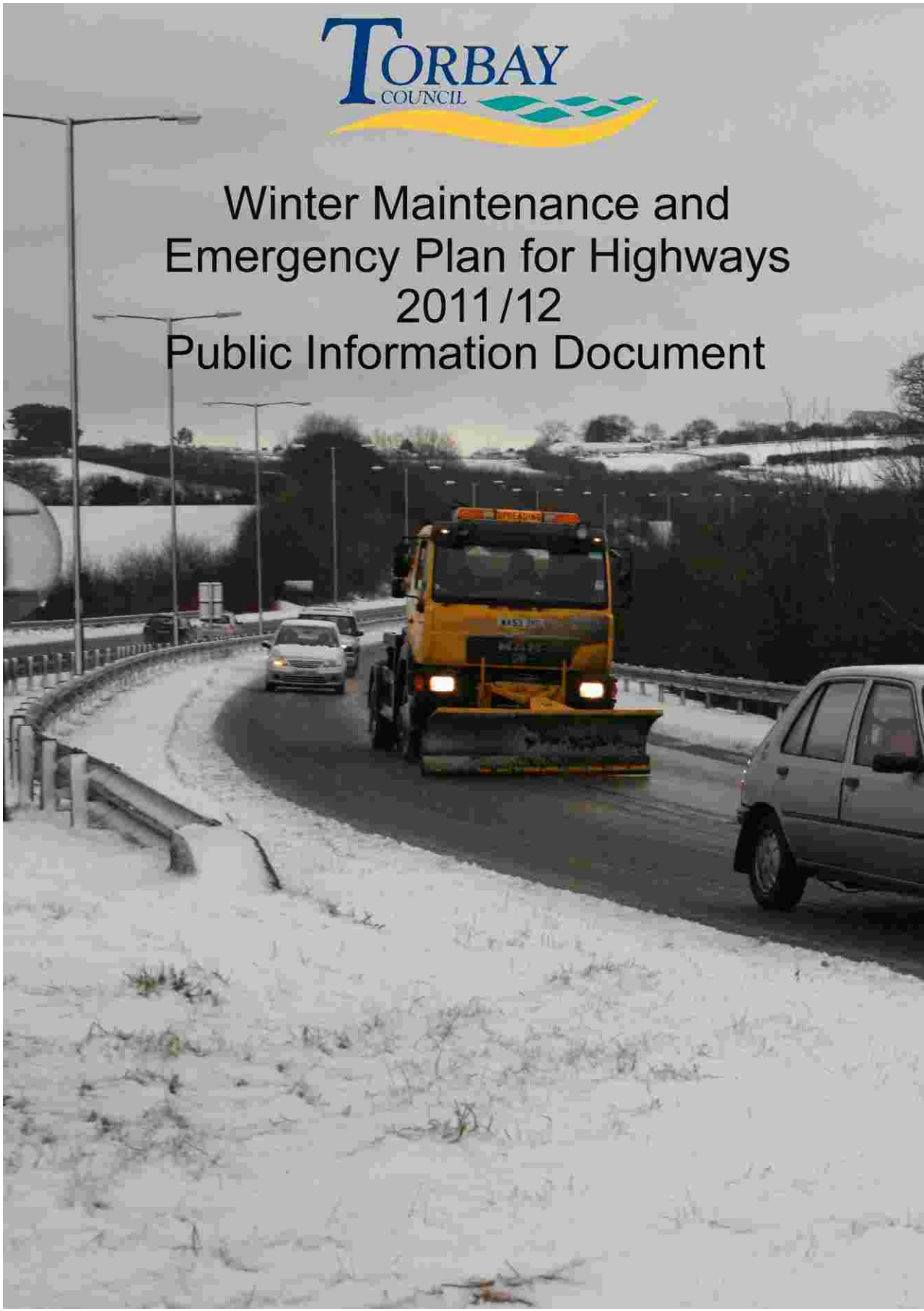




Winter Maintenance and
Emergency Plan for Highways
2011/12
Public Information Document



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WINTER SERVICE & EMERGENCY PLAN 2011/2012

INTRODUCTION

The Winter Service & Emergency Plan has been designed as an operational handbook for staff in Torbay's Residents and Visitors Services Department including for use by the maintenance contractors. It details policies and procedures, developed over several years, and which are reviewed annually.

The production of the Winter Service Plan provides for a common approach to operations and is complementary to provision of forecast services, salt orders and exchange of data. For the public this means a consistent efficient and effective winter service across Torbay.

Aims of Plan

This document sets out Torbay's strategy and details how winter service and emergency operations are managed. Its objectives are designed to assist emergency services, commerce and industry as well as other road users and can be summarised as follows: -

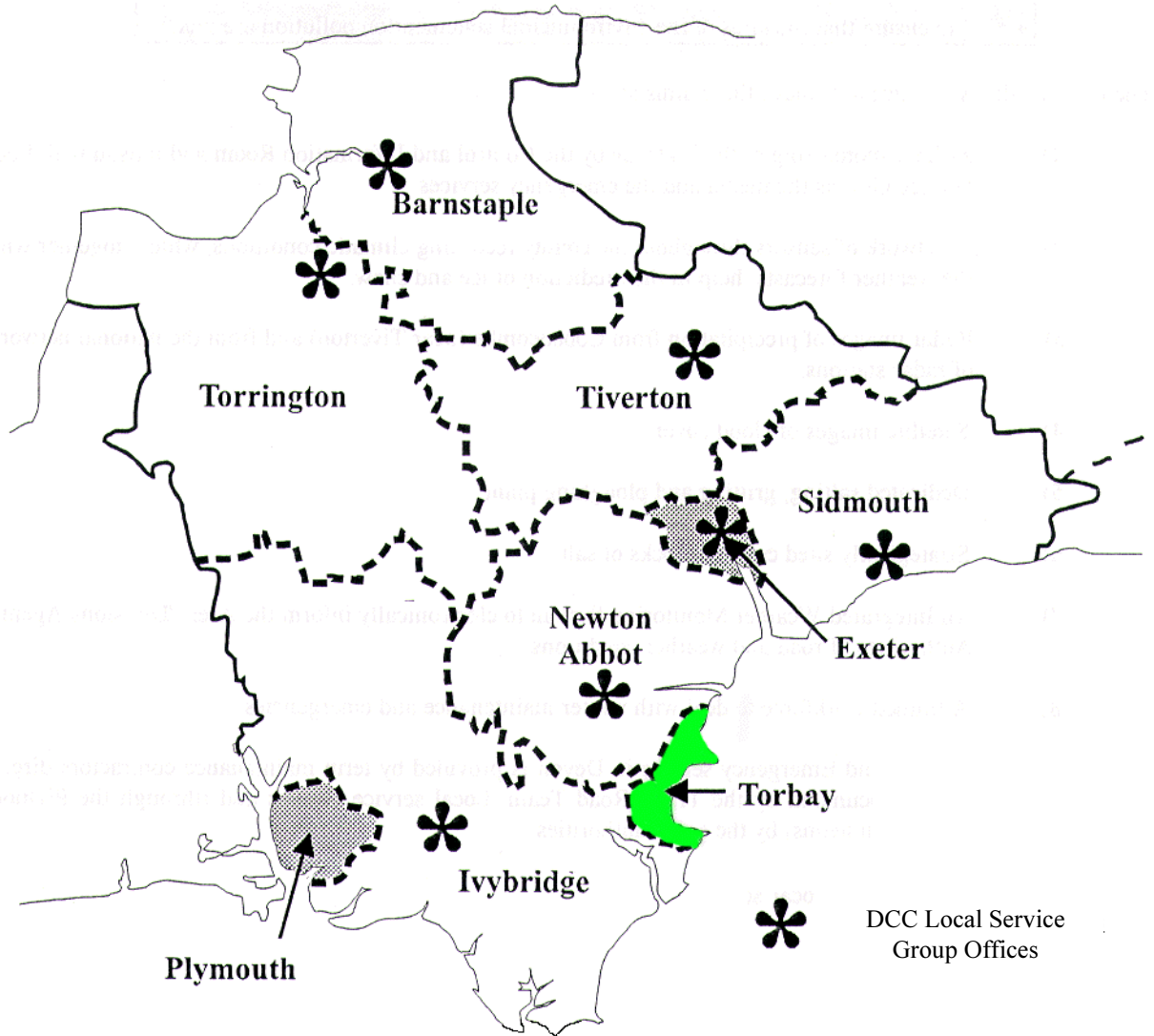
- **to allow winter service operations to be undertaken efficiently on the highway to a standard commensurate with the usage.**
- **to provide travelling conditions that are as safe as reasonably possible.**
- **to minimise delays, accidents or damage resulting from snow, ice, flooding, obstructions etc.**
- **to ensure that environmental pollution is minimised.**

The main facilities in place to achieve these aims are: -

- 1) Torbay operates a 24 hour monitoring of the highway by the Control and Information Room at Aspen Way and liaison with local emergency services.
- 2) A trained workforce to deal with winter service and emergencies.
- 3) Strategically sited stock of salt.
- 4) Dedicated salting, gritting and ploughing plant.
- 5) A strategically placed sensor station recording climatic conditions, which, together with the weather forecasts, help in the prediction of ice and snow.
- 6) Integrated weather monitoring system to electronically inform the Council of road and weather conditions.

In accordance with this document, the Winter & Emergency service is managed by the Highways Group with works undertaken by the council's contractor Tor2.

Torbay & Adjacent Highway Authorities.



WINTER SERVICE

1 PRE-SALTING NETWORK & ROUTES

Introduction

In accordance with legislation and the Code of Practice for Maintenance Management, Delivering Best Value in Highway Maintenance, Torbay Council provides a service to ensure, so far as is reasonably practicable, that safe passage along a highway is not endangered by snow or ice.

Salting Network

As recommended in the Code of Practice for Maintenance Management, Torbay has defined a salting network which has been sub-divided into:

Primary Salting Network- Strategic routes, main distributors, link roads that are bus routes with services commencing prior to 08.00 hours, or where they carry traffic from a larger village to a strategic route or main distributor, bus routes not specified above that commence service prior to 08.00 hours, access ways to Fire, Police and Ambulance stations, hospitals Royal Mail distribution centre and bus depots. Roads that join to neighbouring highway authorities gritted networks to ensure continuity of service.

It would not be practical, or cost efficient for the whole of the road network to be pre-treated. The Primary Salting Network is 37% (192km) of the total highway network in Torbay (520km).

The **Secondary Salting Network** will be considered for treatment at the discretion of the duty inspectors during times of prolonged ice or snow and is based on bus routes that commence after 08.00 hours, and routes serving schools.

The Secondary Salting Network will only be treated upon completion of the Primary Salting Network and equates to 6.5% (34km) of Torbay's road network.

Footways and cycle ways have been considered and the following strategy will apply:

- Treatment of footways will be confined to areas of high usage including town centres, other busy shopping areas and school main accesses. Treatment will be considered during times of prolonged ice or snow conditions and will commence upon completion of the Primary and Secondary network. The Footway Salting Network is 4.2% (34km) of Torbay's total footway length and has been divided into two main categories:-
- Primary Footway Network – will generally be the first routes treated during prolonged ice / snow periods and cover highway areas at the entrances to schools in the thematically colder areas of Torbay.
- Secondary footway Network consisting of town centre areas, out of town shopping areas and thematically warmer school entrances. These will routes will be considered upon completion of all other priority routes during prolonged periods of ice / snow.
- During school holiday periods, the order of footway network completion may reverse as more pedestrian traffic would be expected in town centres or local shopping areas.
- Dedicated cycle ways will be treated at the discretion of the duty inspectors where ice is likely to or has formed on the surface at any time whilst providing the winter maintenance service.

Roads not identified within the above definitions will not receive a routine salting service. However they may receive treatment in response to exceptional circumstances as approved by the Highways Group following the completion of all priority networks described above.

Review of Network

The pre-salting network will be reviewed annually by Torbay Council to reflect developments, improvements and changes in traffic patterns. This work to be complete by the end of August with co-ordination through the Highways Group.

Response and Treatment Times

When immediate winter service operations are ordered, the response time is defined as the period between the instruction being given to the contractor, to the time when the vehicles are loaded and ready to commence action. Treatment time is defined as the period between the start time of winter service operations on the road and their completion time.

The response time is to be 1 hour and treatment time of 2.5 hours.

These times are in accordance with the current Code of Practice for Winter Maintenance contained in “Well Maintained Highways” and therefore require the term maintenance contractor to complete Salting work on the Primary Salting Network within a maximum of 3.5 hours of a call out instruction.

Completion of Morning Salting Operations

Although not possible in all circumstances, the aim is to complete salting operations by 8.00am to best protect road users and avoid congestion. For morning salting operations where no prior action has been instructed, any action will be confirmed to the contractor before 5.30am. When the contractor is operational, further instructions may be issued to him as and when necessary.

Routing

In Torbay the responsibility for developing individual salting road groups to cover the salting network lays with the Highways Group. The contractor must be able to demonstrate that each road group within the Primary Salting Network can be completed within 2.5 hours from the time works commence.

When agreeing routes, it must be ensured that salting vehicles are matched to roads (e.g. some routes have very narrow sections which would not be suitable for the larger capacity bulk gritters) and that the overall route efficiencies (salting length divided by total length to the completion of salting) are as high as practicable.

Thermal Mapping

A thermal mapping survey has been undertaken in Torbay. This indicates thermal differences between known locations on the highway network for various weather scenarios. In conjunction with weather forecasts, thermal mapping allows effective prediction of locations where treatment is required.

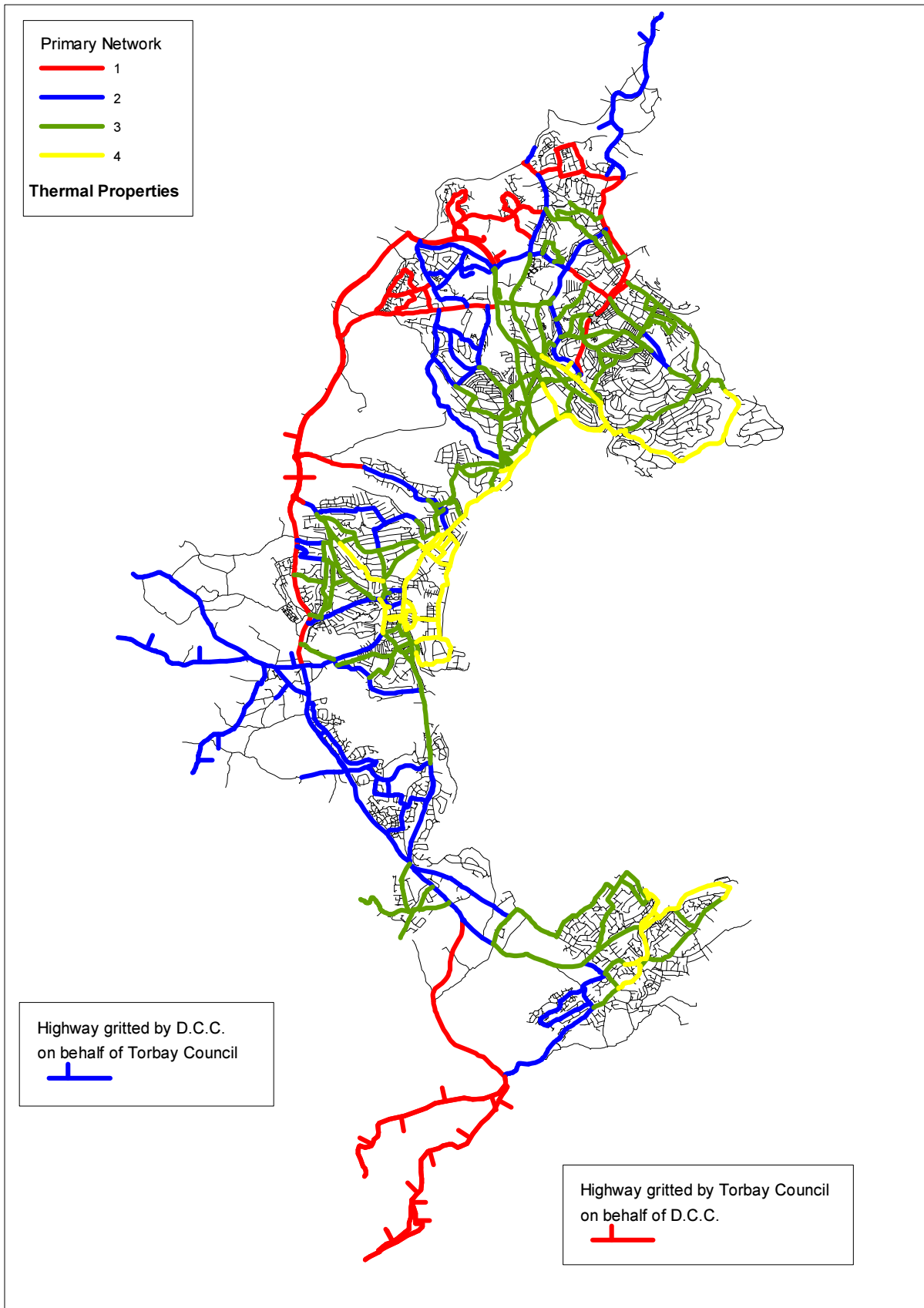
Salting Routes

The Highway Group has identified 4 groups of roads within the Primary Salting Network. The groups are derived from the thermal maps of Torbay and all or any combination of the groups can be instructed to the contractor to complete as either precautionary or reactive salting.

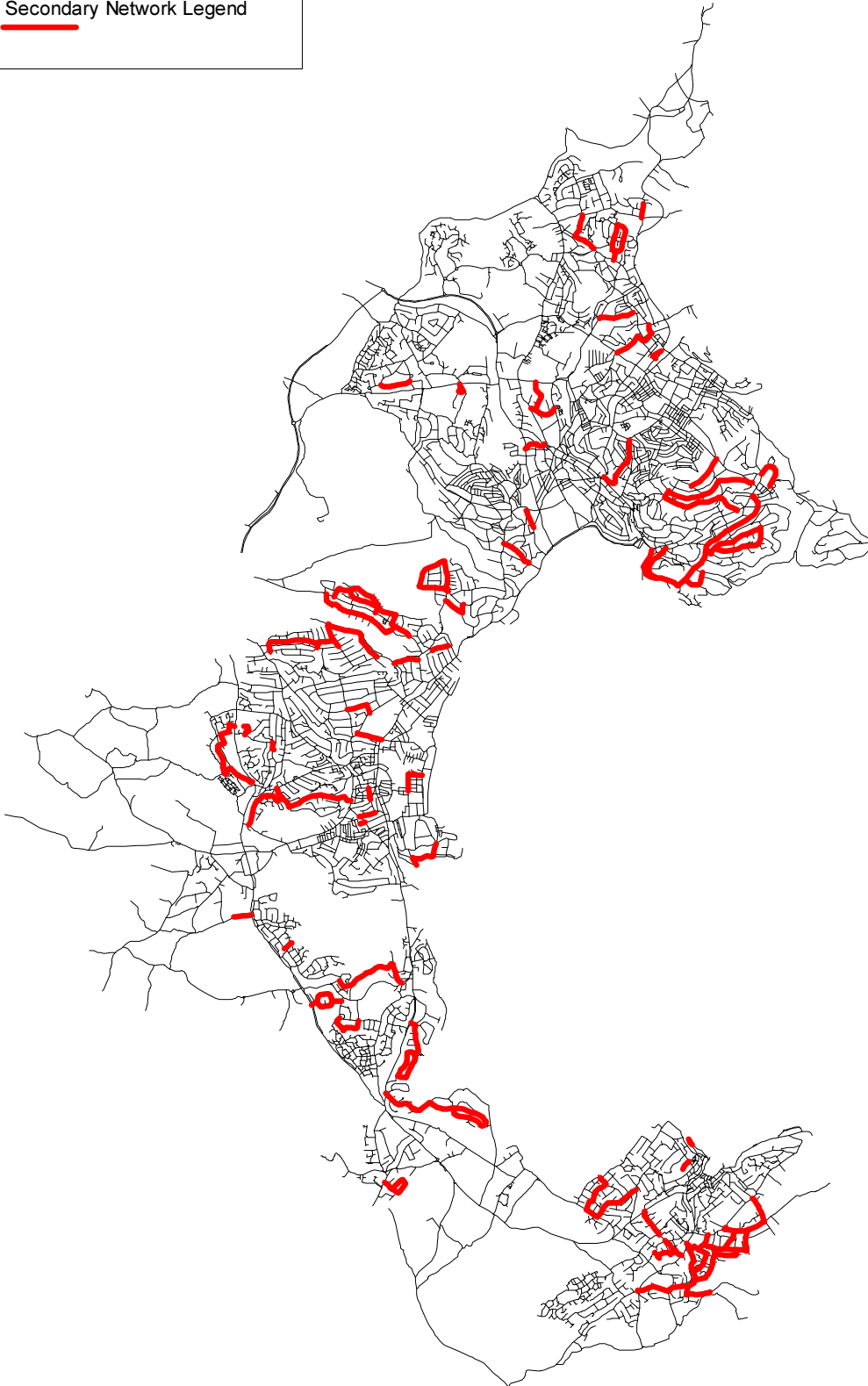
The routes are coloured Red, Blue, Green and Yellow with Red being the coldest to Yellow the warmest.

Lists of road groups are included in Appendix I with their extent shown on the salting network plan.

Salting Network Plan

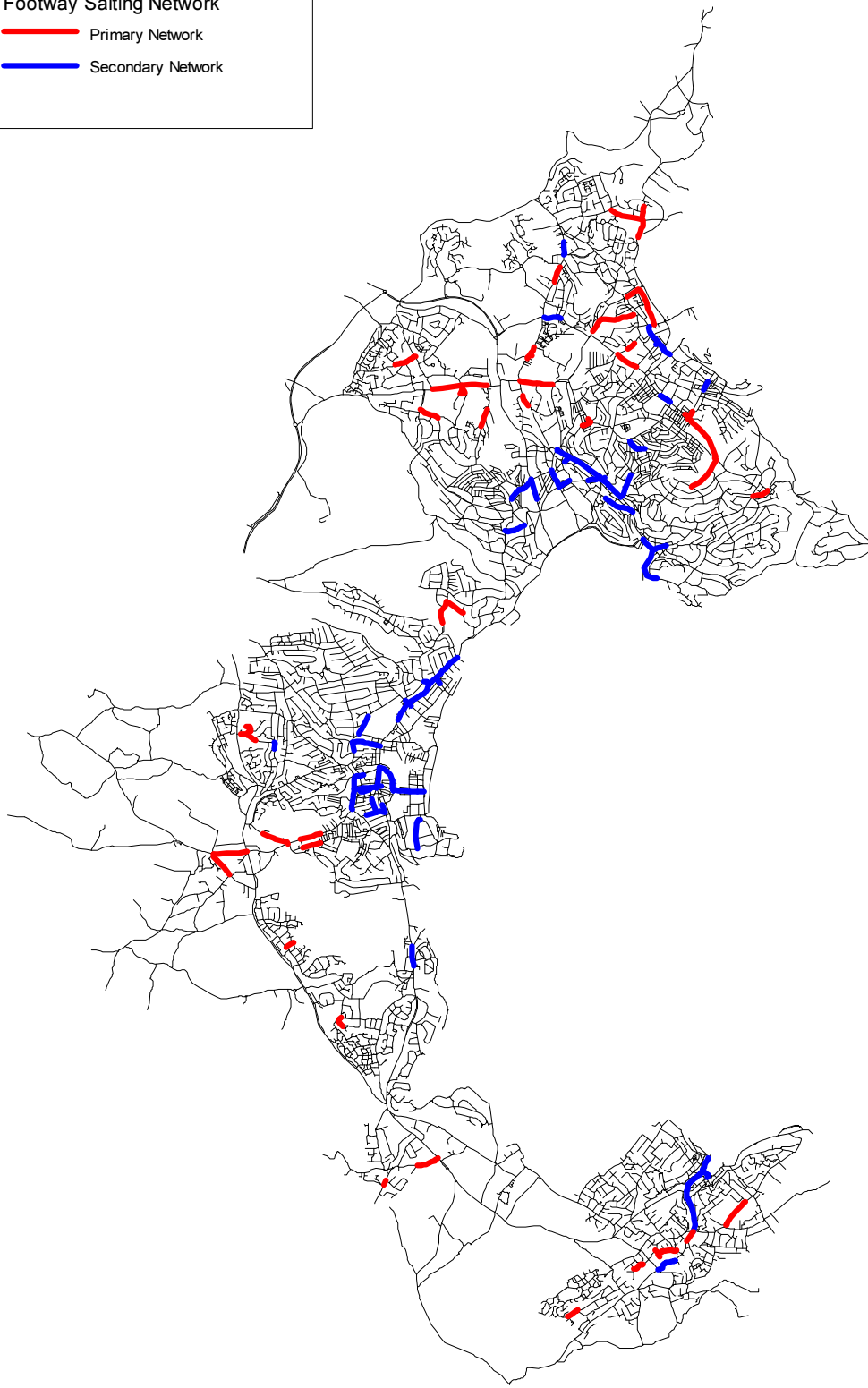


Secondary Network Legend



Footway Salting Network

- Primary Network
- Secondary Network



2 PREPARATION FOR WINTER

Introduction

The highways group and maintenance contractor must be at a state of readiness when the first forecast of icy conditions is received during the Winter period. It is therefore of the utmost importance that the preparations for Winter Service operations are complete before the end of October, so that highway users are not put at unnecessary risk.

The following operations must be carried out prior to the start of the winter season: -

- Reposition grit bins where required by the end of October, ensure that any salt/grit which remains from last winter is still serviceable. Identify locations for new bins which must be approved by the Highways Group and fill with salt/grit.
- The Highways Group must check with Network Rail, which of the level crossings in their area have signalling equipment whose performance is adversely effected by the spreading of salt. After liaising with Network Rail, Torbay Council will not apply any treatment in the vicinity of these level crossings. As the level crossings are not adopted highway, Network Rail will therefore be responsible for keeping those sections of the road safe for Highway users.
- The Highways Group to arrange for the calibration of the road sensors and any necessary maintenance.

Pre-Winter Meetings with the Winter Service Contractor

It is vital that the maintenance contractor has its role for Winter Service re-affirmed by the Highways Group. Pre-winter meetings should be held which should also specifically discuss the following: -

- Plant condition and confirmation that a summer service to vehicles has been successfully undertaken. Repairs must be completed before winter and necessary spares obtained.
- Ploughs should be accessible at all times and will be fitted as part of trial runs in October. As part of the summer service, all rubbers should have been checked and wheels freed etc.
- Calibration of griters must be complete with drivers aware of how to set rate of spread/spread patterns for specific routes.
- The Highways Group should be satisfied that the maintenance contractor has sufficient trained operatives for all winter service activities, including, a sufficient number of trained operatives to run a 2 shift system.
- Certification of operatives for winter maintenance.
- Deployment of men and vehicles
- Winter service pre-salting routes.
- That Health & Safety issues have been understood and necessary action taken.

3 PLANT

Introduction

The quality of the winter maintenance plant is crucial to the effectiveness of operations. Plant that cannot be calibrated to properly spread de-icing salt will mean the objective of efficient ice prevention with minimal salt use will not be met. Torbay's strategy is therefore to maintain a fleet of modern salting vehicles.

Winter Maintenance Fleet

The winter maintenance fleet is as follows: -

TORBAY'S FLEET	
1).	6 road speed related Bulk Gritters.
2).	4 Detachable Snowploughs.
2).	4 manual spreaders

Calibration of Spreaders

Tor2 will arrange the calibration of equipment prior to October in accordance with the following procedure: -

- The calibration should be undertaken by static testing and on a salting run of known distance with the machine set to the desired spread pattern.
- The checks should be carried out with vehicles set to spread at 10g/m² and the width of spread should be checked by a physical measure. It is essential that the checks are carried out using salt of the quality to be used during the winter period as variation in moisture content and grading can have a significant effect on both the rate of spread and transverse distribution.
- The spread pattern should be checked visually to ensure transverse distribution is obtained and that the required width of spread is not exceeded. The area salted should be calculated, and having weighed the vehicle before and after the run, the rate of spread can be determined. A suitable length of run is one in which at least 500kg of salt is spread. Gate and chute offsets must be clearly marked and referred to in the calibration report to ensure that the set up can be repeated in service. Speed settings must likewise be identified in the reports.
- Calibration is of central importance in providing an efficient winter service operation and due attention must be given to the tests to ensure that each vehicle is controlling the rate of spread as closely as possible. Advice on testing procedure can be obtained from the Highways Group.
- Upon completion of the tests and calibration, a sheet, confirming the achievable rate of spread and correctness of the spread patterns and widths must be signed by the test supervisor and submitted to the Highways Group.
- As an alternative to the above methods, where modern spreaders are fitted with electronic equipment, the manufacturer may test and calibrate the machines in accordance with BS 1622 and BS 3247. The test results shall be recorded and forwarded to the Maintenance Group.

SALT AND GRIT

Introduction

Winter service operations seek to ensure the safety of road users whilst minimising the use of de-icing agents. Widespread use of alternatives to salt is not cost effective at this time although new ideas will continue to be considered and trialled where appropriate. By ensuring that the correct rates of spread of salt, appropriate to conditions, are achieved, environmental aims are addressed.

SALT

Stock Levels

Salt stocks in Torbay prior to the commencement of the winter service will be at least 1000 tonnes. Details of the pre-winter stocks held at the Yalberton depot in Borough Road, Paignton are shown in the Salt Stock table that follows. Management of these stocks is the responsibility of Tor2. Torbay Council has agreed with Tor2 that nominal stocks will be reduced to 400 tonnes before replenishment.

Salt Barns - Operation

The existing barn has proved its worth in providing conditions that maintain salt at a low moisture content, preventing leaching and allowing easier handling of the salt. Stocks should be worked from one side at a time to the rear of the barn (not across the full face) as this allows the stock to be turned over. New stocks of salt should be stored at the back of the barn ensuring that older stocks are used first.

Nominal Salt Size

To allow control over the rate of spread when using correctly calibrated plant, the quality of salt is important. Parameters are given in Devon Purchasing's specification dealing with chemical composition, moisture content and grading where the percentage passing the 300 micron sieve is limited to reduce clay content. The preferred nominal size of the salt is 6mm.

GROUND ROCK SALT STOCKS – TORBAY Pre - Winter 2011/12

	Pre-Winter Stocks (Tonnes)	Capacity (Tonnes)
Yalberton	1000	3,000
Total	1000	3,000

Salt Testing

The appropriate Materials Laboratory will test the deliveries providing analysis to the Highways Group.

Supply of Salt to Outside Bodies

Requests for the supply of salt to outside organisations will be at the discretion of Tor2.

The use of roadside open heaps and bags is now discontinued because of the risk of pollution and theft.

GRIT

Grit will be clean, coarse, crushed stone or sand with a nominal size of 5mm graded in accordance with the following: -

Suitable Grading for Grit

Sieve Size	% Passing
5 mm	100
2.36mm	30 - 50
600 µm	5 - 10

Grit - Bins

- Grit bins are provided to allow self help by road users and their provision will ease the pressures on the Council's resources.
- Grit bins will be sited at known trouble spots usually in urban areas but also in some rural locations where particularly difficult conditions exist and in central areas for small clusters of residential streets with an emphasis on thematically colder areas.
- Dependent upon location, material used may be salt, grit or a combination of both. "Shaugh grit" has been used successfully. The re stocking of salt bins is the responsibility of Tor2.
- Requests for grit bins on the public highway from the public will be considered and actioned if deemed appropriate at the discretion of the Highways Group.
- The Highways Group will place requests for new or replacement grit bins through the Term Maintenance Contractor, Tor2.

5 ICE/SNOW PREDICTION

Introduction

The correct prediction of ice and snow is a key factor in allowing efficient winter maintenance operations in that it minimises the extent of abortive salting works whilst keeping the network as safe as possible. Torbay has invested considerable effort in providing the means for accurate prediction so that appropriate winter actions are taken. The facilities available for this process are given below: -

Ice Detection Outstation

Torbay has a weather outstation at Gallows Gate (Tyre Compton) comprising combinations of the following sensors: -

- i) Road surface temperature.
- ii) Road depth temperature (forecast sites).
- iii) Air temperature.
- iv) Wind speed.
- v) Wind direction.
- vi) Relative humidity.
- vii) Precipitation.
- viii) Non invasive laser road surface temperature
- ix) CCTV camera

All ice detection equipment is the property of Torbay Council.

It is important for the integrity of the system that all sensor faults are reported to the Highway's Group. Repairs are to be put in hand as soon as possible with the outstation maintenance contractor who is also responsible for the calibration of the sensors prior to October each year.

If any maintenance works are being undertaken on lengths of carriageways containing sensors, the Highway Group should be consulted one month prior to the works. Arrangements will then be made, if necessary, for the temporary removal of the sensor. It follows, therefore, that maintenance personnel should be aware of the sensor location.

Winter Forecast - Octoberber to April

During the period from the beginning of the 1st week of October to the end of the 2nd week of April inclusive (this period may be extended) the Council receives a main road forecast each day issued between 12:30 and 13:30 hours with updates to defined criteria. The forecast will predict any ice formation or snowfall at the forecast site with a full forecast for the following 24 hours presented in graphical and tabular form.

The question of forecast updates has been addressed in the contract specification and the forecaster is aware of the need to update forecasts in marginal conditions when their monitoring of sites indicates a divergence from the conditions forecast. The Highway Group will consult with the forecaster when required.

METEOROLOGICAL TERMINOLOGY

- **The freezing of wet road surfaces:**

In most cases the road will have become wet because of rain which fell when the air temperature was above freezing point. The road may also become wet by a heavy deposit of dew or from a wet fog, by the melting of hoar frost which may have formed during the previous night or by melting snow. A subsequent fall in temperature of the road surface, usually due to radiation of heat to a clear night sky, causes the water film remaining on the surface to freeze. The difference between the rates of fall of temperature for various road materials due to differences in their thermal properties are small and significant differences in the ice formation on various surfaces arise only in marginal cases.

- **A heavy deposit of hoar frost:**

Sometimes a deposit of dew precedes this. With little traffic the surface is not very slippery, but heavy traffic, causing the partial melting and packing of the ice crystals eventually produces a treacherous surface if the temperature is near to the freezing point.

- **The freezing of deposited moisture on a cold, dry road surface:**

Where there is a sudden change in the weather, from a relatively long period with temperature below the freezing point, to one where the temperature is at or little above the freezing point and the humidity high, then the water, which condenses on the cold road surface, may freeze. This condition is most severe when the onset of the warmer conditions is accompanied by drizzle. It does not occur frequently, about once every two winters on the average, but it leads to treacherous road conditions because freezing takes place from below and the ice layer will have a lubricating film of water on its surface.

- **Rime Ice:**

Excessive hoar frost due to high humidity.

- **Freezing Rain:**

Caused by the freezing of supercooled droplets on impact with the cold road surfaces, this is an infrequent occurrence in the British Isles.

- **Snow Amounts**

Slight:	Undisturbed accumulations of snow reaching a depth of less than 25mm
Moderate:	25 - 100mm.
Heavy:	Over 100mm.

Winter Service Management System.

During 2011/12 a Winter Service Management System (ICENET) will be used in Torbay. This system will incorporate information from the Gallows Gate detection site and the Forecast Provider.

Proposed Actions will depend on :-

- **Ice/Snow prediction.**
- **Amount of salt already spread.**
- **Consultation with Forecast Provider.**
- **Inspection reports concerning water running onto the highway.**

Winter Service Decisions on Actions

Decisions will be determined on a route by route basis, to avoid unnecessary general action, by consideration of the forecast and other data contained within the Icenet computer system (available to the Highway Group) and through consultation with the Forecaster.

To help in interpretation of the weather information, training courses are available provided by the forecast provider and requests for details can be made through the Service Manager (Highways).

Timing of Action

**Actions should be timed, where practicable, to be complete 2 hours before the forecast freezing time. Salting too far in advance of the freezing time will allow the amount of salt on the road to be dissipated under the action of wind and traffic and could mean abortive work if conditions change.
Salting during peak traffic flows should be avoided whenever possible.**

6 ACTION/OPERATIONAL PROCEDURES

Introduction

The importance of good communications is stressed in this section to allow speedy and effective response to winter conditions.

Action/operational procedures are given on the following pages.

For precautionary salting operations, the Highways Group will be in control, operating either from home, local Depots or the Group Centre. It will not normally be necessary to man the Highway Group office outside normal working hours.

Action that may be ordered by the Highways Group

- i) **No Action** When freezing is not expected, the Highways Group will monitor temperatures and liaise with the forecaster as necessary calling the nominated emergency contacts if conditions deteriorate .
- iii) **Early Morning Inspection.** Where conditions are to be assessed in the morning before confirming action. If action is required the contractor should be informed by 5.30 am wherever possible. EMI's should be carried out by the Highways Team from vans.
- iv) **Salt Wet Spots.** By Contracting Division's lorry driver, where specific action is proposed to treat wet/icy patches.
- v) **Pre-Salt.** When freezing is expected a time for action will be provided for the contractor to check with the Highways Group prior to commencing the salt run. This will enable action to be cancelled if conditions have changed.

In the event of widespread ice or snow, and the necessity for prolonged operations, the Highway Group Office should be manned to include as necessary a representative from the Transportation and Security Group. This is staffed from the Highways Group, and operates from the 4th Floor Roebuck House. Necessary Highway Group staff will attend the Group Offices as required to maintain liaison and Inter-Authority co-ordination with the emergency services, Senior Officers and Aspen Way.

During the first few hours following a heavy snowfall, Street Scene Inspectors must take the initiative in reporting conditions to the Service Manager or his Deputy. Whenever the Group Office is manned, it will assume responsibility for obtaining and relaying frequent weather reports from the forecast provider. The Service Manager or his deputy will compile and prepare situation reports for onward transmission to the Police, the Media and other external Organisations through the Press Office.

The main functions of the Highway Group:

- 1. To co-ordinate the efforts of the contractor on the clearance of through routes and the interchange of plant.
- 2. To collect the information necessary to report on conditions, or liaise with:
 - (a) **The Police:** It has been agreed that a Senior Police Officer will be available if requested by the Group Manager. It is important to agree on the advice to be given to road users on routes threatened with closure; in addition the police have a large number of radio-equipped vehicles constantly in touch with their own Control. In a winter emergency it may be possible to use the Police Helicopter. Although the helicopter is based at Middlemoor, requests for consideration of its use and availability in the event of an emergency should be directed through the Communications Room at Middlemoor.

- (b) **The Emergency Services:** They may request snow plough/gritter escort in addition to more general information. Emergency vehicles are normally radio equipped, and will seek assistance through their own Control.
- (c) **The Broadcasting Media and Press:** The Service Manager will deal with all enquiries from the Media and Press, through the Press Office.
- (d) **Devon County Council:** Devon C.C. Information and Control Room, manned 24 hours/day.
- (e) **Motoring Organisations:** Both the A.A. and R.A.C. have a small number of radio-equipped vehicles in the County, which relay information to their respective headquarters.
- (f) **Other Council Departments:** The Strategic Director for Childrens Services may wish to issue a statement for broadcast on local radio about school attendance. The Director of Social Services and Emergency Planning Officer also needs up-to-date information.
- (g) **Bus Companies:** As with the Childrens Services Directorate, they may want to prepare an announcement for local radio if any services are likely to be affected.

All reports from outside organisations should be verified through the Highway Group before relaying them to anyone else.

It is vital that the available telephone lines at the Highway Group Offices do not become jammed. All authorities and organisations on the circulation list have these numbers, but they must NOT be given wider publicity. This applies equally to the ex-directory lines, and those issued to this Department by other organisations.

It is important to remember that the Highway Group will be the best-informed organisation in the Council to enable clear messages to be given to the travelling public in particular, when advising home-to-work journeys. Another point to stress is that roads are blocked as often by immobilised vehicles as by snow, and these usually have more effect on clearance operations than the snow itself.

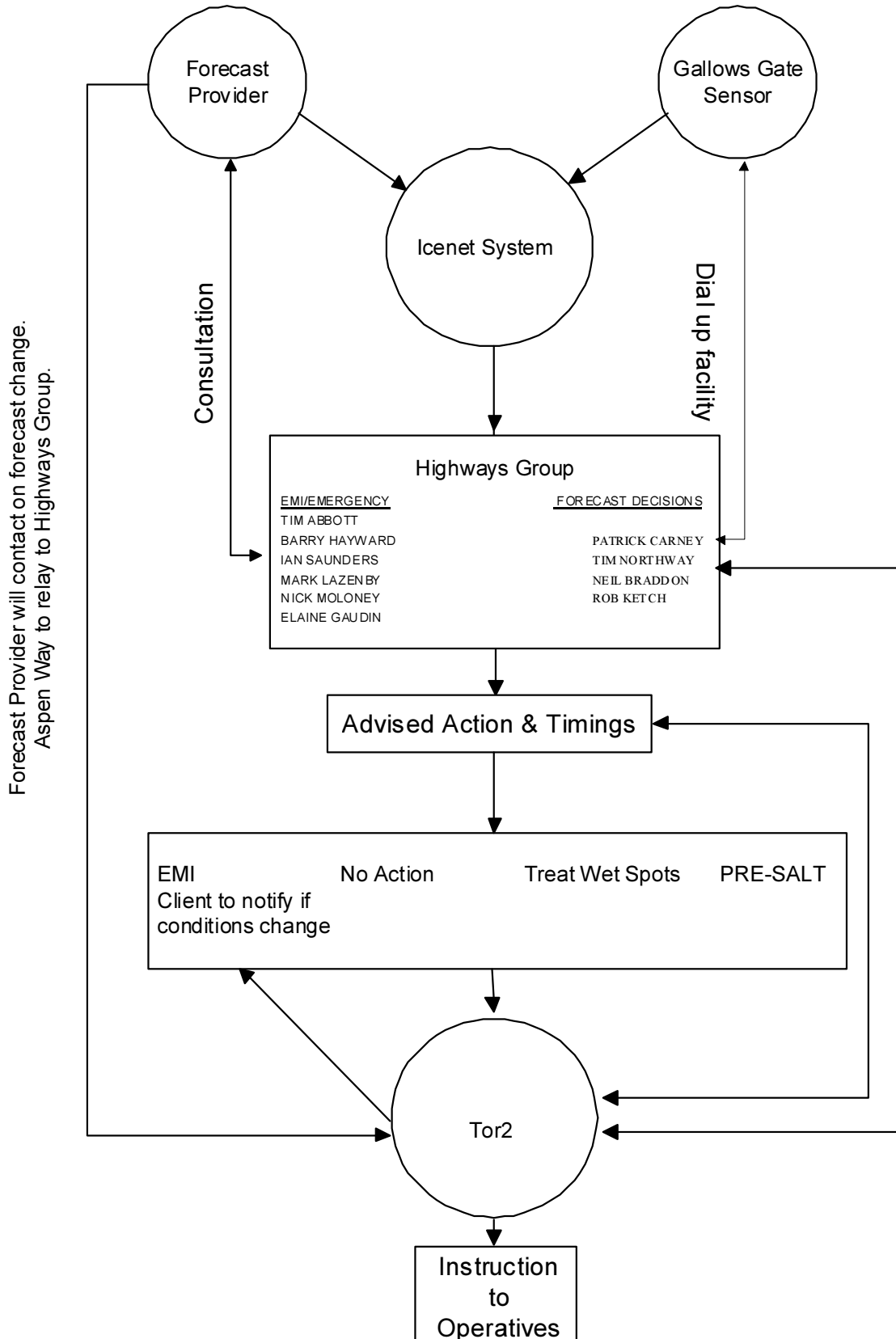
As soon as it is apparent that Highway Group manning may be required, a briefing will be arranged for all staff likely to be involved and a rota prepared.

Communication of Winter Maintenance Action

Action Guidelines

Decisions on action to be taken on receipt of forecasts will be made by a member of the staff approved for making such decisions as identified on the following Forecasting Process diagram. If staff undertaking EMIs or other winter service inspections require clarification as to appropriate action, they should contact the officer responsible for the forecast decision. The need for liaison between neighbouring Authorities, is paramount.

Forecasting Process



Frost: Where the forecast indicates the likely presence of ice on routes included in the precautionary Salting schedules, the appropriate rate for spreading is 10g/sq.m.

Snow: When 'slight' falls are forecast, pre-salt at 'Frost' rates. When 'moderate' or 'heavy' snow is forecast, fit ploughs and pre-salt at 20 to 40g/sq.m.

Salt/Grit Mixtures: Consideration should be given to the use of salt/grit mixtures, or grit alone, where widespread heavy snow coincides with sub - zero temperatures and snow compaction is taking place. Manual spreading of salt is almost invariably over-generous and salt/grit mixtures should be used to conserve salt.

The value of early and widespread ploughing and salting to try and prevent compaction is beyond question.

Radio Communication

All inspectors have access to radio communications for direct contact with the Control and Information room at Aspen Way.

Contact Rotas

Contact names are given in Section 13 of this document. The Control and Information Room at Aspen Way needs to be given lists of contacts, (Faxed to the Control and Information Room to cover a minimum time period of one month) both in and out of hours, by the Highways Group.

Christmas, New Year and Easter Arrangements

In order to share the duties over Christmas, New Year and Easter, Highways Group will provide a rota of personnel who may be contacted. This information is collated and sent out to all relevant parties. Weekend procedures apply to this period.

The Control and Information Room acts as Torbay's operation centre for routine winter service and for relaying messages to and from the Highways Group.

7 ICE/SNOW TREATMENT

Introduction

With both ice and snow, pre-treatment is by far the most effective course of action. However, to avoid over reaction, use is made of the technology available to ensure that wherever possible action taken is appropriate to conditions actually occurring.

DEALING WITH ICE

Salting - Rates of Spread

The following table gives the rate of spread of salt that should be used, against road status when freezing conditions are expected.

Road Status	Salt Rate of Spread
Mainly dry, some wet patches	10g/m ² to wet patches only
Formation of hoar frost expected	10g/m ²
Roads wet.	10g/m ²
Ice already formed	15-40g/m ²

Salting off the Salting Network

Roads not included upon the Primary or Secondary Networks will be considered for gritting action upon completion of the removal of snow / ice from the designated networks.

Level Crossings

There are level crossings at Torbay Road and Sands Road, Paignton. These crossings will not have grit or salt applied.

DEALING WITH SNOW

Highway Authorities have a statutory duty under Section 41 (1A) and Section 150 of the Highways Act 1980 to remove obstructions and as reasonably practicable, ensure safe passage is not endangered by snow or ice. Snow is considered to be an obstruction when impeding use of the road network.

Severe Weather Warnings

The Highways Group will be informed of snow conditions by the forecast provider who will issue severe weather warnings if any sizeable falls are expected (Severe weather warnings are detailed in section 11). The warnings will be faxed to the Control and Information Room at Aspen Way out of hours and to the Highways Group during office hours.

The following table is intended as a guide on clearing snow under varying conditions.

Snow Condition	Salting Network	Other Routes
Slight, expected less than 25mm	Presalt at 10g/m ² .	No action.
Moderate, expected 25 - 100mm	Presalt at 20g/m ² . Plough when snow depth is over 50mm and treat as described in (3) to (9).	When plant is available, treat as salting network. Grit when snow is packed hard.
Heavy, expected greater than 100mm	Presalt at 20-40 g/m ² . Plough when snow depth is over 50mm and treat as described in (3) to (9).	When plant is available, treat as salting network. Grit when snow is packed hard.

Action to be taken upon receipt of snow warning

On receipt of snow warning the following procedure should be carried out: -

- 1) Pre-salt the salting network immediately prior to snow falling to prevent snow settling on the road surface in accordance with the above table.
- 2) Fix ploughs to all vehicles if significant accumulations or drifting is expected.
- 3) Start ploughing as soon as snow becomes deep enough to plough, i.e., approximately 50mm in depth on Local roads and 30mm on Torbay Ring Road.
- 4) After ploughing, treat uncompacted snow with salt at 10g/m² on Local roads and 15g/m² on the Ring Road and re-plough to remove slush.
- 5) When prolonged falls are forecast it will be found useful to continuously plough from the onset of snow to prevent build up and to prevent compaction by traffic. Such ploughing can be combined with simultaneous salting at 20-40 g/m² so that a wet base is maintained. However, once snow depths of 120mm have been reached, when tackling snow drifts or where vehicles are operating on gradients it may be desirable to continue ploughing without salting. The weight of a salt load will aid vehicle traction when ploughing.
- 6) After ploughing a further treatment of salt is required at the rate of 10g/m² for every 25mm of uncompacted snow for each degree Centigrade that the air temperature is below freezing (see note 8 below)
- 7) As snow melts under the action of salt, keep ploughs moving to remove slush.
- 8) On Local roads, if snow has become compacted and the temperature is low (-5°C or below) neat salt must not be used, as it will accumulate in the form of salt solution in depressions and produce a very uneven and slippery running surface. In these circumstances spreading of grit is advised. On Major roads, heavy traffic may enable salt to be effective to lower temperatures, but use of Calcium Chloride is preferred.
- 9) Grit may be used on hard packed snow and also may be used with salt in the proportion of 2 parts grit to 1 part salt. Grit is not required on uncompacted snow as the action of salt will cause the snow to melt allowing the slush to be removed easily by ploughs.
- 10) Very low temperatures do not usually follow immediately after a snow fall and it is therefore very important to apply salt early, plough early, salt again and get the resultant slush off the road before compaction by traffic.

Snow Clearance Priority

The network should be cleared in the following priority order: -

i)	Primary Salting Network in Maintenance Category Order including the accesses to Emergency Service establishments.
ii)	Secondary Salting Network Highways to other important locations, schools shopping areas bus routes commencing after 08.00
iii)	Primary Footway Network and Cycle ways.
iv)	Secondary Footway Network
v)	Residential roads.

Footways

Two Footway Networks exist; the Primary Route is access to schools in the thematically colder areas of Torbay. The Secondary network includes shopping areas and thematically warmer access areas to schools. It is most likely that the footway routes will be gritted only during times of severe ice/snow as they will be attended to following completion of the carriageway Primary and Secondary networks. These routes will not as a matter of course be pre salted due to the commitments of resources undertaking higher priority gritting.

Standard Terminology For Reporting Road Status

The Police and Torbay Council have a coding system for describing the status of routes affected by snow. This coding system will also be used by Torbay Council to avoid confusion. The following codes are for operational use and all come under the classification "Impassable" when reporting to the public, the Media or other external Organisations:

Abbreviation	Description
INBC	Impassable, not being cleared.
IBC	Impassable, being cleared.
EMV/4WD	Emergency vehicles and 4-Wheeled Drive only.
PNAP	Passable, not available to the public.

The following codes are not for external use:

Abbreviation	Description
SLO	Slow Lane Only / No Overtaking
PEC	Passable with Extreme Care, Snow still present over road length.
CC	Clear with Care, isolated areas of snow.
RC	Road Closed.

Post-Snow Emergency Action

The following work shall be undertaken after a snow emergency: -

1. Clear gullies and outlets where necessary.
2. Sweep grit from carriageways and footways as soon as possible.
3. Thoroughly wash down all vehicles and lubricate gritting equipment.
4. Check all equipment and repair or replace all worn parts on snow ploughs.
5. The Salt/grit stock levels to be replenished where necessary.
6. Inspect roads for frost damage and carry out any remedial works necessary to make the carriageway safe.
7. Inspect bridges and culverts liable to flooding - ensure that they are clear of debris.
8. Carry out a survey of badly affected locations (within 7 days) reporting to the Highway Service Manager including a generalised assessment of other frost/snow/flood damage.
9. Sign defects where appropriate, ensuring “flood” boards and other relevant signs are available.
10. The Highways Group to evaluate overall performance, recommending changes to procedures to be incorporated into this document.

8 EFFECTIVENESS OF ACTION

Introduction

In the Torbay region, the cost of non-effective winter maintenance treatment can be considerable. Therefore several factors, which have an effect on costs or public safety, are monitored.

- **Forecasts**

The forecasts received from the forecaster dictate, to a large extent, the action that is proposed. Accuracy is therefore of prime importance to prevent any possible abortive work and hence mean errors, standard deviations and whether frosts were successfully forecast are all monitored. Through the forecast service Torbay take up significant errors with the forecaster.

- **Action Taken/Actual Conditions**

This will be monitored to measure the extent of abortive work or dangerous road conditions.

- **Response/Treatment Times**

The Highway Group will consider Tor2's performance to ensure that response and treatment times are being met, so that conditions are as safe as is reasonably possible for highway users.

- **Salt Usage**

A check of actual salt use should be made, by the measure of salt stocks at the end of winter, monitored against salt operations ordered.

- **Financial Monitoring**

Maintenance expenditure is to be monitored and will be compared to Actions Taken.

9 OTHER EMERGENCIES

HIGHWAY EMERGENCIES

Definition of Emergencies

Other than winter service, emergency operations are described as: -

- a) Response to road traffic accidents and action as required.
- b) Response to and removal of obstructions, debris and spillages on the Highway.
- c) Making safe/dealing with failures in the Highway (broken covers etc.)
- d) Response to flooding emergencies.
- e) Necessary works to facilitate a, b, c, and d as ordered by the Highway Group.

Notification of Emergencies

When emergencies which are reported to the Control and Information Room (CIR Aspen Way) occur, the Highway Group will be informed. After investigation of the incident the CIR will be informed of the current situation and when the highway is clear.

Nominated Emergency Contacts.

The Service Manager will provide the Control and Information Room with a cascade of nominated emergency contacts. They will be contacted by the Control and Information Room when emergency situations arise.

In addition the Control and Information Room have procedures which list those officers and senior managers who are to be contacted in the event of serious incidents and which organisations (Police, Environment Agency etc.) are to be contacted.

During a prolonged snow emergency a Police Liaison officer will be requested to attend the Highway Group Offices at Roebuck House.

Highway Inspection During Emergencies

When emergencies are not limited to localised areas an inspection of all major routes (as given by the salting network) and other known trouble spots will be made so that necessary clearance work/signing can be organised in priority order and the Control and Information Room informed of major incidents.

Co-operation with Adjacent Authorities

Liaison between adjoining authorities is necessary in order that mutual assistance can be arranged, the following arrangements have been agreed: -

- i) Street Scene Inspectors will liaise with their adjoining Local Service Officers in D.C.C.
- ii) When snow is a problem on the main routes Street Scene Inspectors are required to liaise with border colleagues to assist with clearance after their own roads are passable with care. The telephone numbers of Local Authorities/ Local Service Officers can be found in the contacts section.

Flooding Emergencies

Flooding on the public highway is managed by the Highways Group. Where public sewers are surcharging or blocked this is reported to South West Water for their attention.

The Council has adopted a policy of not issuing sandbags to the public on request when flooding is predicted. However, the public are able to purchase sandbags from the Tor2 at Aspen Way Depot. Sales can take place during normal working hours except when resources are fully committed during emergency conditions. It is the householders responsibility to protect his / her property from the effects of flooding.

Resources Deployed

During emergencies information on resources deployed in terms of men, plant and cost will be required by the Highways Group.

Severe Weather and Motoring warnings

These warnings, issued by the Meteorological Office, will often be warnings of conditions that will give rise to emergency situations. The definitions of the warnings are stated in 10, Weather Warnings

10 WEATHER WARNINGS

METEOROLOGICAL OFFICE - SEVERE WEATHER WARNING SERVICE

The Meteorological Office issue Severe Weather Warnings with the following thresholds as guidance: -

Early warnings and Flash Messages

1. Gales

- (a) Severe gales - gusts of 70 m.p.h. or more.
- (b) Severe gales/storms - gusts of 80 m.p.h. or more.

2. Snow

- (a) Heavy snow - snow falling at a rate of approx 2cm/hour or more expected for at least two hours.
- (b) Blizzards/drifts - moderate or heavy snow accompanied by winds of 30 m.p.h. or more with visibility reduced to 200 metres or less, giving rise to similar conditions.
- (c) Very heavy snowfall, blizzards or drifting - expected to give depths of 30 cm or more potentially resulting in widespread dislocation of communications

3. Heavy rain

- heavy rain expected to persist for at least two hours and to give at least 15 mm within a three hour period.

4. Dense fog

visibility generally less than 50 m.

5. Glazed frost / widespread - Icy roads

generally occurs when rain freezes on contact with road surfaces.

Notes

- (i) Early Warnings and Flash Messages of severe weather are issued for severe gales, heavy snow and heavy rain.
- (ii) Flash Messages only are issued for dense fog and glazed frost/widespread icy roads.
- (iii) Early Warnings and Emergency Flash Messages of exceptionally severe weather are issued for severe gales/storms and very heavy snowfall, blizzards or drifting.

The conditions used as guidance for the issue of Motoring Weather Warnings are:

1. Strong winds with gusts of 45 m.p.h. or more.
2. Snow
3. Heavy rain, i.e. falling at a rate of more than 4mm/hour.
4. Fog with visibility less than 200 metres.
5. Icy roads.

Tables of likely damage and advice used in weather warnings

Table 1. Wind Warnings

<u>50 m.p.h. gusts</u>	-	Difficult driving conditions for high-sided vehicles, especially on exposed roads or bridges.
<u>60 m.p.h. gusts</u>	-	Difficult driving conditions: unladen high-sided vehicles at risk of being overturned. Some damage to trees, e.g. Falling branches.
<u>70 m.p.h. gusts</u>	-	Hazardous driving conditions: unladen high-sided vehicles at risk of being overturned and motorists advised to drive with particular care. Damage to trees, e.g. Falling branches, with some being uprooted. Minor damage to some buildings, particularly to tiles, slates and chimneys.
<u>80 m.p.h. gusts</u>	-	Dangerous driving conditions: high-sided vehicles at risk of being overturned and motorists advised to avoid driving if possible. Considerable damage to trees with significant tree uprooting. Extensive minor damage, particularly to tiles, slates and chimneys, and structural damage to some chimneys.
<u>90 m.p.h. gusts</u>	-	Driving extremely dangerous. Widespread uprooting of trees. Widespread damage to buildings with potential for severe structural damage. Public advised not to venture out of doors unless really necessary.

Table 2. Snow Warnings

<u>Snow</u>	-	Difficult driving conditions.
<u>Heavy snow</u>	-	dangerous driving conditions. Motorists advised to avoid driving if possible.
<u>Blizzards and severe drifting</u>	-	Driving extremely dangerous. Some roads likely to become impassable. Public advised not to venture out of doors unless really necessary.

Table 3. Other Warnings

<u>Heavy rain, fog or icy roads</u>	-	Difficult driving conditions.
<u>Heavy rain, dense fog or widespread icy roads/glazed frost</u>	-	Dangerous driving conditions. motorists advised to use extra care. Localised flooding (in association with heavy rain).

BEAUFORT SCALE OF WIND

(At height of 10 m above open flat ground)

<u>Beaufort Force</u>	<u>Descriptive term</u>	<u>Speed equivalent (m.p.h.)</u>		<u>Specification</u>
		<u>mean speed</u>	<u>gusts</u>	
0	Calm	< 1		Calm: Smoke rises vertically
1	Light air	1 - 3		Direction of wind shown by smoke drift but not wind vanes.
2	Light breeze	4 - 7		wind felt in face; Leaves rustle; ordinary vanes moved by wind.
3	Gentle breeze	8 - 12		Leaves and small twigs in constant motion; wind extends light flags.
4	Moderate breeze	13 - 18		Raises dust and loose paper; small branches are moved
5	Fresh breeze	19 - 24		Small trees in leaf begin to sway; crested wavelets form on inland waters.
6	Strong breeze	25 - 31		Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty.
7	Near gale	32 - 38		Whole trees in motion; inconvenience felt when walking against wind.
8	Gale	39 - 46	49 - 59	Breaks twigs off trees; generally impedes progress.
9	Severe gale	47 - 54	60 - 69	Slight structural damage occurs; (chimney pots and slates removed)
10	Storm	55 - 63	70 - 78	Seldom experienced inland; trees uprooted; considerable structural damage occurs
11	Violent storms	64 - 72	79 - 89	Very rarely experienced; accompanied by widespread damage
12	Hurricane force	73 & over	90 & over	Devastation

ENVIRONMENT AGENCY FLOOD WARNINGS

The Environment Agency issues flood warnings for fluvial and coastal flooding.

Flood Warning Codes

The flood warning system consists of the following codes, with the following meanings:

Flood Watch - Flooding possible. Be aware! Be prepared! Watch out!

Flood Warning - Flooding expected affecting homes, businesses and main roads. Act now!

Severe Flood Warning - Severe flooding expected. Imminent danger to life and property. Act now!

All Clear - An all clear will be issued when flood watches or warnings are no longer in force

Fluvial Flooding

As there are no main rivers in Torbay, and flooding cannot be accurately predicted on ordinary or critical ordinary watercourses, the Environment Agency can only issue Flood Watch messages for the Torbay Area.

Tidal Flooding

The Environment Agency will issue tidal flood warnings related to Highest Astronomical Tides (HATs) and forecast weather conditions. These may relate to the south Devon coast in general, or specifically to areas of the coastline exposed to easterly conditions including Torbay.

Distribution of Warnings

Meteorological Office Early warnings and flash messages, and Environment Agency flood warnings, are faxed direct to the Control Room at Aspen Way.

As part of the Environment Department's response to severe weather conditions, faxes are forwarded to the following:

TORBAY

Early and Flash Warnings, Flood Warnings

Principal Engineer - Highways Maintenance
Service Manager - Drainage
Senior Arboriculture Officer
Harbour Masters and Duty Harbourmaster
Emergency Planning Officer
Media and Communications
Leader Deputy Leader of the Council
Executive Member – Environment
Managing Director
Director of Corporate Governance
Assistant Managing Director
Director of Finance
Director of Human Resources
Director of Environment Services
Assistant Director - Operational Services
Director of Social Services
Assistant Director - Housing
Community Alarm Service
Emergency Duty Service
Strategic Director for Childrens Services
Torbay Development Agency
Chairman - South Devon Chamber of Commerce

DEVON

Motoring Warnings

Aspen Way
Press Office

11 CONTRACTOR'S ROLE

Introduction

The contractor involved in the Winter Service must fully understand the role to be performed. This document has already stressed the importance of pre-winter season meetings, plant calibration and other issues effecting the contractor.

The following details the main responsibilities of the contractor.

TOR2

Introduction

Tor2 is the Councils term maintenance contractor who is required to provide the work force to carry out winter service and emergency operations. Some of the parameters which guide their role are given below, but reference should be made to the JVC contract specification where the level of service and responsibility required is stated.

Contract Specification

The contract encompasses all activities necessary to secure the free passage and safety of persons using the highway network in Torbay. Tor2 have provided a commitment that they will have sufficient resources available to attend all winter service call outs on the salting network and emergencies within the required response times and that these will take precedence over other highway works. The Contract covers emergencies and winter service and defines the general work requirements.

- 1) Verbal or written instruction from the Service Manager or his deputy who will maintain a 24-hour communications channel.
- 2) Tor2 respond to the winter service or emergency call out.
- 3) Tor2 report works complete to the Maintenance Group or to the Information Room. A log-in time is to be stated.

Trained Operatives

Under the contract specification, Tor2 must provide a sufficient number of trained operatives to carry out continuous shift work during snow or other emergencies, on the salting network. From April 1994 it has been a requirement that all drivers salting, gritting and or ploughing on the roads controlled by the Highways Agency must be trained and successfully assessed in accordance with City and Guilds 6157 and registered with the local Government Management Board. The Training Centre at Notter Bridge has been accredited as able to provide this training and assessment. From October 1999 all operatives working on Torbay's Roads have required the qualification and registration.

Contact Numbers

These are given in the contact section of this document.

12 MEDIA

Introduction

Contact through the media is becoming increasingly important as a means of keeping the road user informed of adverse conditions and therefore a means to promote safety on the highway.

Media coverage of winter service and emergency operations also plays a very important part in making the public aware of the service provided and how vital the service is to the community as a whole.

Public Information / Media Coverage

Although Torbay could carry out its work related to winter service and emergencies without direct contact with the community and road users, the operations will be made more efficient, will be better understood and will promote a positive interchange of views if the public are kept informed.

The following means of communication should be developed:

- leaflets on ways motorists can help to improve road safety
- a plan of the salting network
- press releases relating to winter maintenance and particular highway incidents
- press articles
- press/radio/television interviews
- information passed through motoring organisations and local radio stations
- free text message signs
- Torbay council website

Part of the role of the Highway Group is to collate information on the highway situation in winter and severe weather conditions, largely provided by the Street Scene Inspectors, and issue regular reports to senior management, emergency services, the press and media. In any emergency the media will either be given press statements or will wish to talk to Council staff. It is therefore of great importance that the Service Manager (Highways) and staff are given necessary facts to any deadlines stated so that credibility is not impaired and the public can be kept well informed.

Photographic Records

If, in an emergency, an unusual situation arises, high priority must be given to obtaining photographic records. Street Scene Inspectors should arrange to have photographs taken when necessary.

13 CONTACTS

Introduction

The contacts for Winter Maintenance and emergencies are listed in the following order

	Page
Torbay Contacts	36
Emergency Services Contacts.....	37
Devon County Council Contacts, Plymouth City Council, District Councils.....	38
General Contacts.....	41
Contractor Contacts – Tor2.	43

Operational Centres

The operational centre which implements the procedures in the plan is given below:-

**TORBAY
Highways Group
4th Floor, Roebuck House
Abbey Road
Torquay
TQ2 5TF**

TORBAY CLIENT STAFF

CONTACTS

Name and Position

Patrick Carney
Group Manager
Street Scene Group Manager

Tim Northway
Principal Engineer

Neil Braddon
Maintenance Systems
Officer

Rob Ketch
Network Co-ordinator

Tim Abbott
Inspector

Ian Saunders
Inspector

Barry Hayward
Inspector

Nick Moloney
Inspector

Elaine Gaudin
Inspector

Mark Lazenby
Inspector

Emma Reid
Emergency Planning Officer

EMERGENCY SERVICES CONTACTS

Organisation

Tel No

POLICE

Devon & Cornwall Constabulary

101

Torbay Hospital

Switchboard

01803 614567

DEVON COUNTY COUNCIL CONTACTS

HIGHWAYS OPERATIONS CONTROL CENTRE

Tel Exeter (01392) 380380

Fax. - Exeter (01392) 382321

NETWORK MANAGEMENT

Name and Position

Office Tel. No.

Home Tel. No.

Chris Henley
Principal Engineer

Andy Cole
Engineer

C. Cranston
Operations and
Communications Manager
Highways Operations Control Centre

In normal circumstances for Snow and Frost Clearance problems, the staff on the following pages should be contacted.

DEVON COUNTY COUNCIL CONTACTS

All LS Gs serviced by:-

Customer Services Office 0845 155 1004

PLYMOUTH CITY COUNCIL

**Main Office: Macadam Road, Prince Rock Plymouth Telephone Plymouth (01752)
668000**

DISTRICT COUNCILS OFFICE/OUT OF HOURS

Name and Position ***Office Tel. No.***

SOUTH HAMS DISTRICT COUNCIL

Helen Dobby
Head of Environment Services

TEIGNBRIDGE DISTRICT COUNCIL

Neil Baglow
Design & Property Services Manager

S Kew
Service Lead
Cleansing and Market
Services

Switchboard 01626 361101

GENERAL CONTACTS

Organisation

Office Tel. No.

MOTOR ORGANISATIONS

Automobile Association
Automobile Association: Roadwatch

Royal Automobile Club

Traffic Master

Traffic Link

DEPARTMENT FOR ENVIRONMENT FOOD AND RURAL AFFAIRS

Marine Management Organisation

Animal Health

Emergency Fax Number

NATIONAL FARMERS UNION

South West Regional Office

ENVIRONMENT AGENCY (incl NRA)

South West Region

Incident Communication Service

WEATHER CONSULTANCY SERVICE

Met. Office

Floodline

PUBLIC TRANSPORT

Stagecoach	Exeter (01392) 427711 Torquay (01803) 616140 Fax (01803) 612715 Paignton (01803) 527263 Fax (01803) 665111
Traveline	0871 2002233

SOUTH WEST WATER

Exeter Head Office Reception South West Water Services Ltd. - Emergencies	(0800) 1691144
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Emergency Fax Number

BRITISH TELECOM

BT Fault Line	0800 800151
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BRITISH GAS

British Gas Enquiries	08000 480202
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WESTERN POWER DISTRIBUTION

W.P.D. Loss of Supply (24 Hr Emergency)	(0800) 365900
E.D.F Energy Customer Services (Mon-Fri 08.00 - 20.00, Sat 08.30 - 14.00)	(0800) 365000

GENERAL CONTACTS

Television and Radio:

<i>Frequencies</i>	<i>Heart</i>	<i>BBC Radio Devon</i>	<i>BBC Radio Cornwall</i>	<i>Pirate (FM)</i>
VHF (Mhz)	97.0	96.0/94.8/103.4	95.2/96.0/103.9	102.2/102.8
MW (kHz/m)	261/1152	351/855	630/657	

CONTRACTOR CONTACTS – TOR2

24hr Control Room – Aspen Way

01803 550405

PRIMARY SALTING NETWORK**Red Routes**

Dartmouth Road	(Kennels Road) Brixham
Bridge Road	(Kingswear Road - Higher Ferry) Kingswear
Brixham Road	(Lower Contour Road - Slappers Hill) Kingswear
Lower Contour Road	(Lower Ferry - Slappers Hill) Kingswear
Slappers Hill	(Lower Contour Road - Bridge Road) Kingswear
Marldon Way	(Hellevoetsluis Way - Marldon Road) Marldon
Kings Ash Road	(Tweenaway Cross - Marldon Way) Paignton
Preston Down Road	(Hellevoetsluis Way - Sandringham Drive) Paignton
Ascension Way	(Windward Road – Beechfield Avenue) Torquay
Avon Road	(Marldon Road – Torridge Avenue) Torquay
Barchington Avenue	(Barton Hill Road - Swedwell Road) Torquay
Barton Hill Road	(Barchington Avenue – Kingskerswell Road) Torquay
Barton Hill Way	(Barton Hill Road - Browns Bridge Road) Torquay
Beechfield Avenue	(Barton Hill Road – Browns Bridge Road) Torquay
Broomhill Way	(Hele Road - Royal Mail Depot) Torquay
Browns Bridge Road	(Riviera Way - Barton Hill Way) Torquay
Cassiobury Way	(Browns Bridge Road - Lindisfarne Way) Torquay
Centenary Way	(Browns Bridge Road – Osprey Drive) Torquay
Condor Drive	(Shearwater Drive – Browns Bridge Road) Torquay
Dart Avenue	(Exe Hill - Marldon Road) Torquay
Exe Hill	(Collaton Road - Higher Edginswell Lane) Torquay
Fore Street	(Babbacombe Road - St Marychurch Road) Torquay
Fowey Avenue	(Exe Hill - Exe Hill) Torquay

Hamelin Way	(Gallows Gate - Riviera Way) Torquay
Hellevoetsluis Way	(Marldon Way - Gallows Gate) Torquay
Higher Edginswell Lane	(Exe Hill - Marldon Road) Torquay
Kingskerswell Road	(Kingskerswell Road split - Barton Hill Road) Torquay
Lindisfarne Way	(Browns Bridge Road - Kintyre Close) Torquay
Manor Road	(Warbro Road - Babbacombe Road) Torquay
Marldon Road	(Gallows Gate – Shiphay Avenue) Torquay
Moor Lane	(Swedwell Road - Teignmouth Road) Torquay
Newton Road	(Kerswell Gardens – Riviera Way) Torquay
Nicholson Road	(Browns Bridge Road to Riviera House) Torquay
Osprey Drive	(Centenary Way – Shearwater Drive) Torquay
Padacre Road	(Moor Lane - Swedwell Road) Torquay
Riviera Way	(Hele Road - Newton Road) Torquay
Shearwater Drive	(Osprey Drive – Condor Drive) Torquay
Shiphay Avenue	(Marldon Road - Shiphay Lane) Torquay
Shiphay Lane	(Shiphay Avenue - Newton Road) Torquay
St Marychurch Road	(Fore Street – Castle Circus) Torquay
Swedwell Road	(Moor Lane – Padacre Road) Torquay
Tavy Avenue	(Torrige Avenue - Exe Hill) Torquay
Teignmouth Road	(Moor Lane - St Marychurch Road) Torquay
Torrige Avenue	(Avon Road - Tavy Avenue) Torquay
Westhill Road	(Teignmouth Road - Warbro Road) Torquay
Windward Road	(Lindisfarne Way – Ascension Way) Torquay

Blue Routes

Bascombe Road	(Dartmouth Road - Churston Road) Brixham
Bellever Tor Drive	(Huccaby Close - Summercourt Way) Brixham

Brixham Road	(Dartmouth Road – Alston Lane) Brixham
Chestnut Drive	(Bellever Tor Drive - Summer Lane) Brixham
Dartmouth Road	(Windy Corner - Kennels Road) Brixham
Kingswear Road	(Hill Head - Milton Street) Brixham
Mathill Road	(Monksbridge Road - Summer Lane) Brixham
Milton Street	(Kingswear Road - Summer Lane) Brixham
Monksbridge Road	(New Road - Mathill Road) Brixham
Summer Lane	(Milton Street – Mathill Road) Brixham
Summercourt Way	(Summer Lane - Bellever Tor Drive) Brixham
Albany Road	(Shorton Valley Road to Windmill Road) Paignton
Blagdon Road	(Boundary - Totnes Road) Paignton
Borough Road	(Totnes Road - Brixham Road) Paignton
Brixham Road	(Tweenaway Cross - Windy Corner) Paignton
Brixham Road	(dedicated cycleway – Battersway Road) Paignton
Cecil Road	(Torquay Road - Southfield Road) Paignton
Cherry Brook Drive	(Dartmouth Road - Hookhills Road) Paignton
Church Street	(Well Street - Torquay Road) Paignton
Colley End Road	(Cecil Road - Kings Ash Road) Paignton
Coombe Road	(Langdon Road - Shorton Valley Road) Paignton
Dartmouth Road	(Windy Corner - Goodrington Road) Paignton
Davies Avenue	(Gibson Road - Goodrington Road) Paignton
Dolphin Court Road	(Marldon Road - Windmill Road) Paignton
Gibson Road	(Goodrington Road - Hookhills Road) Paignton
Goodrington Road	(Brixham Road - Dartmouth Road) Paignton
Grange Heights	(Roselands Drive - Grange Road) Paignton
Grange Road	(Grange Heights - Goodrington Road) Paignton
Hayes Road	(Totnes Road - Penwill Way) Paignton

Headland Park Road	(Torquay Road - Upper Headland Park Road) Paignton
Hookhills Road	(Hunters Tor Drive - Gibson Road) Paignton
Hunters Tor Drive	(Hookhills Road - Brixham Road) Paignton
Jasmine Grove	(Kings Ash Road - Smallcombe Road) Paignton
Long Road	(Brixham Road to Woodview Road) Paignton
Marldon Road	(Churscombe Cross - Dolphin Court Road) Paignton
Paignton Fire Station	Paignton
Penwill Way	(Hayes Road - Dartmouth Road) Paignton
Preston Down Road	(Sandringham Drive - Sandringham Gardens) Paignton
Ramshill Road	(Kings Ash Road – Redwell Road) Paignton
Roselands Drive	(Brixham Road - Grange Heights) Paignton
Sandringham Gardens	(Sandringham Drive - Upper Headland Park Road) Paignton
Shorton Road	(Southfield Avenue - Shorton Valley Road) Paignton
Shorton Valley Road	(Shorton Road – Coombe Road) Paignton
Smallcombe Road	(Redwell Road – Jasmine Grove) Paignton
Spruce Way	(Kings Ash Road – Jasmine Grove) Paignton
Tor Park Road	(Borough Road - Aspen Way) Paignton
Totnes Road	(Tweenaway Cross - Winner Street) Paignton
Upper Headland Park Road	(Headland Park Road - Sandringham Gardens) Paignton
Well Street	(Colley End Road - Church Street) Paignton
Windmill Road	(Dolphin Court Road - Albany Road) Paignton
Barton Hill Road	(Hele Road – Barchington Avenue) Torquay
Cadewell Lane	(Collaton Road - Newton Road) Torquay
Cockington Lane	(Old Mill Road - Nut Bush Lane) Torquay
Collaton Road	(Cadewell Lane - Exe Hill) Torquay
Cross Park Avenue	(Higher Cadewell Lane - Collaton Road) Torquay
Drake Avenue	(Nut Bush Lane - Upper Cockington Lane) Torquay

Edginswell Lane	(Collaton Road - Newton Road) Torquay
Hawkins Avenue	(Upper Cockington Lane – Grenville Avenue) Torquay
Hele Road	(Riviera Way - Teignmouth Road) Torquay
Higher Cadewell Lane	(Cadewell Lane - Cross Park Avenue) Torquay
Lymington Road	(Teignmouth Road - Castle Circus) Torquay
Newton Road	(Riviera Way – Hele Road) Torquay
Nut Bush Lane	(Drake Avenue - Sherwell Rise South) Torquay
Oak View Close	(Orchard Way – End) Torquay
Orchard Way	(Newton Road – Oak View Close) Torquay
Queensway	(Sherwell Valley Road - Shiphay Lane) Torquay
Quinta Road	(Reddenhill Road - Windsor Road) Torquay
Raleigh Avenue	(Hawkins Avenue - Queensway) Torquay
Sherwell Rise South	(Nutbush Lane - Sherwell Valley Road) Torquay
Sherwell Valley Road	(Queensway - Hawkins Avenue) Torquay
Shiphay Lane	(Shiphay Avenue - Collaton Road) Torquay
Teignmouth Road	(Lymington Road - St Marychurch Road) Torquay
Torquay Fire Station	Torquay
Torbay Hospital Drive	Torquay
Upper Cockington Lane	(Drake Avenue - Marldon Road) Torquay
Windsor Road	(Lydwell Road - Congella Road) Torquay

Green Routes

Bascombe Road	(Churston Road - North Boundary Road) Brixham
Brixham Road	(Alston Lane to New Road) Brixham
Churston Road	(Bascombe Road - Brixham Road) Brixham
Greenover Road	(Monksbridge Road - Burton Street) Brixham
Greenswood Road	(Drew Street - Bolton Street) Brixham

Greenway Road	(Dartmouth Road - Dartmouth Lane) Brixham
Higher Furzeham Road	(Ropewalk Hill - Northfields Lane) Brixham
Higher Ranscombe Road	(Rea Barn Road - Ranscombe Road) Brixham
Horsepool Street	(Greenover Road – Milton Street) Brixham
Langdon Lane	(Brixham Road to Stoke Gabriel Road) Brixham
Lindthorpe Way	(New Road - Northfields Lane) Brixham
Manor Vale Road	(Dartmouth Road - Greenway Road) Brixham
Milton Street	(Summer Lane - Drew Street) Brixham
New Road	(Alston Lane - Bolton Street) Brixham
Ranscombe Road	(Berry Head Road - Higher Ranscombe Road) Brixham
North Boundary Road	(Copythorne Road - Northfields Lane) Brixham
North Furzeham Road	(Northfields Lane - Ropewalk Hill) Brixham
Northfields Lane	(Lindthorpe Way - North Furzeham Road) Brixham
Ranscombe Road	(Berry Head Road – Higher Ranscombe Road) Brixham
Rea Barn Road	(Bolton Street - Higher Ranscombe Road) Brixham
Ropewalk Hill	(Overgang Road - Higher Furzeham Road) Brixham
Stoke Gabriel Road	(Greenway Road - Boundary) Brixham
Wall Park Road	(Victoria Road - Ranscombe Road) Brixham
Barton Avenue	(Foxhole Road – Barton Drive) Paignton
Barton Drive	(Barton Avenue – Smallcombe Road) Paignton
Broadlands Road	(Footlands Road – Penwill Way) Paignton
Cockington Lane	(Hilton Drive - Old Paignton Road) Paignton
Cockington Lane	(Upper Headland Park Road - Preston Down Road) Paignton
Coombe Road	(Rowcroft Road – Langdon Road) Paignton
Curledge Street	(Midvale Road - Dartmouth Road) Paignton
Dartmouth Road	(Goodrington Road - Great Western Road) Paignton
Elmsleigh Park	(Dartmouth Road - Fisher Street) Paignton

Elmsleigh Road	(Dartmouth Road - Fisher Street) Paignton
Fernicombe Road	(Kings Ash Road - Foxhole Road) Paignton
Fisher Street	(Dartmouth Road - Totnes Road) Paignton
Footlands Road	(York Road – Broadlands Road) Paignton
Foxhole Road	(Kings Ash Road - Smallcombe Road) Paignton
Foxhole Rd - Colley End Rd (Colley End Road - Foxhole Road)	Paignton
Great Headland Crescent	(Cockington Lane - Great Headland Road) Paignton
Hayes Road	(Penwill Way - St Michaels Road) Paignton
Hilton Drive	(Upper Headland Park Road - Cockington Lane) Paignton
Lammas Lane	(Maidenway Road – Southfield Avenue) Paignton
Maidenway Road	(Marldon Road – Lammas Lane) Paignton
Marldon Road	(Dolphin Court Road - Colley End Road) Paignton
Midvale Road	(Totnes Road - Curledge Street) Paignton
Oldway Road	(Higher Polsham Road - Upper Manor Road) Paignton
Preston Down Road	(Old Torquay Road - Sandringham Gardens) Paignton
Ramshill Road	(Redwell Road – Marldon Road) Paignton
Redwell Road	(Ramshill Road – Smallcombe Road) Paignton
Roundham Road	(Dartmouth Road - Whitstone Road) Paignton
Rowcroft Road	(Old Torquay Road – Coombe Road) Paignton
Sands Road	(Dartmouth Road - Whitstone Road) Paignton
Shorton Road	(Southfield Avenue - Southfield Road) Paignton
Smallcombe Road	(Redwell Road – Marldon Road) Paignton
Southfield Avenue	(Marldon Road - Upper Manor Road) Paignton
Southfield Road	(Colley End Road - Higher Polsham Road) Paignton
St Michaels Road	(Hayes Road - Fisher Street) Paignton
Tarroway Road	(Torquay Road - Great Headland Road) Paignton
Totnes Road	(Fisher Street - Dartmouth Road) Paignton

Upper Manor Road	(Oldway Road – Barcombe Lane) Paignton
Upper Penns Road	(Preston Down Rd - Upper Headland Park Road) Paignton
Waterleat Road	(Kings Ash Road - Totnes Road) Paignton
Whitstone Road	(Roundham Road - Sands Road) Paignton
York Road	(St Michaels Road – Footlands Road) Paignton
Abbey Road	(Fleet Street - Tor Hill Road) Torquay
Avenue Road	(Newton Road - Walnut Road) Torquay
Babbacombe Road	(Torwood Street - Manor Road) Torquay
Bampfylde Road	(Avenue Road - Belgrave Road) Torquay
Barton Road	(Hele Road - Newton Road) Torquay
Belgrave Road	(South Street - Lucius Street) Torquay
Broadpark Road	(Old Paignton Road - Wheatridge Lane) Torquay
Bronshill Road	(St Marychurch Road - Windsor Road) Torquay
Castle Circus	(St Marychurch Road - Tor Hill Road) Torquay
Chatto Road	(Lymington Road - Westhill Road) Torquay
Cockington Lane	(Old Mill Road - Torbay Road) Torquay
Cricketfield Road	(Barton Road - Teignmouth Road) Torquay
East Street	(Tor Hill Road - Newton Road) Torquay
Ellacombe Church Road	(Windsor Road - Hatfield Road) Torquay
Falkland Road	(Rathmore Road - Belgrave Road) Torquay
Fore Street	(Pavor Road – Clennon Lane) Torquay
Forest Road	(Upton Hill - St Marychurch Road) Torquay
Halsteads Road	(Fore Street - Happaway Road) Brixham
Happaway Road	(Barton Hill Road - Teignmouth Road) Torquay
Hartop Road	(Teignmouth Road - Petitor Road) Torquay
Hatfield Road	(Ellacombe Church Road - Victoria Road) Torquay
Hennapyn Road	(Old Mill Road - Rathmore Road) Torquay

Herbert Road	(Vicarage Hill - St Mathews Road) Torquay
Higher Warberry Road	(Babbacombe Road - Windsor Road) Torquay
Hoxton Road	(Princes Road - Ellacombe Church Road) Torquay
Ilsham Road	(Babbacombe Road - Ilsham Marine Drive) Torquay
Laburnum Row	(Union Street - East Street) Torquay
Lichfield Avenue	(Salisbury Avenue – Truro Avenue) Torquay
Locks Hill	(Perinville Road – Lyme View Road) Torquay
Lucius Street	(Belgrave Road - Tor Church Road) Torquay
Lyme View Road	(Reddenhill Road – Locks Hill) Torquay
Manscombe Road	(Broadpark Road – Old Mill Road) Torquay
Market Street	(Union Street - Princes Road) Torquay
Mill Lane	(Avenue Road - Belgrave Road) Torquay
Newton Road	(Hele Road - South Street) Torquay
Nut Bush Lane	(Sherwell Rise South – Herbert Road) Torquay
Old Mill Road	(Livermead Hill - Avenue Road) Torquay
Old Paignton Road	(Cockington Lane - Broadpark Road) Torquay
Old Woods Hill	(Newton Road - Barton Road) Torquay
Park Road	(Teignmouth Road - Petitor Road) Torquay
Pavor Road	(Fore Street – Teignmouth Road) Torquay
Pennys Hill	(Lymington Road - Teignmouth Road) Torquay
Perinville Road	(Reddenhill Road - Locks Hill) Torquay
Petitor Road	(St Marychurch Road - Park Road) Torquay
Pimlico	(Market Street - Fleet Street) Torquay
Princes Road	(Market Street - Hoxton Road) Torquay
Rathmore Road	(Torbay Road - Falkland Road) Torquay
Reddenhill Road	(Babbacombe Road - Windsor Road) Torquay
Regent Close	(Newton Road - Bus Station) Torquay

Rousdown Road	(Old Mill Road – Walnut Road) Torquay
Salisbury Avenue	(Hele Road – Lichfield Avenue) Torquay
Shedden Hill Road	(Belgrave Road - St Lukes Road) Torquay
Sherwell Lane	(Old Mill Road - Sherwell Valley Road) Torquay
Sherwell Valley Road	(Queensway – Sherwell Lane) Torquay
Shirburn Road	(Studley Road - Upton Hill) Torquay
South Street	(Newton Road - Belgrave Road) Torquay
St Albans Road	(St Annes Road - Babbacombe Road) Torquay
St Annes Road	(Reddenhill Road - St Albans Road) Torquay
St Lukes Road	(Sheddon Hill - Abbey Road) Torquay
St Matthews Road	(Herbert Road - Walnut Road) Torquay
Studley Road	(Shirburn Road - Forest Road) Torquay
Teignmouth Road	(Lymington Road - Union Street) Torquay
The Kings Drive	(Avenue Road - Torbay Road) Torquay
Tor Church Road	(Belgrave Road - Tor Hill Road) Torquay
Tor Hill Road	(Castle Circus - East Street) Torquay
Torbay Road	(Belgrave Road - Rathmore Road) Torquay
Torwood Street	(The Terrace – Babbacombe Road) Torquay
Truro Avenue	(Lichfield Avenue – Hele Road) Torquay
Underhill Road	(Livermead Hill - Old Mill Road) Torquay
Union Street	(Teignmouth Road - Laburnum Row) Torquay
Upton Hill	(Lymington Road - St Marychurch Road) Torquay
Upton Road	(South Street - Lymington Road) Torquay
Victoria Road	(Hatfield Road - Princes Road) Torquay
Walnut Road	(Avenue Road – St Mathews Road) Torquay
Warbro Road	(Manor Road - Reddenhill Road) Torquay
Wheatridge Lane	(Torbay Road – Old Mill Road) Torquay

Windsor Road	(Hatfield Road - Congella Road) Torquay
Windsor Road	(Lydwell Road - Higher Warberry Road) Torquay

Yellow Routes

Bank Lane	(Union Lane - Market Street) Brixham
Berry Head Road	(King Street - Victoria Road) Brixham
Bolton Street	(Rea Barn Road - New Road) Brixham
Burton Street	(Greenover Road - Bolton Street) Brixham
Doctors Road	(Burton Street - Drew Street) Brixham
Drew Street	(Greenswood Road - Milton Street) Brixham
Fore Street	(The Strand - Bolton Street) Brixham
King Street	(Fore Street - Ranscombe Road) Brixham
Market Street	(New Road - Middle Street) Brixham
Middle Street	(Market Street - The Strand) Brixham
Overgang Road	(The Quay - Ropewalk Hill) Brixham
The Quay	(Overgang Road - The Strand) Brixham
The Strand	(The Quay - Fore Street) Brixham
Union Lane	(Middle Street - Bank Lane) Brixham
Victoria Road	(Berry Head Road - Wall Park Road) Brixham
Blatchcombe Road	(Maidenway Road - Southfield Road) Paignton
Church Street	(Winner Street – Well Street) Paignton
Commercial Road	(Dartmouth Road - Victoria Street) Paignton
Dartmouth Road	(Great Western Road - Totnes Road) Paignton
Dendy Road	(Victoria Street - Hyde Road) Paignton
Esplanade Road	(Marine Drive – Sands Road) Paignton
Eugene Road	(Seaway Road - Paris Road) Paignton
Great Western Road	(Victoria Street - Dartmouth Road) Paignton

Hyde Road	(Torquay Road - Victoria Street) Paignton
Maidenway Road	(Lammas Lane – Blatchcombe Road) Paignton
Manor Road	(Marine Drive – Torquay Road) Paignton
Marine Drive	(Seaway Road – Esplanade Road) Paignton
Morin Road	(Manor Road - Paris Road) Paignton
Old Torquay Road	(Upper Manor Road - Preston Down Road) Paignton
Palace Avenue	(Winner Street – Torquay Road) Paignton
Paris Road	(Morin Road - Torquay Road) Paignton
Roundham Road	(Esplanade Road – Whitstone Road) Paignton
Sands Road	(Whitstone Road to Esplanade Road) Paignton
Seaway Road	(Torquay Road – Marine Drive) Paignton
Station Lane	(Dartmouth Road - Great Western Road) Paignton
Torbay Road	(Esplanade Road – Victoria Street) Paignton
Torquay Road	(Palace Avenue - Torbay Road) Paignton
Totnes Road	(Dartmouth Road - Palace Avenue) Paignton
Upper Manor Road	(Torquay Road - Oldway Road) Paignton
Victoria Street	(Dendy Rod - Great Western Road) Paignton
Winner Street	(Totnes Road - Colley End Road) Paignton
Belgrave Road	(Torbay Road - Lucius Street) Torquay
Cary Parade	(The Strand - Torbay Road) Torquay
Fleet Street	(Union Street - The Strand) Torquay
Ilsham Road	(Ilsham Marine Drive - Meadfoot Sea Road) Torquay
Livermead Hill	(Cockington Lane - Wheatridge Lane) Torquay
Meadfoot Road	(Parkhill Road - Higher Woodfield Road) Torquay
Meadfoot Sea Road	(Higher Woodfield Road – Ilsham Road) Torquay
Parkhill Road	(Meadfoot Road - Torwood Street) Torquay
The Strand	(Fleet Street - Torwood Street) Torquay

Torbay Road	(Torquay Road - Rathmore Road) Torquay
Torbay Road	(Belgrave Road - Cary Parade) Torquay
Torwood Street	(The Strand - The Terrace) Torquay
Trematon Avenue	(Union Street - Lymington Road) Torquay
Union Street	(Fleet Street - Laburnum Row) Torquay
Union Street	(Teignmouth Road - Upton Road) Torquay

SECONDARY SALTING NETWORK

Barnfield Close	(Galmpton Glade – Galmpton Glade) Brixham
Barnfield Road	(Penn Meadows - Rea Barn Road) Brixham
Blackball Lane	(Overgang – Car Park) Brixham
Briseham Road	(Castor Road – Penn Meadows) Brixham
Castor Road	(Upton Manor Road - Drew Street) Brixham
Centry Road	(Gillard Road – Higher Ranscombe Road) Brixham
Copythorne Road	(Lakes Road - Lichfield Drive) Brixham
Cudhill Road	(New Road – Greenover Road) Brixham
Eden Park	(Dashpers - Knick Knack Lane) Brixham
Edinburgh Road	(Penn Meadows – Rea Barn Road) Brixham
Galmpton Glade	(Greenway Road – Barnfield Close) Brixham
Gillard Road	(Rea Barn Road – Centry Road) Brixham
Knick Knack Lane	(Burton Street - Drew Street) Brixham
Lakes Road	(Copythorne Road - Smardon Avenue) Brixham
Lichfield Drive	(Copythorne Road - Northfields Lane) Brixham
Metheral Avenue	(Castor Road – Penn Lane) Brixham
Mudstone Lane	(Rea Barn Road - Penn Meadows) Brixham
Northfields Lane	(Lichfield Drive - Lindthorpe Way) Brixham
Penn Lane	(Castor Road - Penn Meadows) Brixham

Penn Meadows	(Penn Lane - Mudstone Lane) Brixham
Rea Barn Road	(Higher Ranscombe Road - Mudstone Lane) Brixham
School Road	(Station Hill) Brixham
Smardon Avenue	(Lakes Road - North Boundary Road) Brixham
St Marys Road	(Castor Road – Holiday Park) Brixham
Upton Manor Road	(Milton Street - Castor Road) Brixham
Wishings Road	(Briseham Road – Penn Meadows) Brixham
Albany Road	(Windmill Road to Ocombe Valley Road) Paignton
Alta Vista Road	(Roundham Road – Breaside Road) Paignton
Belfield Road	(Fernicombe Road - Pimm Road) Paignton
Breaside Road	(Alta Vista Road – Youngs Park Road) Paignton
Broadands Avenue	(Broadands Park Road – Broadands Park Road) Paignton
Broadands Park Road	(Dartmouth Road – Broadands Avenue) Paignton
Brunel Road	(Broadands Road – Lower Fowden) Paignton
Clifton Road	(Colley End Road – Winner Street) Paignton
Cotehele Drive	(Kings Ash Road – Lutyens Drive) Paignton
Coverdale Road	(Palace Avenue – New Street) Paignton
Cranford Road	(Kestor Drive - Albany Road) Paignton
Curledge Street	Midvale Road - Fisher Street) Paignton
Davies Avenue	(Gibson Road - Gibson Road) Paignton
Duchy Avenue	(Duchy Drive to Preston Down Road) Paignton
Duchy Drive	(Preston Down Road - Duchy Avenue) Paignton
Foxhole Road	(Spencer Road - Fernicombe Road) Paignton
Garfield Road	(Torbay Road – Esplanade Road) Paignton
Grange Road	(Grange Heights to Goodrington Road) Paignton
Great Headland Road	(Headland Park Road – Geat Headland Crescent) Paignton
Great Parks Lane	(Luscombe Road - Queen Elizabeth Drive) Paignton

Green Park Road	(Dolphin Court Road - Longmead Road) Paignton
Higher Polsham Road	(Southfield Road - Torquay Road) Paignton
Kestor Drive	(Longmead Road - Cranford Road) Paignton
Kingsway Avenue	(Brixham Road – Gibson Road) Paignton
Langdon Road	(Coombe Road – Preston Down Road) Paignton
Laura Avenue	(Laura Grove – Oldway Road) Paignton
Laura Grove	(Shorton Road – Laura Avenue) Paignton
Longmead Road	(Green Park Road – Windmill Road) Paignton
Lower Fowden	(Brunel Road – Brunel Road) Paignton
Luscombe Road	(Kings Ash Road – Great Parks Lane) Paignton
Lutyens Drive	(Cotehele Drive – Trelissick Road) Paignton
Lynmouth Avenue	(Roselands Drive) Paignton
Mabel Place	(Fisher Street) Paignton
New Street	(Coverdale Road – Totnes Road) Paignton
Occombe Valley Road	(Coombe Road - Albany Road) Paignton
Pimm Road	(Belfield Road) Paignton
Preston Down Avenue	(Preston Down Road – Duchy Drive) Paignton
Preston Down Road	(Sandringham Gardens – Sandringham Gardens) Paignton
Sandringham Drive	(Sandringham Gardens – Preston Down Road) Paignton
Trelissick Road	(Lutyens Drive – Great Parks Lane) Paignton
Waterleat Avenue	(Waterleat Road - Clifton Road) Paignton
Yalberton Road	(Breakers Yard Warehouse - Brixham Road) Paignton
Asheldon Road	(Babbacombe Road - Ilsham Road) Torquay
Barewell Road	(Westhill Road - St Catherines Road) Torquay
Beacon Hill	(Victoria Parade – Parkhill Road) Torquay
Broadley Drive	(Broadpark Road - Broadpark Road) Torquay
Broadpark Road	(Old Paignton Road - Broadley Drive) Torquay

Castle Road	(Castle Circus - Ash Hill Road) Torquay
Cedars Road	(Higher Warberry Road - Windsor Road) Torquay
Chelston Road	(Old Mill Road – Seaway Lane) Torquay
Church Road	(Moor Lane – Fore Street) Torquay
Daddyhole Road	(Parkhill Road – St Marks Road) Torquay
East Pafford Avenue	(Pafford Avenue – West Pafford Avenue) Torquay
Ellacombe Road	(Hatfield Road – Wellington Road) Torquay
Fore Street	(Rowley Road - Petitor Road) Torquay
Fore Street	(Church Road – Clennon Lane) Torquay
Greenway Road	(Priory Road – St Marychurch Road) Torquay
Haldon Road	(Ridgeway Road – Higher Lincombe Road) Torquay
Higher Erith Road	(Babbacombe Road – Higher Woodfield Road) Torquay
Higher Lincombe Road	(Haldon Road – Ridgeway Road) Torquay
Higher Woodfield Road	(Higher Erith Road – Meadfoot Road) Torquay
Lower Warberry Road	(Slip Road to Middle Warberry Rd - Babbacombe Road) Torquay
Mead Road	(Broadpark Road - Roundhill Road) Torquay
Middle Lincombe Road	(Higher Erith Road - Ridgeway Road) Torquay
Middle Warberry Road	(Higher Warberry Road – Slip Road to Lower Warberry Rd) Torquay
Pafford Avenue	(Fore Street – East Pafford Avenue) Torquay
Parkhill Road	(Meadfoot Road to Meadfoot Sea Road) Torquay
Parkhurst Road	(Cricketfield Road – St Vincents Road) Torquay
Priory Road	(St Catherines Road - Fore Street) Torquay
Priory Road	(St Marychurch Road – Priory Road) Torquay
Rathmore Road	(Falkland Road – Walnut Road) Torquay
Ridgeway Road	(Middle Lincombe Road – Haldon Road) Torquay
Roundhill Road	(Old Paignton Road - Mead Road) Torquay
Seaway Lane	(Chelston Road – Hennapyn Road) Torquay
Shiphay Manor Drive	(Shiphay Lane – Shiphay Lane)

St Catherines Road	Torquay (Barewell Road - Priory Road)
St Marks Road	Torquay (Daddyhole Road – Meadfoot Sea Road)
St Vincents Road	Torquay (Parkhurst Road – Teignmouth Road)
Steps Lane	Torquay (Moor Lane - School Entrance)
Tamar Avenue	Torquay (Torridge Avenue – Dart Avenue)
Tor Park Road	Torquay (Avenue Road - Vansittart Road)
Trumlands Road	Torquay (Teignmouth Road – Park Road)
Vansittart Road	Torquay (Tor Park Road - Newton Road)
Victoria Parade	Torquay (Torwood Street – Beacvon Hill)
Wellington Road	Torquay (Ellacombe Road – Castle Road)
West Pafford Avenue	Torquay (East Pafford Avenue – Pafford Avenue)
	Torquay

FOOTWAY PRIMARY SALTING ROUTE

Chestnut Drive	(Packhall Lane - Rowan Way) Brixham
Eden Park	(Dashpers - Knick Knack Lane) Brixham
Greenswood Road	(Rea Barn Road – Castor Road) Brixham
Greenway Road	(Old Road Slip Road - Galmpton Glade) Brixham
Greenway Road	(Churston Close - Dartmouth Road) Brixham
Higher Ranscombe Road	(Rea Barn Close - Great Rea Road) Brixham
Polhearne Way	(Longcroft Drive) Brixham
Belfield Road	(Fernicombe Road - Pimm Road) Paignton
Borough Road	(Totnes Road - Tor Park Road) Paignton
Davies Avenue	(Gibson Road - Davies Avenue Adj 107) Paignton
Fernicombe Road	(Fernicombe Road Adj 64 - Pembroke Road) Paignton
Hayes Road	(Hayes Road Adj 38 - Collingwood Road rear) Paignton
Lynmouth Avenue	(Roselands Drive) Paignton

Pimm Road	(Belfield Road) Paignton
Totnes Road	(Brixham Road – Borough Road) Paignton
Totnes Road	(Collingwood Road – Adj 147) Paignton
Waterleat Road	(Primley Court - Totnes Road) Paignton
Barewell Road	(Shelley Avenue - Barewell Close) Torquay
Barton Hill Road	(Danvers Road - Beechfield Avenue) Torquay
Barton Road	(Valley View Close - St Michaels Road) Torquay
Barton Road	(Woodland Road - Audley Avenue) Torquay
Cedars Road	(Higher Warberry Road - Windsor Road) Torquay
Cricketfield Road	(Teignmouth Road – Barton Road) Torquay
Exe Hill	(Collaton Road - Fowey Avenue) Torquay
Fairfield Road	(Barton Road) Torquay
Hartop Road	(Petitor Road - Cambridge Road) Torquay
Hawkins Avenue	(Upper Cockington Lane - Sherwell Valley Road) Torquay
Ilsham Road	(Babbacombe Road – St Mathias Church Road) Torquay
Moor Lane	(Padacre Road - Steps Lane) Torquay
Old Paignton Road	(Cockington Lane - Roundhill Road) Torquay
Queensway	(Shakespear lose – Fletcher close) Torquay
Quinta Road	(Quinta Road Adj 7 - Windsor Road) Torquay
Reddenhill Road	(St Annes Road - Babbacombe Road) Torquay
Roundhill Road	(Old Paignton Road - Mead Road) Torquay
Shiphay Avenue	(Dairy Hill - Shiphay Lane) Torquay
Shiphay Lane	(Shiphay Avenue - Queensway) Torquay
Shiphay Manor Drive	(Shiphay Lane – Shiphay Lane) Torquay
St James Road	(Barewell Road - Priory Road) Torquay
Steps Lane	(Moor Lane - Brunel Avenue) Torquay
Teignmouth Road	(Combe Lane - Trumlands Road) Torquay

Trumlands Road	(Teignmouth Road - Havelock Road) Torquay
Upton Hill	(Foest Road – Lyimington Road) Torquay
Warbro Road	Reddenhill Road – Windermere Road) Torquay
Westhill Road	(Chatto Road - St Margarets Avenue) Torquay

FOOTWAY SECONDARY SALTING ROUTE

Bolton Street	(Rea Barn Road - New Road) Brixham
Drew Street	(Horsepool Street - Home Close) Brixham
Fore Street	(The Strand - King Street) Brixham
Market Street	(New Road - Middle Street) Brixham
Middle Street	(Market Street - The Strand) Brixham
The Quay	(The Strand - Overgang Road) Brixham
The Strand	(The Quay - Overgang Road) Brixham
Belle Vue Road	(Roundham Road - Cleveland Road) Paignton
Cadwell Road	(Cecil Mews - Woodland Park) Paignton
Church Street	(Winner Street - Palace Place) Paignton
Curledge Street	(Midvale Road - Dawes Court) Paignton
Dartmouth Road	(Cliff Park Road - Barn Road) Paignton
Foxhole Road	(Spencer Road - Fernicombe Road) Paignton
Hyde Road	(Victoria Street - Torquay Road) Paignton
Manor Road	(Torquay Road Rear - Torquay Road) Paignton
Midvale Road	(Midvale Road Adj 12 - Curledge Street) Paignton
Old Torquay Road	(Torquay Road - Preston Down Road) Paignton
Oldway Road	(Kingshurst Drive – Higher Polsham Road) Paignton
Palace Avenue	(Winner Street - Torquay Road) Paignton
Seaway Road	(Eugene Road - Torquay Road) Paignton
Southfield Road	(Blatchcombe Road – entral Avenue)

Torbay Road	Torquay (Esplanade Road - Great Western Road)
Torquay Road	Paignton (Kings Road - Tarroway Road)
Torquay Road	Paignton (Palace Avenue - Church Street)
Upper Manor Road	Paignton (Torquay Road Rear - Torquay Road)
Victoria Street	Paignton (Great Western Road - Hyde Road)
Winner Street	Paignton (Totnes Road - Church Street)
Woodland Park	Paignton (Southfield Road - Woodland Park Barrier)
Abbey Road	Paignton (Fleet Street - Warren Road)
Avenue Road	Torquay (Mill Lane – Bampfylde Road)
Barton Hill Road	Torquay (Clennon Lane - Suncrest Close)
Belgrave Road	Torquay (Falkland Road - Bampfylde Road)
Ellacombe Church Road	Torquay (Victoria Road - Mount Pleasant Road)
Fore Street	Torquay (Manor Road - Petitor Road)
Hele Road	Torquay (Barton Hill Road - Salisbury Avenue)
Laburnum Row	Torquay (Union Street - Tor Hill Road)
Lucius Street	Torquay (Belgrave Road - Tor Church Road)
Market Street	Torquay (Union Street - Potters Hill)
Old Mill Road	Torquay (Sherwell Lane - Mallock Road)
Reddenhill Road	Torquay (Babbacombe Road – St Annes Road)
St Margarets Road	Torquay (St Dominics Close - Fore Street)
The Strand	Torquay (Fleet Street - Clock Tower)
Tor Hill Road	Torquay (Madeira Place - Factory Row)
Torwood Street	Torquay (The Strand - The Terrace)
Union Street	Torquay (Newton Road - Market Street)
Victoria Parade	Torquay (The Strand - Beacon Hill)
Victoria Road	Torquay (Windsor Road - Ellacombe Church Road)
Walnut Road	Torquay (Old Mill Road - Rousdown Road)
	Torquay

Warbro Road

(Devons Road - Aveland Road)
Torquay

15 APPENDIX II

Communication of Winter Maintenance Action - Torbay

<ul style="list-style-type: none"> Forecast received on PC between 1230 and 1330 hours 				
Weekday <ul style="list-style-type: none"> Maintenance Team recommends action, and timing of action, by 1500 hours. 	Weekend <ul style="list-style-type: none"> The Maintenance Team contact provides recommended actions and timing of action, for each route to the contractor by 1500 hours. 			
<ul style="list-style-type: none"> The Maintenance Team monitors conditions/forecast updates and informs the contractor of significant changes which may effect actions. 				
Planned Action / Client EMI <ul style="list-style-type: none"> Monitoring will be undertaken by the Highways Group with particular reference to precipitation. Highways Group contact checks conditions prior to the start action by the contractor or the EMI. Amending the contractors action by verbal instruction as necessary. EMI's will be undertaken along agreed routes Following a client EMI the Inspectors will confirm the result of the inspection to the contractor and instruct them if any action is required. 	Maintenance Team monitoring criteria when No Action' ordered <ul style="list-style-type: none"> Maintenance Team monitor road conditions If road temperatures drop below +0.5 degrees C (or are dropping rapidly to +0.5 degrees C) Is there adequate residual salt ? 			
	<table border="1"> <tr> <td style="text-align: center;">Yes</td> <td style="text-align: center;">No / Unsure</td> </tr> <tr> <td>The Highways Group to monitor conditions.</td> <td> Is the sensor showing absorption or wet frost and/or is precipitation shown on the weather report ? NO- The Highways Group to monitor conditions and call the contractor if there is reason for concern. e.g. hoar frost. YES-The Highways Group to call the contractor. Action will normally be required under these conditions. </td> </tr> </table>	Yes	No / Unsure	The Highways Group to monitor conditions.
Yes	No / Unsure			
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In the event of computer failure the Highways Group will Fax forecasts to the contractor by 1600 hours with agreed actions.