LaoLao Bay Road & Coastal Management Improvement Plan
ARRA/NOAA Grant No. NA09NMF4630291

Project Summary: December 2012
Grant Summary

**Original Grant - $641,273** (awarded 6/26/09)
- Revegetate 14-acre upland area
- Marine Monitoring - Ecological & Water Quality
- Public Awareness Campaign
  - Beach Signs
  - Public Service Announcements
  - Informational Brochures & Posters

**Supplemental Funding - $492,118** (awarded 8/10/10)
- Enhanced Water Quality Monitoring
  - Additional sampling of streams
  - Sampling of reef flat
  - Profiling beyond reef
- Low-volume Roads Engineering Training Workshops
- Design & Construction of Stream Crossings
- Re-grading of LaoLao Bay Drive
- LaoLao Bay Drive Minor Improvements

**NOAA-Funded/Managed Works - $1,470,773**
- .4 mile Road Paving & Drainage LauLau Bay Dr.
- Construction Management
- A/E Design for GapGap Rd. Paving & Drainage

**Total ARRA Funding:** $2,604,164

**Additional Funding:** $65,926 EPA grant
(for streamcrossings construction)
### Contractors & Vendors

1. GPPC, Inc.
2. TRL Consulting
3. Pacific Marine Resources Institute
4. MEGabyte Computer Service & Sales
7. Modern Stationary & Trading Co.
8. ACE Hardware
9. All Parts, Inc./Carquest
10. Aqua Connections, Inc.
11. Jin Yong Americana, Inc.
12. Representa Company
13. Shell Marianas/IP&E
14. Motion Automotive Repair Center
15. Pacific Quick Print & Post
16. R&M Enterprises
17. Tropical Gardens, Inc.
18. L&F, Inc.
19. Star Marianas, Inc.
20. CMS, Inc.
21. Younis Art Studio, Inc.
22. Saipan Tribune
23. White Coconut Computer Services
25. Hollywood Theaters Saipan
26. WERI* (7800+910)
27. CTSI Logistics
28. DHL Express* (500)
29. 670 Rock Steady Shop
30. Ideal Signs
31. Schobwuut Premier Consulting
32. Pacific Islands Club Saipan
33. Hyatt Regency Saipan
34. Seafix, Inc.
35. Sorensen Pacific Broadcasting, Inc.
36. KWAW 100.3 FM Saipan
37. Blue Continent Communications, Inc.
38. Hawaiian Rock Products
39. Swift & Harper Archaeological
40. Treetrans Systems (55,150)
41. IDEXX Laboratories, Inc. (4,879)
42. North Central Laboratories (3,233)
43. Hydroscape Products, Inc. (5,342)
44. YSI Incorporated (18,149)
45. Modern Laboratory Service (3,475)
46. DKSH Australia Pty. Ltd. (6,900)
47. Black & Veatch/Duenas Camacho (442,657)

### Contributing Agencies

1. Office of the Governor
2. Office of the Lt. Governor
3. Office of the Attorney General
4. Office of the Public Auditor
5. Treasury
6. Dept. of Finance
7. Procurement & Supply
8. Office of Personnel Management
9. Dept. of Public Works
10. Coastal Resources Management Office
11. Historic Preservation Office
12. DLNR Forestry
13. DLNR Division of Fish & Wildlife
14. Dept. of Public Lands
16. US Environmental Protection Agency (EPA)
17. US Fish & Wildlife Service
18. US Army Corps of Engineers

### Local Economic Impact

- ~$1.8 million into private sector
- ~$300,000 into government (4 DEQ jobs + indirect costs)
- **115 contracts & purchase orders processed**
LaoLao Bay Drive
Road Paving & Drainage

• Length: 0.4 mile (2,100 ft.)
• Cost: $1.47 million (incl. CM)
• Features: curb & catch basin system, subgrade drain pipe, concrete sediment chamber, gabion sediment chamber
• Completed: April 2012
LauLau Bay DriveRoad Paving & Drainage: Construction

36 in. diameter sub grade drain pipe

Excavating for drain pipe

Rip-rap slope & channel protection

Gabion sediment chamber

Sub grade drain pipe & catch basin system terminating at concrete sediment chamber

Asphalt paving
Additional Erosion Controls

Low-Volume Roads Engineering Training Workshops
- Conducted by US Forest Service engineers
- 5-day workshops conducted in 2010 & 2011
- 50+ attendees, including DPW and Mayor’s Office personnel from Saipan, Tinian, and Rota; private sector engineers and contractors; agency staff from DEQ, CRM, HPO, DLNR, CUC and NRCS.

LauLau Bay Dr. & GapGap Rd. Regrading
- DEQ – DPW partnership
- Utilized techniques from workshop training
- Length: 1.9 miles
- Completed: November 2011

Stream Crossings
- Engineering design & construction of reinforced concrete fords & rip-rap slope protection at 6 stream crossings
- Completed: September 2012
Stream Crossings: Before & After Photos (cont’d.)

Low Water Crossing #3 - Before

Low Water Crossing #3 - After

Low Water Crossing #5 - Before

Low Water Crossing #5 - After

Low Water Crossing #6 - Before

Low Water Crossing #6 - After
Revegetation

- DEQ partnership with DLNR, DFW, CRM & NRCS
- 14-acre deforested upland site
- Propagation & planting in 2010 & 2011
- Results:
  - 1,600+ plants representing 12 native species
  - 5,000+ linear feet of Vetiver grass
  - 68% overall survival rate
- Completed: September 2011
Marine Monitoring

- LaoLao Bay Coral Reef & Water Quality Monitoring Plan completed March 2010
- DEQ-CRM Marine Monitoring Team (MMT) trained in data collection methodologies
- Baseline ecological survey of reef flat and reef slope completed January 2011 (benthic, coral population, fish, macroinvertebrate data)
- Phase I report comparing current ecological data to 1992 study completed April 2011 (available online at www.pacmares.com/Laolao_Bay.html)
- Water quality monitoring of streams and reef flat
- Water quality profiling of outer reef
- Summary report completed September 2012
Awareness Campaign

- Stakeholder workshops
- Revegetation training (55 community volunteers)
- Beach signs for turtle protection & anti-littering installed at 2 locations
- Theater slide PSAs (Hollywood Theaters – 6 months)
- Radio PSAs (broadcast on 3 stations – 6 months)
- Informational brochures & posters distributed to 32 schools