



Federated States of Micronesia INFRASTRUCTURE DEVELOPMENT PLAN FY2016-FY2025

Volume 4:

Kosrae State Infrastructure Development Plan FY2016-FY2025



This Federated States of Micronesia Infrastructure Development Plan FY2016-FY2025 comprises the following parts:

Introduction

Volume 1 Plan Outline

Annexes

Volume 2 National Infrastructure Development Plan

Volume 3 Chuuk State Infrastructure Development Plan

Volume 4 Kosrae State Infrastructure Development Plan

Volume 5 Pohnpei State Infrastructure Development Plan

Volume 6 Yap State Infrastructure Development Plan

The following Federated States of Micronesia Infrastructure Development Plan FY2016-FY2025 documents are available:

Federated States of Micronesia Infrastructure Development Plan FY2016-FY2025 (all parts)

FSM Infrastructure Development Plan FY2016-FY2025 Outline (Introduction, Volume 1 & Annexes)

National Infrastructure Development Plan FY2016-FY2025 (Volume 2)

Chuuk State Infrastructure Development Plan FY2016-FY2025 (Volume 3)

Kosrae State Infrastructure Development Plan FY2016-FY2025 (Volume 4)

Pohnpei State Infrastructure Development Plan FY2016-FY2025 (Volume 5)

Yap State Infrastructure Development Plan FY2016-FY2025 (Volume 6)

FSM Infrastructure Development Plan FY2016-FY2025 Summary (abbreviated outline and listings of projects)

Volume 4 Kosrae State Infrastructure Development Plan

Foreword by the Governor

I am pleased to present to you Kosrae's Infrastructure Development Plan for the period 2016- 2025. This plan is the product of a comprehensive review by all stakeholders, involving all three levels of government as well as key sectors in Kosrae.

In 2013 the Kosrae Strategic Development Plan: 2014- 2023 (KSDP) was finalized, recognizing the needs and aspirations of the Kosrae community and stakeholders in Kosrae. A leadership review and update of the KSDP was conducted in September 2015. The KSDP takes a 10 year view of Kosrae and its place in Federated States of Micronesia and the opportunities and concerns that it faces. The KSDP includes identified key infrastructures, without which targeted development may not occurred as envisioned in the plan.

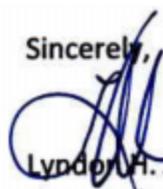


Infrastructure is a vital component for economic or other forms of development. Kosrae takes into consideration the notion that implementation and eventual achievement of aspirations and strategic targets identified within the KSDP necessitate the existence of certain infrastructure. This updated Kosrae Infrastructure Development Plan takes into account key infrastructure identified in the KSDP and other planning documents like the Kosrae Shoreline Management Plan with specific emphasis on climate change adaptation infrastructures, including relocation of roads and utility lines inland from the coastal areas, to sustain our livelihoods now and our future generations.

The Plan includes a dissection of funding sources available to the state, mostly through the COFA with U.S. Government and others. The amount of infrastructure development funding available for Kosrae is \$96.3 million and the total value of priority projects is \$162.7 million - a funding gap of approximately 40%. Regardless, I am especially encouraged now that we have developed a more coordinated framework to work with our development partners through increased dialogues and especially with the adoption of the FSM ODA Policy 2013, which entails the biannual development partner forum meeting.

Finally I recognize the considerable effort that has gone into the Plan from the State Infrastructure Planning and Implementation Committee and the Kosrae State Legislature. The assistance of the Asian Development Bank is also acknowledged for providing the technical assistance team that supported the Plan development.

I commend this Infrastructure Development Plan to the people of Kosrae, at home and abroad, & and I look forward to the support of our development partners as we begin the challenge of delivering on our vision.

Sincerely,

Lyndon H. Jackson
Governor, Kosrae State

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Part 1 Introduction

This Volume 4 of the IDP is known as the **Kosrae State Infrastructure Development Plan FY2016 to FY2025** (the Kosrae IDP).

1.1 Overview

Kosrae is the easternmost and second largest island of the FSM, located approximately 372 miles southeast of Pohnpei, between Hawaii and Guam. Kosrae has a land area of 42 square miles and EEZ of 200nm. Between 1997 and 2010, Kosrae's population declined by 12 percent to its current population of 6,616 people (FSM Census 2010), constituting 6 percent of FSM's population. The negative population growth is largely due to considerable out-migration to the US and its territories primarily for employment and education. Accordingly, the working population age has dramatically declined, significantly reducing the productive work force and local production (UNFPA, 2013). This trend is mainly attributed to poor economic performance and reductions in the public sector, which has traditionally been the main employer. As at 2010, the unemployment rate in Kosrae was significantly high at 23 percent.

Kosrae is the only state without an outer island. It is divided into four municipalities, with respective populations as follows: Lelu (2,160), Malem (1,300), Tafunsak (2,173) and Utwe (983). Geographically, the state is characterized by steep mountains and deep valleys covered with thick, fertile tropical vegetation and forests, and dense mangrove forests in coastal areas. The island's main natural resources are its abundant forests with significant agricultural potential, marine products and deep-seabed minerals.

1.2 State Development Objectives

Successive State Governments have worked creatively and hard to build a firm foundation to maintain the Island's quality of life and encourage a successful private and public sector.

In 2013 the **Kosrae Strategic Development Plan: 2014 – 2023** (KSDP) was finalized, recognizing the needs and aspirations of the Kosrae community and stakeholders in Kosrae. The KSDP takes a 10 year view of Kosrae and its place in Federated States of Micronesia and the North Pacific region and the opportunities and concerns that it faces.

Kosrae's issues are complex, and as observed during the consultation process 'they are all interconnected'. The SDP's goal is to steadily build sustainability working across the social, economic, environmental and governance spheres to provide a place where residents live healthy, safe, productive lives in harmony with the cultural and natural richness of the island of Kosrae.

Kosrae may have a small population but is an island of unique natural and cultural resources and opportunities and the SDP provides a clear vision and goals for the community to work towards and review these opportunities in line with the Long Term Fiscal Framework, other planning initiatives and changes in global and regional context.

The SDP identifies the needs of the State and articulates the vision, aspirations and priorities for Kosrae. It covers a wide range of stakeholders and all levels of Government and aims to:

1. inform longer-term decisions to be made by Kosrae in relation to policy, planning and resource allocation
2. complement, guide and inform Kosrae's other strategic planning and budgeting systems and decision-making
3. capture the expertise, interests and views of stakeholders representing the whole of the community (government, business, interest groups, individuals and community)

- organizations) into a framework that describes how the community of Kosrae aspires to reach its full potential
4. provide a means of informing other levels of government and external assistance agencies about our aspirations
 5. provide a basis for transparency and accountability through strategic planning matrixes for the development and implementation of operational and action plans

The 5 designated development sectors in the SDP; Health, Education, Environment, Private Sector and Social and Culture, are analogous to the parts of a machine where a specific part performs a particular task that when performed simultaneously with other parts, moves in cohesion and ultimately achieves the specific purpose of the whole machine. This is the essence of the 5 development sectors of the Kosrae SDP:

1. the private sector plays the role of producing jobs, providing income and generally plays a role in providing for the economic well-being of Kosrae
2. education plays a role in preparing and developing a good labor force essential for supporting economic, social, political and cultural development
3. good health of the citizenry ensures long-term economic growth; it is generally the case that good health standards of an entity – low infant mortality and increasing/higher life expectancy, etc. - correlate to higher economic growth and thus equate to a good standard of living
4. managing development to ensure sustainable use of the natural environment and resources, and ultimately ensure future generations of Kosraeans also benefit from Kosrae's natural resources and natural heritage
5. preserving and promoting a way of life that promotes the safety, equality, and social development of the Kosrae citizenry

Infrastructure is a vital component for economic or other forms of development. The KSDP takes into consideration the notion that implementation and eventual achievement of aspirations and strategic targets identified in this plan necessitate existence of certain infrastructure. Infrastructure needs of actions and goals in SDP are included in the respective sector action plan.

The Kosrae Infrastructure Policy Implementation Committee (KIPIC) is a governing body created by law, as its name would suggest, to lead the planning and more so the implementation of infrastructure policies in Kosrae. As emphasized in the previous section, and in the context of infrastructure development planning, the KSDP links and utilizes planning previously undertaken by KIPIC for the purpose of facilitating implementation of infrastructure policies and projects.

The KIPIC has been instrumental in planning infrastructure development for the State and it is expected that it will play a key role in its implementation.

1.3 Climate and the Challenges of Change

There is little seasonal variation in temperature, with around 3°F (1.5°C) between the average hottest and coolest months but two distinct seasons – a wet season from November to April and a dry season from May to October. Rainfall is affected by the movement of the Convergence Zone; strengthening and moving north in the wet season with the West Pacific Monsoon bringing additional rain during this period. There is considerable year-on-year variation due to the El Niño-Southern Oscillation (ENSO). El Niño events are associated with drier conditions and occasional droughts and La Niña with above-average numbers of tropical storms and more rainfall.

Notwithstanding the influence of the ENSO, projections by the Pacific Climate Change Science Program 2011 show that temperatures will continue to rise, as will sea level and ocean acidification and the

intensity and frequency of days of extreme rainfall. Tropical storm/typhoon numbers are projected to decline. Specific FSM-wide climate change projections are included in Volume 1.

The risk from other geo-hazards in Kosrae is low relative to the other States; its earthquake rating is the lowest and tropic storms/typhoons are generally in their formative stages in the vicinity of Kosrae, strengthening as they move westward.

Kosrae’s response to the climate change challenge is documented in the **Joint State Action Plan**³⁰ and **Shoreline Management Plan**³¹. The latter includes a number of infrastructure projects intended to relocate vulnerable infrastructure, including roads and utilities, from shoreline areas and to facilitate the relocation of communities away from areas susceptible to the impacts of climate change. These projects have been included in Kosrae’s program for priority infrastructure development. Other projects which contribute to climate change adaptation and mitigation are:

1. Renewable energy projects
2. Farm road improvements

An Act sometimes referred to as the CC Act was passed in 2011 with the stated aim of consolidating the authority of the Kosrae Island Resource Management Authority; reference to climate change in the document is as follows:

(18) adopt climate risk reduction and climate change adaptation measures based upon existing weather and climate extremes and projected climate changes, and to provide consultation on application of climate change impacts and adaptation measures to the location, design and construction of public projects and other development projects.

1.4 Plan Development

The Kosrae IDP presents the State’s priority infrastructure investments for the next 10 years identified by the Kosrae IPIC and government and community stakeholders. The projects have been prioritized according to three periods; Period 1, FY2016 to FY2019 (during which the Amended Compact arrears are intended to be fully appropriated), Period 2, FY2020 to FY2022, and Period 3, FY2023 to FY2025.

The IPIC-led group assessed the contribution of each priority project to the IDP strategic objectives (Volume 1, section 2.2.2) to provide a Strategic Rating out of 10. Although strategic ratings are not comparable between projects and sectors due to variations in the scope of projects and inherent sector factors (and cannot be used to prioritize projects), the rating process has nonetheless confirmed that the priority projects each make a strong contribution to relevant strategic objectives.

The development process provided valuable input into the management and implementation arrangements (section 2.2) and with the sector managers provided information for the priority projects outlines incorporated into the Kosrae IDP (Part 4).

³⁰ (GoKS, 2015) - Kosrae Joint State Action Plan for Disaster Risk Management and Climate Change

³¹ (NIWA, 2013) - Kosrae Shoreline Management Plan, NIWA Client Report No HAM2013-133

Part 2 Plan Outline

2.1 Investment Strategy

2.1.1 Available Funding

Details of the funding available from FSM’s development partners and the National Government can be found in Volume 1, Part 3 of the IDP.

Kosrae receives Amended Compact funds according to the formula set by the FSM Congress (currently 12.10 percent). The underpinning nature of infrastructure warrants a more even distribution of infrastructure funding so funds associated with bilateral donors, multilateral banks and climate change are not allocated on a formula-basis. An amount equal to 20 percent of these funds is included in the Kosrae IDP, however Kosrae may receive a greater or lesser amount on a program or project basis.

The funding available to Kosrae State is 14 percent of total available IDP infrastructure funding. Table K 1 shows the allocation over the 10 years of the IDP; \$96.3 million for development and \$12.6 million for maintenance.

Table K 1 – Total Available Kosrae IDP Funding

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Kosrae										
Development	11,476,369	11,594,672	10,542,242	10,539,077	8,762,838	9,218,206	9,212,840	9,206,741	7,870,091	7,894,733
Maintenance	1,786,131	1,785,953	1,479,197	1,478,864	1,052,072	1,051,585	1,051,020	1,050,378	909,678	912,272
TOTAL	13,262,500	13,380,625	12,021,438	12,017,941	9,814,911	10,269,791	10,263,860	10,257,119	8,779,769	8,807,004

2.1.2 Priority Projects

The Kosrae IDP includes priority projects estimated at \$162.7 million across 9 of the 10 infrastructure sectors. The breakdown of project estimates by sector is shown in Figure K 1 and the listing of priority projects is included in Table K 2.

Figure K 1 – Kosrae IDP Breakdown by Sector

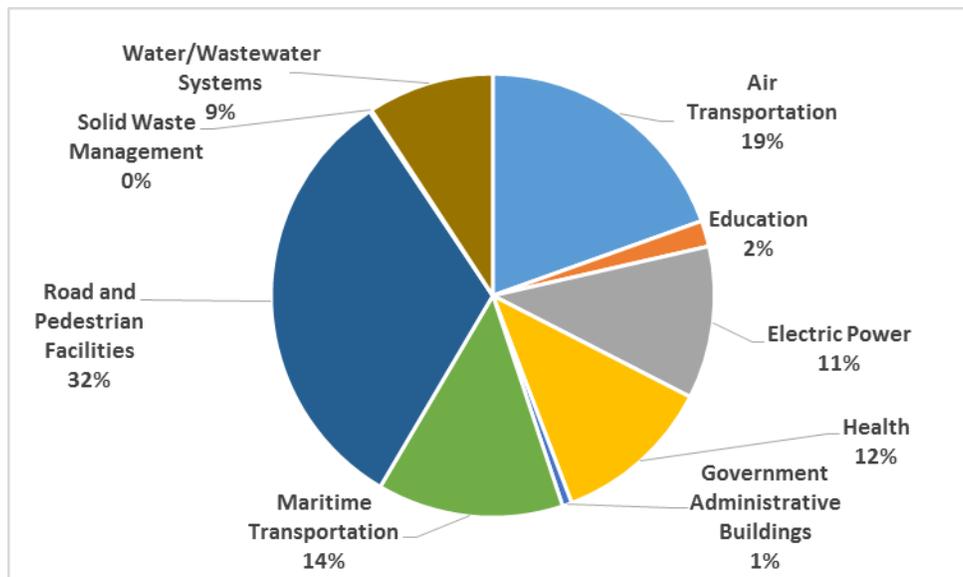


Table K 2 – Kosrae IDP Priority Projects

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
PM/1	Kosrae State PMO	4,000,000	All	N/A
EP/1	Electric Power Improvements	3,700,000	1	8.0
EP/2	Electric Power Generation Improvements	140,000	1	8.0
EP/3	Electric Power Distribution Improvements	685,000	1	8.0
EP/4	Electric Power Capital Equipment	870,000	1/2	8.0
EP/5	Renewable Energy Capacity and Flexibility Improvements	8,000,000	1/2	8.7
EP/6	Increase Renewable Electric Power Generation	4,250,000	1/2	8.7
WW/1	Malem Water System Improvements	3,000,000	1/2	9.1
WW/2	Muntunte/Yata Water System Improvements	3,500,000	1/2	9.1
WW/3	Walung Water System Storage Tank & Treatment	1,000,000	1/2	9.1
WW/4	Lelu Water System Improvements	3,148,000	1/2	9.1
WW/5	Lelu/Tofol Wastewater System Improvements	4,000,000	1/2	9.1
SW/1	Solid Waste Management Expansion & Consolidation	250,000	1	8.9
RD/1	Inland Road - Section 1, Malem to Yesing to Utwe	11,495,000	1/2	8.9
RD/2	Inland Road - Section 2, Mutunnenea to Sialat to Yekula	5,091,000	2/3	8.9
RD/3	Inland Road - Section 3, Malem to Pilyuul to Tenwak	5,098,000	2/3	8.9
RD/4	Inland Road - Section 4, Cross Island Road, Okat to Tofol	7,614,000	3	8.9
RD/5	Inland Road - Section 5, Utwe to Walung	15,363,000	1	8.9
RD/6	Lelu Causeway Road, Sidewalk and Protection Improvements	600,000	1/2	8.9
RD/7	Lelu Farm Road Improvements	1,038,000	1	8.0
RD/8	Utwe Farm Road Improvements	564,000	1	8.0
RD/9	Malem Farm Road Improvements	1,132,000	1	8.0
RD/10	Tafunsak Farm Road Improvements	420,000	1	8.0
RD/11	Establish Asphalt Plant	1,500,000	1	7.8
RD/12	Main Road Drainage Improvements	1,080,000	1/2	8.9
MT/1	Pacific Tuna Industries Facility Rehabilitation	500,000	1/2	6.9
MT/2	Marine Transportation Infrastructure Improvements	1,050,000	1	6.9
MT/3	Safety and Accessibility Improvements at 3 Harbors	20,000,000	1/2	7.1
AT/1	New Airport Terminal & Facilities	11,000,000	1/2	6.4
AT/2	Airport Runway Extension & Safety Area Improvement	20,000,000	3	6.4
ED/1	Malem Elementary School	2,000,000	1	7.6
ED/2	School Facilities Improvements	1,000,000	1	6.7

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
HE/1	Kosrae State Hospital	18,520,000	1	9.3
GB/1	Kosrae State Legislature Building	1,100,000	1/2	6.4
Total Funding Required		162,708,000		
MTCE	Infrastructure Maintenance	12,560,000		

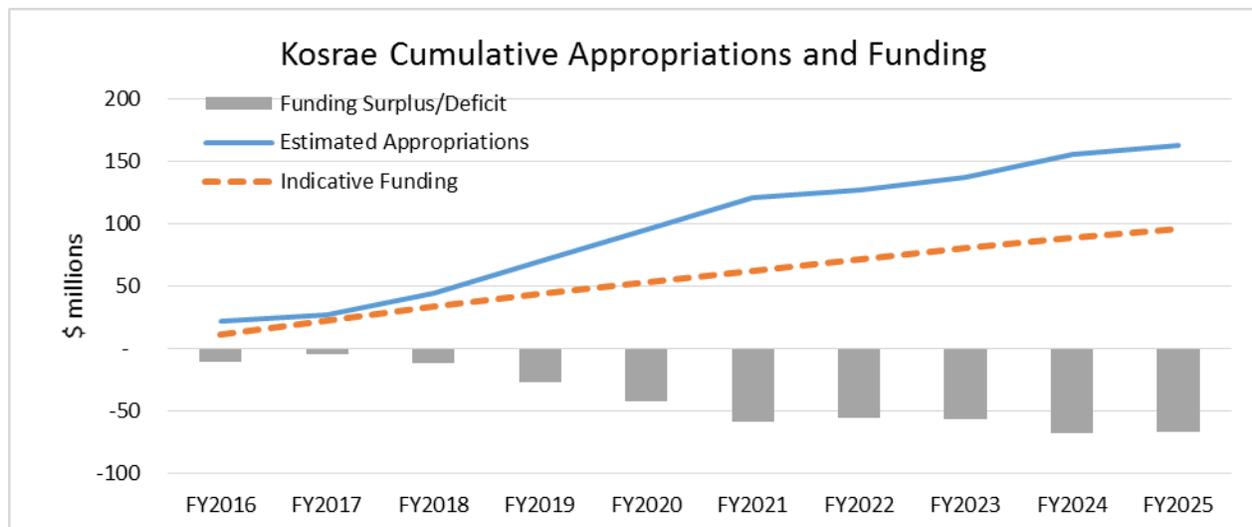
2.1.3 Project Funding Requirements

Based on the project priorities identified during development of the Kosrae IDP, a funding appropriation profile covering the 10 year period has been estimated. In summary, as shown in Figure K 2, the Kosrae IDP priority projects exceed available funding by almost 70 percent.

Kosrae’s planned appropriations are close to matching available funding until FY2019. From then on the funding gap increases to around \$50 million per year by FY2021 and remains at this level for the remainder of the planning period.

The funding required for the Kosrae State Hospital construction grant in FY2016 exceeds Kosrae’s Amended Compact arrears and FY2016 appropriation.

Figure K 2 – Kosrae IDP Available Funding and Estimated Appropriations



2.1.4 Infrastructure Maintenance

Kosrae State has a total of \$12.56 million of maintenance funding available from FY2016 to FY2025. This includes \$2.16 million required to match the available Amended Compact IMF funding.

2.2 Management and Implementation

2.2.1 State Governance

An effective State IPIC will provide the basis for strong governance of infrastructure delivery at the State program and project level once the coordinated control processes have been established.

Most importantly the intended upgraded role of the IPIC and establishment of the implementation framework outlined below will devolve the planning and implementation responsibilities to the States without compromising control, integrity and governance.

2.2.2 Implementation model

National program management

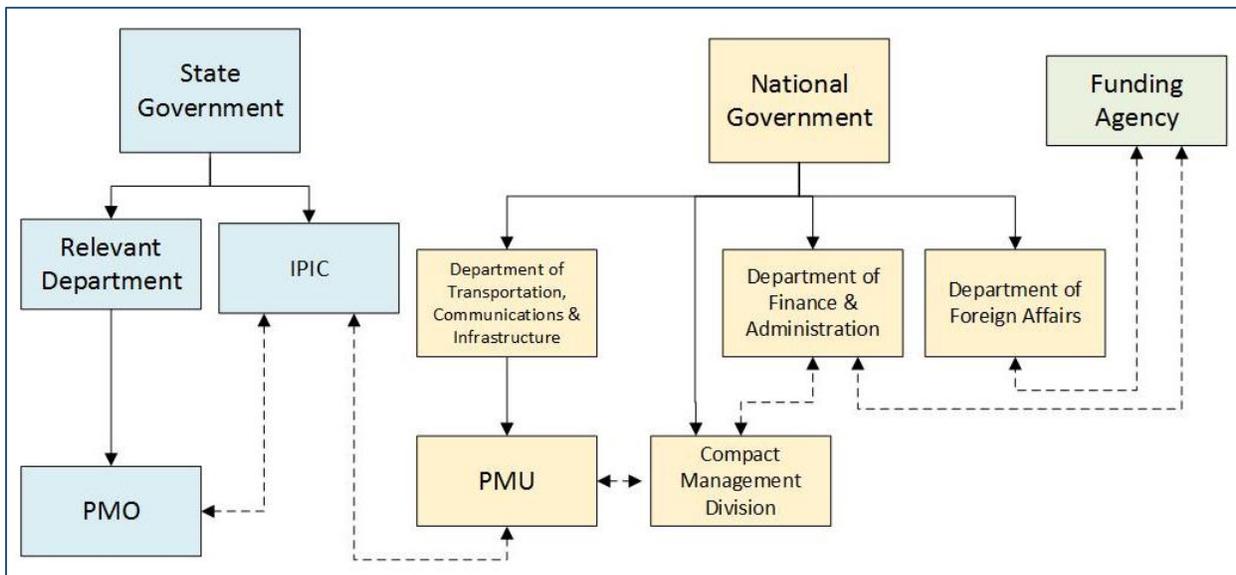
The implementation model retains the PMU within DTCI but restructures the unit to focus on **Program Management**. The PMU will provide ongoing support to the State to ensure standards are developed and shared, subsequent design and construction contracts are consistent with appropriate risk management and will provide peer review expertise as required.

State delivery accountabilities

The State will be accountable for **Project Management**, from initial planning, through design to construction completion. The State will form a Project Management Office (PMO). The PMO will undertake all the project management activities from initial design through to construction and completion.

The general structure of the implementation model is shown on Figure K 3.

Figure K 3 – Organization Chart of Infrastructure Delivery



The PMO will initially contract with the private sector (external party) to ensure project delivery capability is in place by Q3 2016. The contracted external party will be used across all four States within FSM to provide consistency of project management approaches, processes and methodologies.

State Project Management Offices

The State PMO will have the following resources:

- Project Manager(s)
- Contracting Officer(s)
- Resident Engineers and Inspectors
- Technical Specialists as required

General Considerations

The cost of the PMO is estimated to be between 5 and 7 percent of the State infrastructure development program which is within international benchmarks and internationally recognized as a legitimate program cost.

The IDP includes provision for the required funds for the PMO as part of the Amended Compact component of the State's infrastructure development program (noting that Amended Compact PMO funding is dedicated to the delivery of Amended Compact projects).

The external party providing the PMO services will be excluded from participating in any further contract for the design, construction or supervision on an IDP project for which it has project management responsibilities to ensure probity is maintained.

The external party will be contractually bound to build local project management capacity in the State and will have its capacity building plans and performance regularly reviewed by IPIC.

The roles and responsibilities for each party involved in planning, implementation and management of the IDP's Amended Compact component are documented in Annex A of the IDP.

2.2.3 Process enhancements

All infrastructure projects require defined project management processes from pre-design through funds release, design and construction to successful completion. Best practice processes incorporate key steps, hold points, client reviews and concise and complete documentation to support such processes.

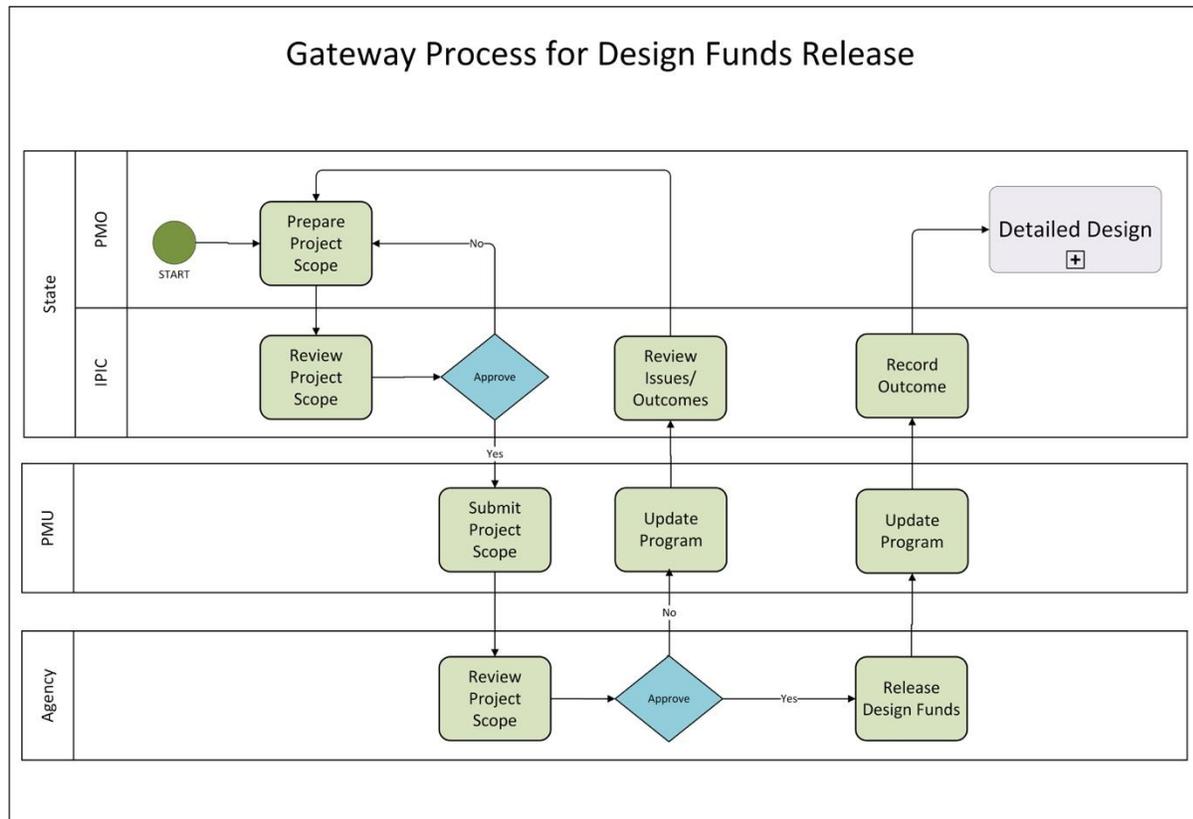
It is also good practice to release funds at two stages, initially to release funds to enable the full project design to be undertaken and then, prior to the construction procurement process commencing, the funding required for construction. This approach facilitates the orderly progress of the project while ensuring that after design there is a review of the project scope, time and cost and any changes are formally signed off before committing funds for construction.

Pre-Design and initial funds release

The PMO will fully document the project scope and formally agree this information with the IPIC.

The project will be submitted for the release of initial (generally design) funds once endorsed by the IPIC. For Amended Compact funded projects this submission is to the PMU and then onward to OIA. Figure K 4 shows the process for this stage as an example of the processes that will be operated by the PMO and other bodies.

Figure K 4 – Example Process Diagram



Once the initial funds have been appropriated, the PMO will conduct (if required) a competitive procurement process in accordance with the prevailing procurement process and regulations to identify and contract the design consultant.

Design and construction funds release

The PMO will formally review each project with the IPIC twice during design. The PMO will also hold regular client meetings with sector representatives.

The IPIC reviews will be held when the design is 30 percent complete and when it is 100 percent complete (but still subject to review). The 30 percent design review will ensure that designs remain on an agreed path before significant design costs are incurred.

Following a design being accepted as complete a second submission will be made to the funding agency for the appropriation of construction funds. For Amended Compact funded projects this submission is to the PMU and then onward to the OIA.

Construction procurement

Once construction funds have been appropriated, the PMO will conduct a competitive procurement process in accordance with the prevailing procurement process and regulations to identify and contract the construction contractor (and any required supervision consultant).

Variations

The PMO will process variations generally as follows:

- variations in scope require IPIC approval to ensure project outcomes remain fully agreed
- variations in scope or cost that require additional funding will be endorsed by IPIC before submission to Government and/or OIA (as required) for approval

- change orders to a contract will be processed in accordance with the PMU’s planned contract management manual

Completion

The PMO will prepare a Project Completion Report for endorsement by the IPIC. This report will include analysis of the project on a time, cost and quality basis. PMU will prepare summary KPIs to compare performance for the four State PMOs and identify areas for improvement.

2.3 Institutional Projects

The IDP (Volume 1, section 6.4) contains a number of institutional projects that will have an impact on Kosrae State infrastructure:

- asset management policy, strategy and capacity in all States
- a FSM Building Code
- maritime and aviation safety and security capacity

Part 3 Infrastructure Development

3.1 Infrastructure Development to Date

The estimated Kosrae State infrastructure development funding in the period FY2004 to FY2015 is shown in Table K 3 against the funding planned in the IDP 2004 over its whole 20 year period.

Table K 3 – Planned and Estimated Infrastructure Development Funding

Sector	IDP 2004 Total Funds FY2004-FY2025 (\$)	Estimated Development Funding FY2004-FY2015 (\$)¹		
		Amended Compact Grants	Estimated Other Funding	Estimated Total Funding
Electric Power	1,632,000	147,000	3,771,000	3,918,000
Water/Wastewater Systems	22,515,000	550,000	2,728,000	3,278,000
Solid Waste Management	7,500,000			
Roads and Pedestrian Facilities	23,868,000		12,000,000	12,000,000
Maritime Transportation	118,000			
Air Transportation	5,665,000	2,083,000	52,412,000	54,495,000
Telecommunications				
Education	8,156,000	10,308,000	5,000,000	15,308,000
Health	6,400,000	222,000		222,000
Government Administrative Buildings	2,575,000	2,225,000		2,225,000
Total \$:	78,429,000	15,534,600	75,911,000	91,446,000

Notes: 1. Estimated funding does not include maintenance and some project management and design costs

3.2 Sector Outlines and Priority Projects

3.2.1 Electric Power

Electric power is provided by Kosrae Utility Authority (KUA) with a mandate to generate sufficient revenue to cover costs.

A high percentage of customers have a metered supply and O&M costs are largely covered from tariff revenue. Improvements to and/or rehabilitation of generation and distribution assets and major network extensions, as well as the integration of renewable energy sources into the grid, are dependent on external financing.

Kosrae has a determined program to increase the proportion of electric power from renewable sources as well as undertaking energy efficiency programs at a number of levels, all of which is contributing to a declining reliance on imported fuel oils for electric power generation.

The electric power projects in the Kosrae IDP are listed in Table K 4 and support the sector Goal to develop electric power infrastructure to ensure that all areas of the country are provided with electric power in an efficient and effective manner in accordance with demand such that:

1. households are provided with power for basic livelihood purposes
2. local manpower can realize production opportunities and potential

3. power is available for basic services such as schools, hospitals, water and wastewater systems
4. national targets for renewable energy are achieved

The priority projects are also aligned with the major 2020 targets in the National Energy Policy for renewable energy sources to be at least 30 percent of total energy production and for a 50 percent increase in electric power efficiency.

Further information on each project can be found in the Project Outlines in Part 4.

Table K 4 – Electric Power Priority Projects

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
EP/1	Electric Power Improvements	3,700,000	1	8.0
EP/2	Electric Power Generation Improvements	140,000	1	8.0
EP/3	Electric Power Distribution Improvements	685,000	1	8.0
EP/4	Electric Power Capital Equipment	870,000	1/2	8.0
EP/5	Renewable Energy Capacity and Flexibility Improvements	8,000,000	1/2	8.7
EP/6	Increase Renewable Electric Power Generation	4,250,000	1/2	8.7
Total Funding Required		17,645,000		

3.2.2 Water/Wastewater Systems

Water and wastewater systems are currently the responsibility of the Department of Transportation and Infrastructure, although part of KUA’s mandate is to deliver water and wastewater utility services on a self-funding basis.

The reliability and quality of water supply from the current schemes can be problematic and are the key drivers for upgrading water supply systems. Unlike electric power, there is limited metered supply and O&M of water and wastewater systems.

Future transfer of water schemes to KUA in future will depend on the identified upgrading projects addressing important viability and sustainability issues; upgrading household connections, metering of all customers, modifying community water usage and setting an appropriate tariff.

The single wastewater scheme is relatively limited in extent but includes key government facilities, including the hospital, and the populations in Tofol and Lelu. The scheme incorporates settling ponds and the resulting effluent discharges directly to the sea with a number of components requiring rehabilitation or renewal.

The water/wastewater projects in the Kosrae IDP are listed in Table K 5 and support elements of the sector goal to provide water and wastewater infrastructure that:

1. meets the demand for water supply and wastewater infrastructure in an effective and efficient manner
2. improves existing water abstraction, treatment and distribution systems
3. evaluates and institutes technologically appropriate liquid waste management systems
4. improves and initiates wastewater facilities to increase coverage and contribute towards improvements in public health and environmental conditions
5. contributes towards the prevention of water borne diseases through the provision of potable water supplies

Further information on each project can be found in the Project Outlines in Part 4.

Table K 5 – Water/Wastewater System Priority Projects

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
WW/1	Malem Water System Improvements	3,000,000	½	9.1
WW/2	Muntunte/Yata Water System Improvements	3,500,000	½	9.1
WW/3	Walung Water System Storage Tank & Treatment	1,000,000	½	9.1
WW/4	Lelu Water System Improvements	3,148,000	½	9.1
WW/5	Lelu/Tofol Wastewater System Improvements	4,000,000	½	9.1
Total Funding Required		14,648,000		

3.2.3 Solid Waste Management

Solid waste management at the central landfill site is the responsibility of the Department of Transportation and Infrastructure. The site is licensed by Kosrae Island Resource Management Authority and employs the Fukuoka Method common across the Pacific as an appropriate and cost-effective method for disposal and processing of solid waste.

There are unlicensed landfill sites in the municipalities despite the initial objective to close and rehabilitate these sites after establishing the central site. Small collection vehicles collect and transport solid waste to the central site.

The solid waste management project in the Kosrae ISP listed in Table K 6 includes ongoing improvements of the central solid waste management system and closure and rehabilitation of the municipal sites, supporting the sector goal to provide solid waste management infrastructure that:

1. meets the demand for solid waste infrastructure in an effective and efficient manner
2. evaluates and institutes technologically appropriate solid waste management systems
3. reduces volume of solid waste for disposal by maximizing recycling and separation opportunities thereby minimizing the land area required
4. prevents solid waste having adverse effects on the terrestrial and marine environments

Further information on the project can be found in the Project Outlines in Part 4.

Table K 6 – Solid Waste Management Priority Project

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
SW/1	Solid Waste Management Expansion & Consolidation	250,000	1	8.9
Total Funding Required		250,000		

3.2.4 Roads and Pedestrian Facilities

Road infrastructure in Kosrae is the responsibility of the Department of Transportation and Infrastructure. The road and pedestrian facilities projects are largely driven by the needs and priorities set out in the Kosrae Shoreline Management Plan³².

³² (NIWA, 2013)

The road and pedestrian facilities projects in the Kosrae IDP are listed in Table K 7 and support the sector goal to provide road and pedestrian facilities infrastructure that:

1. enables transportation facilities to be adequate in terms of condition, capacity, reliability and safety to enable market opportunities to be realized for all areas of the country, including labor market opportunities, and to enhance the level of integration of state economies and the national economy
2. meets the demand for road and pedestrian infrastructure in an effective and efficient manner, including concrete/asphalt paving of all primary road systems
3. incorporates pedestrian walkways in the design and construction of roads
4. extends cross-island and inner roads to facilitate agricultural and other development
5. is resilient to the impacts of climate change

A key component of the priority program is the establishment of an asphalt plant with asphalt laying equipment to support the extensive road development program and later maintenance activities to improve the sustainability of road infrastructure.

Further information on each project can be found in the Project Outlines in Part 4.

Table K 7 – Road and Pedestrian Facilities Priority Projects

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
RD/1	Inland Road - Section 1, Malem to Yesing to Utwe	11,495,000	1/2	8.9
RD/2	Inland Road - Section 2, Mutunnenea to Sialat to Yekula	5,091,000	2/3	8.9
RD/3	Inland Road - Section 3, Malem to Pilyuul to Tenwak	5,098,000	2/3	8.9
RD/4	Inland Road - Section 4, Cross Island Road, Okat to Tofol	7,614,000	3	8.9
RD/5	Inland Road - Section 5, Utwe to Walung	15,363,000	1	8.9
RD/6	Lelu Causeway Road, Sidewalk and Protection Improvements	600,000	1/2	8.9
RD/7	Lelu Farm Road Improvements (5.19 miles)	1,038,000	1	8.0
RD/8	Utwe Farm Road Improvements (2.82 miles)	564,000	1	8.0
RD/9	Malem Farm Road Improvements (5.66 miles)	1,132,000	1	8.0
RD/10	Tafunsak Farm Road Improvements (2.10 miles)	420,000	1	8.0
RD/11	Establish Asphalt Plant	1,500,000	1	7.8
RD/12	Main Road Drainage Improvements	1,080,000	1/2	8.9
Total Funding Required		50,995,000		

3.2.5 Maritime Transportation

Maritime infrastructure in Kosrae is the responsibility of the Kosrae Ports Authority. The sector projects at Okat Port will provide improved facilities for cargo handling and storage, including cold storage of perishables, and ensure that the port conforms to international safety and security requirements. The navigational aids project will also improve safety at Kosrae’s other two ports.

The maritime transportation projects in the Kosrae IDP are listed in Table K 8 and support the sector goal to provide maritime transportation infrastructure that:

1. enables market opportunities to be realized for all areas of the country, including labor market opportunities, and to enhance the level of integration of state economies and the national economy
2. provides improved dock facilities to meet both fisheries and commercial shipping needs
3. facilitates modern, safe and efficient inter-state and inter-island passenger and cargo vessels
4. coordinates and facilitates the improvement of aids to navigation

Further information on each project can be found in the Project Outlines in Part 4.

Table K 8 – Maritime Transportation Priority Projects

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
MT/1	Pacific Tuna Industries Facility Rehabilitation	500,000	1/2	6.9
MT/2	Marine Transport Infrastructure Improvements	1,050,000	1	6.9
MT/3	Safety and Accessibility Improvements at 3 Harbors	20,000,000	1/2	7.1
Total Funding Required		21,550,000		

3.2.6 Air Transportation

Kosrae International Airport is also the responsibility of the Kosrae Ports Authority and has a current Master Plan³³. The sector projects will address the operational, safety and security limitations for both aircraft and ground handling through an extension of the runway and safety areas and construction of a new terminal building.

The air transportation projects in the Kosrae IDP are listed in Table K 9 and support the sector goal to provide air transportation infrastructure that:

1. provides adequate air transportation facilities and services in terms of condition, frequency, capacity, reliability and safety to enable market opportunities to be realized for all areas of the country
2. enables air carrier airports to improve safety and eliminate payload restrictions

Further information on each project can be found in the Project Outlines in Part 4.

Table K 9 – Air Transportation Priority Projects

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
AT/1	New Airport Terminal & Facilities	11,000,000	1/2	6.4
AT/2	Airport Runway Extension & Safety Area Improvement	20,000,000	3	6.4
Total Funding Required		31,000,000		

³³ (Leo A Daly, 2012k) - Kosrae International Airport Final Master Plan

3.2.7 Education

The Department of Education is responsible for Kosrae’s public education infrastructure, excluding the College of Micronesia. All public schools has been improved in recent years other than Malem Elementary School.

Malem School will be improved under the Kosrae IDP utilizing the standardized school design based on Utwe School. A range of facilities at other schools will be upgraded including security fencing.

The education projects in the Kosrae IDP are listed in Table K 10 and support the sector goal to provide education infrastructure that:

1. ensures that the learning experience is enhanced and diversified
2. improves student and faculty interest and morale, and thereby improves the effectiveness of education and significantly increases the student retention rates through graduation from elementary or secondary schools
3. removes constraints on the availability of high school education for all graduates of elementary school, and to provide an array of post-secondary education opportunities for all high school graduates who seek further education
4. continues to assist and strengthen private educational institutions to the nation
5. is supported by facilities improvement programs that address the need for maintenance, renovation and construction of new facilities to support quality student instruction
6. is supported by equipment maintenance guidelines
7. is resilient to potential natural disasters and the impacts of climate change

Further information on each project can be found in the Project Outlines in Part 4.

Table K 10 – Education Priority Projects

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
ED/1	Malem Elementary School	2,000,000	1	7.6
ED/2	School Facilities Improvements	1,000,000	1	6.7
Total Funding Required		3,000,000		

3.2.8 Health

The Department of Health’s principal resource, the Kosrae State Hospital will be redeveloped under the Kosrae IDP. Procurement for the redevelopment will be undertaken in FY2016.

The hospital redevelopment listed in Table K 11 supports the sector goal to provide health infrastructure that:

1. provides modern and efficient hospital facilities to meet the health needs of the nation
2. facilitates an upgraded the curative health system to minimize the needs for referrals to foreign medical facilities
3. provides health care facilities within reasonable access of all citizens
4. has facilities improvement programs that address the need for maintenance, renovation and construction of new facilities
5. has adequate funds for maintenance to prevent rapid deterioration of facilities
6. is resilient to potential natural disasters and the impacts of climate change

Further information on the project can be found in the Project Outlines in Part 4.

Table K 11 – Health Priority Project

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
HE/1	Kosrae State Hospital	18,520,000	1	9.3
Total Funding Required		18,520,000		

3.2.9 Government Administrative Buildings

The Department of Transportation and Infrastructure is responsible for the Government’s administrative buildings.

A new Legislature Building will be constructed under the Kosrae IDP in support of the sector goal to provide government administrative building infrastructure that:

1. provides modern and efficient facilities required for government personnel to effectively undertake their functions
2. provides an environment that enables equipment used by government personnel to be adequately maintained
3. encourages a high morale and work ethic amongst government employees by providing a suitable work environment
4. provides elected officials with suitable office space and chambers in which to conduct their responsibilities

Further information on the project can be found in the Project Outlines in Part 4.

Table K 12 – Government Administrative Buildings Priority Project

ID	Project Title	Required Funding (\$)	Target Period	Strategic Rating
GB/1	Kosrae State Legislature Building	1,100,000	1/2	6.4
Total Funding Required		1,100,000		

3.3 Whole of Life Costs

The costs associated with new infrastructure do not end with purchase or construction. It is one step in the life cycle of an asset that begins with the initial identification of needs through to the disposal of the asset at the end of its useful life. When all these costs are combined, the total may be more than double the cost of the initial purchase/construction price.

The provision of adequate funding for preventative maintenance as part of a whole of life approach to asset management is a key institutional issue for FSM, like other Pacific Island countries.

Estimates of the Kosrae IDP priority project maintenance costs by sector over a 20 year period are included in Table K 13. Although some assets have a life other than 20 years, this period has been chosen to provide an indication of the maintenance funding required on an annual basis.

The annual percentage maintenance cost and the asset life factors can be found in Table 14 in Volume 1, Part 6, section 6.2 of the IDP.

Table K 13 – Kosrae IDP 20 Year Maintenance Costs

Sector	20 Year Costs (\$)		B / A	Annual Maintenance Cost (\$)
	Construction (A)	Maintenance (B)		
Electric Power	16,829,000	11,805,000	70%	590,000
Water/Wastewater Systems	13,316,000	5,327,000	40%	266,000
Solid Waste Management	250,000	100,000	40%	5,000
Road and Pedestrian Facilities	46,756,000	37,679,000	81%	1,884,000
Maritime Transportation	20,524,000	12,410,000	60%	621,000
Air Transportation	28,182,000	49,636,000	176%	2,482,000
Education	2,857,000	1,429,000	50%	71,000
Health	18,520,000	14,816,000	80%	741,000
Government Administrative Buildings	1,000,000	600,000	60%	30,000
Total	148,234,000	133,802,000	90%	6,690,000

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4.1 Electric Power Projects

Project K 1 – Electric Power Improvements (EP/1)

Project Title:	Electric Power Improvements	Sector:	Electric Power						
Project Description/Scope:	Improve Kosrae’s electric power reliability, security and efficiency by: <ul style="list-style-type: none"> • providing a new fuel-powered generator to replace equipment up to 35 years old • renewing underground cabling at Lelu and the Airport 								
Agencies Responsible:	Kosrae Utilities Authority								
Project Objectives/Outcomes:	Improve the reliability, security and cost-effectiveness of electric power in Kosrae								
Project Justification:	Current electric power needs to be more reliable, secure and cost-effective								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	4	4	4	4	3	4	4	4	8.0
Project Status:	Scoped: Project has been assessed by JICA and is in the process of being approved								
Inclusions:	To be developed in the design stage								
Exclusions:	To be developed in the design stage								
Risks & Dependencies:	To be developed in the design stage								
Estimated Planning & Design Costs \$:	included in construction costs				Estimated Construction Costs \$:	3,700,000			

Project K 2 – Electric Power Generation Improvements (EP/2)

Project Title:	Electric Power Generation Improvements	Sector:	Electric Power						
Project Description/Scope:	Improve Kosrae’s electric power generation reliability, security and efficiency by increasing the fuel storage capacity to 100,000 gallons (~60 percent increase) and renewing the fuel centrifuge system								
Agencies Responsible:	Kosrae Utilities Authority								
Project Objectives/Outcomes:	Improve the reliability, security and cost-effectiveness of electric power in Kosrae								
Project Justification:	Current electric power needs to be more reliable, secure and cost-effective								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	4	4	4	4	3	4	4	4	8.0
Project Status:	Scoped: Improvement needs identified								
Inclusions:	To be developed in the design stage								
Exclusions:	To be developed in the design stage								
Risks & Dependencies:	To be developed in the design stage								
Estimated Planning & Design Costs \$:	included in construction costs				Estimated Construction Costs \$:	140,000			

Project K 3 – Electric Power Distribution Improvements (EP/3)

Project Title:	Electric Power Distribution Improvements					Sector:	Electric Power			
Project Description/Scope:	Improve Kosrae’s electric power distribution with a double circuit upgrade from Tofol to Triangle and from Tafunsak Town (Wasr Wasr) to Okat									
Agencies Responsible:	Kosrae Utilities Authority									
Project Objectives/Outcomes:	Improve the reliability of electric power in Kosrae									
Project Justification:	Current electric power needs to be more reliable									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/ conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	4	4	4	4	3	4	4	4	8.0	
Project Status:	Scoped: Improvement needs identified									
Inclusions:	To be developed in the design stage									
Exclusions:	To be developed in the design stage									
Risks & Dependencies:	To be developed in the design stage									
Estimated Planning & Design Costs \$:	included in construction costs				Estimated Construction Costs \$:	685,000				

Project K 4 – Electric Power Capital Equipment (EP/4)

Project Title:	Electric Power Capital Equipment	Sector:	Electric Power						
Project Description/Scope:	Improve Kosrae’s electric power availability, reliability, security and cost-effectiveness by providing modern and capable capital equipment, particularly for line installation and maintenance, including: <ul style="list-style-type: none"> • Lineman’s bucket trucks • Augur truck/digger • Tree chipper truck • Backhoe/excavator • Forklift • Portable submersible pump 								
Agencies Responsible:	Kosrae Utilities Authority								
Project Objectives/Outcomes:	Improve the availability, reliability, security and cost-effectiveness of electric power in Kosrae								
Project Justification:	Current electric power needs to be more reliable, secure and cost-effective								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	4	4	4	4	3	4	4	4	8.0
Project Status:	Scoped: Improvement needs identified								
Inclusions:	To be developed in the design stage								
Exclusions:	To be developed in the design stage								
Risks & Dependencies:	To be developed in the design stage								
Estimated Planning & Design Costs \$:	included in construction costs				Estimated Construction Costs \$:	870,000			

Project K 5 – Renewable Energy Capacity and Flexibility Improvements (EP/5)

Project Title:	Renewable Energy Capacity and Flexibility Improvements					Sector:	Electric Power			
Project Description/Scope:	Increase the contribution of renewable energy to Kosrae’s electric power needs, including: <ul style="list-style-type: none"> • Solar powered street lighting on major roads • Renewable energy storage system (flywheel based) • Feasibility study to identify renewable energy sources and projects to provide up to 50 percent of Kosrae’s electric power needs 									
Agencies Responsible:	Kosrae Utilities Authority									
Project Objectives/Outcomes:	Reduce Kosrae’s reliance on imported fuel for electric power generation									
Project Justification:	Imported fuel for electric power generation is a significant cost to the Kosrae economy									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	4	4	4	4	5	4	4	5	8.7	
Project Status:	Scoped: Renewable energy needs scope for inclusion in EDF 11 submission									
Inclusions:	To be developed in the design stage									
Exclusions:	To be developed in the design stage									
Risks & Dependencies:	To be developed in the design stage									
Estimated Planning & Design Costs \$:	400,000				Estimated Construction Costs \$:	7,600,000				

Project K 6 – Increase Renewable Electric Power Generation (EP/6)

Project Title:	Increase Renewable Electric Power Generation					Sector:	Electric Power			
Project Description/Scope:	Increase renewable energy’s contribution to Kosrae’s electric power needs by implementing 1.25 MW of renewable energy projects based on the proposed feasibility study									
Agencies Responsible:	Kosrae Utilities Authority									
Project Objectives/Outcomes:	Increase the contribution of renewable energy to Kosrae’s electric power needs to at least 35 percent and reduce reliance on imported fuel for electric power generation									
Project Justification:	Imported fuel for electric power generation is a significant cost to the Kosrae economy									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	4	4	4	4	5	4	4	5	8.7	
Project Status:	Concept: Project depends on outcome of the proposed feasibility study									
Inclusions:	To be assessed as part of scope definition									
Exclusions:	To be assessed as part of scope definition									
Risks & Dependencies:	To be assessed as part of scope definition; proposed feasibility does not proceed									
Estimated Planning & Design Costs \$:	included in construction costs				Estimated Construction Costs \$:	4,250,000				

4.2 Water/Wastewater System Projects

Project K 7 – Malem Water System Improvements (WW/1)

Project Title:	Malem Water System Improvements						Sector:	Water/Wastewater Systems		
Project Description/Scope:	Rehabilitate elements of the Malem water supply system and introduce water treatment and fluoridation									
Agencies Responsible:	Department of Transportation and Infrastructure									
Project Objectives/Outcomes:	Provide the Malem community with improved water supply reliability and quality to improve living conditions and public health									
Project Justification:	The Malem water supply is not currently treated and elements of the system are in need of rehabilitation									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	5	5	3	5	3	5	5	9.1	
Project Status:	Scoped: Existing system with identified improvement needs									
Inclusions:	Rehabilitation of system elements and treatment of the water supply									
Exclusions:	Extension of the system, transfer of the system to KUA									
Risks & Dependencies:	To be developed in the design stage; user behaviors compromise the improvements									
Estimated Planning & Design Costs \$:	273,000				Estimated Construction Costs \$:	2,727,000				

Project K 8 – Muntunte/Yata Water System Improvements (WW/2)

Project Title:	Muntunte/Yata Water System Improvements						Sector:	Water/Wastewater Systems		
Project Description/Scope:	Rehabilitate elements of the Muntunte/Yata water supply system and introduce water treatment and fluoridation									
Agencies Responsible:	Department of Transportation and Infrastructure									
Project Objectives/Outcomes:	Provide the Muntunte/Yata community with improved water supply reliability and quality to improve living conditions and public health									
Project Justification:	The Muntunte/Yata water supply is not currently treated and elements of the system are in need of rehabilitation									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	5	5	3	5	3	5	5	9.1	
Project Status:	Scoped: Existing system with identified improvement needs									
Inclusions:	Rehabilitation of system elements and treatment of the water supply									
Exclusions:	Extension of the system, transfer of the system to KUA									
Risks & Dependencies:	To be developed in the design stage; user behaviors compromise the improvements									
Estimated Planning & Design Costs \$:	318,000				Estimated Construction Costs \$:	3,182,000				

Project K 9 – Walung Water System Storage Tank & Treatment (WW/3)

Project Title:	Walung Water System Storage Tank & Treatment						Sector:	Water/Wastewater Systems		
Project Description/Scope:	Incorporate a storage tank into the Walung water system and introduce water treatment and fluoridation									
Agencies Responsible:	Department of Transportation and Infrastructure									
Project Objectives/Outcomes:	Provide the Walung community with improved water supply reliability and quality to improve living conditions and public health									
Project Justification:	The Walung water supply lacks storage capacity and is not currently treated									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	5	5	3	5	3	5	5	9.1	
Project Status:	Scoped: Existing system with identified improvement needs									
Inclusions:	Addition of storage capacity and treatment of the water supply									
Exclusions:	To be developed in the design stage; extension of the system, transfer of the system to KUA									
Risks & Dependencies:	User behaviors compromise the improvements									
Estimated Planning & Design Costs \$:	90,000				Estimated Construction Costs \$:	910,000				

Project K 10 – Lelu Water System Improvements (WW/4)

Project Title:	Lelu Water System Improvements						Sector:	Water/Wastewater Systems		
Project Description/Scope:	Rehabilitate elements of the Lelu water supply system and introduce water treatment and fluoridation									
Agencies Responsible:	Department of Transportation and Infrastructure									
Project Objectives/Outcomes:	Provide the Lelu community with improved water supply reliability and quality to improve living conditions and public health									
Project Justification:	The Lelu water supply is not currently treated and elements of the system are in need of rehabilitation									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	5	5	3	5	3	5	5	9.1	
Project Status:	Scoped: Existing system with identified improvement needs									
Inclusions:	Rehabilitation of system elements and treatment of the water supply									
Exclusions:	Extension of the system, transfer of the system to KUA									
Risks & Dependencies:	To be developed in the design stage; user behaviors compromise the improvements									
Estimated Planning & Design Costs \$:	286,000				Estimated Construction Costs \$:	2,862,000				

Project K 11 – Lelu/Tofol Wastewater System Improvements (WW/5)

Project Title:	Lelu/Tofol Wastewater System Improvements	Sector:	Water/Wastewater Systems						
Project Description/Scope:	Rehabilitate elements of the Lelu/Tofol wastewater system and introduce the treatment of the wastewater prior to discharge to the sea								
Agencies Responsible:	Department of Transportation and Infrastructure								
Project Objectives/Outcomes:	Provide the Lelu/Tofol community and government facilities with improved wastewater system reliability and treat the wastewater to improve living conditions and public health								
Project Justification:	The Lelu/Tofol wastewater system that includes key government facilities including the State Hospital and High School is not currently treated prior to discharge to the sea and elements of the system are in need of rehabilitation								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	5	5	5	3	5	3	5	5	9.1
Project Status:	Scoped: Existing system with identified improvement needs								
Inclusions:	Rehabilitation of system elements and treatment of the wastewater prior to discharge								
Exclusions:	Extension of the system, transfer of the system to KUA								
Risks & Dependencies:	To be developed in the design stage								
Estimated Planning & Design Costs \$:	364,000				Estimated Construction Costs \$:	3,636,000			

4.3 Solid Waste Management Projects

Project K 12 – Solid Waste Management Expansion & Consolidation (SW/1)

Project Title:	Solid Waste Management Expansion & Consolidation	Sector:	Solid Waste Management						
Project Description/Scope:	Expand and consolidate the use of the State solid waste management facility in Tofol, including: <ul style="list-style-type: none"> • Expanding the area available for solid waste disposal at the Tofol facility • Improving pump capacity and reliability at the Tofol facility • Rehabilitating the disposal areas currently used by Municipalities • Providing additional solid waste collection vehicles to ensure a frequent, reliable collection service in all accessible areas 								
Agencies Responsible:	Department of Transportation & Infrastructure								
Project Objectives/Outcomes:	Improve the management of solid waste in Kosrae by expanding and improving the current State facility and consolidating all municipal solid waste at the State facility, including rehabilitation of areas currently used by Municipalities								
Project Justification:	The State solid waste management facility in Tofol utilizes the Fukuoka method common across the Pacific for the effective management of solid waste, however some Municipalities still manage solid waste in less suitable areas. With some expansion and improvement of the State solid waste facility, all solid waste can be managed more appropriately and existing municipal sites can be rehabilitated								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	5	5	5	2	5	3	5	5	8.9
Project Status:	Scoped: State solid waste facility and improvement/expansion needs identified								
Inclusions:	Rehabilitation of municipal tip areas by appropriate removal of solid waste and back-filling of those areas								
Exclusions:	Decontamination of municipal tip areas								
Risks & Dependencies:	To be developed in the design stage								
Estimated Planning & Design Costs \$:	included in construction costs				Estimated Construction Costs \$:	250,000			

4.4 Road and Pedestrian Facilities Projects

Project K 13 – Inland Road Development - Section 1 Malem to Yesing to Utwe (RD/1)

Project Title:	Inland Road Development - Section 1 Malem to Yesing to Utwe					Sector:	Road and Pedestrian Facilities			
Project Description/Scope:	<p>Consistent with Strategy 3 of the Kosrae Shoreline Management Plan, (<i>Over the next one to two generations the primary coastal road network and associated infrastructure currently located on the beach/storm berm is developed inland away from the long-term erosion and coastal inundation risk</i>), develop the inland road network in the Malem/Yesing/Utwe area:</p> <ul style="list-style-type: none"> • Inland Road - Malem to Yeseng (1.24 miles, new road) • Access Road – Malem (0.54 miles, upgrade existing road) • Access Road – Yeseng (0.31 miles, upgrade existing road) • Inland Road - Yesing to Finsrem (Utwe) (1.57 miles, upgrade existing road, 1.53 miles new road) • Access Road - Utwe to Finsrem (0.37 miles, upgrade existing road) • Inland Road - Finsrem to Finkol (1.18 miles, upgrade existing road) • Access Road - Utwe to Finkol (0.71 miles, upgrade existing road) 									
Agencies Responsible:	Department of Transportation & Infrastructure									
Project Objectives/Outcomes:	<p>Improve the resilience of Kosrae’s road network and provide the infrastructure necessary to achieve other Shoreline Management Plan strategies, particularly:</p> <p>Strategy 4: locate new development away from areas of risk from present and future coastal hazards</p> <p>Strategy 5: encourage existing residential property owners to reposition homes away from areas of high risk from present and future hazards</p>									
Project Justification:	Mitigate climate change impacts and improve resilience of infrastructure and communities from present and future hazards									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/ conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	4	5	4	4	5	5	4	4	8.9	
Project Status:	Scoped: Scope and justification outlined in Kosrae’s Shoreline Management Plan									
Inclusions:	Relocation/repositioning of utilities (electric power, water supply and telecommunications)									
Exclusions:	Mitigation of any landslip or earthquake risks (not part of Shoreline Management Plan assessment)									
Risks & Dependencies:	<p>To be developed in the design stage</p> <p>Requires attention to the other Shoreline Management Plan strategies to move development and communities into the areas opened up by the development of inland roads</p> <p>Land owners agree to lease any additional land required for road development at no cost</p>									
Estimated Planning & Design Costs \$:	893,000				Estimated Construction Costs \$:	7,094,000 (road development) 3,508,000 (utilities)				

Project K 14 – Inland Road Development - Section 2 Mutunnenea to Sialat to Yekula (RD/2)

Project Title:	Inland Road Development - Section 2 Mutunnenea to Sialat to Yekula		Sector:	Road and Pedestrian Facilities					
Project Description/Scope:	Consistent with Strategy 3 of the Kosrae Shoreline Management Plan, <i>(Over the next one to two generations the primary coastal road network and associated infrastructure currently located on the beach/storm berm is developed inland away from the long-term erosion and coastal inundation risk),</i> develop the inland road network in the Mutunnenea/Sialat/Yekula area: <ul style="list-style-type: none"> • Mutunnenea to Sialat (2.80 miles, upgrade existing road) • Sialat to Yekula/Wiya (0.48 miles, upgrade existing road, 0.22 miles new road) 								
Agencies Responsible:	Department of Transportation & Infrastructure								
Project Objectives/Outcomes:	Improve the resilience of Kosrae’s road network and provide the infrastructure necessary to achieve other Shoreline Management Plan strategies, particularly: <ul style="list-style-type: none"> • Strategy 4: locate new development away from areas of risk from present and future coastal hazards • Strategy 5: encourage existing residential property owners to reposition homes away from areas of high risk from present and future hazards 								
Project Justification:	Mitigate climate change impacts and improve resilience of infrastructure and communities from present and future hazards								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	4	5	4	4	5	5	4	4	8.9
Project Status:	Scoped: Scope and justification outlined in Kosrae’s Shoreline Management Plan								
Inclusions:	Relocation/repositioning of utilities (electric power, water supply and telecommunications)								
Exclusions:	Mitigation of any landslip or earthquake risks (not part of Shoreline Management Plan assessment)								
Risks & Dependencies:	To be developed in the design stage. Requires attention to the other Shoreline Management Plan strategies to move development and communities into the areas opened up by the development of inland roads Land owners agree to lease any additional land required for road development at no cost								
Estimated Planning & Design Costs \$:	386,000				Estimated Construction Costs \$:	3,005,000 (road development) 1,700,000 (utilities)			

Project K 15 – Inland Road Development - Section 3 Malem to Pilyuul to Tenwak (RD/3)

Project Title:	Inland Road Development - Section 3 Malem to Pilyuul to Tenwak		Sector:	Road and Pedestrian Facilities					
Project Description/Scope:	Consistent with Strategy 3 of the Kosrae Shoreline Management Plan, <i>(Over the next one to two generations the primary coastal road network and associated infrastructure currently located on the beach/storm berm is developed inland away from the long-term erosion and coastal inundation risk)</i> , develop the inland road network in the Malem/Pilyuul/Tenwak area: <ul style="list-style-type: none"> • Inland Road - Malem to Pilyuul (1.55 miles, upgrade existing road) • Access Road - Pilyuul (0.27 miles, upgrade existing road) • Access Road - Yewak (0.47 miles, upgrade existing road) • Inland Road – Pilyuul to Tenwak (0.94 miles, new road) • Access Road - Tenwak (0.09 miles, upgrade existing road) 								
Agencies Responsible:	Department of Transportation & Infrastructure								
Project Objectives/Outcomes:	Improve the resilience of Kosrae’s road network and provide the infrastructure necessary to achieve other Shoreline Management Plan strategies, particularly: <ul style="list-style-type: none"> • Strategy 4: locate new development away from areas of risk from present and future coastal hazards • Strategy 5: encourage existing residential property owners to reposition homes away from areas of high risk from present and future hazards 								
Project Justification:	Mitigate climate change impacts and improve resilience of infrastructure and communities from present and future hazards								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	4	5	4	4	5	5	4	4	8.9
Project Status:	Scoped: Scope and justification outlined in Kosrae’s Shoreline Management Plan								
Inclusions:	Relocation/repositioning of utilities (electric power, water supply and telecommunications)								
Exclusions:	Mitigation of any landslide or earthquake risks (not part of Shoreline Management Plan assessment)								
Risks & Dependencies:	To be developed in the design stage. Requires attention to the other Shoreline Management Plan strategies to move development and communities into the areas opened up by the development of inland roads Land owners agree to lease any additional land required for road development at no cost								
Estimated Planning & Design Costs \$:	390,000				Estimated Construction Costs \$:	3,082,000 (road development) 1,626,000 (utilities)			

Project K 16 – Inland Road Development - Section 4 Cross Island Road, Okat to Tofol (RD/4)

Project Title:	Inland Road Development - Section 4 Cross Island Road, Okat to Tofol		Sector:	Road and Pedestrian Facilities						
Project Description/Scope:	Consistent with Strategy 3 of the Kosrae Shoreline Management Plan, (<i>Over the next one to two generations the primary coastal road network and associated infrastructure currently located on the beach/storm berm is developed inland away from the long-term erosion and coastal inundation risk</i>), develop the inland road network by developing the cross-island road from Tofol to Okat: <ul style="list-style-type: none"> • Improve existing road – Okat end (2.00 miles, upgrade existing road) • Improve existing road – Tofol end (0.76 miles, upgrade existing road) • Construct connecting road (1.76 miles, new road, including major culverts and bridge) 									
Agencies Responsible:	Department of Transportation & Infrastructure									
Project Objectives/Outcomes:	Improve the resilience of Kosrae’s road network and provide the infrastructure necessary to achieve other Shoreline Management Plan strategies, particularly: <ul style="list-style-type: none"> • Strategy 4: locate new development away from areas of risk from present and future coastal hazards • Strategy 5: encourage existing residential property owners to reposition homes away from areas of high risk from present and future hazards 									
Project Justification:	Mitigate climate change impacts and improve resilience of infrastructure and communities from present and future hazards Provide more direct and climate resilient link between Lelu, Malem and Utwe municipalities and the Port and Airport									
Strategic Alignment										
	Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/ conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
	5	4	5	4	4	5	5	4	4	8.9
Project Status:	Scoped: Scope and justification outlined in Kosrae’s Shoreline Management Plan									
Inclusions:	Relocation/repositioning of utilities (electric power, telecommunications and some water supply)									
Exclusions:	Water supply (little existing or future development along the new section of road) Mitigation of any landslip or earthquake risks (not part of Shoreline Management Plan assessment)									
Risks & Dependencies:	To be developed in the design stage Requires attention to the other Shoreline Management Plan strategies to move development and communities into the areas opened up by the development of inland roads Land owners agree to lease any additional land required for road development at no cost									
Estimated Planning & Design Costs \$:	599,000					Estimated Construction Costs \$:	4,932,000 (road development) 2,083,000 (utilities)			

Project K 17 – Inland Road Development - Section 5 Utwe to Walung (RD/5)

Project Title:	Inland Road Development - Section 5 Utwe to Walung		Sector:	Road and Pedestrian Facilities					
Project Description/Scope:	Consistent with Strategy 3 of the Kosrae Shoreline Management Plan, (<i>Over the next one to two generations the primary coastal road network and associated infrastructure currently located on the beach/storm berm is developed inland away from the long-term erosion and coastal inundation risk</i>), develop the inland road network by developing the current 4WD only access from Utwe to Walung: <ul style="list-style-type: none"> • Construct new road (9.50 miles) 								
Agencies Responsible:	Department of Transportation & Infrastructure								
Project Objectives/Outcomes:	Improve the resilience of Kosrae’s road network and provide the infrastructure necessary to achieve other Shoreline Management Plan strategies, particularly: <ul style="list-style-type: none"> • Strategy 4: locate new development away from areas of risk from present and future coastal hazards • Strategy 5: encourage existing residential property owners to reposition homes away from areas of high risk from present and future hazards 								
Project Justification:	Mitigate climate change impacts and improve resilience of infrastructure and communities from present and future hazards. Provide road access to Walung (currently boat access only) and provide improved access to health, education and other government services, as well as commercial and employment opportunities.								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/ conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	4	5	4	4	5	5	4	4	8.9
Project Status:	Scoped: Scope and justification outlined in Kosrae’s Shoreline Management Plan								
Inclusions:	Relocation/repositioning of utilities (electric power and telecommunications)								
Exclusions:	Water supply (little existing or future development along the new section of road) Mitigation of any landslip or earthquake risks (not part of Shoreline Management Plan assessment)								
Risks & Dependencies:	To be developed in the design stage Environmental impacts of building the road through the Utwe-Walung Conservation Area Requires attention to the other Shoreline Management Plan strategies to move development and communities into the areas opened up by the development of inland roads Land owners agree to lease any additional land required for road development at no cost								
Estimated Planning & Design Costs \$:	1,124,000				Estimated Construction Costs \$:	10,912,000 (road development) 3,327,000 (utilities)			

Project K 18 – Lelu Causeway Road, Sidewalk and Protection Improvements (RD/6)

Project Title:	Lelu Causeway Road, Sidewalk and Protection Improvements	Sector:	Road and Pedestrian Facilities						
Project Description/Scope:	Improve the condition, safety and function of the Lelu Causeway, including: <ul style="list-style-type: none"> • Provision of a sidewalk and car parking facilities • Replacement of safety barriers • Provision of street lights • Rehabilitation and improvement of sea protection 								
Agencies Responsible:	Department of Transportation & Infrastructure								
Project Objectives/Outcomes:	To improve the safety and functionality of the Lelu Causeway, particularly to provide for the safety of the community using the causeway for recreational purposes								
Project Justification:	Lelu Causeway is the sole link to the Lelu community and commercial area and is currently in poor condition with non-functional safety barriers, undermining from failed areas of sea protection and inadequate provision for the community using the causeway for recreation								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
4	4	4	4	4	5	5	5	5	8.9
Project Status:	Concept: Concept plan for improving the safety, function and condition of the Causeway								
Inclusions:	To be assessed as part of scope definition								
Exclusions:	Replacement/upgrading of utility services, other than new street lighting								
Risks & Dependencies:	To be assessed as part of scope definition; continued use of the Causeway during improvement works								
Estimated Planning & Design Costs \$:	included in construction costs				Estimated Construction Costs \$:	600,000			

Project K 19 – Lelu Farm Road Improvement (RD/7)

Project Title:	Lelu Farm Road Improvements					Sector:	Road and Pedestrian Facilities			
Project Description/Scope:	Improve the condition and serviceability of Farm Roads in Lelu Municipality (5.19 miles)									
Agencies Responsible:	Department of Transportation & Infrastructure									
Project Objectives/Outcomes:	Improve the condition and serviceability of Kosrae’s Farm Road network to provide safer and more reliable access to the sealed road network									
Project Justification:	Farm Roads can be subject to weather and other disruptions and condition can affect road user costs and convenience, impacting on access to health, education and other government services, as well as commercial and employment opportunities									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	5	3	3	4	3	4	4	8.0	
Project Status:	Concept									
Inclusions:	Improvements to road surface condition and side drainage, minor improvements to alignment and width									
Exclusions:	Improvements to utilities, sealing of road surface, general improvements to road standards									
Risks & Dependencies:	To be assessed as part of scope definition									
Estimated Planning & Design Costs \$:	94,000				Estimated Construction Costs \$:	944,000				

Project K 20 – Utwe Farm Road Improvements (RD/8)

Project Title:	Utwe Farm Road Improvements						Sector:	Road and Pedestrian Facilities		
Project Description/Scope:	Improve the condition and serviceability of Farm Roads in Utwe Municipality (2.82 miles)									
Agencies Responsible:	Department of Transportation & Infrastructure									
Project Objectives/Outcomes:	Improve the condition and serviceability of Kosrae’s Farm Road network to provide safer and more reliable access to the sealed road network									
Project Justification:	Farm Roads can be subject to weather and other disruptions and condition can affect road user costs and convenience, impacting on access to health, education and other government services, as well as commercial and employment opportunities									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	5	3	3	4	3	4	4	8.0	
Project Status:	Concept									
Inclusions:	Improvements to road surface condition and side drainage, minor improvements to alignment and width									
Exclusions:	Improvements to utilities, sealing of road surface, general improvements to road standards									
Risks & Dependencies:	To be assessed as part of scope definition									
Estimated Planning & Design Costs \$:	51,000				Estimated Construction Costs \$:	513,000				

Project K 21 – Malem Farm Road Improvements (RD/9)

Project Title:	Malem Farm Road Improvements						Sector:	Road and Pedestrian Facilities		
Project Description/Scope:	Improve the condition and serviceability of Farm Roads in Malem Municipality (5.66 miles)									
Agencies Responsible:	Department of Transportation & Infrastructure									
Project Objectives/Outcomes:	Improve the condition and serviceability of Kosrae’s Farm Road network to provide safer and more reliable access to the sealed road network									
Project Justification:	Farm Roads can be subject to weather and other disruptions and condition can affect road user costs and convenience, impacting on access to health, education and other government services, as well as commercial and employment opportunities									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	5	3	3	4	3	4	4	8.0	
Project Status:	Concept									
Inclusions:	Improvements to road surface condition and side drainage, minor improvements to alignment and width									
Exclusions:	Improvements to utilities, sealing of road surface, general improvements to road standards									
Risks & Dependencies:	To be assessed as part of scope definition									
Estimated Planning & Design Costs \$:	103,000				Estimated Construction Costs \$:	1,029,000				

Project K 22 – Tafunsak Farm Road Improvements (RD/10)

Project Title:	Tafunsak Farm Road Improvements					Sector:	Road and Pedestrian Facilities			
Project Description/Scope:	Improve the condition and serviceability of Farm Roads in Tafunsak Municipality (2.1 miles)									
Agencies Responsible:	Department of Transportation & Infrastructure									
Project Objectives/Outcomes:	Improve the condition and serviceability of Kosrae’s Farm Road network to provide safer and more reliable access to the sealed road network									
Project Justification:	Farm Roads can be subject to weather and other disruptions and condition can affect road user costs and convenience, impacting on access to health, education and other government services, as well as commercial and employment opportunities									
Strategic Alignment										
	Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
	5	5	5	3	3	4	3	4	4	8.0
Project Status:	Concept									
Inclusions:	Improvements to road surface condition and side drainage, minor improvements to alignment and width									
Exclusions:	Improvements to utilities, sealing of road surface, general improvements to road standards									
Risks & Dependencies:	To be assessed as part of scope definition									
Estimated Planning & Design Costs \$:	38,000					Estimated Construction Costs \$:	382,000			

Project K 23 – Establish Asphalt Plant (RD/11)

Project Title:	Establish Asphalt Plant	Sector:	Road and Pedestrian Facilities						
Project Description/Scope:	Establish an asphalt plant appropriate to Kosrae’s road development and maintenance needs								
Agencies Responsible:	Department of Transportation & Infrastructure								
Project Objectives/Outcomes:	Establish a core capability to produce asphalt for road development projects, avoiding the need for contractors to import asphalt plant for each project, and undertaking road maintenance as and when required								
Project Justification:	Kosrae’s sealed roads have asphalt surfacing in need of asphalt patching and resurfacing and road development projects require contractors to import asphalt plant on a project-by-project basis								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	5	5	2	2	3	3	5	5	7.8
Project Status:	Concept								
Inclusions:	Establishment of asphalt plant and asphalt laying equipment, including a stock of spares and consumables, training of local staff and design of standard asphalt mixes appropriate to Kosrae’s needs and locally available materials								
Exclusions:	To be assessed as part of scope definition								
Risks & Dependencies:	To be assessed as part of scope definition; sustainability of local capacity to operate asphalt plant								
Estimated Planning & Design Costs \$:	included in construction costs	Estimated Construction Costs \$:	1,500,000						

Project K 24 – Main Road Drainage Improvements (RD/12)

Project Title:	Main Road Drainage Improvements	Sector:	Road and Pedestrian Facilities						
Project Description/Scope:	Rehabilitate the drainage along and across all of Kosrae’s main roads								
Agencies Responsible:	Department of Transportation & Infrastructure								
Project Objectives/Outcomes:	Reduce the hazard of and damage caused by water collecting on road surfaces and mitigate the impact of water from roads on adjacent properties								
Project Justification:	Kosrae’s roads are often inundated during heavy rain, creating a safety hazard and accelerating pavement damage and inadequate longitudinal drainage often means that water from roads enters adjacent property impacting on residents and occupiers								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
4	4	4	4	4	5	5	5	5	8.9
Project Status:	Concept								
Inclusions:	To be assessed as part of scope definition								
Exclusions:	To be assessed as part of scope definition								
Risks & Dependencies:	To be assessed as part of scope definition								
Estimated Planning & Design Costs \$:	50,000	Estimated Construction Costs \$:	1,030,000						

4.5 Maritime Transportation Projects

Project K 25 – Pacific Tuna Industries Facility Rehabilitation (MT/1)

Project Title:	Pacific Tuna Industries Facility Rehabilitation					Sector:	Maritime Transportation			
Project Description/Scope:	Rehabilitate the ex-Pacific Tuna Industries facility to provide a cool store facility for fisheries operating and/or based in Kosrae waters Explore the option of the private sector (e.g. existing lessee) funding the rehabilitation as part of an extended lease agreement									
Agencies Responsible:	Kosrae Port Authority									
Project Objectives/Outcomes:	Provide a facility that supports additional use of Okat Port as a fisheries base									
Project Justification:	Existing cool store asset is unutilized and with some additional investment could become a cornerstone economic asset for use by Kosrae-based fisheries operations and to provide an additional revenue source for KPA									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	4	1	1	3	2	5	5	6.9	
Project Status:	Concept									
Inclusions:	To be assessed as part of scope definition									
Exclusions:	To be assessed as part of scope definition									
Risks & Dependencies:	To be assessed as part of scope definition Kosrae State Government does not transfer ownership to KPA Existing lessee does not cooperate with plans to rehabilitate the facility									
Estimated Planning & Design Costs \$:	50,000				Estimated Construction Costs \$:	450,000				

Project K 26 – Maritime Transportation Infrastructure Improvements (MT/2)

Project Title:	Maritime Transportation Infrastructure Improvements		Sector:	Maritime Transportation					
Project Description/Scope:	Improve infrastructure in both Okat and Lelu Harbors for safety and compliance with international codes, including improvements to: <ul style="list-style-type: none"> • Okat Port stevedoring building, container storage yard surface for improve handling and storage of transshipped cargos • Okat Port security fencing and lighting to meet International Maritime Organization requirements • Okat Port and Lelu Harbor navigational aids (Lelu needs to be available as an alternative safe anchorage under the International Ship and Port Security Code) 								
Agencies Responsible:	Kosrae Port Authority								
Project Objectives/Outcomes:	Improve maritime infrastructure for vessels and transshipment of cargo and compliance with international codes and needs of users								
Project Justification:	Existing safety and compliance issues with current Okat Port facilities and poor conditions for transshipment of cargo								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	5	4	1	1	3	2	5	5	6.9
Project Status:	Concept								
Inclusions:	To be assessed as part of scope definition								
Exclusions:	To be assessed as part of scope definition								
Risks & Dependencies:	To be assessed as part of scope definition								
Estimated Planning & Design Costs \$:	100,000				Estimated Construction Costs \$:	950,000			

Project K 27 – Safety and Accessibility Improvements at 3 Harbors (MT/3)

Project Title:	Safety and Accessibility Improvements at 3 Harbors	Sector:	Maritime Transportation						
Project Description/Scope:	Dredge and remove hazards to improve safety and accessibility at Okat, Lelu and Utwe harbors								
Agencies Responsible:	Kosrae Port Authority								
Project Objectives/Outcomes:	Improve safety and accessibility to Kosrae’s harbors								
Project Justification:	Safety and accessibility at all Kosrae harbors affected to some degree by shallow depths and other hazards								
Strategic Alignment									
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
5	5	3	1	1	4	4	4	5	7.1
Project Status:	Scoped: Identified areas requiring dredging and/or hazard removal								
Inclusions:	To be developed in the design stage								
Exclusions:	To be developed in the design stage								
Risks & Dependencies:	To be developed in the design stage								
Estimated Planning & Design Costs \$:	500,000				Estimated Construction Costs \$:	19,500,000			

4.6 Air Transportation Projects

Project K 28 – New Airport Terminal & Facilities (AT/1)

Project Title:	New Airport Terminal & Facilities						Sector:	Air Transportation		
Project Description/Scope:	Construct new terminal and provide associated facilities based on the Airport Master Plan									
Agencies Responsible:	Kosrae Port Authority									
Project Objectives/Outcomes:	To provide a new airport terminal that conforms with relevant security requirements and provides an appropriate level of facilities for passengers (including commercial and tourism facilities) and airline, immigration, customs and quarantine services									
Project Justification:	Inadequate levels of security, passenger facilities and immigration, customs and quarantine services provided at current terminal									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
4	4	2	3	3	2	2	4	5	6.4	
Project Status:	Concept									
Inclusions:	New terminal building and related security and passenger/baggage handling and passenger processing facilities									
Exclusions:	To be assessed as part of scope definition									
Risks & Dependencies:	To be assessed as part of scope definition Continuity of services and security during transition to new terminal and facilities									
Estimated Planning & Design Costs \$:	1,000,000				Estimated Construction Costs \$:	10,000,000				

Project K 29 – Kosrae International Airport Runway Extension & Safety Area Improvement (AT/2)

Project Title:	Kosrae International Airport Runway Extension & Safety Area Improvement					Sector:	Air Transportation			
Project Description/Scope:	Extend the runway by minimum 750 feet (nominal length 6,500 feet) to the east consistent with the Airport Master Plan and improve the safety areas to a minimum of 200 feet each									
Agencies Responsible:	Kosrae Port Authority									
Project Objectives/Outcomes:	To provide a runway and associated safety areas that is more appropriate to the operational needs of airlines and aircraft using the airport									
Project Justification:	Limitations on the airlines and aircraft currently using the airport and sub-optimal safety conditions									
Strategic Alignment										
	Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)
	4	4	2	4	3	2	3	3	4	6.4
Project Status:	Scoped: Master plan includes guidance for runway extension and associated improvements and facilities and services									
Inclusions:	Improved safety areas and all associated facilities, including fencing, perimeter road, lighting and signing									
Exclusions:	Resurfacing of existing runway									
Risks & Dependencies:	To be developed in the design stage Environmental impacts of extending the runway onto the adjacent reef									
Estimated Planning & Design Costs \$:	1,820,000					Estimated Construction Costs \$:	18,180,000			

4.7 Education Projects

Project K 30 – Malem Elementary School (ED/1)

Project Title:	Malem Elementary School					Sector:	Education			
Project Description/Scope:	Using the design prepared for Utwe Elementary School, construct the same school facilities. Design work should be limited to changes related to different site conditions at the Malem site.									
Agencies Responsible:	Department of Education									
Project Objectives/Outcomes:	Provide upgraded classroom facilities equivalent to other Elementary Schools in Kosrae									
Project Justification:	Existing school facilities in need of rehabilitation/renewal.									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	4	3	2	5	3	4	4	4	7.6	
Project Status:	Scoped: Exiting base design available									
Inclusions:	Furniture and fittings									
Exclusions:	To be developed in the design stage									
Risks & Dependencies:	To be developed in the design stage Site conditions at Malem are similar to Utwe and only limited design work is required									
Estimated Planning & Design Costs \$:	50,000				Estimated Construction Costs \$:	1,950,000				

Project K 31 – School Facilities Improvements (ED/2)

Project Title:	School Facilities Improvements					Sector:	Education			
Project Description/Scope:	Improve facilities at Kosrae schools, including: <ul style="list-style-type: none"> Security fencing 									
Agencies Responsible:	Department of Education									
Project Objectives/Outcomes:	Provide all of the facilities required for the safe and secure operation of Kosrae’s schools									
Project Justification:	Existing school facilities in need of safety and security improvements									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
4	3	3	2	4	3	3	4	4	6.7	
Project Status:	Scoped: Improvement needs identified at each school									
Inclusions:	To be developed in the design stage									
Exclusions:	To be developed in the design stage									
Risks & Dependencies:	To be developed in the design stage									
Estimated Planning & Design Costs \$:					Estimated Construction Costs \$:	1,000,000				

4.8 Health Projects

Project K 32 – Kosrae State Hospital (HE/1)

Project Title:	Kosrae State Hospital						Sector:	Health		
Project Description/Scope:	Redevelop the State Hospital on the basis of the finalized design									
Agencies Responsible:	Department of Health									
Project Objectives/Outcomes:	To establish the State’s principal health facility to deliver health services to the community that are reasonable and appropriate to their needs									
Project Justification:	State hospital services and facilities are not able to provide the health services required by the community.									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
5	5	5	5	3	4	5	5	5	9.3	
Project Status:	Designed: Design practically complete, temporary facilities to facilitate rebuilding phasing underway									
Inclusions:	As already agreed									
Exclusions:	As already agreed									
Risks & Dependencies:	To be managed during implementation Provision of Compact Grant									
Estimated Planning & Design Costs \$:	Design funded pre FY2016				Estimated Construction Costs \$:	18,520,000				

4.9 Government Administrative Building Projects

Project K 33 – Kosrae State Legislature (GB/1)

Project Title:	Kosrae State Legislature					Sector:	Government Administrative Buildings			
Project Description/Scope:	Develop a new building for the Kosrae State Legislature									
Agencies Responsible:	Department of Transportation and Infrastructure									
Project Objectives/Outcomes:	Provide the Kosrae State Legislature with a new building that provides updated facilities for the efficient and efficient operation of the Legislature									
Project Justification:	Current building no longer meet the needs of the Legislature									
Strategic Alignment										
Support investment and economic growth	Improve private sector capacity and/or increase employment	Improve living conditions and/or income generation	Improve access to/delivery of public health services	Improve access to/delivery of education	Improve environmental outcomes/conditions	Improve natural disaster and climate change resilience	Improve capacity of government infrastructure agencies	Improve financial sustainability of infrastructure	Strategic Rating (out of 10)	
2	2	3	3	3	4	4	4	4	6.4	
Project Status:	Concept									
Inclusions:	To be assessed as part of scope definition									
Exclusions:	To be assessed as part of scope definition									
Risks & Dependencies:	To be assessed as part of scope definition									
Estimated Planning & Design Costs \$:	100,000				Estimated Construction Costs \$:	1,000,000				

