

REQUEST FOR TENDER

Tender:	Network Planning Tool Service Provider
Required:	Optimised High Level Network Design in the Philippines
Duration:	1-2 month(s)
Location:	Virtual
Reports to:	Emad Iqbal, Activity Manager, NBN – Philippines
Closing Date:	4 March 2025

About P4I

Partnerships for Infrastructure (P4I) is an Australian Government initiative partnering with Southeast Asia to drive sustainable, inclusive, and resilient growth through quality infrastructure. P4I partners with Cambodia, Indonesia, Laos, Malaysia, Philippines, Thailand, Timor-Leste, Vietnam and the Association of Southeast Asian Nations (ASEAN).

P4I works with partners to strengthen infrastructure decision-making and practice across the transport, energy, utilities and telecommunications sectors. P4I's focus is on the early stages of the infrastructure lifecycle, including planning and prioritisation, financing strategy, and procurement.

The four main services offered by P4I are linkages with Australian government agencies and other institutions, technical and policy advice, infrastructure project advice and knowledge-sharing and learning.

As the foundation of quality infrastructure, P4I also integrates gender equality, disability, and social inclusion, and disaster risk reduction and climate change considerations into all activities.

Delivered through a single team, P4I is led by the [Australian Department of Foreign Affairs and Trade](#) (DFAT) in collaboration with [Ernst & Young](#), [Adam Smith International](#), [The Asia Foundation](#) and [Ninti One](#).

P4I has a head office in Bangkok, with other staff located around the region. More information about P4I is available at www.partnershipsforinfrastructure.org

Background

While Philippines boasts a nationwide mobile coverage (99% of its population), fixed line broadband penetration sits at a low 36% of residential households (compared to 66% in Vietnam; 43% in Malaysia; 90% in Australia). Philippines' telecommunications sector has not achieved adequate network coverage to benefit rural and geographically isolated areas.

P4I is providing technical assistance to the Department of Information, Communications and Technology (DICT) in delivering their National Digital Connectivity Plan. This technical assistance is to a technical reference architecture (defining network serving areas), and an implementation level business case for each network serving area.

Network serving areas will be defined to connect 100% of premises (across all geographical areas, regions, provinces, cities, municipalities and barangays)¹ by one of Fibre, Fixed Wireless Access, Wi-Fi or Satellite over the next 10 - 15 years. The reference architecture will underpin the development of an implementation level business case to evaluate the alternative business model, technical, commercial, funding and procurement options at each network serving area for different access technologies.

¹ In the Philippines there are three geographic areas (Luzon, Visayas, and Mindanao), with 18 regions, 81 provinces, 145 cities, 1,489 municipalities, and 42,029 barangays. A barangay is the smallest political unit into which cities and municipalities in the Philippines are divided.



Objective

Generate a high-level set of broadband service area boundaries and associated transit network paths for the Philippines complying with the high-level design guidelines provided.

Scope of Work

Use of automated design tool to develop a geospatial model which:

- contains the boundaries for Fibre Serving Areas (FSA) and Wireless Serving Areas (WSA) based on the provided and generated demand point geospatial data together with associated infrastructure data for the Philippines; and
- provides a high-level path for the Transit Network connecting the various nodes within the network to the six Aggregation Nodes (AN) following the fibre routes/powerline routes/road network; that complies with the provided high-level design guidelines provided by the supplier.

The geospatial output data shall be in an agreed format (KML, SHP, TAB, etc) that contains area polygon data as .kmz/.kml files capable of being displayed on Google Earth over the Philippines as well as the timeline of possible network rollout as a .kml file.

Geospatial inputs provided by the supplier

P4I will provide the required geospatial input data (see table 1) which outline the current telecommunications service footprint, premises, demand and environmental data. P4I may also provide the optional GIS input data (see table 2) to enhance the accuracy of the solution (pending availability).

Applicants are required to quote:

- The development of the solution for a defined geographic area which covers an example set of metro, urban, regional and remote demand points on an incremental time and material basis, testing the solution with P4I at each iteration; and
- Once agreed for the example set, the provision of the solution data set for all the Philippines.

Table 1: Required GIS Input Data

#	Name	Description
Premises and country overlay		
1	Barangay boundaries	Geographic data defining barangay boundaries.
2	Hierarchy mapping of GIS levels	Geographic data mapping barangays to municipalities, cities, provinces and regions.
3	Population density by barangay	Population density per capita by barangay.
4	Population cluster boundaries	Estimated population clusters within barangays
5	Streets and Roads	OpenStreetMap's information.
6	Government premises	Geographic location of government offices, schools, hospitals, business / industry parks.
Telecommunications service footprint		
1	Fibre network – existing fibre networks routes	The approximate geographic location of installed fibre infrastructure. Note - the details may have been derived from images, so they only provide approximate node and route detail.
2	Existing points of interconnect	Geographic locations of current points of interconnect (POI) between the fibre backbones and service users.



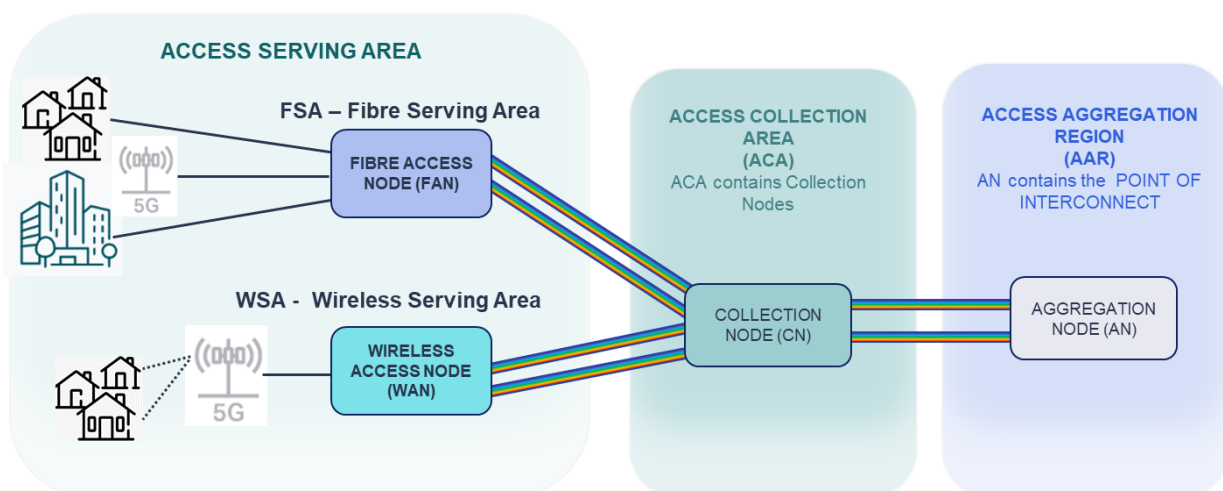
3	Planned points of interconnect	Geographic location of planned points of interconnections (POI) between the proposed network and the Retail Service Providers.
Relevant non-telco infrastructure		
1	High voltage transmission routes	Geographic locations representing routes of transmission lines, supplemented with attribute data such as voltage types.

Table 2: Optional GIS Input Data

#	Name	Description
Telecommunications service footprint		
1	Copper network - Telephone exchanges	Geographic locations of existing legacy telephone exchanges and the Exchange Serving Area (ESA) and Distribution Area (DA) boundaries.
2	Dark fibre – Backbone transmissions	Geographic location of installed fibre infrastructure that is currently in use for backbone transmission systems for telecommunications networks.
3	Poles	Geographic locations of poles carrying telecommunications or pay TV infrastructure (fibre, copper or co-axial cables).
4	Ducts	Geographic locations of ducts carrying telecommunications or pay TV infrastructure (fibre, copper or co-axial cables).
5	Towers	Geographic locations of towers utilised for telecommunications radio communications (mobile service cell sites).
6	Cabinets	Geographic locations of cabinets used to house network equipment

Design Guidelines

The serving area polygons and the Transit Network that provides geographically diverse paths from the Fibre Access Nodes (FAN) and Wireless Access Nodes (WAN) through the Collection Nodes (CN) to the Aggregation Nodes (AN), as per the diagram below, are to be formed according to the following high level design guidelines.





For the generation of Fibre Serving Area polygons:

- The FSA polygon will be determined by the number of demand points or premises to be served in high density Urban and Metropolitan areas.
- In Regional or Rural areas, the density of demand points or premises to be served will determine the boundary of the FSA.
- Maximum radius of an FSA is 20 km.
- FAN site location is the main or centroid Government Office location.
- FSA size is 300 premises minimum and 51,200 premises maximum.
- For regional FSAs of 300 to 500 demand points or premises a single link (or spur) Transit Network connection to the Collection Node is acceptable.
- Premises density minimum is 485 premises/sqkm with maximum distance between premises of 60m.

For the generation of Wireless Serving Area polygons:

- Frequency = 1800 MHz with 20 MHz channels.
- Cell radius 8.66 km max.
- Technology = 5G.
- Antenna Height = 40m min to 200m.
- Premises antenna = External panel mount.
- Premises covered = 900 maximum for a 3-sector cell.
- Premises density min per cell = 6.2 premises/sq km.
- Premises covered reduced by Terrain Factor coverage as per table below.
- Cell Site (eNodeB) backhaul:
 - On fibre route to FAN or between WAN and FAN/CN
 - Max 3 microwave hops from fibre connected eNodeB or WAN (75km max distance).

Terrain Factor		
Terrain Index Values	Std. Dev.	Coverage (at 20km radius)
Mountain	148-422	33%
Hilly	83-148	42%
Undulating	18-83	84%
Flat	02-18	94%

Network Rollout Guidelines

To generate the Rollout Plan, a set of 'Rules' or assumptions are used as input to a Fibre Serving Area (FSA) Sequence Generator. The Wireless Serving Area (WSA) extensions from each of the FAN or CN sites is scheduled in the same timeframe.

Policy Rules

- Coverage of both rural, metro and urban
- Coverage in all Regions, Province/Highly Urbanized City and City/Municipality
- Fixed Wireless linked to FAN build schedule
- All New Developments (over 100 premises) are integrated

Practical Rules

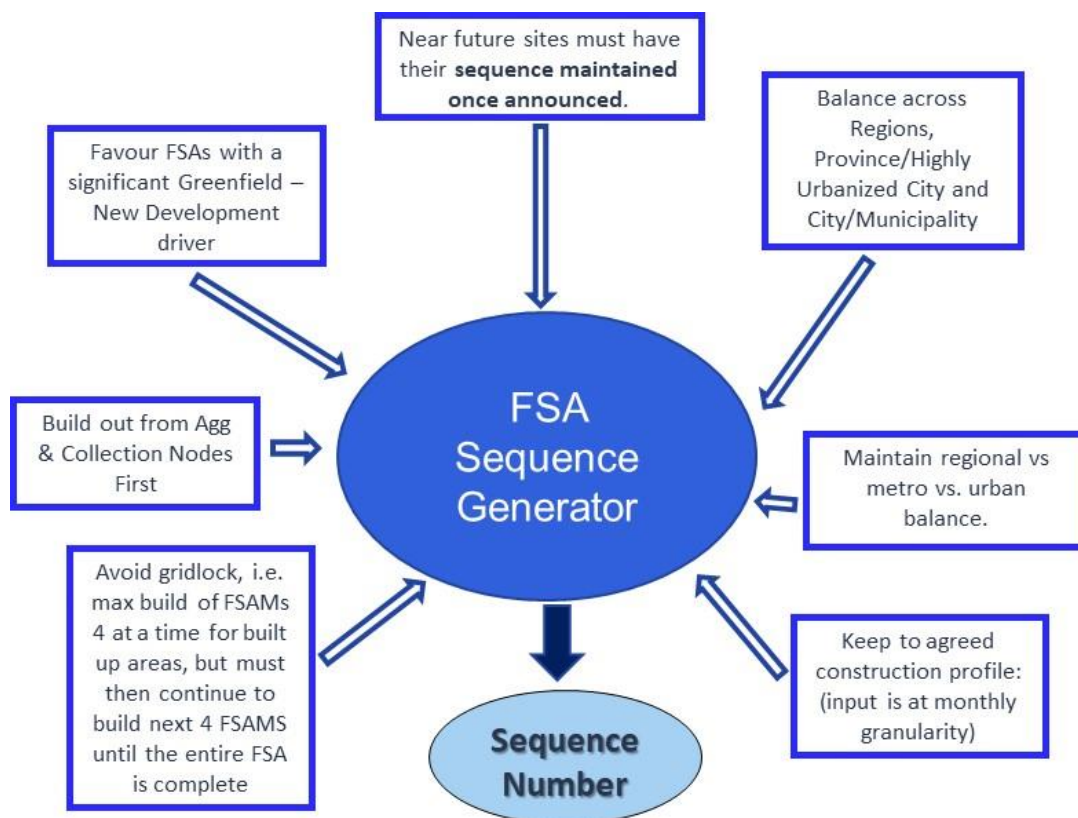
- All Transit Network completed as soon as practical
- Ensure resource balancing across Construction capability in each region.



- Full FSA is built once started.
- All FSAs are built on a Transmission Ring.
- FSAs containing New Development premises are given priority.
- Adjacent FSAs are built as a higher priority.
- In Metropolitan areas, FSAs are built outwards from the Aggregation and Collection Nodes.

Strategic Rules

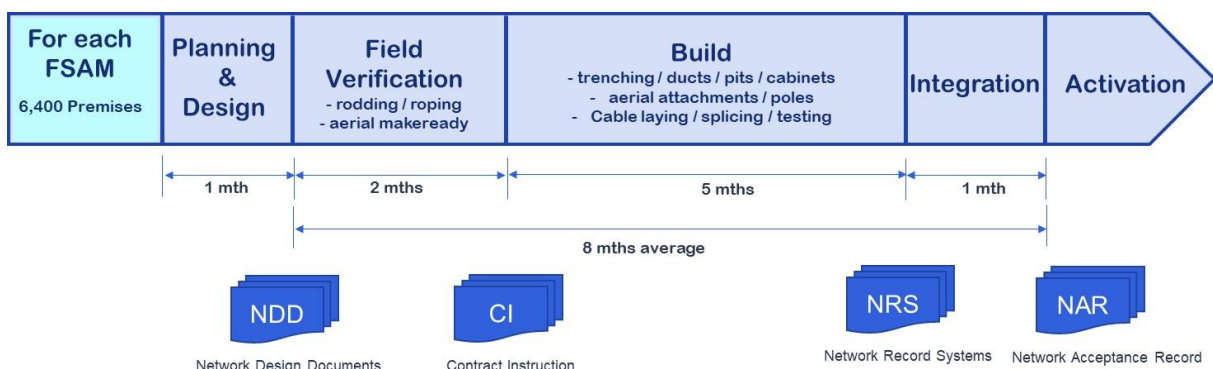
- Prioritisation of locations that contain Universities and Government offices.
- Transit connectivity availability drives FSA selection, utilisation of Government backbone followed by the commercial networks' fibre.



FSA Rollout Activity Profile

Each FSA is configured as a number of Fibre Serving Area Modules (FSAM), with each FSAM having a maximum of 6,400 premises.

The elapsed time for each of the steps in the implementation is shown in the typical timeline below.





Deliverables

The selected contractor is required to deliver the following:

- Broadband service area polygons (max ~ 52k homes per boundary) that comply with the density and range classifications detailed in the high-level design guidelines;
- Service classification (Fibre, Fixed Wireless);
- Transit Network pathing to provide connectivity from the Node serving each boundary back to the six Aggregation Nodes following the supplier provided fibre routes/powerline routes/road network;
- Provide comprehensive timeline of possible network rollout (KML) based on the rollout timeline and prioritisation in the Network Rollout Guidelines; and
- All outputs to be provided in an agreed geospatial format (KML, SHP, TAB etc).

Applicants are welcome to submit a non-conforming bid that can achieve a similar objective.

Timeframe

#	Description	Timeline
1	RFT issued	4th February 2025
2	RFT due date	4 th March 2025
3	Expected delivery period	March – April 2025
4	Final deliverable and reporting	31 May 2025

Pricing

1. **Example set** - the development of the solution for a defined geographic area which covers an example set of metro, urban, regional and remote demand points on an incremental time and material basis, testing the solution with P4I at each iteration.

Applicants are required to quote the cost of time and materials to develop the example set in increments based on the number of days incurred, by each resource.

Table 3: Resource cost estimates for example set

#	Resource level	Responsibilities	Years of experience	Price per day (\$AUD)	Number of days	Total
1						
2						
3						
4						

2. **Solution for all of Philippines** - the provision of the solution data set for all the Philippines, for 42,000 barangays and 27m households and other demand points (e.g., enterprise).



Applicants are also required to quote the cost of providing this solution across all the Philippines, based on the number of broadband serving polygons produced, after the example set is approved.

Table 4: Pricing template for solution across Philippines

#	Name	Description	Number of polygons produced	Price (\$AUD)
2	Solution for all of Philippines	The provision of the solution data set for all the Philippines, for 42,000 barangays for 27m households and other demand points (e.g., enterprise).		

Evaluation criteria

Proposals will be scored based on the following weighted criteria.

Table 5: Evaluation criteria

#	Name	Description	Weighting
1	Company Experience	Relevant technical experiences. Applicants previous experience and proven track record in performing similar projects or providing similar services. Suppliers are expected to propose a multidisciplinary team with at least two specialist to bring the necessary blend of skills.	20%
2	Technical approach	Proposed methodology, techniques and processes the bidder plans to use to meet the project's objectives efficiently and effectively, including demonstrating compliance with local security protocols.	40%
3	Value for Money (VfM)	The financial proposal submission will be assessed using the criteria set out in this RFT (resource cost, pricing template for solution across Philippines and management fee). Following the DFAT VfM principles, this assessment considers whether the proposed cost of the project is commensurate with the scale and quality of the outcomes, including economic, efficient, effective, and ethical use of resources.	30%
4	Local experience and context	Applicants' local knowledge of the Philippines and existing telecommunications infrastructure.	10%
Total			100%

Terms of engagement

Applicants will operate in accordance with Australia's Commonwealth Procurement Rules.

Please note, all Intellectual Property created under the Australian Department of Foreign Affairs and Trade (DFAT) contracts or subcontracts is vested with the Australian Government (or its nominee) immediately upon its creation.

P4I may share sensitive data. Applicants will be required to comply with an agreed security protocol.



Application Instructions

Applicants are requested to submit a proposal that demonstrates their ability to meet the requirements outlined in this tender. Proposals should include the following and be structured according to the criteria below:

1. Technical Proposal

- a) A brief cover letter that speaks to your CV's details, outlining how your experience, capabilities and qualifications are relevant to the tender scope of works and P4I's objectives (1 page maximum)
- b) Proposed methodology, techniques and processes the bidder plans to use to meet the project's objectives efficiently and effectively.
- c) Provide comprehensive timeline of possible network rollout (KML) based on the rollout timeline and prioritisation in the high-level architecture documentation
- d) Details of individual's name and CV of relevant works (2-pages maximum). If an organisation, please include organisation name, the names of adviser's being nominated and include their CVs too.
- e) Nomination of positions, roles or specialisations you would like to be considered for, as detailed in the Scope of Works.
- f) Names and contact details of three referees. One from your most recent consultancy, the second from a recent long-term employment and the third of your choosing.

2. Budget Proposal

- a) Breakdown of Resource Costs (fee rates for each key team member, days allocations and any other relevant support costs). Please refer to pricing example and table from Scope of Work.
- b) Breakdown costing detail of providing this solution across all the Philippines, based on the number of broadband serving polygons produced. Please refer to pricing example and table from Scope of Work.
- c) Please refer to the pricing
- d) Please provide a quotation on the provision of your services for a single day using AUD currency.

Please submit applications and queries about the tender via email to the P4I tender team at tenders@partnershipsforinfrastructure.org with subject "**Tender - Network Planning Tool Service Provider**".

Applications must be submitted by **11:59pm (Bangkok time) on Tuesday, 4 March 2025**.

Due to the high volume of applications for P4I positions, only short-listed companies will be contacted.

This tender will be managed through Adam Smith International (ASI). Suppliers located in P4I's partner countries are strongly encouraged to apply. We also seek suppliers who can work remotely from Australia and other countries, particularly those identifying as Aboriginal and Torres Strait Islanders. P4I is committed to promoting and empowering local and marginalised groups within the region and strongly encourages suppliers identifying as such to apply. Suppliers with strong governance initiatives to engage such groups should also apply.