

ANGUS COUNCIL

ROADS COMMITTEE

29 JANUARY 1998

PROCUREMENT OF ICE PREDICTION SYSTEM - PROGRESS REPORT
PIARC CONFERENCE

REPORT BY THE DIRECTOR OF ROADS

ABSTRACT

This report summarises current progress on the procurement of the new Ice Prediction System, and seeks approval for representatives from Angus to attend an International Winter Road Congress.

1 RECOMMENDATIONS

It is recommended that the Committee agree:-

- (i) to note the current progress on the procurement of the new Ice Prediction System.
- (ii) to note that approval for the purchase and installation of two weighbridges has been granted under the Spend to Save Scheme.
- (iii) to note the requirement for provision to be made in the Financial Plan for 1998/99 to allow for the carry-over of expenditure originally programmed for the current financial year.
- (iv) to representation and participation in the Xth International Winter Road Congress as detailed in the Report.

2 INTRODUCTION

The Roads Committee of 28 August 1997 approved the procurement of Phase 1 of the Ice Prediction System (provision and installation of outstations together with associated software).

The Roads Committee of 16 October 1997 approved the procurement of Phase 2 of the Ice Prediction System (thermal mapping).

The other components of the system are detailed in this report and the anticipated phasing of expenditure is outlined.

At the Roads Committee of 27 November 1997 there was discussion on further involvement in future PIARC events/conferences including the 1998 Winter Road Congress. This Report considers representation and participation at this major conference.

3 DETAILS

3.1 Progress to date

Phase 1 of the system comprised:-

- a) Provision and installation of 6 No outstations
- b) Maintenance and calibration of outstations for 5 years
- c) Provision, installation and support of software for the interrogation of data from outstations and weather forecaster
- d) Provision, installation and support of software to enhance and display thermal mapping information.

Item (a) is partially complete with five out of six outstations fully commissioned and in service. The sixth outstation (located at Northmuir) is

installed but not yet operational pending connection of power supply and telecommunications.

The contract is in place for Item (b).

Item (c) is in place and fully operational.

The contract is in place for Item (d) but the software cannot be used until digitised thermal mapping survey data is available.

Phase 2 of the system is thermal mapping which allows the extrapolation of the site specific data from the outstations to the rest of the priority route network. An order has now been placed with Vaisala TMT Ltd for this service and survey work will be carried out between January and March when the required ambient weather conditions are prevalent.

In addition to these main components of the system, the necessary hardware for Phase 1 has been acquired through the Director of Information Technology's normal purchasing arrangements and is now in operation. The hardware acquired to date is detailed in Appendix 1.

3.2 **Future Procurement**

Further elements of the system (deemed to be "optional extras") were not ordered with Phase 1 pending procurement of Phases 1 and 2. The tendering arrangements employed for Phase 1 (which involved a joint exercise with the Tay Premium Unit and Dundee City Council) resulted in very advantageous rates compared to budget estimates. Similarly a joint arrangement with Perth and Kinross Council for the procurement of thermal mapping has obtained very favourable rates due to economies of scale. These savings compared to budgetary provision will allow the procurement within the overall budget of the additional items detailed in Appendix 2.

The other major component of the complete Ice Prediction System (ie Phase 3) will be Route Optimisation. This involves computer modelling of gritting routes taking into account thermal mapping information; operational constraints such as depot locations, salt stockpile locations, route priority, vehicle capacity, etc; and physical constraints such as one-way streets, road geometry, bridge weight restrictions, etc. The estimated cost of Route Optimisation of the priority route network is £25,000. However this process can only be carried out once thermal mapping data is available and expenditure on this element of the system will therefore slip into 1998/99.

3.3 Salt Management and Control

The primary purpose of the Ice Prediction System is to increase confidence and accuracy in the forecasting and prediction of ice and snow conditions affecting roads to allow more economy, effectiveness and efficiency in the use of salt and winter maintenance plant. In a typical winter in Angus £350,000 can be spent on salt alone and increased accuracy in ice prediction can reduce the number of occasions when precautionary gritting is carried out unnecessarily (particularly in marginal conditions when less sophisticated prediction methods result in greater uncertainty regarding whether or not temperatures will fall below zero). A good Ice Prediction System therefore makes a major contribution to the reduction in salt usage (with associated financial benefits).

The second major factor in economic, effective and efficient salt usage management is accurate calibration and adjustment of gritter controls. A recent value for money study has shown that accurate calibration of rates of spread through the use of weighbridges could result in savings in the first year in excess of the initial capital cost of the equipment. Authorisation for the purchase and installation of two weighbridges at a total cost of £36,000 was granted under the "spend to save" initiative in the current financial year. These weighbridges are now installed and operational at Forfar and Arbroath depots.

3.4 **PIARC Winter Road Congress**

The 1998 Winter Road Congress (held every 4 years) is due to take place in Lulea, Sweden from 16-19 March 1998. It is considered that Angus Council will have much to learn from and indeed much to contribute to this major event.

Furthermore, it should be possible to further develop relationships with the Ministry of Transport, Republic of Latvia and other partners from INTEREG II, North Sea Commission Area.

It is therefore proposed that Angus send a delegation to this conference consisting of the Convener of Roads (or nominated substitute) and the Director of Roads (or nominated substitute).

4 **FINANCIAL IMPLICATIONS**

(i) **Capital**

The projected out-turn costs and phasing of expenditure for the project is shown in Appendix 3. In the current Financial Plan there is provision of £225,000 in 1997/98 to allow completion of the project in the current financial year.

The phasing of expenditure now anticipated involves a carry-over of £34,500 into 1998/99 not previously allowed for and provision will require to be made for this in the overall Capital Allocation for Roads Department projects.

The remainder of the spend (£36,000) will be re-appraised against the overall position within the ongoing review of the 1997/98 Capital Programme.

(ii) **Revenue**

The loan charges will amount to £50,000 per annum over 5 years for the Ice Prediction System.

Ongoing reduced operational revenue expenditure should be achieved as a result of the use of the new equipment.

(iii) **Grant Aided**

The costs of purchase and installation of the two weighbridges are fully covered by grant under the Spend to Save Scheme.

(iv) **PIARC Winter Road Congress**

The anticipated costs to be represented at and participate in the Winter Road Congress are estimated to be £3K. This can be contained within the Roads Department 1997/8 Revenue Budget.

5 **CONSULTATION**

The Chief Executive, the Director of Law and Administration, the Director of Finance and the Director of Information Technology have been consulted in the preparation of this Report.

Dr Bob McLellan
DIRECTOR OF ROADS

NOTE

The following background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973 (and not containing confidential or exempt information) were relied on to a material extent in preparing the above Report:- (list papers concerned).

Report No 455/97 - Procurement of Ice Prediction System and Thermal Mapping - Exemption from Financial Regulations - Roads Committee 24 April 1997.

Report No 883/97 - Procurement of Ice Prediction System - Phase 1 - Roads Committee 28 August 1997.

Report No 1071/97 - Procurement of Ice Prediction System - Phase 2 - Thermal Mapping - Roads Committee 16 October 1997.

**PROCUREMENT OF ICE PREDICTION SYTEM
HARDWARE ACQUISITION**

Item	Number	Rate £	Amount £
Toshiba Satellite laptop computer	3	3123	9369
Tulip 5/233 PC with 17" Monitor	4	1977	7908
Modem	2	160	320
HP 870 Printer	2	324	648
Anti - virus protection	4	10	40
		Total	£18,285

**PROCUREMENT OF ICE PREDICTION SYTEM
ADDITIONAL ITEMS**

Item	Purpose	Estimated Cost £
Present Weather Sensor	Detects actual precipitation type and intensity at remote outstation	4,500
Graphical Presentation of Old Thermal Maps	Converts hand-drawn thermal maps to computerised graphics	2,000
Weather Radar Viewing	Provides access to weather Radar Data (Actual and forecast precipitation type and intensity)	15,000
	Total	£21,500

**PROCUREMENT OF ICE PREDICTION SYSTEM
PROJECTED OUT-TURN COSTS AND PHASING OF EXPENDITURE**

Element	Projected Out-turn 1997/98 £	Projected Out-turn 1998/99 £	Total £
Phase 1 (Outstations)	73,000	-	73,000
Computer Hardware	20,000	3,500	23,500
Additional Items (Appendix 2)	21,500	-	21,500
Phase 2 (Thermal Mapping)	36,000	-	36,000
Phase 3 (Route Optimisation)	-	25,000	25,000
Computerised Winter Maintenance Management System	-	5,000	5,000
Engineering/Admin	4,000	1,000	5,000
Total	154,500	34,500	189,000

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