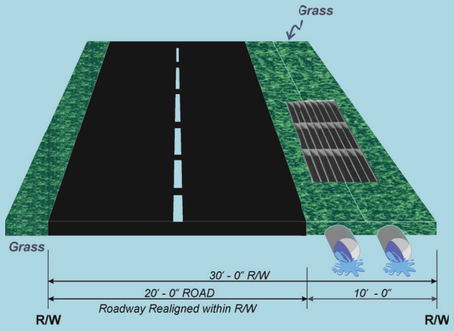
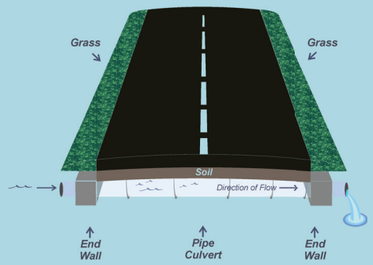
Tools We Can Use For Mitigation

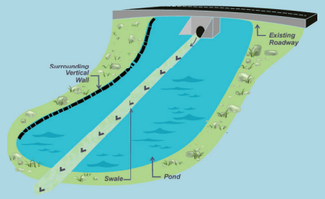
VERTICAL WELLS



INLETS / PIPES



CULVERT UNDER EXISTING ROADWAY



FLOOD STORAGE

For Additional Information about this interesting project, please contact

Ms. Marion Pandohie, AICP, Transportation Planner
Cayman Islands Government
Ministry of Communications, Works & Infrastructure (CW&I)
National Roads Authority (NRA)
370 North Sound Road, P.O. Box 10426
Grand Cayman KYI-1004
Cayman Islands
Tel: (345) 946-7780
Email: Marion.Pandohie@gov.ky

Project Consultant

Orth-Rodgers & Associates, Inc.
TRANSPORTATION ENGINEERS and PLANNERS

Steven B. Bolt, PE, PTOE - Principal
Email: sbolt@orth-rodgers.com

Katherine M. Farrow - Project Manager
Email: kfarrow@orth-rodgers.com

www.orth-rodgers.com

The Ministry of Comunications, Works, & Infrastructure along with the National Roads Authority appreciate your interest in the development of this project.

Savannah Gully

Flood and Storm Surge Mitigation Project

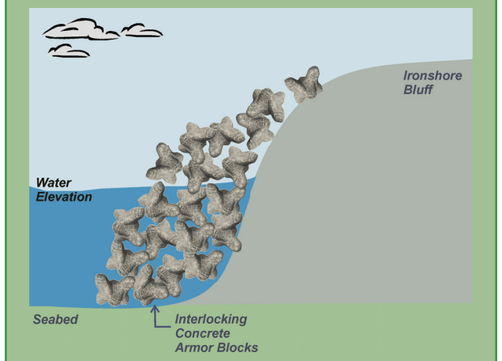
Engineering Toolbox of Potential Prevention and Mitigation Options

NATIONAL ROADS AUTHORITY

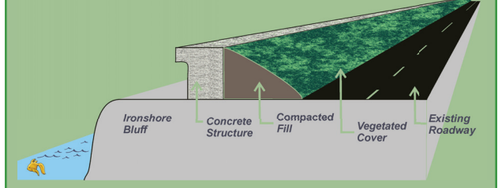
Cayman Islands Government
Public Works Department
National Roads Authority

October, 2006

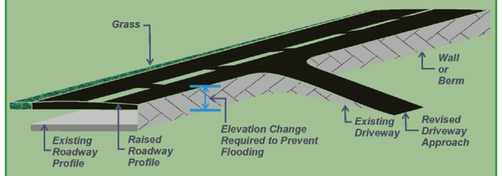
Tools We Can Use For Prevention



COASTAL ARMORING



FLOOD PREVENTION STRUCTURE



RAISE ROADWAY PROFILE

Mitigation Measures

TOOL	PROS	CONS
Vertical Drainage Wells	• Ease of construction • Familiar technology • Site specific solution	• Limited flood mitigation benefits/ effectiveness • Required maintenance • Potential for groundwater mounding • Potential to impact fresh water lens • Storm surge will reach inland
Surface Flood Water Conveyance via Pipes and Channels	• Manages inland flood water • Utilizes existing roadway Right - of - Way	• Maintenance & protection of traffic • Stormwater pump/lift stations and/or flap gates • Future maintenance • May result in standing water in channels over time • Does not prevent storm surge from reaching inland • May require private property • Reliability of system
Construct Culverts Under Existing Roadways to Maintain Access	• Improves emergency access during flooding	• Limited flood mitigation benefits • Will require private property to construct • Does not prevent storm surge from reaching inland • May create more flooding further inland
Flood Storage (Basins)	• Inland flood water management • Engineered solution to capture flood waters • May allow expansion to accommodate future development	• Potential for limited storage capacity • May require substantial property • Lack of feasible storage or basin locations • May result in standing water over time • Does not prevent storm surge from reaching inland

Prevention Measures

TOOL	PROS	CONS
Coastal Armoring	• Potential for shorter construction duration • Dissipates wave action at entrance points • Limits surge flooding inland associated with battering wave action • Least direct impact to public	• Potential environmental impacts • Land under jurisdiction of Crown • Private property required • Maintenance • Concern over potential for armoring to break off and cause property damage
Flood Prevention Structure (Floodwall)	• Less direct impact to public • Limits surge flooding inland	• Constructability and geotechnical concerns • Private property required • Environmental Impacts • Costs of aesthetic treatments
Roadway Profile	• Minor environmental impacts • Use of existing infrastructure • Minimal private property required • Limits surge flooding inland	• Maintenance & protection of traffic during construction • Aesthetic impacts • Private property access concerns • May result in severe flooding if design storm is exceeded