worcestershire
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CORPORATE AND COMMUNITIES OVERVIEW AND SCRUTINY PANEL 18 JANUARY 2024

PUBLIC SWITCHED TELEPHONE NETWORK (PSTN) SWITCHOVER

Summary

1. The Panel has requested an update on the County Council's (the Council) position in response to the national Public Switched Telephone Network (PSTN) switchover (also referred to as the digital switchover) planned for completion in December 2025.

2. The Cabinet Member with Responsibility (CMR) for Corporate Services and Communication and the Strategic Director of Commercial and Change have been invited to the meeting to respond to any queries the Panel may have.

Background

3. Today, the UK telephony network has a copper and fibre mix of lines and will continue to do so for many years to come. The original copper lines network and the associated telephone exchanges were designed for voice calls. Today, the Internet uses broadband technology to pass data over these lines at speeds that are determined by the makeup of these lines and Fibre is a far better medium for transmitting large amounts of data quickly.

4. The PSTN is the traditional circuit-switched telephone network. PSTN comprises all the switched telephone networks around the world that are operated by local, national or international carriers. These networks provide the infrastructure and services for public telecommunication. The two largest PSTN networks in Worcestershire are the Openreach network and the Virgin Media O2 network.

5. PSTN allows calls to be made over copper telephone lines and fibre telephone lines using analogue signalling and is known as "traditional telephony". Analogue lines are also often referred to as copper wire connections used by most old telephone and broadband services. As broadband services have increased in reliability and quality over the past 10 years, the PSTN has evolved to support this change to an almost completely digital network using digital technology.

6. Openreach Limited is a company wholly owned by BT Group plc, that maintains the telephone cables, ducts, cabinets and exchanges that connect homes and businesses in the United Kingdom to the national broadband and telephone network. Openreach sell lines to Communications Providers (CPs) who then sell their product offering to the end customer (Homes and Businesses). CPs include over 650 companies including SKY, TalkTalk, BT Consumer, Daisy and Gamma.

7. In 2016, it was announced that the telecommunications industry would replace all analogue lines and upgrade to digital internet-based infrastructure by 2025. Traditional PSTN analogue lines will therefore be switched off by both Openreach and Virgin

Media O2 in December 2025, with all telephony-based services moving to digital / fibre solutions as part of this switchover.

PSTN Switchover / Digital Switchover

8. By 2025, analogue telephone services accessed by the PSTN will be switched off as the UK's telecoms infrastructure is upgraded to digital connectivity. The switchover has implications for the telecare and Technology Enabled Care (TEC) sector, and the 1.8 million people who rely on those services in the UK. All traditional devices that connect to the PSTN, such as telephone handsets, ATM machines, traffic light management systems and telecare units, will need reconnecting, with some needing upgrading or replacing, irrespective of what plans that telecare providers have to develop their service.

9. By 2025, analogue telephone services accessed by the PSTN will be switched off as the UK's telecoms infrastructure is upgraded to digital connectivity. The switchover has implications for the telecare and Technology Enabled Care (TEC) sector, and the 1.8 million people who rely on those services in the UK. All traditional devices that connect to the PSTN, such as telephone handsets, ATM machines, traffic light management systems and telecare units, will need reconnecting, with some needing upgrading or replacing, irrespective of what plans that telecare providers have to develop their service.

10. PSTN lines that have not migrated to alterative services in April 2025 will be deemed as Orphaned Assets and Openreach intends to work with CPs to identify and migrate these customers to alternative products by the December 2025 deadline, so they do not lose service. The actions to be taken are yet to be defined and the difficulties identifying the use of the line, and in some cases the end user customer, along with the contractual agreement to move is still to be confirmed but nevertheless, services will be withdrawn and customers will be impacted should they not move in time.

11. These changes are being applied nationally by Openreach and will affect all areas of the country, not just Worcestershire, requiring all businesses and residents to review their current dependency on PSTN technology and where needed upgrade to digital services to avoid any by impact to their current services.

12. Although the majority of the Council's telephony is already provided over digital services, Voice over Internet Protocols (VoIP), the Council still use a variety of PSTN services for managing some telephone lines, alarm lines, payment lines and remote monitoring equipment that will need to be replaced with a new digital services equivalent or withdrawn.

13. Residents and businesses will be affected if they still rely on any of these types of services so also need to be aware of the implications of the change, timescales, impact to them, and how to contact providers to manage their change to digital where needed.

Project to Manage the PSTN Switchover

14. Based on this background of change, the Council has undertaken a project to manage the risks posed by the PSTN switchover across the Council and this is being led by the IT and Digital department with consultation across all service areas.

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16. CPs, like BT or Virgin Media O2, have already started to contact customers about the digital switchover and encourage early uptake of switching to digital services where these are already available. CPs will ultimately be responsible for managing the changes to digital for their customers and the Council will be signposting residents and local business to contact their providers for information specific to them, their area, and the digital options they have.

17. The Council has worked with suppliers to identify the type of solutions they will be offering to replace the PSTN line services in use today; these will include switching telephony and broadband services to new full fibre or SoGEA[1] network services or new hardware equipment that utilise data SIM connections instead of a network connection. 2G data SIMs can offer a reliable, cheaper alternative to PSTN for low data transfer requirements such as monitoring equipment and will be available for at least another 10 years.

18. Over the last 6 months, Phase One research work has been undertaken to identify services that rely on PSTN services, assess the level of risk to services, and potential switchover costs. These key service delivery risks fall into 2 areas for response:

    - **Services already known about**: These include existing PSTN lines and services paid through corporate IT & Digital telephony contracts, affecting payment lines, lift lines, alarm lines, legacy telephony, traffic signals etc. These will be migrated to the digital network as soon as possible.

    - **Services known about, but with incomplete information**: including records with missing or ambiguous data recorded against them, or telephony linked services which were historically outside of any corporate management. This included some PSTN services as well as local fax services that are no longer supported. Work has been undertaken to clarify their use, identify missing information, understand if there is an ongoing need for them or not, or prepare for migration to the digital network.

19. Completion of the Phase one research included:
    - Engagement with affected business areas across the Council.
    - Identification of current assets.
    - Identification of potential early savings and costs.
    - Identification of potential technical solutions.
    - Establishing working groups to continue to assess any PSTN dependency risks and manage the replacement process.

Telephony Asset Types

20. Telephony asset types have been identified for which new digital solutions will be provided as soon as possible – as set out in the table below. Some of these may require capital investment to mitigate the risk to service, or consideration of reduced service provision to reduce costs where appropriate.

[1] Single order Generic Ethernet Access and is the product name that Openreach use when selling this service.

Asset Type	Switch-over Strategy	Risk
Chip and Pin services	Replace the old PSTN payment lines / terminals used across the Council with data SIM machines.	**Implemented**: all payment machines now transferred. The new arrangements are cheaper overall for data SIM machines and line rental.
Landlines, Faxes and old Broadband connections to Council buildings	Transfer phone services to VoIP[2] services and old broadband services to new fibre connections. Broadband services will be replaced by the Council's new Wide Area Network contract provision for network services and/or Openreach changes to infrastructure across the county with increased fibre availability.	This will be mitigated by 2025 as all identified lines will be transferred. The Council already uses VoIP for most of its telephony, and this will be rolled out to remaining sites.
Traffic management data connections	Upgrade old ISDN/broadband copper lines with new fibre connections or use of mobile data SIMs depending on locations and availability.	Implement new fibre connections or data SIM connections. Discussions are underway to identify the most appropriate and cost-effective approach, as solutions may vary based on mobile data coverage.
Alarm monitoring lines (Fire, intruder, BEMs[3], and lift alarms)	These monitoring lines have historically been supplied through separate suppliers, with a mix of PSTN and mobile SIM services already in place. Through the recent procurement of a new facilities management contract, these will now be reprofiled for single service provision through digital services.	This will be achieved by consolidating suppliers under a new Facilities Management contract and switch to digital use single data connections for multiple monitoring services. This should result in minimal uplift to current budget costs due to the combination of contracts and data connections under one management process and supplier.

Telecare Services

21. October 2022 research by the Local Government Association (LGA) found that most councils were confident about their ability to manage the digital shift with minimal impact on their telecare services.

22. Cllr Mark Hawthorne, LGA Digital Connectivity spokesperson, said:

[2] Voice over Internet Protocol, also called IP telephony, is a method and group of technologies for voice calls for the delivery of voice communication sessions over Internet Protocol networks, such as the Internet

[3] Building and Energy Management System (BEMS)

"Councils have a critical role to play in the digital switchover which is fast approaching and will impact on a whole range of vital services, including in adult social care.

"Our survey shows that unless action is taken now to support councils to help their residents and suppliers with this change, we face the prospect of serious disruption to people's lives, including most urgently those who use personal devices such as alarms and fall detectors to stay safe in their own homes.

"While we want to see every part of the country benefit from the digital rollout, we need to make sure no one is left behind and potentially at risk, whether it be someone living at home on their own in need of support, or people going about their daily lives waiting at the traffic lights or withdrawing cash from an ATM.

"Expanding high-speed digital access is essential to economic growth, but it should not be at the expense of those who are older and more vulnerable, who rely on their devices and other services to maintain their independence, safety and wellbeing."

23. The Council's position with Telecare and the PSTN Switchover is that the provision of Telecare and assistive technology is contracted to a company called Community Housing[4] and as part of that, has been installing digital solutions where available. Currently, approximately 20 users have been identified who need replacement technology and that is being picked up as part of business-as-usual activity. The cost of this is included within the contract and at this time no additional cost to the Council has been identified.

Support to Residents and Businesses

24. In recognition of the need to keep the wider community informed, the Council provides information on its website: The Digital Switchover is coming | Worcestershire County Council.

25. The Council recognises its role in helping the community understand the digital switchover and what that means for them. The Council has several methods of communication it will further look to use.
    - Providing information, guidance and signposting on the Council's website for residents and business focused issues.
    - Identify new opportunities to contact residents directly, new publications and mail out opportunities.
    - Emailing district economic development leads to ensure they're aware and are supporting their businesses.
    - Ensuring Chamber of Commerce is aware.
    - Utilising the Economic Development Team and Worcestershire LEP and Growth Hubs to pass the message on to businesses.
    - Using existing Council staff already supporting vulnerable people within the community to help raise awareness and signpost residents to CPs digital change over plans and ensure that the call to action is responded to.

[4] Community Housing provide homes and services to support the local community, including care and support, housing management, maintenance and repairs, and shared ownership.

- Leveraging any other groups where messaging can be passed on.

The Forward Plan

26. Over the next two years the Council will continue to work to identify PSTN dependant services and manage the digital switchover for these services.

27. The forward plan has been defined as falling into 2 further phases to help manage the digital switchover aligned to the BT and Open Reach roll out plans.

28. Phase two (December 2023 – April 2025) focussed on implementing and responding to the change:
    - Ceasing of inactive lines and transfer of any continuing services to alternative digital solutions (VoIP, fibre, SoGEA, 2G/4G/5G data SIMS etc.).
    - Further identification of any new technical solutions becoming available through suppliers and service providers.
    - Identification of any new business process to manage new services.
    - Procurement of any required replacement PSTN technology solutions.
    - Deployment of any known required replacement PSTN technology replacement solutions
    - Communications support to the wider public and local businesses to ensure the message of change and call to action is clearly understood by CP customers.

29. Phase three: (April 2023 – December 2025) Mop-up:
    - CPs will be contacting their service users to identify remaining dependant services with a call for action.
    - Openreach 'Orphaned asset' phase will commence – during this stage Openreach will work with providers to move customers who have not yet taken action.
    - Review and sweep of Council services to identify any new known issues, where the Council have been contacted by CPs about lines previously unknown/unidentified.
    - Deployment plan for any lines identified as part of 'Orphaned Asset Phase'.

30. The delivery of this plan will fall under the overall control of the Assistant Director for IT and Digital. Progress on the implementation of the plan will be overseen by the Chief Officers Group (COG).

Financial Implications

31. The following costs are based on the services that have been identified, therefore, costs may vary slightly upon finalisation.

Asset Type	Current Revenue Costs (per annum)	Expected Revenue Cost	Expected Capital Cost	Total Revenue Savings
Chip and Pin	£7,488	£4,680	None	£2,808
Landlines, Faxes and Broadband connections	£5,904	None (included in telephony	None	£5,904

		replacement project)		
Traffic management	£6,480	£2,160	£58,374	£4,320
Broadband lines	£10,440	Not applicable	Not applicable[5]	£10,440
Fire Alarms	£2,800	£4,000	£6,000	(£1,200)
Lift Alarms	Not applicable	Not applicable	£35,750	Not applicable
Intruder Alarms	£10,460	£15,400	£26,400	(£4,940)

*Please note that the above costs are based on the services that have been identified and a like-for-like replacement of assets. If further assets are identified, then this will impact the above figures.

32. Any financial costs the Council may incur to support services switch to digital will be managed within existing budget constraints.

Equality Impact

33. The PSTN switchover, like any major technological transition, may introduce equality risks that could disproportionately affect certain groups or communities. These risks can impact individuals in terms of access, affordability, and the ability to adapt to new technologies.

    a) **Digital Divide**: The transition to digital communication technologies may widen the existing digital divide. Some individuals, particularly those in rural or economically disadvantaged areas, may lack access to high-speed internet or may not be able to afford the necessary equipment for the switchover, leaving them at a disadvantage.
    b) **Access to Emergency Services**: Vulnerable populations, such as the elderly or those with disabilities, may face challenges accessing emergency services during the switchover. New communication technologies might not provide the same level of accessibility or ease of use for these groups.
    c) **Affordability Concerns**: The cost of transitioning to new communication technologies, such as acquiring compatible devices and paying for high-speed internet access, could pose affordability challenges for certain socio-economic groups. This may limit their ability to participate fully in the digital communication landscape.
    d) **Education and Awareness Gaps**: Individuals with lower levels of digital literacy or awareness may struggle to adapt to the new technologies. Educational outreach programs may be needed to ensure that everyone has the knowledge and skills required for effective use of the new communication systems.
    e) **Privacy and Security Concerns**: Vulnerable populations may be more susceptible to privacy and security risks associated with digital communication technologies. This includes the potential for fraud, identity theft, or other forms of exploitation.
    f) **Age Disparities**: Older individuals may experience difficulties adapting to new technologies, leading to a generation gap in communication. This can impact their social connectivity, access to services, and overall quality of life.

[5] These costs are now mitigated against the WAN Replacement project/new contract.

g) **Rural concerns:** Rural areas may have poorer broadband connectivity and still be reliant on fibre and copper solutions e.g. Fibre to the Cabinet, which will continue to have some resilience issues. Power cuts can also be a cause for concern, with power cuts being more frequent and taking longer to be repaired in rural areas. This can be compounded when 'mobile phone services' are often poorer in rural areas too, leaving less options when there is a power cut.

34. To address these equality risks, the Council will work to identify and mitigate potential disparities during the PSTN switchover, providing targeted support to vulnerable populations, and ensuring that no group is left behind.

Risks

35. While there are potential benefits to the PSTN Switchover, such as increased efficiency and enhanced features, there are also several risks and challenges associated with the PSTN switchover. Some of these risks include:

    a) **Service Disruptions**: During the switchover process, there is a risk of service disruptions, which can impact communication for individuals, businesses, and emergency services.
    b) **Interoperability Issues**: The new digital and internet-based technologies may not be fully compatible with existing systems and devices. This can lead to interoperability issues, making it challenging for different communication systems to work seamlessly together.
    c) **Equity and Access Issues**: Not everyone may have access to or be familiar with the new communication technologies. This can lead to disparities in access and communication capabilities, particularly in rural or underserved areas.
    d) **Cost Considerations**: While the long-term benefits of the switchover may include cost savings, there are often significant upfront costs associated with infrastructure upgrades and the deployment of new technologies. Managing these costs effectively is crucial for the success of the transition.
    e) **Public Awareness and Education**: Lack of awareness and understanding among the public about the switchover can lead to confusion and resistance. Effective communication and education campaigns are essential to inform users about the changes and how to adapt to the new communication landscape.
    f) **Vendor Reliability**: Dependence on specific vendors for equipment and services can pose a risk. If a key vendor experiences issues, it could impact the overall functionality and reliability of the communication network.

Legal Implications

36. PSTN is a technological change of utility service provision that affects Council services and functions using these services, rather than something the Council is choosing to do itself. The continuity and provision of Council services and functions could; however, be affected by any change that impacts the delivery of these services.

37. The report indicates that there is a plan to address the potential effects on Council functions and services. It also notes that the potential effects on Adult Social Care service users and actions to manage this have been identified. An initial impact assessment/screening has identified equality risks associated with the switchover, and further work will continue to assess the impact and any measures that may be taken to mitigate the risks to those with protected characteristics.

Human Resource Implications

38. No HR implications have been identified.

Purpose of the Meeting

39. The Panel is asked to consider the information provided and:
    - determine any comments to make to the Cabinet Member with Responsibility for Corporate Services and Communication.
    - agree whether any further Scrutiny is required at this stage.

Supporting Information

Appendix 1: Glossary of Terms

Contact Points

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Emma James / Jo Weston, Overview and Scrutiny Officers
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Background Papers

Communication Provider (CP) support and information:

- Digital phones for home and business | Openreach
- We're switching from analogue to digital landlines - BT Plc
- The big analogue switch-off is underway | Virgin Media Business
- BT Openreach PSTN and ISDN 2025 Switch Off - ADWConnect
- What you need to know about Internet Calls | Sky Help | Sky.com
- Digital Voice | What is Digital Voice | TalkTalk
- The great digital switchover — Everything you need to know about the analogue switch-off (communityfibre.co.uk)

Central / Local Government support and information:

- Digital switchover hub | Local Government Association
- The closure of the public switched telephone network - Crown Commercial Service
- Telecare stakeholder action plan: preparations for the analogue to digital switchover - GOV.UK (www.gov.uk)
- Moving landline phones to digital technology: what you need to know - Ofcom
- The Digital Switchover is coming | Worcestershire County Council

Digital switchover partner toolkit:

- The LGA has created a toolkit for councils to use to raise awareness internally and with stakeholders, including residents, of the digital switchover, including resources such as a list of Digital Switchover FAQs and an A4 leaflet explaining what residents need to be aware of.
- Local government and wider stakeholders have a critical role to play in the digital switchover to support residents and businesses to prevent impact on their day-to-day life and business. The toolkit contains assets aimed at residents to raise awareness of the upcoming switchover and can be accessed and downloaded from the LGA's website.

All agendas and minutes are available on the Council's website here.

Appendix 1: Glossary of Terms

Term	Explanation
Communications provider	Openreach sell lines to Communications Providers (CPs) who then sell their product offering to the end customer (Homes and Businesses). CPs include over 650 companies including SKY, TalkTalk, BT Consumer, Daisy and Gamma.
Digital switchover	By 2025, analogue telephone services accessed by the Public Switched Telephone Network (PSTN) will be switched off as the UK's telecoms infrastructure is upgraded to digital connectivity. The switchover has implications for the telecare and TEC sector, and the 1.8 million people who rely on those services in the UK. All traditional devices that connect to the PSTN, such as telephone handsets, ATM machines, traffic light management systems and telecare units, will need reconnecting, with some needing upgrading or replacing irrespective of what plans that telecare providers have to develop their service.
FTTC and FTTP	Traditionally premises have received their services over a copper line that runs from the local telephone exchange into green cabinets in the street and then on to a local distribution point like a telegraph pole. The copper line then enters the premises. FTTC or Fibre To The Cabinet, is a service that is already available to 95 per cent of the UK. It utilises the traditional copper telephone line from the premises to the green street cabinet. However, at the cabinet, the broadband/Internet part of the customer's service is transferred onto fibre and allows greater speeds, whist the customer's voice calls continue to the exchange over the existing copper line. FTTP or Fibre To The Premises, connects the customer's premises by fibre cable all the way to the Openreach exchange, without going through the green street cabinets and provides fast broadband and VOIP. This service is being rolled out by Openreach in a programme costing billions of pounds and will continue for years to come, until it is available in the whole of the UK.
PSTN	PSTN is a privately-owned copper wired based telecoms network and the decision to upgrade it has been taken by the telecommunications industry. Fixed-line operators - such as Openreach, BT and Virgin MediaO2 - will replace analogue telephone services with Voice over Internet Protocol (VoIP) technology, which carries voice calls as data using internet technology. The upgrade will be delivered by the telecoms industry in a phased approach over the next couple of years, with the UK network expected to be fully upgraded to VoIP services in 2025. The switchover will happen on a telephone exchange by exchange basis and not on a regional basis seen in relation to the switchover of analogue television.
SOGEA	SOGEA stands for Single order Generic Ethernet Access and is the product name that Openreach use when selling this service to CPs. It is similar to FTTC but, when a customer moves to this service, they agree use the Internet for their voice calls (VoIP). The service uses the copper line from the customer's premises to the green street cabinet and then fibre cable to the telephone exchange. Unlike with FTTC, the copper line from the green street cabinet to the telephone exchange is no longer used with SOGEA. This means that to make voice calls you

	will need to connect to your router in the premises either through WIFI or through a voice port in the back of the router - if one is supplied by the CP. These calls will be VoIP.
SOGFAST	SoGFAST is similar to SOGEA, but offers faster broadband speeds, as it has additional equipment at the green street cabinet which boosts the speed.
Stop sell	To constrain the use of the older analogue services and the number of lines that will need migrating, Openreach have set “stop sell” dates, which are dates after which CPs will no longer be able to obtain new supply for their customers of these analogue services. There is a national “stop sell” date of September 2023, but some exchanges will hit their “stop sell” dates earlier, as Openreach’s roll out of FTTP into exchange areas reaches 75 per cent of premises. There is a list of these exchanges on the Openreach website. Stop Sell refers not only to new provision of analogue services, but also any of the following scenarios: Working Line Take overs; Start of a stopped line; Addition of lines and channels to existing installations; Migrations; CP Transfers; Bandwidth Modify and Addition of Broadband to copper voice lines.
Ultrafast Broadband	Ultrafast broadband is a brand name used by some communicators providers to highlight the potential of their product offering for very fast broadband speeds.
VOIP	Voice Over Internet Protocol (VOIP) is a service whereby voice calls are made over the Internet.
Vulnerable	OFCOM have not set rigid rules for this definition, they are leaving this to Communication Providers. More information can be found at Guidance: Protecting access to emergency organisations when there is a power cut at the customer's premises.
WLR analogue (Wholesale Line Rental	All services known as part of the WLR analogue (Wholesale Line Rental) family will be terminated. These include standard lines, ISDN 2, ISDN 30, LLU, SMPF, SLU and SMPF. Communication Providers will be able to tell customers which of these services they currently use.