

Sydney Airport Noise Amelioration Program

Department of Transport and Regional Development

Canberra ACT
25 November 1997

Dear Madam President
Dear Mr Speaker

In accordance with the authority contained in the *Audit Act 1901*, the Australian National Audit Office has undertaken a performance audit in the Department of Transport and Regional Development. I present this report and the accompanying brochure to the Parliament. The report is titled *Sydney Airport Noise Amelioration Program Department of Transport and Regional Development*.

Yours sincerely

P. J. Barrett
Auditor-General

The Honourable the President of the Senate
The Honourable the Speaker of the House of Representatives
Parliament House
Canberra ACT

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Performance audits in the Transport and Regional Development portfolio

Series titles

Abbreviations and glossary

ANAO	Australian National Audit Office
ANEF	Australian Noise Exposure Forecast
AOSS	Australian Operational Support Services
APG	Australian Property Group
AS2021	Australian Standard 2021 1994 (Acoustics - Aircraft Noise Intrusion Building Siting and Construction), Standards Association of Australia used for the tables on Indoor Design Sound Levels)
AVO	Australian Valuation Office
CSIRO	Commonwealth Scientific and Industrial Research Organisation
dBA	decibel level
DAS	Department of Administrative Services *
DoTRD	Department of Transport and Regional Development
FAC	Federal Airports Corporation
KSA	Kingsford-Smith Airport, Sydney
Interim MoU	Memorandum of Understanding between the Department of Transport and the Department of Administrative Services (through AOSS), dated 14 February 1995
MoU1	Memorandum of Understanding between the Department of Transport and the Department of Administrative Services (through AOSS), dated 2 November 1995
MoU2	Memorandum of Understanding between the Department of Transport and Regional Development and the Department of Administrative Services (through AOSS), dated 29 October 1996
NAP	Noise Amelioration Program
SANIP	Sydney Airport Noise Insulation Project

* On 9 October 1997, the Department of Administrative Services was abolished, with most former DAS functions forming part of the new Department of Finance and Administration.

Audit Summary

Background

1. The Noise Amelioration Program (NAP) is a Commonwealth program to acquire properties voluntarily and provide financial assistance for the noise insulation of residential and institutional buildings in areas affected most severely by aircraft noise.
2. The aim of the program is to reduce the impact of aircraft noise on residents living around Sydney's Kingsford-Smith Airport (KSA) by acquiring or insulating residences and institutional buildings such as schools, hospitals, churches and child-care centres. The Commonwealth has also taken other measures to reduce the impact of aircraft noise at KSA. These include changes in flight paths and landing and take-off procedures. However, these other measures were not the subject of the audit.
3. There have been a number of significant changes to the duration and cost of the NAP since it was announced on 1 November 1994. The program was designed originally to run for ten years. It was then reduced to three years and subsequently extended by two years. It is expected now to be completed by June 2000. Total expenditure under the program is estimated to be of the order of \$300m over six financial years. Expenditure to 30 June 1997 was \$135.7m.
4. The *Aircraft Noise Levy Act 1995* and the *Aircraft Noise Levy Collection Act 1995* allow the Minister for Transport to declare an airport to be the subject of an aircraft noise levy (a leviable airport) when a NAP is being funded by the Commonwealth at that airport. When an airport is declared leviable, the costs of a NAP may be recovered by an aircraft noise levy imposed on jet aircraft using that airport. The levy is imposed on the operators of the aircraft. Airlines usually recoup that cost from passengers. From the start of the levy in October 1995 to 30 June 1997 it has yielded \$60.8m against an estimate of \$55.9m.
5. The Department of Transport and Regional Development (DoTRD) is responsible for the overall administration of the NAP and the collection of the aircraft noise levy. The then Government appointed the Department of Administrative Services (DAS) as the initial project manager of the NAP in December 1994. The project management arrangements were formalised over time through successive Memoranda of Understanding (MoUs) between DAS (through its business unit Australian Operational Support Services (AOSS)) and DoTRD. Airservices Australia collects the levy from the airlines under an arrangement with DoTRD.
6. On 15 August 1997, the Government sold AOSS, the NAP project manager, to a private sector buyer. The buyer will deliver the project management services under a contract to DoTRD. This represents a significant change in the program's administration since there are different risks in dealing with a private sector contractor rather than another Commonwealth agency.

Audit objectives and criteria

7. The objectives of the audit of the NAP were to:

- assess the extent to which major program objectives were achieved;
- identify major strengths and weaknesses related to the economy, effectiveness and efficiency of the program administration; and
- identify areas of improvements and risks which should be addressed in arrangements with a private sector project manager.

8. Audit criteria were developed to address the areas of program planning and implementation, performance measurement and monitoring, responsiveness to emerging issues, dispute resolution mechanisms, risk management and program improvement measures.

Overall conclusions

9. The audit indicates that on the whole the program is achieving its objectives. Over time DoTRD has initiated a number of measures designed to achieve performance targets and contain costs. However, in respect of the output targets, not all the original targets for 1994-95, 1995-96 and 1996-97 were achieved, particularly in the residential insulation element. This was despite the fact that DoTRD had made a considerable effort to become aware of relevant trends. More comprehensive and timely remedial action was necessary to meet program targets.

10. There are a number of areas in which DoTRD's program administration can be improved, including:

- the introduction of a risk management plan and an overall implementation plan for the program;
- setting and achieving measurable objectives for the residential insulation element and realistic output targets for the program;
- establishing performance information for cost monitoring and quality control; and
- transparency in, and detailed justification for, the amount of the project management and coordination fee.

11. The audit identified the following key risks to be taken into account in planning for the transfer of the project management to a private sector manager:

- the need for flexibility in the contract to accommodate changes in the size and composition of the program;
- an extension of the duration of the program leading to an escalation of project costs;
- the need for clear dispute resolution mechanisms to minimise the risk of litigation; and
- the need for systems and procedures to verify the basis of claims for payment.

Departmental Response

12. DoTRD agreed with all nine recommendations made by the ANAO.

Key findings

Program planning

Risk analysis and risk management

13. DoTRD had not conducted a risk assessment nor developed a risk management plan for the program as a whole. Such a plan would have enabled DoTRD to have been more pro-active in its management of the program.

Program objectives and performance measurement

14. The ANAO found that alternative means of achieving program outcomes had been explored. With the exception of the residential insulation element, the program elements contained both specific operational output and noise reduction targets. However, no specific measurable performance indicators were published externally, impairing the ability of the Parliament and the public to assess the overall performance of the program.

15. In the case of the residential insulation element, which is the largest part of the program, the lack of any quantifiable noise reduction target made it difficult for the program management to assess its own effectiveness in the administration of this element or to hold contractors accountable for the achievement or otherwise of specific standards of noise reduction. However, in practice insulated rooms in brick residences achieved substantial compliance with Australian Standards indoor design sound levels, with more varied results in light-weight constructions.

Reporting and monitoring systems

16. The ANAO found that the framework of the reporting and monitoring systems designed by DoTRD to measure the implementation of the program was appropriate. However, a lack of comprehensive and timely action to deal with identified slippages reduced the effectiveness of the systems in place.

Improvements in MoUs

17. In the light of the experiences in managing the program, DoTRD revised the MoU with AOSS, seeking to improve program performance by incorporating improved target-setting and financial incentives. As devices to improve the performance of AOSS and to build in incentives to meet targets, they constituted a marked improvement over earlier MoUs.

Changes to targets

18. Although DoTRD sought to enhance program performance by incorporating improved target-setting and financial incentives, changes to the scope of the program and shortfalls in meeting the program outputs contributed to a number of reductions in the annual program targets. These reductions of the annual targets were not accompanied by planning to ensure that the NAP would be completed within the total budget and time-frame envisaged for the program.

Program payments and cost minimisation

19. The payment arrangements instituted by DoTRD were reasonable given that these arrangements were between two Commonwealth agencies. DoTRD had also

included a reasonable number of measures designed to contain costs for the insulation elements of the program that balanced issues of cost minimisation, remedial works quality and program objectives.

Contract variations and dispute resolution

20. Given that there were a number of established non-litigious ways to resolve disputes between DoTRD and AOSS, the arrangements in place did not create major problems. The introduction of a private sector contractor required a clearer definition of these processes and mechanisms to minimise the potential for legal disputes. This has been incorporated in the contract with the new project manager.

21. Generally, the dispute resolution process worked effectively in disputes with home-owners about property valuations in the voluntary acquisition element of the program. The negotiation and dispute resolution processes in the institutional element of the program tended to be protracted, mainly because of the arm's-length tripartite relationship between the Commonwealth, the contractor and the building owners, and the large size and complex design aspects of the individual projects. There were appropriate dispute resolution mechanisms for the residential insulation element, but a long time was taken to establish an independent review panel to review complaints about administrative decisions taken by the program and project managers.

Incentives and sanctions

22. The ANAO found that DoTRD had included a number of incentives, such as a performance bonus, in the design of the administrative arrangements to improve the performance of the program. However, a number of shortcomings, particularly the high proportion of fixed to variable project manager's fees, limited the effectiveness of some of these measures.

Program management

Project management and coordination fee

23. In December 1994 the then Government decided that DAS would assist in the initial implementation of the voluntary acquisitions and schools insulation program elements. As a consequence, there was no market testing of the level of the project manager's fee when the NAP was originally established. Similarly there was no zero based review when the fee was revised recently to reflect changes in the program size and composition. In the absence of any such review by DoTRD it was difficult to assess the reasonableness of the fee.

24. Despite significant shortfalls against the original targets, particularly in the number of residences insulated, close to the full project management and coordination fee was paid. This could have been due largely to a weakness in the fee structure.

Meeting targets

25. Action to remedy indications that annual program targets would not be achieved was absent in some cases, and not comprehensive or timely enough in others. As a result, significant shortfalls against the original program targets occurred in each year of the program.

Managing program costs

26. The ANAO found that DoTRD had given reasonable consideration to containing the costs of the insulation measures and had provided appropriate advice to Ministers on possible options to contain program costs. DoTRD also initiated a number of reviews related to the effectiveness of the program.

Managing program quality

27. The indications were that program quality was satisfactory in that the results achieved were in line with the program objectives. However, advice on new strategies and options arising from the reviews of program effectiveness, including options for the insulation of light-weight houses, could have been given to the Minister in a more timely manner. Further, there was no evidence that DoTRD monitored systematically whether the project manager undertook quality assurance and improvement measures as required by the MoUs.

Recommendations

Set out below are the ANAO recommendations with report paragraph references. DoTRD agreed to all of these recommendations. The Department's detailed comments are included in the body of the report. The ANAO considers that DoTRD should give priority to Recommendations Nos. 1, 2, 3, and 8.

Program planning

Recommendation No. 1 (Paragraph 2.12)

To enhance program effectiveness and accountability, the ANAO *recommends* that DoTRD:

- develop specific measurable objectives for the noise reduction targets to be achieved in the insulation work carried out on residences under the program; and
- publish performance information for the program against agreed measurable performance objectives.

Recommendation No. 2 (Paragraph 2.22)

The ANAO *recommends* that DoTRD develop a long-term implementation plan to ensure that the program is completed by the target date and within budget.

Recommendation No. 3 (Paragraph 2.31)

The ANAO *recommends* that DoTRD assess the program risks and develop comprehensive risk management strategies to deal with the risks identified in a cost-effective manner.

Recommendation No. 4 (Paragraph 2.58)

To enhance the client focus of the program, the ANAO *recommends* that DoTRD ensure that:

- the planning for insulation work in institutions allows for regular channels of communication between contractors and building occupants at insulation sites; and
- effective and timely dispute resolution mechanisms are instituted between building owners, occupants and contractors.

Recommendation No. 5 (Paragraph 2.67)

The ANAO *recommends* that DoTRD give a high priority to ensuring that the independent arbitration panel is put in place as soon as possible to deal with cases requiring resolution.

Program management

Recommendation No. 6 (Paragraph 3.17)

To help achieve more timely program outputs, the ANAO *recommends* that DoTRD improve its oversight of the NAP project by taking early and comprehensive action to counter any emerging adverse trends in program delivery.

Recommendation No 7 (Paragraph 3.34)

The ANAO *recommends* that when the size and composition of the NAP have been determined, DoTRD comprehensively reassess the amount and structure of the project management and coordination fee to provide the best value for money given market conditions and the services expected.

Recommendation No. 8 (Paragraph 3.70)

The ANAO *recommends* that based on the reviews of program effectiveness conducted to date, DoTRD develop policy options to put to the Minister to further improve the effectiveness of the program, as a matter of priority.

Recommendation No. 9 (Paragraph 3.73)

To ensure high quality program outputs, the ANAO *recommends* that DoTRD institute procedures to monitor regularly the project manager's performance in implementing quality assurance and improvement measures, and undertake early remedial action if necessary.

Chapter 1: Introduction

This chapter sets out the program background, description, objectives, the administrative framework and the objectives, scope and methodology of the audit.

Program background

1.1 The Noise Amelioration Program (NAP) is a Commonwealth program to acquire properties voluntarily and provide financial assistance for the noise insulation of residential and institutional buildings in areas affected most severely by aircraft noise.

1.2 In November 1991 the then Government gave the Federal Airports Corporation (FAC) approval to proceed with construction of a new parallel runway at Sydney's Kingsford-Smith Airport (KSA). That approval was accompanied by a series of recommendations by the then Minister for the Environment, who recommended a noise management plan be prepared along with other environmental reports.

1.3 The final report on the noise management plan was completed in October 1994, before the opening of the new parallel runway in November 1994. The plan contained recommendations for a number of remedial measures to deal with aircraft noise around KSA as well as airport operational measures such as the use of standard flight paths. The recommendations relating to remedial measures are set out at Appendix 1.

Program and project description

1.4 In November 1994 the then Minister for Transport announced a \$183.4m program over 10 years. It comprised:

- the voluntary acquisition of properties worst affected by aircraft noise;
- the insulation of schools, colleges, child- and health-care centres, hospitals and churches; and
- a pilot study of residential insulation to identify appropriate treatments, to be followed by the staged insulation of residences.

1.5 The size and cost of the program are very sensitive to changes in the parameters determining the number and types of eligible buildings. These changes depend largely on:

- policy decisions stating the noise exposure levels which must be reached to qualify for the program; and
- the geographical areas affected by the airport operating procedures (including factors such as flight paths, operating schedules, aircraft and engine types).

1.6 There have been a number of significant changes to the duration and cost of the NAP since it was announced on 1 November 1994. In December 1994 the

program was accelerated and the initial ten year time-frame was reduced to three years; that is, the program was to be completed by June 1998. In August 1996, in the light of experience gained and to allow for an increase in the scope of the program, the completion date was extended by two years, resulting in an expected ending of the program by June 2000.

1.7 In May 1997 the Minister announced that the program would be revised to focus on the areas most affected by the implementation of the Long Term Operating Plan for Sydney Airport published in February 1997. According to DoTRD, the revised program is estimated now to cost about \$300m and to be completed before June 2000. However, depending on the geographical areas to be covered by the program, which are expected to be revised in the light of experience with the Long Term Operating Plan, the program completion time-frame could change again. Figure 1 shows the geographical areas presently covered by the NAP.

Program objectives

1.8 The aim of the program is to reduce the impact of aircraft noise on residents living around KSA.

1.9 The program objectives of the program elements are outlined below:

Table 1 - Program Objectives

Program element	Program objectives
Property acquisitions	Voluntarily acquire all residences, churches and child-care centres in the ANEF 40¹ contour zone by the end of 1996 or as agreed.
Schools insulation	Insulate schools and colleges within the ANEF 25² contour zone to AS2021³.
Child-care centres insulation	Insulate child-care centres within the ANEF 25 contour zone to AS2021.
Hospitals and health-care facilities	Insulate hospitals and health-care centres within the ANEF 25 contour zone to AS2021.
Insulation of churches	Insulate churches in the ANEF 25 contour zone to AS2021 or best endeavours within cost-cap budget.
Residential insulation	Provide financial and technical assistance for the insulation of residences within the ANEF 30⁴ contour zone.

Source: Compiled by the ANAO

¹ Expected to apply by the year 2010

² Expected to apply when KSA reaches ultimate capacity

³ AS2021 refers to the Standards Association of Australia, Australian Standard 2021 of 1994 (Acoustics Aircraft Noise Intrusion Building Siting and Construction) tables on Indoor Design Sound Levels.

⁴ Expected to apply by the year 2010

Figure 1 - Map of the areas covered by the Sydney Airport Noise Amelioration Project

(provided by DoTRD, with noise contours as of 30 June 1997 see attachment)

Legislation

1.10 The *Aircraft Noise Levy Act 1995* and the *Aircraft Noise Levy Collection Act 1995* allow the Minister for Transport to declare an airport to be subject to an aircraft noise levy (a leviable airport) when a NAP is being funded by the Commonwealth at that airport.

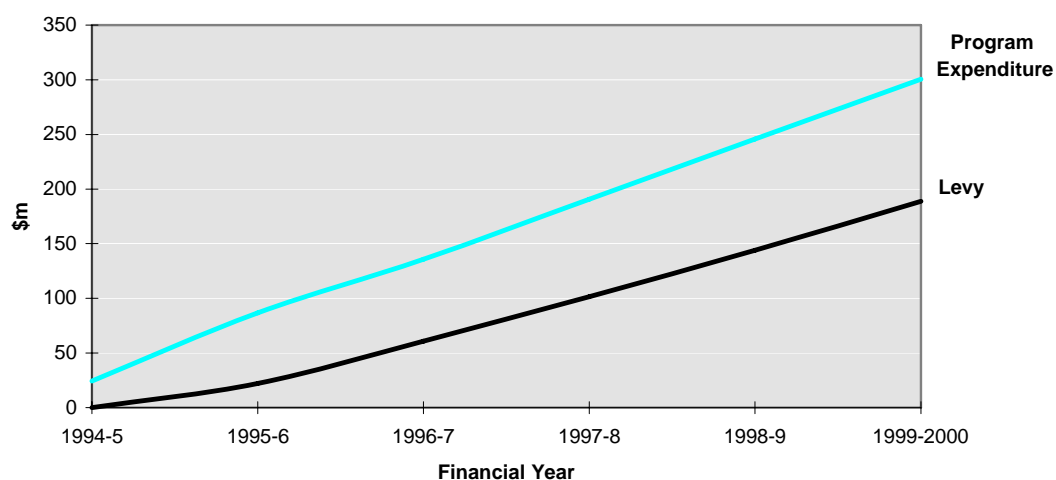
Financial implications

1.11 When an airport has been declared leviable by the Minister for Transport for the purposes of these Acts, the costs of a NAP may be recovered by an aircraft noise levy imposed on jet aircraft using at that airport. The levy is imposed on the operators of the aircraft. Airlines usually recoup that cost from passengers using that airport.

1.12 Expenditure on the NAP around Sydney Airport is funded from the budget appropriations to DoTRD. Expenditure to 30 June 1997 was \$135.7m. Eventually, the cost of the NAP and a reasonable allowance for interest (representing interest on the difference between the expenditure incurred under the program and the amount recovered through the levy) is to be recouped through the aircraft noise levy at KSA. The amount collected by the levy is expected to rise each year as a result of increased air movements and an annual increase based on consumer price index movements. From the start of the levy in October 1995 to 30 June 1997, it has yielded \$60.8m against an estimate of \$55.9m.

1.13 Expenditure on the NAP for 1996-97 was \$49.0m and the levy raised \$38.7m, resulting in a net call on the Commonwealth budget for the program of \$10.3m for that year. Figure 2 below shows a growing forecast cumulative net call on the Commonwealth budget to the end of 1999-2000. On present assumptions, this gap would be reversed if the Commonwealth continued to apply the levy after that year.

Figure 2 - Indicative net call on Commonwealth funds estimated NAP expenditure and levy revenue



Policy context and administrative responsibilities

1.14 Sydney's KSA is the only Australian airport that has a NAP in place. The Commonwealth has also taken other measures to reduce the impact of aircraft noise at Sydney Airport. These include changes in flight paths and landing and take-off procedures. However, these other measures were not the subject of the audit. Furthermore, as residential development in the vicinity of airports continues and/or aircraft noise increases (for example, more flights, particularly of jet aircraft) at KSA and other airports, the program could expand. The *Aircraft Noise Levy Act 1995* and the *Aircraft Noise Levy Collection Act 1995* provide a mechanism for the Commonwealth to recover the costs of future programs at other airports, or indeed extensions of the NAP in the Sydney region. To date there have been no announcements regarding the commencement of programs at other airports, though some scoping studies have been undertaken.

1.15 DoTRD is responsible for the overall administration of the NAP and the collection of the aircraft noise levy. In December 1994 the then Government appointed the Department of Administrative Services (DAS) as the initial project manager of the NAP to undertake the detailed planning and the implementation of the project. The project management arrangements were formalised over time through successive Memoranda of Understanding (MoUs) between DAS (through its business unit Australian Operational Support Services (AOSS)) and DoTRD. Implementation of the program and policy relating to it were monitored by a Steering Committee representing DoTRD, the Department of Finance, DAS and the Department of Employment, Education, Training and Youth Affairs. Policy guidance for the administration of the program was given in Ministerial Directions incorporated into the MoUs.

1.16 At the time of the audit, the Government was in the process of selling AOSS, the NAP project manager, to the private sector. The sale was completed on 15 August 1997 on the basis that the buyer would deliver the project management services (under a contract) to DoTRD for at least the next two years. The completion of the sale has introduced a new set of risks for DoTRD in the administration of the program since there is a considerable difference between dealing with a private sector contractor rather than another Commonwealth agency. The risks in this new purchaser/provider environment are outlined in Chapter 4 of this report.

Background to the audit

1.17 The audit topic was selected for the following reasons:

- the program is financially material, with the possibility of significant increases if the scheme is extended to other airports;
- previous reviews of the program (both internal agency reviews and the 1995 Senate Select Committee on Aircraft Noise in Sydney) pointed to possible risks in the administration of the program;
- a significant escalation of program estimates; and
- the risks involved in the complex administrative arrangements for the insulation of residences.

Audit objectives

1.18 The objectives of the audit of the NAP were to:

- assess the extent to which major program objectives were being achieved;
- identify major strengths and weaknesses related to the economy, effectiveness and efficiency of the program administration; and
- identify areas of improvements and risks which should be addressed in arrangements with a private sector project manager.

1.19 The scope of the audit did not include any detailed examination of the collection of the aircraft noise levy, used by the Commonwealth to recover the costs of the NAP. This levy is being collected by Airservices Australia for DoTRD under a Deed of Agreement. The financial accounts and records concerning the levy are audited by the ANAO.

Audit criteria and methodology

1.20 Audit criteria were developed to address the areas of program planning and implementation, performance measurement and monitoring, responsiveness to emerging issues, dispute resolution mechanisms, risk management and program improvement measures.

1.21 Audit field-work was conducted in the Canberra offices of DoTRD (Aviation Environment Branch), the Sydney Airport Noise Insulation Project office of AOSS, the Canberra office of DAS, and in various Sydney locations within the NAP eligibility zones. This work, conducted from March to May 1997, included file searches, data analysis, discussions with program and project officers, site visits and physical observation.

1.22 In the course of the audit, to assist DoTRD prepare for a new private sector project manager, the ANAO provided:

- guidance on contract management principles; and
- discussion papers identifying risks observed in the audit (for consideration in drafting a new contract), together with model clauses and relevant reference material.

1.23 The audit was conducted in accordance with the ANAO Auditing Standards.

1.24 The cost of the audit was approximately \$238,000.

Previous reviews and audits

1.25 An internal audit of the program by DoTRD was carried out in 1996. The overall audit opinion stated that the audit conclusion was satisfactory, that the MoU had been adhered to in all material respects and that regular reporting was occurring.

But it also noted, *inter alia*, that milestones were not being met, and recommended improved reporting by the contractor to DoTRD.

1.26 The findings of a review in 1995 by the Senate Select Committee on Aircraft Noise in Sydney included:

- the lack of a program implementation plan;
- unsatisfactory consultation and dispute resolution processes; and
- *ad hoc* decision-making on policy and operational matters.

Appendix 2 to this report contains further detail about that Committee's findings and recommendations for remedial measures to reduce the impact of aircraft noise and the Government's response to these recommendations in December 1996.

Chapter 2: Program planning

Introduction

The ANAO examined DoTRD's initial planning for the NAP and revisions of the design of the program and the planning being undertaken over the course of the program. In particular, the ANAO examined whether DoTRD had developed objectives, plans and arrangements which would enable effective implementation and review of the program to achieve the intended outcomes.

Program objectives and performance measurement

2.1 Before the announcement of the NAP in November 1994 by the then Minister, the Government had commissioned a noise management plan through the FAC. Alternative means of achieving the objective of noise reduction were considered through this process. DoTRD, over the course of the program, provided options to Ministers on how program objectives could be met by different means. The ANAO considers that alternative means of achieving program outcomes were explored.

2.2 The aim of the NAP is to *reduce the impact of aircraft noise on residents living around Sydney Airport*⁵. The external objectives and performance indicators for the NAP were stated in the 1995-96 DoTRD Annual Report as “the degree to which aviation infrastructure and operations have been developed to meet national, social, economic and community needs in an environmentally sensitive manner.” There was no reference to quantifiable noise reduction targets (e.g. the reduction in decibels to be achieved) or output targets (e.g. the number of institutions and residences to be insulated).

2.3 As stated in a recent ANAO report on the Commonwealth Natural Resource Management and Environment Programs, “*where program objectives are broad, it is not possible to determine if the performance indicators are measuring the key aspects of performance, nor is it possible to make an accurate assessment of the extent to which the objectives are being achieved. Where broad goals are set by Ministers, operational objectives that are concise, realistic and measurable need to be developed by program managers*”⁶. To date, such operational objectives have not been available for the NAP, posing difficulty for any external assessment of the program.

2.4 More specific objectives and performance indicators (called program milestones) were specified in the MoUs between DoTRD and AOSS, the project manager. There were specific operational output targets for each program element. These are listed in Table 2.

2.5 For most of the program elements the MoUs specified a quantifiable standard of noise reduction that was expected to be achieved (i.e. conformance with AS2021). However, there was no such standard for the residential element which was the most

⁵ Ministerial News Release 1 November 1994

⁶ ANAO Report No36 1996-97, 4 June 1997, “Commonwealth Natural Resource Management and Environmental Programs, Australia’s Land, Water and Vegetation Resources, paragraph 3.7

significant element of the program, accounting for 62.5%⁷ of project expenditure in 1995-96. Rather, reference was made to Ministerial Directions attached to the residential insulation schedule. Those directions specified approved measures to be used in the insulation of residences, but did not contain a quantifiable standard of noise reduction to be achieved. Nevertheless, in practice the level of noise reduction that was actually achieved in brick residences was close to AS2021, with more varied results in residences of light-weight construction such as timber or fibro.

2.6 DoTRD advised the ANAO that the reason that AS2021 was not being used in the residential program was that AS2021 was a standard applicable to *new* dwelling commencements, not additions to existing buildings. It also advised that the scope to achieve an improved acoustic outcome without significant functional disadvantage was much greater in public buildings than in much smaller residential dwellings. However, the ANAO noted that DoTRD applied AS2021 as the objective for noise reductions in the institutional element of the program (which comprised buildings that were also not new commencements). Furthermore, eligibility criteria for the program were limited from the beginning to *existing* buildings. Whilst AS2021 may not necessarily have been the target to adopt, there was a need for the program's administrator to develop a clear measurable noise reduction target for residential insulations. Given the size and construction differences between institutional buildings and residences, the target could justifiably be less stringent than that applying to institutions.

2.7 The performance indicators for the insulation of residences in the second Memorandum of Understanding (MoU2), dated October 1996, contained a number of intermediate goals such as the number of home-owner briefings given, scope of works completed and quotes closed. The weightings (for performance bonus payment purposes) of these performance indicators placed a relatively low importance (30%) on the final achievement of the contractors (i.e. insulation completions by builders). DoTRD indicated that the rationale for these weightings was that in the order of 95% of the work involved in the insulation projects was undertaken prior to the final completion stage.

2.8 In ANAO's view, although there is considerable value earned in the work prior to the physical completion of the insulation work, satisfactory completion of that work should be the final test of the success of the administration of the program. A simple value earned model for the payment of fees based on effort expended carries the risk that the bulk of fees will be paid without an assurance that the final deliverable required by the program will actually be achieved. The ANAO notes that the contract with the private sector manager now uses the number of residences completed as the criterion for payment in the residential insulation component of the program.

Conclusion

2.9 The ANAO found that alternative means of achieving program outcomes were explored. However, no specific measurable performance indicators for the program were published externally, impairing the ability of the Parliament and the public to

⁷ excluding the management and coordination fee

assess the overall performance of the program against agreed and measurable objectives.

2.10 With the exception of the residential insulation element the program contained specific operational output and noise reduction targets. However, in the case of the residential element, which is the largest part of the program, the lack of any quantifiable noise reduction target made it difficult for the program managers to assess their own effectiveness in the management of the residential element, or to hold contractors accountable for the achievement or otherwise of specified standards of noise reduction. However, in practice, insulated rooms in brick residences achieved substantial compliance with Australian Standards indoor design sound levels (AS2021), with more varied results in light-weight constructions.

2.11 The weightings applied to the achievement of performance targets for performance bonus purposes should have assigned more importance to the final deliverable, emphasising the satisfactory completion of the insulation work. This would have avoided the problem of paying close to full project management and coordination fee despite significant under-achievement in output targets as discussed in chapter 3.

Recommendation No. 1

2.12 To enhance program effectiveness and accountability, the ANAO *recommends* that DoTRD:

- develop specific measurable objectives for the noise reductions to be achieved in the insulation work carried out on residences under the program; and
- publish performance information against agreed measurable performance objectives.

Agency Response

2.13 Agree. DoTRD notes, however, that the noise amelioration program aims to balance a noticeable reduction in aircraft noise with the need to contain costs and to satisfy home-owner expectations in terms of amenity and aesthetics. As a consequence, the amount of noise reduction likely to be achieved in residences will vary according to the structure and condition of each residence, home-owner decisions on available treatment options, and (in some residences) the impact of the cost cap constraint. The Department will therefore develop more specific measurable noise reduction targets which will be expressed in terms of achievability in the substantial majority of residences. With this in mind, the Department would be prepared to make available to interested parties regular statistical summaries of the outcomes being achieved.

Improvements to the Memoranda of Understanding

2.14 At the start of the program in late 1994, the program operated with no agreement on performance targets between DoTRD and AOSS. In February 1995 an interim MoU was signed by the two parties. It did not incorporate any financial sanctions for under-performance. As a result the fee for 1994-95 of \$5m was paid in full even though the program targets of completing the schools insulation and the pilot study on residential insulation were not met.

2.15 The first formal MoU with AOSS was signed in November 1995, some 12 months after the start of the program, and incorporated annual output performance targets. However, there was again no clear provision which would have allowed DoTRD to reduce the fee paid to AOSS for under-performance against the annual targets. As a consequence, although DoTRD was aware that the project manager was unlikely to meet the annual targets in 1995-96, and in fact the annual targets were not met, DoTRD was obliged to pay the full monthly advances and the full annual fee of \$4m with no reduction for the failure to meet the specified performance targets.

2.16 The under-performance in 1994-95 and 1995-96 led to changes in the administrative arrangements for 1996-97. These were set out in MoU2, which was finalised in October 1996, when:

- detailed *quarterly* targets were set;
- the fee was split into a *fixed* and a *performance* (25 % of total fee) component; and
- program elements contained individual targets which were weighted to calculate the performance fee.

Conclusion

2.17 In the light of its experiences in managing the program, DoTRD revised the MoU with AOSS in an attempt to improve program performance by incorporating improved target-setting and financial incentives. As devices to improve the performance of AOSS and to build in incentives to meet targets, they constituted a marked improvement over earlier MoUs.

Changes to targets

2.18 During the program there have been a number of revisions to the program targets. Table 2 below shows the changes in the targets in October 1996, and again in May 1997. It lists the major cumulative targets which were to be achieved by the end of June 1997.

Table 2 - Program Output Targets to 30 June 1997

Program element	Targets in MoU1, 2 Nov 1995	Targets in MOU2, 29 Oct 1996	Revised Targets 6 May 1997
Acquisitions	All by 30 Dec 96 (estimated to be 113 buildings)	140 buildings by 30 June 1997 (now estimated to be 152)	No change
Residential insulation:	Pilot Study + 1,800 completions	Pilot Study + 1496 completions	Pilot study + 919 completions⁸
Schools insulation	19	17⁹	17
Newington College	All	Progress	Reduced progress¹⁰
Child-care centres	21	21	No change
Health-care centres	All¹¹	3 out of an estimated 8	1¹²
Rozelle Hospital	All	Listed in out-years	In abeyance
Churches	None by 1996-97. All¹³ to be completed by 1997- 98	5 (out of 24) to be commenced in 1996-97	All in abeyance

Source: compiled by the ANAO from DoTRD documents.

2.19 The variations to the targets outlined in Table 2 were due to:

- changes in the scope of the program beyond the control of DoTRD; and
- slower than expected progress.

⁸ completions = 146 (1995-96 actual) + 773 (revised 1996-97 target)

⁹ 2 schools dropped out of the Program

¹⁰ no agreement was struck with the College until 1997, and as a consequence the target was reduced.

¹¹ number not specified

¹² the other 7 were in abeyance in May 1997. 'In abeyance' in this table means awaiting a portfolio decision on the future of the NAP following finalisation of the Sydney Airport Long Term Operating Plan which could affect their eligibility for insulation.

¹³ number not specified

2.20 However, the revisions of targets were not accompanied by planning on how these changes would be accommodated within the total budget and time-frame envisaged for the program.

Conclusion

2.21 Although DoTRD sought to improve program performance by incorporating improved target setting and financial incentives, changes to the scope of the program and shortfalls in meeting the program output targets contributed to a number of reductions in the annual program output targets. These reductions in the annual output targets were not accompanied by planning to ensure that the program would be delivered within the total budget and time-frame envisaged for the program.

Recommendation No. 2

2.22 The ANAO *recommends* that DoTRD develop a long-term implementation plan to ensure that the program is completed by the target date and within budget.

Agency response

2.23 Agree. The contract with the project manager specifies that the program as currently defined be delivered under the period of that contract (i.e. two years from August 1997). Progress with program implementation within this time-frame is being regularly reviewed.

Reporting and monitoring systems

2.24 DoTRD introduced a number of mechanisms to monitor the implementation of the program. They included:

- weekly meetings (“team briefings”) between DoTRD and AOSS, to discuss progress, issues, developments and cash management, and resolve matters concerning the application of policy;
- monthly financial reports to DoTRD - mainly for expenditure claims and acquittals;
- quarterly reviews of AOSS performance against milestones; and
- Steering Committee meetings made up of representatives from DoTRD, Department of Finance, DAS and Department of Employment, Education, Training and Youth Affairs, about once a quarter, to consider progress reports, parliamentary and community matters, and policy relating to the program.

2.25 The combination of the early warning mechanism in the weekly forums, the monthly financial reporting and the quarterly review of performance against project milestones provided the basis for a satisfactory planning system for DoTRD to monitor, assess and take remedial action. However, warning signs of shortcomings (e.g. failure to meet the target for the number of residences insulated) required more vigorous and comprehensive remedial action to successfully counter emerging adverse trends.

Conclusion

2.26 The ANAO found that the frame-work of the reporting and monitoring systems designed by DoTRD to measure the implementation of the program was appropriate. However, a lack of comprehensive and timely action to deal with identified slippages reduced the effectiveness of the systems in place. Recommendation No. 6 is designed to address this issue.

Risk analysis and risk management

2.27 The ANAO found that there was no overall implementation plan, and that DoTRD had not conducted a risk assessment nor developed a risk management plan for the program as a whole. This was the same situation found by the Senate Select Committee on Aircraft Noise in Sydney in its major review of the NAP in 1995. The findings of that review included:

- the lack of a program implementation plan; and
- ad hoc decision making in the policy and operational matters in the project.

Appendix 2 to this report contains further detail of that Committee's findings and recommendations for remedial measures to reduce the impact of aircraft noise and the Government's response to these recommendations in December 1996.

2.28 Although the risks for particular program elements were addressed in various briefings by DoTRD to Ministers as the program evolved, there was no program-wide risk assessment or risk management strategy. As a consequence, when policy parameters were changed and external factors emerged which tended to introduce delays and increase costs, the program dealt with each manifestation of risk reactively and *ad hoc*.

2.29 The reasons for a lack of a formal risk management plan and implementation plan in the early stages of the program might have been the urgency with which the then Minister wanted the program implemented, coupled with the acceleration of the original ten year program to a three year program in December 1994. The ANAO notes also that at the time of the announcement of the program on 1 November 1994, no decision had been made to allocate responsibility for the project management to a specific Commonwealth agency.

Conclusion

2.30 Despite the urgency with which the program was originally introduced, it would have been prudent to have included the preparation of a comprehensive risk management plan, particularly in the light of the findings of the Senate Select Committee on Aircraft Noise in Sydney in 1995. The *Guidelines for Managing Risk in the Australian Public Service* published by MAB/MIAC provide a useful model for developing such a plan. Such a plan would have enabled DoTRD to have been more pro-active in its management of the program.

Recommendation No. 3

2.31 The ANAO *recommends* that DoTRD assess the program risks and develop comprehensive risk management strategies to deal with the risks identified in a cost-effective manner.

Agency response

2.32 Agree. Risks were evaluated during the development of the contract that is in place now, and a formal risk management plan is being finalised.

Program payments and cost minimisation strategies

Program payments

2.33 MoU2 was an improvement on MOU1 and included the following features relating to program payments:

- weighted, quarterly milestone targets, for each program element (as opposed to annual milestones in MoU1);
- a fixed and a performance component of the project management and coordination fee paid to AOSS (as opposed to a single fee in MoU1);
- monthly advances of both the fixed and performance fee components, based on expected performance, later adjusted against actual performance;
- quarterly assessment of AOSS's performance by DoTRD against the milestones, and an adjustment made in the following month where under-performance required an adjustment of the performance fee component (as opposed to 6 monthly assessments in MoU1); and
- program fund advances based on anticipated expenditure for the project for the coming month.

Conclusion

2.34 The ANAO found that the conditions for payment of project funds to the project manager were specified in detail. The payment arrangements were between two Commonwealth agencies. Since they did not impose an overall financial disadvantage to the Commonwealth, the ANAO considers that the arrangements instituted by DoTRD were reasonable from a risk management and cash flow perspective. The ANAO understands that the new contractor will be paid in arrears.

Cost minimisation strategies

2.35 The program systems and processes developed by DoTRD incorporated a number of cost-containment measures. In respect of institutional buildings, such as schools and child-care centres, the requirement to meet strict maximum indoor design sound levels (based on Australian Standard AS2021-1994) largely dictated the design solutions. Public and competitive tendering processes from panels of builders were conducive to producing acceptable construction costs for that element of the program. Furthermore, AOSS (in consultation with DoTRD) developed a cost-capped estimate for each insulation project. DoTRD advised the ANAO that there was a sharing arrangement between DoTRD and the contractors for cost savings achieved in

institutional projects to encourage the containment of project costs below the design estimate.

2.36 For residential building insulation, cost containment measures included:

- the selection of standard insulation measures (selected as a result of the pilot study, linked to specified outside noise levels);
- an original cost-capped amount of \$45,000 per residence, now increased to \$47,000 as a result of consumer price index movements;
- competitive tenders by three builders from a panel selected by AOSS; and
- assessments of the quotations received from the three builders by AOSS scopers (who compared the quotations with a confidential cost estimate prepared at the time of the scoping visit).

Conclusion

2.37 The ANAO concluded that DoTRD had included a reasonable number of measures designed to contain costs of the insulation elements of the program that balanced issues of cost minimisation, remedial works quality and program objectives.

Contract variations and dispute resolution

Contract variations

2.38 The MoUs contained a number of appropriate provisions to accommodate changes in circumstances. In general terms, AOSS was to keep DoTRD informed, and seek written agreement, where applicable, of significant issues likely to impact on the standard, cost and timing of works. No waiver or variation of the MoU could occur without agreement by the parties in writing.

2.39 In terms of the services to be provided:

- they could be added to or amended by written agreement as circumstances arose; and
- changes in time frames could be agreed by DoTRD and AOSS from time to time.

2.40 In terms of the price of services:

- unforeseeable variations in price could be made, although the time-frame for requesting such variations was stated in confused terms;
- such variations were to be agreed between the two parties; and
- AOSS could not enter into expenditure which would exceed the budget except through the above variation process.

2.41 The contract signed on 15 August 1997 with the new private sector project manager provides for contract variations which can be initiated by either party and covers prices, services to be delivered and time-frames.

Disputes between the program manager and the project manager

2.42 In respect of dispute resolution between DoTRD and AOSS, the process required maximum negotiation and discussion between the agencies, before referral of any dispute to Ministers for determination, if necessary.

2.43 This process, which relied on negotiation between Commonwealth departments and ultimately Ministers, was quite appropriate for two Commonwealth bodies. However, to minimise the risk of legal disputation, adjustments were necessary to take account of the new private sector organisation which became the project manager on 15 August 1997. Such changes include more detail regarding the process, the parties to be involved, and the conciliation and arbitration mechanisms to be used where disputes cannot be resolved between them. The contract between DoTRD and the new project manager incorporates appropriate contract dispute resolution mechanisms.

Conclusion

2.44 The MoUs did not specify how variations in the prices of services could be initiated or what the criteria for such variations were. Given that there were a number of established non-litigious ways to resolve disputes between the two Commonwealth agencies (DoTRD and AOSS), the arrangements did not create major problems. However, the introduction of a private sector contractor required a clearer definition of these processes and mechanisms to minimise the potential for legal disputes. This has been incorporated in the contract with the new project manager.

Disputes between other parties

2.45 There were a number of processes in place for each element in the program to resolve disputes between the Commonwealth and its clients (e.g. home-owners, school representatives and child-care centre owners). The following paragraphs outline these processes and matters arising from them.

Disputes in the acquisition of properties

2.46 For property acquisitions, an opportunity was available for owners not satisfied with the DAS Australian Property Group (APG) valuation (carried out by the Australian Valuation Office for APG) to obtain a private valuation of the property at the Commonwealth's expense. When this yielded a different figure, the owner could request a review of the competing valuations by a panel made up of appointees of the Australian Institute of Valuers and Land Economists.

2.47 The number of home-owners who obtained private valuations was 76 (out of a total of 148 valuations conducted). The private valuations were reviewed by APG, and offers increased when deemed appropriate. A total of 19 owners requested reviews of the final valuations (one case was still unresolved at the time of the audit).

2.48 The ANAO notes that the acquisition program ended on 30 June 1997. DoTRD advised the ANAO that a final opportunity had been given to home-owners

to agree a valuation with APG, and that six had not come to an agreement. They still have an opportunity to request that their homes be insulated. Negotiations were continuing to finalise this element of the NAP by transferring the acquired properties from the Commonwealth to the local council.

Conclusion

2.49 Generally, the process worked effectively with home-owners in property valuation disputes.

Disputes in the insulation of institutional buildings

2.50 To resolve disputes involving the insulation of institutional buildings:

- regular meetings were held between AOSS, the building contractors (construction managers) and owners' representatives to attempt to resolve matters before they became disputes; and
- the parties had recourse to the contract signed by AOSS with the owners and the contractors, respectively (and ultimately the courts).

2.51 Problems were encountered by AOSS in the schools and other institutions element of the program. They fell into four main groups:

- Rozelle Hospital negotiations;
- Newington College negotiations;
- poor communications between the contractors and clients; and
- claims by schools regarding faulty work and compensation.

2.52 The problems at Rozelle Hospital and Newington College related mainly to the size and the design aspects of the works to be completed. Other issues specific to Newington College were the heritage aspects of the school, time-tabling of work and working arrangements together with the question of who was to take responsibility for the project management. The problems resulted in the timetable for the completion of the work at Newington College by the end of 1996-97 being extended by at least a year.

2.53 Normally the contractors would meet regularly with the owner's representatives (usually school principals or committees) to resolve contentious matters before they became disputes. The audit has noted evidence of unsatisfactory communication and problem solving skills related to the contractors.

2.54 The complexity of the tripartite relationship involved in the institutional elements tended to exacerbate the communication problems. There were two contracts in this relationship, one between AOSS and the contractor, and one between the building owner and the Commonwealth. However, there was no direct dispute resolution link between the contractor and the affected building-occupants (e.g. the school principals, teachers and students) when the contractor took a strictly legal approach to the performance of the work under the contract. The contractor was required only to communicate regularly with the building owner's representatives but

resolution of difficulties on the work sites did not always result from this process. This could lead to frustration of the occupants affected in the buildings where there were disputes.

2.55 Remedial action taken by the project manager (AOSS) to address these problems included mediation, and the consideration of past contractor performance in awarding new work. The ANAO understands that this resulted in no further work being offered to contractors who had performed unsatisfactorily.

Conclusion

2.56 The ANAO notes that in the institutional element, the negotiation and dispute resolution processes tended to be protracted, mainly because of the arm's-length tripartite relationship between the Commonwealth (project manager), the contractor and the building owners, and the large size and complex design aspects of the individual projects.

2.57 The target for the resolution of claims by certain schools and child-care centres about faulty workmanship and claims for compensation was for 'substantial progress' by the end of 1996-97. This was not achieved. Since all the insulation at schools was completed by the end of 1995-96, it would be reasonable to expect that these claims be resolved as soon as possible.

Recommendation No. 4

2.58 To enhance the client focus of the program, the ANAO *recommends* that DoTRD ensure that:

- the planning for insulation work in institutions allows for regular channels of communication between contractors and building occupants at insulation sites; and
- effective and timely dispute resolution mechanisms are instituted between building owners, occupants and contractors.

Agency response

2.59 Agree. In respect of the second dot point, dispute resolution procedures to allow effective and timely resolution of disputes will be specified in the relevant contracts or agreements as appropriate.

Disputes in the insulation of residences

2.60 For the residential insulation element, disputes could arise from a number of sources, including:

- eligibility for the program;
- priority for treatment on medical grounds;
- unsatisfactory builder's workmanship or other contractual problems; and
- program (and project) administrative decisions.

2.61 Eligibility for the program was determined by Government policy, and implementation was effected by DoTRD and its project manager (AOSS). When AOSS received complaints which did not relate to the application by AOSS of the

Government agreed criteria, the complaints were referred to DoTRD and/or the Minister as appropriate. The ANAO notes that the information given by AOSS to residents in householder information brochures and home-owner information kits (including a video tape) included useful information on dispute resolution mechanisms.

2.62 To ensure that the areas worst affected by aircraft noise were treated first, the implementation of the insulation program was staged. Some areas were not to have insulation work begun until one to three years from the start of the program. Consequently, a Special Cases Panel, comprising appointees of the Commonwealth and the NSW Minister for Health and Community Services, was commissioned to assess priority cases for insulation work (for residents not on the current insulation program) on medical grounds.

2.63 This Special Cases Panel was disbanded in 1996, after having assessed 24 cases. Four remaining cases were decided by the NAP Steering Committee in November 1996. Since then, six new applications have been awaiting a decision.

2.64 Complaints about administrative decisions made by AOSS or DoTRD in relation to the application of the Ministerial Directions on the residential insulation scheme were subject to review at the request of the home-owners, contractors or materials manufacturer. The sequence of the review process was:

- an informal review by the AOSS Director of Residential Insulation Sydney Airport Noise Insulation Project (SANIP);
- a formal internal review by an officer not involved in the original decision-making process (usually the General Manager of the AOSS SANIP); and
- referral of that decision (if necessary) to an Independent Arbitrator to confirm or amend the decision.

2.65 The appointment of an Independent Arbitrator was foreshadowed in a Ministerial Statement on 20 August 1996. The Independent Arbitrator would embrace the roles of the Independent Review Committee, foreshadowed in the first Ministerial Directions issued in October 1995. DoTRD advised that the Minister would consider the issue of the six medical grounds special cases and that four arbitration cases would be referred to the panel established under the auspices of the Institute of Arbitrators. The Minister announced in May 1997 that agreement had been reached with the Institute to set up an independent panel to review decisions made by departmental officers in implementing the residential insulation scheme.

Conclusion

2.66 The ANAO considered that the dispute mechanism to deal with complaints by clients dissatisfied with the residential building element of the program was appropriate, but a long time has been taken to establish an independent review panel to review complaints about administrative decisions taken by the program and project managers.

Recommendation No. 5

2.67 The ANAO *recommends* that DoTRD give a high priority to ensuring that the independent arbitration panel is put in place as soon as possible to deal with cases requiring resolution.

Agency response

2.68 Agree. The independent panel of arbitrators has been established and has commenced operations.

Incentives and sanctions

2.69 The financial arrangements for payment involved monthly claims in advance by AOSS to DoTRD, together with accompanying progress and exception reports. These payments were subject to quarterly adjustments, in arrears, after reviews of actual milestone achievements. The timing and nature of other reports provided by AOSS was also specified in the Memoranda of Understanding.

2.70 MoU2 included a specific incentive for the project manager to achieve the program objectives. It linked a performance (variable) component of the fee (25% of the maximum fee, paid monthly in advance on a pro-rata basis subject to quarterly reviews) to the achievement of the target project milestones.

2.71 Unfortunately, the following factors made these incentives less effective:

- fixed fees represented a high floor (75 % of total fees) below which payments could not be reduced, irrespective of under-performance or changes in activity levels; and
- AOSS was not liable for delays or failure to provide services ‘for any cause beyond [AOSS’s] control’ - there was a risk that the broad nature of this clause would act as a barrier to any reduction of the fee.

2.72 In addition to incentives to achieve the specified targets, incentives to improve program delivery were included in the MoUs. Specifically AOSS was to:

- review and recommend alternative delivery processes (for schools, child-care centres, hospitals and health care centres, churches);
- undertake quality assurance of elements (including audits of construction managers’ and sub-contractors’ packages for schools, audits in relation to the works proposed for child-care centres, hospitals, health-care centres and churches);

- establish, maintain and review periodically the panels of insulation installers and materials suppliers;
- randomly audit works in progress and undertake continuous review of program effectiveness through a sample of residences (10%); and
- implement a quality assurance system, including audits of construction managers, subcontractors and other work.

2.73 To provide a further inducement to achieve program targets, some sanctions for under-performance had been introduced, including:

- fee payments to AOSS and monthly cash-flows were to be re-examined in the context of reviews in December and March each year; and
- the performance component of the fee (25% of the total fee) was payable only if project milestones were achieved.

Conclusion

2.74 The ANAO concluded that the mechanisms devised, such as a performance bonus, in the design of the administrative arrangements, provided a reasonable number of incentives for improvement in the performance of the program. The implementation of these mechanisms is discussed in Chapter 3 of this report.

2.75 However there were a number of shortcomings, particularly the high proportion of fixed to variable project manager's fee, which limited the effectiveness of some of these measures. Further, there were no sanctions for under-achievement involving non-payment or reductions in the payment of the *fixed* fee, even if performance fell well short of targets in terms of time, cost and quality. The ANAO believes that explicit and clear provision of penalties to apply to fixed fee payments (allowing for a graduated response) for under-performance in quality, timeliness, cost and outputs would have acted as an added impetus to achieve the program targets. Such provisions are now incorporated in the contract with the new project manager.

Chapter 3: Program management

Introduction

The ANAO considered DoTRD's management of the NAP in relation to the key success factors of achieving specific program milestones, cost-effectiveness and quality. This included an assessment of program achievements, how DoTRD monitored progress, the basis of payments made, program reviews and evaluations and remedial action taken.

Management of program to meet targets

3.1 The program targets for 1994-95 were challenging:

- the insulation work at schools and colleges was to be completed by the end of the first school term of 1995;
- the completion of an eligible building census and costing of the program;
- the pilot study of residential buildings was to be completed by 30 June 1995; and
- property acquisitions were to be started.

3.2. Initial progress was slower than required. By 30 June 1995 design work for the schools had been completed, but no physical work on the insulation of schools had started. The pilot study of residential insulation was in progress but not completed until August 1995. The process to acquire properties had commenced and the census and costing work had been completed.

3.3 On school insulation, the ANAO notes that by the time DoTRD and AOSS had refined the cost estimates for the 1995-96 budget, the target date for the completion of the insulation of schools and colleges in 1994-95 had already passed, no physical work had begun. However, construction managers had been selected and detailed design work had been completed (this is considered by DoTRD to be approximately 80% of the total work). No agreement was struck with Newington College, the largest school project, for almost another two years. The ANAO considers that in the circumstances and with the given resources, the initial timetable for completion of the schools and colleges by the first school term of 1995 was difficult to achieve. DoTRD advised that the school administrations themselves did not wish this timetable to be kept.

3.4 In 1995-96, the first full year of the program and the first year for which quantifiable output targets were set, the actual achievements against the targets are outlined in Table 3 below.

Table 3 - Achievement against targets - 1995-96

Program Element	Targets	Achievements
Property acquisitions	151 properties (by end of 1996)	112 (74.2 %)
Schools insulation	19	17 (100% of schools who took up the offer 2 did not take up the offer)
Residential insulation	280 houses	146 (52.1 %)
Hospitals and health-care facilities	substantial progress in 1	unquantifiable negotiations were in progress with 1
Child care centres	22	20 (91 %) + 2 under negotiation
Insulation of Newington College	substantial progress	unquantifiable - negotiations were stalled

Source: ANAO compilation from DoTRD and AOSS documents

3.5 Although the achievements against targets in the schools and child-care centre elements were reasonable, there were significant under-achievements in residential insulation completions and the Newington College and hospital projects (see above Table 3).

3.6 In 1995-96 DoTRD's internal audit unit conducted a review of the operation of the NAP, focusing on MoU1. In its report in June 1996 it recommended, *inter alia*, that DoTRD request monthly project milestone reports from AOSS and review its performance twice a year.

3.7 In the event, DoTRD included in MoU2, quarterly assessments of AOSS's performance. However, the ANAO found no other evidence of remedial action taken by DoTRD (including during 1995-96) to counter the adverse trends in target performance that emerged during that year. This might have been because at the time there were no provisions for sanctions to counter under-performance, nor a link between performance and fee payments.

3.8 However, in 1996-97 the following remedial action was taken by DoTRD and AOSS to counter adverse trends in the residential insulation program:

- door knocking and letter dropping to increase the number of residents who accepted invitations to participate in the program;
- resources were re-allocated to overcome bottle-necks in the system;
- builders who caused unnecessary delays in the program by bidding successfully for and then stockpiling work were suspended from the program; and

- discussions took place with builders when timeliness and/or other aspects of their performance were of concern.

3.9 Despite the above measures, difficulties persisted in achieving the residential insulation targets, particularly in the 2nd and 3rd quarters of 1996-97. Details of the achievements for the first three quarters of 1996-97 (the latest figures available at the time of the audit) against the original MoU2 targets are shown in Table 4 below.

Table 4 - Performance against targets - 1996-97 (1st - 3rd Quarters)

Elements	Targets	Achievements	Actual percentage achieved
1. Property acquisitions	<i>residences: 29</i> <i>demolitions: progressive as permission given</i> <i>churches: progress as required</i>	22 achieved achieved	76% 100% 100%
2. Residential insulation	briefings: 991 scoping visits: 1050 scopes completed: 1000 quotes closed: 950 builder completions: 900	1173 933 974 758 614	119% 89% 98% 80% 69%
3. Schools insulation	detailed lists of progress targets for Newington College	progress to date suggested that the 1st and 2nd Qtrs targets would be met by the end of the 4th Qtr	approx 50%
4. Nursing Homes and Health Care Centres insulation	commence construction at 2 identified centres, construction completion at Bethesda Nursing Home	construction at Bethesda nearing completion, AOSS suspended work at other 2 because of DoTRD placement in abeyance	approx 30%
5. Churches insulation	commence designs on 5	some progress achieved in first quarter, but put in abeyance by DoTRD	approx 25%

Source: compiled by the ANAO

3.10 AOSS gave reasons to DoTRD for the shortfalls in the 3rd quarter of 1996-97. These reasons were also the basis for justifying a subsequent request to reduce the 1996-97 targets, and included:

- suspension of residential invitations north of Stanmore Road by DoTRD, pending finalisation of the Sydney Airport Long Term Operating Plan and policy decisions on the future of the NAP, had been out of the control of AOSS;
- take up rates at various stages in the project had been less than expected;
- community pressure groups had confused home-owners about the program;
- an unexpected number of lightweight construction residences had been encountered (lightweight construction is more difficult than brick construction to achieve suitable levels of noise reductions);
- home-owner deferrals had been higher than expected;
- some builders had stockpiled work; and
- some problems had occurred in product supply.

3.11 DoTRD agreed to reduce the targets for the 4th quarter of 1996-97 and as a consequence the annual targets. The most significant revisions occurred in the residential insulation element, reducing completions from 1350 to 773 (a reduction of 42.7 %). For further discussion of the changes to targets, see Chapter 2.

3.12 Although some of the factors mentioned above were outside the control of DoTRD and AOSS, prior planning efforts and risk analysis should have alerted the program manager and prompted appropriate action. The ANAO considers that:

- the impact on program costs and time-frames of the suspension of invitations should have been communicated to the Minister;
- the building census conducted in 1995 should have estimated accurately the numbers of light-weight constructions involved;
- the extra resources provided by DoTRD (see later section on *Other fee related payments*) should have helped minimise the effects of adverse trends;
- remedial action to counter builder problems (including stockpiling) could have been supplemented by an increase in the size of the builders' panel; and
- extensive industry liaison earlier in the program should have minimised problems in product selection and supply.

3.13 More generally, the ANAO's concerns about the shortfalls and consequent target revisions also include:

- most of the problems in meeting the planned targets in 1996-97 should have been foreseen as a result of either the pilot study or of the experiences gained in 1995-96, especially since the targets were not finalised until the 2nd quarter 1996-97; and
- the close involvement in project management by DoTRD (for example through the weekly project management and coordination meetings) should have led to early guidance to the project manager to counter the adverse trends.

Conclusion

3.14 The ANAO found that in respect of the output targets, not all the original targets for 1994-95, 1995-96 and 1996-97 were achieved despite the fact that DoTRD had made a considerable effort to become aware of relevant trends.

3.15 The ANAO concluded also that, given the available resources and circumstances at the time, it was difficult for DoTRD to meet the early expectations of the then Government for the insulation of schools.

3.16 Action to reverse trends indicating that program targets would not be achieved was absent in some cases. For example there was no evidence that appropriate or timely remedial action was taken in 1995-96 to counteract the shortfalls in the targets. Nor was the remedial action comprehensive or timely enough to achieve the original targets in 1996-97. Although the ANAO acknowledges that the shortfall against the original targets in the 4th quarter of 1996-97 could be attributed largely to the uncertainty surrounding expected changes in the scope of the program, which was beyond the control of DoTRD, more effective remedial action was necessary to meet program targets in the other three quarters.

Recommendation No. 6

3.17 To help achieve more timely program outputs, the ANAO *recommends* that DoTRD improve its oversight of the NAP project by taking early and comprehensive action to counter any emerging adverse trends in program delivery.

Agency response

3.18 Agree. DoTRD will continue to take early and comprehensive action to progress the program whenever possible. However, it should be noted that the noise amelioration program is a voluntary one and the rate at which work is progressed can be largely at the discretion of the building owner.

Managing costs

Project management and coordination fee

Original fee

3.19 When the Program was announced on 1 November 1994, the level of the project management and coordination fee ('the fee') was estimated to be \$6.2m for a total estimated program cost of \$177.2m (3.5 %). The ANAO understands that this estimate was based on the FAC Draft Noise Management Plan of June 1994, which envisaged the FAC as the program manager. Apart from the residential insulation pilot study no specific details of the project manager or the implementation arrangements for the program were given in the then Minister's announcement or were evident in departmental files.

3.20 The Draft Noise Management Plan envisaged up to five full-time staff and consultants with specific experience, at an annual estimated cost of up to \$600,000,

for a ten year program. There is no evidence that any testing of the initial FAC estimate was undertaken by DoTRD. Nor did the ANAO find any detailed documentation on how the level of the project manager's fee was set and validated initially.

3.21 Originally, the then Minister was to instruct the FAC to commence, as a matter of priority, a pilot insulation scheme. In November 1994 DAS gave the then Prime Minister's Office a brief outline of how it would approach the noise abatement measures at Sydney Airport. This was based on the premise that the combined expertise of the DAS businesses could carry out all the measures to a level required by the Government. In that document, DAS estimated a fee of \$11.5m for project expenditure of \$172.6 (6.7 %). The estimated fee was made up of \$4.0m for key staffing, \$3.5m for public relations and liaison and \$4.0m for accommodation and equipment.

3.22 In December 1994 the then Government decided that DAS would be involved in the initial implementation of the voluntary acquisitions and schools insulation program elements. No market testing of the level of the project manager's fee was conducted. DoTRD forwarded a minute to the then Minister in March 1995 noting the following factors against the option of seeking competitive tenders for the project management of the residential insulation program:

- there would be a three month delay in starting the program;
- cost savings would not necessarily be achieved without reducing accountability and service;
- duplication of overheads might occur if different organisations were involved in the NAP;
- the key cost factor in the program was, in reality, the level of treatment entitlement; and
- loss of policy sensitivity and direct accountability.

3.23 By April 1995 the then Government had further decided that:

- DAS would undertake the initial management of the residential insulation program (with a review to occur at the end of 1995-96);
- the residential insulation program would be an owner arranged scheme, with the entitlements to be decided after the pilot study; and
- DAS would continue to arrange treatment of public institutional buildings, including the school insulation work.

3.24 In the context of the 1995-96 budget and the program changes in April 1995, the estimated fee was increased to \$18m for project expenditure estimated to be \$242m (7.4 %).

3.25 The ANAO understands from discussions with AOSS and DoTRD staff that the \$18m fee to be paid to AOSS over the life of the program was arrived at as a 'residual' of the total capped program amount of \$260m. That is, DoTRD estimated the costs of a residential insulation pilot study and the acquisition and insulation programs for eligible buildings and deducted these from the total program estimate.

This residual amount in turn was said to be used by AOSS as the basis for developing a project management organisation which could be afforded within the allocation. No evidence of this fee setting process was found on DoTRD's files, reflecting a constant difficulty of finding authoritative documentation in DoTRD's files for the rationale for changes in the fee.

3.26 The only documented explanation for the amount of \$18m as AOSS's fee was found in the DoTRD minute of March 1995 to the then Minister. Factors stated included:

- that it reflected activities needed to undertake the program;
- comparisons with industry guidelines for the total program project management fee (supporting the level of 6.9 % of program costs by referring to guidelines published by the Association of Consulting Engineers Australia¹⁴);
- industry comparisons with the Australian Institute of Valuers and Land Economists (2.5 % relating to acquisitions) benchmark for the voluntary acquisitions program element fee;
- that the main program element of residential insulation required a lot more activity (and therefore a larger fee) by the project manager than the industry comparisons would suggest (as did the start-up cost, overall program management and community consultation element); and
- to accommodate an appropriate level of accountability, fraud risk management and assistance to owners.

3.27 The changes to the fee over the life of the program are summarised in Table 5 below:

¹⁴ these range from 6.3 to 7.1 %

Table 5 - Changes in the level of the project manager's fee

Date	Reasons	Total Fee	Project Cost (excluding the fee)	% of Fee to Cost
November 1994	estimate at time of announcement	\$6.2m (over 10 years)	\$177.2m	3.5
April 1995	residual amount from \$260m	\$18.0m (over 3 ½ years)	\$242m	7.4
May 1996	East-West expansion	\$23.0m (over 5 years)	\$317.0m	7.3
August 1996	reflect Jan 96 expansion in budget and extension of program by 2 years	\$29.9m (over 5 years)	\$364.8m	8.2
July 1997	changes in program scope and composition, and new project manager	\$29.1m (indicative estimate)	\$271.5m (indicative estimate)	10.7

Source: Compiled by the ANAO

3.28 ANAO recognises that when the fee was first set there was little opportunity to market-test it. However, MoU1 contained a requirement for a review of the fee payments in December 1995. This did not take place, as was noted in a DoTRD internal audit report of June 1996. In the absence of any zero based review, DoTRD is unable to demonstrate that the amount of the fee represents value for money. This situation could have been avoided by DoTRD initiating such a review in the course of the program, and advising the Minister of the options available.

New fee

3.29 The 1996 Government decision to sell DAS business units was predicated on the expectation that the existing MoUs would be converted into contracts with the same terms and conditions. In this particular case, DoTRD concluded that no direct translation of MoU2 to a firm contract was feasible because of impending significant changes to the scope and composition of the NAP (to reflect the new Long Term Operating Plan for Sydney's KSA) and questions concerning legal and public accountability aspects of a private-sector contractor carrying out some finance-related matters handled previously by AOSS staff.

3.30 As a result, in drafting a contract with the preferred tenderer for AOSS, DoTRD instituted changes in the level of the fee, its structure and the conditions of payment. On indicative estimates, the remaining cost of the program from 1 July 1997 is likely to be reduced from \$260m to \$165m (-36.5 %) with a reduction in the expected fee from \$14.8m to \$14.0m (-5.3 %). Therefore, on present estimates, the total fee over the life of the NAP will be \$29.1m (10.7 % of the estimated project expenditure of \$271.5m) see Table 5 above.

3.31 The combined effects of:

- the expected changes in the relative importance between the program elements;
- the difference in the workload for the contractor required for each element;
- a different basis for payment (in arrears versus in advance);
- different formulas applied as the basis of calculating the contractor's fee; and
- the lack of a clear allocation of the fee to individual program elements in the past

made it difficult to assess whether the project manager's fee had been translated fairly into the contract with the new project manager or whether the level of the fee was reasonable.

Conclusion

3.32 Given that DoTRD had decided against a direct translation into a contract of the terms and conditions in MoU2, it was an ideal time to conduct a fundamental review of the level of the fee to remedy the shortcomings identified above. There was no evidence that this had occurred. In the absence of any fundamental review of the fee by DoTRD, it was difficult to assess the reasonableness of the fee.

3.33 At the time of the audit, the final size and composition of the NAP had not yet been determined. This will be influenced by the noise contours to be calculated after experience with the recently announced Long Term Operating Plan for Sydney Airport. There would be benefit in DoTRD confining the time period during which it is committed to make payments under the present contract provisions, and renegotiating the fee and performance requirements after a revision of the noise contours. This is expected by DoTRD to occur in about 18 months' time. The agreement with the private sector project manager provides a mechanism for a review of fees. This approach would:

- ensure continuity of the NAP work;
- allow DoTRD to draw on its experience with the new service provider and assess whether it was obtaining value for money; and
- allow the fee and performance targets to be tailored to the final size and composition of the program.

Recommendation No. 7

3.34 The ANAO *recommends* that when the size and composition of the NAP have been determined, DoTRD comprehensively reassess the amount and structure of the project management and coordination fee to provide the best value for money given market conditions and the services expected.

Agency response

3.35 Agree. The amount and structure of the management fee was a major consideration in the development of the contract that was to be taken up by the successful bidder for AOSS. The contract provides for the delivery of the remainder of the program as it is currently defined. This recommendation will be considered in

the context of contractual arrangements necessitated by changes to the current scope of the program.

Other fee-related payments

3.36 The project management and coordination fee did not constitute all the funding provided by DoTRD to AOSS for the purposes of project management and coordination. AOSS was also given approval in 1996 to charge DoTRD for the employment of up to 8.5 staff above the agreed fixed resource base out of project funds.

3.37 DoTRD advised the ANAO that these resources had been provided to AOSS to increase the level of customer service because DoTRD had underestimated the workload involved in providing services to home-owners. Under the arrangements for the program, complaints by home-owners about builders' workmanship or other contractual problems were governed by the provisions in the contract between the home-owner and the builder.

3.38 However, in practice the arrangements were tripartite, involving AOSS, the home-owners and the builders. Home-owner complaints to AOSS were referred initially to the builders for resolution. Disputes could be referred to the NSW Building Services Corporation and ultimately to the courts if necessary. However, when the two parties were in dispute, AOSS provided assistance to home-owners in how to deal with the problems and the builders, thereby negating to an extent the principle of direct dealings between owners and builders in an owner-arranged scheme. This led to an augmentation of AOSS staff and continuing supplementation of AOSS resources out of project funds.

3.39 It is not clear whether this service will be provided by the new project manager. If it is, then the funding of this function would be better incorporated as an explicit part of the project management and coordination fee to ensure transparency of the administrative costs. This could be done as part of the actions recommended in Recommendation No. 7.

3.40 Furthermore, with DoTRD's approval, AOSS charged consultancies and other services to program funds. These items were not necessarily subject to competitive tenders. AOSS undertook what it termed single select tendering, on the stated grounds that because of the lack of industry expertise in noise insulation, a competitive tendering process was not warranted.

3.41 The amounts involved were of the order of \$1.4m per annum (a cumulative total of \$4.4m to the end of April 1997). In the small sample analysed in the audit, the bulk of the consultancies went to DAS business units. It should also be noted that these amounts did not include other work performed by various DAS business units for services associated directly with the project, such as acquisitions project management, and design and project management work at institutions.

Conclusion

3.42 The ANAO concluded that in the absence of open tenders, there was a risk that best value for money was not necessarily obtained. Greater oversight by DoTRD would have minimised that risk.

Cost containment

3.43 DoTRD, as the program manager, monitored AOSS's project expenditure and attempted the early identification of cost problems by:

- their weekly attendance at project management and coordination meetings; and
- monthly financial (expenditure) reports received from AOSS.

3.44 Over the period November 1995 to April 1996 DoTRD, as a result of its monitoring, provided advice to successive Ministers on cost problems and options to contain costs in the residential insulation element. These options included:

- reducing the extent of treatment (with possible reductions in noise attenuation achieved);
- limiting the choice of materials available to owners;
- introducing sun-set provisions in the administrative processes;
- measures for increased competition amongst builders; and
- more efficient delivery mechanisms.

3.45 The only evidence of cost reduction measures actually being taken related to child-care centres. This involved transferring the design risk from the construction manager to AOSS. This reflected the lessons learnt from the insulation of schools and resulted in reduced design costs in child-care centres.

3.46 DoTRD advised the ANAO that in order to help ensure that costs are kept at a minimum under the new contract arrangements, the project cost plans for institutional insulation will be formulated by the private sector project manager. These plans will be approved by DoTRD before work commences. The ANAO understands that independent specialist advice will be sought by DoTRD on the plans submitted to confirm that they contain efficient noise insulation solutions.

Conclusion

3.47 The ANAO found that DoTRD had given reasonable consideration to containing the costs of the insulation measures and had provided appropriate advice to Ministers on possible options to contain program costs.

Minimising the Project Manager's fee

3.48 As indicated previously, the targets set by the then Minister for 1994-95 were not achieved. Nevertheless, DoTRD paid AOSS the full \$5m project manager's fee. This was justified on the basis of the high proportion of project establishment costs

incurred in the initial program phase and the completion of the pilot study in August 1995. There was also no provision in the interim MoU to penalise AOSS for not achieving the program targets.

3.49 In 1995-96, DoTRD also paid AOSS the full \$4m fee despite the program targets again not being achieved. MoU1 contained no provisions for sanctions to counter under-performance at that time. Consequently the setting of milestone targets in that MoU was of very limited value. No direct link existed between performance and payments, so no penalties were applied.

3.50 In 1996-97 the fee structure was amended to include a fixed and a performance component. Payments for the full fixed fees were made (\$3.189m) for the first three quarters of 1996-97 (the latest figures available at the time of the audit). The performance fee component (just over \$1m) for that period was reduced by a net figure of only \$65,000. Although the adjustments were in accordance with the agreed weighting of the milestones, the end result was that close to the maximum fee was paid although output targets on physical completions were largely missed, as shown in Table 4.

3.51 As mentioned in Chapter 2 of this report, the targets for 1996-97 were reduced in May 1997. This was largely to reflect program changes and difficulties encountered in the first three quarters. That is, even though total output targets were reduced for residential insulation completions, schools insulation and health care centres in 1996-97, this did not lead to a corresponding reduction in the total fixed fee paid to AOSS. However, despite the significant reduction in activity levels there was no evidence that DoTRD tried to renegotiate the level of the fixed fee. The ANAO recognises that adjustments in the level of fixed resources and overheads are difficult to achieve easily, nevertheless, the MoUs did specify the fixed resources to be employed by AOSS and there would have been benefit in exploring the options available at the time.

Conclusion

3.52 In conclusion, the ANAO notes that despite significant shortfalls against the original targets in all three years since the commencement of the program, particularly the residential element, close to the full project management and coordination fee was paid to AOSS. This stemmed largely from a weakness in the fee structure.

Managing quality

Noise reduction results

3.53 At weekly meetings, AOSS reported regularly to DoTRD on quality problems encountered on an exception basis. Noise reduction results were presented at the weekly meetings as well as at the NAP Steering Committee meetings.

3.54 The noise measurements forming the basis of the AOSS reports were taken by contractors. DoTRD staff inspected some treated buildings and discussed the achievements with occupants.

3.55 The specified outcomes and achievements of the NAP are outlined in Table 6:

Table 6- Achievements on Program Quality

Program element	Targets	Comment
Property acquisitions	Voluntarily acquire all residences, churches and institutional buildings in the ANEF 40 ¹⁵ contour zones by end 1996 or as agreed.	Largely achieved ¹⁶
Schools insulation	Insulate schools and colleges within the ANEF 25 ¹⁷ contour zones to AS2021 internal noise design levels.	All eligible schools requesting work have been treated. Work at the last eligible college is in progress. Indications to date are that AS2021 has been achieved in most cases.
Child-care centres insulation	Insulate child-care centres within the ANEF 25 contour zones to AS2021 internal noise design levels.	All eligible child-care requesting work have been treated. Indications to date are that AS2021 has been achieved in most cases.
Hospitals and health-care facilities	Insulate hospitals and child-care centres within the ANEF 25 contour zones to AS2021 internal noise design levels.	DoTRD advise that substantial compliance with AS2021 has been achieved but facilities are now in abeyance ¹⁸ .
Insulation of churches	Insulate churches in ANEF 25 contour zones to AS2021 or best endeavours within cost-cap budget.	All in abeyance ¹⁹ .
Residential insulation	Provide financial and technical assistance for the insulation of residences within the ANEF 30 ²⁰ contour zones.	Completions of residences is behind schedule. Noise reductions achieved vary greatly, depending on external noise levels and type of construction. Noise reductions achieved in test samples indicate that AS2021 is substantially achieved in most buildings except in light-weight-constructions.

Source: ANAO compilation

3.56 In broad terms, Table 6 shows that:

¹⁵ expected to be applicable in the year 2010

¹⁶ By 30 June 1997 agreement was reached with all but six property owners, who opted not to accept the Commonwealth offer.

¹⁷ ANEF25 contour expected to be applicable when KSA reaches its ultimate capacity

¹⁸ The term 'in abeyance' in this table means awaiting a portfolio decision on the future of the NAP following finalisation of the Sydney Airport Long Term Operating Plan, which could affect their eligibility for insulation.

¹⁹ *ibid*

²⁰ expected to be applicable in the year 2010

- for the insulation in institutions, the indoor design sound levels in accordance with AS2021 were achieved in most buildings and in most rooms;
- for residential insulation, in the test samples, treated rooms achieved substantial compliance with indoor design sound levels in accordance with AS2021; and
- some poor results occurred in the residential element, particularly in the higher external noise exposure level areas and with lightweight buildings.

3.57 However, as discussed in Chapter 2 of this report, no quantifiable performance targets had been established for the level of noise reduction to be achieved in the residential insulation element of the program. Despite this lack of a quantifiable target, the sample of noise results taken after insulation treatment had been completed showed that in brick constructions noise reduction levels close to AS2021 were being substantially achieved. However, in lightweight constructions the results varied considerably. These results were consistent with those achieved in the residential insulation pilot study.

Conclusion

3.58 The indications were that program quality was satisfactory in that the outcomes achieved were in line with the program objectives and the expectations arising from the pilot study.

Cost-effectiveness

3.59 The insulation measures applied to residences were based on a standard menu of treatments, as discussed in Chapter 2 of this report. The menu provided for variations depending on the external noise exposure levels. For example, the roof insulation membrane weights specified were 8 kg a metre in the lowest noise level areas, and 12 kg for the highest noise level areas, and specified window thicknesses were 6.38mm and 10.38 mm respectively. The total effect of all differences in treatments was reflected in an expected cost-difference of the order of \$12,000 for a medium-sized house. DoTRD advised that in practice, the differences turned out to be considerably less than the anticipated amount.

3.60 DoTRD commissioned a consultant to review the effectiveness of the residential insulation treatments. That report was completed in February 1997 and found, *inter alia*, that there was no evidence that the higher levels of treatments were necessarily making a significant audible difference.

3.61 Prior to commencing the residential insulation element, AOSS conducted a pilot study to refine insulation measures for the program. That study showed lightweight walls would make it difficult to achieve significant noise reductions. The insulation of the lightweight house in that study was abandoned because of the unsatisfactory noise reduction achieved and the likely high costs that would have been involved in attempting to achieve better results.

3.62 In the implementation of the program, DoTRD proceeded with light-weight residences' insulation in essentially the same way as houses of brick construction, that is, based on the standard insulation measures. Not surprisingly, the noise reduction

results achieved were mixed. In a sample of eight light-weight houses examined as part of the consultant's study, only one house achieved the AS2021 standard in Bedroom 1 (50 dbA), and another two houses were within 2 dbA²¹ of the standard. This was at an average cost of \$37,090. Results in the living rooms, however, were better, with five houses achieving the AS2021 standard (60dbA), and one house within 2 dbA.

3.63 The consultant's study found that the walls in lightweight constructions usually let through considerable noise. In some cases this might not allow the full noise reduction benefits of the other menu treatments (such as secondary windows) to be realised, when compared with a residence with less permeable walls. Additional and effective noise insulation treatment of the walls could be so costly as to absorb the bulk of the amount of the cost cap. One option for realising the benefits of many of the treatments currently in the standard insulation measures outlined in the consultant's study would be to clad the walls of lightweight construction.

3.64 The above study found a need also for greater attention to detail by builders, better inspection, changes in the menu of treatment, and education of builders and inspectors.

3.65 In their advice to Ministers, DoTRD had included options for containing costs and achieving better noise reductions in houses of light-weight construction. However, at the time of the audit no decision had been made to alter the type of noise insulation measures applied to this type of house.

3.66 DoTRD advised the ANAO that they were giving further consideration to the benefits of various options for lightweight construction (including the treatment of *parts* of residences) with a view to presenting additional options to the Minister.

3.67 In its monitoring of program effectiveness DoTRD initiated the following more significant reviews:

- bench-marking with international airport noise management schemes;
- a study (mentioned above) of the effectiveness of insulation treatments used in the residential insulation scheme by a consultant; and
- a recent evaluation by the Commonwealth Scientific and Industrial Research Organisation of window treatments.

3.68 The ANAO would have expected the conclusions from the above reviews and any new strategies and options resulting from those reviews to be referred formally to the Minister for a decision about whether to change the program objectives and/or the menu of treatments. This did not occur. Such advice should have been given in a timely manner to achieve savings or improvements in outcomes.

Conclusion

3.69 Advice on new strategies and policy options arising from these reviews, including options for the insulation of lightweight houses, could have been given to

²¹ 2 dBA represents no discernible audible difference

the Minister in a more timely manner. DoTRD advised the ANAO that advice would be provided to the Minister once the results from further work by the consultant had been assessed together with other information.

Recommendation No. 8

3.70 The ANAO *recommends* that based on the reviews of program effectiveness conducted to date, DoTRD develop policy options to put to the Minister to further improve the effectiveness of the program as a matter of priority.

Agency response

3.71 Agree. It is normal DoTRD practice to continually review and, as appropriate, refine aspects of the program. By way of example, further revisions to the Ministerial Directions for the Residential Insulation Scheme and a trial of new treatments for light-weight residences have recently been approved by the Minister.

Quality improvement

3.72 The MoUs specified a number of measures to be conducted by AOSS, such as quality audits and reviews of procedures, which were designed to provide quality assurance and quality improvements. However, there was no evidence that DoTRD monitored systematically whether the project manager actually undertook these measures. Systems of quality assurance and continuous improvement should not only be a part of the project manager's tasks, but procedures should be instituted by DoTRD to monitor compliance with such requirements.

Recommendation No. 9

3.73 To ensure high quality program outputs, the ANAO *recommends* that DoTRD institute procedures to monitor regularly the project manager's performance in implementing quality assurance and improvement measures, and undertake early remedial action if necessary.

Agency response

3.74 Agree. Relevant provisions have been made in the contract with the project manager.

Chapter 4: New purchaser/provider environment

Introduction

The ANAO sought to identify the general and specific risks faced by DoTRD in managing the program, given a change from a public sector to a private sector project manager. This included the identification of lessons that could be learnt from DoTRD's management of the program with a public sector project manager.

4.1 A major change occurred in the administration of the program as a result of the Government's decision to privatise the contractor responsible for project management - AOSS. This took place on 15 August 1997. As a result, DoTRD will be managing a private sector contractor rather than a Commonwealth Government agency.

4.2 In 1996-97 and 1997-98 the Office of Asset Sales in the Department of Finance was engaged in privatising AOSS. DoTRD has been involved in the drafting of a contract to replace the existing Memorandum of Understanding with AOSS.

General risks

4.3 Any move to change the delivery of services from a public sector agency to a private sector contractor introduces a new set of risks for public sector managers which need to be managed. A useful guide to effective contract management is outlined in the MAB/MIAC Report No 23, *Before you sign the dotted line ... Ensuring contracts can be managed.*

4.4 Some of the key risks which were relevant for the NAP included:

Planning

- the Minister remains accountable for the overall program outcomes, notwithstanding that the nature of service delivery has changed, and it is critical that the contract facilitates the program manager's accountability to the Minister and ultimately to the Parliament;
- in order to reduce the chance of a monopoly provider situation arising, the program manager should endeavour to retain the capacity to take back the function or allocate it to an alternative provider;
- previously used and appropriate standard clauses in the public sector should be considered to minimise duplicative efforts;
- Commonwealth staff should have the necessary skills for the new relationship and cultural change, including contract management and communication skills;
- Commonwealth staff (and contractor) should understand the detail of the contract as appropriate and its implications for work-flows;
- at the negotiation stage, preferred tenderers should be kept at the table until it is clear that a final, preferable contract can be executed with a single provider;
- the development and/or use of a previously tested contract tracking system is worth considering as part of the monitoring tools;

- the contract should identify the provider's client groups so that it is clear to whom services should be provided, thus reducing scope for disputes; and
- the identification of the termination arrangements and criteria to be used, including graduated escalating steps to eventual termination.

Management

- sufficient checks should be introduced to provide a reasonable assurance to the Commonwealth that the contract performance has actually been delivered, including specified service delivery standards (not just outputs); and
- a formal mechanism for the Commonwealth and the provider to regularly obtain stake-holder and client feedback and a process for program evaluation and remedial action.

Specific risks in relation to the NAP

4.5 In the course of the audit, a range of issues specific to the NAP were identified which required consideration in planning for the change of project manager, in particular, in the drafting of the new contract with the proposed private sector project manager. Other issues were also identified that require consideration in the management of the project by the private sector contractor. Specific program risks identified in the audit included:

Planning stage

- the lack of a risk analysis and a risk management plan for the NAP in the present and the future - MAB/MIAC Report No. 22 (October 1996) *Guidelines for Managing Risk in the Australian Public Service* is a useful guide for the preparation of such a plan;
- flexibility to accommodate future changes in the size and composition of the program, providing for transparency in the processes used for varying the output targets and the project manager's fee;
- a need for performance indicators which are both output and outcome based - the joint ANAO/Department of Finance Better Practice Guide (November 1996) *Performance Information Principles* is useful for developing appropriate performance indicators;
- time-frames and performance targets should be specified not only for the current year or period, but for the whole life of the program;
- the financial implications of not meeting specified targets and time-frames should be clearly defined, in particular the effect of extending the duration of the program on the total amount of the project manager's fee payable;
- the level of fee should be reviewed when the size and composition of the program are finalised, to ensure that the fee is commensurate with the services agreed to be provided by the private sector project manager, offers best value for money and that payment schedules are in accordance with the value earned and good cash management principles;
- there should be a graduated system for awarding bonuses and applying penalties for actual performance against clearly specified targets, including adherence to agreed processes, procedures and criteria to vary them;

- dispute resolution mechanisms should be specified, to take the place of established intra-governmental processes, and contain conciliation and arbitration processes to minimise the risk of litigation; and
- the contract should provide for access by DoTRD personnel (and independent auditors) to the project manager's, contractors' and subcontractors' records, premises and clients to verify the basis of claims and for review, audit and evaluation purposes.

Implementation stage

- the project manager's management of the panel selection and the review processes of products, insulation installers and materials suppliers should be actively monitored;
- the project manager's management of the tendering processes should be monitored actively to ensure open and effective competition in the contracting of work in the project;
- there should be graduated reduction in the actual monitoring over time in accordance with the assessed risks; and
- regular and comprehensive reviews and evaluations should be provided for and undertaken (they should encompass all aspects of the project at a frequency appropriate to the assessed risks).

Appendix 1

RECOMMENDATIONS ON REMEDIAL MEASURES FROM THE NOISE MANAGEMENT PLAN FINAL REPORT FOR SYDNEY (KINGSFORD-SMITH) AIRPORT BY ERM MITCHELL McCOTTER OCTOBER 1994

- ◇ Voluntary acquisition of residences and churches in highest noise zone (40 ANEF) and re-zoning of the land for non-residential use.
- ◇ Voluntary sound insulation for existing schools, colleges, hospitals, child care centres, health care centres and churches with noise exposure exceeding 25 ANEF.
- ◇ Voluntary sound insulation for existing residences with noise exposure exceeding 25 ANEF, with measures to be adopted depending on the results of a pilot study. Treatment would generally be offered progressively, beginning with residences having the highest noise exposure.
- ◇ Pilot study to identify most effective insulation measures, to proceed immediately.
- ◇ Recommendation to change Building Code of Australia so that new buildings with noise exposure exceeding 20 ANEF incorporate sound insulation to the standard required in Australian Standard AS 2021.
- ◇ Airport noise from possible extensions to domestic terminal to be reduced by an earth mound or similar attenuation measure.
- ◇ Remedial measures to be financed by user-pays charges on aircraft, related to their noise level.
- ◇ Acquisition and insulation programs, including the pilot study, to be undertaken by a body independent of the airport owner, maintaining liaison with the community, the aviation industry and the three levels of government through appropriate consultative arrangements.
- ◇ Remedial measures other than the acquisition and insulation programs to be administered by the airport owner.

Appendix 2

REPORT OF THE SENATE SELECT COMMITTEE ON AIRCRAFT NOISE IN SYDNEY - NOVEMBER 1995

Remedial measures - Extract from the Executive Summary

1.79 Currently the major remedial measure being implemented to reduce the noise impact around KSA is the Sydney Aircraft Noise Insulation project.

1.80 The Committee is generally satisfied with the progress of the acquisition scheme. However, a number of particular matters arose during the inquiry. The Committee considered that valuation disputes which arose and could not be resolved through negotiation should be addressed through a formal dispute resolution procedure to apply generally to the acquisition and insulation programs.

1.81 There was also a need to prepare one appropriate and authorised ANEF contour map to cover all aspects of the scheme, rather than the present approach of different maps prepared according to differing assumptions.

1.82 With regard to the school insulation program, the Committee accepts that appropriately installed insulation will make a significant difference to indoor noise levels at a number of inner city schools.

1.83 However, the Committee received evidence to suggest that in some cases there may not have been sufficient consultation between schools and the government agency at the design stage, and that eligibility for inclusion in the scheme might have been inflexible.

1.84 The Committee notes that Kurnell Primary School was declared eligible for noise insulation even though it is not within the appropriate contour region (clearly the problems faced at that school entitled it to insulation). The Committee considers that other schools should similarly be able to establish a special needs exception. Such schools may be eligible under existing criteria if applied to a properly drawn noise exposure contour map.

1.85 Clearly, the Acquisition and Noise Insulation Scheme is a major project - it is already budgeted to cost more than the construction cost of the third runway of \$250 million.

1.86 However, there is an unfortunate arbitrariness about the scheme, with both policy and operational matters being decided on an apparently arbitrary and ad hoc basis. To some extent, this is a natural consequence of running a pilot project. But it is also a consequence of the failure to prepare a management plan.

1.87 We have a noise insulation policy, but no implementation plan. In these circumstances, it is essential that an independent dispute resolution and complaints-handling body be established as a matter of priority to adjudicate disputes. Such a body is in the best position to adjudicate on matters of policy interpretation and

individual disputes on operational issues.

1.88 While some of the safety fears regarding insulation seem to have been exaggerated, the Committee finds that others - principally the need to examine the safety implication of insulated houses as "systems" - are legitimate. In the Committee's view the CSIRO should investigate this safety aspect of the insulation program without delay.

1.89 The Committee also found that the consultation between Department of Administrative Services which is responsible for the pilot project and other statutory authorities left much to be desired. The Department appeared to consult Commonwealth and state government authorities only after a failure to consult was raised at a Committee hearing.

1.90 Finally, if, as a result of the revised airspace management plan recommended by the Committee, greater use is made of the East-West runway, then the insulation scheme may need to be revised accordingly.

Recommendations about remedial measures and Government response

Set out below are the recommendations of the Committee for remedial measures and the Government's response presented to the President of the Senate on 14 December 1996.

Recommendation 12

- that a new authorised maximum capacity contour map for KSA be prepared to apply both to the acquisition and noise insulation scheme

Response

A maximum capacity map will be prepared when the Airport's new operational procedures have been determined following decisions on Airservices Australia's report on the long term operating plan.

Recommendation 13

- that the voluntary acquisition scheme apply to residences within the 40 ANEF contour as included on the authorised maximum capacity map

Response

Eligibility for the current voluntary acquisition scheme is based upon the 40 ANEF for the year 2010. The Government does not propose to extend the criteria for determining the eligibility for voluntary acquisition under the program.

Recommendation 14

- that there be a special needs criteria to enable schools to seek eligibility for inclusion in the school insulation scheme (in the same manner as was applied to Kurnell school)

Response

The Government will consider equivalent treatment for any school that is in a similar situation to the Kurnell Public School at the time of its inclusion in the program.

Recommendation 15

- that Newington College not be prevented from moving its preparatory school to a nearby less-noise-affected area

Response

Marrickville Council has approved the relocation of the Preparatory School.

Recommendation 16

- that the noise insulation scheme be extended to all residences within the 25 ANEF contour as included on the maximum capacity map

Response

The previous Government made no provision in the forward estimates to extend eligibility for the residential insulation scheme beyond the 30 ANEF for the year 2010. New noise contours for the airport will be drawn up when the Airport's new operational procedures have been determined following decisions on Airservices Australia's report on the long term operating plan. In the absence of these contours it is not possible to assess the cost of expanding the current insulation program.

Recommendation 17

- that the maximum level of outdoor noise be determined by the method preferred in the Draft Noise Management Plan

Response

The only measure of determining external design noise levels for insulating buildings against aircraft noise which has public standing is Australian Standard AS2021. Accordingly, external design noise levels for the purposes of insulation treatment of buildings will continue to be calculated in accordance with procedures set down in the Standard.

Recommendation 18

- that an independent dispute resolving body be established as a matter of urgency to consider policy and operational issues arising out of the residential insulation scheme

Response

The Government will be appointing an independent arbitrator to resolve complaints about administrative decisions in the residential insulation program.

Recommendation 19

- that the CSIRO investigate the safety aspects of insulated houses ‘as a system’

Response

In August 1995 the CSIRO subjected to a rigorous battery of tests a full size prototype insulation ‘system’. The tests confirmed none of the materials being used to insulate roof spaces would:

- contribute to the spread of fire; and/or
- be likely to add to existing toxic fire hazards in homes.

All houses are fitted with one, or more, mains wired smoke detectors which immediately raise an alarm and shut down the airconditioning system if smoke is detected, because ducted airconditioning systems could assist in the spread of smoke and flame.

Recommendation 20

- that the Department of Administrative Services improve its processes of consultation with other statutory authorities involved as a result of the insulation program

Response

The Department of Administrative Services has in place regular consultative meetings with local Councils, relevant NSW State Departments and other authorities. Contact with these bodies is at various levels and commenced early in the development of the project.

Sydney Electricity Authority has the opportunity to inspect residences and institutions at any time.

All acoustic and ventilation works in State owned educational institutions are to technical standards agreed between the Commonwealth and the Department of School Education, the NSW Commission of TAFE and the Public Works Department.

Similar consultative arrangements are in place with the Catholic Education Office, Newington College, local Councils and other owners of schools, pre-schools, child care centres, health care centres and nursing homes.

Arrangements are in place for the NSW Department of Community Services to be consulted about issues such as registration and compliance with all health, security and safety requirements for pre-schools, child care centres, health care centres and nursing homes.