



Home Office

Emergency Services Mobile Communications Programme 2025 Programme Business Case (PBC) Summary

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1. Introduction

The Emergency Services Network (ESN) will enable fast, safe and secure voice, video and data across a 4G/5G network, giving first responders immediate access to life-saving data, images and information in live situations and emergencies on the frontline.

ESN is being delivered by the Emergency Services Mobile Communications Programme (ESMCP) and will replace Airwave.

Continued TETRA / Airwave use, as with use of any aging technology, is becoming riskier. As ESMCP's Independent Assurance Panel (IAP) stated at the Public Accounts Committee (PAC) hearing on 26 April 2023, "... the technology ESN will utilise is the correct direction of travel, because Airwave and the TETRA service will become increasingly obsolete and ever-more expensive to maintain."

This document sets out the case for continued funding of the preferred option for ESMCP as it moves further into delivery. This option remains the right strategic choice, offers the best value for money, and delivers a positive Net Present Social Value (NPSV).

2. The Strategic Case for Emergency Services Network (ESN)

2.1. Strategic Fit with Government Priorities

The programme is tightly aligned with cross-government priorities spanning public safety, health, infrastructure, and economic growth. In terms of public safety and service outcomes, it directly supports the Safer Streets agenda by enabling reliable, mission-critical communications for policing and emergency services. It also contributes to delivering an NHS fit for the future, improving emergency response times and facilitating faster access to care. The enhanced capability of the service enables more effective 999 responses, particularly in previously unserved or hard-to-reach "not-spot" areas, strengthening frontline operational effectiveness.

The programme provides a secure, resilient and future-proof digital communications platform that supports ongoing operational demands across emergency services. In doing so, it also underpins broader national security objectives, including supporting border operations and maintaining continuity of critical services in times of disruption.

The programme also contributes to economic growth and wider connectivity ambitions by extending mobile coverage into rural and hard-to-reach areas, delivering benefits not only to emergency services but also to citizens and businesses. This expansion of coverage strengthens the UK's digital infrastructure and aligns with long-term national infrastructure strategies aimed at improving connectivity and supporting regional development.

Finally, the programme is closely aligned with international standards and policy direction. It reflects the global shift towards 4G and 5G-based public safety communications, consistent with 3rd Generation Partnership Project (3GPP) standards, and positions the UK within an evolving international ecosystem for public safety technology. This alignment supports interoperability, future innovation, and the development of a competitive and sustainable market for emergency communications services.

2.2. Case for Change

Emergency services need communications that are reliable, secure and fit for modern operations. The current Airwave system has provided dependable voice communications for many years, but it is based on ageing technology and is relatively expensive to sustain.

Airwave was designed mainly for voice and limited messaging. It cannot provide the level of mobile data capability increasingly needed by frontline services, and there are constraints on future security and technology upgrades.

The current Airwave system will be replaced by ESN as global direction and supplier markets are moving away to newer 4G and 5G based systems that support both mission-critical voice and data.

The Government's preferred option is to complete the build of ESN, providing a more modern, sustainable and capable platform for emergency communications in Great Britain. This is expected to improve long-term value, better support operational needs, align with the direction of travel internationally and allow the programme to shut down Airwave when it is safe to do so.

2.3. Programme Objectives

The overarching objective is to deliver a modern Public Safety Communications Service (PSCS) platform to replace Airwave. In doing so, it will support the emergency services and related first responder agencies to protect the public and keep their staff safe.

Operational objectives include:

- Improving real-time information sharing (data, images, video);
- Enabling faster, more informed emergency response, saving lives and reducing harm;
- Ensuring coverage, resilience, and prioritisation for emergency users.

ESMCP will deliver a system that leverages commercial mobile infrastructure to reduce build and maintenance costs; and enable technology evolution (e.g. 5G and beyond) without major system rebuilds. It will also support multi-agency interoperability (known as Joint Emergency Services Interoperability Programme, or JESIP); provide a platform for innovation, including future applications and AI-enabled services; and enable the release of spectrum and long-term commercial flexibility.

Taken together, these objectives respond to changing operational needs and wider market and technology shifts, while supporting a more resilient and future-ready communications capability.

3. The Economic Case for ESN

3.1. Short list of options

3.1.1. Option 1: Stop ESN and continue Airwave to 2043/44

Option 1 is the baseline for the value for money (VfM) assessment, in accordance with HM Treasury's Green Book 2022 guidance¹. **Option 2** is assessed against this baseline.

Option 1 involves extending the existing Airwave contracts that currently deliver Mission Critical Push to Talk (MCPTT) voice services. The emergency services (3ES) would be responsible for procuring data communication services locally. This approach raises significant concerns over long-term viability, reliability, operational suitability and provides limited ability to meet evolving 3ES needs.

Option 1 benefits from the ongoing refresh of the Airwave network and uses the latest Motorola products going forward. The monetised benefits that accrue with Option 1 come from ESN services built into the baseline (enabling 999 calls and extended coverage in no-signal areas).

As the critical communications market evolves and newer technologies become dominant, Option 1 faces significant risks such as reliance on ageing TETRA infrastructure and uncertainty over access to essential parts and skilled labour. If the air interface encryption algorithm security risks were to increase, upgrading / replacing it will be a complex and highly disruptive process.

Option 1 does not provide optimal value for money to the taxpayer and fails to meet the evolving operational needs of the 3ES in a modern, digital-first environment.

3.1.2. Option 2: Continue ESN: deliver Mobile and User Services

Option 2 extends the Mobile Services (MS) contract with EE/BT through to 2031 and delivers User Services (US) via IBM. Option 2 targets Airwave shutdown when it is safe to do so.

This plan reflects a technical platform transition from Airwave (based on the bespoke Airwave network and Motorola's DEMETRA product) to ESN, which runs over BT/EE's commercial network and uses Samsung's Mission Critical (MCX) application as part of an overall solution delivered under our User Services contract with IBM. The assessment reflects tariffs consistent with government benchmarks for pre-emption and priority, providing the most reliable affordability and VfM based on current data.

¹ HM Treasury (2022) "The Green Book: central government guidance on appraisal and evaluation, National Archives, London. See: [Nationalarchives.gov.uk/thegreenbook2022.pdf](https://nationalarchives.gov.uk/thegreenbook2022.pdf) Note: includes 2023 update.

Key strengths of Option 2

- Government's preferred option continues the current programme with strong momentum.
- Reduced risk of delay: as signed MS and US contracts provide greater certainty.
- Upfront capital investment: and a better profile of ongoing operating costs.
- Strategic alignment and economic VfM.
- Meets the strategic transformation objectives and business needs (see Strategic Case).
- Offers a strong stream of benefits, particularly ESN 999 calls, data and image communication capabilities as summarised in Table 3.1 below.

3.2. Economic appraisal

The economic appraisal was conducted per HM Treasury Green Book (2022) methodology, using Social Cost-Benefit Analysis (CBA), which is evidenced by the facts that:

- The appraisal is modelled over 2025/26–2043/44 (19 years).
- Costs and benefits incurred before FY2025/26 are included in financial figures but excluded from the economic appraisal, as these are classified as sunk costs / benefits.
- Monetised costs and benefits are expressed in present values (PV) where costs are discounted over time by 3.5%, but health related benefits using Quality Adjusted Life Years and Value of a Prevented Fatality are discounted at 1.5%.
- The metrics of interest are the Net Present Social Value Relative To the Baseline (NPSV RTB) and the VfM assessment.

3.3. Costs, benefits and summary metrics

3.3.1. Summary metrics (Present Values)

Table 3.1, Cost Benefit Analysis summary, NPSV RTB, 2025/26-2043/44, £ billion (Present Values).

	Option 1	Option 2
Total cost	9.47	9.35
Total benefit	1.73	4.62
Total cost RTB	N/A	-0.12
Total benefit RTB	N/A	2.89
NPSV RTB	N/A	3.00

Source: Home Office own estimates, 2025.

Note: All values in 2025/26 prices at £ billion (PV), that is discounted over 19 years.

RTB = relative to the baseline, that is baseline values are subtracted from Option 2 (the Preferred Option) as Option 1 (the baseline) is a Do-minimum baseline.

Summary

Option 2 delivers an NPSV RTB of **£3.00 billion (PV)** over 19 years, with total benefits of **£4.62 billion (PV)** and a cost saving of **£0.12 billion (PV)** relative to Option 1.

3.3.2. Costs

Total adjusted cost for **Option 1** is heavily driven by the Airwave (Legacy) costs. The key issues are the high dependence on ongoing Airwave costs, and the significant uncertainty post-2029, which is the end of the Competition and Markets Authority charge control.

Total adjusted cost for **Option 2** is slightly lower compared to Option 1. Costs are largely upfront and are driven by ESN delivery and new devices with lower legacy costs of about £1.9 billion (PV) over 19 years, compared to an estimated £8.1 billion (PV) in Option 1.

3.3.3. Benefits

Option 1

Total benefits of **Option 1** are **£1.73bn (PV)** over 19 years. These are mainly derived from the ESN 999-call connectivity improvements and limited coverage benefits. Option 1 lacks data-enabled operational improvements and the additional ESN-specific benefits (for example, user savings, indoor coverage).

Option 2

The total benefits of **Option 2** are estimated at **£4.62 billion (Present Value)** over 19 years and the key monetised and non-monetised benefits include:

- Improved ESN 999-call connectivity and emergency response – the largest benefit (over 80%) arises from enabling ESN 999-calls in no-signal areas and faster access to 3ES.
- Fewer fatalities and casualties from faster and more reliable communication, particularly for ambulance and fire and rescue services.
- Expanded mobile coverage delivers measurable benefits to residents, via improved access to services and businesses through improved productivity and connectivity.
- 3ES operational benefits include more effective co-ordination between agencies and increased effectiveness of specialist services (such as National Police Air Service communications).
- Avoided economic losses due to reduced property damage and wider societal losses due to improved emergency response.

Non-monetised benefits

- Wider connectivity and economic benefits – ESN infrastructure investment enables the Shared Rural Network (SRN), extending connectivity and competition (choice) into rural areas. This supports wider benefits to residents and businesses.
- ESN enhances the safety of frontline personnel and the public through faster access to real-time information and improved situational awareness.

- Security, resilience and operational control is provided at the highest level with proactive cyber security and encryption, and introduces priority and pre-emption capabilities, ensuring 3ES maintain network access during congestion.

3.3.4. Risk and uncertainty

Optimism bias (OB) is applied as per HM Treasury Green Book guidance to combat systemic optimism on cost appraisal. It is applied to all contracts, procurements and asset refreshes. Quantified Risk Assessment (QRA) and Schedule Risk Assessment (SRA) is applied to known risks. In Option 1 this amounts to about 8% of total cost and for Option 2 this is about 12% of total cost.

Sensitivity analysis demonstrated that under no scenario (impact of cost, delay or benefits sensitivity) did the Net Present Social Value (NPSV) return to baseline (RTB) become negative.

3.4. Value for money (VfM) and recommendation

A VfM assessment was held with senior leaders and users which suggested that **Option 2 was the 'Best' option** while **Option 1 provides poor VfM**. Option 2 fully meets strategic and business needs and has the best achievability with delay and legacy cost risks well-managed.

Recommendation:

On the basis of the economic appraisal, Option 2 is the preferred option and is recommended for approval.

4. The Commercial Case for ESN

The Commercial Case confirms that the ESN procurement strategy is built around a multi-supplier model aligned to Option 2, enabling delivery of a resilient, flexible and scalable emergency communications service while maintaining value for money and operational continuity.

4.1. Procurement Strategy and Contractual Arrangements

The strategy is underpinned by two core contracts: Mobile Services (EE/BT)², providing the coverage for the Emergency Services Network and User Services (IBM)³, delivering system integration, service management and user capability, both effective from December 2024. Both contracts utilise milestone-based payments to incentivise delivery and manage risk.

² Mobile Services contract awarded to BT/EE: [ESMCP - Mobile Services Agreement for the Emergency Services Network - Contracts Finder](#)

³ User Services contract awarded to IBM: [User Services for Emergency Services Network \(ESN\) - Contracts Finder](#)

A wider contract ecosystem supports delivery, including Air-to-Ground services, device frameworks, WAN connectivity, control room solutions, testing and training contracts. A forward pipeline of procurements is delivered through a mix of frameworks, competitions and call-offs, ensuring proportionality and market engagement.

Contracts are managed through an integrated delivery model, with strong commercial oversight, performance management and change control. The User Services supplier performs a key integrator role across the supply chain to ensure delivery of end-to-end capability.

4.2. Plan for Delivery

ESN delivery follows a phased, piloted approach, with interworking between Airwave and ESN, staged deployment and operational testing to ensure services are safe and effective before full transition. This aligns with government guidance on piloting and testing services.

Airwave remains in place under extended arrangements until safe shutdown, supporting continuity during transition to ESN.

Over the longer term, the commercial strategy aims to increase competition, reduce supplier lock-in and support future technology evolution through more flexible and re-procurable contract structures.

5. The Financial Case for ESN

The Financial Case includes continued investment to deliver ESN, with an overall whole life budget of £19.1 billion to 2043/44. To date, the programme has spent £6.1 billion. The preferred option delivers an NPSV relative to baseline of £3.0 billion (PV). Indexation rates have been agreed with Home Office Economists and are applied to relevant cost lines in the business case.

Costs are modelled under the following categories:

- **Core Costs:** includes costs relating to mobile and user services, ESMCP management team, network resilience, Air to Ground (A2G), Extended Area Service (EAS), London Underground (LU) coverage enhancements, delivery partners, and resources.
- **Non-core Costs:** includes user-specific costs relating to vehicle and non-vehicle ESN devices, ESN device refresh, local user resources, wide area network (WAN) link.
- **Existing (or Legacy) Contracts:** includes costs relating to the Airwave contract, Airwave device refresh, commercial mobiles.

6. The Management Case for ESN

6.1. Project Delivery

The ESN Programme will be delivered through a structured, phased approach encompassing system integration, testing, deployment, and the managed transition from Airwave. Delivery is underpinned by a portfolio of interdependent projects, including Mobile Services, User Services, coverage delivery, devices, and control room integration, all of which must be coordinated to achieve Full Operational Capability. The Programme follows a progressive readiness model, with controlled capability releases and staged transition activities designed to maintain operational continuity and public safety throughout.

6.2. Dependencies

Delivery depends on a complex set of interrelated factors progressing in parallel, including interoperability with Airwave during transition, supplier performance across core contracts, timely availability of devices and coverage infrastructure, and the readiness of user organisations and control rooms. Cross-government co-ordination with Funding Sponsor Bodies (FSB) is also required to keep approvals, funding and operational planning aligned. Because these dependencies are closely linked, delay or underperformance in one area could affect overall delivery and therefore requires active programme management.

6.3. Governance and Assurance Arrangements

The Programme has clearly identified internal and external governance, which has evolved with the Programme's needs, including the FSBs that sponsor it, and user organisations. External governance aligns with cross-government and Home Office standards and approval thresholds. The Programme reports to the Home Office Project Delivery Directorate and Home Office Investment Committee (HO InvestCo), as well as numerous internal and external assurance bodies.

Governance is delivered through a formal, multi-layered structure consistent with major government programme controls. This includes, but not limited to, senior decision-making boards and cross-government forums that provide oversight, assurance and clear accountability for the Senior Responsible Owner (SRO), Programme Director and delivery partners. Approval controls at key decision points, including business case approvals, stage gates and investment committees, help ensure delivery remains aligned to strategic objectives, affordability and risk appetite.

Department assurance is provided by Home Office governance and analytical functions, including Investment Committee oversight, risk register scrutiny, and Analytical Quality Assurance (AQA) reviews, strengthening decision-making in a complex delivery environment. External assurance is undertaken by independent bodies such as Major Projects Review Group (MPRG), National Infrastructure and Service Transformation Authority (NISTA) Gateway reviews, National Audit Office (NAO), Parliamentary Accounts Committee, and Government Internal Audit Agency (GIAA) audits, providing comprehensive external scrutiny. Together, this

assurance – coordinated through the Integrated Assurance and Approval Plan – ensure robust, multi-layered confidence in programme delivery.

6.4. Security measures

Security is such a critical component of the design and delivery of ESN that the Programme has integrated the concept of minimising security risk into the delivery phases of the Programme. The Programme has adopted the Secure by Design approach and will adopt Zero Trust Architecture design principles whenever appropriate. To ensure an appropriate level of security is applied at each delivery phase, the programme engages with senior stakeholders of the user community as well as security matter experts as part of the overall security governance process. This includes engagement with the National Protective Security Authority (NPSA) and the National Cyber Security Centre (NCSC) as UK technical authorities for physical & personnel security, and technical security respectively. There is also significant scrutiny of the ESN's technology supply chains and services.

6.5. Risk Management Approach

The programme takes a structured and proactive approach to risk management across its lifecycle, which is aligned to HM Treasury guidance and major programme delivery standards. Risks are systematically identified, assessed and managed through comprehensive programme and project-level risk registers, with clear ownership assigned to accountable leads. Risks are evaluated based on likelihood and impact, with defined mitigation strategies, tolerances and escalation routes to ensure appropriate management action.

Risk oversight is provided through regular reporting to programme boards and senior governance forums. The programme integrates risk management with cost and schedule controls through Quantified Risk Analysis (QRA), ensuring that forecasts and delivery plans include appropriate contingency. Formal escalation routes are in place for risks exceeding tolerance thresholds.

6.6. Evaluation Plan

The evaluation approach assesses whether the ESN programme delivers its intended outcomes, operational capability and value for money. It combines process and outcome measures across the programme lifecycle, including monitoring operational performance, service readiness, user adoption, delivery against milestones and benefits realisation. Lessons learned from pilots, testing and transition are used to inform continuous improvement and provide evidence of delivery effectiveness.

The ESMCP evaluation plan was published in May 2026 and is available on the Evaluation Registry.

6.7. Transition plan to live service

The Home Office ESN Live Service Organisation is responsible for all ESN products once they have been accepted into service. The Target Operating Model, which will deliver the necessary services and tools to operate ESN as a robust and safe critical communications service, will be put in place over three releases, with an opportunity to introduce interim services (i.e., services which provide elements of the end state functionality):

- Release1 – ESN Data initial capability (including MCX Sandbox).
- Release 2 – ESN Voice initial capability (including MCX certification).
- Release 3 – ESN Data, Voice, Air (prior to user acceptance testing and User Organisation ESN transition commencement).

The Full Operating Model will be delivered for User Acceptance Testing first, then scaled up for ESN migration through to Airwave shutdown. This will allow the Programme to be closed, and all remaining services provided by the Programme to be subsumed into the future Authority organisation.