclic revision, but not where it is used for any other purpose. In 2001–02 NIMSA did not contribute to the cost of acquiring any colour imagery.

In moorland areas, where PAI does not apply, 9 007 tiles were completed, against a target of 8 800.

Address data currency has continued to improve and the average match rate targets were achieved. The minimum match rate target was not achieved in just 8 postcode sectors (out of a total of 2 661). Overall, over 57 000 new addresses were added to the database and, ignoring division into postcode sectors, the rural address match rate was over 97%.

Boundary maintenance

Twenty-six Statutory Instruments were received, for which the boundaries shown in 18 785 km tiles had to be revised and delivered within the year. Technical problems caused the delay and lateness of a number of these and an agreed two-month extension saw most completed.

Maintenance of height data

Height data was updated for 320 sites where there had been significant change against an expected requirement to update 300 sites.

Coastal survey

Data was updated for 59 km of coastline within the required time following notification of changes to the coastal features.

Security-sensitive sites

In order to maintain security at specific sites such as MOD sites and prisons, the Cabinet Office provides Ordnance Survey with a list of the sites for which the level of detail to be shown on published mapping and mapping data is subject to control. The Security Management personnel at each site are invited to specify the level of detail to be shown and their specification is incorporated in the appropriate Ordnance Survey databases.

6. Managing core databases derived from NTD

Aim and benefit: Continued data enhancement ensures that information is fit for purpose.

The ROADS database continued to be updated on a six-monthly cycle. The ongoing programme of collecting and recording the improved junction geometry continued, the completion target being achieved in full.

7. Maintenance of national rights of way records

Aim and benefit: To support government policy on access to the countryside. This is a national issue, and by maintaining an up-to-date database and publishing this on small-scale maps, the public is kept informed of this important part of our highway network.

During this year 1 576 local authority orders describing new or changed rights-of-way were received and processed within 30 days of receipt. Over 180 public enquiries regarding rights-of-way were also answered.

8. Supporting education

Aim and benefit: To support delivery of the national geography curriculum, which will improve the spatial awareness of future generations and, in turn, stimulate business benefits for the nation.

Two editions of *Mapping news*, the Ordnance Survey newsletter for teachers, were published and distributed to around 33 000 schools. A Welsh language edition was also sent to all schools in Wales.

The MapZone™ web site for children was relaunched, with educational games, competitions, geo-trivia and a curriculum-based interactive activity called Our Favourite Places™.

Educational pages for teachers on the main Ordnance Survey web site provide information and teaching resources. In addition, teacher-training activities have also increased, with visits to teacher-training colleges and universities by Ordnance Survey staff. Ordnance Survey also contributes to teacher training workshops at geography conferences and attended three major educational exhibitions: BETT, the Education Show and the Geographical Conference & Exhibition.

Free advice, such as quality checks, is provided to producers of educational resources with Ordnance Survey itself preparing exam extracts for visually impaired children, and supplying GB physical wall maps. A series of map symbol flashcard teaching aids was also produced and supplied.

9. Providing a public enquiry and emergency mapping service

Aim and benefit: To provide a consistent and accurate information service about survey and mapping and the timely provision of information, which aids the management of emergencies.

The creation of the new customer Customer Contact Centre has built upon the successful case-based enquiry system, which itself has been further developed. Responses to enquiries are now more accurate, consistent and efficient.

There were 26 emergency calls for mapping in 2001–02, some related to the epidemic of foot-and-mouth disease and some related to police enquiries. Half were made out of hours. Although the police have their own mapping services, Ordnance Survey's Mapping for Emergencies (MFE) Team was able to deliver the required data significantly quicker.

10. Providing GI advice on behalf of government

Aim and benefit: To represent the British government at national and international forums in mapping, surveying and GI.

Ordnance Survey maintains its membership of a number of national and international committees, including:

- OGC (Open GIS Consortium);
- EuroGeographics® (representing 40 European national mapping organisations);
- FIG (International Federation of Surveyors);
- OEEPE (European Organisation for Experimental Photogrammetric Research); and
- WPLA (United Nations Working Party on Land Administration).

Ordnance Survey also participated in a number of conferences, such as:

- International Association of Geodesy (EUREF2001), Dubrovnik, Croatia, May 01;
- EU workshop on Cadastre and SDIs, Budapest, June 01;
- EC-GIS Conference, Potsdam, Germany, June 01;
- Governance & Public Administration in the 21st century, Athens, Greece, June 01;
- International Cartographic Conference (ICC), Beijing, China, August 01; and
- GIS International Conference, Bahrain, March 02.

Official delegations were received from twelve national mapping organisations from Europe, Asia, Australia, Africa and South America and visits made to seven in Europe, Africa and Asia.

These activities are maintained in order to:

- influence the way international standards are formed so that British interests are represented; and
- share both advising and learning techniques, and best practice, with other organisations.

11. Managing NTD

Aim and benefit: To create and maintain a data storage environment that is flexible and future proofed.

Systems were proactively maintained to ensure constant availability for data revision and delivery to customers.

12. Managing NIMSA

Aim and benefit: To manage and control the technical and financial aspects of NIMSA.

Work continued to monitor and report on progress of NIMSA activities. New models were developed for assessing benefits of and contributions towards NIMSA activities.

Summary of NIMSA costs by activity during 2001–02

The following table shows the contribution made though NIMSA against each agreed activity. The actual contribution from NIMSA was limited by the funds available to £16.0 million.

	NIMSA activity	NIMSA contribution £
1	Scientific geodesy and the development and maintenance of control networks	269 769
2	Modernising the National Topographic Database (NTD)	2 282 476
3	Unlocking geographic information	393 333
4	Improving NTD data quality	3 972 914
5	Improving the currency of NTD in rural, moorland and coastal areas	8 590 126
6	Managing core databases derived from NTD	161 298
7	Maintenance of national rights of way records	21 106
8	Supporting education	237 660
9	Providing a public enquiry and emergency mapping service	173 291
10	Providing GI advice on behalf of government	68 329
11	Managing the NTD	791 971
12	Managing NIMSA	89 279
	Totals	**17 051 552**

NIMSA
delivering benefits
to the nation –

Mapping for Emergencies case study

One important way in which NIMSA funding enables Ordnance Survey to support national interest activities is through the MFE service. In response to a local, regional or national civil emergency, Ordnance Survey may be called upon to provide data and mapping products, or advice, facilitated by a team of coordinators on a duty roster.

During the period of this report MFE was called upon 26 times to respond to emergencies such as the nationwide outbreak of foot-and-mouth disease, police enquiries and transport accidents, for example, M4 Motorway and Grampian mountains. Ordnance Survey information was used to assist in the planning and deployment of emergency services, including army, helicopter teams and other specialists.

Within seven hours of a particular call from the police, Ordnance Survey staff and a National Map Agent had produced and delivered not only a wide range of digital data but also more than 200 paper maps, site-centred mapping, laminated wall maps and consultancy to the incident unit. As a result, search teams and emergency services were able to begin their difficult work better prepared and much more quickly than they had initially anticipated.

Ordnance Survey teams are working closely with police and other teams to improve ways of working together in the event of emergency, to ensure that needs can be responded to quickly and sensitively.

The NIMSA Review Group currently comprises:

ODPM (formerly DTLR)
Peter Capell – Chairman
Liz Hobman
Ken Swan

Ordnance Survey
David Willey
Dave Lovell
Don Snowsill

Contact details

Office of the Deputy Prime minister
Liz Hobman
Geographic Information Manager
ODPM
Floor 3/J9
Eland House
Bressenden Place
LONDON
SW1E 5DU
Phone: 020 7944 5522
Fax: 020 7890 5519
Email: liz.hobman@odpm.gsi.gov.uk

Ordnance Survey
Don Snowsill
NIMSA Contract Manager
Ordnance Survey
Romsey Road
SOUTHAMPTON
SO16 4GU
Phone: 023 8079 2363
Fax: 023 8079 2660
Email: dsnowsill@ordsvy.gov.uk