

Environment and Economy Directorate

COUNTY HIGHWAYS

2009 – GUIDE TO HIGHWAY POLICY DETAILS & SERVICE LEVELS



SECTION 01 – INTRODUCTION

1.0 Who are we and what do we do

County Highways is a partnership bringing together Warwickshire County Council and Carillion plc as a single team delivering high standards in maintaining and improving Warwickshire's highway network. The focus is on outcomes and a shared performance culture is improving efficiency, service quality and budget management.

We look after more than;

- 3800 kilometres of road
- 48,000 street lights
- 7,200 lit signs & bollards
- 93,000 drainage gullies
- 5,500 kilometres of highway verges

In a typical year we:

- Strengthen 20-30 kilometres of carriageway
- Surface dress 180-200 kilometres of carriageway
- Empty 85,000 gullies
- Respond to 40,000 public contacts
- Repair some 10-14,000 road and footway defects
- Carry out 40,000 square metres of patching
- Undertake 2-300 drainage repairs
- Attend 2,000 highway emergencies
- Carry out winter gritting 40-70 times

All of the above activities are part of providing a year round 24/7 service for the benefit of all residents and highway users.

How to Contact Us

- ✉ County Highways
Old Budbrooke Road
Warwick
CV35 7DP
- ☎ County Highways Call Centre – 01926 412515
- 🌐 Warwickshire Web Site – www.warwickshire.gov.uk/roads
- ✉ countyhighways@warwickshire.gov.uk
- ☎ Street Lighting Faults – 01926 736547
- ✉ streetlighting@warwickshire.gov.uk
- 📱 Text Street Lighting – send text to 07950 081082

1.1 Purpose of Our Services

The main objectives of highway maintenance are:-

- To keep the highway network, carriageway and footways, free from dangerous defects and safe for all road users.
- To maintain and improve the condition (asset value) of the highway network.
- To improve public satisfaction with the highway network.

The highway maintenance policies and service levels are designed to achieve these objectives which cover the Council's Statutory Duties and support the Corporate Priorities including working in Partnership to put Customers First, Pursuing a Sustainable Environment and Economy and Protecting the Community and making it a safer place to live.

This guide also gives links as appropriate to other related documents published on the Council's website.

1.2 Warwickshire County Council Highway Maintenance Policy

The services provided by County Highways aim to maximize partnership working and put customers first as resources and priorities dictate. Seasonal weather and dealing with wide scale emergencies, such as flooding, can impact on the "non urgent" activities. The authority has certain legal obligations with which it needs to comply, and which, on occasion, are the subject of claims or legal action by those seeking to establish non-compliance by the authority. It has been recognised that, in such cases, the contents of "Well Maintained Highways", the Code of Practice for highway Maintenance Management¹, may be considered to be a relevant consideration. In these circumstances, where this authority has elected, in the light of local circumstances, to adopt policies, procedures or standards differing from those suggested by the Code, they will be identified, together with the reasoning for such differences.

The national Code is based on the assumption that available funding for highway maintenance will provide some flexibility for authorities to pursue a regime of assessment and rational planning of programmes and priorities. Where this is not the case, this Council will give precedence to its statutory obligations for network safety.

1.3 Partnerships

To achieve its highway maintenance objectives the County Council needs to work with others including :-

- the Highways Agency, which is responsible for managing the national highway network (parts of the M69, A45, M45, A5, M6, M6 Toll, M40, A46 & M42);
- adjacent local highway authorities to ensure that appropriate continuity is achieved across administrative borders.

- the police authority, both on the implementation and enforcement of traffic management proposals;
- various utility companies to coordinate water, energy and communications infrastructure works;
- Severn Trent Water plc and the Environment Agency in addressing flood mitigation and resilience measures;
- Its term contractor Carillion plc and other contractors and agents that the County Council employs on highway network management activities(including district/borough councils);
- The Warwickshire Freight Quality Partnership in order to reduce the inappropriate use of rural roads by heavy goods vehicles.

1.4 Review

This document will be reviewed from time to time, as necessitated by changing legislation and best practice.

This document is also published on the Council's website

<http://warwickshire.gov.uk/>

SECTION 02 – SERVICE LEVELS

2.0 Service Levels

The following are the levels of service currently applicable within the Council's Highway Maintenance Policies.

2.1 ROADS & PAVEMENTS

Inspections and Repair of Carriageway and Footway Defects

The County Council will carry out safety inspections of the highway at regular intervals in accordance with the County Highways – Highway Maintenance Safety Inspections Manual⁶.

The County Council will make defects safe and/or repair them in accordance with the County Highways – Highway Maintenance Safety Inspections Manual.

The general service levels for activities are tabulated in Appendix 1.

Structural Maintenance

General

The County Council will seek to optimise expenditure on routine maintenance activities and structural maintenance so as to improve the integrity, asset value and residual life of the highway network.

Programme

The County Council will prepare an annual structural maintenance programme based on identified need and the "County Surfacing and Structural Maintenance Policy"⁷, in order to preserve the structural integrity of the highway road network. This programme will be reported annually to the Council's Area Committees.

The County Council follow a 'whole life' asset management approach in prioritising its rolling five year programme of maintenance works

Surfacing

The surfacing policy covers the construction, structural maintenance and resurfacing of the highway network together with footways, cycleways and cycle paths and associated untrafficked but surfaced areas. Construction includes the whole range from a simple right turn lane to major works such as Barford Bypass and Rugby Western Relief Road. It also includes the required construction for Developments where the authority will adopt the highway.

The main guiding principles are:

- To have minimum environmental impact
- To have appropriate and balanced levels of safety to minimise casualties

- The minimisation of hazards during installation and maintenance
- To maximise the durability of the pavement structure
- To develop sustainable solutions and maximise waste recycling

The latest revision, published in 2009 has brought it up to date with respect to the large number of recent changes to British and European standards. Recycling is given more prominence.

Surface Dressing

WCC carries out surface dressing where appropriate to treat surface deterioration, to improve skid resistance and to seal the surface to prevent water penetrating and softening the foundation. It is a cost effective method of increasing the life of a road.

Town Centres

- The County Council will maintain Town Centres in accordance with “County Highways Maintenance – Procedures – 2008”¹⁴
- The County Council will endeavour where possible to facilitate access for the mobility impaired within town centres

2.2 DRAINAGE & FLOODING

The object of highway drainage is threefold. Firstly to remove surface water from the carriageway and footway as quickly as possible under normal weather conditions. Secondly to maintain the integrity of the carriageway and footway structure.

Highway drainage also contributes to reducing flooding of adjacent properties.

Gullies

The County Council will cleanse gullies on the highway network at frequencies appropriate to their location. All gullies will be cleaned every two years. Some 80,000 gullies out of a stock of 93,000 are cleaned annually as part of a “variable frequency” programme. Certain gully locations warrant more than biennial cleaning, whilst other locations require a two year cleaning cycle.

Drainage Network & Flooding

The County Council will compile and maintain a detailed inventory of the highway drainage network between 2009-11.
The County Council will undertake enforcement action as appropriate with our drainage partners to address specific issues as they arise.

2.3 LANDSCAPE & TREES

Grass Cutting

WCC

Verges will be cut to a one metre swathe width plus visibility areas along verges, centre reserves and either side of footways on all County roads three times a year. Additional cuts can be sanctioned in locations where sight lines, signs or safety would be compromised.

District, Borough, Town and Parish Councils

Within urban area the District, Borough, Town and Parish councils carry out amenity standards on highway verges. The number of cuts reflects individual budget, contract and policy arrangements.

Where a District, Borough, Town or Parish Council wish to take over the responsibility for maintaining verges in built up areas they may do so subject to an agreement being drawn up between the two parties. The standards of maintenance shall be to no less than the current County Council's specification, and the work will be carried out in compliance with the current safety legislation. Reimbursement will be on the basis of the verge area that would have been cut in meeting the County Council's mowing policy, multiplied by the agreed frequency, at the current years' competitive rates.

Weeds

WCC will treat injurious weeds, such as ragwort, with herbicide, following the Code of Practice, where they are present on highway land. WCC will react to areas of infestation identified through its own highway maintenance cyclical inspections and complaints received.

An annual programme of chemical spraying, conforming to the Control of Pesticides Regulations, is carried out on kerbed carriageway channels and on urban footways. Two sprays per season have been adopted since 2006.

Siding

Siding, the trimming of verges alongside footways, is carried out on an "as needs basis" to ensure footway integrity and safe passage for pedestrians.

Hedges

Hedges that are the responsibility of the County Council will be trimmed 'on an as needs basis'.

The County Council will take steps to ensure that hedges overhanging the highway are cut back.

Trees

Tree maintenance shall be carried out in accordance with the principles of best arboricultural practice.

Inspections of trees will be undertaken on a cyclic basis.

The County Council will take steps to ensure that trees in private ownership which are overhanging or endangering the highway are cut back or made safe.

Safety

Fences

The County Council will maintain safety fences to Highway Agency specifications.

Graffiti

Action will be taken to remove Graffiti from highway bridges and street furniture, where it is deemed offensive, following a public complaint or where it is deemed to present a safety hazard to the highway user.

2.4 SIGNS & LINES

Road Signs

The County Council will maintain signs in accordance with the Traffic Signs Regulations and replace when necessary through damage or dilapidation. Cleaning of signs will be carried out in order to maintain their function.

Passively safe signposts(PSS) will be used as a replacement only on principal roads unless there are exceptional grounds for their use elsewhere. PSS will only be used where the replacement of the post is necessary due to damage or a major change to the size of plate.

Road Markings

We shall consider the need for, and compliance with current regulations on road markings before renewing or replacing them after surface dressing or structural maintenance schemes. Mandatory markings will be prioritised for replacement when they present an urgent or imminent hazard to road users.

2.5 STREET LIGHTING & ILLUMINATED SIGNS

Operation

The County Council will maintain street lighting so that a minimum of 98.5% of all lights are operating correctly at any one time.

Repairs

The County Council will carry out repairs, where possible ,within the following timetable:-

- Emergency damage e.g. traffic accidents or vandalism. Make safe within 1 hour. Replace columns within 1 month
- Routine e.g. light out or on in daylight. Within 5* working days. * where it is necessary to obtain replacement columns or lanterns and reconnect cables this may take up to 2 months.
- Underground cable fault
 - WCC cable 2 weeks
 - Central Networks cable 4 weeks.

Cleaning & Changing lamps

The County Council will clean and change all lamps on a 4 year cycle, as introduced in 2009. Developments in lighting units have allowed this increase from the former three year cycle.

Lighting Improvements

The County Council will increase lighting levels if funding is available for:-

- The installation of CCTV cameras
- Crime Reduction
- Accident Reduction

Footway Lighting

- The County Council will allow the infilling/ improvement of footway lighting systems currently maintained by the District, Town and Parish Councils, so as to qualify as road lighting systems. The County Council will only adopt these systems, after infilling, if they are in an acceptable maintenance condition and meet current design and safety standards.
- The County Council is willing to act as the Agent/Contractor to District, Town and Parish Councils in respect of their footway lighting.

New Developments

- The County Council will ensure that developers provide high quality and energy efficient road or footway lighting on new developments where it is the Lighting Authority.

Road Improvements

- The County Council will provide road lighting on all new highway improvements where required for highway safety reasons.

Decorative Lighting

- Where funding has been identified, the County Council will consider the installation of appropriate decorative columns and lanterns in town and village centres.

Unadopted Lights

- In the absence of knowledge of the landowners the County Council continue to maintain those lights currently maintained on unadopted land, but no additional lights will be provided in these circumstances.

Energy

- The County Council will seek to reduce the amount of energy used within the street lighting stock by the use of energy saving bulbs, dimming and timer units.

Illuminated Signs

- The County Council will, where permitted and funding is available :-
 - Remove lights from signs
 - Replace illuminated bollards with solar powered installations
 - Replace Belisha beacons with LED units
 - Replace sign lights with photo-cell controlled LED units.
 - Remove pedestrian refuge indicators, “hat pins”, or if unable, replace them with LED units.

Hanging Baskets & Banners

- The County Council will only permit the attachment of hanging baskets, signs, banners or other fixings to street lighting columns if:-
 - Prior written consent has been obtained.
 - The columns have been assessed for their structural strength by the Street Lighting Group.

2.6 TRAFFIC MOVEMENT

Road Space Management

In order to minimise the delay or disruption to users of the highway network, the County Council will seek to co-ordinate all works that are undertaken on the public highway. Where maintenance activity is likely to cause delays to traffic, where practicable such works will be carried out when traffic flows are lighter, such as outside peak times, at weekends or at night,.

Heavy Goods Vehicles and Weight Limits

The County Council works with the Warwickshire Freight Quality Partnership in order to reduce the inappropriate use of rural roads by heavy goods vehicles. Details of weight and height restrictions are available on the web site. For further details please contact the Traffic Projects Group. Tel: 01926 412809 Web: [HGV Routing and Weight Limits - Warwickshire Web](#)

2.7 LEGAL & ILLEGAL OBSTRUCTIONS

Obstructions

Obstructions of the highway can take a number of forms e.g. fences, walls, rocks, 'A' boards, signs etc. Those which cause a hazard will be removed. Some less hazardous obstructions, such as trees or tables outside restaurants, may be allowed by permit or licence. See "County Highways Maintenance – Procedures – 2008" ¹⁴. See also Code of Practice for Controlling 'A' Boards... - Appendix 2.

Hazardous Obstructions

Where an obstruction constitutes a safety hazard to highway users it will be removed and further enforcement action may be taken.

Trees & Shrubs

Permission may be granted by WCC to individuals or community groups subject to conditions. Permission should be sought from the North or South County Highways Area Office.

Floral Tributes & Memorials

Whilst we sympathise with bereaved families, floral tributes will only be permitted to remain for a maximum of 30 days (if there is no adverse effect on road safety) and will then be removed.

Site visits by mourners should be arranged in conjunction with the Police Family Liaison Officer.

Permanent memorials will not be permitted within the highway boundary.

Signs

Signs will only be permitted which conform to the County Council's "Temporary and Tourist Signs Policy".

Where a sign constitutes a safety hazard to highway users it will be removed to a highway depot for collection by the owner.

Signs showing the names of sponsors may be permitted subject to conditions. (e.g. for "Britain in Bloom")

Commercial advertising signs will not be permitted.

Skips, Scaffolding and Hoardings

Skip and Scaffold licences will be granted subject to the conditions contained the Highways Act 1980.

Vehicular Accesses

WCC will permit the construction of vehicular accesses (subject to the granting of planning permission where required). Footway crossings should also conform to the guidelines given in Warwickshire's "Road Design Guide" and "County Surfacing and Structural Maintenance Policy – 2009".

Fly Posting & Fly Tipping

Where fly posting or fly tipping constitutes a safety hazard to highway users it will be removed.

Gypsies & Travellers

Removal of gypsies and travellers from the highway will be carried out in accordance with WCC's " Unauthorised Encampment Protocol for Gypsies and Travellers"¹³.

2.8 Public Contact

The County Council will deal with all public contact on highway maintenance in accordance with its "Customer Standards Charter" and "Comment, Compliment and Complaints Procedure".

With some 40,000 public call each year to County Highways, enquiries are handled at a central call centre. Details are logged onto an electronic Public Enquiry Management system (PEM) so that queries can be effectively managed.

2.8 WINTER SERVICE

Precautionary Gritting

The County Council grits some 46% of its 3800 kilometre long highway network . All roads cannot be treated due to budget, gritting vehicle size and mobilisation time.

The County Council will carry out precautionary gritting – when the formation of ice is predicted, it is the County Councils policy to pre-grit ;

- All A roads, most B roads and some strategic routes,
- in addition in urban areas the accesses to hospitals and main industrial estates
- a single route into all villages.
- A leaflet showing the routes is published annually and the routes are also shown on the web. [Winter Maintenance - Warwickshire Web](#)

Gritting/salting of footways & cycle-ways

During periods of severe weather persistent wide spread ice (rather than frost) for more than 18 hours in a 24 hr period and forecast not to rise above zero for 18 hours , footways and cycle-ways subject to the highest usage will be gritted, during daylight hours, subject to the availability of resources.

Snow clearance

- Resources will be targeted to restore the network to full use in the quickest possible time.
- When snow falls are heavy strategic link routes will be made accessible across the network first.
- The roads receiving precautionary gritting will be cleared next as soon as resources allow.
- Footways and cycle-ways will also be cleared where there is a considerable pedestrian usage.

Salt Bins

- Salt bins in rural areas provided by Parish Councils will be replenished with salt. Salt heaps are no longer provided for environmental reasons.

3.0 POLICIES

These policies are defined within the Highway Maintenance Strategy (HMS) contained within Annex 2 of the Warwickshire Local Transport Plan 2006-[2006-2011 LTP Annex 2 - Introduction - Warwickshire Web](#) 2011 and should be read in conjunction with the authority's Transport Asset Management Plan (TAMP)².

[Transport Asset Management Plan \(TAMP\) - Warwickshire Web](#)

THE FOLLOWING POLICIES, CONTAINED WITHIN THE HIGHWAY MAINTENANCE STRATEGY, HAVE BEEN UPDATED WHERE APPROPRIATE

The County Council will :-

- aim to take account of all highway network users within its highway maintenance services.
- continue to use a variety of methods to ensure that the highway network is maintained in the most appropriate and economic way.
- work with local quarries and the construction industry to identify the most appropriate highway construction materials, and to recycle materials on site where possible.
- continue to apply the principles of value for money in all its highway maintenance services, and will seek to achieve and maintain the best rating for the Authority.
- as part of the development of the Warwickshire Transport Asset Management Plan (TAMP), review its maintenance policy in order to identify where further improvements can be made, particularly in achieving value for money.
- undertake regular customer satisfaction surveys to help understand the needs of residents and other road users. Satisfaction surveys will be carried out after maintenance work has been undertaken to identify any unresolved problems.
- through improvements to the quality and condition of pavements, carriageways and street furniture, aim to meet the targets which it has set for improving the Streetscape Index for all town centres in Warwickshire.
- aim to undertake all of its highway maintenance work within the context of the principles of sustainability and environmental protection.
- work in partnership with its highway maintenance contractor (Carillion plc) to achieve continuous improvement in all highway maintenance activities. In conjunction with the highway maintenance contractor the County Council will regularly review its service levels and identify improvements to the delivery of the service.
- use benchmarking with other local authorities and the Highways Agency to identify best value/practice in utilising highway maintenance resources.
- continue to regularly review the condition of all footways (particularly those with a significant daily or weekly footfall), and undertake maintenance work on those whose condition is likely to cause safety or usage problems.
- continue to consider the needs of cyclists when planning and carrying out maintenance procedures.
- During the winter months, treat selected parts of the highway network to prevent the formation of ice, and hence reduce the likelihood and/or severity of casualties resulting from adverse weather conditions.
- repair all potholes in carriageways, carriageway edges, footways and cycleways that are felt to be a danger to the travelling public. As part of the

preparation of the Warwickshire Transport Asset Management Plan, the County Council will review its patching decision process to ensure that patching is only carried where it is the most effective maintenance treatment.

- empty all drainage gullies at least once over a two year period. Drainage improvements and/or repairs will be treated on a priority basis within the context of potential danger arising from possible flooding.
- undertake grass cutting to maintain visibility and to help provide a useable verge for all non-motorised users.
- keep all signs and lines maintained in a safe condition, visible during the day and at night, and free from graffiti. Periodic reviews of all signage will be undertaken to identify where it is no longer serving a useful purpose and where it should be renewed. Damaged or stolen signs will be replaced where they are still required.
- continue to operate its Highway Maintenance call centre to ensure that all contact with the general public is dealt with efficiently and effectively. * in 2006 the County Highways call centre was incorporated in the corporate call centre.
- work with the Police, District/Borough Councils and Parish Councils to maintain the network of street lighting across Warwickshire, in order to ensure the safety of the travelling public and to reduce crime and the fear of crime.
- maintain the highway network in a safe condition for all types of road user. In line with the Road Safety Strategy for Warwickshire, the County Council will, where appropriate, use maintenance works and improvements to help achieve casualty reduction targets on specific parts of the highway network in Warwickshire.

Appendix 1 – Warwickshire Highways - Service Standards

Table 1

Service Area	Service	Standard
Roads & Pavements	Inspections A Roads B Roads C Roads D Roads	6 weeks 12 weeks 24 weeks 48 weeks
	Defect Repairs Cat 1 e.g. 100mm deep pothole Cat 2 e.g. kerb missing	Make safe/repair within 24 hours Repair within 28 days
Drainage & Flooding	Gully Emptying	Minimum once every 2 years
Landscape & Trees	Grass Cutting (i) WCC Rural Areas (ii) District & Borough Urban Areas	1m swathe 3 times per year 1m swathe 6 times per year
	Weeds	Annual spraying programme on kerbed carriageway channels & urban footways. Annual ragwort treatment programme.
	Siding	As necessary to provide safe passage to road users
	Hedges (i) WCC (ii) Private	As necessary to provide safe passage to road users Owner's responsibility. Enforcement as appropriate
	Trees (i) Inspection - WCC Trees (ii) Private Trees	Inspected on 3 year cycle by WCC or district council Owner's responsibility. Enforcement as appropriate
	Fences	Safety barriers maintained to national specification
Signs & Lines	Road Signs	Replacement & cleansing as necessary within budget constraints
	Road Markings	Replacement as necessary within budget constraints
Service Area	Service	Standard

Street Lighting	Operation	A minimum of 98.5% of all lights operating at any one time
	Repairs	
	(i) Emergency Damage	Make safe within 1 hour; Replace column within 1 month
	(ii) Routine Fault	Repair within 5 working days
	(iii) Cable Fault	Repair within 2-4 weeks
	(iv) Cleaning & Changing Lamps	4 year cycle
Legal & Illegal Obstructions	Obstructions	Obstructions presenting a hazard to highway users will be removed
	Trees & Shrubs	Trees may be planted in the highway subject to conditional approval
	Floral Tributes/Memorials	Floral tributes may remain for up to 30 days. Permanent memorials will not be permitted
	Signs	Signs presenting a hazard to highway users will be removed Advertising signs will not be permitted
	Skips, Scaffolds & Hoardings	Permitted subject to conditions
	Vehicle Accesses	Permitted subject to conditions and planning consent where required.
	Fly Posting & Tipping	Anything presenting a hazard to highway users will be removed
Public Contact	Letters	Reply within 5 working days
	Telephone Calls	Answer within 5 rings
	Emails	Acknowledge within 1 working days
Winter Service	Precautionary Gritting	The following roads will be gritted when frost is forecast:- All A & B class roads Roads serving hospitals and main industrial estates A single route to each village
	Footway Gritting	Footways may be gritted during periods of prolonged frosty weather
	Snow	Resources will be targeted to restore the network as quickly as possible
	Salt Bins	Bins provided by Parish Councils will be refilled as resources permit

Appendix 2

References

1. **Well-maintained Highways** Code of Practice Highway Maintenance Management, TSO 2005
2. **Warwickshire Transport Asset Management Plan**, EE, WCC, 2008.
3. **Design Manual for Roads and Bridges**, Highways Agency, Current Edition – TSO
4. **Highways Act 1980** – TSO
5. **Warwickshire Local Transport Plan 2006-2011, Annex 2 – Highway Maintenance Strategy**, EE, WCC
6. **County Highways – Highway Maintenance Safety Inspections Manual – 2003**, PT & ES, WCC.
7. **County Surfacing and Structural Maintenance Policy – 2009**, EE, WCC.
8. **County Testing Policy – 2006**, PT & ES, WCC
9. **County Highways Skidding Resistance Testing Strategy – 2006**, PT & ES, WCC
10. **The Traffic Signs Regulations and General Directions 2002**, TSO
11. **Well-lit Roads – Code of Practice for Highway Lighting Management**, UK Lighting Board, November 2004.
12. **Highway Maintenance – Guidance Note - Local Authority provided enhancements and sponsorship signing – 2006**, EE, WCC
13. **Unauthorised Encampment Protocol for Gypsies and Travellers**, EE, WCC
14. **County Highways Maintenance – Procedures**, EE, WCC

Web Documents

1. Code of Practice for Controlling 'A' Boards and Displays of Goods on the Highway Pavements in Warwickshire [http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/B4C7B9F32BD5D7EC80256C46003C67C7/\\$file/A+Boards+and+Displays+of+Goods+on+Pavements.pdf](http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/B4C7B9F32BD5D7EC80256C46003C67C7/$file/A+Boards+and+Displays+of+Goods+on+Pavements.pdf)
2. Farming and the Public Highway. [http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/B4C7B9F32BD5D7EC80256C46003C67C7/\\$file/Farming+and+the+Public+Highway.pdf](http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/B4C7B9F32BD5D7EC80256C46003C67C7/$file/Farming+and+the+Public+Highway.pdf)
3. Essential Guide to Highway Terms.
4. Gritting Routes. [Map Page](#)