

Public Meeting April 28th, 2021

Network extension to Airai

**CAP-A Outside Plant Project
East-side extension**



Belau Submarine Cable Corporation
Building Resilience for Palau

Strategic Perspective



BSCC is pursuing a four stage program to complete its mission to provide robust, equitably accessible, affordable shared infrastructure:

1. International submarine cable network connection for Palau
2. Improved access through network extension around Compact Road to new Capacity Access Point in Airai (CAP-A), adjacent to existing Airai / Koror fiber networks owned by RSPs
3. Improve resilience of CAP-A by completing the network extension loop clockwise to Airai
4. Improve resilience and capabilities with second international submarine cable network connection for Palau



Stage 1 International Connection - complete



1. Completed September 2017 and in service December 2017
2. Immediate impact through improved products, but more can be done.
3. Limited access to high speed capacity for Palau Retail Service Providers – aging festoon network or IP radio links at present

Stage 2 CAP-A extension – West-side fiber complete, Tech Center in progress

A screenshot of a Google Maps browser window showing a map of the Ameluk and Ngeremlengui islands. A red line traces a fiber route along the coastlines. Two red circular markers indicate specific locations: one on the western coast of Ngeremlengui and another on the southern coast of Ameluk. A red arrow points from the western marker to the left edge of the map. The browser's address bar shows the URL: https://www.google.com/maps/@7.5206497,134.620258,11.23z. The Windows taskbar at the bottom shows various application icons and the system clock indicating 1:30 PM on 18/02/2019.

CAP-N, BSCC Capacity Access Point at Ngeremlengui

CAP-A, BSCC Capacity Access Point at Airai currently in construction

G&C Underground at work on West-side



Stage 3 East-side

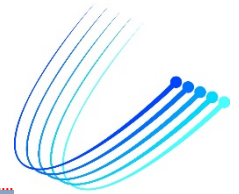


A screenshot of a Google Maps browser window showing the East-side region of Palau. The map is centered on the island, with a red dotted line outlining a specific area. Two red circular markers are placed on the map: one on the northern coast near Ngeremlengui and another on the southern coast near Airai. A red arrow points from the text "CAP-N, BSCC Capacity Access Point at Ngeremlengui" to the northern marker. Another text label "CAP-A, BSCC Capacity Access Point at Airai currently in construction" is positioned near the southern marker. The browser's address bar shows the URL "https://www.google.com/maps/@7.5206497,134.620258,11.23z". The Windows taskbar is visible at the bottom of the screen, showing various application icons and the system clock indicating 1:30 PM on 18/02/2019.

**CAP-N, BSCC Capacity
Access Point at
Ngeremlengui**

**CAP-A, BSCC Capacity Access
Point at Airai currently in
construction**

Stage 4 Second Cable



BSCC

CAP-O, proposed BSCC Capacity Access Point at Ongedechuul for second cable

CAP-N, BSCC Capacity Access Point at Ngeremlengui

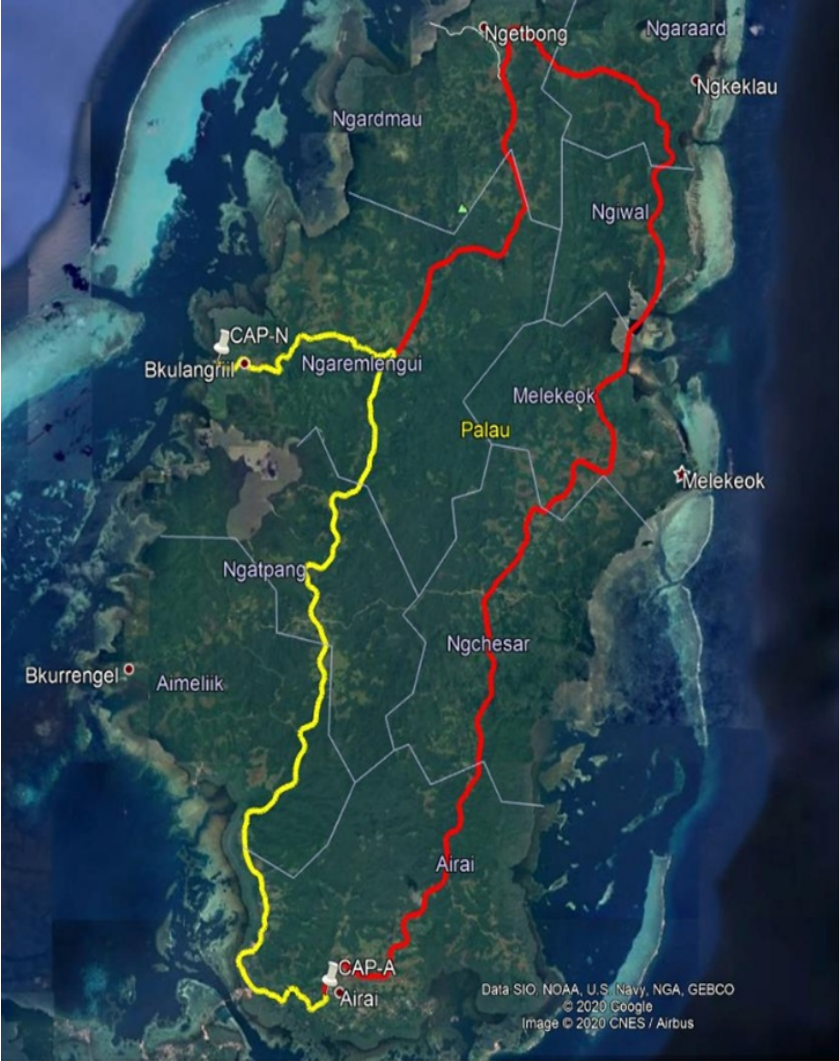
CAP-A, BSCC Capacity Access Point at Airai currently in construction

Google

Map data ©2019 Google Global Terms Send feedback 5 km

1:30 PM 18/02/2019

Stage 2 CAP-A Extension



The Timetable



The construction timetable for Stage 2, CAP-A OSP is:

1. May 2021 - Prepare bridge crossings and shutter boxes
2. June 2021 – Main materials arrive
3. June 2021 – Micro-trenching commences
4. September 2021 – Blowing fibers into micro-duct
5. November 2021 – Final network testing and commissioning
6. Q1 2022 – CAP-A operational

The Technology



<https://www.youtube.com/watch?v=jDGCOTLrfk0>

Questions from Stage 1



1. What traffic and sediment controls will apply during construction?

Staff will be deployed with stop / go signs at the construction sites. Sediment control barriers will be used where required as per the plan. Generally, micro-trenching involves very little sediment management because the cut is only $\frac{3}{4}$ " wide and 1 ' deep, and is closed immediately.

2. What is the benefit to the Palauan community?

The network extension will allow us to overcome the current access bottleneck at Ngeremlengui, where two RSPs only have 2 Gbps access and the other 10 Gbps. CAP-A will allow high speed fiber access to all RSPs.

3. Is there a grievance process?

Yes, it is already in place on the BSCC web site www.belaucable.com

Questions (2)



4. How robust are the construction / installation techniques for micro-duct / micro-trenching?

The technology has been extensively deployed by G&C Underground's partner, PDS of Guam. The installation operations are unobtrusive, with roads closed only while the micro-trench is being cut. As soon as the cut is complete, traffic can pass over immediately. The installed duct and fiber is extremely robust, and even if the duct is lifted by a digger, there is enough slack in the fiber insert to allow it to slide as the duct itself is raised. Shutter-boxes can fill with water without any interruption to the fibers' traffic. The installed fiber can withstand moderate wildfire, but could be damaged by direct extreme heat.

Stage One has been in operation for over 12 months at 100% availability, including during the recent typhoon

5. What is the cost of the project? What will be the impact on BSCC prices?

The cost of Stage 1 is \$19M, Stage 2 \$2M, Stage 3 \$3M. This is all within the funding envelope of the original ADB loan to RoP, that is on-lent back-to-back to BSCC and built into the BSCC business plan, and requires no increase to BSCC pricing. Stage 4 debt repayment has been sculpted so it can also be funded without any need to increase prices.

Questions (3)



6. What will be the impact on retail service offerings?

Removal of the Ngeremlengui access bottleneck will allow Retail Service Providers (RSPs) to deliver higher speed products that can't be supported at present. If a retail data service is currently about 8 Mbps, and supports streaming video like Netflix, future higher speed products could support 2 or 3 High Definition streaming movies and internet browsing on multiple devices simultaneously.

7. What are the overall economic impacts and benefits?

Stage 1 has allowed Palauan organisations, businesses and households to access basic internet enabled services, such as cloud based applications, interactive learning, streamed video and social media.

Stage 2 has enabled higher speed access to advanced services like 4K HD, video conferencing, high definition image transmission for e-medicine.

Stage 3 will ensure the **resilience** of the gains in 1 and 2 and provide a colocation space for RSP access.

Stage 4 will further enhance resilience and enable the development of ICT based business not previously possible in Palau, like registries, data storage and backup