



ROAD MAINTENANCE OPERATIONS (VEHICLES AND PLANT)

Report by Chief Officer, Assets and Infrastructure

PURPOSE

- 1.1 The purpose of the Report is to seek Comhairle approval for the procurement of new and replacement plant items to facilitate efficient delivery of both winter and road maintenance activities within timescales and finance provisions as determined by the Chief Officer, Assets and Infrastructure.

EXECUTIVE SUMMARY

- 2.1 The Roads Trading Operation (TO) undertakes a variety of maintenance operations which require reliable vehicles and plant to ensure efficient service delivery. Most of this equipment has been in the Comhairle's ownership for many years and its condition is rapidly deteriorating due to the demanding conditions in which they operate. They are therefore in need of replacement.
- 2.2 Multi-use, demountable vehicles are currently used in the delivery of the Comhairle's Roads maintenance service including Surface Dressing works, Velocity road patching and winter gritting. It is essential that these services operate a reliable fleet of vehicles. As has been noted, several vehicles are approaching the end of their useful life. Due to the changing nature of road surface maintenance activities, it is proposed to expand to demountable options to include a hotbox body to reduce hire costs currently being incurred.
- 2.3 Surface Dressing operations require specialist stand-alone equipment as well as some demountable vehicles which combine Surface Dressing and winter maintenance gritters. The current equipment is at the end of its useful life and requires replacement within the next two years. The Comhairle approved investment for replacement winter maintenance vehicles in June 2022 which will finance the winter maintenance vehicles detailed in this Report. Additional investment will be required to fund the replacement of the Roads and Surface Dressing vehicles and plant detailed in the Report.
- 2.4 New multi-use vehicle chassis' and demount bodies can be procured using the Scotland Excel Heavy Vehicle Framework. A breakdown of costs and is included in the Report, the annual borrowing costs will be split between Roads and Winter Maintenance revenue budgets where appropriate to service use.

RECOMMENDATIONS

- 3.1 It is recommended that the Comhairle:
 - (a) authorise the Chief Officer, Assets and Infrastructure, in consultation with the Chief Finance Officer, to develop and implement the most appropriate procurement options, timescales and financing options for the replacement of the roads maintenance fleet;
 - (b) in relation to (a) above approves the utilisation of prudential borrowing of £55k per annum over five years, funded from the roads maintenance budget, for general roads maintenance plant; and
 - (c) in relation to (a) above approves the utilisation of prudential borrowing of £90k per annum over ten years, funded from the roads maintenance budget, for replacement surface dressing plant and equipment.

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Appendix: Photos – Demountable Jet Patcher/Gritter
Background Papers: None

IMPLICATIONS

4.1 The following implications are applicable in terms of the Report.

Resource Implications	Implications/None
Financial	Resource required to renew and upgrade essential vehicles and plant required to deliver gritting and road maintenance operations and ensure continuity of service. Prudential borrowing costs to be met via the Roads Maintenance budget.
Legal	None
Staffing	None
Assets and Property	Planned replacement of existing assets.
Strategic Implications	Implications/None
Risk	Further use of older vehicles likely to result in future breakdowns and increased repair costs and hire in charges. Added impact on Garage services leading to further delays in delivering front line service. With insufficient budget, over reliance on traditional repair arrangements (overlay) will likely result in increased deterioration rates across the network.
Equalities	None
Corporate Strategy	“Prioritise investment in Comhairle buildings and infrastructure maximising effectiveness of available internal and external funding sources” under the main theme of “Strengthen the Local Economy”
Environmental Impact	Roadmender system significantly reduces carbon footprint of the operation compared to traditional repair techniques.
Consultation	

BACKGROUND

- 5.1 In-house Roads and Winter Maintenance duties are delivered by the Roads Maintenance Team, these services rely on reliable vehicles and plant to maintain continuity of service in a harsh environment. There is a dynamic fleet replacement position within the service. This allows for gritting and road maintenance vehicles and plant to be assessed and renewed every six to seven years.
- 5.2 The Comhairle operates three distinct in-house maintenance areas; Lewis, Harris and Uist/Barra. The plant and vehicle assets currently utilised by the Roads Maintenance Team have been developed over the years to enable cost effective reactive carriageway repairs and maintenance to be carried out. Larger, planned repairs (annual capital overlay programmes) have historically been carried out through the procurement of external contractors under “supply and lay” contracts.
- 5.3 The Report to the Transportation and Infrastructure Committee in June 2023 highlighted the current challenges facing the delivery of carriageway surfacing repairs in the Western Isles, which include:
- Reduced capital and revenue budgets;
 - Reduced asphalt availability from single tar plant in Lewis;
 - Increased material costs;
 - Increased plant hire costs; and
 - Ageing in-house plant.

- 5.4 As detailed in the June 2023 Report, focussing the bulk of the reduced capital budget solely on overlay repairs would expose too much of the network to increased risk of accelerating deterioration. The challenges also highlighted the need for flexibility in the way carriageway repairs are undertaken. To make best use of the limited budgets available to maintain the network, the following alternative repair techniques will have been employed across the network.
- Road Mender Patching;
 - Planned Hotbox Patching;
 - Minor Overlay Patching;
 - Edge Patching (plane out and resurface); and
 - Pre-surface Dressing Patching.
- 5.5 Roads that have deteriorated to a point where these methods are not suitable will be prioritised for full resurfacing, financed through a separate capital allocation.

DETAIL

- 6.1 A review of the current years carriageway maintenance activities and plant has been undertaken to identify opportunities to improve the effectiveness of the service under the current staffing and budgetary constraints. The three main carriageway maintenance activities (Resurfacing/Patching, Surface Dressing and Winter Maintenance) have always required access to specialist equipment whether hired or purchased. Most of the in-house plant currently in use is reaching the end of its serviceable life, to continue delivering these maintenance activities it will be necessary to replace these items. Preferred options for replacement are detailed in the following section of the Report. Due to the seasonal nature of the different activities, where possible, multi-use demountable vehicles have been specified to ensure that maximum year round use can be achieved from a single chassis.
- 6.2 Since 2010 the Roads Team in Lewis has operated a multi-use Velocity patcher for repairing road settlement and potholes during the Spring and Summer months. The same vehicle also has a second body which is used as a gritter during the winter months to assist with the delivery of the Stornoway and Point Winter Maintenance service. As a specialist vehicle the Comhairle have kept this in service for an extended period to maximise use, but the chassis has now reached the end of its serviceable life. This leaves the service without a spare gritter for Lewis and Harris and also without a patcher for use on repairs where bagged or hot tar is not appropriate.
- 6.3 The Roads Team purchased a Roadmender system in December 2022. The trailer mounted system produces a hot applied, wet processed, rubber-modified mastic asphalt which is specially designed for fast, cost effective, permanent repairs to shallow defects in either asphalt or concrete roads and footways. This system has been used in numerous locations through Lewis, Harris and Uist. The resultant repairs have proved to be a hard wearing and effective at treating rutting, fretting and cracking in the carriageway surface. The current system is fuelled by bottled gas which requires more maintenance than the newer diesel-powered system. The diesel system also removes a number of hazards associated with working with bottled gas, such as propane gas availability and gas servicing of current trailer.
- 6.4 For medium sized patching operations that require hot tar, the Roads Team have to hire in hotbox lorries to transport the material. The hire costs for a large 8T hotbox is £600-700 per day and a small trailer hotbox is £170 per day.
- 6.5 Due to the lack of a local tar plant in Uist or Barra and the logistical difficulties involved in transporting hot tar between the islands, the Roads Team have been making pothole repairs using hand mix chip and bitumen, the bitumen being stored in bulk in a cartem at Market Stance. The cartem is now past its useable life.

Proposals

- 6.6 The use of demountable quick change chassis arrangement has proved a useful addition to the road and winter maintenance operation over many years by ensuring maximum use is made of the equipment throughout the year. It is proposed to replace the existing Velocity/Gritter combo with new Velocity/Hotbox(6T)/Gritter combo on a single quick change chassis. This combination of demountable bodies would maximise year-round use and significantly reduce hire costs currently being incurred during carriageway repairs. This arrangement would also allow hot bitmac to be sent to Uist and Barra for in-house patching works from Highland Council's quarry in Sconser, Skye or Breedon's Marybank Quarry.
- 6.7 In addition to the demountable 6T hotbox it would be an option to procure a smaller towable 2.5T hotbox for area minor patching works. This would reduce current hire costs, eliminate wastage and would be particularly useful for patching in remoter locations such as Harris and Uig. Other benefits include the ability to preheat bagged cold lay tar for improved emergency repairs when hot tar is not available as well as enabling adhoc loads of hot tar to be sent to Uist roads team via the ferry.
- 6.8 It is proposed to purchase an additional roadmender unit to be located in Uist this will remove the need to replace the existing Cartem which has reached its end of useful life. The existing Roadmender unit operating in Lewis and Harris has worked most of the year round, except on very wet days, and the quality of repair produced has received widespread approval from both in house and external operatives. The option of trading in the gas powered unit for a diesel powered replacement is currently being considered, if an acceptable trade in price can be secured then the diesel option would provide reduced running costs and increased reliability.
- 6.9 The Harris Roads Team has recently recruited two Apprentice Road Workers. One long serving Road Operative is due to retire this summer which will leave a team of four Operatives in Harris. The most efficient way to operate will be two teams of two operatives, which requires two vehicles to cover roads and winter maintenance duties. The Harris operation currently has to hire a second vehicle at a cost of £900 per month. It is proposed to purchase an additional Pickup vehicle for the Harris operation to enable effective delivery of the service and reduce hire costs.

Costs

- 6.10 The following table provides a breakdown of likely costs of the proposed plant and vehicle requirements. Prudential borrowing costs to be met via the Winter Maintenance Budget and also the Roads Maintenance budget for any multi use vehicles.

Item	Road Maintenance Equipment	Purchase Price (£)	Roads Cost (£)	Winter Cost (£)	Current Hire Cost (£)
1	Demountable Velocity Patcher/Hotbox/Gritter :				
	DAF CHASSIS	64,000	32000	32000	
	Econ QCB System	38,000	19000	19000	
	Econ 6cum Gritter Body	27,000		27,000	
	Econ Hotbox body	40,000	40,000		700/day
	Velocity Body	80,000	80,000		
2	Towable 2.5T Hotbox	20,000	20,000		170/day
3	Roadmender – Diesel Powered	35,000	35,000		
4	Pick Up	30,000	15,000	15,000	900/month
	Total Cost	334,000	241,000	93,000	

6.11 The annual prudential borrowing repayments for the above costs would be in the region of £54,000 for roads and £21,000 for winter over a five-year period. Current annual pick up and hotbox hire costs are in the region of £62,000 per annum.

6.12 Another critical element of road maintenance is the delivery of surface dressing treatment operations. This treatment not only extends the lifespan of the carriageway surface by preventing ingress of water through the road structure but also improves the road's safety characteristics through increased skid resistance. Surface dressing operations are delivered using a combination of in-house and hired plant. Much of the in-house plant is of a specialized nature and has been in service for many years and will require replacement over the next two to three years in order to maintain the delivery of this vital operation. Again, where possible demountable vehicles have been used to ensure that maximum use is made of the chassis all year round. It should be noted that the vehicles required are built to order with lead times between order and delivery are expected to be between eighteen and twenty four months.

6.13 The following table provides a breakdown of the estimated replacement costs of the surface dressing vehicles.

Item	Surface Dressing Equipment	Current Vehicle Age (years)	Est. Remaining Service (years)	Replacement Cost (£)	Roads Cost (£)	Winter Cost (£)	Current Hire Cost (£)
1	Chipper	16	1-2	300,000	300,000		
2	Demountable Sprayer/Gritter:	16	1-2				
	CHASSIS			90,000	45,000	45,000	
	Econ QCB System			40,000	20,000	20,000	
	Econ 9cum Gritter Body			35,000		35,000	
	Sprayer body			150,000	150,000		
3	Roller	16	3-5	100,000	100,000		
4	Demountable Tipper Lorry (10T)/Gritter :	9	2-3				
	CHASSIS			64,000	32,000	32,000	
	Econ QCB System			38,000	19,000	19,000	
	Econ 6cum Gritter Body			27,000		27,000	
	10T Tipper body			27,000	27,000		
			Total Cost	871,000	693,000	178,000	

6.14 In June 2022, the Comhairle approved £700k investment for the replacement of Winter Maintenance vehicles. There remains £322k of this funding available which is sufficient to cover the Winter Maintenance share of the costs detailed above. Road Maintenance and Surface Dressing vehicle replacement costs, £241k and £693k respectively, will need to be funded from additional prudential borrowing funded by existing revenue cost centres.

6.15 New multi-use vehicle chassis and demountable bodies can be procured through the Scotland Excel Heavy Vehicle Framework.

CONCLUSION

- 7.1 For the Comhairle to continue to deliver critical road maintenance services significant investment in essential plant and vehicles will be required. It is recommended that the Comhairle authorise the Chief Officer, Assets and Infrastructure, in consultation with the Chief Finance Officer, to develop and implement the most appropriate procurement options, timescales and financing options for the replacement of the road maintenance plant detailed in this Report.

APPENDIX: DEMOUNTABLE GRITTER AND VELOCITY PATCHER

