

National Broadband Development

Contingency plan options

CONFIDENTIAL AND COMMERCIALY SENSITIVE

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EXPENDITURE AND REFORM ONLY**

NOT FOR ONWARD TRANSMISSION WITHOUT APPROVAL OF DCCA

1. Purpose of this note

In the event that, for whatever reason, the current NBP procurement process fails to deliver a solution acceptable to Government, this paper outlines the details of three of the alternative options ('plan B options') that may be available to Government to advance the availability of high speed broadband to citizens across the State. The options described provide solutions which, to different degrees, enhance the availability of high speed broadband in rural areas but would not deliver high speed broadband to every home and business.

2. Context of Options outlined in this document

These options have been developed as a follow up action from a meeting held between DCCA and DPER in February 2019.

During 2018 a high level contingency option review was undertaken by officials from DCCA, DPER and DoT. The options outlined herein have been developed based on the findings and work conducted through this initial review in 2018.

The information presented in this document has been developed with the intent of illustrating what could potentially be achieved in a plan B scenario using high level assumptions and assuming favourable timelines to complete a number of complex tasks. The subsidy estimates presented in this paper, as well as the costings, revenue projections, timelines and other supporting assumptions have been extrapolated from information provided by the bidder and experience gained through the engagement with the market through the NBP intervention programme over the past 5 years. However significant variances from these high level estimates could ultimately result (both higher or lower) following market engagement, if a plan B approach were pursued.

A significantly more robust and thorough analysis would be required before the preferred plan B approach could be confirmed.

By way of comparison,

- The development of the current NBP intervention strategy has been supported by expert advice (including a panel of international and national experts on the NBP steering group, ComReg, PWC, KPMG, Analysys Mason, MasonHayesCurran) as well as a series of public consultations. A similar level of detailed analysis with the necessary external support and public consultation would need to be mobilised to confirm an appropriate plan B approach;

- The current NBP intervention measure has been pre-notified to the DG Comp, and significant feedback has been received and incorporated into the design of the measure to ensure it is compatible with State Aid guidelines; this process has been supported by PWC, Analysys Mason, MasonHayesCurran. Any plan B measure would require a similar level of engagement with DG Comp;
- The NBP procurement process has engaged the market for the optimum solution to deliver the NBP objectives; a significant process of dialogue has been undertaken over 2 years with a range of bidders and industry experts to refine the requirements and define the optimum solution. This process has been supported by an independent NBP Procurement Board, NDFA as well as ComReg, PWC, KPMG, Analysys Mason, MasonHayesCurran. A similar level of market engagement with support from expert advisors would be required to procure any of the plan B options;
- The NBP intervention measure is supported by a full Cost Benefit Analysis (CBA) compliant with the public spending code. The options outlined in this report have not undergone a project appraisal or any CBA analysis; and
- The final tender submission from the bidder confirms the maximum subsidy requirements and flags the bidder's commitment to deliver the contractual obligations if they were awarded the contract. While the plan B options outlined in this report have been produced following high level analysis and are based on the assumptions set out, they have not undergone in-depth scrutiny as to their viability and there has not been a robust analysis undertaken of the accuracy of the subsidy forecasts referenced.

3. Outline of options

The three options outlined in this paper are:

Option 1 – The Phased approach

Where DCCAE selects two areas from the Intervention Area (subject to updating the High Speed Broadband Map) and commences new tender processes (for lots of approx. 26,000 premises each) for the design and build of the network and a separate contract for the operation and maintenance of the broadband network once it is built. The criteria for the selection of these areas would need to be developed and would likely consider the deficit of broadband access in the area, socio economic factors, etc.¹.

Option 2 – Separate build and operate contracts within a €1 Billion budget

Where DCCAE sets a maximum project subsidy budget amount of say €1billion and commences a new tender process to procure the most extensive broadband coverage nationally that the budget will support, including the design and build of the network and a separate contract for the operation and maintenance of the broadband network once it is built.

Option 3 – Backhaul only

¹ For example the Central Statistics Office publishes statistics on the level of broadband access available in different areas, see https://www.cso.ie/en/releasesandpublications/ep/p-rsdgi/regionalsdgsireland2017/jst/#indicatorTitle_181695.

A backhaul only intervention would be designed to subsidise the rollout of fibre backhaul to selected locations, this fibre would then be made available for backhaul purposes which may in turn spur on further commercial investment to deliver high speed broadband to surrounding premises.

While these three options are detailed in this note for the purposes of illustrating what could be done, a much wider range of short term and longer term options have been considered in the analysis conducted during 2018, for example, developing a universal service obligation for broadband services, designation of a new mandate to an existing State body such as the ESB, or the use of 4G and 5G technologies.

While the analysis does not set out how each of the alternative options could be expanded to reach 100% of the premises in the intervention area, it does illustrate that all of the alternative options identified would take longer to reach 100% of the Intervention Area premises compared to the current plan (or in some cases would make reaching 100% extremely challenging), may be more costly, would require a consultation on a new strategy as well as a new procurement process and State aid application, and may not provide the level of future proofing required under the Commission's strategy, *Connectivity for a European Gigabit Society*.

Directly assigning the NBP lead role to a commercial state agency such as the ESB was amongst the options considered. The Attorney General has advised that there are significant legal risks in relation to both procurement law and state aid law, if the State was to mandate and fund directly outside a procurement process any economic undertaking, including a commercial semi-state entity such as ESB, to carry out the National Broadband Plan. Any entity engaged in an economic activity, that is an activity consisting of offering goods or services in a given market, regardless of its legal status and the way in which it is financed, is considered an economic undertaking. This view has been supported in separate discussions in late 2018 on the NBP between the Department and DG Competition (DG Comp) which is the Directorate General of the European Commission with responsibility for state aid matters. DG Comp stated that State Aid approval would not be granted in circumstances where a procurement process wasn't conducted to award aid to an economic undertaking.

4. Underpinning principles and ground rules

In considering any alternative option, there are a number of fundamental principles and ground rules that should be agreed at the outset, including:

- Clarity, up-front, on the long-term level of funding to be provided by the exchequer for whatever alternative option may be agreed;
- The overall policy objective set out in the 2016 PfG² will have to be moderated and accepted as an objective rather than a guarantee;
- That the solution must be future proofed – it would be inappropriate to commit State funding to a solution where the technology may be redundant in a relatively short period of time. To address this, this paper assumes that the targets set out in the

² "One of the biggest challenges facing rural Ireland is to bridge the digital divide with urban areas. To remedy this situation for at least the next 25 years, we will guarantee the delivery of next-generation broadband to every household and business in the country. No town, village or parish will be left behind under the National Broadband Plan."

Commission's strategy, Connectivity for a European Gigabit Society must be the baseline viz 'by 2025 all schools, transport hubs and main providers of public services as well as digitally intensive enterprises should have access to internet connections with download/upload speeds of 1 Gigabit of data per second. In addition, all European households, rural or urban, should have access to networks offering a download speed of at least 100 Mbps, which can be upgraded to 1 Gigabit';

- That an immediate update to the High Speed Broadband Map will be required, along with continued monitoring of new commercial investment plans and ongoing commercial roll-outs to identify market failure in line with State Aid Guidelines for broadband;
- Arrangements will be put in place, which may require legislation, to establish a new broadband agency or office (or extending the powers of an existing Agency) which would be mandated to deliver on the objectives of the broadband intervention. The new agency will also be responsible for putting in place a revised strategy for telecommunications market intervention(s) to deliver on Government objectives (in line with the PfG commitment³);
- The continuation of the work with industry and the Mobile Phone and Broadband Taskforce to maximise commercial investment in telecommunications infrastructure by removing barriers to investment;

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- The process leading to the delivery of an alternative solution must balance the speed of delivery and compliance with the Public Spending Code rules around Cost Benefit Analysis etc; and
- Timeliness – the need to ensure early delivery of high speed broadband in the intervention area when considering alternatives.

³ "To manage that process and to manage all the State's commercial communications contracts, we will consolidate these responsibilities into a single entity. This will act as a centre of expertise for managing all the State's commercial activities in communications such as the TII fibre ducts, the MANs network and masts on OPW lands, as well as the ultimate National Broadband Plan contract".

⁴ [REDACTED]

4.1 Creation of a dedicated broadband agency in State control

Having assessed the potential alternative options, it was concluded that the creation of a dedicated broadband agency in State control would most likely result in advancing the Government's ambition of providing high speed broadband to every premises in Ireland. The Government would provide a mandate to an existing, or new Special Purpose Vehicle (SPV) to build a high speed broadband network to offer services in line with comparable products in commercial areas. This SPV would be required for any contingency option chosen.

Two options have been identified in terms of proceeding with a dedicated broadband agency. These are either (i) the establishment of an in-house (DCCAIE initially) SPV 100% owned by the State; or (ii) mandating an existing State Agency/State Body to establish an SPV to be responsible for delivery of the NBP.

In terms of (i) above it is proposed that as an interim measure, the SPV, would be established as a standalone entity within DCCAIE (akin to the approach taken in the UK (BDUK) see appendix 1 for a brief overview). An in-house structure could be established relatively quickly retaining and utilising expertise built to date in the process.

In terms of option (ii), consideration was given as to whether an existing commercial State body would have the capability of delivering the project on behalf of the State and that body would then be mandated to deliver the NBP on agreed commercial terms by establishing a separate/stand-alone SPV. This was considered an attractive option given that a number of State bodies who already engage in procuring major infrastructure projects could be well placed to deliver a project of this scale and nature. In addition existing corporate functions such as human resources, finance, facility management, IT etc. could be leveraged by an existing State Body to support the establishment of the SPV.

For both options there would be a need, however, to engage additional expertise with economic, financial, legal, technical and regulatory experience (20 – 30 new staff) as well as professional advisors which would have to be procured to supplement existing staff before activities could be substantially progressed. These staff would be required to implement the procurement projects for the chosen option, ensure the project complies with public spending code requirements and that State Aid approval is granted for the measure intended. [REDACTED]

[REDACTED]. This could take several months and would be subject to that expertise being available and whether current market rates could be matched sufficiently to attract this expertise to an in-house SPV. [REDACTED]

5. Delivery of Option 1 - The phased approach

5.1 High level Intervention strategy for Option 1

The strategy for the delivery of Option 1 includes:

- (a) An immediate procurement by OGCIO/DRCD/DCCAIE of a company or companies to deliver high speed broadband to circa 300 broadband connection points (BCPs)⁵ within two years and circa 1000 locations within four years. A full examination will need to be conducted to assess the suitability of the BCP plan and their location for long term use before proceeding with this option (cost benefit analysis, management and governance, additional

⁵ A BCP is a premises in a community like a community centre, parish hall or GAA club where public wifi would be made available.

development over the term of their use). Some BCPs may provide office like facilities for activities such as remote working. The BCPs would be made available at these locations for a 10 year period.

- (b) DCCAE to commence two projects and commence tender processes for lots of approx. 26,000 premises per Lot for the design and build of a high speed broadband network and separately procure services for the operation and maintenance of the network over a 25 year term.

5.2 Key steps to delivering option 1

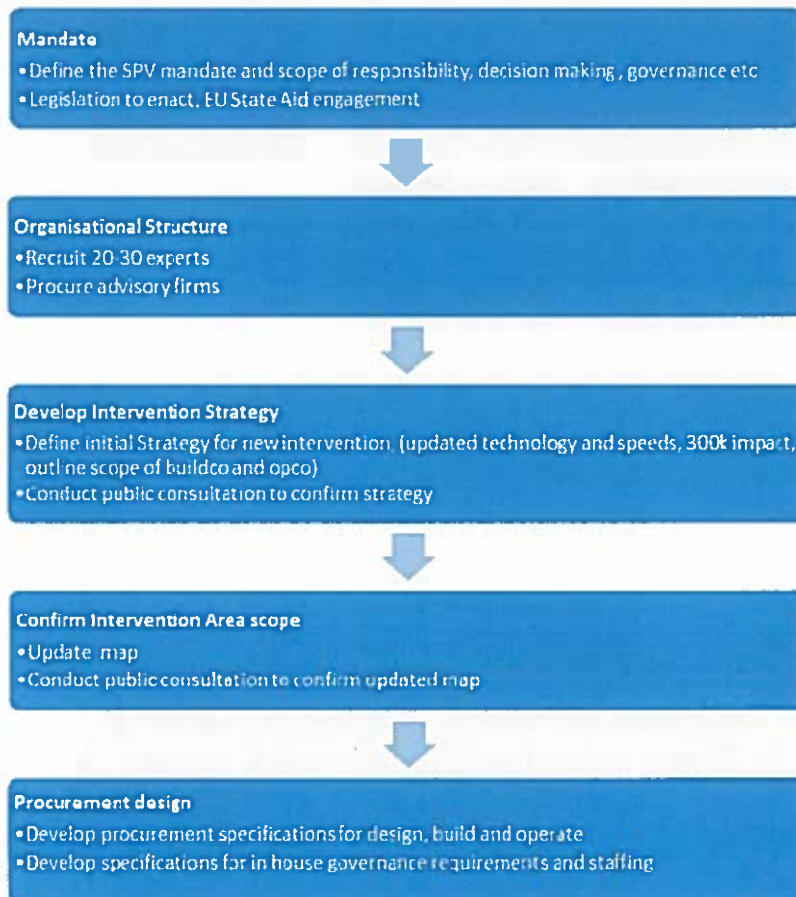
The key steps in initiating an in-house SPV and delivering option 1 are described in Figure 1 below. This would be the minimum that would be required to enable a new public procurement exercise to start. This initial period to enable the delivery of the procurement is likely to take circa 1.5 years to complete.

The SPV would be mandated to:

- procure the design and build of a network to almost 300 broadband connection points (BCPs) within two years and 1000 locations within four years and their operation/maintenance over a 10 year term;
- procure the design and build of a high speed broadband network to the 2 areas consisting of 26k premises each; and
- procure a managed service contractor to operate/sell wholesale services over a 25 year term.

The SPV would take some time to mobilise its own staff and contract expert advisors. As an interim step, DCCAE would allocate existing NBP staff to help establish the SPV functions and procure the expert advisors required.

Figure 1 – activities required for set up and of role of any new SPV under State ownership



Procurement of project under in-house SPV

Once the SPV is established and has developed a firm intervention strategy with associated intervention area, scope and specifications for the design, build and operate activities, the SPV could then conduct a series of public procurements to procure these services. The SPV would select two areas consisting of 26k premises each.

The criteria for the selection of these areas from the overall Intervention Area would need to be developed and would likely consider the deficit of broadband access in the area, socio economic factors, etc..

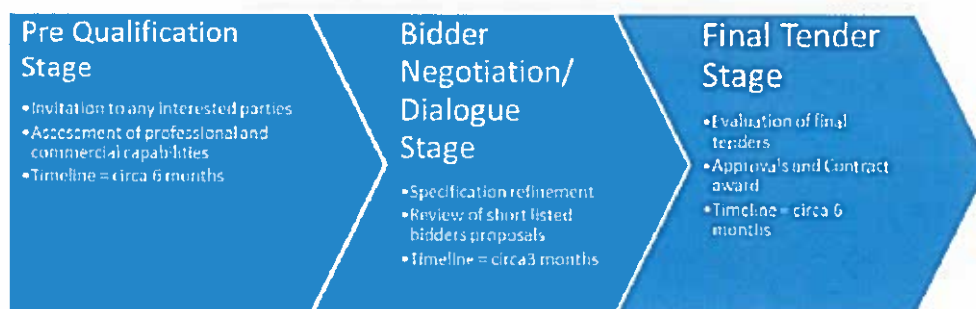
Figure 2 below illustrates the option 1 approach where a separate BCP delivery contract would be procured, a separate design/build contract and a separate Managed Service contract is adopted. In parallel, to the procurement process there would be a State aid notification exercise undertaken by the SPV to seek State aid approval where required for the project.

Figure 2 – Procurement process to be followed by the SPV



Figure 3 – Procurement stages

The procurement stages that would be required for each of the new contracts mentioned above would involve:



Based on the experience of the NBP procurement process it could be expected that a new procurement would take a minimum of 15 months to implement from initiation of the process to contract award.

If this option were pursued it would be supported by much of the material developed for the existing NBP contract and NBP procurement. Significant amounts of procurement material has been developed over the past number of years to allow the tender process be implemented effectively and a substantial draft contract has been developed to ensure optimum governance of the project once the tender is awarded. These materials could be largely re-used in the new tender processes. However the material would need to be adapted to allow for the new split of contracts (i.e. design/build with separate operation/maintenance contracts). In addition as the scale and scope of the projects are significantly lower than the current NBP intervention, the proportionality of the obligations would need to be re-considered.

Post procurement activities

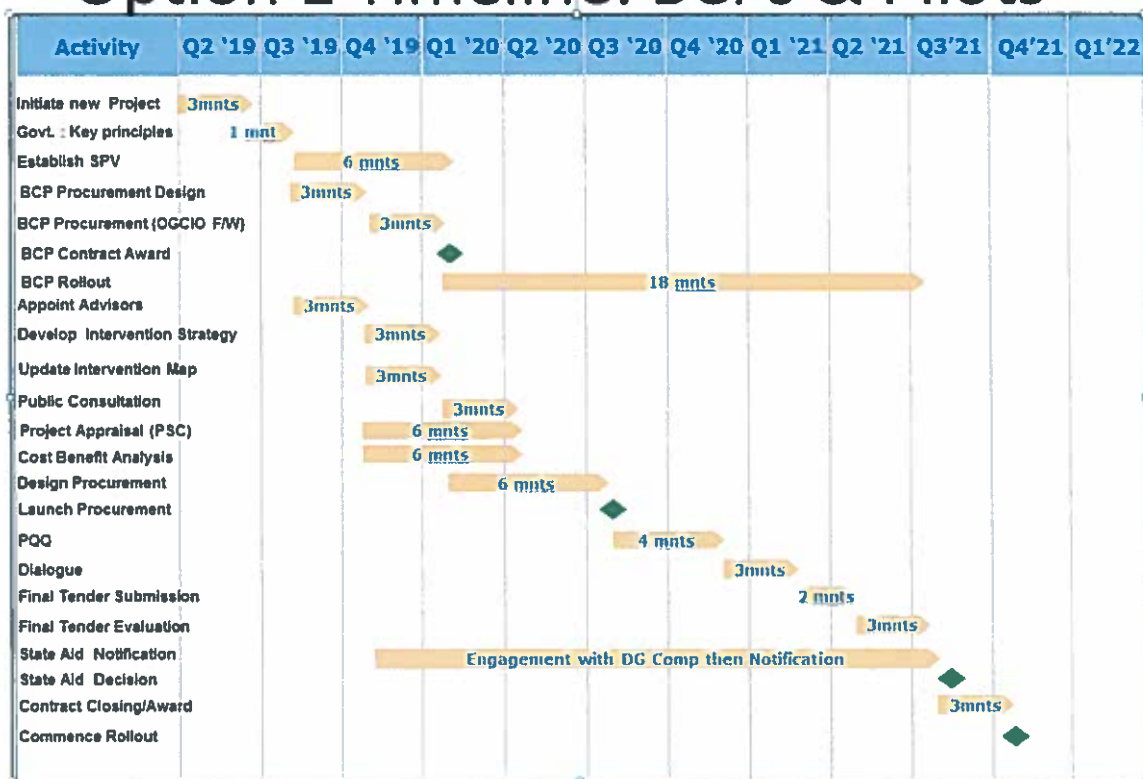
Once the contracts are awarded the SPV would then undertake the contract governance responsibilities of overseeing each of these contracts and ensuring contractual obligations are met.

In addition the SPV would then review the end to end process undertaken for the two areas and consider how further areas should be contracted for in order to achieve the overall ambition of ubiquitous high speed broadband that meets the targets set out in the Commission’s strategy, *Connectivity for a European Gigabit Society*. For example, the next series of procurements under taken by the SPV could involve five further areas of 26k premises each in different counties.

The SPV would assess the process conducted to date and revert to Government with recommendations on how best to proceed towards rolling out high-speed broadband to additional areas.

5.3 Indicative Timeline to deliver Option 1

Option 1 Timeline: BCPs & Pilots



The indicative timelines developed have been deliberately aggressive and have assumed speedy decision making, short timelines for industry engagement, consultations and streamlined procurement processes.

The indicative timeline to award a contract under option 1 is expected to take 32 months from the initiation of the project. The timeline includes the time for the procurement of advisors for the SPV, the procurement of the BCP project, the 2 lots for building the networks in the two areas and the selection of the company to manage the network. Based on a start date of 1st April 2019 this would indicate a contract award date of circa November 2021.

On this basis the initial rollout of the first 300 BCPs could be achieved within this timeline.

The rollout of the network to the two areas and establishment of the managed service contractor will take at least a further 18-months to implement after contract award.

Option1 and the two areas would be therefore completed by mid-2023.

Once the procurement process of the first two areas is completed the preparatory work for the procurement of additional areas could start. The lessons learnt from the procurements for the two areas could be considered in the procurement design and subject to the scope of change, the procurement for the next number of areas could begin within 6 months of the completion of the procurements of the first two areas, estimated at mid-2022.

5.4 Costs & subsidy requirements for Option 1

The table below sets out the estimated subsidy requirements for two projects to address 52,000 premises as well as the Broadband Connection Points.

[REDACTED]

- The build deployment period was assumed to be 2 years;

[REDACTED]

In this option the costs to the state are offset by revenues gained through the sale of broadband services to service providers. [REDACTED]
[REDACTED]. However if these revenue forecasts prove to be overstated then additional subsidy will be required. This market risk relating to revenue remains with the State for this option.

Key outputs

- The project involves passing 52,000 premises, approximately 9.6% of the current Intervention Area. This assumes a separate design and build contract for the deployment and a managed service contract for the operator;
- The revenue risk of the project will remain with the Government and the revenues for the project have been netted off the costs for the purposes of estimating the subsidy cost for the first two areas. [REDACTED]
[REDACTED]; and
- This excludes any fees associated with the State's broadband agency that would be required to manage this and potentially other areas.

5.5 Benefits and Risks

Benefits

- Greater control of annual expenditure and budget allocations;
- Partly leverages work to date;
- Likely to comply with State aid requirements;
- Re-use of Department's information used for Plan A procurement and State Aid notification;
- Re-use of processes and systems used in developing the high speed broadband Map; and

Risks/Cons

- Only 52k premises would be addressed over the project (by mid-2023), with uncertainty on when the remaining premises will be addressed, the urban/ rural digital divide will increase over the duration of this project;
- Requirement to develop a new procurement process and/or a new strategy (for example the minimum speeds required);
- There is no guarantee that bidders will be attracted to make proposals for this option;
- The actual costs required for this option will need to be determined through the procurement process, the estimates provided in this paper are indicative only;
- The full market risk will rest on the State in this option;
- A large proportion of construction risk will rest on the State in this option;
- Ability to attract and procure the required expertise necessary to deliver the project;
- Uncertainty of the timescale and costs to complete the delivery the project;
- The risks already identified in relation to dealing with existing infrastructure providers is not likely to be any less under this option;
- A loss of economies of scale could occur in relation to the purchase of materials and labour if the State Agency procures the build of the network in a piecemeal and slower way to that envisaged under the current procurement process. This would ultimately drive higher costs;
- The BCPs may require deeper State involvement and investment than is currently envisaged as they will exist for circa 10 years and will be a key bridge for rural communities to access internet services
- The ERDF funding of 75M€ currently allocated to the project will be lost;; and
- Primary legislation may be required to give effect to ring-fenced structures within DCCA.

6. Delivery Option 2 - Separate build and operate contracts within a €1 Billion budget

6.1 High level Intervention strategy for Option 2

The strategy for the delivery of Option 2 includes:

- (a) An overall project budget of €1 billion to be assigned to the SPV tasked with delivering broadband. This budget allocation would be announced upfront by the Government.
- (b) An immediate procurement by OGCIO/DRCD/DCCAE of a company or companies to deliver high speed broadband to circa 300 broadband connection points (BCPs) within two years and 1000 locations within four years. A full examination will need to be conducted to assess the suitability of the BCP plan and their location for long term use before proceeding with this option (cost benefit analysis, management and governance, additional development over the term of their use). The BCPs may provide office like facilities for activities such as remote working. The BCPs would be made available at these locations for a 5 year period.
- (c) DCCAE to commence tender processes to procure the most extensive broadband coverage nationally that the budget will support, for the design and build of a high speed broadband network and separately procure services for the operation and maintenance of the network over a 25 year term.

6.2 Key steps to delivering option 2

The key steps in initiating an in-house SPV and delivering option 2 would involve a number of similar steps to those outlined for option 1. The SPV would be mandated to:

- procure the design and build of a network to almost 300 broadband connection points (BCPs) within two years and 1000 locations within four years and their operation/maintenance over a 5 year term;
- procure the design and build of a high speed broadband network to as many premises as possible nationally within the defined budget cap; and
- procure for a managed service contract to operate/sell services over a 25 year term.

Similar to option 1, the SPV would need to be established, advisory contract procured, an intervention strategy defined, a mapping exercise conducted, a state aid notification process undertaken, a new procurement process implemented to select the design/build contractor and operation and maintain contractor.

Again, this option, were it pursued, would be supported by much of the material developed for the existing NBP contract and NBP procurement. The material would need to be adapted to allow for the new split of contracts (i.e. design/build versus the operation/maintenance contracts), and the proportionality of the obligations would need to be re-considered.

Post procurement activities

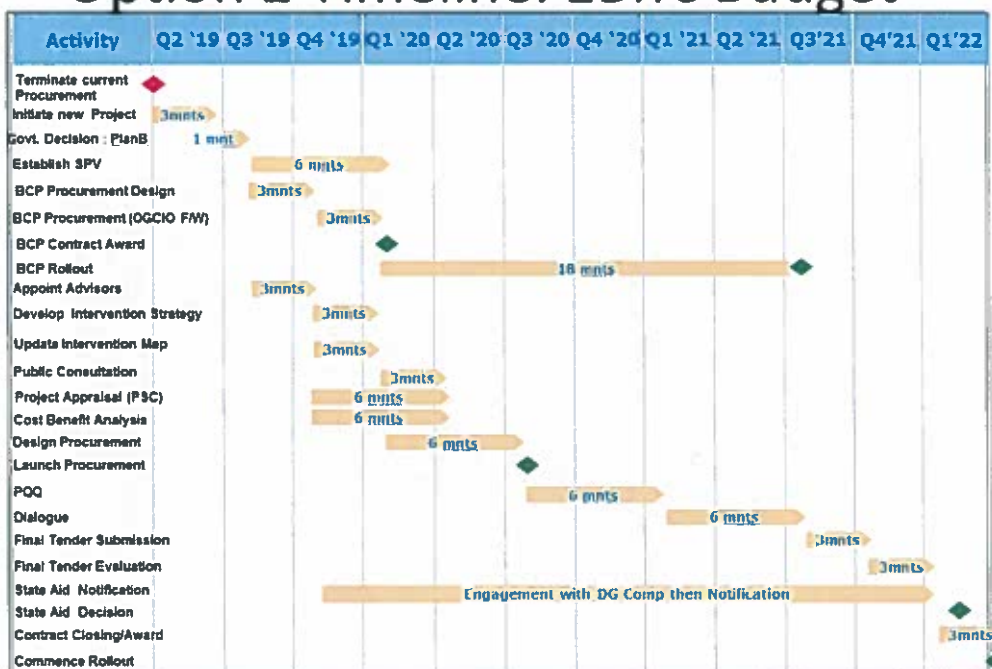
Once the contracts are awarded the SPV would then undertake the contract governance responsibilities of overseeing each of these contracts, ensuring contractual obligations are met and managing the payment of invoices received from the contractors.

In addition the SPV would then consider how the remainder of premises could be contracted. This is likely to require a new intervention strategy and consultation with industry, a new state aid notification and procurement. The SPV would assess the options available and revert to Government with recommendations on how best to proceed towards remaining areas.

6.3 Indicative Timeline to deliver

The indicative timelines developed have been deliberately aggressive and have assumed speedy decision making, short timelines for industry engagement, consultations and streamlined procurement processes.

Option 2 Timeline: 1Bn€ Budget



The timeline to contract option 2 is expected to take 37 months from the initiation of the project. Based on a start date of 1st April 2019 this would indicate a contract award date of circa May 2022.

On this basis the initial rollout of the first 300 BCPs could be achieved within this timeline.

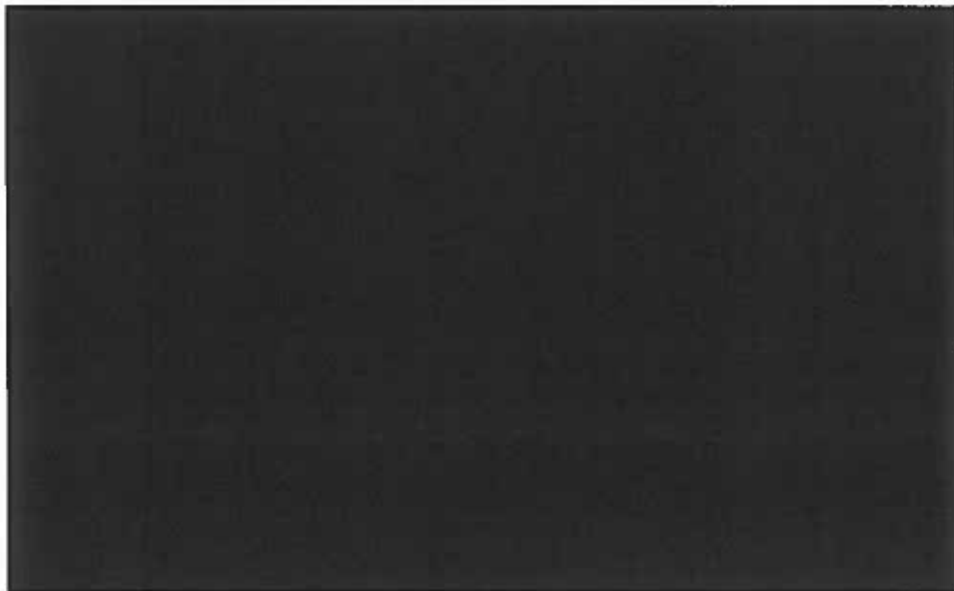
From internal modelling conducted it is estimated that 24% of the current intervention area would be covered under this option, i.e. 127k premises.

These inputs could be considered conservative, if more aggressive inputs were assumed a much higher number of premises would result e.g. 40%.

The network build contractor would avoid deploying network towards the more expensive premises in any given area. Figure 4 illustrates the location of the most expensive premises to pass, in purple.



On an area by area basis the build contractor would select the easiest premises to pass. For example, as outlined in figure 5 (an area in West Cork), the build contractor would select the premises which are easiest to reach marked as dark green on the map.



The rollout of the network to the intervention areas and establishment of the managed service contractor will take circa further 5 years to implement after contract award.



Option 2 would be therefore completed by mid-2027 to the 127k premises in the intervention area.

6.4 Costs & subsidy requirements for Option 2

The table below sets out the estimated subsidy requirements for the project within the constraints of a €1bn project budget. The estimates result in a forecast subsidy budget of [REDACTED] over the 25 years. The remaining [REDACTED] subsidy could be allocated as contingency to safeguard against any shortfalls that may arise or alternatively allocated to the project to address additional premises [REDACTED]

	Description	Estimated Subsidy Cost in millions nominal (incl VAT)
Broadband Connections Points (BCP) Contract		
	capex subsidy to deploy the BCPs	[REDACTED]
	Opex subsidy to manage the BCP links over 7 years	[REDACTED]
	Contractor management fees of [REDACTED] on the build and operating costs of BCPs over 7 years	[REDACTED]
	Total BCP subsidy	[REDACTED]
Build Contracts		
	Capex subsidy to deploy the network to 127k premises	[REDACTED]
	Allocation of contingency of to cater for potential build issues	[REDACTED]
	Contractor management fees of [REDACTED] on the build costs	[REDACTED]
	Total build subsidy	[REDACTED]
Managed Service Contract		
	Connection subsidy forecasted over 25 years	[REDACTED]
	Infrastructure rental subsidy over 25 years	[REDACTED]
	Operating and maintenance costs over 25 years	[REDACTED]
	Allocation of contingency of to cater for potential operational issues	[REDACTED]
	Management fees of [REDACTED] mark up on operating and connection costs over 25 years	[REDACTED]
	Off-set by forecast commercial revenue	[REDACTED]
	Total Managed Service Contract subsidy	[REDACTED]
Total Subsidy	BCP+ Build + MSC	[REDACTED]

Assumptions and inputs to estimates

[REDACTED]
[REDACTED] Key assumptions [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

- The build deployment period was assumed to be 4 years;

[REDACTED]
[REDACTED]

[REDACTED] Infrastructure rentals per premises passed were assumed to be similar as the cheaper premises would be targeted [REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]

This scenario is forecast to pass 127k premises, approximately 24% of the Intervention Area. The costs associated with deploying and operating the BCPs are estimated at [REDACTED]. This is lower than the in the option 1 - phased approach, as in this scenario we are assuming that the BCP network will be decommissioned after 5 - 7 years, thus saving on operating costs (such as mast rentals).

[REDACTED]
[REDACTED]

However if these revenue forecasts prove to be overstated then the State would need to either allocate additional subsidy (i.e. extend the €1B budget) or reduce the availability of the services provided. This market risk relating to revenue remains with the State for this option.

6.5 Benefits and Risks

Benefits

[REDACTED]
[REDACTED]

- Greater control of annual expenditure and budget allocations;

- Partly leverages work to date;
- Likely to comply with State aid requirements;
- Re-use of information used for Plan A procurement and State Aid notification;
- Re-use of processes and systems used in developing the high speed broadband Map;
- [REDACTED] and
- Greater coverage than option 1.

Risks/Cons

- It is estimated that circa 127k premises would be addressed with this plan, with uncertainty on when the remaining premises will be addressed, the urban/ rural digital divide will increase over the duration of this project;
- The cost and complexity of addressing the remaining c323k premises is greatly increased if a further intervention was considered in the future
- There is no guarantee that bidders will be attracted to make proposals for this option;
- The actual number of premises that would be covered will need to be determined through the procurement process, the estimates provided in this paper are indicative only;
- The full market risk will rest on the State in this option;
- A large proportion of construction risk will rest on the State in this option;
- There is no guarantee as to the ability to attract and procure the required expertise necessary to deliver the project.
- Uncertainty of the timescale and costs to complete the delivery the project;
- The risks already identified in relation to dealing with existing infrastructure providers is not likely to be any less under this option;
- A loss of economies of scale could occur in relation to the purchase of materials. This would ultimately drive higher costs;
- Requirement to develop a new procurement process and/or a new strategy (for example the minimum speeds required);
- The ERDF funding of 75M€ currently allocated to the project will be lost; and
- Primary legislation may be required to give effect to ring-fenced structures within DCCAE.

6.6 Further measures to maximise the number of premises passed

To encourage operators to cover the most premises possible under option 2, a number of further steps could be taken to make the project more attractive for potential bidders, for example these may include:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The effect of these measures is unquantifiable at this stage but it is likely that a combination of these measures would increase the attractiveness of the project to prospective bidders. [REDACTED]

[REDACTED]

7. Delivery Option 3 – backhaul only intervention

An alternative approach is to subsidise the rollout of fibre backhaul to selected locations (close to or including masts) in the Intervention Area (IA) to incentivise further commercial investment.

A backhaul only intervention would be designed to subsidise the rollout of fibre backhaul to selected locations, this fibre would then be made available for backhaul purposes which may in turn spur on further commercial investment to deliver high speed broadband to surrounding premises.

In this option a BCP deployment has not been included

This approach is similar to the plan considered by the Department in 2014 where backhaul was proposed to be provided to circa 1100 villages at an estimated initial capex cost of 500M€.

Back haul only - Case Studies & Industry Consultation

The Department has carried out a number of case studies to assess whether a backhaul-only intervention would result in commercial deployment of access network infrastructure.

These case studies looked at the following five villages which comprise between 400 and 1,200 premises:

- Ballynabola, County Wexford;

- Bangor Erris, County Mayo;
- Pallas Green, County Limerick;
- Rhode, County Offaly; and
- Roundwood, County Wicklow.

For each of these villages, the studies examined the costs of providing broadband services of at least 30Mbps (download) using a number of technology solutions after high speed fibre backhaul had been deployed. The case studies show that deploying fibre backhaul can significantly decrease the cost of deploying FTTC. However, the studies acknowledge that due to technical limitations, an FTTC solution can only deliver high speed broadband services with higher than 30Mbps download if the end user premise is less than 1km away from a cabinet or exchange. Many premises fall outside of this range: across the five villages analysed, only an average of 45% of premises fell within 1km of an exchange or cabinet and would be able to receive the minimum 30Mbps download speed. The remaining 55% of delivery points would, therefore, need to be served with alternative solutions.

For both FTTH and FWA solutions, the case studies show that backhaul costs make up a relatively small portion of the total costs of serving these delivery points. Even excluding the costs of backhaul, the costs of connecting delivery points using FTTH or FWA was still very high. Deploying a backhaul network, on its own, is therefore unlikely to render access to more than half of premises commercially viable.

Moreover, these case studies are not likely to be representative of the totality of the Intervention Area as a large portion of the premises in the Intervention Area are located outside of villages, in ribbon developments⁶ or isolated homes. For such premises, the economics of providing high speed broadband coverage are almost certainly worse than for those in villages, given the much greater dispersion of premises.

It was concluded in 2015, after extensive analysis and consultation with industry that a backhaul only intervention may result in some commercial deployment of access infrastructure that supports high speed broadband services but this would affect a minority of premises in the Intervention Area whilst the majority of premises would not receive the service and that this type of intervention would not meet the Government's objectives.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶ Ribbon developments are lines of buildings extending along a road. A ribbon development does not necessarily have a continuous or uniform building line.

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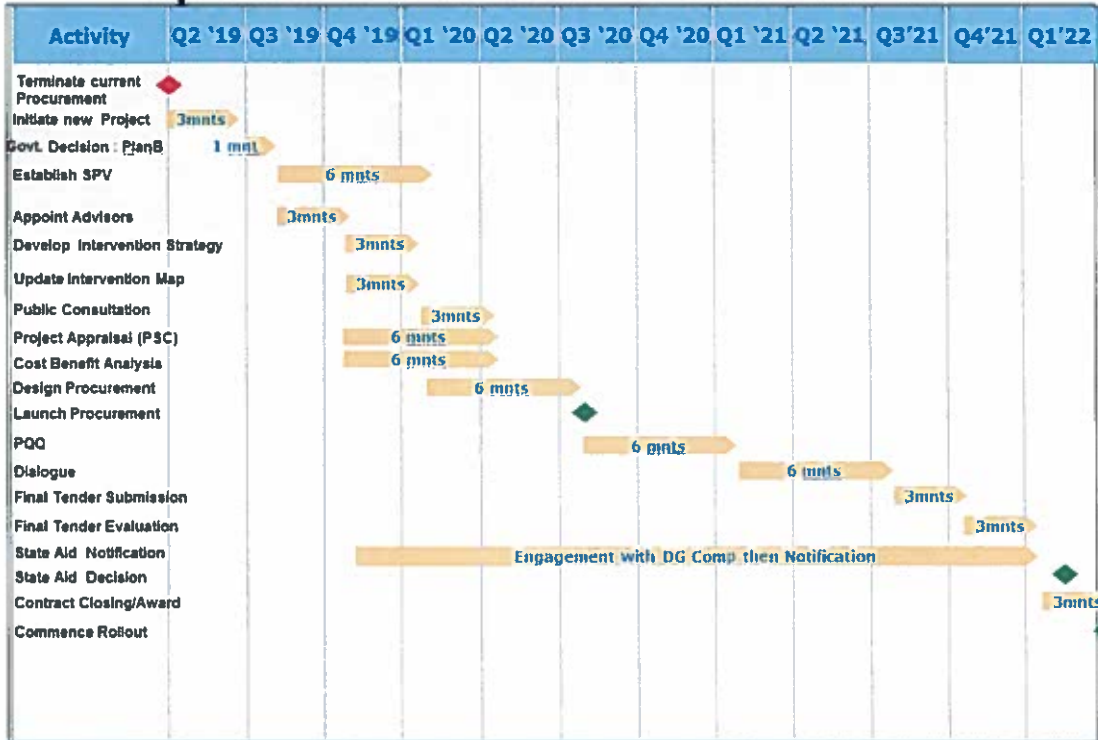
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Timeline to deliver option 3

This option 3 would involve a similar timeline to initiate as Option 2 (i.e. at least 37 months) as the same activities would be required to be conducted to progress the strategy such as a revised intervention strategy, mapping update, state aid notification and procurement to select contractors. A new Strategic Environmental Assessment would also need to be conducted which may prove challenging dependent on the level of construction envisaged. This risk is not reflect in this timeline.

Option 3 Timeline: Backhaul



The deployment of backhaul fibre could take 2-3 years and over the subsequent 2-3 years commercial operators would decide whether to deploy services or not to the selected locations.

Other considerations relevant to option 3

- The quality of service currently offered by FWA providers is impacted by the lack of fibre backhaul connections to their sites. Bringing a fibre backhaul connection to the sites would enable FWA providers to improve the quality of services they offer end users in the catchment area of each existing site;
- FWA operators using the backhaul network would be prohibited, under State Aid rules, from delivering a broadband service less of than 30Mbps and would be required to deliver a step change in service levels from any existing operator service.

- As the eir 300k FTTH would be fully rolled out to rural areas by the time the backhaul would be available, the competition from eir's FTTH network would present a real challenge to any commercial operator having a business case to invest in last mile FWA network as the density of premises they could serve in any given area will be impacted by the presence of the eir 300k FTTH network;
- FWA service providers would still require an initial capex outlay to connect to the new fibre backhaul network and would need to fund the ongoing operations and any future investment requirements for their network. The commercial operator would conduct a business case analysis on a site by site basis before deploying their network;
- The level of future proofing and quality of service standards to end users would not be provided for under the intervention;

[REDACTED]

- The remaining c.40% of IA premises who are not within the reach of existing sites (e.g. due to terrain, forests, mountains) would not see improvements in service;
- A ComReg commissioned report from Plum Consulting identifies that a total of up to 80 MHz would be required by an operator (e.g. eir, Vodafone and Three have at least 80MHz, whereas Imagine have 60MHz and DenseAir have 25mhz) to deliver:
 - a high speed wireless broadband service compatible with the 30 Mbps target;
 - based on roughly 240 sites; and
 - serving a market share 4% of total broadband market -70,000 premises.
- If it were successful, it is estimated that the intervention could improve broadband services for up to 60% of IA premises. This is dependent on operators with spectrum investing to the extent necessary to upgrade the electronics at the masts to enable the provision of improved broadband services. The percentage of premises in each area is likely to vary considerably depending on the existing stock of mast sites in the area and the topology to the terrain surrounding the locations selected;
- FWA operators are likely to welcome this initiative as they could then target specific premises with improved fixed wireless services; and

- [REDACTED]

⁷ [REDACTED] [website redacted]

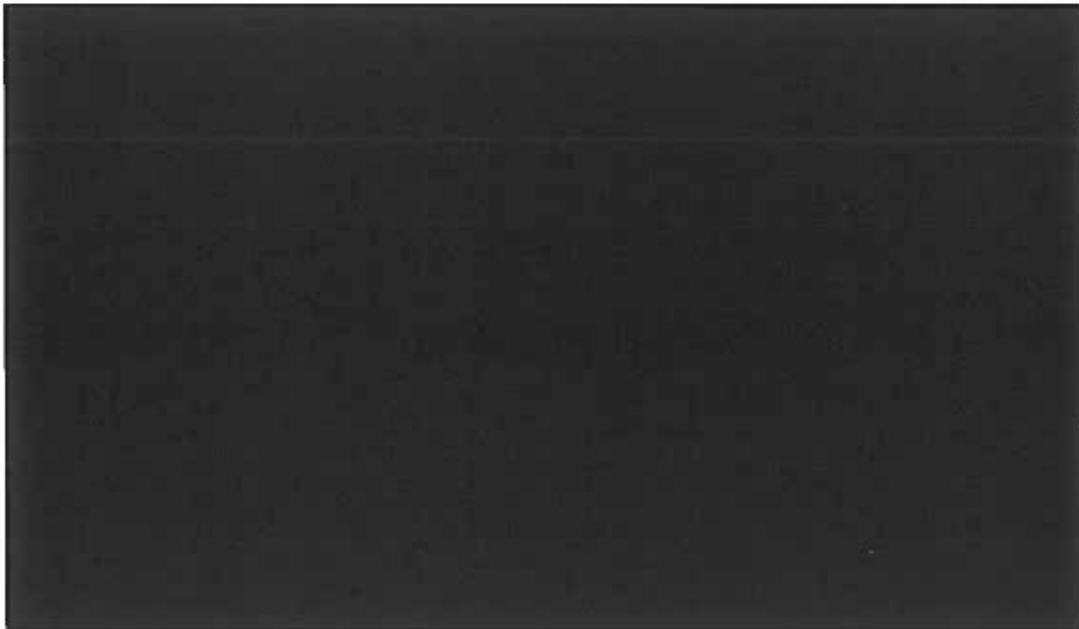
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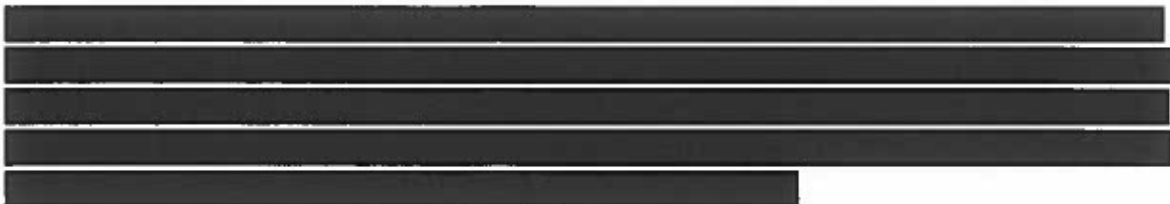
Appendix 1 – Broadband Delivery UK – BDUK Description

The UK Government has been providing funding to local bodies in the UK through the superfast broadband programme for the delivery of superfast broadband and local full fibre networks. The programme is managed by Broadband Delivery UK (BDUK), part of the Department for Digital, Culture, Media and Sport (DCMS). The Accounting Officer is the Permanent Secretary for DCMS.

There are approximately [REDACTED] staff in BDUK. Half of the staff are involved in project delivery - there are currently 50 local bodies with multiple projects to manage, please see Annex 1 for details of BDUK Programme Summary for 2019. A quarter of the staff are involved in commercial activities covering areas such as Value For Money (VFM), State Aid and analytics - there is a team of [REDACTED] contactors available to assist on specific assurance activities when required. The other quarter of the staff are involved in operational activities such as communications, portfolio and project management and finance. Please find below a functional model of BDUK and its boundaries.



It should also be noted that as well as the BD-UK direct staff, each local authority also has its own local staff catering for activities such as contract governance, EU reporting and mapping. As certain responsibilities reside with the local authorities to oversee and manage each local contract under the national framework established by BD-UK.



Annex 1 BDUK Programme Summary 2019⁸

