

## 1. ST. GEORGE'S TOWN AND ENVIRONS - ST. GEORGE'S PARISH

### General Statement

St. George's with a population of 6,460 (1985 est.) is the major urban center and is famous for being the most scenic capital city in the Caribbean. The St. George's Harbour, naturally formed from a sunken calderas provides excellent shipping access for both commercial and tourism purposes. It is slated for dredging and restoration.

Most major roads have been upgraded in the St. George's region but parking problems and traffic congestion are minor problems which require adequate transportation planning.

Communities on the border of St. George's are witnessing environmental and socio-economic problems from crowding, inadequate sewage disposal and a lack of water supply. As St. George's is the major employment area in the country, squatting on Government lands is becoming a problem, specially in the River Road and Grand Anse Valley areas. Inadequate sewerage and water facilities present health problems for these residents. Informal housing areas such as these will continue to spring up if sound land management planning is not implemented.

The Government of Grenada has indicated as a major priority, the regulation of the squatting problem. The OAS is assisting in the socio-economic analysis of the River Road and Grand Anse Valley settlements. Low interest loans will hopefully be made available to the residents. The land will be subdivided and plots ranging from 3,000-6,000 square feet and will be sold at a price which justifies development of sewerage, water, transportation facilities and services. These two settlements will receive priority attention as part of an OAS assisted St. George's Development Plan to be completed in 1989.

Swells bring high seas to all towns along the west coast and St. George's which is the capital and hub of Grenada's economic life is vulnerable to swells and to storm surge which caused considerable damage to the port.

The population in the parish of St. George's was recorded to have 24,581 habitants living in approximately 45-54 settlements. One of these settlements is ST. PAUL located one mile from St. George's town by the Eastern Coastal road. St Paul is located in a densely populated area and plays a major role as being a decentralized residential zone from St. George's town.

## 1.1 IDENTIFICATION OF PROBLEM AND RISK

1.1.1 Matrix: \*St. George's, River Road and St. Paul

<u>INFRASTRUCTURE</u>	<u>HAZARD</u>	<u>CAUSE-EFFECT LINK</u>	<u>FREQUENCY PATTERN</u>	<u>FACTORS TO BE NOTED</u>	<u>CONDITION</u> 4:excellent 3:good 2:fair 1:poor 0:none	<u>REMARKS</u>
					*SG SP RR	
<u>1. TRANSPORTATION</u>				<u>Roads:</u>		
Roads	Windstorm	Poor Drainage	Heavy rainfall	.Proximity to cliffs	2 4 3	
	Rainstorm	Silting	Hurricane season	and shoreline.	3 2 1	Dumping of garbage.
	Tidal surge	Erosion		.Building lines in	1 3 1	Storing of
	Flood	Damage		relation to width.		building materials
	Landslide	Low lying land		.Surface condition and	2 2 3	at roadside.
	Rockslide	Steep embankment		maintenance.		
		Elevation of road				
		Rotting poles (utility)				
		Damaged seawall				
		River overflow				
		Cracked retaining wall				
		Blocked culvert				
Bridges	Windstorm	Poor drainage	Heavy rainfall	<u>bridge:</u>		
	Rainstorm	Wood rot	Hurricane season	.Age and structural	1 2 -	
	Flood	Erosion		stability.		
	Landslide	Flash flood		.Load capacity	1 3 -	
		Bottom of water shed.		.River banks	- 2 -	
		Old bridge remain		.Tree trunks	1 2 1	Garbage dump
		Steep embankment top.		.Obstruction in river bed from boulders.	1 4 2	Erosion banks
Seaport/ Marinas	Tidal surge	Faulty pump	Heavy rainfall	.Ocean Depths	4 - -	
	Rainstorm	River overflow	Hurricane season	.Damage wharves	3 - -	
	Wave action	Poor drainage		.Erosion of shoreline	2 - -	
	Flood	Blocked culvert		.Absence of navigational beacon.	2 - -	
		Debris washes out to harbour.		.Silting from drains	2 - -	
		Damage		.Debris and floatsam heavy rains.	2 - -	
				.Jetties	2 - -	
				.Storage sheds	3 - -	

.Sea walls	2	-	-	On the area of
.Toxic pollution	2	-	-	Carenage and
.Markers buoys	3	-	-	Esplanade, sea-
.Wrecks	2	-	-	wall is showing
.Dock equipment	3	-	-	significant

stress and may collapse if reinforcement is not constructed. Area Carenage Esplanade market square area.

Pollution    Chaneling of    Continous  
grey water and  
raw sewage into  
drains

St. George's and  
Grand Anse area  
are densely  
populated.  
pesticides do  
impact marine life  
of St. George's  
and Grand Anse  
bays.

Dumping of    Continous  
garbage along  
rivers and cliffs

Washes-up on  
Grand Anse beach.

## 2. COMMUNICATION

Telephone	Landslide	Poles topple over
Postal	Rainstorm	Trees damages lines
Radio		

### Telephone:

.Location of poles	2	3	1	Too close to road
.Condition of poles and stays, siting of public boxes.	3	0	2	
.Height of overhead lines	1	4	3	
.Overhanging trees and foliage over transmission lines.	2	3	1	Problem throughout the island.

### Postal:

.Location	3	1	3	Post office on bank of river about 10 ft. away on same elevation.
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Windstorm	Toppling of antennas	Heavy rainfall
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.Security	1	1	0
<u>Radio:</u>			
.Location of station, masts and stays.	1	-	0
.Quality of transmission: emergency.	3	3	0
Power supply	3	3	4
Security	2	-	0

3. HEALTH

Hospital Health center	Windstorm	Poor drainage		.Hospital,	2	2	0	None in const. but general is about 1 mile away.	
	Rainstorm	Damage		medical station					
	Flood			.Location of structure	3	4	0		
	Landslide			away from flood areas.					
	Fire			.Access to community	-	3	4		1 mi. away nearest H.C. Esplanade which is subject to storm surge.
				by motor vehicle.					
				.State of repair of building.	1	2	3		
			.Equipment to be servicable.	2	0	-			
			.Proper disposal of wastes.	2	1	-			
			.Pleasant landscaping	1	2	0			

4. EDUCATION

Classroom buildings and playgrounds	Windstorm	Poor drainage	Heavy rainfall	.Location of buildings	2	2	1	Located about 20" from river bank on same elevation in part.
	Rainstorm	River overflow	Hurricane season	.Proximity to settlements	2	3	4	
	Flood	Blocked culvert	At high tide	.Proper & regular mainte- tenance of building.	2	2	-	
	Landslide	Silting		.Adequate space around building to avoid stampede in emergency.	2	-	4	
		Flash flood		.Adequate toilet facilities.	-	2	3	
				.Basic amenities of water and electricity.		1	3	

5. SERVICE

Water	Windstorm	Poor drainage	Heavy rainfall	<u>Water:</u>					
	Rainstorm	Blocked culvert	Hurricane season	.Maintenance of dams, reservoirs and service lines, public and domestic supply lines.	3	2	3		
	Flood	Faulty pump		.Eliminate waste	3	2	2		
		Wood rot							
		Erosion							
Sewerage		Damage		<u>Sewerage:</u>					
		Flash Flood		.Monitor outfalls of public discharge.	3	0	1		
		Debris piles NR		.Check private disposal systems.	2	0	2		Only in time of problems.
Public Buildings, Fire and	Windstorm	Poor drainage	Heavy rainfall	<u>Fire:</u>					
	Flood			.Adequately staffed station.	1	1	-		Nearest one is on Carenage (2
	Rainstorm								

Police  
Stations

.Equipment to include 1 0 - miles away).  
life saving.  
.Police to control 3 2 2  
traffic in emergency.  
.Regular checks of equipt. 1 0 -  
.Location and mainte-  
nance of fire hydrants.  
.Advice on location of 3 0 -  
gasoline stations.  
Police:  
.Immediate response to 1 0 1 Takes too long  
fires and criminal to arrive.  
disturbances.  
.Carry-out regular check 2 2 0  
of industrial and  
commercial premises.

6. Energy

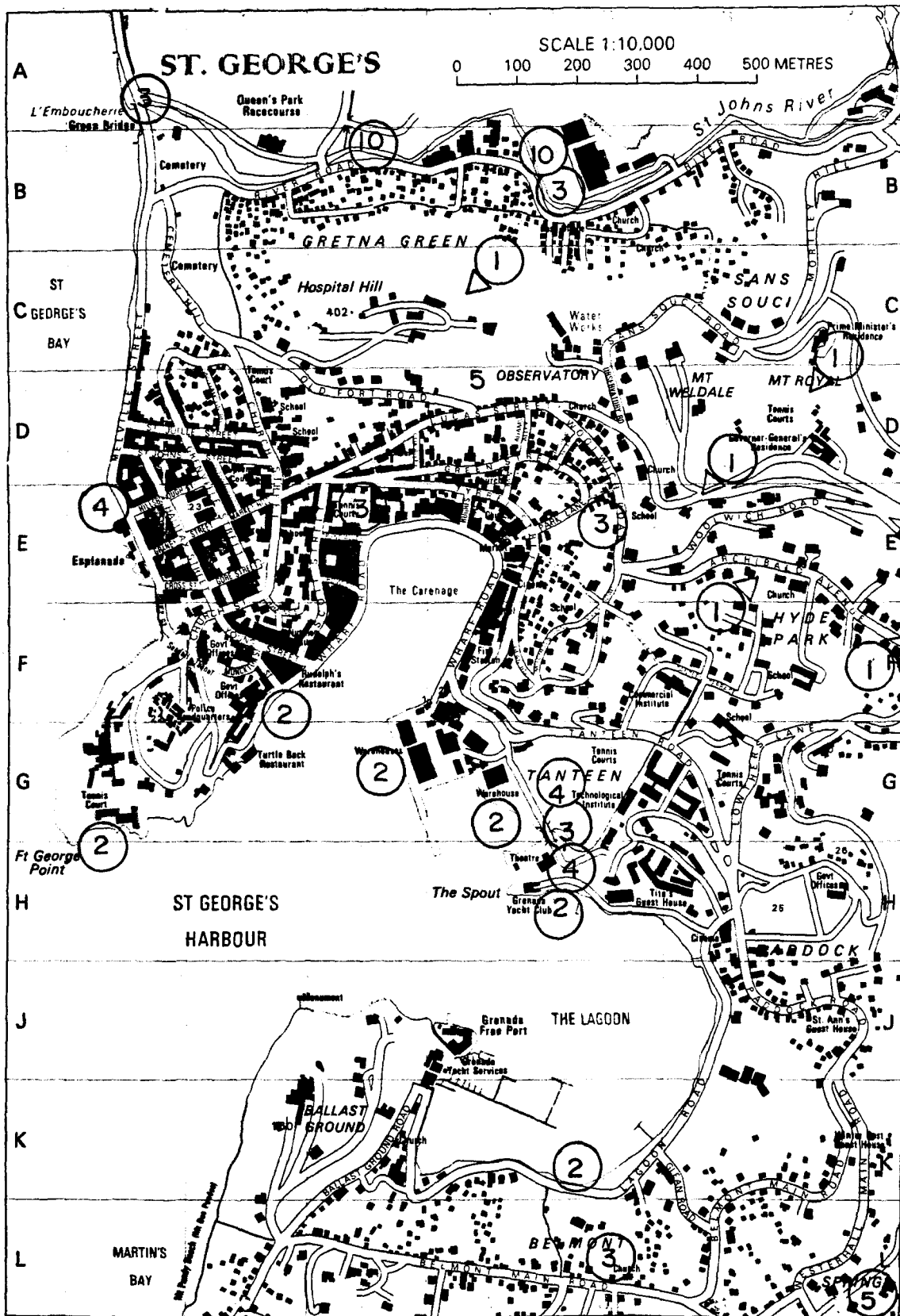
Windstorm Overloaded  
Landslide poles.  
Overhanging  
trees.  
Wood rot

Heavy rainfall

Electricity:  
.Faulty electricity poles 4 3 3 Not too often  
.Sagging lines 3 1 3 but more so  
after heavy rn.  
.Interruptions of service 2 2 2 Most time with  
radio notice.  
.Load shedding 2 2 2  
.Location of poles near 1 2 1  
roadway.  
.Transformer location and 2 3 3 About 1/4 mile  
maintenance. away at queen's  
.Tree cropping 2 2 - park.

Fire

Petrol-gas:  
.Retail gas stations in 3 0 2 Not in to  
built-up areas and pro- populated area.  
ximity to schools, hosptl. Not close to  
and community halls. school.  
.Location of bulk storage 2 0 2 About 3 miles  
tanks retail outlets for from community  
gas cylinders. close to grand  
mall community.



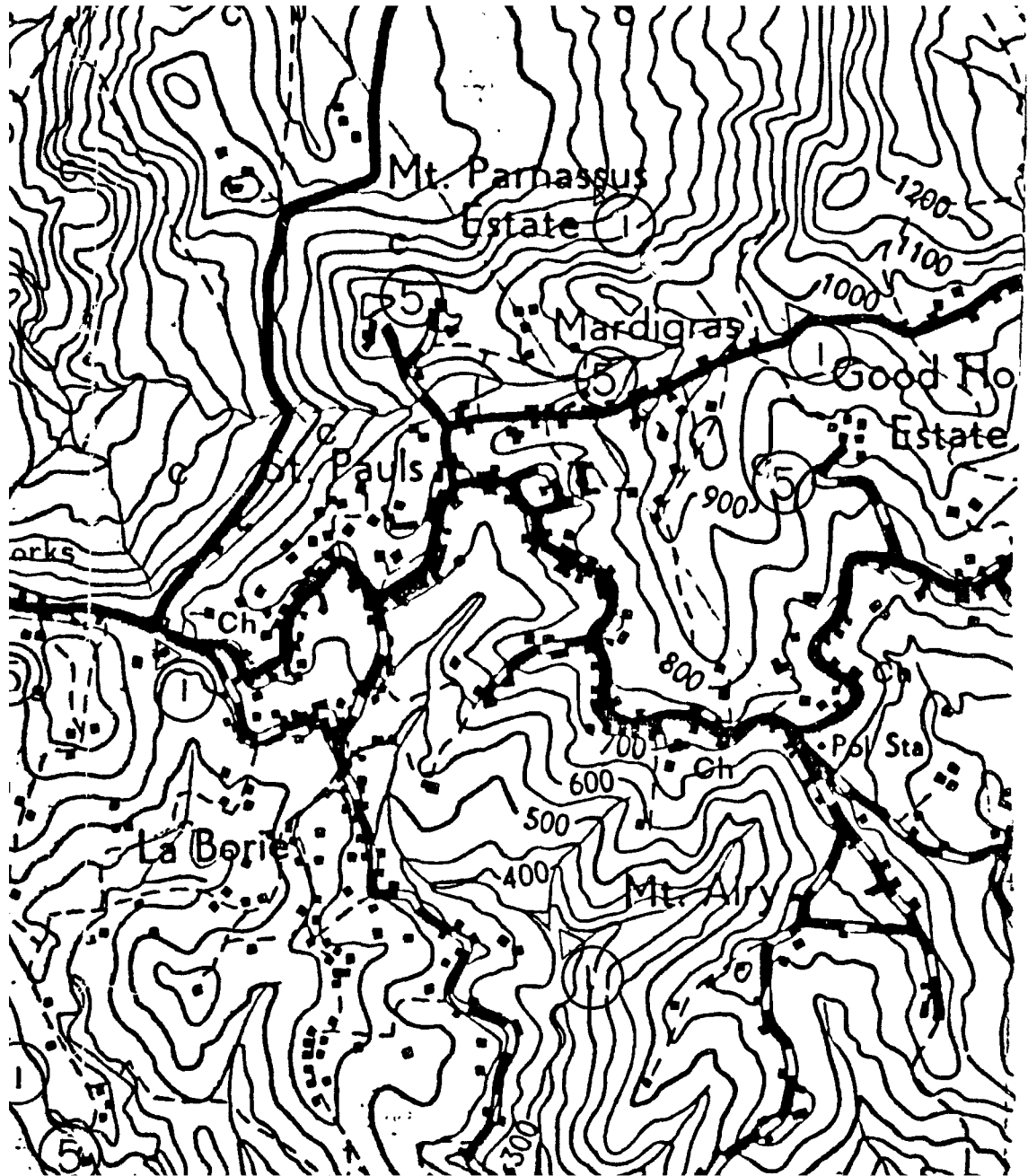
1.1.2

**RISK ASSESSMENT MAP**

**St. George's  
Parish St. George  
Scale 1:10000**

Type of hazard

- |                            |  |
|----------------------------|--|
| 1. Wind Action             | 7. Erosion   |
| 2. Wave Action/Storm Surge | 8. Explosion and Fire                                    |
| 3. Flood                   | 9. Silting   |
| 4. Earthquake and Landfill | 10. Area of poor housing/<br>High density/Low Sanitation |
| 5. Landslide/Slippage      | 11. Subsidence   |
| 6. Rockslide               |  |



1.1.2

**RISK ASSESSMENT MAP**

**St. Paul**

**Parish St. George**

**Scale 1:12500**



Type of hazard

- |                            |  |
|----------------------------|--|
| 1. Wind Action             | 7. Erosion   |
| 2. Wave Action/Storm Surge | 8. Explosion and Fire                                    |
| 3. Flood                   | 9. Silting   |
| 4. Earthquake and Landfill | 10. Area of poor housing/<br>High density/Low Sanitation |
| 5. Landslide/Slippage      | 11. Subsidence   |
| 6. Rockslide               |  |

## 1.2 RECOMMENDED ACTIONS

1.2.1 Short Term Action	Responsible Agency
.Reinforce sea wall on the Esplanade.	Ministry of works
.Review existing housing and foundation conditions in St. George's specifically on steep slopes. Make recommendations to homeowners to strengthen where necessary the foundations and secure parts of the houses which appear fragile to hurricane damage.	Ministry of Planning. PPU
.Desilt drains along Market Square and the Carenage.	Ministry of Works
.Prohibit garbage dumping in all drains and rivers by forming a solid waste management policy which is backed up effective Anti-litter legislation.	Ministry of Health Central Water Commission
.Clean-out derelict port in St. Georges Harbor.	Ports Authority
.Dredge silted up areas in St. George's Harbor as indicated by the Harbor master.	Ports Authority
.Design of buildings of more than 2 stories in central St. George's should consider resistance to seismic forms and actions.	Physical Planning Unit
.Increase Fire Hydrants within-the city- construct storage tank to used for fire and emergencies.	Fire Dept. and Central Water Commission
.Continues to monitor and trim branches and trees affecting	Forest Division Comm. and Works
1.2.2 Long Term Action	Responsible Agency
.Complete St. George's Development Plan which establishes a policy for building on steep and moderate slopes, traffic, parking emergency evacuation, and procedures during the event of fire.	Physical Planning Unit



- .Update drainage pipes for the slopes which drain into the Carenage and Esplanade. Ministry of Works
- .Implement sewer extension up the St. John's River to service River Road residents and Tempe region industry. Ministry of Works
- .Prepare and implement proposals for regulation of squatter problems in Grand Anse Valley and River Road. Physical Planning Surveys Dept.  
Completion of a sewage cutfall off the St. John's river, implement the same operation in other affected areas.
- .A sewage treatment plant for Grand Anse is recommended, which will alleviate the quality problem in Grand Anse. Ministry of Health  
Central Water Commission
- .Formulate a solid waste management plan.
- .Gradually improve older housing areas.



Dumping garbage in the streets of St. George's town.



Chattel Development (slope) - Grand Anse Valley-Parish St. George's



Chattel development (slope) - River Road - Parish St. George's