

ANGUS COUNCIL

ROADS COMMITTEE

24 AUGUST 2000

WINTER MAINTENANCE POLICY
AND SERVICE PROVISION FOR 2000/01

REPORT BY THE DIRECTOR OF ROADS

ABSTRACT

This Report re-states the Council's Winter Maintenance Policy, reviews the performance for the winter of 1999/2000 and details the proposed service provision for gritting and snow clearing during the winter period 2000/01.

1 RECOMMENDATIONS

It is recommended that the Committee agree:-

- (1) to continue with the established policy for Winter Maintenance stated in Appendix 1;
- (2) to note the review of performance for the winter of 1999/2000;
- (3) to note the relatively nominal variance between the initial budget provision and the final out-turn costs for 1999/2000;
- (4) to note the difference between the proposed arrangements for the coming winter 2000/01 compared to 1999/2000;
- (5) to maintain the level of service and performance standards detailed in Appendix 2;
- (6) that the salt stock holding be topped up to a total of 12,000 tonnes;
- (7) that the vehicles and plant to be provided for the coming winter should be as per the proposed list shown in Appendix 3;
- (8) to the proposed prioritisation of carriageways and footways listed in Appendix 4;
- (9) to the proposed service provision for 2000/01.

2 INTRODUCTION

- 2.1 The Roads (Scotland) Act 1984 places a duty on the local roads authority to take such steps as they consider reasonable to prevent snow and ice endangering the safe passage of pedestrians and vehicles over public roads. It is therefore incumbent on Angus Council to determine the measures which it deems appropriate for Winter Maintenance on its public roads taking into account its overall priorities and available resources.

In order to ensure that the Council can demonstrate that it is meeting its legal obligations and is doing so in a way which ensures that its resources are being deployed in the most economic, effective and efficient way an essential pre-requisite is a clear statement of policy endorsed by elected members. This policy statement then provides a framework for planning the preparatory arrangements and operational procedures to be implemented and allows clear guidelines to be given to all those involved in the delivery of the service.

- 2.2 Elements of Winter Maintenance for which there will be a continuation of service in 2000/01

The Roads Committee of 6 June 1996 approved the Winter Maintenance Policy for Angus Council (See Appendix 1). This policy has proved to be robust and effective and no change to the existing policy is therefore proposed.

The Roads Committee of 26 August 1999 approved Report No 842/99 which, subsequent to the election of the new Council in May 1999 and for the benefit of newly elected members, re-stated the background detail and practice of operational procedures, performance standards and level of service provision which had evolved over the previous three winters.

There are no significant changes in operational procedures for the coming winter 2000/01 from previous reports. Any minor changes are outlined in the detail of this report. It is therefore intended to continue the service provision approved for 1999/2000 over the coming winter for the following elements of Winter Maintenance (as detailed in previous Report No 472/96 and 842/99).

- A90 Trunk Road – Tay Premium Unit
- Assistance from other Department (see Appendix 2)
- Radio Telephones
- Liaison with the Police
- Publicity
- Control Centre
- Salt/Sand Mixtures
- Grit Bins
- Roadside Grip Heaps
- Farmers' Snowploughs
- Snow Conditions
- Snow Fencing
- Roads Department Supervision of Winter Maintenance Operations
- Weather Forecasts

2.3 Present Report

This Report:-

- Outlines budget provision for 2000/01
- Reviews performance in 1999/2000 compared to the standards adopted
- Compares out-turn costs with budget provision for 1999/2000
- Highlights the differences in the proposed arrangements for the coming winter compared to the previous winter
- Details the proposed service provision for 2000/01
- Updates the Committee on the progress of a Best Value Service Review
- Confirms the arrangements for the provision of weather forecasting services for 2000/01
- Advises on the specification and purchasing of salt supplies for 2000/01

3 **DETAILS**

3.1 Budgetary Provision and Expenditure Control

The approved budget for Winter Maintenance for 2000/01 is £1,280,000.

In the event of a sustained period of severe winter weather and the likelihood of the budgetary provision being exceeded the Director of Roads would report the situation to the Director of Finance and the Roads Committee in accordance with Financial Regulations.

If the severity of the winter weather is such that other works cannot be carried out then it is sometimes possible to transfer the “underspend” from these works to Winter Maintenance operations, thus assisting in containing the total expenditure within the overall Roads Department revenue budget. Conversely, if all the indications are that expenditure on Winter Maintenance operations will be less than the budget allocation the “underspend” can be transferred to other works.

3.2 Review of 1999/2000 Winter – Performance and Standards

The winter weather was again a very mixed bag of mild spells, rain and frosts. There was very little snow in the Angus area. Only two short falls of snow in the area in December required extended action.

The main operations consisted of gritting carriageways and footways affected by frost and ice on sub zero temperature occasions.

Temperatures fell below zero on 79 days out of a total of 185 between 5 October and 17 April as shown below (1998/99 winter figures in brackets).

Month	No of days with temp below zero	No of days fresh snow lying
October	2 (7)	-
November	9 (16)	1 (1)
December	23 (16)	8 (5)
January	14 (18)	1 (4)
February	14 (18)	7 (8)
March	10 (11)	2 (2)
April	7 (6)	2 (2)
Total	<u>79 (92)</u>	<u>21 (22)</u>

Priority carriageway routes were treated on 75 mornings (73) and 36 evenings (36).

Non-priority carriageway routes were treated on 46 (62) occasions during normal working hours.

Priority and non-priority footways were treated on 27 occasions (33).

Auxiliary routes were treated on 45 occasions.

3.3 Comparison of out-turn costs with Budgetary Provision for 1999/2000

The 1999/2000 budget for Winter Maintenance third party payments was £1,280,000. Total Winter Maintenance out-turn costs for 1999/2000 were £1,315,087 (compared to £1,265,000 in 1998/99, £1,119,600 in 1997/98 and £1,315,000 in 1996/97).

This tends to confirm 1999/2000 as representative of an “average” winter.

Standing charges paid to Tayside Contracts in respect of plant provision and maintenance together with standby payments and other fixed costs amounted to £618,595 (47%) of the total expenditure of £1,315,087.

3.4 Proposed changes to the arrangements for 2000/01 compared to 1999/2000

3.4.1 **Salt Supply**

The salt obtained in agreement with Tayside Contracts last year (1999) and used last winter 1999/2000 was a mined rock salt supplied by Broste. This salt was chosen on grounds of lower cost than 6 mm marine salt used in previous years.

Although the Broste salt met the required specification for particle size and presence of impurities, difficulties were encountered in its use. It was found to be much slower in reacting with ice, particularly on footways during the two spells of snowfall in December. The salt caked in the gritter mechanisms and left a residue which appeared like clay impurities.

Some 6 mm white marine salt had to be purchased for use in footway gritters to combat the above problems.

Difficulties were also encountered in the salt stockpiles which did not form a natural 'thatch' and were found to be quite solid within the pile necessitating breaking down by mechanical means before loading into the gritters.

In light of the above problems the salt ordered for the coming winter and now stockpiled is 6 mm marine salt. Although the purchase price of this salt is marginally more expensive, its superior performance and effectiveness will provide better value for money. 9,460 tonnes of salt was required to bring the stockholding to 12,000 tonnes at the start of winter.

3.4.2 **Grit Bins**

The number of grit bins deployed and serviced is now approaching 500.

Each winter grit bins are taken out of storage, placed in position at the various locations, replenished during the winter maintenance period and then uplifted, washed and stored at the end of winter ready for the following winter. With a view to reducing the cost of this part of the service a trial is in process in the Forfar and Monifieth areas involving leaving the grit bins in place during the summer months. Apart from a small number of complaints, mainly involving the bins being vandalised and the salt residue being spread about, the trial has so far been generally successful.

If this policy is adopted throughout Angus the savings would be in the region of £12,000. It is therefore proposed to extend the policy of leaving grit bins in place.

3.4.3 **Route Optimisation, Thermal Mapping**

The route optimisation exercise was completed prior to last winter and apart from some minor refinements remains unchanged for the coming winter. Priority carriageway and footway routes are contained in Appendix 4 of this report.

Thermal mapping of priority and auxiliary routes has been completed and forms an integral part of the Ice Prediction System operated under contract with Vaisala TMI.

3.4.4 Weather Forecasting Service

The weather forecasting service for the past two winters has been provided by P A Weather Centre Ltd.

The forecasting service is provided to the consortium of authorities – Angus Council, Dundee City Council, Fife Council, Perth and Kinross Council and the Tay Premium Unit – through competitive tender.

The tender for the winter of 1999/2000 allowed for a negotiated extension of the service for 2000/01 provided contract performance was acceptable.

The service contract required various performance targets for forecast accuracy including a system of penalties/bonuses. PA Weather Centre Ltd performed to the required targets and it is therefore proposed that this company continue to provide the forecasting service to the consortium of authorities for the coming winter.

3.4.5 Hand barrows for footway gritting

Last winter six hand barrow gritters were purchased for use by Tayside Contracts personnel who do not have driving licenses or are no longer able to drive. These barrows were trialled on footways in Arbroath and Forfar and were found to be most effective, particularly during the two snow and ice spells in December.

It is therefore proposed to continue the use of these appliances in Arbroath and Forfar and extend their use to other locations inasmuch as it is possible to maximise the use of available resources.

3.5 Best Value

A Best Value Service Review is currently being undertaken for winter maintenance activities which also includes for Structural, Cyclic and Winter Maintenance.

The review is due to be completed by 1 February 2001 and therefore any recommendations evolving from the review will not be put in place during the

coming winter 2000/01 but will be considered for the following winter 2001/02.

The review will consider all aspects of delivery of the maintenance service.

4 **FINANCIAL IMPLICATIONS**

A budget provision of £1,280,000 is in place for 2000/01 for third party payments associated with the delivery of the Winter Maintenance service.

The intention is to provide the best level of service possible within the available budget based on an "average winter". In reality of course there is no such thing as an "average winter" and Winter Maintenance operations are dictated by the prevailing weather and the response required in accordance with the Council's policy and agreed level of service. Some costs (related primarily to ensuring a state of "being prepared") are fixed and will be predictable once the relevant charges and rates have been agreed with Tayside Contracts. Other costs are variable and are proportional to the severity of the winter.

The Director of Roads will therefore monitor costs closely as the winter progresses, and if there are indications that the projected expenditure is likely to be at variance with the budget will, in conjunction with the Director of Finance, report to Committee with proposals for any necessary budget adjustments.

5 **CONSULTATION**

The Chief Executive, the Director of Law and Administration, the Director of Finance, the Director of Education, the Chief Constable and the Managing Director of Tayside Contracts have been consulted in the preparation of this Report.

6 **CONCLUSION**

6.1 The Council has a statutory duty to take such steps as they consider reasonable to keep public roads safe during adverse winter weather. Notwithstanding the difficulty in predicting the severity of winter it is necessary to have a clear policy and an agreed level of service to allow the planning and preparation necessary for the delivery of a Winter Maintenance service to proceed.

6.2 If during the course of the winter abnormal or particularly extreme weather conditions are experienced the Director of Roads in conjunction with the Director of Finance will report the position to the Committee and will recommend appropriate contingency arrangements and any necessary compensatory budgetary adjustments.

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:-

Report No 472/96 - Winter Maintenance Policy and Service Provision for 1996/97 - Roads Committee of 6 June 1996.

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

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

Report No 1060/97 - Winter Maintenance Service Provision for 1997/98 - Roads Committee of 16 October 1997.

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

Report No 667/98 - Winter Maintenance - Service Provision for 1998/99 - Roads Committee of 11 June 1998.

Report No 897/98 – Winter Maintenance – Service Provision for 1998/99 – Roads Committee of 27 August 1998.

Report No 842/99 – Winter Maintenance – Policy and Service Provision for 1999/2000 – Roads Committee of 26 August 2000.

DG/JSG

1 August 2000

REPORTS/wint.maint.2000.01

APPENDIX 1

ANGUS COUNCIL
WINTER MAINTENANCE 2000/2001
POLICY

Angus Council will endeavour to use the resources available for winter maintenance in the most efficient, effective and economic way to prevent, as far as they consider reasonably possible, snow and ice endangering the safe passage of pedestrians and vehicles over public roads and to minimise the inaccessibility of public roads and temporary disruption of traffic directly attributable to adverse weather conditions.

The Council will therefore operate a system of winter maintenance which gives priority to the more important and heavily trafficked sections of the public road network (both carriageways and footways).

The Council will encourage the use of self-help measures.

The Council will not provide winter maintenance on private roads or prospective public roads. The Council will however carry out winter maintenance on effectively adopted public roads (ie roads which have been constructed to the Council's standards and have been accepted for adoption at the end of the one year maintenance period but which have not yet been added to the List of Public Roads).

APPENDIX 2

ANGUS COUNCIL
WINTER MAINTENANCE 2000/2001
LEVEL OF SERVICE AND PERFORMANCE STANDARDS

(a) Period of Cover

Based on past experience the probability of wintry weather is very low before the last week in October and after the first week in April. Personnel will therefore be required to standby to provide cover outwith normal working hours for priority routes

From -19 October 2000

To – 29 March 2001

Outwith these dates personnel will be called out if required. However without a standby arrangement the number of personnel and vehicles available to respond is likely to be limited and response times will be slower. This reduction in performance is however considered reasonable given the reduced and ever-decreasing likelihood of wintry conditions away from these dates.

The proposed coverage during the Christmas/New Year Holiday Period is detailed in Appendix 2(c).

(b) Hours of Cover

To be fully effective salt spread on road surfaces requires the action of traffic to aid dispersal and to assist the break-up of ice and snow. There is therefore little benefit and high cost in treating roads at times when traffic is very light. Also, by definition, the risk of accidents reduces as traffic volumes decrease. The following hours of cover are therefore considered reasonable:-

Day	Priority Routes Carriageway	Auxiliary Routes	Priority Routes Footways	Non-Priority Routes Carriageway and Footways
Monday - Thursday	05.00 – 23.00	06.00 – 16.00	06.00 - 21.00	07.30 - 16.00 *
Friday	05.00 – 23.00	06.00 – 15.00	06.00 - 21.00	07.30 - 15.00 *
Saturday	05.00 – 23.00	Nil	06.00 - 21.00	Nil
Sunday	07.00 – 23.00	Nil	Nil	Nil
Public Holidays	07.00 – 23.00	Nil	Nil	Nil

* = **Tayside Contracts normal working hours**

When snow or icy road surfaces are forecast standby crews will be required to report to their depots at pre-set times within the above hours of cover. If circumstances change or adverse conditions occur unexpectedly standby crews will be called out from home in which case response times will delay the commencement of treatment. However, given the increased

sophistication of weather forecasting and the ice prediction system the probability of unforeseen adverse conditions is low. Therefore compared to the alternative "fail-safe" option of having men standing-by in their depots at all times outwith normal working hours even during clement weather (with associated cost implications) this increase in response time in a call-out situation is considered reasonable.

Likewise on Sundays and Public Holidays standby crews will only be called out if required (ie no pre-arranged reporting requirement). Again given the reduced levels of traffic on these days the anticipated increase in response time is considered reasonable.

(c) Christmas and New Year Holiday Period Hours of Cover

During the Christmas and New Year Holiday period Tayside Contracts operate normal working on the three working days 27 December to 29 December 2000. Coverage for both priority and non-priority routes will therefore be as follows:-

	Day	Priority Carriageways	Priority Footways	Non-Priority Carriageways and Footways
Fri	22.12.00	Normal Service	Normal Service	Normal Service
Sat	23.12.00	05.00 - 23.00	06.00 – 21.00	Nil
Sun	24.12.00	07.00 - 23.00	Nil	Nil
Mon	25.12.00	07.00 - 23.00	Nil	Nil
Tues	26.12.00	07.00 - 23.00	Nil	Nil
Wed	27.12.00	05.00 - 23.00	06.00 - 21.00	07.30 - 16.00
Thurs	28.12.00	05.00 - 23.00	06.00 - 21.00	07.30 - 16.00
Fri	29.12.00	05.00 - 23.00	06.00 – 21.00	07.30 – 15.00
Sat	30.12.00	05.00 - 23.00	06.00 – 21.00	Nil
Sun	31.12.00	07.00 - 23.00	Nil	Nil
Mon	01.01.01	07.00 - 23.00	Nil	Nil
Tues	02.01.01	07.00 - 23.00	Nil	Nil
Wed	03.01.01	Normal Service	Normal Service	Normal Service

(d) Standby Requirements

In order to ensure availability of drivers, mechanics and supervisory staff it is necessary to put personnel on "standby" on a rota basis - ie to require personnel to remain available and contactable by 'phone at all times outwith normal working hours. To compensate for this restriction of freedom standby allowances are paid. These costs are fixed costs (whether or not they are called out) and have to be allowed for in the budget. Taking into account the resources available and the need for a guaranteed response on priority routes outwith normal working hours the following standby arrangements are considered reasonable:-

19 Oct 2000 – 29 March 2001

	No of men per week	
Gritter Drivers	11	(Total No = 33 on 1 in 3 rota)
Footway Snowplough Drivers	16*	(= Total No)
Footway Snowplough Back-up	8*	(= Total No)
Mechanics	2	(Total No = 7 on separate 1 in 4 and 1 in 3 rotas)
Supervisors (ie TC Supervisors)	1	(Total No = 3 on 1 in 3 rota)

*Footway Snowplough Drivers and Back-up Crews are put on standby on a day-to-day basis depending on weather forecast.

(e) Salt Stocks

The rules of "supply and demand" apply to the purchase of salt as much as any other commodity. Advance orders for salt delivered during the summer months can be purchased at much more favourable rates than salt ordered during the height of winter. However this cost saving has to be offset against the increased cost of storage and protection from wind and rain. Much of the salt used is imported and delivery (by boat) is fairly slow and not geared up to urgent orders. It is prudent therefore to store supplies in advance of winter in sufficient quantity to meet the anticipated need for the whole of the Winter Maintenance period. As discussed in Report No 842/99 it is anticipated that a salt stock holding of

12000 Tonnes

is likely to be adequate for the proposed level of service.

(f) Response Time

The "response time" is the period between a decision being taken to begin treatment and vehicles leaving the depot. This must take into account distance between operatives' homes and depots in a call-out situation, pre-start checks on vehicles, and time required to load up with salt and fuel.

A maximum response time of

One Hour

is considered reasonable.

(g) Treatment Time

The "treatment time" is the period between vehicles leaving the depot and the completion of treatment on all priority routes for salting and gritting. (Treatment times for snow-clearing will vary considerably depending on the depth and persistence of the snow fall). The aim is to complete salting and gritting of priority carriageways by 07.30 hrs and of priority footways by 08.30 hrs.

Treatment times will depend on route length, distance to start of route from depot, carrying capacity of gritter, speed limits, prevailing weather conditions, driver experience etc. Unrealistically short target treatment times will have disproportionate cost implications. Relaxed (long) target treatment times will mean either completion after traffic has built up or extended working at overtime rates (with associated cost implications). A target treatment time of

2 Hours

is therefore considered reasonable.

(h) Assistance From Other Departments

Other departments have responsibility for Winter Maintenance over areas for which they are responsible (eg schools, parks and cemeteries, council owned housing schemes, day-care centres, etc) in the interests of public safety. However winter weather and in particular snow conditions can prevent normal work activities (eg street sweeping, ground maintenance etc) from being carried out. In these circumstances sections of the Contract Services workforce can be usefully employed to assist with snow clearing on public roads. Normal payroll costs are allowed for within individual departmental budgets. Overtime payments however would have to be charged to the Winter Maintenance budget. It should be noted that the increased use of mechanisation for snow clearance on footways should allow moderate isolated snow falls to be dealt with by Tayside Contracts. If however it proves necessary to supplement these resources with Contract Services labour and plant in severe conditions or prolonged periods of snow and/or outwith normal working hours and the anticipated additional cost can be contained within budget then these available resources will be drawn on subject to the approval of the departmental directors concerned.

APPENDIX 3

ANGUS COUNCIL
WINTER MAINTENANCE 2000/2001
PLANT AND VEHICLES

Depending on the prevailing conditions effective Winter Maintenance requires a range of specialised plant, adapted operational vehicles, and normal operational vehicles. The level of service which can be provided is directly related to the plant available and the costs (both fixed and variable) of providing this plant, keeping it in serviceable condition, and operating it when required accounts for roughly one-third of the overall cost of running a Winter Maintenance service. Because of the hostile environment (freezing temperatures, slippery road conditions, high exposure to salt, heavy loading and traction etc) in which this plant operates maintenance costs are significantly higher than for normal vehicles. Efficiency and reliability deteriorates rapidly with age and allowance must be made for renewal of worn out plant. Taking into account the resources available and experience of winter weather encountered in previous years provision of the following vehicles and plant is considered reasonable:-

Snow cutters/blowers	2 No
Heavy 6 x 6 Snowploughs	1 No
Purpose Built 6 x 6 Gritters (9m ³)	4 No
Purpose Built 4 x 4 Gritters (6m ³)	3 No
Old Lorry Based 6 x 4 Gritters (9m ³)	1 No
Old Lorry Based 4 x 2 Gritters (6m ³)	3 No
Operational Lorries with Demountable Gritter (9m ³)	1 No
Operational Lorries with Demountable Gritters (6m ³)	6 No
Swap Body Gritter (9m ³)	1 No
Tractors with Trailer Gritters (2m ³)	7 No
Tractor Loaders with Trailer Gritters (2m ³) (Rec Services)	3 No
Tractor Loaders with Trailer Gritters (2m ³)	3 No
Tractor Loaders with Trailer Gritters (3.5m ³)	3 No
Tractor Shovels	2 No
Loading Shovels	2 No
Tractor Digger/Loaders	3No
Footway Tractor Snowploughs	17 No
Operational Lorries with ploughblade	1 No

APPENDIX 4

ANGUS COUNCIL
WINTER MAINTENANCE 2000/2001
PRIORITY ROUTES

(a) Carriageways

Priority gritting routes have to be carefully planned to minimise the “unproductive travel” (distance from depot to start/end of route, sections of route covered twice, one-way traffic systems, sections of route overlapping with other gritting routes, etc). Routes must also be practical for the size and type of plant deployed. Optimum gritting routes have been drawn up to maximise the inclusion of strategic routes (see page under “Policy”). However these will inevitably include lengths of less important roads linking strategic routes and necessarily covered for overall routing efficiency. For obvious reasons the gritting route is treated (unless already covered) over its full length (including these less important roads).

The following roads including both strategic routes and non-strategic roads required for routeing efficiency are therefore proposed as PRIORITY CARRIAGEWAYS:-

ARBROATH

Abbey Park	Emislaw Drive	Kirkton Road
Abbey Path	East Abbey Street	Ladyloan
Abbey Street	East Grimsby	Lamley Terrace
Abbot Street	East Muirlands Rd	Leonard Street
Academy Lane	Fisheracre	Ladybridge Street
Addison Place	Flairs Avenue	Lochlands Drive
Alexandra Place	Gallowden Road	Lochlands Street
Arbirlot Road	Glenogil Drive	Lordburn
Arbirlot Road West	Guthrie Port	Millgate
Barngreen	Grant Road	Millgate Loan
Benedict Road	Gravesend	Montrose Road
Bloomfield Road	Greenbank Brae	Ness Drive (Part)
Brechin Road	Great Micheal Road	Newton Avenue
Bruce Road	Hamilton Green	Nolt Loan Road
Brothock Bridge	Hamilton Street	Ponderlaw
Brothock Way	Hayshead Road	Rosemount Road
Burnside Drive	Hill Street	Seaton Road
Cairnie Road	Hill Place	Springfield Terrace
Cairnie Street	High Street	St Ninians Road
Catherine Street	Horologe Hill (part)	St Vigeans Road
Charles Avenue	Hospitalfield Road	Tarry Road
Clova Avenue	Infirmary Brae	Viewfield Road
Cliffburn Road	Keptie Road	West Abbey Street
Commerce Street	Keptie Street	West Port
Culloden Terrace		

BRECHIN

Airlie Street
 Bridge Street
 Caledonian Road
 Castle Street
 Church Street
 Clerk Street
 Commerce Street
 Cookston Road
 Distillery Road
 Drumachlie Loan
 Duke Street
 East Mill Road
 High Street

Infirmary Road
 Infirmary Street
 Latch Road
 Market Street
 Montrose Street
 North Latch Road
 Panmure Street
 Park Place
 Park Road
 Park View

Pittendreich Road
 Provost Buchan Road
 Provost Millar Avenue
 River Street
 St David Street
 St Mary Street
 Scott Street
 Southesk Street
 Swan Street
 Trinity Avenue
 Union Street
 Wards Road
 Witchden Road

CARNOUSTIE

Arbroath Road
 Balmachie Road
 Barry Road
 Carlogie Road
 Church Street
 Dundee Street

Ferrier Street (top half)
 High Street
 Ireland Street
 Kinloch Street
 Newton Road
 Panbride Road

Queen Street
 Station Road
 Thomas Street
 Victoria Street
 West Path
 West Haven Park

FORFAR

Academy Street
 Airlie Crescent
 Castle Street
 Coutties Wynd
 Brechin Road
 Craig O' Loch Road
 Dundee Loan
 Dundee Road
 East High Street
 Gallowshade Road
 Glamis Road
 Glenclova Terrace
 Glenmoy Terrace
 Glenogil Terrace

Gordon Street
 Jamieson Street
 Jeanfield Road
 Lilybank Crest/Road
 Market Street
 North Loch Road
 North Street
 Old Brechin Road
 Old Halkerton Road
 Orchard Loan
 Prior Road
 Queenswell Road
 Restenneth Drive

Robertson Terrace
 St James Road
 South Street
 Station Road
 Strang Street
 Strathmore Avenue
 Taylor Street
 Threewells Drive
 Turfbeg Road
 Victoria Street
 Westfield Loan (Whole)
 West High Street
 Yeaman Street

KIRRIEMUIR

Angle Road
Bank Street
Bellies Brae
Breachin Road
Cortachy Road
Easthill Road
Forfar Road
Glamis Road
Glengate

Golf Road
Gordon Park
High Street
Kinnordy Road
Lindsay Street
Lochmill
Marywell Brae
Morrison Street
Reform Street

Roods
St Malcolm's Wynd
SchoolWynd
Shielhill Road
Slade Road
Tannage Brae
West Hill Road
Whiteside

MONIFIETH

Bank Street (part) Maule Street to Durham Street
Broomhill Drive
Buddon Drive
Church Street
East Navarre Street
Durham Street (part) Bank Street to Albert Street
Ferry Road
Grange Road (part)
West Grange Road to Ferry Road
High Street
Hill Street
Lorne Street
North Balmossie Street
North Union Street
Panmurefield Road
Panmure Street
Reform Street
South Street
The Fairway
Union Street
Victoria Street
West Grange Road

MONTROSE

Academy Square
Annat Road
Basin View
Breachin Road
Bridge Street
Broomfield Road
Caledonia Street
Charleton Road
Christies Lane
Dorward Place
Dorward Road
Erskine Place
Erskine Street
Faulds Road (Part)
Ferry Street
Garrison Road (Part)

High Street
Hill Street
Hume Street
John Street
India Street
Links Avenue
Lower Hall Street
Medicine Well Drive
Murray Street
Newhame Road
New Wynd
North Esk Road
North Street
Panmure Place
Panmure Terrace
Provost Reids Road

Provost Scott Road
Rosehill
Rosehill Road (Part)
Rossie Island Road
St Peter's Place
St Peter's Road
Traill Terrace
Union Place
Union Road
Union Row
Union Street
Waterside Road
Wharf Street
Western Road
Whites Place

PRIORITY GRITTING ROUTES**A CLASS**

A92
 A94
 A923
 A926
 A928
 A930
 A932
 A933
 A934
 A935
 A937

B CLASS

B954
 B957
 B961
 B962
 B965
 B966
 B978
 B9113
 B9127 (Part Arbroath to B961)
 B9127 (Douglastown to A90)
 B9128
 B9134

C CLASS

C1 Part B978 to B961
 C2 Part A92 to A930
 C4 Part A92 to B961
 C5
 C6
 C7
 C8
 C9
 C11
 C13
 C16
 C12
 C22
 C29 Part B9128 to B957
 C32 Part A90 to B957
 C35 Part A90 to B966
 C37
 C38
 C39 (Dubton)
 C44
 C45
 C46
 C47
 C48
 C51
 C53 Bractullo Mill
 C54
 C61
 C62 Part A92 to A930

UC

UC 302
 UC 307
 UC 324
 UC 329
 UC 334
 UC 336
 UC 338
 UC 357
 UC 359
 UC 375
 UC 376
 UC 462
 UC 463
 UC 485
 UC 489
 UC 494
 UC522
 UC552

(b) FOOTWAYS

As for priority carriageways above, the following footways including both busy and less heavily trafficked footways required for routeing efficiency are proposed as PRIORITY FOOTWAYS:-

ARBROATH

Abbey Street	Dundee Road	Lochlands Street
Abbey Park	Emislaw Drive	Lochlands Drive
Abbey Path	East Muirlands Road	Lordburn
Abbot Street	East Abbey Street	Mayfield Shops
Applegate	Ernest Street	Millgate Loan
Academy Street	Fisheracre	Montrose Road
Addison Place	Gallowden Road	Ponderlaw
Almeria Close	Grant Road	Rosemount Road
Allan Street	Gravesend	Seaton Road
Arbirlot Road West	Hamilton Green	Spink Street
Barngreen	Hayshead Road	Springfield Terrace
Bloomfield Road	Hays Lane	Stanley Street
Brechin Road	Hays Terrace	St Abbs Road
Brothock Bridge	Hayswell Road	St Ninians Road
Bruce Road	Hill Place	St Vigeans Road
Burnside Drive	Hill Street	Stuart Street
Cairmie Loan	Hill Terrace	Viewfield Road
Cairmie Road	High Street	Warddykes Avenue
Cairmie Street	Horologe Hill	Warddykes Road
Catherine Street	Keptie Street	Walker Place
Charles Avenue	Keptie Road	Wesley Gardens
Cliffburn Road	Kirk Square	West Abbey Street
Commerce Street	Kirkton Road	West Port
Convent Street	Ladyloan	Westway
Culloden Crescent	Leonard Street	
Culloden Terrace	Linton Road	

BRECHIN

Airlie Street	Drumachlie Loan	Panmure Street
Bridge Street	Duke Street	Scott Street
Castle Street	Gallowhill	Southesk Street
Church Street	High Street	St Davids Street
City Road	Infirmery Road	St Mary Street
Clerk Street	Infirmery Street	St Ninians Square
Commerce Street	Latch Road	Swan Street
Cookston Road	Market Street	Trinity Road
Dalhousie Street	Montrose Street	Union Street
Distillery Road	North Latch Road	Witchden

CARNOUSTIE

Anderson Street	Church Street	Kinloch Street/Park
Arbroath Road	Dalhousie Street	Lochty Street
Balmachie Road	Dundee Street	Queen Street
Barry Road	Ferrier Street	Station Road
Bonnella Street	High Street	Thomas Street
Carlogie Road	Ireland Street	West Path

FORFAR

Academy Street
 Arbroath Road
 Bankhead Road
 Boyles Close
 Brechin Road
 Castle Street
 Craig O'Loch Road
 Dundee Loan
 Dundee Road

East High Street
 Glamis Road
 Market Street
 Montrose Road
 Myre Road (part)
 New Road
 North Street
 Prior Road
 Queenswell Road

Robertson Terrace
 South Street
 St James Road
 Station Road
 Taylor Street
 The Cross
 Victoria Street
 West High Street

KIRRIEMUIR

Bank Close
 Bank Street
 Bellies Brae
 Brechin Road
 Clova Road
 Crofthead
 Cumberland Close
 Forfar Road
 Glamis Road
 Glengate
 Gordon Park
 High Street

Isla Road
 Jamieson Close
 Kirkton Court
 Knowehead
 Knowehead Crescent
 Lesser Roods
 Lindsay Street
 Manse Close
 Marywell Brae
 Middlefield
 Morrison Street
 Ogilvy's Close

Pathhead
 Prosen Road
 Reform Street
 Rogers Close
 Roods
 School Wynd
 Shielhill Road
 Sidlaw Range
 St Malcolm's Wynd
 St Colme's Close
 Tannage Brae
 Whiteside

MONIFIETH

Albert Street (Maule Street to Hill Street)
 Church Street
 East Navarre Street
 Ferry Road
 Grange Road

High Street
 Hill Street
 Lorne Street (Hill Street to High Street)
 Maule Street
 North Balmossie Street

North Union Street
 Panmure Street
 Panmurefield Road
 Tay Street
 Victoria Street

MONTROSE

Baltic Street
 Brechin Road
 Bridge Street
 Castle Place
 George Street
 High Street
 Hume Street
 John Street

Kincardine Street
 Lower Hall Street
 Market Street
 Mount Road
 Murray Street
 Newhame Road
 New Wynd

North Street
 Northesk Road
 Rosehill Road
 The Mall
 Upper Hall Street
 Victoria Bridge
 Western Road

AUXILIARY ROUTES
MONDAY – THURSDAY – 06.00 - 16.00
FRIDAY – 06.00 – 15.00

Route K39

B955
 C30
 U412
 C31
 C32
 C31
 U400
 C31
 C29
 C29

Route K42

B951
 C25
 B951
 U90
 U389
 C26
 U92
 U388

Route K43

B954
 C24
 U391
 U392(1)
 U392
 C24
 U388
 U388(2)
 U388(1)
 B954

Route K44

B955
 B955
 U405
 B955

Route K45

C25
 C25
 C27
 U394
 C25
 C27
 U404
 C27
 C28

Route B21

C30
 U406
 C31
 U415
 U416
 C33

Route B24

C35
 C34
 Church Street, Edzell
 Dalhousie Street, Edzell
 U428
 U419
 U420
 U422

Route B25

C36
 U424
 U425
 U426
 U427
 U429 (C30 to C35)