



GUAM

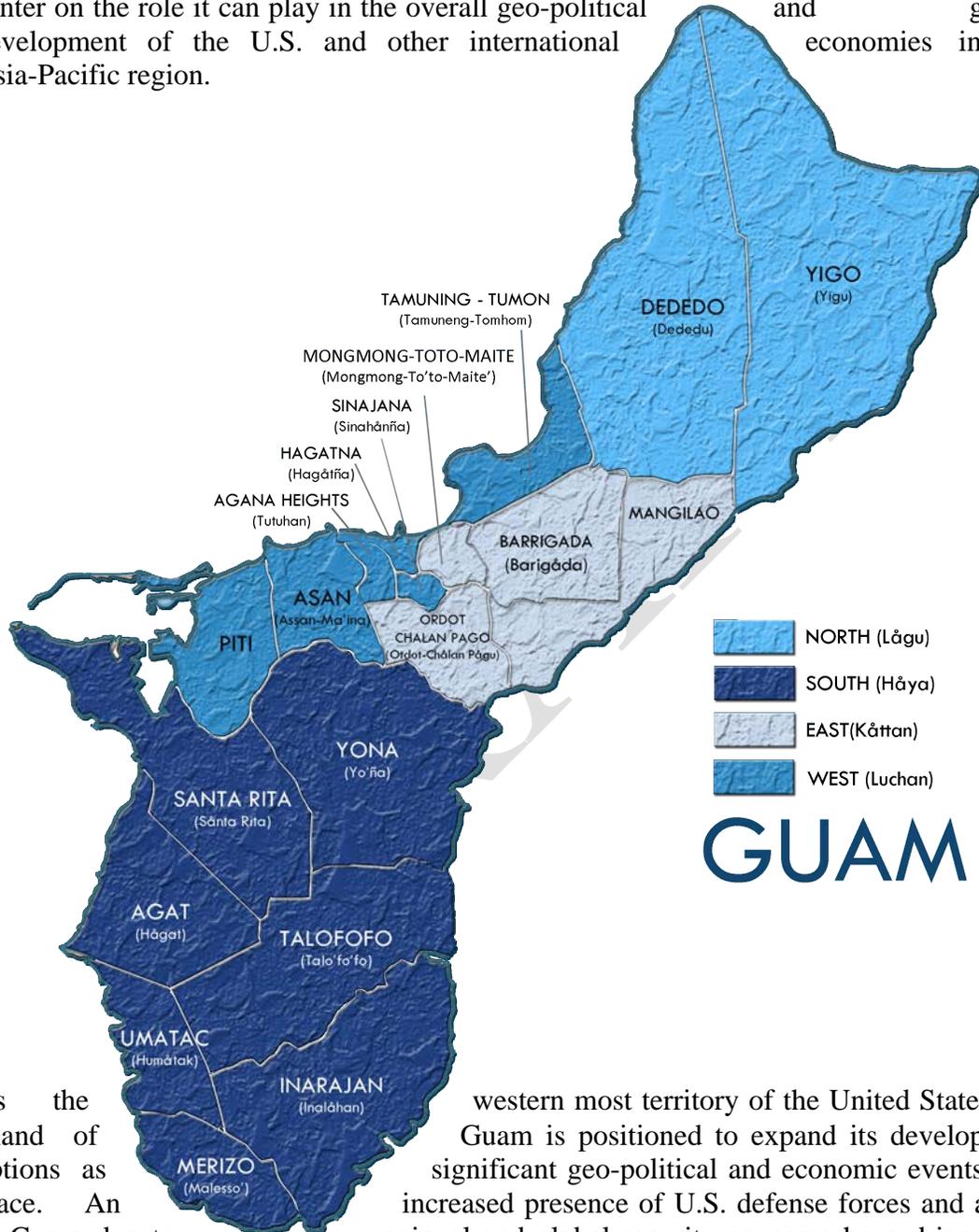
FY2019 COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY



DRAFT

INTRODUCTION

Geographically Guam's location offers an opportunity to influence regional growth. Politically, as a territory of the United States, Guam is positioned with the support as a global player to spawn economic growth and development. Guam's economic strategies center on the role it can play in the overall geo-political and global development of the U.S. and other international economies in the Asia-Pacific region.

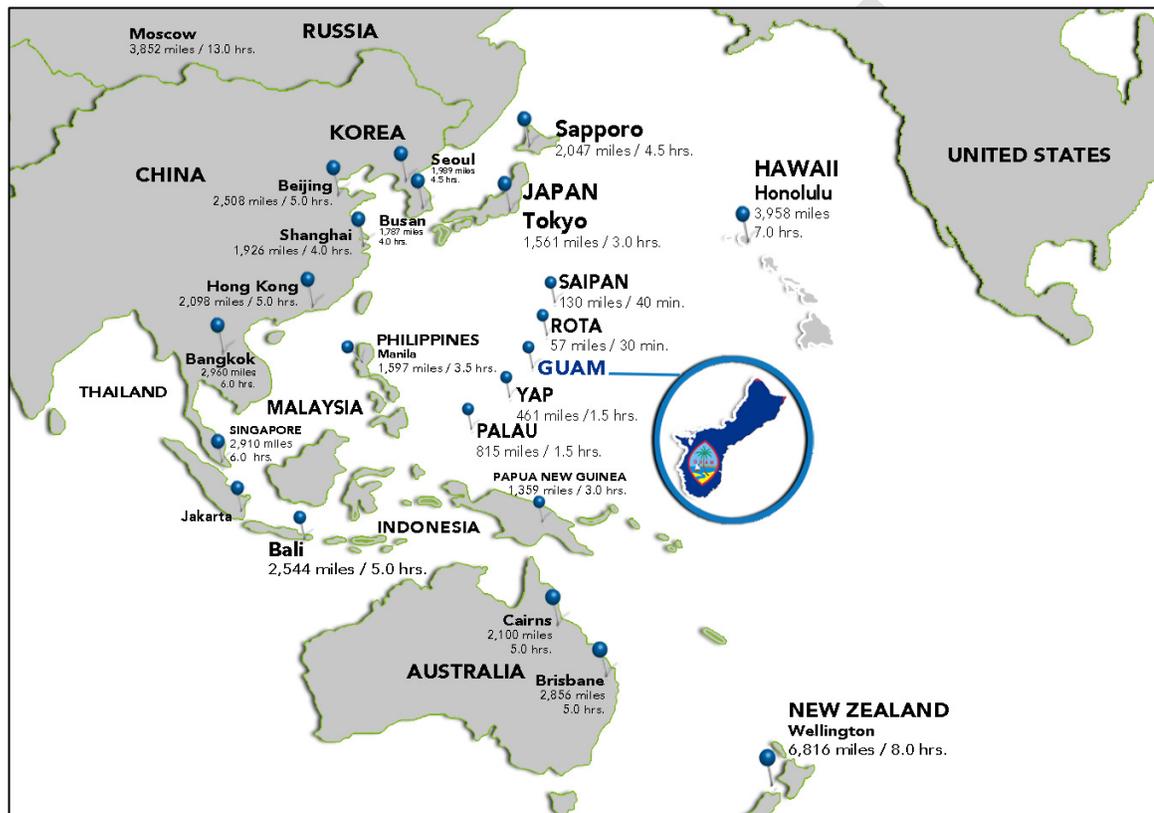


As the western most territory of the United States, Guam is positioned to expand its development options as significant geo-political and economic events take place. An increased presence of U.S. defense forces and assets in Guam due to regional and global security concerns have driven part of the economic opportunities that lie ahead. With respect to other areas of prospect, the changing dynamics of the tourism industry continues to offer high investment yield for the local economy. From this perspective, development strategies crafted in this plan focus on ways to diversify the island economy.

GUAM'S ECONOMIC ASSETS

GEOGRAPHY

Guam's status as an unincorporated territory of the United States and the largest southern most island in the Marianas Island Archipelago make the island economy unique. Guam's strategic geographic location puts it in close proximity to dynamic markets making it America's Gateway to Asia. Guam is located 1,550 miles southeast of Tokyo, 3,800 miles west-southwest of Honolulu, 1,900 southeast of Seoul, 1,600 miles east of Manila and 2,100 miles east-southeast of Hong Kong. Within a 2,500 mile radius of the island is access to over two billion people.



GUAM'S NEIGHBORING ISLANDS AND TRAVEL DISTANCES
Image Source: Guam Economic Development Authority

The island's land area is 209 square miles and spans about 30 miles long and 4 to 12 miles wide. Guam has a tropical wet climate ranging in temperatures from approximately 70 to 90 degrees Fahrenheit with mean annual temperature at 81.5 degrees Fahrenheit. Annual precipitation averages 91 inches equating to 56.7 gallons. The hottest months tend to be around May and June with the most rainfall exhibited in months July through October.

- **Government of Guam** – The Guam Department of Labor’s American Job Center (AJC) serves as the central facility for employment, training, educational services and program information and resources. Community members can visit Guam DOL to inquire about specific training and certification of skills based on their needs.
- **University of Guam (UOG)** - Accredited institution offering interactive courses both online and on campus providing a wide range of undergraduate and graduate degree programs and professional development certifications. Degree program areas include accounting & finance, business, computer applications, design & composition, government, health care & medical, industrial skills, language & arts, law & legal, personal development, technology and writing & publishing.
 

UNIVERSITY OF GUAM GROUNDBREAKING
Source: University of Guam Archives
- **Guam Community College (GCC)** - Accredited institution dealing with career and technical workforce development. GCC offers vocational secondary and post secondary programs, adult and continuing education, apprenticeship programs, community education and specialized craft industry training. GCC has established joint programs serving the Micronesian and International communities such as English as a second language (ESL) and programs offered by the National Institute for Automotive Service Excellence.
 

GUAM COMMUNITY COLLEGE
Source: Guam Community College Archives
- **Guam Trades Academy (GTA)** - Training in specialized trades inclusive of carpentry, construction, electrical technicians, electronic systems, heavy equipment, management, plumbing, safety technology and welding are available by the certification. Training for nursing assistants, phlebotomy, pharmacy technician, medical coding & billing, home health and physical therapist aides are offered by the Marianas Training Center.

WORKFORCE DEVELOPMENT

Table 1.5 & Table 1.6 identifies the types of apprenticeship on-the-job training provided by the Guam Community College with collaboration from other educational institutions, private employers as well as organizations that offer specialized trade classroom instruction and hands-on training. As of December 2017, GCC reported a total of 439 apprentices in the private sector, 43 from Guam Contractors Association and 22 from the Guam Hotel & Restaurant Association (GHRA).

Table 1.11 – GUAM POWER AUTHORITY CAPITAL IMPROVEMENT PROJECTS FISCAL YEARS 2017 - 2018

PROJECT	IMPACT AREA	PROJECT COST	START	COMPLETION DATE
Tumon Bay Lateral Underground Conversion	Tumon	\$6.6M	2017	18-Feb
Remote Start Capability of Generation Peaking Units	Cabras	\$350K	2017	18-Feb
Agat Shoreline Pole Restoration Project	Agat	\$384K	2017	18-Mar
GPA-GWA Multi-Purpose Facility (Fadian)	Mangilao	\$35.0M	2017	18-Apr
Substation Major Refurbishment-Transformer	-	\$540K	2017	18-Dec
Dededo Substation Capacitor Bank	Dededo	\$165K	2017	18-Dec
Piti 115 kV GIS Major Maintenance	Piti	\$2.6M	2018	19-Apr
Network Communications- Fiber to Fadian Complex	Mangilao	\$1.1M	2018	19-Jun
Fire Protection Upgrades at Power Plants	Cabras	\$3.8M	2018	19-Sep
Facilities Physical Security	-	\$1.3M	2018	19-Dec
Generator Protection Upgrade with Fault Recorders	Cabras	\$580K	2018	19-Dec
System Protection Improvement & Capacitor Bank Controllers	-	\$1.3M	2018	19-Dec
TOTAL		\$53.7M		

Source: Guam Power Authority Compliance Report; 2018 Capital Improvement Project Reports (1st Quarter)

The construction of the new Dededo plant will enable GPA to retire Cabras Units 1 and 2 while integrating existing photovoltaic sources of renewable energy that is expected to generate up to 180 megawatts produced by local solar photovoltaic farms.

One interesting feature of the new plant design is the GPA’s ability to use recycled wastewater to cool its plant system thus providing lower cost of power to consumers while reducing operating cost for the agency. Several other factors contribute to the new plant site advantages including protection from storm surges, tsunamis, rising sea level and other climate change impact. During the span of the 2019-2023 CEDS, GPA is moving forward with groundwork for the new Dededo plant.

As of this writing, CCU approved GPA’s proposal (CCU Resolution 2018-015) however, several issues remain under consideration including property re-zoning and environmental concerns from contiguous property owners and developers located within the 500 feet radius of the site.

Government of Guam Funding

By law, the Guam Legislature is authorized to expend up to \$250,000 from general fund appropriations for Government of Guam agencies on emergency activities, including those resulting from natural disasters.

Sources to augment authorized emergency funding come from the General Fund. Autonomous agencies such as GEDA, GPA, GWA, etc. generate revenue that can be applied to disaster or hazard mitigation as authorized by respective governing boards.

Federal Funding Sources

U.S. Department of Homeland Security, FEMA - Provides funding for rebuilding efforts and relief to the territory during a state of emergency declared by the Governor. FEMA offers assistance to address long-term hazard mitigation, public assistance to repair, replace or restore property, flood mitigation program and port security grants.

U.S. Department of Commerce, Economic Development Administration (EDA) – Public Works and Economic Development Facilities Grants for building and facilities, technical assistance and planning grants to the government and colleges or universities, and economic adjustment assistance grants to address job losses and halt long-term economic deterioration.

Small Business Administration (SBA) - The Disaster Division of the SBA provides direct, guaranteed, and insured loans to assist homeowners and businesses suffering economic injury as a result of a disaster declared by the President, the SBA, or the Secretary of Agriculture. Funds under this loan program are not provided merely because of lost income or lost profits; rather, funds may be provided to pay liabilities that the business could have paid if the disaster had not occurred. Working capital can also be provided to allow a business to operate until conditions return to normal. The maximum loan amount is \$1.5 million and is based on need. A repayment period of up to 30 years may be granted.

U.S. Department of Housing and Urban Development – Provides HUD Community Development Block Grant or CDBG formula based funding to Guam as well as Section 108 Loans for economic revitalization, and disaster recovery that funds gaps in other federal or local assistance programs.

- U.S. Department of Interior – Compact Impact Aid, covenant grants for mitigation, funding for earthquake damage and loss, monitoring activities and seismic fault zone studies.

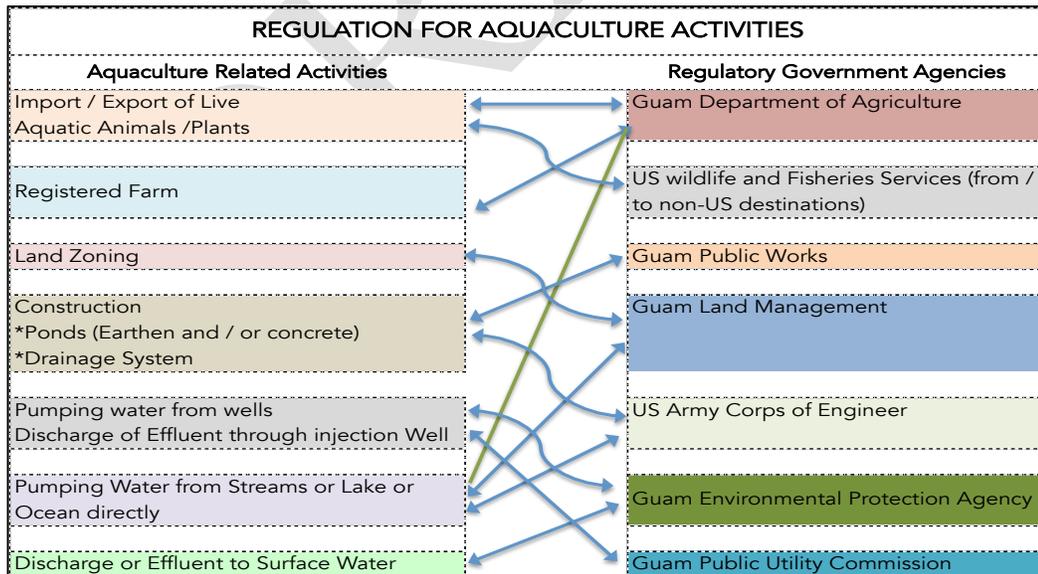
The largest aquaculture facility has ten (10) earthen ponds (in ground) that located in the southern village of Talofofo alongside the river. The sizing of the ponds measures approximately an acre in dimension. Water is then pumped from river. During Typhoon Mangkut, much of the runoffs from the adjacent hillsides were channeled alongside the ponds preventing an overflow, as in previous years runoffs would lead into the river resulting in greater losses.

Depending on market size and demand, the shrimp can be a relatively slow production taking anywhere between five (5) to eight (8) months after larvae has matured, whereas, tilapia can take up to eight (8) months to produce fingerlings. Guam has seen a substitution of imports for fish, shrimp and prawns. Higher market prices are seen because of higher over-head costs due to imported feeds, brood stock, supplies and materials, electricity and labor costs.

There is known to be up to eight (8) small aquaculture operations using tilapia wastewater for crop nutrient irrigation. A demonstration set up can be seen at the Triton’s Farm in Yigo at the University of Guam College of Natural & Applied Sciences Agricultural Experiment Station.

Guam continues to experience challenges in the expansion of the island’s aquaculture industry. The current process to obtain aquaculture permits can involve the review of up to seven (7) government agencies on both the federal and local government levels as demonstrated in the chart below. The process can become complex as demonstrated in the chart below.

Table 1.17 – REGULATION FOR AQUACULTURE ACTIVITIES



Source: University of Guam; Interview with Dr. Hui Gong on September 17 2018.

The Federal Procurement Data System indicates that \$189 million was awarded in Fiscal Year 2013; \$249 million in Fiscal Year 2014; \$206 million in Fiscal Year 2015; \$309 million in Fiscal Year 2016 and \$280 million awarded for Fiscal Year 2017. Procurement contracts awarded vary in areas from telecommunications, construction related activities and materials, and contracting for professional services.

Congressional authorizations for appropriations for military construction and family housing projects are provided in Table 8 below. The 2015 Record of Decision identified the final locations for additional base facilities to accommodate the Marines. The National Defense Authorization Act for federal Fiscal Year 2015 authorized \$162 million for military construction in Guam, subject to the satisfaction of certain requirements, and set the maximum cost of moving the Marines from Japan to Guam at \$8.6 billion, of which \$3.1 billion of the cost will be provided by Japan, and the remaining cost to be provided by the United States.

Table 1.20 – NDAA TOTAL AUTHORIZATIONS FOR GUAM FISCAL YEARS 2014 – 2018

YEAR	TOTAL AUTHORIZATION <i>(in thousands)</i>
2014	\$494,607
2015	\$162,451
2016	\$232,568
2017	\$248,658
2018	\$354,654

Source: The Committee on Armed Services, National Defense Authorization Act Reports 2014 - 2018

The National Defense Authorization Act in Fiscal Year 2018 included approximately \$354.6 million for military construction on Guam. These projects consisted of: Aircraft Maintenance Hangar No. 2 (\$75.2 million), Corrosion Control Hangar (\$66.7 million), Marine Aviation Logistic Squadron (MALS) Facilities (\$49.4 million), Navy Commercial Tie-In Hardening (\$37.1 million), Water Well Field (\$56.0 million), Construct Truck Load & Unload Facility (\$23.9 million), Reserve Medical Training Facility (\$5.2 million), and the Replacement of Andersen Housing Phase 2 (\$40.8 million). The National Defense Authorization Act for Fiscal Year 2018 also provided for 4,000 H-2B workers per fiscal year on island to support military build-up projects. Of the 4,000 H-2B laborers needed to sustain the immediate military construction demand, 600 H-2B petitions were approved in April 2018 primarily in the construction trades. Governor Calvo sent letters of support for about 1,500 skilled workers and continues working with the Guam Department of Labor and its federal and regional partners to build a larger local pool of skilled workers.

ECONOMIC DEVELOPMENT CHALLENGES

An analysis of the environmental factors or conditions that are relevant to Guam's prospects for economic development is used to enumerate the challenges that are applicable to Guam.

Some characteristics of the Guam economy are:

- 1) Small domestic economy that is relatively open;
- 2) Economic diversification is inadequate;
- 3) Not overly endowed with natural resources
- 4) Multicultural society with differing values and norms
- 5) Unincorporated U.S. territory
- 6) Competitiveness in the Asia-Pacific region

Guam's smallness can be measured in several ways. First is in terms of its small population, which is estimated to be around 167,800 people and, consequently, a small labor force of around 67,000, of which 63,114 (94.2%) are employed and 4,130 (5.8%) are unemployed based on the unemployment report in September 2017 (Guam Bureau of Labor Statistics). During stronger economic periods when labor demand exceeds the available labor force, Guam has supplemented its local labor force with those from the U.S., neighboring islands that are freely associated with the U.S., and the use of foreign workers.

The small open island economy suggests benefits from attracting more resources, including foreign investments, which supplement its limited productive resources and also balance out the island's high imports. This characteristic of Guam, especially its implication for the lack of economies of scale, points to the absence of mass production of many products but suggests opportunities for niche markets and for small business participation.

Although the government sector (a combination of U.S. Federal government agencies and local government agencies) continues to make up a significant share of the economy (54% of Gross Island Product in 2016, U.S. Department of Commerce-Bureau of Economic Analysis), the economy has made a notable shift toward a larger role of the private sector, including small businesses.

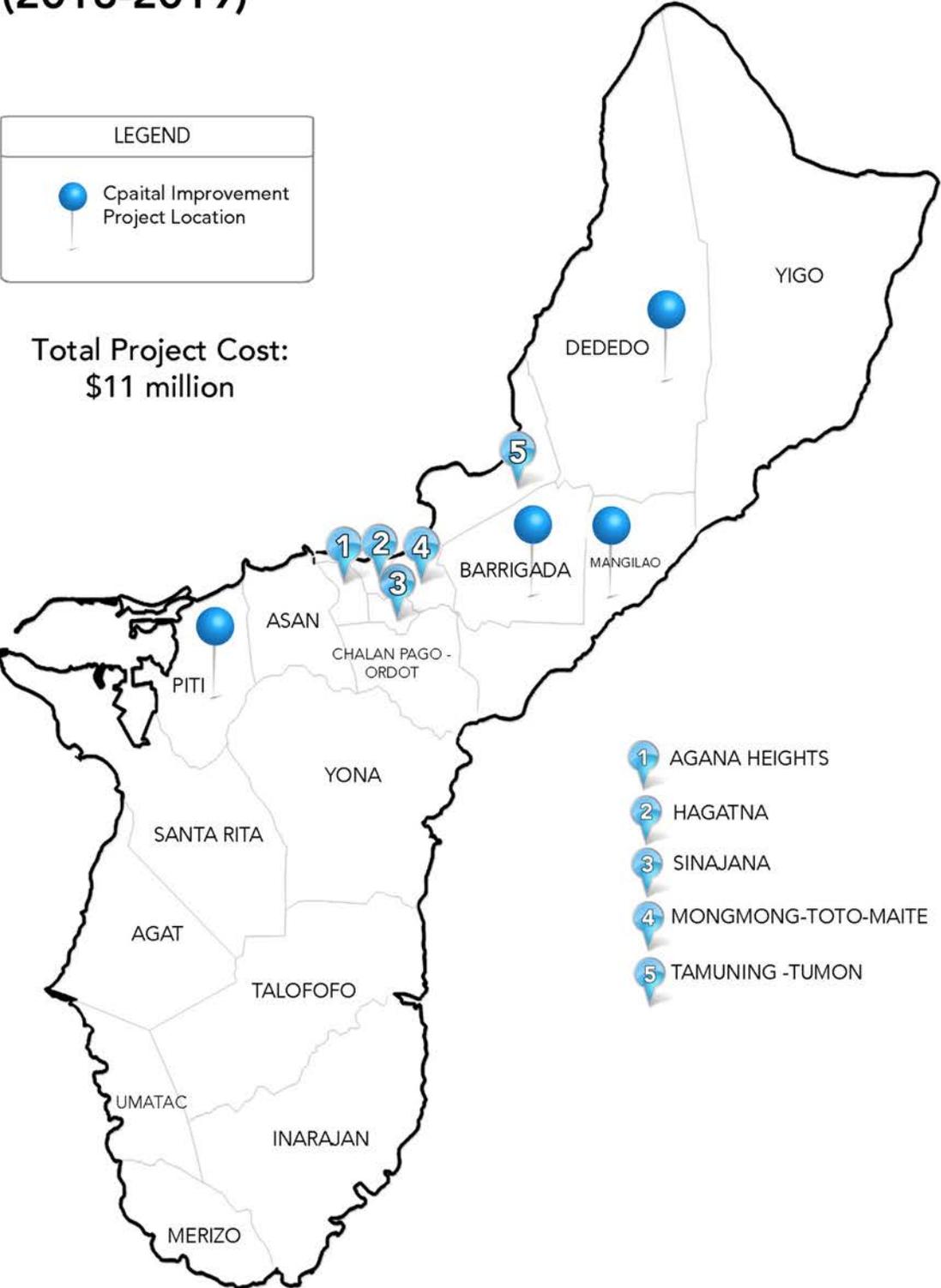
Recent employment estimates show that 75.3% of jobs are provided by private businesses, 18.5% by the local government and 6.2% by the U.S. Federal government (Guam Bureau of Labor Statistics, December 2018).

Because of the instability and unpredictability of Guam's tourism and government sectors, more attention and resources need to be directed to the retail, services and the agricultural sector. The opportunity to diversify into a number of areas including health, education, telecommunications, transportation, local production etc., increases exponentially with the present level of anticipated expenditures by the military and government. The more realistic option appears to be on the import side of trade where a search for ways to produce goods and services locally to reduce the current dependence on imported supply offers more promise.

TABLE 1.32 - DEPARTMENT OF PUBLIC WORKS-HIGH PRIORITY PROJECTS WITH AVAILABLE FUNDING

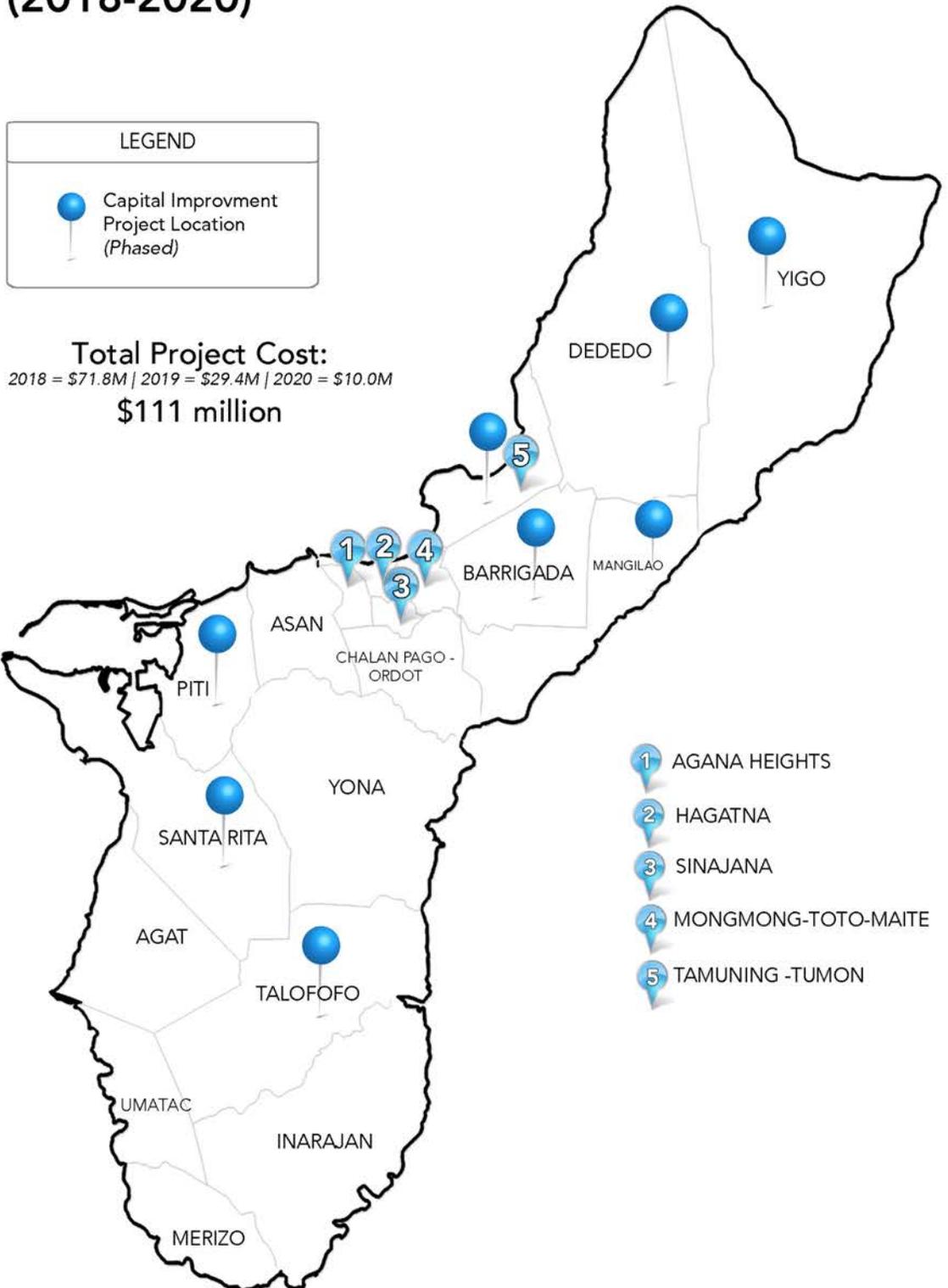
PROJECT	IMPACT AREA	PROJECT LIMITS	PROJECT DESCRIPTION	PROJECT COST
2016-2019 IMPROVEMENTS				
Route 26 (TTIP)	MANGILAO	Route 1 to Route 15	Widen from two to four lanes/sidewalks	\$51,400,000
Route 2 (TTIP)	AGAT	Route 2a to Erskin Drive	Safety/operational improvements	\$11,200,000
Route 4 (TTIP)	MANGILAO	McD to Route 10	Rehabilitate four lanes/shoulders	\$28,700,000
Route 10/Route 15	MANGILAO / YIGO	-	Traffic signal modifications, signing, striping	\$400,000
Route 1/Route 4	YIGO	-	SB left turn lanes	\$1,200,000
Miscellaneous safety/traffic operations	ISLANDWIDE	-	-	\$6,000,000
TOTAL:				\$98,900,000
2020-2023 IMPROVEMENTS				
Route 25 (TTIP)	MANGILAO	Route 16 to Route 26	Widen from two to four lanes/sidewalks	\$28,300,000
Route 16/Route 10a	BARRIGADA	-	Restriping, signage for additional turn lanes	\$400,000
Route 1/Route 27a	DEDEDO	-	Eastbound right-turn lane	\$700,000
Route 1/Route 10a	TAMUNING-TUMON	-	Northbound right-turn lane	\$1,200,000
Route 1/Route 27/Salisbury	DEDEDO	-	Additional southbound left turn lane	\$1,700,000
Route 1/Route 3	DEDEDO	-	Additional northbound left-turn lane	\$1,700,000
Route 1/Route 14a	TAMUNING-TUMON	-	Northbound/southbound right-turn lanes	\$2,600,000
Route 16/Route 27	BARRIGADA / YONA / TALOFOFO	-	Additional turn lanes	\$2,600,000
Miscellaneous safety/traffic operations	ISLANDWIDE	-	-	\$6,000,000
TOTAL:				\$45,200,000

GUAM POWER AUTHORITY CAPITAL IMPROVEMENT PROJECTS (2018-2019)



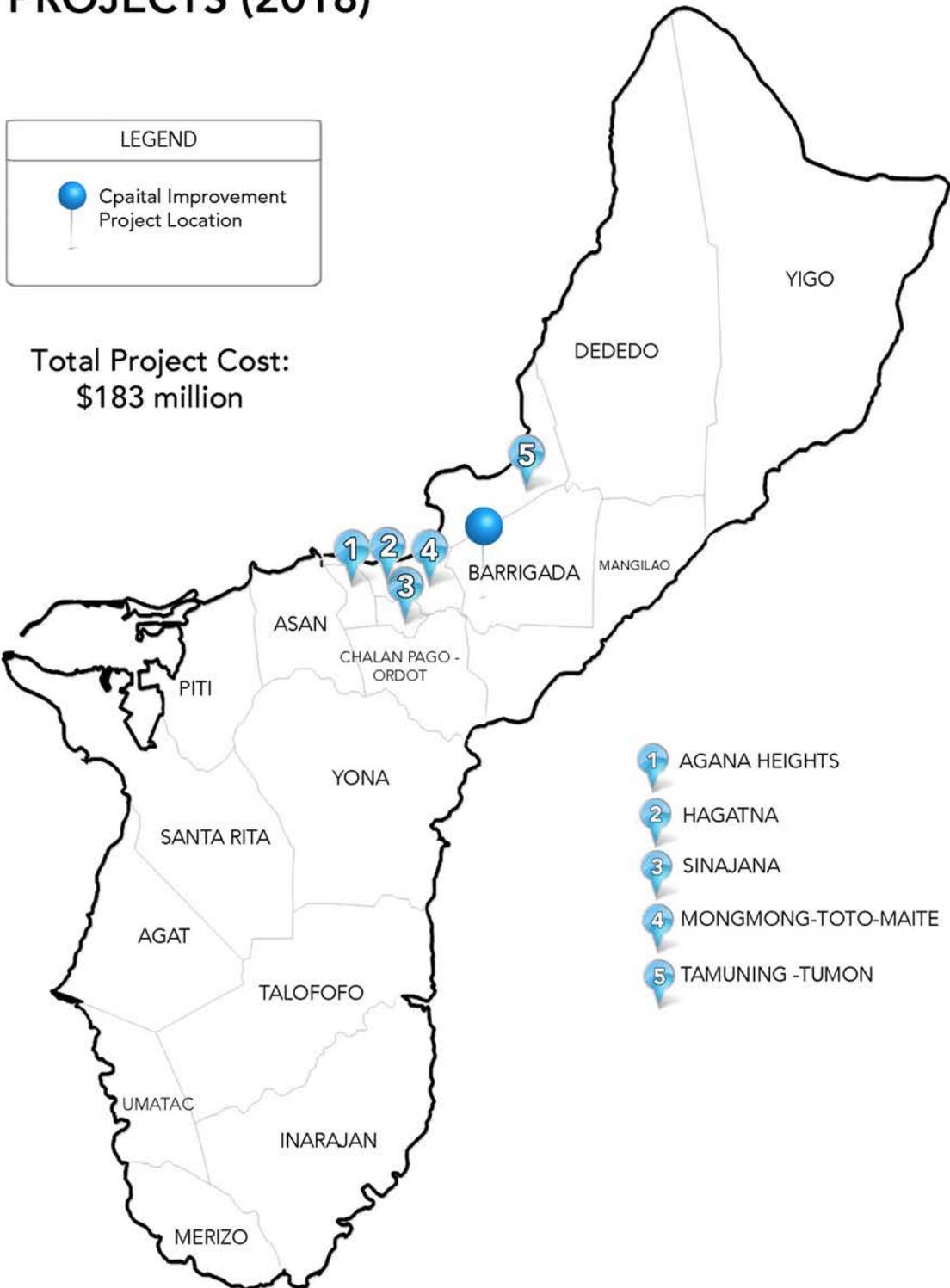
Source: Guam Power Authority, Compliance Report, 2018 Capital Improvement Projects (1st Qtr. Jan-Mar)

GUAM WATERWORKS AUTHORITY CAPITAL IMPROVEMENT PROJECTS (2018-2020)



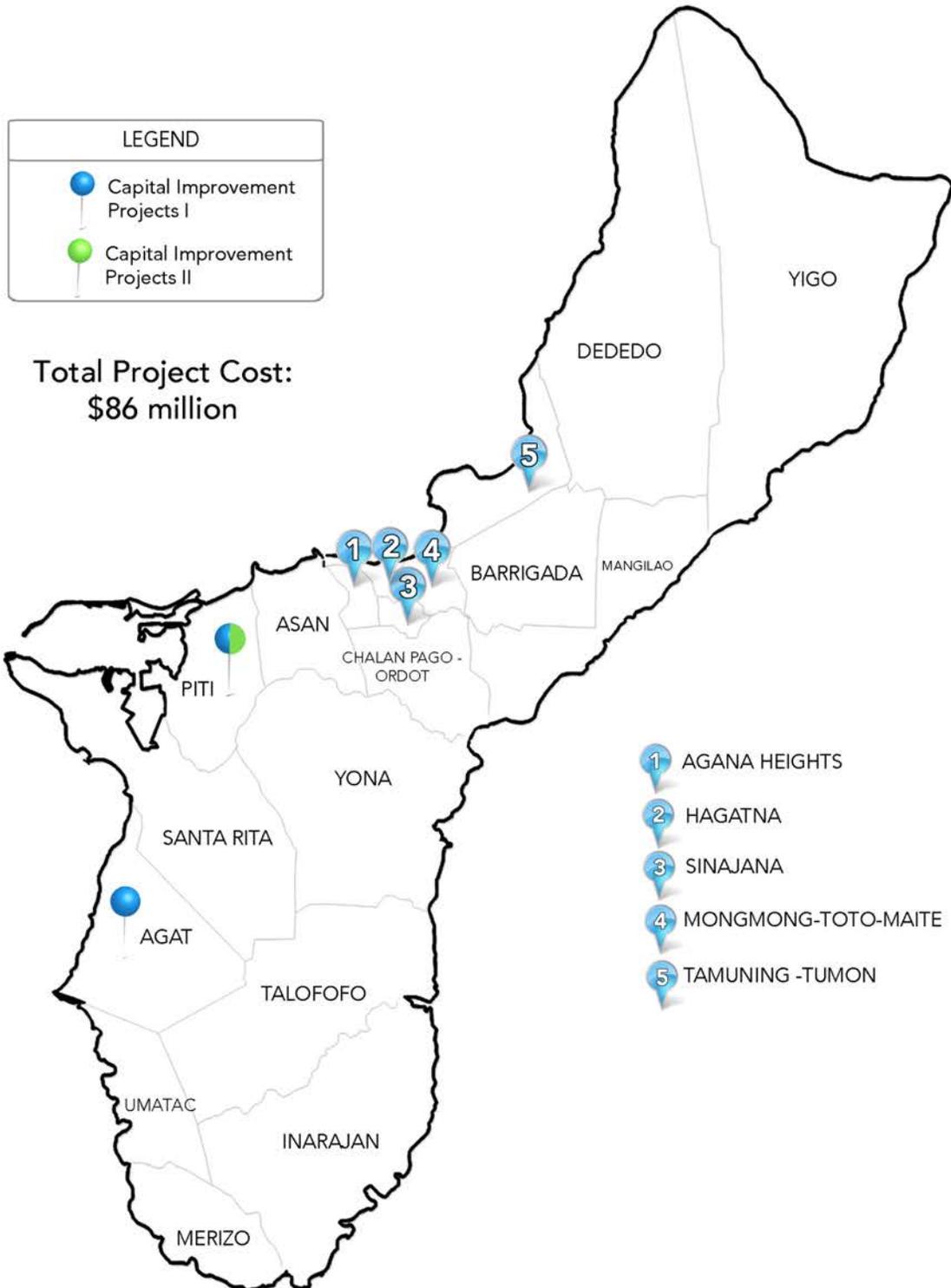
Source: Guam Waterworks Authority, 2016 - 2020 Capital Improvement Plan

GUAM INTERNATIONAL AIRPORT AUTHORITY CAPITAL IMPROVEMENT PROJECTS (2018)



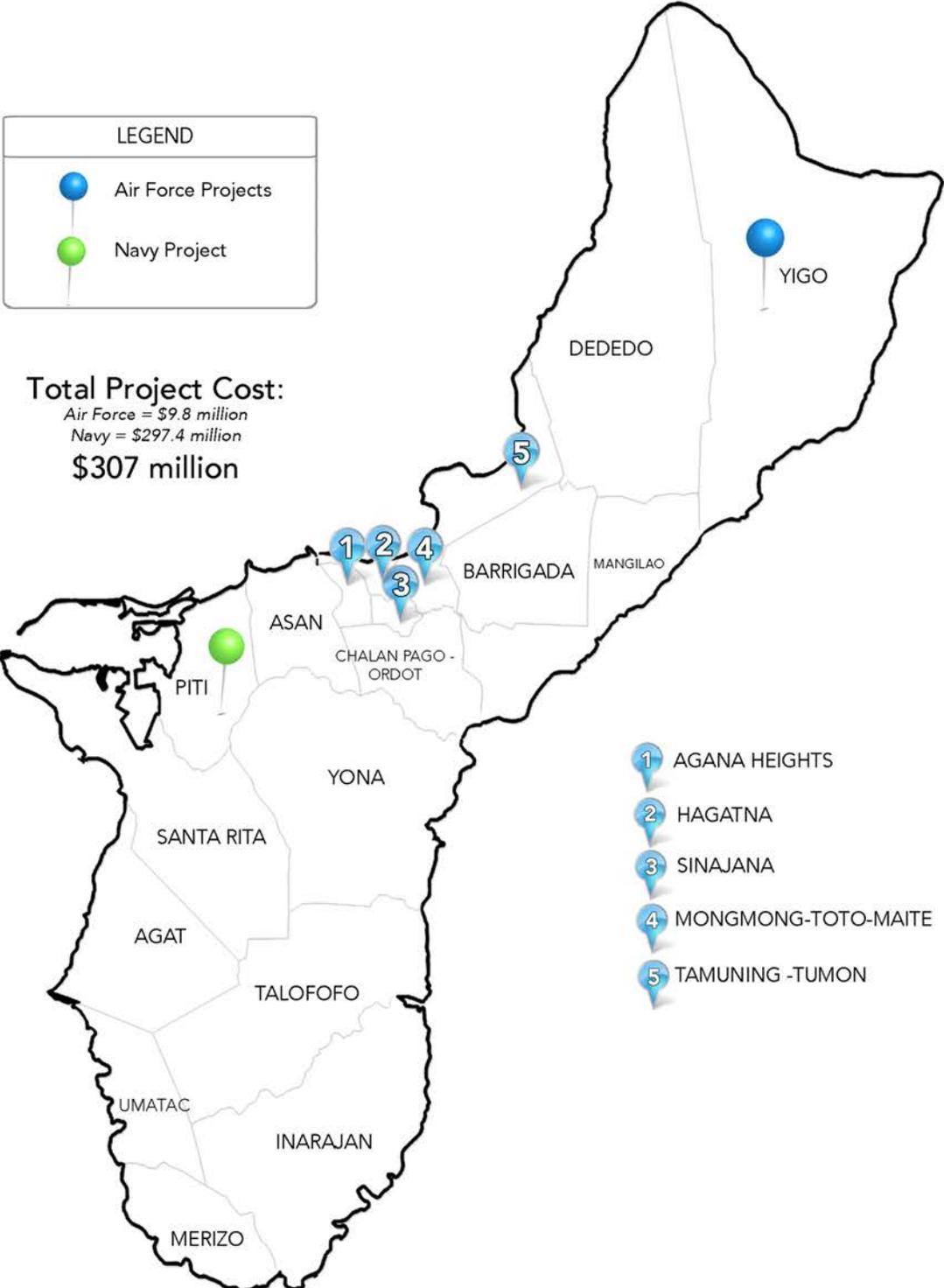
Source: Guam International Airport Authority,
2018 Capital Improvement Projects (February)

PORT AUTHORITY OF GUAM CAPITAL IMPROVEMENT PROJECTS (2018)



Source: Port Authority of Guam, 2018 Regular Board Meeting Minutes (July)

DEPARTMENT OF DEFENSE NDAA PROJECTS (2019)



Source: House Armed Services Committee,
2019 National Defense Authorization Act (NDAA) Conference Report H.R. 5515

-
- Primary interests of the travellers in this niche market are shopping for American and other western goods, education, ecotourism, cultural exposure and leisure.

Project Title: Infrastructure Improvements at GEDA Industrial Parks

Project Description: Since the establishment of the Guam Economic Development Authority (GEDA) Industrial Parks Program in 1969, GEDA has maintained and administered a long-term lease of approximately 100 total acres of GovGuam property for industrial and commercial type development in three (3) physically separate parks located in strategic economic zones including the E. T. Calvo Memorial Industrial Park in Tamuning business district, the Harmon Industrial Park in the upper Tumon industrial district, and the Cabras Industrial Park at the waterfront in Apra Harbor. Leases of these properties generate 600 jobs, \$53 Million in gross sales, \$21 Million in annual payroll and \$2 Million in Gross Receipts Tax per year. There are forty-three (43) total lots within these industrial parks which have been sublet to various entities in both the private and public sectors for light to moderate industrial/commercial type uses and are serviced by all utilities including water, power and sewer.

Over the years, and particularly in light of the recent typhoons which devastated our island of Guam, GEDA has looked at ways to improve and protect the sixty-two (62) businesses that are situated in the parks and the jobs and revenue they generate. Infrastructure systems at its industrial parks including electrical and drainage systems need added improvement from further exposure to inclement weather and the continuous deterioration from the effects of our local climate.

Over the years, and particularly during the recent typhoons, the Harmon and Calvo industrial parks have been subjected to severe flooding caused by heavy rains and storm water runoff coming from as far north as the airport area. These events have caused not just health and safety hazards in the past, but even today causes certain disruptions to businesses and their customers within the area.

At the Calvo Park, runoff from Marine Drive, adjacent areas, the ITC parking lot, plus additional drainage from a rectangular concrete channel which runs behind the Tamuning Post Office all terminate at the low point of the industrial park. This area contains about one (1) acre and has served as the only ponding basin and infiltration system for storm water runoff for the entire park. It is becoming obvious that the current drainage system in the park area is inadequate for the volume of storm water runoff coming into the park area. The immediate concern is that any excess runoff will cause continual flooding in the area and will even overflow onto the adjacent properties which may cause unwanted liability issues for the Government of Guam and GEDA in particular.

Aging electrical utility systems have even approached capacity limitations. The Authority proposes to pursue efforts to protect the electrical power systems at these industrial parks and to improve the capabilities of the system to handle current and future development in these parks.

The scope of services will generally include a review of existing Flood Zone maps, previous studies, record drawings and documents of the current system; conduct an assessment of the industrial parks to evaluate and determine the overall condition, adequacy and capability of the storm drainage system to support any future requirements; provide labor, materials and equipment to construct an adequate storm water drainage system including installation of gutter inlet frames and grates, catch basin inlets, pipeline and fittings, etc., for connection into main storm water drainage system located on Marine Drive, Tamuning or other disposal systems.

Estimated Cost Per Project:

- E. T. Calvo Industrial Park - \$6 million
- Harmon Industrial Park - \$5 Million
- Cabras Industrial Park - \$1 Million

Funding Source: Local Match (if necessary) - GEDA revenues

Project Title: Relocation of Electrical Power Distribution and Transmission Systems Underground at GEDA Industrial Parks

Project Description: Since the establishment of GEDA's Industrial Parks Program back in 1969, the Authority has maintained and administered a long-term lease of approximately 76 total acres of Guam property for industrial and commercial type development. These properties are situated at three different locations on-island at the E. T. Calvo Memorial Industrial Park in Tamuning, the Harmon Industrial Park in upper Tumon, and the Cabras Industrial Park located in Piti. There are forty-three (43) total lots within these industrial parks which have been sublet to various entities in both the private and public sectors for light to moderate industrial/commercial type uses and are serviced by all utilities including water, power and sewer.

Over the years, and particularly in light of the recent super typhoons which devastated our island of Guam, GEDA has looked at ways to improve and protect the utility systems at its industrial parks from further exposure to typhoons and the continuous deterioration from the effects of our local climate. In some cases, these aging utility systems have even approached capacity limitations. While we understand that a project of this scope and magnitude would require extensive planning and resources, in the interim, the Authority would like to pursue mitigation efforts to protect the electrical power systems at these industrial parks and to improve the capabilities of the system to handle current and future development in these parks. Often times, during the recovery and repair period after natural disasters such as typhoons, the situation has caused economic hardship and disruption to the businesses located at these industrial parks.

GEDA believes that the more practical and long-term solution in mitigating and/or hardening the current electrical power distribution and transmission systems is to relocate them underground.

There are seven (7) lots within the industrial park which have been sublet to various entities in both the private and public sectors for light to moderate industrial/commercial type uses, and continues to employ over 130 people annually.

Over the years, and particularly during the recent typhoons, the property including the roadway easements for traffic circulation within the industrial park have been subjected to flooding caused by heavy rains and storm water runoff coming from as far north as the former Harmon flea market. This situation has caused not just health and safety hazards in the past, but caused certain disruptions to businesses and their customers within the area. Runoff from Marine Drive, adjacent areas such as Genghis Khan Furniture, Citizens Bank Building, plus additional drainage from adjacent businesses all terminate at this low point of the industrial park.

This area is subleased to one of GEDA's tenants for use as the Harmon Business Center and contains an area of about 2,068 ± square meters and has served as an informal ponding basin and infiltration system for storm water runoff for the entire park. It is becoming obvious that the current drainage system in the park area is inadequate for the volume of storm water runoff coming into the park area.

It is GEDA's desire to apply for federal assistance under FEMA's Hazard Mitigation Grant Program in order to address the drainage problem at the Harmon Industrial Park. Should FEMA consider our request favorably, we will work aggressively to obtain the required services from private firms to complete the design and construction of a new infiltration and/or drainage system for the industrial park. With the completion of this project, all the necessary improvements to the park's storm water infrastructure, which has been inadequate for quite some time, now would finally come to fruition. Ultimately, these improvements to the industrial park will assist GEDA in its efforts to entice new development of new industries for the island of Guam.

Project Scope of Work: The project will require design and construction of an appropriate storm water drainage system for the entire Harmon Industrial Park. The scope of services will generally include a review of existing Flood Zone maps, previous studies, record drawings and documents of the current system; conduct an assessment of the industrial park to evaluate and determine the overall condition, adequacy and capability of the storm drainage system to support any future requirements; provide labor, materials and equipment to construct an adequate storm water drainage system including installation of gutter inlet frames and grates, catch basin inlets, pipeline and fittings, etc., for connection into main storm water drainage system located on Marine Drive, Tamuning.

Estimated Cost: \$500,000.00

Funding Source: Local Match - GEDA revenues

Project Title: Drainage Improvement, E.T. Calvo Memorial Industrial Park

Project Description: The E. T. Calvo Memorial Park is one of three industrial parks on island and is located just off Marine Drive and behind the ITC Building in Tamuning. The property is owned by the Government of Guam and was subsequently leased to the Guam Economic Development Authority (GEDA) for ninety-nine (99) years (1969-2068) for management under its Industrial Parks Program. The area is designated as M-1, Light Industrial Zone in accordance with local zoning laws and contains an area of twenty-six (26) acres. There are twenty-eight (28) lots within the industrial park which have been sublet to various entities in both the private and public sectors for light to moderate industrial/commercial type uses, and continues to employ over six hundred 600 people annually.

Over the years, and particularly during the recent typhoons, the property including the roadway easements for traffic circulation within the industrial park have been subjected to flooding caused by heavy rains and storm water runoff coming from as far north as the airport area. This situation has caused not just health and safety hazards in the past, but caused certain disruptions to businesses and their customers within the area. Runoff from Marine Drive, adjacent areas, the ITC parking lot, plus additional drainage from a rectangular concrete channel which runs behind the Tamuning Post Office all terminate at the low point of the industrial park.

This area is a vacant lot containing about one (1) acre and has served as an informal ponding basin and infiltration system for storm water runoff for the entire park. It is becoming obvious that the current drainage system in the park area is inadequate for the volume of storm water runoff coming into the park area. The immediate concern is that any excess runoff will cause continual flooding in the area and will even overflow onto the adjacent properties, which may cause unwanted liability issues for the Government of Guam and GEDA in particular.

It is GEDA's desire to apply for federal assistance under FEMA's Hazard Mitigation Grant Program in order to address the drainage problem at the E.T. Calvo Memorial Park. Should FEMA consider our request favorably, we will work aggressively to obtain the required services from private firms to complete the design and construction of a new infiltration and/or drainage system for the industrial park. In conjunction with this process, GEDA has recently obtained the equivalent of a \$167,000 federal assistance grant from U.S. EPA to conduct a site assessment (Brownfields Program) of the 1-acre vacant parcel to determine if there are any contaminants on the property caused by the storm water runoff. In addition, GEDA will soon receive approval to use \$66,000 under the Guam Coastal Management Program to prepare a storm water management study of the area to determine the best course of action for containment and disposal of storm water.

REFERENCES

- A.B. Won Pat International Airport. (2016). *2016 Annual Report*. Retrieved from <https://annualreport.guamairport.com/>
- A.B. Won Pat International Airport. (2018). *FY 2017 Citizen Centric Report*. Retrieved from <https://www.guamairport.com/our-business/reports/citizen-centric-report>
- Bureau of Statistics and Plans. (2016). *Guam Statistical Yearbook 2016*. Retrieved from <http://bsp.guam.gov/guam-statistical-yearbook/>
- Bureau of Statistics & Plans. (2016). *Guam Statistical Yearbook 2016*. Guam Population Projection by Election District, Guam: 2010-2020. Retrieved July 2018. Retrieved from http://bsp.guam.gov/wp-bsp-content/uploads/2018/01/GuamStatiscalYearbook_2016.pdf
- Bureau of Statistics and Plans. (2018). *Guam Import Data*. Retrieved from <http://bsp.guam.gov/wp-bsp-content/uploads/2018/08/2018janimport.pdf>
- Bureau of Statistics & Plans. (2017). *Guam Import Data 2017*. Retrieved from http://bsp.guam.gov/business-and-economics-statistics-program/#tabs_desc_5718_3
- Bureau of Statistics and Plans. (2018). *Guam Export Data*. Retrieved from <http://bsp.guam.gov/wp-bsp-content/uploads/2018/10/2018sepexport.pdf>
- Guam Homeland Security, Office of Civil Defense. (2014). *2014 Guam Hazard Mitigation Plan* (Adopted by Guam July 25, 2014).
- Guam Visitors Bureau. (2014). *Tourism 2020*. Retrieved from <https://www.guamvisitorsbureau.com/docs/research-and-reports/reports/guam-tourism-2020-plan/guam-tourism-2020-plan.pdf>
- Guam Visitors Bureau. (2018). *October visitor arrivals show Japan market recover*. Retrieved from <https://www.guamvisitorsbureau.com/news/news-releases/october-visitor-arrivals-show-japan-market-recovery>
- Guam Visitors Bureau. (2019). *October 2018 Arrivals Summary*. Retrieved from <https://www.guamvisitorsbureau.com/docs/research-and-reports/research/visitors-report/fy-2019/october-2018-preliminary-arrival-summary.pdf>
- Center for Tropical and Subtropical Aquaculture. (2012). *Guam*. Retrieved from <http://www.ctsa.org/index.php/region/guam>
- Cruz, H.M., “*Comments on Supplemental Environmental Impact Statement*” Retrieved June 5, 2018. Retrieved from GEDA archives CED Division.
- Cruz, M. (17 May 2018). Pacific Daily News. *Luxury cruise line to dock on Guam for first time*. Retrieved September 17, 2018. Retrieved from <https://www.guampdn.com/story/news/2018/05/17/luxury-cruise-line-dock-guam-first-time/618272002/>
- Daleno, G. D. (06 July 2015). Pacific Daily News. *Dusit Thani opens on Guam*. Retrieved September 6, 2018. Retrieved from <https://www.guampdn.com/story/news/2015/07/06/dusit-thani-opens-guam/29757117/>
- Denight, N. (12 March 2018). Pacific Daily News. *Denight: RP a key market for Guam*. Retrieved September 17, 2018. Retrieved from <https://www.guampdn.com/story/opinion/columnists/2018/03/12/denight-rp-key-market-guam/409766002/>

-
- The Pacific Daily News. (2018). Our View: Kudos to Guam Community College for new telecom course. Retrieved from <https://www.guampdn.com/story/opinion/editorials/2018/09/24/kudos-guam-community-college-new-telecom-course-our-view/1407916002/>
- University of Guam. Dr. Robert Barber Jr., PhD. Dr. Hui Gong. *Research Approaches in Promoting Aquaculture on Guam (2012)*
- U.S.D.A. Agricultural Marketing Service. *Specialty Crop Block Grant Program*. Retrieved from <https://www.ams.usda.gov/services/grants/scbgp>
- U.S. Department of Commerce, International Trade Administration. *Publication of 2017 I-94 Overseas Arrivals Data Releases*; Retrieved September 12, 2018. Retrieved from tinet.ita.doc.gov.
- U.S. Code of Federal Register, Title 13 – Business Credit and Assistance. *13 C.F.R. Part 303-Planning Investments and Comprehensive Economic Development Strategies*. Retrieved June 10, 2018. Retrieved from <http://law.justia.com/cfr/title13/13-1.0.2.1.4.html>.
- U.S. Customs and Border Protection, Department of Homeland Security. *Visa Waiver Program (WMP)*. Retrieved from <https://www.cbp.gov/travel/international-visitors/visa-waiver-program>.
- U.S. Department of Commerce, Economic Development Administration. *Comprehensive Economic Development Strategies Summary of Requirements*. Retrieved Jan. 2018 from <http://www.cdfa.net/cdfa/cdfaweb.nsf/ordredirect.html?open&id=cedssummary2006.html>
- U.S. Bureau of Economic Analysis, U.S. Department of Commerce. (2017, September 5). News Release. *Gross Domestic Product (GDP) for Guam Increases in 2016: Tourism spending increases for the third year in a row*. Retrieved October 2017. Retrieved from https://www.bea.gov/sites/default/files/2018-01/guamgdp_090417.pdf
- U.S. Department of Interior, Office of Insular Affairs. (2011). *Guam Comprehensive Economic Development Strategy (CEDS) 2011*. Retrieved September 7, 2018, from <https://www.doi.gov/sites/doi.gov/files/migrated/oia/reports/upload/Guam-2011-Comprehensive-Economic-Development-Strategy.pdf>
- U.S. Department of Interior, Office of the Secretary. (2017). *Report to Congress: Compact Impact Analyses of the 2016 Report from Guam*.
- U.S. Department of Treasury (2018, October 29). Federal Register. Vol. 83. Proposed Rules. 26 CFR Part I. Investing in Qualified Opportunity Funds.
- Weiss, J. S. (2018, January 07). Pacific Daily News. No short-term vacation rentals certificates issued while Rev and Tax works on regulations. Retrieved September 17, 2018. Retrieved from <https://www.guampdn.com/story/news/2018/01/07/no-short-term-vacation-rentals-certificates-issued-while-rev-and-tax-works-regulations/1006577001/>
- Western Sustainable Agriculture Research & Education (SARE). *Professional Development*. Retrieved from <https://www.westernsare.org/Professional-Development-Program/State-and-Protectorate-Pages/Guam>

TABLES & CHARTS INDEX

Table 1.1: Guam Ethnic Fabric.....	10
Table 1.2: Guam Population CY' 10	11
Table 1.3: Guam Unemployment Rate FY' 10-FY' 17	11
Table 1.4: Guam Employment FY' 10-FY' 17	12
Table 1.5: Skill Training Programs by Trade	14
Table 1.6: Summary of Apprentices by Organization	14
Table 1.7: Summary of Guam Imports and Exports	15
Table 1.8: Summary of GIAA Cargo	17
Table 1.9: Guam Gross Domestic Product FY' 13-FY' 17	20
Table 1.10: Guam Visitor Arrivals FY' 14-FY' 18	21
Table 1.11: Guam Power Authority CIP Projects FY' 17-FY' 18	31
Table 1.12: GWA CIP Summary of Fund Source Allocation CY' 16-CY' 20	33
Table 1.13: GWA CIP Fund Source CY' 16-CY' 20	33
Table 1.14: GTIP Short Term Projects FY' 16-FY' 19	39
Table 1.15: DPW High & Medium Priority CIP Projects	40
Table 1.16: Agriculture SWOT Analysis	46
Table 1.17: Regulation for Aquaculture Activities	48
Table 1.18: Aquaculture & Fisheries SWOT Analysis	49
Table 1.19: Tourism SWOT Analysis	51
Table 1.20: NDAA Total Authorizations for Guam FY' 14-FY' 18	53
Table 1.21: 2018 U.S. Air Force & Navy Appropriations	54
Table 1.22: Military Build-Up SWOT Analysis	54
Table 1.23: Financial Institution Assets	55
Table 1.24: Financial Institution SWOT Analysis	55
Table 1.25: Telecommunications SWOT Analysis	56
Table 1.26: Transportation & Distribution SWOT Analysis	58
Table 1.27: Construction SWOT Analysis	59
Table 1.28: Guam CIP Projects CY' 17-CY' 23	60
Table 1.29: General Overview of the Challenges and Opportunities.....	64
Table 1.30: DPW Construction Projects	67
Table 1.31: DPW Construction Planning & Design Projects.....	67
Table 1.32: DPW High Priority Projects.....	69
Table 1.33: GPA CIPs.....	72
Table 1.34: GWA CIPs.....	74
Table 1.35: GWA CIP Details by Type	74
Table 1.36: GIAA CIPs.....	76
Table 1.37: PAG Projects I	76
Table 1.38: PAG Projects II	78
Table 1.39: GEDA Hot Bond Project	80
Table 1.40: DOD NDAA Projects FY' 17-FY' 19.....	82
Table 1.41: DOD NDAA FY' 19 Projects	82
Table 1.42: Guam Private Sector Investments	84
Table 1.43: Green Technology SWOT Analysis	93
Table 1.44: Summary of Development Projects	102

CONTRIBUTORS

Alig, Jesse L.G.	Mayor of Piti	Mayor's Council of Guam
Alvarez, Dale E.	Mayor of Santa Rita	Mayor's Council of Guam
Artero, Bernadette F.	Chief Fiscal Advisor	Office of the Governor
Barcinas, Peter Roy	Extension Agent III	University of Guam Cooperative Extension & Outreach
Blas, Jesse M.	Mayor of Yona	Mayor's Council of Guam
Blas, June U.	Mayor of Barrigada	Mayor's Council of Guam
Boccieri-Werner, Celeste	Vice-President & Director of Planning	Matrix Design Group
Brown, Joanne M.S.	General Manager	Port Authority of Guam
Calvo, Mark	Chief of Staff	Office of the Governor
Camacho, Edward	Business Development Manager	Guam Economic Development Authority
Camacho, Mary	Industry Development Specialist III	Guam Economic Development Authority
Castro, Catherine S.	President	Guam Chamber of Commerce
Chargualaf, Ernest T.	Mayor of Merizo	Mayor's Council of Guam Guam Economic Development Authority
Cruz, Henry	Economist	Guam Economic Development Authority
Cruz, John A.	Mayor of Hagatna	Mayor's Council of Guam
Denight, Nathan P.	President & CEO	Guam Visitor's Bureau
Duenas, Christopher M.	President	Guam Housing Corporation
Duenas, Joseph T.	Chairman of the Board	Consolidated Commission on Utilities
Faculo, Natalia	CEDD Assistant Manager	Guam Economic Development Authority
Felix, Christopher	CPM, CIPS, CCIM, President & Principal Broker	Century 21 Realty Management Company
Foster, Brian L.	Commander, Executive Officer	OICC Marine Corps Marianas Guam Economic Development Authority
Garcia, Christina	Public Financial Services Manager	Guam Economic Development Authority
Gogue, Jessy C.	Mayor of Chalan Pago	Mayor's Council of Guam
Hofmann, Robert R.D.C.	Mayor of Sinajana	Mayor's Council of Guam
Hrapla, Mike	Senior Vice-President	Matrix Design Group
Kaae, Leonard K.	Senior Vice-President & General Manager	Black Construction Corporation
Lujan, Doris F.	Mayor of Inarajan	Mayor's Council of Guam
Lujan, Pinki	Public Relations Specialist	Guam Chamber of Commerce
Massey, Greg	Administrator of Alien Labor Processing & Certification	Department of Labor
Matanane, Rudy M.	Mayor of Yigo	Mayor's Council of Guam

