

Application for Federal Assistance SF-424

* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): <input type="text"/> * Other (Specify): <input type="text"/>
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* 3. Date Received: <input type="text" value="08/17/2021"/>	4. Applicant Identifier: <input type="text"/>
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5a. Federal Entity Identifier: <input type="text"/>	5b. Federal Award Identifier: <input type="text"/>
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State Use Only:

6. Date Received by State: <input type="text"/>	7. State Application Identifier: <input type="text"/>
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8. APPLICANT INFORMATION:

* a. Legal Name:

* b. Employer/Taxpayer Identification Number (EIN/TIN): <input type="text" value="98-0018947"/>	* c. Organizational DUNS: <input type="text" value="7789042920000"/>
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d. Address:

* Street1:
Street2:
* City:
County/Parish:
* State:
Province:
* Country:
* Zip / Postal Code:

e. Organizational Unit:

Department Name: <input type="text" value="Bureau of Statistics and Plans"/>	Division Name: <input type="text"/>
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f. Name and contact information of person to be contacted on matters involving this application:

Prefix: * First Name:
Middle Name:
* Last Name:
Suffix:

Title:

Organizational Affiliation:

* Telephone Number: Fax Number:

* Email:

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

F: U.S. Territory or Possession

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

National Telecommunications and Information Admini

11. Catalog of Federal Domestic Assistance Number:

11.031

CFDA Title:

Broadband Infrastructure Program

*** 12. Funding Opportunity Number:**

NTIA-BROADBAND-INFRASTRUCTURE-PROGRAM-21

* Title:

BROADBAND INFRASTRUCTURE PROGRAM

13. Competition Identification Number:

NTIA-BROADBAND-INFRASTRUCTURE-PROGRAM-21

Title:

Broadband Infrastructure Program

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Guam Broadband Infrastructure Program

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant

* b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:

* a. Start Date:

* b. End Date:

18. Estimated Funding (\$):

* a. Federal	<input type="text" value="12,965,144.57"/>
* b. Applicant	<input type="text" value="0.00"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="169,542.83"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="13,134,687.40"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

a. This application was made available to the State under the Executive Order 12372 Process for review on

b. Program is subject to E.O. 12372 but has not been selected by the State for review.

c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

Yes No

If "Yes", provide explanation and attach

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:

* Last Name:

Suffix:

* Title:

* Telephone Number:

Fax Number:

* Email:

* Signature of Authorized Representative:

* Date Signed:

BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
2. Land, structures, rights-of-way, appraisals, etc.	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
3. Relocation expenses and payments	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
4. Architectural and engineering fees	\$ <input type="text" value="199,584.39"/>	\$ <input type="text"/>	\$ <input type="text" value="199,584.39"/>
5. Other architectural and engineering fees	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
6. Project inspection fees	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
7. Site work	\$ <input type="text" value="9,464.44"/>	\$ <input type="text"/>	\$ <input type="text" value="9,464.44"/>
8. Demolition and removal	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
9. Construction	\$ <input type="text" value="9,524,958.00"/>	\$ <input type="text"/>	\$ <input type="text" value="9,524,958.00"/>
10. Equipment	\$ <input type="text" value="2,778,097.52"/>	\$ <input type="text"/>	\$ <input type="text" value="2,778,097.52"/>
11. Miscellaneous	\$ <input type="text" value="77,885.00"/>	\$ <input type="text"/>	\$ <input type="text" value="77,885.00"/>
12. SUBTOTAL (sum of lines 1-11)	\$ <input type="text" value="12,589,989.35"/>	\$ <input type="text"/>	\$ <input type="text" value="12,589,989.35"/>
13. Contingencies	\$ <input type="text" value="544,698.05"/>	\$ <input type="text"/>	\$ <input type="text" value="544,698.05"/>
14. SUBTOTAL	\$ <input type="text" value="13,134,687.40"/>	\$ <input type="text"/>	\$ <input type="text" value="13,134,687.40"/>
15. Project (program) income	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
16. TOTAL PROJECT COSTS (subtract #15 from #14)	\$ <input type="text" value="13,134,687.40"/>	\$ <input type="text"/>	\$ <input type="text" value="13,134,687.40"/>
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter eligible costs from line 16c Multiply X <input type="text" value="98.71"/> % Enter the resulting Federal share.			\$ <input type="text" value="12,965,144.57"/>

ASSURANCES - CONSTRUCTION PROGRAMS

OMB Number: 4040-0009
 Expiration Date: 02/28/2022

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0042), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant:, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progressive reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards of merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subagreements.
14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
20. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL Tyrone J Taitano	TITLE Director, Bureau of Statistics and Plans
APPLICANT ORGANIZATION Government of Guam Department of Administration	DATE SUBMITTED 08/17/2021

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Applicants should also review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, 'New Restrictions on Lobbying.' The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of Commerce determines to award the covered transaction, grant, or cooperative agreement.

LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 15 CFR Part 28, for persons entering into a grant, cooperative agreement or contract over \$100,000 or a loan or loan guarantee over \$150,000 as defined at 15 CFR Part 28, Sections 28.105 and 28.110, the applicant certifies that to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, 'Disclosure Form to Report Lobbying,' in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above applicable certification.

*** NAME OF APPLICANT**

Government of Guam Department of Administration

*** AWARD NUMBER**

*** PROJECT NAME**

Guam Broadband Infrastructure Program

Prefix:	* First Name:	Middle Name:
Mr.	Tyrone	J.

* Last Name:	Suffix:
Taitano	

*** Title:** Director, Bureau of Statistics and Plans

*** SIGNATURE:**

Tyrone J Taitano

*** DATE:**

08/17/2021

Guam Broadband Infrastructure Program

PROJECT NARRATIVE

a. Executive Summary

The Government of Guam is entering into a covered partnership with IT&E and GTA to cover broadband infrastructure services to Guam. This covered partnership covers two (2) projects for funding request under the NTIA-Broadband-Infrastructure-Program 21 grant program:

- Guam Southern Ring Buried Fiber Optic Cable and 5G Project
- Broadband Infrastructure Program to Provide Low Latency to Guam Users

1) *Guam Southern Ring Buried Fiber Optic Cable and 5G Project*

Guam, an unincorporated territory of the United States in the North Pacific Ocean, is the largest, most populous and southernmost of the Mariana Islands. With a population of nearly 170,000 residents, Guam serves as a major military base for the United States and a major hub between the United States and Asia. Reliance on telecommunications and internet access is critical to keep Guam connected with the neighboring islands, the United States, and the rest of the world. Internet access is important for many households and businesses to obtain information, look and apply for employment and benefits, and be active participants in Guam's economy. This project aims to connect southern residents to these services and opportunities as we recover from this pandemic. The COVID-19 pandemic has impacted the lives of the people of Guam and those across the world and further impacted those who were already out of reach before the pandemic. We seek to improve service and provide access to Guam residents and those in the south who will be able to obtain update to date guidance and information on the pandemic, access to information on testing and vaccination, information on access to benefits, job opportunities, and information on efforts to prevent, prepare for, and respond to the pandemic.

IT&E proposes to install 117 KM of 144 strand buried fiber optic cable and 26 5G cell sites along the major routes in Southern Guam in a ring architecture with two physically-diverse, interconnected rings from Piti to Chalan Pago to provide survivable broadband infrastructure and 5G broadband internet service to historically unserved and underserved residents, businesses, and anchor institutions in Southern Guam. The area currently relies on aging and vulnerable aerial coaxial and fiber optic cable that fails to provide 25/3 megabits per second download and upload speeds to this area of Guam. IT&E estimates the cost of this project at \$11,438,659.07. It is expected that more than 186 currently unserved and underserved subscribers will be able to connect to this service over an area covering or touching upon 539 census blocks in Southern Guam. Additionally, these two interconnected rings will provide the population of over 39,000 residents and 10,000 households with survivable middle mile and drops at an effective cost of approximately \$1,100 per current location. The project is expected to take approximately 9-12 months from start to finish and cause minimal disruption to normal traffic patterns due to the use of microtrenching in existing rights of way on the road shoulders.

2) *Broadband Infrastructure Program to Provide Low Latency to Guam Users*

In these trying times, it has become apparent that access to internet, cloud services, and video content is imperative for Guam's economy to bounce back from the coronavirus pandemic. GTA is proposing to deliver low latency service to GovGuam and to its customers improve their access to live content needed for telehealth and educational programs and access to more cloud content providers. This project is to acquire 100 Gbps of optical capacity on an Asia Pacific ("APAC") cable system to the TY2 Peering location in Japan to lower the latency of broadband connections to reasonable levels.

Guam is the westernmost soil of the United States which is 6,100 miles away from the mainland United States, 3,800 miles from Hawaii and 1,600 miles from Japan. Due to this remote location, residences and

businesses on Guam, including government of Guam and federal agencies, currently have latency round trip time (RTT) of 112 ms to the nearest broadband transit center located at One Wilshire in Los Angeles. The standard called for in the NTIA grant latency specifications calls for with less than 100 ms RTT. This covered partnership would acquire capacity to connect to Guam's closest transit hub located in the Equinix DataCenter TY2 in Tokyo and then to content providers giving customers a RTT of 40 ms. This connection will provide a low latency path for GovGuam, the federal government sectors, and the businesses and residents of Guam. The cost of the project is \$1,696,028.33. GTA will contribute \$169,542 (10%) to the project as cash. This covered broadband project will initially benefit GovGuam and [REDACTED] broadband subscribers who currently encounter latency of 112 to 158 ms for all traffic that routes off the remote island of Guam.

b. Description of Covered Partnership

i) Table of Funded Project Participants and Unfunded Collaborators

Organization	Name of Organization	Address	Administrative Role	Scope of Work	Proposed Non federal Funding Amount
Government of Guam	Bureau of Statistics and Plans (BSP)	P.O. Box 2950, Hagatna, Guam 96932	Member covered partnership with administration and project implementation support	Point of contact; programmatic and financial support and financial transactions and reporting	
Government of Guam	Guam State Clearinghouse	P.O. Box 2950, Hagatna, Guam 96932	Member covered partnership	Overseeing all federal grants administration.	
Government of Guam	Office of Technology (OTECH)	P.O. Box 2950, Hagatna, Guam 96932	Member covered partnership	Project manager and oversees all technical project work	
PTI Pacifica, Inc., dba IT&E	IT&E	P.O. Box 500306, Saipan, MP 96950	Service provider of fixed broadband under covered partnership	Installation of terrestrial fiber optic and 5G cell site interconnections to subscribers	
TeleGuam Holdings LLC, dba GTA	GTA	624 North Marine Corps Drive, Tamuning, Guam 96912	Member covered partnership	Member of covered partnership, will hold the license of the fiber IRU, will operate the optical terminal and maintain the quality of the facility.	GTA will contribute 10% of the cash for funding this project. GTA will provide 10 Gbps of bandwidth dedicated to

					the GovGuam for its sole use at no charge
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Total Proposed Federal Funds: \$12,965,144.57

Organizational Capability

- PTI Pacifica Inc., dba IT&E

IT&E has an experienced team of personnel to perform the tasks required to complete the installation of the broadband infrastructure identified in this project. IT&E’s project team includes Installation Project Manager – Leo Yanger; Grant Administration - Dr. Frederick R. Hill, Rose Soledad, Velma Palacios; 5G Deployment - Jim Smith; and Fiber Installation - Velma Palacios and Ronald Fuellas. This includes a team of 14 outside plant personnel to install and maintain the fiber, all of who are certified fiber splicers and 12 cellular site installers and maintainers. IT&E has a full range of heavy equipment needed to perform the work, including microtrenchers, backhoes, bucket trucks, etc. IT&E has installed and currently maintains nearly 140 cellular sites and over 175 miles of buried fiber optic cable on Guam, Rota, Saipan, and Tinian. In 1997 IT&E constructed the first undersea fiber optic cable between the CNMI and Guam supported by an inter-island microwave backup.

IT&E has long been an industry leader in providing fixed and wireless broadband in the Marianas, including Guam and the CNMI. IT&E was the first wireless provider to introduce 3G and 4G broadband services and has updated its network core for the introduction of 5G technology which is scheduled for Q1 2022 which will be extended to the identified underserved areas.

- TeleGuam Holdings, LLC, dba Guam Telephone Authority (GTA)

GTA has been deploying advanced telecommunications and broadband services to households and businesses in Guam since 2005. GTA has constructed DSL, VDSL G.Fast, and Fiber to the home which currently provides broadband speeds of up to 100 Mbps. GTA also has a 4G LTE Mobile wireless network to service wireless broadband applications. GTA’s success in broadband deployment is directly linked to the financial, technical, and professional expertise of the employees within its organization. The key personnel for this project are Andy Labruna VP of IP and Roland Certeza, Chief Executive Officer. Andy Labruna is in charge of GTA’s IP network including the connection to the internet. Roland Certeza has nearly 20 years of experience in telecommunications sales and marketing, including launching the Piti Cable station on Guam as a landing station and data center to land the SEA-US submarine cable and render seamless interconnection between Asia, Australia and the U.S.

- Guam BSP and OTECH Administrative and Technical Support

The Chief Technology Officer of the Guam Office of Technology (OTECH) will serve as the Project Manager and provide technical oversight of the project. As project manager, he will perform the duties and responsibilities authorized by the Guam Bureau of Statistics and Plans in working directly with the contractor in managing the progress and performance of the scope of services outlined in this grant application. The Project Manager will collaborate with the contractor and perform routine inspection of contract work including trenching, installation, and related duties and resolve issues during the performance period.

The Systems and Program Administrator, Guam Office of Technology, will provide technical support and assistance to the Project Manager and collaborative work with the contractor in the implementation and execution of the project. The Systems and Program Administrator will also prepare the performance technical progress reports highlighting the project status, challenges and achievements conducted during the reporting period.

Guam does not have a State Broadband office. However, the government of Guam, Office of Technology (OTECH), is handling broadband related functions. OTECH is covering broadband functions for the executive branch line agencies and several autonomous agencies of the government of Guam.

The Administrative Services Officer (ASO), Guam Bureau of Statistics and Plans, will serve as the financial representative for this project overseeing all financial transactions of the project, prepare and submit financial reports to the grantor, and serve as point of contact for the Invitation to Bid for the contract work.

ii) Resumes of Key Personnel

Project 1. Guam Southern Ring Fiber Optic Cable and 5G Project

The key personnel for the project proposed by this covered partnership consist of Frederick Richard Hill and Leo Yanger of IT&E (see attachments).

Project 2. Broadband Infrastructure Program to Provide Low Latency to Guam Users

The key personnel for the project proposed by this covered partnership consist of Andrew Labruna and Roland Certeza of GTA (see attachments).

Mr. Frank Lujan, Chief Technology Officer, Government of Guam Office of Technology (OTECH) will serve as the Project Manager and will provide technical oversight and monitoring for the projects. The resumes for the key personnel for the said projects are uploaded as separate one-page attachments as support documents for the submitted application.

c. Description of Covered Broadband Project

1) Guam Southern Ring Buried Fiber Optic Cable and 5G Project

This project will provide both FTTH and 5G cellular broadband service to residents, businesses, and anchor institutions in Southern Guam.

The buried fiber optic cable route will complete two physically-diverse, interconnected rings to provide broadband services to the southern Guam region that will provide a future-proof, high-quality infrastructure for a region that has frequently experienced Category 5 super typhoons. The complement of FTTH and 5G for local distribution to subscribers will provide the region with a broadband system that can evolve, sustain, and scale for future advanced series that will be important to the Guam community, including the Department of Defense and other federal agency requirements.

Table 1. Guam Population and Households

Village	Area km ²	Population (2021 Est)	Population (2010 census)	Population (2000 census)	Region [3]	Population Density
Agana Heights	2.68	3,940	3,808	3,940	Central	1,470
Agat	27.19	5,656	4,917	5,656	South	210
Asan-Maina	14.35	2,137	2,137	2,090	Central	150
Barrigada	21.96	8,875	8,875	8,652	Central	390
Chalan Pago-Ordot	14.73	6,822	6,822	5,923	Central	400
Dededo	79.16	44,943	44,943	42,980	North	540
Hagåtña	2.33	1,051	1,051	1,100	Central	470
Inaláhan (formerly, Inarajan)	48.82	3,052	2,273	3,052	South	60
Mangilao	26.45	15,191	15,191	13,313	Central	500
Merizo	16.39	2,152	1,850	2,152	South	130
Mongmong-Toto-Maite	4.79	6,825	6,825	5,845	Central	1,220
Piti	19.26	1,666	1,454	1,666	Central	90
Santa Rita	41.89	7,500	6,084	7,500	South	180
Sinajana	2.2	2,853	2,592	2,853	Central	1,300
Talofofo	45.81	3,215	3,050	3,215	South	70
Tamuning (including Tumon)	14.66	19,685	19,685	18,012	North	1,230
Umatac	16.63	903	782	887	South	50
Yigo	91.71	20,539	20,539	19,474	North	210
Yona	52.53	6,484	6,480	6,484	South	120
Guam	543.52	163,489	159,358	154,794		285
Project Area/Population	298	39,587				
	55%	24%				
Project Households		10,418				
Sources:						
	https://en.wikipedia.org/wiki/Villages_of_Guam					
	https://www.census.gov/content/dam/Census/programs-surveys/sis/resources/2020/sis_2020map_guam_k-12.pdf					

Table 1. Guam Population and Households, provides a current view of the area to be served with these two interconnected rings. While the number of unserved and underserved households and businesses is expected to be more than 186 subscriber locations who will be able to connect to this service over an area covering or touching upon 539 census blocks in Southern Guam, these rings will provide the population of over 39,000 residents and 10,000 households with survivable middle mile and drops at an effective cost of approximately \$1,100 per current location. While this part of Guam includes less than 25% of the population, it includes over 50% of the land area. With the addition of the survivable, future-proof broadband infrastructure, residential and business growth shall be enabled.

Broadband Internet service at 4 speed tiers will be offered, 25/5, 50/5, 75/6 and 100/6 at the prices shown below.

Speed	Price
25/5	\$ 80
50/5	\$110
75/6	\$135
100/6	\$175

This project is expected to cost \$11,438,659.07 and even if all currently unserved subscribers as identified below were to connect at the nominal 25/5 download/upload service, the annual revenue would total only \$178,500 resulting in a payback period of 31 years disregarding system maintenance and other costs. See attached budget and financial analysis below.

Federal financial assistance is required for this project due to the rural nature and low population of the area to be served which limits recoverability of capital investment to an unrealistically long period of

time. It is primarily for this reason that the area has been historically underserved and/or unserved by and of the ISPs in the Guam market place.

2) *Broadband Infrastructure Program to Provide Low Latency to Guam Users*

This project will immediately and initially benefit community anchor institutions servicing the entire community vis-à-vis the local government by significantly improving broadband and metro ethernet services signal latency caused by the remote geographic location of the project area from between 158 and 115 ms to ~40 ms. Further, this latency reduction will enable the entire community to meaningfully and tangibly experience vast improvement to critical access to telemedicine, remote work, improved access to remote education, increased access to the outside world via news and critical weather updates, enable the local government to embark on availing of cloud infrastructure and services and creating an optimal environment for economic development with access to low latency broadband (~40 ms).

Guam recognizes the need to reduce latency for telecommunications for broadband services and to improve such to enable the local government and community to be more efficient in the delivery of public services in the territory of Guam. The current average subscribed broadband speeds available to GTA customers in Guam is 32.1 Mbps/3Mbps, provisioned over copper plant and fiber facilities. The proposed grant service area is the U.S. territory of Guam which is home to a number of remote workers requiring higher than qualified broadband speeds to work efficiently from home, thousands of U.S. active duty military personnel and dependents, an aging population segment lacking reliable access to telehealth, college-age students lacking efficient broadband access to streaming coursework, and small businesses needing broadband access to sustain their operations.

Services, speeds, and prices

The project will benefit GovGuam and all broadband users on Guam. GTA proposes to provide a 10 Gbps connection to Tokyo for GovGuam’s use at no additional charge to GovGuam. Capacity in the 100 Gbps will be made available on a per 10 Gbps basis to carriers and content providers. The average rate 10 Gbps will be ~\$6,250.00 per month.

In addition, GTA current offers broadband to retail customers at the speed from 15 Mbps to 100 Mbps at the rates listed below. The 15 Mbps offering is grandfathered. All these customers will have access to the lower latency provided by the new connections. The customers will get the benefit of the new low latency connection but the retail rate will not be increased due to this added connection.

Speed (Download / Upload)	Monthly Price
15Mbps/3Mbps	\$79
25Mbps/3Mbps	\$40
50Mbps/3Mbps	\$50
75/3 Mbps	\$75
100/10 Mbps	\$100
50 Mbps with Wireless voice	\$159
75 Mbps with Wireless voice	\$169
100 Mbps with Wireless voice	\$219

Below is a table for the proposed pricing for the 10 G services that may be offered to content and other ISPs. The first 10G will be provided to the local government as an extension of their existing L3VPN provided by GTA. Below is a table for wholesale rates, which may be sold.

Middle Mile Speed (customer can Split upload and download as required)	Monthly Price
5 G	\$10,000

10 G	\$15,000
20 G	\$28,000
30 G	\$39,000

Financial Analysis

GTA demonstrates through its pro forma of the project that with grant funding to deploy fiber to these locations the project is sustainable. The total project cost is primarily derived from the purchase of a 100 Gbps IRU and associated electronics and cross connections in the TY2 Peering facility in Japan at \$1,696,028. In addition to the capital costs included in this grant, there will be ongoing expenses for equipment maintenance, collocation space, and traffic transit charges which GTA will be absorbing. These costs will be supported by selling content providers and other communication carriers capacity on the 100 Gbps circuit while maintain bandwidth for the GovGuam and GTA.

Why federal assistance is needed

This project aims at helping to significantly reduce latency on a remote island which is very difficult to access. The connections to major content providers, cloud services and real time applications have not been available to residences of the island because of its remote location. The broadband connection to Japan is very expensive and there are few providers due to the need for an undersea cable. The only other 477 filer on Guam does have a connection to Japan but it runs through Los Angeles. This grant makes this project financially feasible.

d. Description of the Area to Be Served (Proposed Service Area)

1) Guam Southern Ring Buried Fiber Optic Cable and 5G Project

According to the Guam North and Central Land Use Plan, “the southern portion of the island contains large expanses of undeveloped land. Development in this area experiences challenges from the presence of steep slopes and unstable soils. Most villages occur along the coast, with little development in the interior. The south holds the largest concentration of agricultural lands on Guam, as well as large areas of designated recreational/open space.” This project will bring broadband services access to southern residents who live along the coast to include residents in areas that have utilities infrastructure.

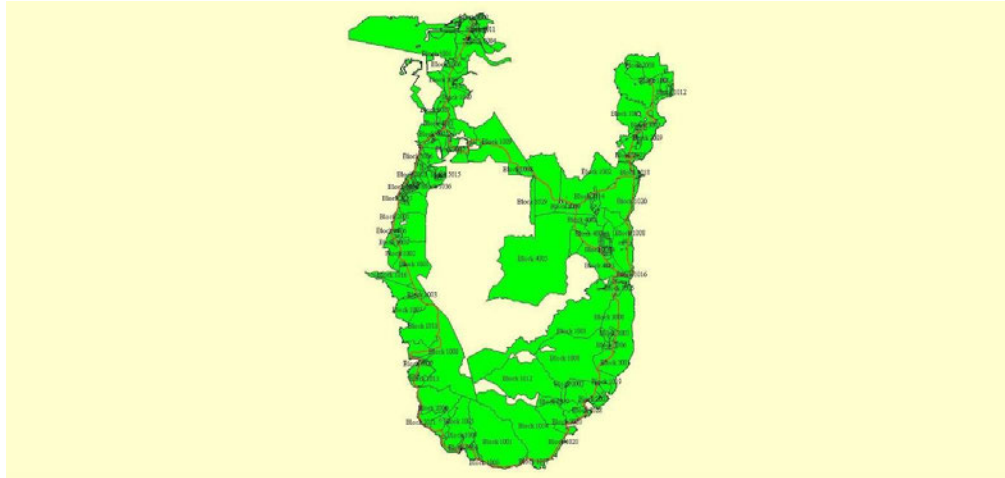
This project will provide broadband infrastructure using 117 km of 144 strand buried fiber optic cable and 26 5G cell sites to portions of all of the 539 census blocks in Southern Guam from Piti to Chalan Pago and from Inarajan to the Inarajan Middle School. This area of Guam has been historically underserved or unserved, and according to the latest FCC-477 data, most of the area is still either underserved or unserved. The *2010 Guam Demographic Profile Study* shows the following:

Table 2. 2010 Guam Demographic Profile Study

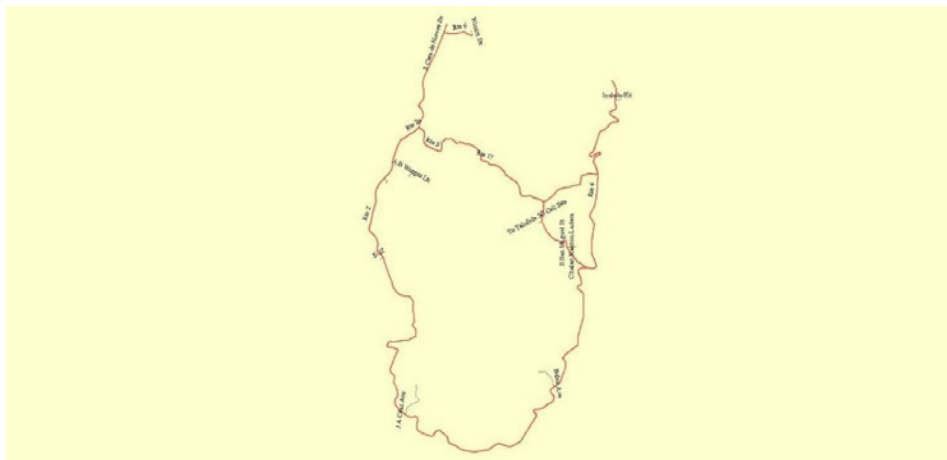
Area	Households	No Telephone Service	No Internet Service
Agat	1259	47	99
Umatac	171	14	10
Merizo	405	24	47
Inarajan	534	24	30

This situation has likely only grown worse since the study was made. While coaxial cable and low capacity fiber optic has been installed in recent years, most of it is aerial and is easily destroyed by typhoons. Attached to this application is a list of 539 census blocks that will be touched by this project, a graphic showing the locations of the census blocks, and a Google Earth screen shot showing the locations

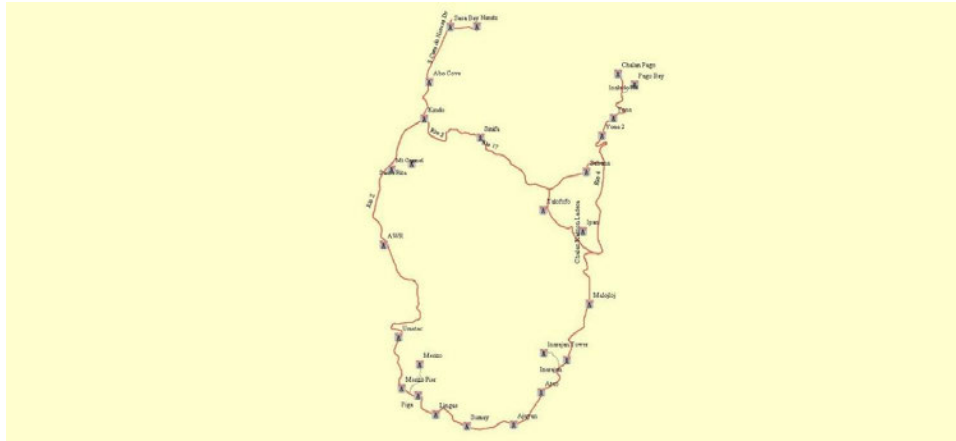
of the 5G cell sites. Based on the release of the 2020 Census of Guam results, we approximate that there are about 4,900 households within the proposed ring to have the 5G service available. The current plan consists of 26 three sector sites for 5G for a total of 78 radios. Additional radios may be deployed to provide additional capacity where needed in case of increased demand. Regarding the capacity of each radio, the current design allows between 460 Mbps up to 1.1 Gbps sector capacity. The difference depends upon the amount of CBRS spectrum available at the cell site. Based on current trends, the company considers an over subscription rate of 2 to 1. The company will lower the over subscription rate to maintain customer satisfaction.



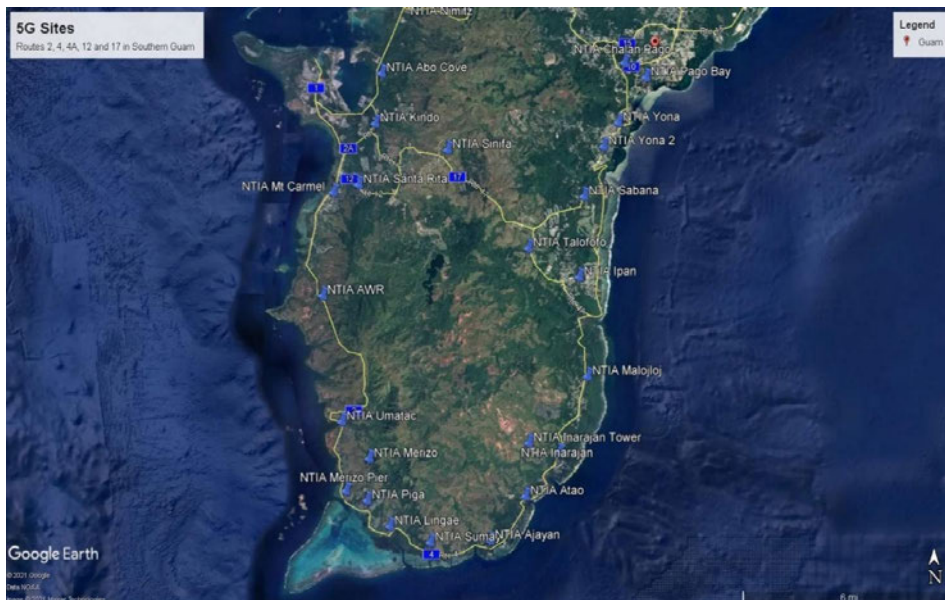
Census Blocks Touched



Roads Included in Project Area



Map of Proposed 5G cell sites



Project Area Google Earth Screen Shot

2) *Broadband Infrastructure Program to Provide Low Latency to Guam Users*

The proposed project to provide low latency will benefit the entire area of Guam. GovGuam will receive 10 Gbps of direct 40 ms connection to Japan. The project will provide low latency connection that can be accessed by all broadband users. All of Guam is impacted by this project. The census block ranges are included in the attachment to this application for lowered latency connection (filename: Guam Latency Project_Cell Block Ranges.pdf). All the blocks between the range are covered.

The existing facilities are not sufficient to support the required latency of broadband service of 100 ms or less as required by the NTIA NOFO. The current facilities do not meet the NTIA latency requirement of 100 ms or less. The current connections routes to Los Angeles. The latency to Los Angeles is 112 ms if routed on a direct fiber route. It would be more if the route is not direct. This is the lowest latency that can be technically achieved for the distance at this time. The current routes to Asia are not direct and route to Los Angeles then to Tokyo which is about double the latency at minimum 200 ms or more depending on the exact route.

The current facilities used by GTA are sufficient from a traffic capacity standpoint. GTA adds traffic capacity when utilization is at 80%.

As other carriers purchase part of the 100 G service from GTA this number will grow.

The existing latency for the TY2 in Tokyo is at least 200 ms. The existing latency for traffic to Los Angeles is 112 ms on a direct route or more depending on the route is not direct. Both these routes are above the qualified latency defined by NTIA.

The latency on the new transport facilities is 40 ms which is within the NTIA definition.

e. Statutory Funding Priorities from Section I.A. of the NOFO

1) Guam Southern Ring Buried Fiber Optic Cable and 5G Project

This project is designed to provide broadband service to the greatest number of households in the eligible service area (priority I.A.1); in a county, city, or town (southern Guam) what is wholly within an area that is not contiguous and adjacent to a city or town of more than 50,000 inhabitants (priority I.A.2.ii); and is a covered broadband project that is the most cost effective prioritizing an area of Guam that is most rural (priority I.A.3); and can deliver broadband service with a download speed of not less than 100 megabits per second and an upload speed of not less than 20 megabits per second (priority I.A.4).

2) Broadband Infrastructure Program to Provide Low Latency to Guam Users

The proposed Asia Pacific Cable System project aligns with the priorities as identified in

Section I.A. of the NOFO and specifically Section 905(d)(4) of the Act. Inasmuch as:

- 1) the proposed covered broadband project is designed to provide services to the greatest number of households throughout the entire service area as the project was engineered to pass all locations;
- 2) the proposed eligible service area located in Guam with a population of approximately 160,000 per the 2010 Guam Census by the U.S. Census Bureau;
- 3) the proposed project area is located at a remote island in the Pacific which is thousands of miles from the closest largest internet peering location;
- 4) the proposed middle mile project will deliver qualifying low latency of 40 ms to Guam, and
- 5) Meets the requirements of the NOFO by delivering low latency access that will meet current needs as well as creating a network that has the ability to evolve, sustain, and scale for future advanced services.

f. Evaluation Criteria (Section V.A. of the NOFO) including a description of project beneficiaries, service area level of need, project sustainability, and expected outcomes.

This project meets the Evaluation Criteria described in Section V.A. of the NOFO in the following ways:

1) Guam Southern Ring Buried Fiber Optic Cable and 5G Project

Project Purpose and Benefits

Internet access is important for many households and businesses to obtain information, look and apply for employment and benefits, and be active participants in Guam's economy. This project aims to connect southern residents to these services and opportunities as we recover from this pandemic. The COVID-19 pandemic has impacted the lives of people across the world and has further impacted those who were already out of reach before the pandemic. We seek to close that gap and provide access to residents who will be able to obtain updated guidance and information on the pandemic, access to information on testing and vaccination, information on access to benefits available to those impacted by the pandemic, job opportunities, and other information addressing the island's efforts to prevent, prepare for, and respond to the pandemic.

- a. Level of Impact in the Proposed Service Area – This project will connect the majority of households, businesses, and community anchor institutions in the proposed service area. The actual number of unserved households is currently unknown, but the FCC-477 data shows that most of the proposed service area is considered unserved by any broadband service provider [[Area Comparison | Fixed Broadband Deployment Data | Federal Communications Commission \(fcc.gov\)](#)]. This project touches on 539 census blocks in Southern Guam.
- b. Pricing for the offered services are shown in the following table:

Speed	Price
25/5	\$ 80
50/5	\$110
75/6	\$135
100/6	\$175

There are roughly 100 businesses in Southern Guam along Marine Corps Drive inclusive of bakeries, restaurants, gas stations, and mom and pop stores. The community anchor institutions within the area includes Catholic churches, senior centers, community centers, a middle school and a high school.

This project in providing the southern ring buried fiber optic cable and 5G is sustainable in the following ways:

1) The fiber has a lifetime of upwards of 25 years. It will be installed in self-healing a buried ring configuration which will ensure operations and avoid typical wind damage; 2) The fiber optic equipment can be easily upgraded to higher bandwidths as technology improves; 3) Additional 5G cell sites can be installed to serve additional population concentrations and increases in the number of users; 4) Additional fiber tributaries can be installed and served by the existing fiber as population densities and locations change; and 5) IT&E has an excellent long-term record in installation, maintaining and providing broadband services in the Marianas. IT&E anticipates that the proposed facilities will provide improved broadband services for many generations of users in these underserved areas and the demand will only increase in future years.

2) *Broadband Infrastructure Program to Provide Low Latency to Guam Users*

Although the entirety of Guam residents have access to 25/3 Mbps service, none have access to RTT latency of under 100 ms for any connection off the island. There is only one other 477 filer besides GTA and synthetic testing results show their latency from Guam to Japan is 151 ms.

GovGuam Benefits

- GTA is requesting for 100Gig capacity and will provide 10G direct connect services to the three largest cloud compute platforms served by Equinix in TY2. To avail of this service the agency would need to participate in the Government of Guam Wide Area Network (“GGWAN”) maintained by GTA.
- Today, local government agencies, are unable to leverage cloud service offerings. The average round trip latency to nearest cloud provider yields an average latency of 158 ms.
- System Response Time (SRT) of 100 ms or greater has been shown to impair Human Computer Interaction (HCI). Furthermore, ITU-T G.114 recommends a max VoIP latency of 150 ms.
- Access to a low latency cloud computer infrastructure would provide government agencies access to Government Cloud services with the following benefits: cost savings, security, reduced risk of data loss, collaboration, efficiency, governance, data transport, and green power.

Residential & Enterprise Computer Benefits

- 64-percent of the content flowing into GTA’s network is served by cached content. Most cached content providers synchronize data across the largest data centers to include LA1 and TY2. Brining up TY2 will provide faster response time for customers from these caches.
- ITU-T G.114 recommends a max VoIP latency of 150 ms. Traffic to Australia and all of Asia exceed the VoIP thresholds established by the ITU. This affects Facetime, WhatsApp, Skype and forces the government to pay long distance calling fees because the IP alternative is not viable.
- The promise of low latency 5G applications ushering in a new wave of technologies and solutions will not be fulfilled in Guam where high latency transport to the closes data centers exceed 100 ms.

Service Area level of Need. Currently, [REDACTED] combined residential and business subscribers lack access to qualifying broadband latency. Grant funding is critical to the construction and deployment of the proposed broadband project.

Project Sustainability. The financials show that GTA can generate enough revenue from content providers and other carriers to sustain this project during the life of the IRU. During the fifteen-year term, GTA will be looking to attract more content providers to store their content on island which will improve latency even more. This connection will be integral in the long-term plan for connection off-island for broadband service.

Expected Outcome. The proposed project will deliver low latency at ~40 ms. The technology supported in this network can deliver far low latency so that cloud services and real-time services can be delivered with high quality.

g. Description of the Ability of the Deployment to Scale Over Time for Greater Capability

1) Guam Southern Ring Buried Fiber Optic Cable and 5G Project

This project is scalable over time in the following ways: (a) upgrading the ONTs to support higher download/upload speeds; (b) adding tributary fiber into areas that become further developed; and (c) installing and feeding additional 5G cell sites along the main and tributary fiber routes.

2) Broadband Infrastructure Program to Provide Low Latency to Guam Users

The proposed IRU is for a 15-year term. GTA realized that 100Gbps will only fulfill our needs for the next five years and will not be able to meet our transport needs for the duration of the IRU under the current business as usual forecast. However, GTA is investigating new processes that would extend the life of the 100Gbps connection. The 100 Gbps IRU will be an important part of helping to fulfill our needs over the 15-year term. It is possible that enough content can be moved onto the GTA network that the IRU will be sufficient for 15 years. If that is not the case, then when the IRU reaches 80% capacity, likely in five years, GTA will obtain an additional 100Gbps connection to the TY2 datacenter. This approach allows GTA to easily and incrementally scale the acquisition of low latency content.

h. Project Plan - Project Activities, Timelines, and Project Milestones

1) Guam Southern Ring Buried Fiber Optic Cable and 5G Project

Activity	start date	duration
Acquire permits	Day 1	45
Trenching, hand hole installation, and cable laying	Day 45	180
Order and take delivery of 5G equipment	Day 1	184

5G site design	Day 1	45
5G site deployment	Day 185	109
Testing	Day 284	15
Service available	Day 365	

2) *Broadband Infrastructure Program to Provide Low Latency to Guam Users*

Project Activities	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Finalize Design	x	x										
Order 100G JGA-N					x	x	x	x				
Order Equipment		x	x	x	x	x	x	x				
Install Equipment at TY2									x			
Order Data Center Connectivity									x	x		
Order Transit Link										x		
Service Turn Up											x	
GGWAN L3VPN to Cloud Integration												x
Customer Acceptance												x

i. Physical Project Area

1) *Guam Southern Ring Buried Fiber Optic Cable and 5G Project*

The physical project area consists of S. Cada de Nieves Drive from the intersection with Marine Drive in Piti south to the intersection with Cross Island Road (Route 17), the south on Route 2 and around the southern and southeastern shoreline of Guam including Route 4a in Talofofu and the north to the Intersection of Route 4 with Route 10 in Chalan Pago, with an extension to the 5G cell sites that are not along the main highways. A map showing the roads involved is provided below. These are all existing roads and all trenching and other work will be accomplished with the existing rights of way which are all previously disturbed grounds. Any project involving ground disturbance will undergo the review and clearance process with the State Historic Preservation Office (SHPO) and federal consistency review with the Guam Coastal Management Program (GCMP), Bureau of Statistics and Plans. A Google Earth image of Southern Guam is attached below.

2) *Broadband Infrastructure Program to Provide Low Latency to Guam Users*

This project utilizes an IRU for capacity in an existing undersea cable. New equipment will be placed inside existing structures. Therefore, there will be no environmental impact in this project.

j. Support Provided to the Supplier of Broadband Service

1) *Guam Southern Ring Buried Fiber Optic Cable and 5G Project*

IT&E provides the following information with respect to the project stated above:

- (i) Grants or Loans Provided by the State: None.
- (ii) Grants, Loan or Loan Guarantee Provided by the Secretary of Agriculture: None.
- (iii) High Cost Universal Service Support under Section 254 of the Communication Act of 1934 (47 U.S.C. 254): \$1,814,712 for wireless communications services including voice and broadband data, and none for terrestrial fixed broadband services.
- (iv) Grant Provided under Section 6001 of the American Recovery and Reinvestment Act of 2009 (47 U.S.C. 1305): None.

(v) Amounts Made Available for the Education Stabilization Fund Under the Heading “DEPARTMENT OF EDUCATION” in Title VIII of Division B of the CARES Act (Public Law 116-135; 134 Stat. 564): None.

(vi) Any Other Grant, Loan, or Loan Guarantee Provided by the Federal Government for the Provision of Broadband Service: None.

2) *Broadband Infrastructure Program to Provide Low Latency to Guam Users*

GTA is not in receipt of federal funding for the deployment of middle mile services covered in this application. GTA is a company that is in receipt of federal funding for the deployment of qualified last mile broadband service on the island of Guam. The funded area of GTA receives funding for last mile or loop service and this support does not coincide or overlap with this proposed second mile project. The federal support received by GTA is solely for purposes of local subscriber (last mile) services. However, it should be noted that this last mile service will be greatly enhanced with this application in that the proposed second mile solution will significantly reduce latency of the end users.

k. Strong Labor Standards

1) *Guam Southern Ring Buried Fiber Optic Cable and 5G Project*

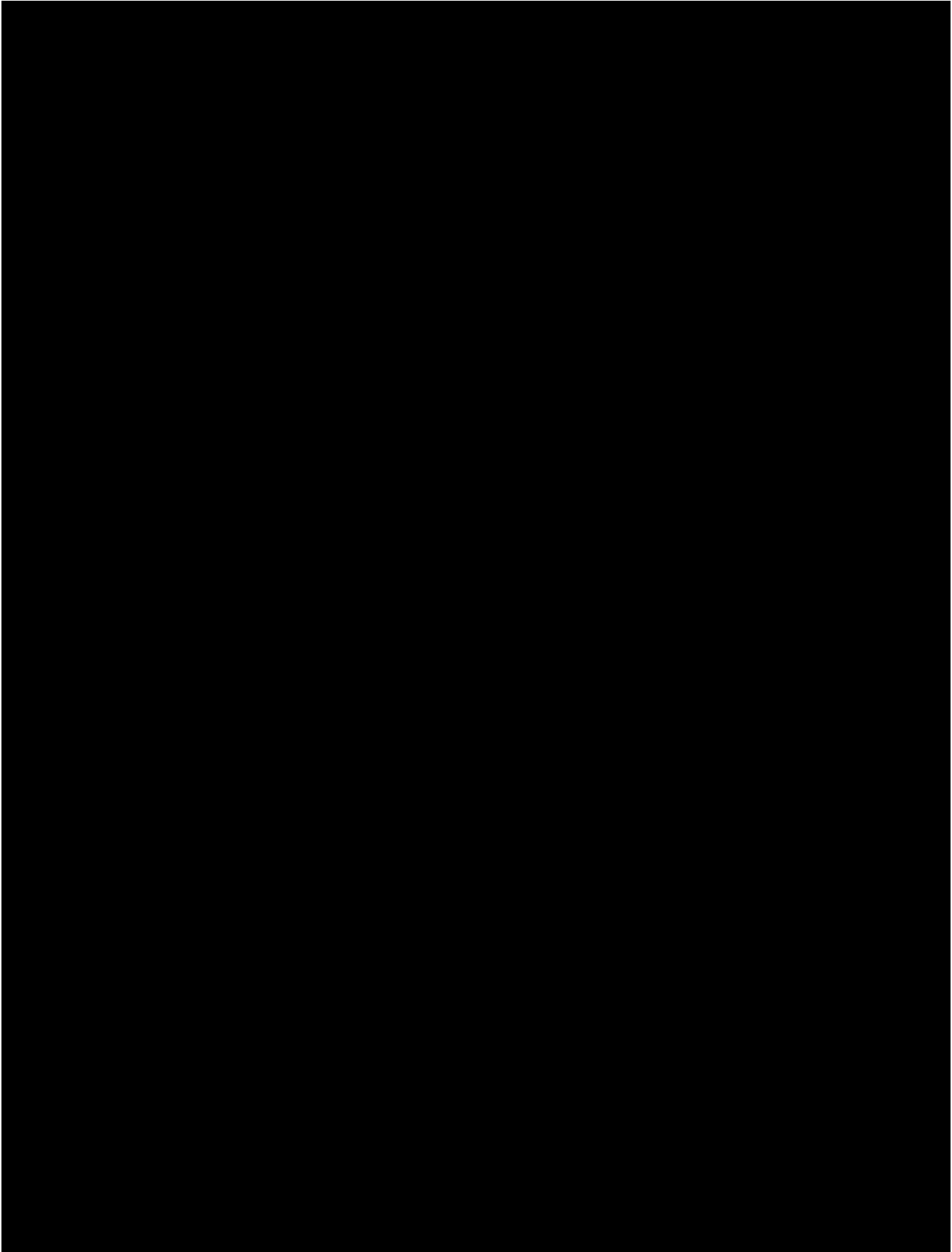
IT&E has strong labor standards that are incorporated within our Human Resources policies. Under our official job description, there are two classifications of workers that will be involved in the project we have submitted: Combination Technicians who also operate construction equipment including microtrenchers and Fiber Optic Cable Splicers. [REDACTED]

[REDACTED] Thus, all of the IT&E employees who will be working on these projects are paid wages well above the prevailing wages.

IT&E also follows the CNMI and Guam Government mandates for local hire. Our workforce plans and practices and our employee benefit plans are described in our HR policies, a copy of which can be supplied upon request.

2) *Broadband Infrastructure Program to Provide Low Latency to Guam Users*

GTA complies with and exceed all prevailing wage requirements for wages, overtime, and benefits. In addition, GTA makes the required posting of its labor practices in common areas. GTA’s current labor rates and benefits are above the rates listing for Guam’s prevailing wages.



Budget Narrative:

The Guam Broadband Infrastructure Program grant application seeks federal funds to cover the following projects through the covered partnership with IT&E and GTA

- 1) Guam Southern Ring Buried Fiber Optic Cable and 5G Project. Federal funds is requested in the amount of \$11,438,659.07 to contract services for the installation of 117 KM of 144 strand buried fiber optic cable and 26 5G cell sites along the major routes in Southern Guam in a ring architecture with two physically-diverse, inter connected rings from Piti to Chalan Pago to provide survivable broadband infrastructure and 5G broadband internet service to historically unserved and underserved residents, businesses, and anchor institutions in southern Guam.
- 2) Broadband Infrastructure Program to Provide Low Latency to Guam Users. Total project cost is \$1,696,028.33. Federal funds is requested in the amount of \$1,526,485.50 and for which GTA will provide a cash match in the amount of \$169,542.83. This project seeks to acquire 100 Gbps of optical capacity on an Asia Pacific (“APAC”) cable system to the TY2 Peering location in Japan to lower the latency of broadband connections to reasonable levels at ~40 ms.

Detailed Budget Justification:

- 1) IT&E is proposing the Guam Southern Ring Buried Fiber Optic Cable and 5G Project.

Each of the items listed under the materials, labor, and miscellaneous headings above are standard items required for implantation of buried fiber optic cables, installation of cellular base stations and connections to end users and as such are allowable costs that are consistent with the project scope and are not proscribed by the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards stated in 2 C.F.R §200. IT&E has more than 40 years of experience in providing telecommunications services in the Marianas and has constructed over 175 miles of terrestrial fiber, countless miles of copper cables and has almost 140 operational cell sites. The proposed equipment is essential to provide the identified services and the proposed budget is based on our historical knowledge and perspective.

Detailed explanations and justifications for expenses:

Labor (Construction):

1. Trench and place microduct. The optical fiber will be placed in roadside trenches to protect the fiber from the effects of typhoons, which are a normal occurrence in Guam and which destroys on a regular basis aerial fiber installations. The microconduit for the fiber will be laid in narrow trenches dug by DitchWitch trenching machines and this item covers the labor involved in operating the machines, laying the microconduit, backfilling the trenches, and restoring pavements cut for road crossings.
2. Fiber blowing. The optical fiber will be blown into the microduct using blower machines normally used for the purpose. This item accounts for the labor involved in blowing the fiber into the microduct.
3. Fusion splicing. The 383,858 feet of fiber cannot be blown into place in one continuous length but must be blown into the microduct in sections. The optical fibers in each length of cable must be fusion spliced to the optical fibers in the succeeding length of cable. [REDACTED]
4. HH Installation. Each length of fiber terminates in a concrete hand hole, and this item covers the cost of installing the concrete hand holes.

5. Engineering hours. This item covers the cost of the engineering and supervisory work involved in performing the construction work.

Materials (Equipment):

1. 144 strand fiber. This is the cost of the 144 strand fiber optic cable that will be installed on this project.
2. 4 way microduct. This is the microduct that will be laid in the trenches into which the optical fiber will be blown.
3. Splice tray. These are the trays used to hold the cables when they are joined by fusion splicing the fibers.
4. Hand hole. These are the concrete hand holes that will be placed along the roadside through which the optical cables will be blown from one point to another.
5. 3M small enclosure. These are the enclosure which will cover and protect the fiber splices.
6. Fusion sleeve. Each fiber splice needs to be protected and covered and these sleeves are used for that purpose.
7. Road crossing restoration materials. Covers the cost of materials used to restore the pavement to the original pavement condition.
8. 5G cell sites. Each 5G cell site which will be installed on existing cellular sites consists of a 5G base station, antennas, cables connecting the antennas, and mounting hardware. The cost to procure the equipment and install it has been calculated to average this cost as a package.

Miscellaneous:

1. Permits. This is to cover the cost of a composite road cutting permit.
2. Invitation for Bid advertisement. This is to cover the cost for the bid advertisement
3. Equipment Rental. Covers equipment rental lease for the project.

[REDACTED]

[REDACTED]

[REDACTED]

Invitation for Bid (IFB) Advertisement - Funds are being requested for the advertisement of the Invitation for Bid at the Guam Pacific Daily News and the Guam Daily Post. The estimated budget for the IFB advertisement (230) is \$600.00.

Equipment rental covers microtrencher at 750.00 daily rate for 60 days for total of \$45,000.00 and dumptruck at \$520.00 daily rate for 60 days for total of \$31,200.00 for a total at \$76,200.00

Miscellaneous cost includes permits estimated at \$485 and Invitation for Bid Advertisement at \$600.00 and equipment rental at \$76,200.00 for a grand total of \$77,285.00.

The estimated total project cost is \$10,893,961.02 and estimated contingency project cost is \$544,698.05 for a total of \$11,438,659.07

These services will be procured through an Invitation for Bid process following the government of Guam procurement rules and regulations and in line with the 2 CFR 200. The IFB process will be done through coordination with the Guam Department of Public Works.

2) GTA is proposing Broadband Infrastructure Program to Provide Low Latency to Guam Users

This project will provide a 40 ms latency path for latency sensitive applications to include cloud computing, telemedicine, autonomous vehicles, and 5G applications. Current latency is a minimum of 112 ms to Los Angeles and latency increases as a function of distance from LA. Asian bound traffic must cross the Pacific Ocean twice in excess of 200 ms. GTA will contribute a 10-percent cash contribution to the capital costs. GTA will support these costs by selling bandwidth on the transport to content providers and other carriers who want low latency connection to Japan.

GTA manages the Government of Guam Wide Area Network (GGWAN). This connects most of the local government agencies together via an L3VPN MPLS technology. This allows all the government agencies to appear locally connected to each other even though they are spread across the island. GTA will extend the GGWAN to directly connect with a cloud service provider selected by the Office of Technology such as AWS, Azure, or Google. On selection, GTA will provide a 10G directly attached connection to the cloud provider of choice. This will enable the local government to leverage cloud computing securely from their infrastructure.

The contractual services to provide Low Latency to Guam users will include the following:

Architectural and Engineering fees at \$199,584.39.

Site work includes the preparation for installation of the electronics in collocated at TY2. These costs are based on fees from similar projects. The site work costs is budgeted for \$9,464.44.

Construction costs is a 15-year IRU for 100 Gbps between GTA Dededo Central Office and TY2 peering location in Tokyo, Japan. The cable is a direct route between Guam and Tokyo reducing latency from over 200 ms to below 40 ms. The prices are from quotes for equipment, labor, and IRU's that GTA has used to sustain cable system capacity for a minimum of 15 years. The cost for construction is estimated at \$1,320,000.00.

The IRU listed under the "Construction Cost" states the funding included equipment, labor and the IRU. The owner of the cable, equipment and maintenance labor includes all of those functions. It includes the fiber, optical equipment and the ongoing maintenance since the fiber is shared among several users. GTA will lease the 100 G capacity. The total cost of the capacity lease is the \$1.32M listed on the budget sheet. The equipment and installation for the GTA Arista equipment which further segregates the 100 G bandwidth is listed under the general equipment category. This description has been clarified in the updated budget description.

The IRU costs are eligible under IV J.1(a) and (b) section of the Notice of Funding Opportunity. Theses sections state that costs to obtain facilities for Backhaul, middle mile and last mile facilities are eligible and that of leased facilities including IRU are eligible.

- (a) fund the costs of construction, improvement, and/or acquisition of facilities and telecommunications equipment required to provide qualifying broadband service, including **infrastructure for backhaul, middle and last mile networks**;
- (b) fund the cost of long-term leases (for terms greater than one year) of facilities required to provide qualifying broadband service, **including indefeasible right-of use (IRU) agreements**¹.

Equipment costs include Arista Network equipment and Correro DDoS based on purchases from similar project and recent price quotes. Equipment cost is estimated at \$166,379.50.

Invitation for Bid (IFB) Advertisement - Funds are being requested for the advertisement of the Invitation for Bid at the Guam Pacific Daily News and the Guam Daily Post. The estimated budget for the IFB advertisement (230) is \$600.00.

These services will be procured through an Invitation for Bid process following the government of Guam procurement rules and regulations and in line with the 2 CFR 200. The IFB process will be done through coordination with the Guam Department of Public Works.

¹NTIA NOFO sections IV.J.1.(a) and IV.J.1(b)

**Guam Broadband Infrastructure Program - NTIA Grant Program
Detailed Project Budget**



Project 2 - Project To Provide Low Latency to Guam Users			
Architectural and Engineering fees			\$199,584.39
Site work			\$9,464.44
Construction			\$1,320,000.00
Equipment			\$166,379.50
Misc. - Invitation for Bid Advertisement	2 each	\$300.00	\$600.00
Subtotal			\$1,696,028.33
	Total Project Cost		\$1,696,028.33
Federal Funding			\$1,526,485.50
GTA cash match 10%			\$169,542.83
	Grand Total Federal Funds		\$12,965,144.57
	Grand Total Project Costs		\$13,134,687.40

ANDREW LABRUNDA

(b) (6)

(b) (6)

alabrunda@gta.net

NTIA curriculum vitae to demonstrate knowledge in the areas of IT, Engineering, Networking, and Telecommunications. Result driven leader with proven experience leading dynamic initiatives across an organization with a focus on providing value to customers.

EXPERIENCE

APRIL 2018 – PRESENT

VICE PRESIDENT OF IP AND VIDEO HEADEND, GTA TELEGUAM

- **Operational Efficiency:** Directed IP Operations and Development. Managed \$2M in capital investments and \$1M in operations expenses. Designed and executed operating plans for improving NetOps by instilling a metrics and accountability discipline into the organization. Achieved 38% improvement in service delivery and 55% savings in field installation costs.
- **Contract Negotiation:** Renegotiated transit relationships with CenturyLink, Verizon, NTT, Telstra, Bharti, Tata, and Cogent. This resulted in an increase transit network capacity of 30%, improved transit resiliency, early exit from an IRU, and a savings of 180K annually.
- **Network Overhaul:** Reduced Networking Operational Expenses by 50% and restructured OpEx / CapEx ratios to accommodate network modernization. Migrated from classic 3-tier provider architecture on Cisco 76XX to an Arista 7280R3 & R2 leaf, spine architecture. Kept total costs below 2M dollars which was 1/5th the cost estimate from incumbent vendor.
- **Data Center Deployment:** Deployed two data centers using SuperMicro 1U DC high density servers and Western Digital SAN's with real-time replication between datacenter offices. Environment provides IaaS on VMWare and Docker and has become both a service platform for our customers and the execution environment for all OAM services.

DEC 2013 – APRIL 2018

VICE PRESIDENT OF ENGINEERING & OUTSIDE PLANT, GTA TELEGUAM

- **VDSL & Fiber Network Expansion:** Lead a team of 250 employees that were responsible for increasing VDSL coverage footprint from 18% homes passed to 70% in a 24-month period. GTA invested 18 million dollars into the infrastructure. The teams installed 250 miles of fiber and deployed 350 neighborhood POPs. Oversaw the vendor selection, budget, design, construction, organization, metrics, service assurance, and preventive maintenance.
- **System Integration:** Integrated the GIS platform with our NMS to show locations of network failures. Guide development effort on python to query network elements that are imported and processed by R Studio modules to plot and identify imminent network failures.
- **Geographic Information System:** Deployed an ArgGIS platform that captures our current and planned network structure. Setup GIS procedures to identify the areas of fewest served customers with highest density to prioritize best opportunities for network expansion.
- **Optical Transport:** Built an optical engineering team and setup training program for GTA to create sustainable design and operation center for the delivery of access, aggregation, and transport optical networks for Ciena 6500, Ciena 6200, and Fujitsu 7420 network elements.
- **Broadband Design:** Designed and deployed a broadband network utilizing Comtrend CPE connected to Adtran and Calix VSLAM nodes which currently serve 20K subscribers. Modem management performed on FinePoint ACS platform and authentication via PPPoE.

EDUCATION

M.S. in Computer Science, 2004 Nova Southeastern University of Florida. Graduated with honors, GPA of 3.97.	B.A. in Computer Science 1999, University of Guam. Major in CS, minor in Mathematics
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Summary of Accomplishments

- Over forty years of experience in the field of information technology
- Over thirty years of management and professional experience in government and education
- Masters of Science in Systems Management
- Direct experience designing and implementing IT application solutions in the government, education and commercial sector in the Western Pacific geography
- Adjunct professor for the School of Business and Public Administration, University of Guam
- Appointed in 2016 by the Governor of Guam as the FirstNet Single Point of Contact (SPOC).
- Appointed in 2016 by the Governor of Guam as the Statewide Interoperability Coordinator (SWIC) for Guam.
- Hands on experience coordinating and planning IT projects involving financial management systems, customer relations management, enterprise resource planning, cybersecurity, systems deployment, website development, virtualization and systems administration.
- Organized and enthusiastic work ethic - focused on leveraging technology and empowering others to succeed

Areas of IT Expertise

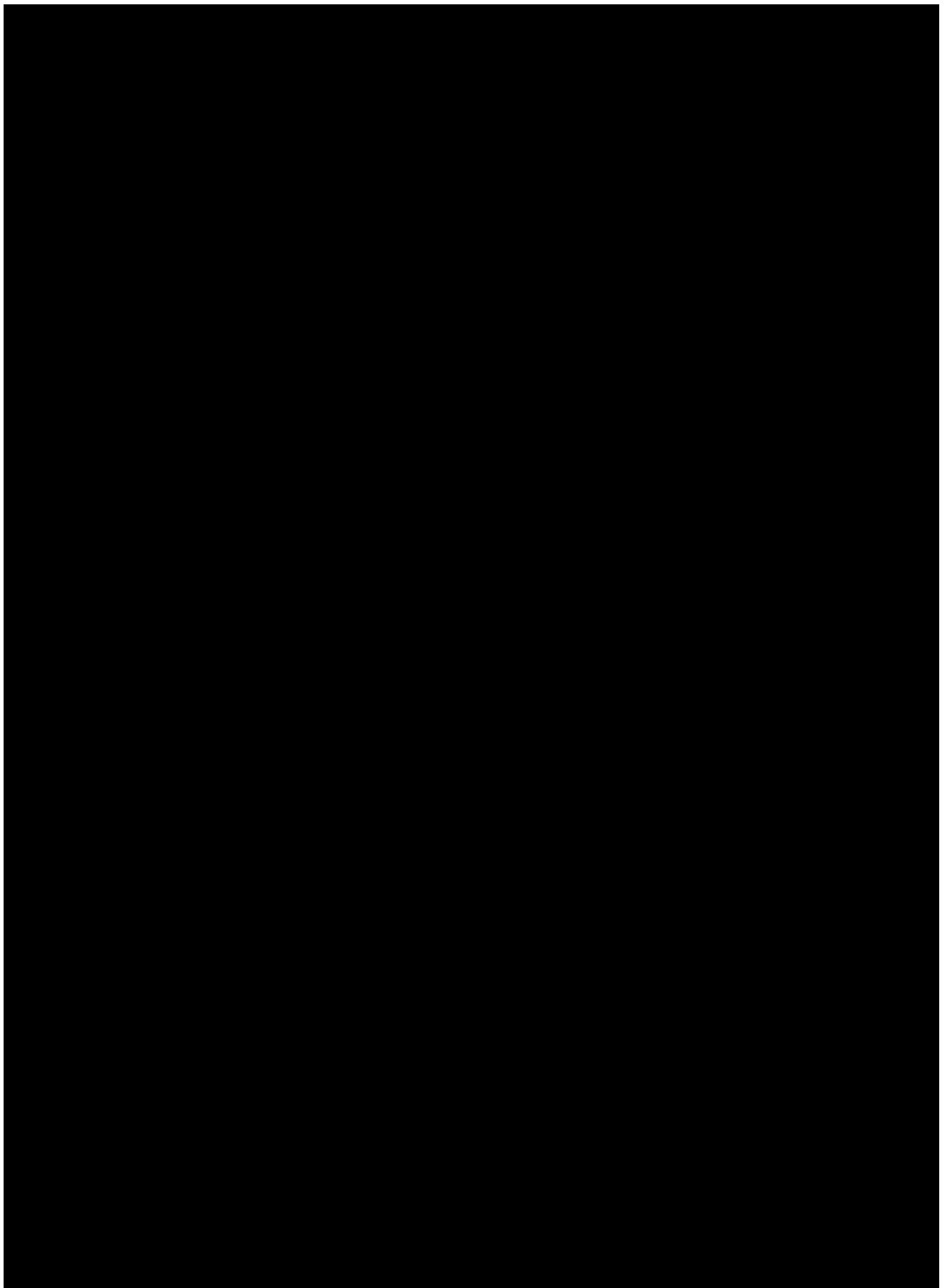
- | | | |
|-------------------------------|----------------------------------|-------------------------------------|
| • Project Management | • Strategic Planning/ Governance | • Unified Communications |
| • Service & Support Solutions | • Network Administration | • Cybersecurity |
| • Digital Transformation | • Virtualization | • IT Solutions Deployment |
| • IT Procurement | • Cloud Solutions | • Availability/ Business Continuity |
| • Systems Administration | • Desktop Deployment | • Disaster Recovery |

Education

MS	Master of Science Systems Management	University of Southern California Los Angeles, CA
BS	Bachelor of Science Computer Systems Engineering	Oregon Institute of Technology Klamath Falls, OR
AE	Associate of Engineering Computer Systems Engineering Technology	Oregon Institute of Technology Klamath Falls, OR
	Professional Technical Award	University of Guam, Mangilao, GU

Employment History –

2015 – Current	Chief Technology Officer, Government of Guam	Hagåtña, Guam
	Confirmed by the 33 rd Guam Legislature as GovGuam’s first CTO in 2015 and has provided the leadership and direction to stabilize the core IT Operations for the line agencies and commissions of GovGuam under the executive leadership and direction of the Governor of Guam and the Chief of Staff. The CTO heads GovGuam’s newest department, the Office of Technology (OTECH), with responsibility for technical support, operations, and cybersecurity for over forty (40) line agencies and commissions, over 3000 end points, over 70 lines of business, across 3 datacenters. Key initiatives include digital acceleration, cloud solutions deployment, hyper convergence, unified communications, digital transformation and modernization, broadband infrastructure modernization.	
2007 - 2015	CEO / Chairman/ Principal IT Consultant, Guam Technology Associates, Inc.	Tamuning, Guam
2009 - 2012	Adjunct Professor, University of Guam	Mangilao, Guam
2005 - 2007	Managing Director IT, GTA Teleguam LCC.	Tumon, Guam
2003 - 2005	IT Consultant, Nordisk Systems	Portland, Oregon
2000 - 2003	Territory Channels Manager, IBM Corporation	Portland, Oregon
1998 – 1989	Solutions Manager, IBM Corporation	Hagåtña, Guam
1994 – 1998	Client Executive, IBM Corporation	Hagåtña, Guam
1989 – 1994	Systems Engineer, IBM Corporation	Hagåtña, Guam
1984 - 1989	Data Processing Manager, Guam Telephone Authority	Tamuning, Guam



ROLAND S. CERTEZA

(b) (6)

(mobile)

Telecom Executive successful at establishing the vision and strategies necessary to grow a \$104 million communications company. Excel at partnering with all core business operations to significantly increase the company's footprint, expand market share, and generate sustainable revenue and EBITDA gains.

A proven leader that can motivate and inspire high performance teams.

- Strategic Business, Market & Sales Planning
- Revitalizing Stagnant & Declining Sales
- ROI, Value Proposition & Profit Optimization
- Competitive Analysis, Positioning & Pricing
- Creative Branding & Vertical Marketing
- Major Account Development
- Market Evaluation, Penetration & Expansion
- Performance Enhancement & Succession Planning

GTA TELEGUAM, Tamuning, GU

Chief Executive Officer (Oct 2017 to Present)

- Promoted to CEO at the end of 2017. Drove 15% EBITDA growth over the first 2 years combining growth in key segments of the business and operational expense rigor.
- Implemented a strategic performance system focusing on customer experience, operations excellence and employee development/retention.
- Launched a new flagship experience store that redefines the customer and retail experience. Aimed at being the most loved brand.
- Launched SEA-US Cable Station and is currently expanding the network to include Guam's first combined neutral cable landing station and data center that will provide seamless interconnection between Asia, Australia and the United States.

Executive Vice President, Sales & Marketing (2008 to 2017)

- Formulate all sales and marketing strategic planning initiatives encompassing 6 lines of business across all market segments. Delivered impressive sales results; growing revenues from \$42 million to \$104 million annually. Establish strategic customer partnerships and work collaboratively with engineering, operations, finance, and IT to determine product life-cycle strategies, create effective marketing programs, establish new product introduction/launch strategies, and resolve post-launch problems. Report to the CEO.
- Negotiated a 5 year strategic contract with Navy and Air Force to expand retail presence within the base to introduce products and services for military and their families. \$4 million annual revenue.

EDUCATION

- Bachelor of Science, Business Accounting, California State University, San Diego, CA. Graduated 1989.
- Master of Business Administration, University of Guam, Mangilao, GU. Graduated 2010

Phone: (b) (6) – Mobile
Email: leo.yanger@itehq.net

Leo T. Yanger

Summary of Qualifications Proven results-oriented leader, with extensive experience in program and project management, network buildouts; management of operations, personnel, vendors and budgets. Design and Engineering experience with Cellular and Fiber networks.

Experience *Mar 2018 – Present* *PTI Pacifica, dba IT&E* *Tumon, GU*
Director, Programs & Projects Management

Nov 2012 – Mar 2018 *GTA TeleGuam* *Tumon, GU*
Vice President Wireless Engineering

Jan 2007 – Nov 2012 *MetroPCS, NV LLC* *Las Vegas, NV*
RF Manager

Jan 2002 – Jan 2007 *MetroPCS, Inc.* *Sacramento, CA*
RF Engr / Senior RF Engineer

Dec. 2000 – Dec. 2001 *Lucent Technologies* *San Francisco, CA*
RF Engineer /RF Services Coordinator

1994 - 2000 *IT&E Overseas, Inc.* *Harmon, Guam*
Executive Assistant to VP of Operations

1984 - 1993 *U.S. ARMY* *Hawaii/Republic of Korea/Persian Gulf*
Communications Officer

Education 1981 - 1984 University of Hawaii Honolulu, Hawaii
Bachelor of Arts Communications

1979 – 1981 Kemper Military College Boonville, Missouri
Associates Military Science

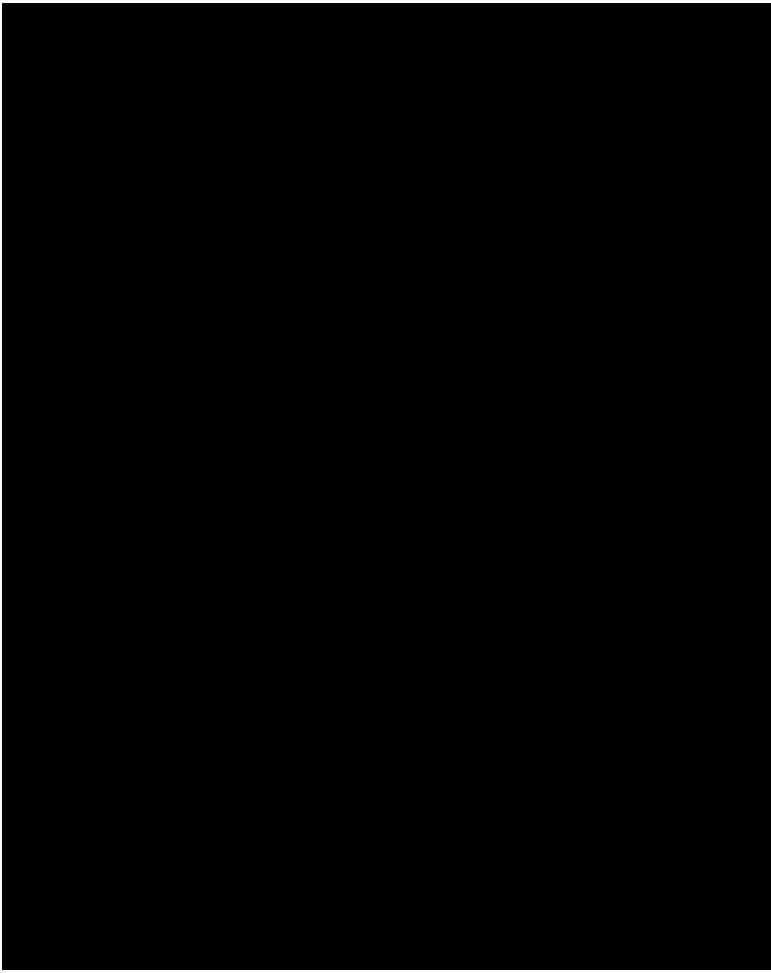
- PMP Training
- Ericsson OSS Operations and Administration
- Samsung CDMA Voice Core Operations & Maintenance
- Lucent 3G-1x RF Design and Base Station Call Processing
- GSM Operations and maintenance Fundamentals.
- UNIX Shell Command Language for Users.
- U.S. Army Communications Officer Basic and Advance Courses, Fort Gordon, GA
- U.S. Army Director Of Information Management Course
- U.S. Army Communications Security Course (COMSEC) (Honor Graduate)

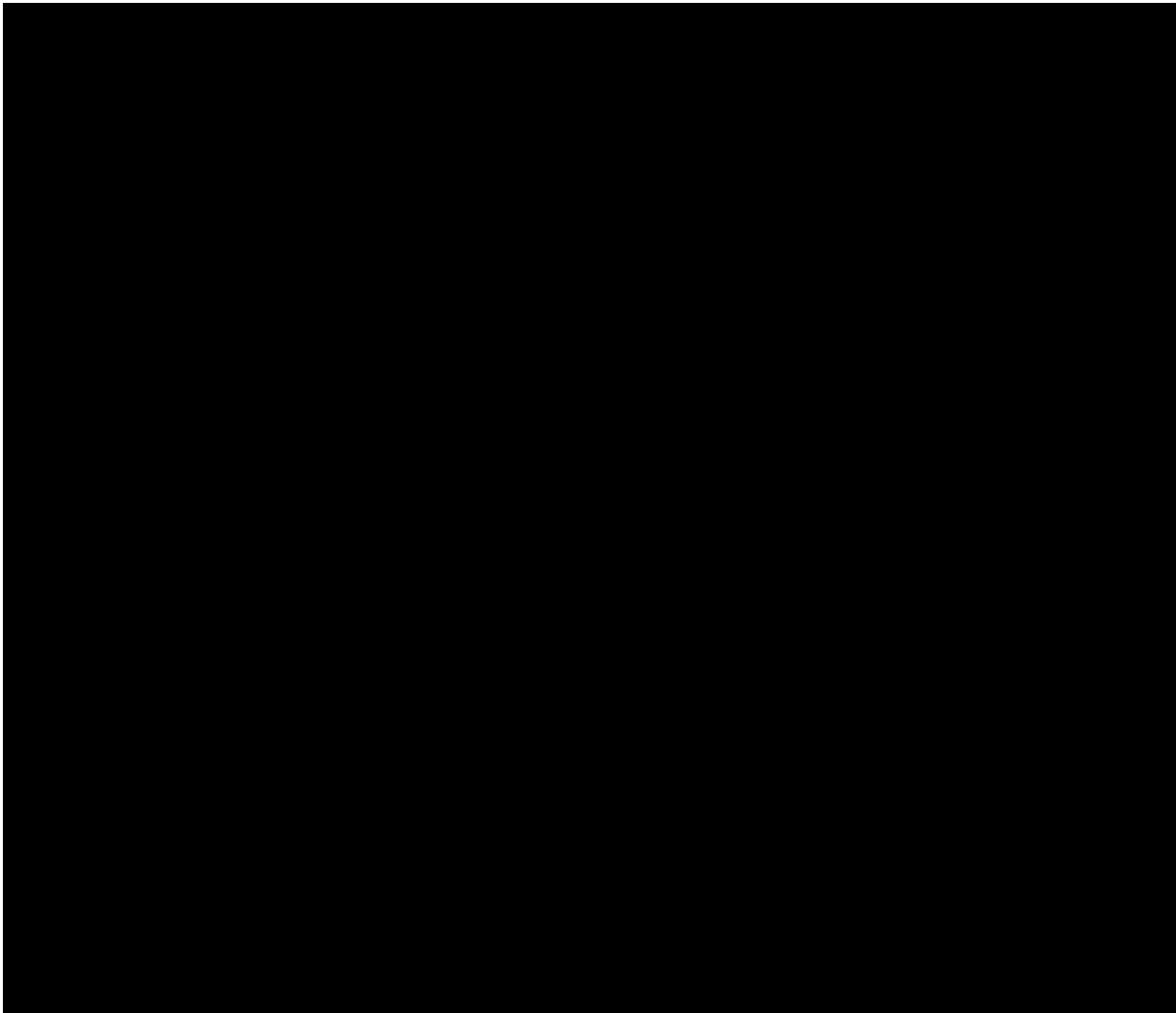
References Available Upon Request.

Name	Status	Census Census 4/1/2010
Agrihan	Village	0
Alamagan	Village	0
Anatahan	Village	0
Asuncion	Village	0
Farallon de Medinilla	Village	0
Guguan	Village	0
Maug	Village	0
Pagan	Village	0
Sarigan	Village	0
Uracus (Farallon de Pajaros)	Village	0
Afatung	Village	0
Agatasi (Payapai)	Village	2
Agusan	Village	0
Alaguan	Village	0
Annex F	Village	154
Apanon	Village	0
As Akoddo	Village	0
As Dudo	Village	0
As Niebes (Nieves)	Village	12
Duge	Village	0
Fanlagon	Village	0
Finata	Village	0
Gagani	Village	1
Gampapa	Village	12
Gaonan	Village	0
Gayaugan (Kaan)	Village	1
Ginalangan (Chudan)	Village	59
I Chenchon	Village	117
I Koridot	Village	0
Lempanai	Village	9
Liyu	Village	62
Makmak	Village	1
Mananana	Village	0
Matpo	Village	17
Mochong	Village	0
Mount Sabana (Minachage)	Village	0
Mount Taipingot	Village	0
Pekngasu	Village	0
Sailigai Papa	Village	0
Sayan Gigani	Village	0
Sinapalo	Village	1,297
Songsong	Village	593
Tagolo Ogso	Village	0
Taimama	Village	22

Talakhaya	Village	0
Talo	Village	4
Tatachok	Village	0
Tatgua	Village	17
Tenetu	Village	147
Ugis	Village	0
Achugao	Village	209
Afetnas	Village	1,486
Agingan	Village	308
American Memorial Park	Village	0
As Akina	Village	99
As Falipe	Village	6
As Gonna	Village	157
As Lito	Village	920
As Mahetog	Village	304
As Matuis	Village	596
As Palacios	Village	718
As Perdido	Village	238
As Rabagau	Village	677
As Teo	Village	317
As Terlaje	Village	282
Banaderu	Village	0
Bird Island	Village	0
Capitol Hill (Capital Hill)	Village	1,028
Chacha	Village	65
Chalan Galaide	Village	178
Chalan Kanoa I	Village	1,304
Chalan Kanoa II	Village	921
Chalan Kanoa III	Village	794
Chalan Kanoa IV	Village	631
Chalan Kiya	Village	1,062
Chalan Laulau	Village	1,096
Chalan Piao	Village	1,282
Chalan Rueda	Village	257
China Town	Village	1,274
Dagu	Village	780
Dandan	Village	3,280
Fananganan	Village	1,201
Fanonchuluyan	Village	0
Finasisu	Village	2,451
Forbidden Island	Village	0
Garapan	Village	3,983
Gualo Rai	Village	1,660
Hilaihai	Village	35
I Akgak	Village	327
I Denni	Village	27
I Fadang	Village	0

I Liyang	Village	917
I Maddok	Village	0
I Naftan	Village	36
I Pitot	Village	54
Kagman	Village	92
Kagman I	Village	358
Kagman II	Village	918
Kagman III	Village	2,402
Kagman IV	Village	456
Kalabera	Village	0
Kannat Tabla	Village	874
Koblerville	Village	2,493
Laulau Bay	Village	226
Lower Base	Village	50
Managaha	Village	0
Marpi	Village	85
Matansa	Village	65
Maturana Hill	Village	161
Nanasu	Village	40
Navy Hill	Village	260
Opyan	Village	20
Papago	Village	380
Pidos Kahalo	Village	0
Puerto Rico	Village	0
Sabaneta	Village	0
Sadog Tasi	Village	115
San Antonio	Village	1,149
San Jose (Oleai)	Village	954
San Roque	Village	741
San Vicente	Village	2,091
Susupe	Village	2,078
Talafofo	Village	41
Tanapag	Village	829
Tangke	Village	0
Tapochao	Village	124
Tottotville	Village	258
Aguijan	Village	0
Carolinas	Village	27
Carolinas Heights	Village	336
Eastern Tinian (Marpo Valley)	Village	155
Marpo Heights	Village	679
Northern Tinian	Village	0
San Jose	Village	1,939
Western Tinian	Village	0







North Marine Corps Drive
Tamuning Guam 96913

Website: www.gta.net
Telephone: (671) 644 4482

COVERED PARTNERSHIP COMMITMENT LETTER TeleGuam Holdings LLC, dba GTA

August 16, 2021

Stephanie G. Flores
Director
Guam State Clearinghouse
Office of the Governor of Guam
Adelup, Guam

On behalf of TeleGuam Holdings LLC (“GTA”), I am writing to express GTA’s commitment to form a Covered Partnership with the Government of Guam, and to file this application to receive grant funding from the U.S. Department of Commerce’s National Telecommunications and Information Administration’s (“NTIA”) Broadband Infrastructure Program (“BIP”) to commit to forming a Covered Partnership with the Government of Guam, and to apply to receive grant funding from the U.S. Department of Commerce’s National Telecommunications and Information Administration’s (“NTIA”) Broadband Infrastructure Program (“BIP”) to acquire capacity on an Asia Pacific (APAC) cable system. Customers of GTA, inclusive of GovGuam, currently have a round trip time (RTT) of 112 ms to the nearest transit center located at One Wilshire in Los Angeles. The standard called for in the NTIA grant specifications call for with less than 100 ms RTT. With this partnership, we would acquire capacity to connect to Guam’s closest transit hub located in the Equinix DataCenter TY2 in Tokyo giving customers a RTT of 35ms.

If approved, GTA will acquire additional capacity, and as part of the grant partnership, will provide 10G direct connect services to the three largest cloud compute platforms served by Equinix in TY2. To avail of this service, the local government agencies would need to participate in the Government of Guam Wide Area Network (GGWAN) maintained by GTA.

Today, local government agencies, are unable to leveraging Cloud service offering. The average round trip latency to nearest cloud provider yields an average latency of 158ms.

Further, System Response Time (SRT) > 100 ms has been show to impair Human Computer Interaction (HCI), impacting efficiency and productivity. Furthermore ITU-T G.114 recommends a max VoIP latency of 150ms.

Access to TY2 Equinix would give GGGWAN customers access to all major cloud compute providers at a maximum RTT of 50ms. It would serve the community anchor institutions, the general population, and all sectors throughout the community.



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1. SCOPE OF COMMITMENT

1.1. This Commitment Letter is to document the commitment of GovGuam and GTA to enter into a formal Partnership Agreement if their NTIA Infrastructure Application is awarded. The Partnership Agreement will detail how the Parties will individually and together meet the requirements of the NTIA Infrastructure Program to achieve the aforementioned for the benefit of the island community, comply with the applicable DOC Standard Terms and Conditions, and CFR 200 requirements.

2. Description of Project

2.1 The GovGuam-GTA Project will immediately and initially benefit community anchor institutions servicing the entire community vis-à-vis the local government, by significantly improving broadband and metro ethernet services signal latency caused by the remote geographic location of the project area. Further, this latency reduction will enable the entire community to meaningfully and tangibly experience vast improvement to critical access to telemedicine, remote work, improved access to remote education, increased access to the outside world via news and critical weather updates, enable the local government to embark on availing of cloud infrastructure and services and creating an optimal environment for economic development with access to low latency broadband (<100 ms) with speeds of up to 1Gbps.

GovGuam and GTA recognize the need to reduce latency for telecommunications for broadband services and to improve such to enable the local government and community to be more efficient in the delivery of public services in the Territory of Guam. The current average broadband speed available in the Territory of Guam is 25Mbps/3Mbps, provisioned over copper plant and fiber facilities, -. The proposed grant service area is the westernmost soil of the United States and is home to a number of remote workers requiring higher than qualified broadband speeds to work efficiently from home, thousands of U.S. active duty Air Force, Navy, Army and Marine personnel and dependents based on island, an aging population segment lacking reliable access to telehealth, college age students lacking efficient broadband access to streaming coursework which hinders opportunities to pursue higher education, and small businesses needing broadband access to sustain their operations. These examples of the population type outline the dire need for reduced broadband latency in this community. Grant funding is critical to enabling the aforementioned reduced latency substantial enough to make a business case without the aid of grant funding.

3. Responsibilities of Provider

3.1. The Provider will have primary responsibility for engineering, constructing, and maintaining the new capacity, to the latency challenged customers, namely the local government, throughout the entire island in the Grant Area.



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- 3.2. Provider will be responsible for deploying Asian Pacific transit hub. Round trip time from GTA's APAC transit border router to the local core network will be no greater than 40ms.
- 3.3. Provider shall be responsible for the NTIA Grant effective 12 months from time of award.
- 3.4. Provider shall be responsible for operating a plan within the budget of the amount of \$1,695,428 specified in the NTIA Grant application.
- 3.5. The Provider will provide a 10% of the funding to this project.
- 3.6. Provider shall be responsible for any indirect costs that are not covered by the grant funding.
- 3.7. Provider shall provide financial, status and performance information to the partnership to meet the NTIA reporting requirements.

GTA is eager to address latency and is excited to support this proposed project in tandem with GovGuam for funding through NTIA's BIP. GTA will work collaboratively with GovGuam and any other members of the covered partnership to ensure our goals are aligned with the goals of the project proposal further detailed in the grant application. GovGuam's support and commitment will significantly improve the availability of high-speed broadband within the rural, unserved proposed project area. As a member of the covered partnership, GTA looks forward to working with GovGuam on this exciting endeavor to expand Americans' access to better broadband and expanding telecommunications services to the island and public sector.

Sincerely,

A handwritten signature in blue ink, appearing to read "Roland Certeza", with a long horizontal flourish extending to the right.

ROLAND CERTEZA
Chief Executive Officer
TeleGuam Holdings LLC, dba GTA
624 North Marine Corps Drive
Tamuning, Guam 96913
rcerteza@gta.net

VIA HAND AND EMAIL DELIVERY

Frank L. G. Lujan, Jr.
Chief Technology Officer
Office of Technology
P.O. Box 884
Hagatna, Guam 96932

**AFFIRMATION OF COMMITMENTS BY IT&E TO PERFORM PROJECT
WORK UNDER NTIA BROADBAND INFRASTRUCTURE PROGRAM 21**

This document constitutes an Affirmation of Commitments (Affirmation) by PTI Pacifica Inc. dba IT&E, a for profit corporation to perform the work described in the below project which the Guam Office of Technology, is submitting a grant request to the NTIA under the NTIA Broadband Infrastructure Program 21.


Route 4 and Southern Guam Buried Fiber Optic Cable Project - \$11,358,019.07

The Project Director for IT&E will be Dr. Frederick R. Hill, Regulatory Compliance Officer. Dr. Hill has worked for IT&E for over 20 years, as Chief of IT Operations, Chief of Network Planning and Engineering, Chief Technology Officer and as the Regulatory Compliance Officer. Dr. Hill was one of the two Principal Investigators on the \$10.7M NTIA Broadband Technology Opportunity Program Grant awarded to IT&E under the ARRA program for broadband improvements to both Guam and the CNMI and has been the responsible party for numerous subgrants awarded to the San Antonio Manhoben Center by the CNMI Criminal Justice Planning Agency (CJPA). Dr. Hill also is responsible for our Connect American Funding and IT&E has a successful grant compliance track record with respect to these programs.

Dr. Hill agrees to abide by the NTIA's requirements for performance and reporting on the NTIA Broadband Infrastructure Program 21.

This Affirmation of Commitment is dependent upon the assignment of ownership of the facilities constructed under this program to IT&E in accordance with NTIA's policies and Federal Regulations.

PTI Pacifica Inc. dba IT&E


Jim Oehlerking
Chief Executive Officer
August 9, 2021



Lourdes A. Leon Guerrero
Governor
I Maga' Hågan Guåhan

Joshua F. Tenorio
Lieutenant Governor
I Segundu Maga' Iåhi Guåhan

OFFICE OF TECHNOLOGY
(UFISINAN TEKNOLOGIA)
GOVERNMENT OF GUAM
(GUBETNOMENTON GUÅHAN)
Post Office Box 884 • Hagåtña, Guam 96932



Frank LG Lujan, Jr
Chief Technology Officer

Beatrice A Santos
Acting Data Processing Manager

August 13, 2021

Ms. Jennifer Duane
Senior Broadband Program Specialist
Office of Telecommunications and Information Applications
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW, Room 4874
Washington, DC 20230

SUBJECT: Letter of Commitment – Guam Office of Technology,
Broadband Infrastructure Program

Buenas yan Håfa adai Ms. Duane,

I am writing this letter to affirm the commitment of the Guam Office of Technology (OTECH) to the success of this proposed project to improve the broadband infrastructure for the unserved and under-served southern Guam population. OTECH agrees to work with our covered partners as well as the Guam Bureau of Statistics and Plan (BSP) to assure and perform the work and report requirement under this program award.

We await with great anticipation, your review and award of this grant for our island territory.

Senseramente,

Frank L.G. Lujan, Jr.
Chief Technology Officer
Office of Technology
Government of Guam

