

# EXECUTIVE COUNCIL

## PUBLIC

**Title of Report:** FM Radio Project Review  
**Paper No:** 65/16  
**Date:** 27 April 2016  
**Report of:** Director of Central Services

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### 1.0 Purpose

- 1.1 To update Honourable Members on the FM Radio Upgrade project in Camp and to provide a review report which gives the background to the project, outlines the problems encountered, provides an assessment of the current service and recommends a policy for the service going forward.
- 1.2 This report has been prepared to provide an overall assessment of the infrastructure and takes into account a wide range of evidence sources, including commissioned work, FIG testing and reports from residents in various locations about the strength of signal and quality of reception.

### 2.0 Recommendations

- 2.1 Executive Council is recommended to:
  - a) note the findings of the recent review by the Director of Central Services of the FM radio network installed by KTV;
  - b) agree that the coverage around the road system is acceptable and confirm that no further investment is provided to broaden road coverage;
  - c) agree that any farms and settlements with emerging reception problems, which are not a result of simple equipment or tuning issues, should be considered for installation of an infill repeater or transmitter;
  - d) confirm that the project is now complete, following the installation of infill repeaters at a number of locations across the Islands;
  - e) Publish this paper.

### 3.0 Additional Budgetary Implications

- 3.1 None

## **4.0 Background**

- 4.1 SSVC were contracted to provide BFBS radio services to the Falklands community from around 1989 and TV services from the early nineties.
- 4.2 A single-channel FM radio service for Camp was provided by BFBS from Mt Maria. By 2007 this system was considered by SSVC to be ageing and liable to irreparable loss. At that time SSVC were also starting to upgrade to digital systems world-wide. In July 2007 ExCo approved (paper 174/07), in principle, the SSVC proposals for changing the method of delivery of BFBS TV and radio services from analogue to digital.
- 4.3 As agreed, and funded by FIG, a new digital TV service was rolled out by SSVC in 2010; this included access to all BFBS radio channels and Falklands Radio through individual TV sets. In conjunction with this project SSVC were preparing proposals for the new FM radio system to replace the Mt Maria service.
- 4.4 In July 2012, SSVC provided a quotation for new FM infrastructure island-wide which ranged from £198,562 for one channel to £369,373 for two channels only.
- 4.5 This quotation was considered excessive by MLAs at the time and the Director of Central Services (DCS) was therefore asked by MLAs to investigate alternative options from local service providers. The only quote received was from KTV at £218,000 for three channels. (Cable & Wireless were initially interested but subsequently withdrew.) In November 2012, SSVC submitted an alternative “reduced” proposal at £120,000 for two channels, but with very limited coverage.
- 4.6 In December 2012 ExCo agreed a new three-channel FM Radio Service for Camp to be installed by KTV Ltd (paper 294/12). The contract was to include for an ongoing maintenance contract, which would specify maximum call out response and repair times.
- 4.7 Subsequently, a supply and installation contract was signed with KTV in June 2013 and a maintenance agreement was signed in April 2015 for a period of 5 years. This maintenance contract includes stated response times for reported outages and periodicity of regular maintenance.
- 4.8 At the request of ExCo a public consultation exercise was undertaken in July 2013 to determine the channels to be broadcast and negotiation took place with SSVC for the continued availability of the BFBS radio channels.
- 4.9 In August 2013 (paper 187/13) ExCo approved the following channels to be broadcast over the new network: Falklands Radio, BFBS Falklands, BFBS Radio 2 and the BBC World Service (broadcast when Falklands Radio is off air).

## **5.0 Design and Delivery of the new FM Radio Infrastructure**

- 5.1 In November 2013 work commenced on the new FM infrastructure.
- 5.2 The original KTV design proposal was to provide eight low powered transmitters on: Byron Heights, Mount Alice and Fox Bay on the West and Sussex Mountain, North

Arm, Pleasant Peak, Mount William and Mount Kent on the East, with possible in-fill sites at Port Howard and Bombilla if required. These sites were selected as they had good access and, apart from Fox Bay, Port Howard and North Arm, KTV already had masts and equipment in these areas.<sup>1</sup>

- 5.3 However, in the early stages of the project, KTV concluded that the eight low-power 100 Watt transmitters would mean that road coverage would be limited and a different design solution was required. A proposal to reduce the number of principal transmitter sites from eight to four but to increase the power of each to 300 Watts was agreed verbally by the then DCS to progress the project promptly. The four sites selected were: Mount Alice and Byron Heights on the West and Sussex Mountain and Mount William on the East.
- 5.4 The original programme had been to carry out the necessary work in Stanley initially followed by installation of transmitters first on East Falkland and then West Falkland; however this programme was changed at the request of MLAs, following representation from residents on the West, and therefore the first transmitters installed were Mt Alice and Byron Heights on West Falkland. The installation of all transmitters was completed within the timeframe in the contract.
- 5.5 One other change was the delivery of content to transmitters by satellite – rather than over an IP network – this became necessary when it was agreed to the broadcast BFBS channels over the network.

## 6.0 Introduction into Operational Service

- 6.1 In August 2014 an “Assessment Testing Team” consisting of Mario Zuvic of KTV, Chris Gare (UK Telecoms consultant) and Garret March of Synergy travelled around East and West Falkland to test the system and speak to as many people on Camp as possible.<sup>2</sup> The purpose of this exercise was to obtain an independent, expert view on the system. A report on their findings was prepared which was broadly positive while noting some necessary areas for improvement and recommending a number of infill transmitters be installed.
- 6.2 In November 2014, the Assessment Report was submitted to ExCo (paper 233/14) alongside a recommendation to install additional infill repeaters in known problem areas. The following infill repeaters/transmitters were agreed by ExCo, at an additional cost of £25,000.

	<b>Installation Progress</b>	<b>Installation Tested<sup>3</sup></b>
<b><u>Large Settlements</u></b>		
Port Howard	Installed January 2015	March 2015
Fox Bay	Installed November 2015	March 2016
North Arm	Installed September 2015	November 2015

<sup>1</sup> One of the key issues with the Mount Maria site was the difficulty in gaining access to resolve any faults that might occur

<sup>2</sup> The original contract did not contain sufficiently clear acceptance requirements, coverage provisions or performance indicators

<sup>3</sup> For these later sites, the repeaters serving large settlements were subject to a formal testing process by FIG, using defined criteria

Mt Kent	Installed June 2015	August 2015
<b><u>Small Farms</u></b>		
Moss Side	Installed September 2015	Good reception reported by residents
Harps Farm	Installed October 2015	Good reception reported by residents
Saunders Island	Installed October 2015	Good reception reported by residents – however there are issues with multiple listeners on the island, as only one channel can be broadcast at any one time.
Bleaker Island	Installed July 2015 – Improvements made September 2015	Good signal reported to about 3km distance, although does not cover the whole island due to location of hills
<i>Weddell Island</i>	<i>No longer required; equipment to be used elsewhere</i>	

- 6.3 More recently, improvements to the power supply at Sussex Mountain have been carried out to supplement the wind and solar supply and all three frequencies are now broadcasting from there. The antenna has also been reoriented to improve coverage in parts of the North Camp.
- 6.4 A problem has been encountered on Mt Alice where one of the frequencies on the new FM system caused interference to other communication systems and so that frequency had to be turned off. At the time of writing it is hoped a shift to a new frequency will rectify that problem and broadcast of the third station will shortly be re-established. This will be tested in April 2016.

## **7.0 Assessment of Radio Reception**

- 7.1 The Islands Plan and Rural Development Strategy (RDS) emphasise the importance of quality of life for residents in Camp and the need to overcome social exclusion. Radio coverage is one aspect of meeting those policy objectives.
- 7.2 In broad terms, the new FM infrastructure provides an acceptable service to the vast majority of Camp residents. There are a number of Camp residents who did not receive a radio signal from Mount Maria who now have access to the radio. Moreover, there are now three stations available compared with one station previously.
- 7.3 However, it should be acknowledged that there are a small number of residents who receive a poorer broadcast signal in 2016 than in the past, although it should be noted

that most Camp residents can receive a variety of radio channels at home through their TV set.<sup>4</sup>

- 7.4 It is also important to note that local interference from inverters and other power supplies have been shown to have an impact on radio signal received. This was highlighted in the report produced by the Assessment Testing Team in August 2014.<sup>5</sup>
- 7.5 It appears as though coverage across the roads network is patchier than the previous system, although this is difficult to be categorical about as there is no objective baseline against which to compare the system today.
- 7.6 The following section highlights the main findings from the recent review, with recommendations where appropriate.

The road network coverage is not perfect but is judged to be acceptable

- 7.7 There is good radio coverage for the majority of the road network, although there are some stretches of road with partial or no coverage. It is considered that the current coverage meets the original objective of the project – complete road coverage was never envisaged – although it is acknowledged that patchy local coverage is a source of frustration on some parts of the Islands.<sup>6</sup> However, it is worth noting that many of the remoter parts of the UK face a similar situation.
- 7.8 Providing radio coverage across the entire road network across the islands was never going to be achievable, nor was it part of the original plan as approved by ExCo in 2012. In a country as mountainous, hilly and expansive as the Falkland Islands there will always be locations where FM signals will be ‘blocked’ or ‘shadowed’ by mountains and hills located between the receivers and transmitters no matter how many transmitters are built and how much power they run. With the infrastructure now in place it is unlikely that any further improvement can be made to reception on the road network across the islands without investing a great deal more money in the project.
- 7.9 Anecdotal evidence suggests that many listeners in vehicles like to tune into their preferred channel and remain on that channel for the duration of their journey, as would have been the case previously with the single channel broadcast from Mt Maria. However, with the new infrastructure and choice of channels some people have been disappointed in having to tune into the different frequencies as they travel in and out of the various transmission areas.
- 7.10 We are also aware of a significant number of people who have found that radio reception can be substantially improved by manual tuning rather than relying on auto-tuning in their vehicles. We are also becoming aware of tuning issues in certain types of modern vehicles, where the radios are set for tuning in alternative markets, and so cannot tune into the local frequencies. However we understand that this can be over ridden by suitable technicians.

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<sup>4</sup> FIG funded the provision of satellite dishes to all primary homes in the Camp – defined as those which are occupied for at least six months of the year

<sup>5</sup> The installation of a simple form of external antenna has been demonstrated to overcome this interference problem

<sup>6</sup> For example on parts of the Port Howard to Fox Bay road

## Homes and Farm Buildings

- 7.11 In line with the Islands Plan and RDS policies, it is considered important that all residents have access to the radio inside their homes and in regularly occupied farm buildings.
- 7.12 All primary homes in Camp have (or will have in the near future) individual satellite dishes for reception of TV; these systems also provide access to an increased selection of radio channels via TV sets. However TV sets are normally situated in sitting rooms and residents often wish to listen to radio in different rooms in the house, this is not considered unreasonable especially if other family members are watching TV at the time. It is unrealistic to expect coverage in every part of every room in one's house but residents should be able to receive an FM signal in several rooms.<sup>7</sup>
- 7.13 At the start of the project, the expectation was that there would be clear radio reception in homes, shearing sheds, garages and other farm buildings during the working day. However, following the installation of the four primary broadcasting sites, many farms reported ongoing reception problems in various buildings.<sup>8</sup>
- 7.14 As detailed at paragraph 6.2, a number of settlements and farms encountering such problems have had infill transmitters installed and reception in buildings is reported as much improved. This has also provided good coverage in the immediate proximity of all main settlements.
- 7.15 It is believed that all primary homes now receive some radio reception, based on our best knowledge. However, FIG has not tested radio reception in every home, nor spoken to every resident so it is possible that there are areas of poor radio reception of which we are unaware.

## **8.0 Next Steps**

- 8.1 It is hoped that there will be no new problem areas reported around farms and settlements, however a future policy is required should any new areas emerge. It is proposed that these would be assessed on a case-by-case basis to determine whether further investment should be provided to extend the current network further. Experience suggests that technical support with tuning issues has resolved some of the problems raised with FIG.
- 8.2 If additional investment in new repeaters is considered to be required, then sums of money would be relatively modest with a "Large Settlement Repeater" costing in the region of £5,000 (plus installation costs) and a "Small Farm Repeater" costing in the region of £1,000. It is likely any additional investment could be found from within existing budgets.

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<sup>7</sup> Portable radios often have poor antennas and need to be placed next to a window to receive a good signal, this is not a problem isolated to the Camp as it is also the case in Stanley, MPC, UK and elsewhere.

<sup>8</sup> Reception problems in buildings is increased because of various building materials used such as metal cladding/roofs and also use of electronic goods or inverters which tend to cause interference with radio reception. Technicians have shown this can be improved by installation of external aerials on the affected buildings, however it is appreciated that this restricts reception to the room in which the antenna enters the building.

## 9.0 Lessons Learnt and Conclusions

9.1 This section provides a review of the project and seeks to draw out lessons for any future projects of this type.

A. The initial specification from FIG was insufficiently detailed

9.2 At the time of inviting proposals, FIG did not specify in the original system requirements precisely what coverage was required, nor set out how the final system would be measured or accepted into service. Percentage coverage was stated in the original quotation but it was not clear whether this referred to percentage of population, homes, or geography.

B. The design changed several times throughout the installation project

9.3 The original proposal was for eight main transmitters sites. The proposal indicated that infill repeaters may be required, however it was considered this would only be known once the coverage of the main transmitters was known. There are other ongoing technical issues that continue to require remedial action and which were not anticipated at the design stage.

9.4 In hindsight, FIG should have been more challenging of the supplier during the early stages of the project, with provision of technical field strength maps being stipulated, to confirm the basis for the system design. This observation is important for FIG to reflect on in other projects as contract management is a key aspect of ensuring overall value-for-money on projects

9.5 More rigorous management of the supplier and the contract may have avoided the subsequent need to add a number of infill repeaters which has created something of a 'patchwork' constellation rather than a coherent network.

C. There has been a mismatch between expectation and reality

9.6 Arguably, there has also been a big difference between public expectation and the reality of the system procured by FIG. Many Camp residents assumed – quite reasonably – that the new system would be better for all locations than the previous service from Mount Maria.

9.7 Due to design, access to 24-hour power supply, access to sites and affordability the replacement Camp FM service is different from the FM radio service provided by the old Mount Maria transmitter. For those located near to one of the new KTV transmitter sites, the quality of the signals will generally be better than those further away. However, for some residents, the reception from one of the four main transmitters is poorer than was historically the case due to the distance involved, the lower power of the new transmitters, and transmitters now being located on lower hills.

9.8 It has been suggested by some that higher powered transmitters should be used on the main mountain top sites, however we are advised this cannot be considered as the higher powered transmitters will interfere with other communication services on the

sites used. To use any other sites would incur very substantial expenditure in new power supplies and access tracks.

### **10.0 Financial Implications**

10.1 It is likely that should additional infill repeaters be required then the funding could be found from within existing budgets.

### **11.0 Legal Implications**

11.1 None

### **12.0 Human Resource Implications**

12.1 None