


# SHELTER PROFILES

An aerial photograph of a residential area in The Bahamas. In the foreground, a row of white, dome-shaped emergency shelters is situated along a road. The background shows a neighborhood with houses, some of which appear to be damaged or in various states of repair. A large white bracket is superimposed over the center of the image, framing the title text.

## ASSESSMENT OF PREPAREDNESS OF EMERGENCY SHELTERS ON GRAND BAHAMA AND THE ABACO ISLANDS FOR 2020 HURRICANE SEASON

THE BAHAMAS, MARCH 2020



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## 7.2 Shelter Summaries

### 7.2.1 St. Georges School Gym, Freeport – Grand Bahama

<b>GPS:</b>	26.5127, -78.6830	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Dwight Gavi & Mr. Keith Barr	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	26 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	School Gym	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	780m2 (excluding bleachers)	<b>Capacity</b>	400
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	520	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	220
<b>Toilets</b>	6 Male + 6 Female (plumbing in poor shape)	<b>Showers</b>	10 (plumbing in poor shape)
<b>Lighting/Ventilation</b>	Limited natural light	<b>Cooking facilities</b>	Excellent space, under equipped
<b>Generator</b>	Generator delivered by NEMA a few days before Dorian.	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank which doesn't work well due to water pressure issues.
<b>Roof</b>	Gable CGI roof, not in good repair with multiple leaks.	<b>Windows/Shutters</b>	Plastic with ok shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

#### Catchment Area:

This was not on the official shelter list, having failed the government inspection due to building maintenance issues, however, was opened up due to high demand, and housed 400 people until December. It was the only long-term collective centre utilized on Grand Bahama. Freeport has a population of c.27,000 and a combined emergency shelter capacity of 1,300.

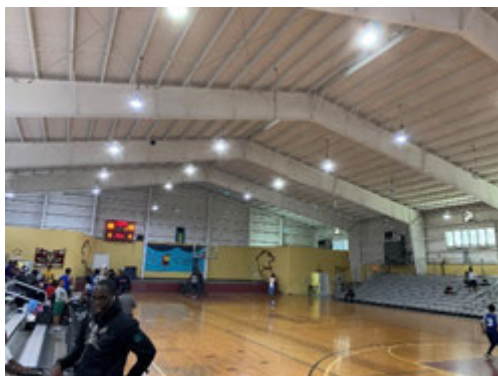
#### Map:



## Exterior:



## Interior:

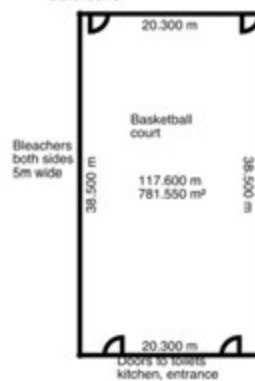


Hall (excluding bleachers): 780m<sup>2</sup> (38.5m x 20.3m)

## Plan (of living area):

ST GEORGES HIGH GYM FREEPORT  
EIGHT MILE GYM WEST G.B.  
JACK HAYWOOD GYM FREEPORT

Doors to changing rooms,  
store rooms



#### Issues:



The building is not in excellent state of repair, with roof, door and window issues as illustrated by these photos.

#### Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Gym is on flat ground with spacious grounds. Large school next door, which could potentially also be used.</li> <li>Gym did not flood during Dorian, although there was flooding on the main road a few hundred metres away.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Very spacious hall, with significantly sized kitchen, many toilets and showers, and storage areas.</li> <li>Not maintained well, with evidence of water ingress through the roof, plumbing not working adequately, and a general state of disrepair, although in better shape than the gym at 8-mile rock.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Large kitchen, but not adequately equipped. People ate dried food or used small burner stoves during Dorian. No generator in place. Not enough first aid kits / fire extinguishers. Many toilets and showers but plumbing not working adequately.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water).</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>School staff + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	POOR	<ul style="list-style-type: none"> <li>See prior comments. Significant maintenance required.</li> <li>No drills</li> </ul>

#### Experience during Dorian:

- Although not on official list, it was activated for Dorian due to the severity / large demand. It stayed open as the only collective centre on the island until December.
- Although it served its purpose, the poor maintenance of the building, unequipped kitchen facilities and plumbing issues made the whole experience very uncomfortable for the 400 people staying there.
- It did not flood, but there was flooding on the road in front of the school caused by a combination of storm surge and poor drainage maintenance.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Renovate the building to bring it up to standard, including:             <ul style="list-style-type: none"> <li>○ Fitting out kitchen</li> <li>○ Fixing roof, and other structural issues</li> <li>○ Fixing plumbing issue</li> <li>○ Addition of more fire extinguishers and first aid kits</li> <li>○ Install permanent generator</li> <li>○ Emergency lighting (solar lights / torches)</li> <li>○ New, more sophisticated telecoms system for better communication with EOC</li> <li>○ Emergency equipment and supplies stored on-site.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The building has a capacity for 220 people on a longer-term basis</li> <li>• It has the space and the facilities to be ideal for this purpose, and if the recommended improvements are made to bring it up to standard for an emergency evacuation shelter it would suffice for longer term stays.</li> </ul>

### **Overall Summary:**

- The school was not on the official list because of roof and plumbing repairs required but was called into action due to demand for shelters. Although large it was not great with leaks and poor facilities, supplies and communication.
- With a strong maintenance / upgrade progress this could be very good for both emergency evacuation and as a longer-term collective centre, albeit being on a school site, strict measures would be required on protection if it was used for longer than a few days if school was running.



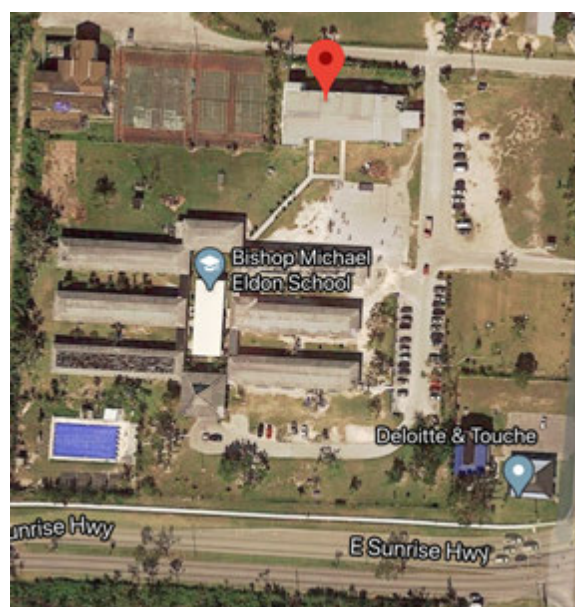
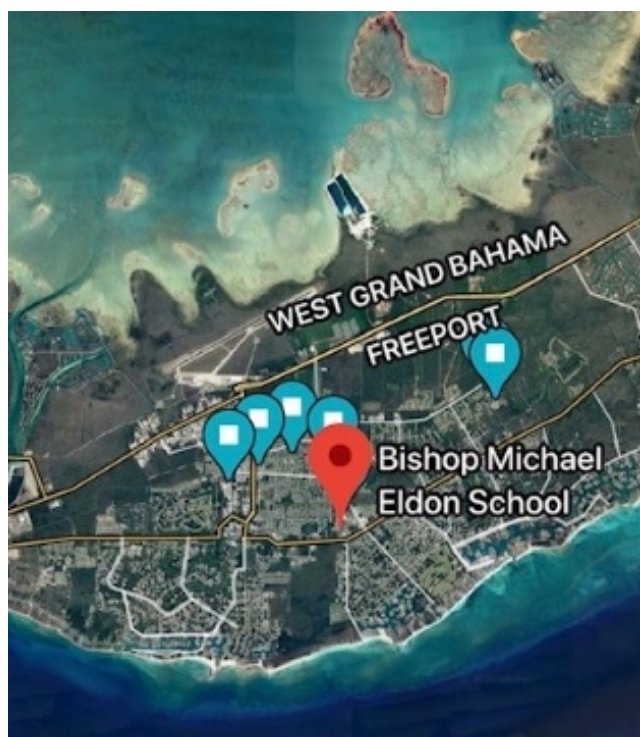
## 7.2.2 Bishop Michael Eldon Secondary School, Freeport – Grand Bahama

<b>GPS:</b>	26.5177, - 78.6738	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Sheryl Wood	<b>Shelter Owner</b>	Anglican Central Education Authority
<b>Date of Assessment:</b>	28 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Secondary School Hall	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	510m <sup>2</sup>	<b>Capacity</b>	400. 75 housed during Dorian
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	340	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	115
<b>Toilets</b>	7 Male + 7 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Excellent
<b>Generator</b>	Generator supplied by NEMA a few days before.	<b>Water / Waste</b>	Water tanks supplied a few days before onsite; Septic tank which fared ok.
<b>Roof</b>	Gable CGI roof with shallow pitch. Fared ok during Dorian with minor leaks.	<b>Windows/Shutters</b>	Louvered glass with shutters on lower windows. Plain glass with no shutters on upper windows.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

This is one of 10 shelters on the Government list for Freeport, which has a population of c.27,000. The combined official capacity of these 10 for emergency purposes of 1,300.

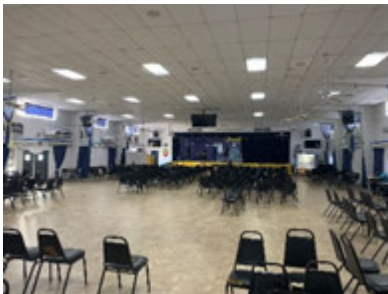
### Map:



# Exterior:



# Interior:



510m<sup>2</sup> (30.0m x 17.1m)

# Interior & Plan (of living area):



Leica DISTO™ Plan 16:35:17 03.03.2020

# Issues:



Minor leak in roof in corner of building



### **Shelter Assessment (Current State of Preparedness)**

<b>Shelter Area</b>	<b>Assessment</b>	<b>Notable Observations</b>
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>School is on a large plot of land with spacious grounds, and no dangerous trees/pylons/access issues. Large car park.</li> <li>School classrooms could potentially be used as additional shelters.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Large complex. Generally, robustly built building, largely made of concrete.</li> <li>There was a minor leak in the roof of the hall during Dorian, which still needs to be fully repaired.</li> <li>Could benefit from more robust glass windows and shutters on upper windows.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Commercially kitted out, well equipped kitchen. No generator in place, and none provided by NEMA. Additional first aid kits / fire extinguishers would be beneficial. Good toilet facilities. No shower. Reliant on supply potable water from Rotary and limited food from Govt (evacuees meant to bring their own). Telecoms equipment insufficient.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well, although for an unknown reason there were only 75 evacuees (capacity = 400)</li> <li>Communication with EOC managed by social services but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out.</li> <li>Operational school so ongoing maintenance done to a certain degree.</li> <li>No drills.</li> </ul>

### **Experience during Dorian: ADEQUATE**

- Shelter was used during Dorian, but with 75 evacuees, it wasn't at the full capacity (why?) of 200.
- Shelter held up well to Dorian with no flooding, however there was a minor leak in the roof.
- In general, worked well. Robust building and good facilities (toilets, kitchen)

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Completion of roof repair after damage in Dorian.</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> <li>The auditorium is the only designated shelter, but the school caters to 1100 students so has a great many classrooms that could act as a shelter to vastly more people. There were only a couple of rooms that sustained minor roof damage. On higher ground and did not flood.</li> </ul>	<ul style="list-style-type: none"> <li>This complex (including the classrooms) could act as a collective centre for a longer period of time, however it would disrupt the school and so is not recommended. Alternatively, the auditorium could be used for a longer period for a small capacity.</li> <li>Additional changes would need to be made to include more showers, and to check over the roofing.</li> </ul>

### **Overall Summary:**

- The school hall/gym fared ok during Dorian, albeit with some minor roof leaks.
- Centre is adequately equipped and prepared. Pre-positioned equipment and supplies to act as an evacuation shelter.
- The school (not used) could be considered to greatly increase capacity for a short time.
- Not really suitable for long term shelter as it is a school.

### 7.2.3 Cancer Association, Freeport –Grand Bahama

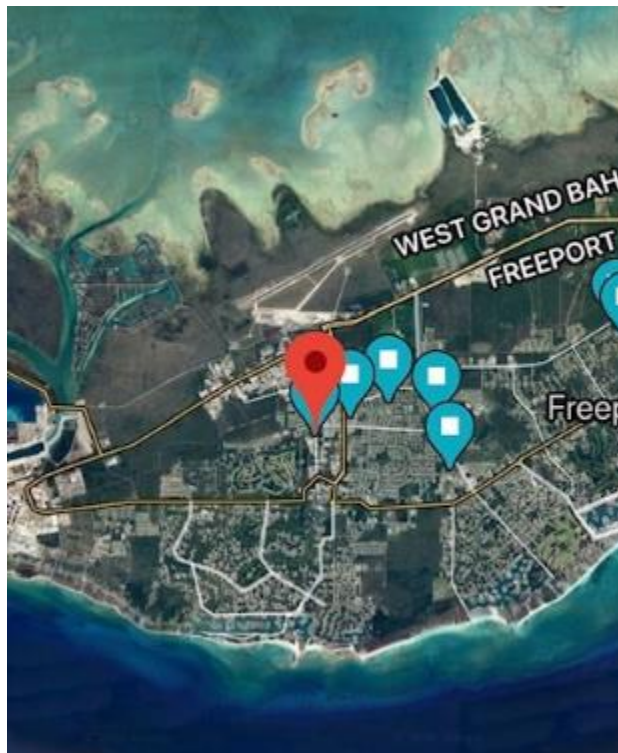
<b>GPS:</b>	26.5278, - 78.6989	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	None available	<b>Shelter Owner</b>	Cancer Association
<b>Date of Assessment:</b>	Not assessed	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Hall	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	Unknown	<b>Capacity</b>	35
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	Unknown	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	Unknown
<b>Toilets</b>	1male + 1 Female	<b>Showers</b>	None. 2 Bathtubs
<b>Lighting/Ventilation</b>	Unknown	<b>Cooking facilities</b>	Unknown
<b>Generator</b>	Unknown	<b>Water / Waste</b>	Unknown
<b>Roof</b>	Gable shingle roof damaged during Dorian. In need of repair.	<b>Windows/Shutters</b>	Unknown
<b>Comms</b>	None on site	<b>Disability Access</b>	No - steps at front

**We could not get access to this facility.**

#### **Catchment Area:**

This is a specialist shelter for cancer patients, the only one in Grand Bahama, and with the Foster Pestina centre, one of two specialist shelters. The combined official capacity of these 2 shelters is 235, for a population of over 55,000 on Grand Bahama.

#### **Map:**



**Photos:**



**Overall Summary:**

- A specialist centre for cancer patients, it was effectively used during Dorian and fared well, with no flooding and no damage to the building.
- The facility could do with some minor upgrades and improvement in equipment, and pre-positioned supplies to act as an evacuation shelter for a small specialist group.
- Could be used to provide longer term shelter for patients with special needs.



## 7.2.4 Cavalry Temple, Freeport – Grand Bahama

<b>GPS:</b>	26.5214, -78.6732	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Pastor Clarke, Arlene Sands, & Mervin Dean	<b>Shelter Owner</b>	Seventh Day Adventist Church
<b>Date of Assessment:</b>	2 <sup>nd</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church Hall	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	140m <sup>2</sup> (hall) + c.530m <sup>2</sup> (Chapel)	<b>Capacity</b>	75 (120 housed during Dorian at peak)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	200 (hall only)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	85 (hall only)
<b>Toilets</b>	2 Male + 2 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	No natural light	<b>Cooking facilities</b>	Destroyed during Dorian
<b>Generator</b>	Small generator delivered a few days before Dorian by NEMA	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank.
<b>Roof</b>	Gable shingle roof. No damage during Dorian (renovated after Mathew).	<b>Windows/Shutters</b>	Plain glass with some metal shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

This is one of 10 shelters on the Government list for Freeport, which has a population of c.27,000. The combined official capacity of these 10 for emergency purposes of 1,300.

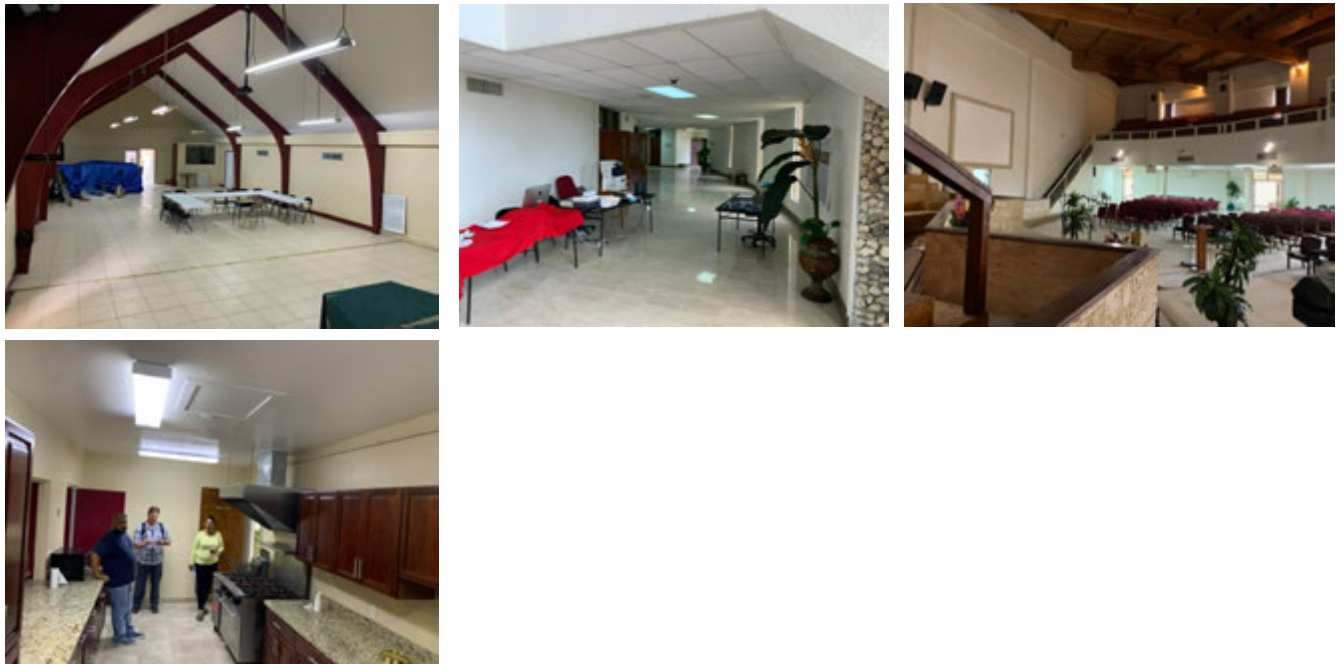
### Map:



## Exterior:

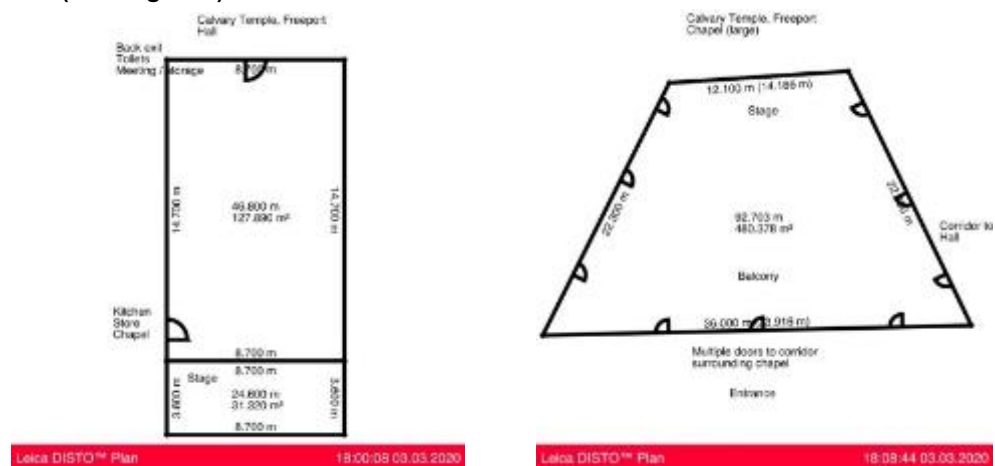


## Interior:



Community Area: 140m<sup>2</sup> (16.4m x 8.7m); Kitchen; Church 530m<sup>2</sup> (22.3m x 24m)

## Plan (of living area):



1.Church hall, 2. Chapel

## Issues:



Extensive flood damage to building – shown by toilet and storage area being repaired.

## Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Church complex on flat ground with spacious grounds close to large population.</li> <li>Considerable flooding during Dorian, forcing evacuees to first go to the chapel, and then to the balcony of the chapel.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Very robustly built building, with a new roof installed after Mathew.</li> <li>However, the surrounding area was severely flooded, which forced evacuees to seek refuge on the balcony of the chapel, and ruined kitchen equipment, furniture, carpets and walls. Access to cooking and toilets became very limited at that time. Room for evacuees has no natural light.</li> <li>Could benefit from more robust glass windows and shutters on windows without shutters.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Kitchen was well equipped but needs re-equipping after Dorian. No fire extinguishers observed.</li> <li>Toilet facilities adequate but being repaired. No shower.</li> <li>Reliant on supply of generator, potable water and food from Govt / Rotary.</li> <li>Telecoms equipment insufficient.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

## Experience during Dorian: POOR

- With a nominated capacity of 75, the shelter accepted c.120 people at the start of Dorian, which grew to 200. After a day the hall flooded and everyone evacuated to the chapel, and eventually evacuated to the balcony when the chapel flooded.
- If not for the flooding, the centre would have fared well.



### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Completion of building renovation after damage in Dorian (walls, flooring, toilet)</li> <li>• Re-kitting out kitchen with equipment and supplies</li> <li>• Additional fire extinguishers</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• The building nominated for a shelter is 305m<sup>2</sup> and is quite separate from the main chapel. Capable of housing c. 75 people on a longer basis with some modifications (addition of showers) however there are better, larger options.</li> </ul>

### **Overall Summary:**

- The community centre and chapel fared badly during Dorian, due to flooding forcing evacuees to flee to chapel balcony. Apart from the flooding it's a spacious, well-built building in the centre of a high-density populated area.
- Church in process of being repaired and re-equipped. Additionally, needs pre-positioned equipment and supplies to act as an evacuation shelter.
- Not suitable for a long-term shelter, due to community centre being too small and without light and the chapel being needed for the community.

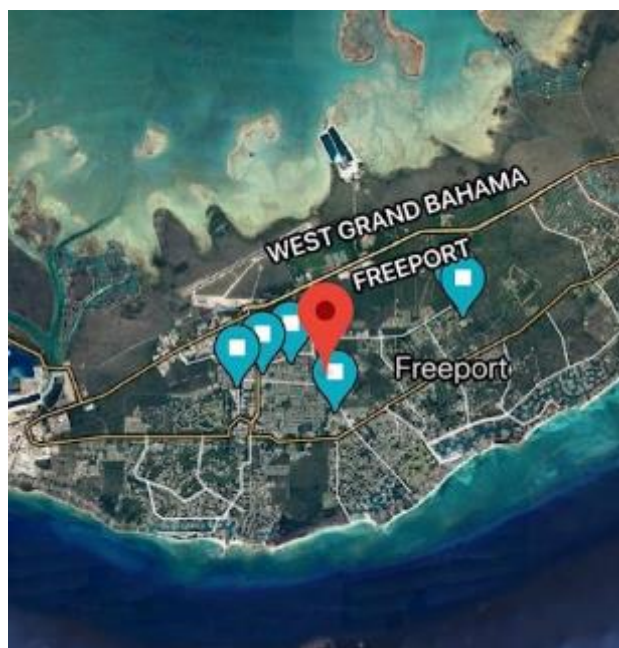
## 7.2.5 Central Church of God, Freeport – Grand Bahama

<b>GPS:</b>	26.5300, - 78.6756	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Bishop Steve Dean	<b>Shelter Owner</b>	Central Church of God
<b>Date of Assessment:</b>	1 <sup>st</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church hall	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	190m <sup>2</sup> (hall) + 280m <sup>2</sup> (Chapel, not part of official shelter)	<b>Capacity</b>	120+ housed during Dorian.
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	125 (Hall only)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	55 (Hall only)
<b>Toilets</b>	3 Male + 3 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Excellent space, but equipment destroyed by flooding
<b>Generator</b>	Small generator delivered a few days before Dorian by NEMA	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank.
<b>Roof</b>	Gable CGI roof, partially minor damaged during Dorian, currently being repaired	<b>Windows/Shutters</b>	Louvered glass in good condition. No shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

This is one of 10 shelters on the Government list for Freeport, which has a population of c.27,000. The combined official capacity of these 10 for emergency purposes of 1,300.

### Map:



## Exterior:



## Interior:



Community Area: 190m<sup>2</sup> (17.1m x 11.1m); Church 280m<sup>2</sup> (21.0m x 13.4m)

## Plan (of living area):



## Issues:



Church flooded causing damage to furniture and cooking equipment. Some minor roof damage.



### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Church complex on flat ground with spacious grounds.</li> <li>Church flooded during Dorian.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Generally, robustly built building, however, site was compromised when building flooded. The entire shelter area had to be evacuated to the stage in the chapel. Access to cooking and toilets became very limited at that time.</li> <li>Some minor roof damage which needs to be repaired.</li> <li>Could benefit from more robust glass windows and shutters.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Kitchen is sizeable and being re-equipped after Dorian.</li> <li>Generator provided by NEMA.</li> <li>No first aid kits / fire extinguishers.</li> <li>Good toilet facilities, but no shower.</li> <li>Reliant on supply potable water from Rotary and limited food from Govt (evacuees meant to bring their own).</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services, but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

### **Experience during Dorian: POOR**

- The shelter accepted about 120 people at the start of Dorian. After a day the facility flooded and everyone evacuated to the chapel until the waters receded and then the evacuees returned to their homes, many of which had been flooded.
- Structural damage was limited to some minor roof damage.
- The initial shelter was relatively well set up and run, although would have benefitted with more food, water, emergency equipment and better communication system. There were no reported protection issues.

### **Recommended Improvements:**

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Completion of minor renovation to roof.</li> <li>Re-kitting out kitchen with equipment and supplies</li> <li>Transportation to be able to pick up people, especially from flooded areas</li> <li>Emergency lighting (solar lights / torches)</li> <li>Add fire extinguishers and medical kit</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>The building nominated for a shelter is 190m<sup>2</sup>. Albeit small, this could be used for a small-scale collective centre for a period of time.</li> <li>Would need showers to be added.</li> <li>There are better long-term options.</li> </ul>

### **Overall Summary:**

- The community centre fared badly during Dorian, with flooding throughout forcing the evacuees to go to the chapel stage.
- Centre in process of minor roof repairs and re-equipping the kitchen. With pre-positioned equipment and supplies can act well as an evacuation shelter.
- May be suitable as a small long-term shelter.

## 7.2.6 Church of God Prophecy, Pinedale – West Grand Bahama

<b>GPS:</b>	26.5439, - 78.8054	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Jennifer (caretaker)	<b>Shelter Owner</b>	Central Church of God
<b>Date of Assessment:</b>	2 <sup>nd</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church hall	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	75m <sup>2</sup> (hall) + 260m <sup>2</sup> (Chapel, not part of official shelter)	<b>Capacity</b>	30 sheltered during Dorian
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	50 (Hall only)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	20 (Hall only)
<b>Toilets</b>	1 Male + 1 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Adequate
<b>Generator</b>	None	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank, but toilets not currently working.
<b>Roof</b>	Gable shingle roof, minor damage during Dorian (some shingles missing)	<b>Windows/Shutters</b>	Plain louvered glass no shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	No

### Catchment Area:

There is only one official Government shelter for West Grand Bahama, which has a population of c.15,000. Two other shelters, including this one in Pinedale were actually used during Dorian as shelters which combined had a capacity for emergency purposes of c.300

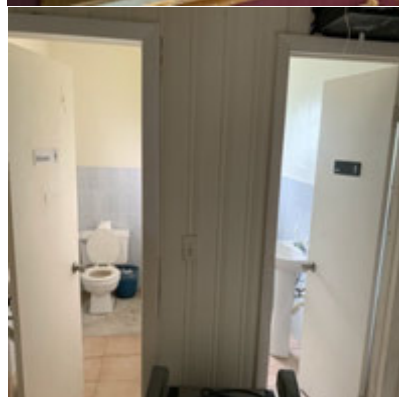
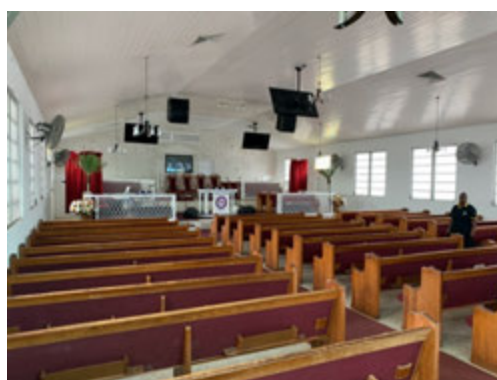
### Map:



## Exterior:



## Interior:



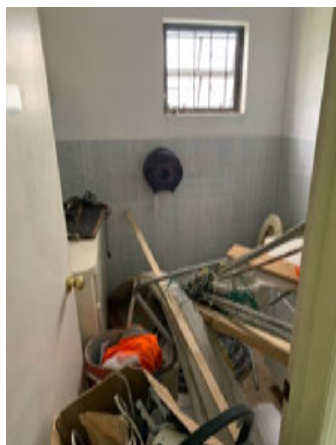
Community Area: 75m<sup>2</sup> (8.9m x 8.6m); Church 280m<sup>2</sup> (21.6m x 12.0m)

## Plan (of living area):





#### Issues:



General low level of maintenance observed

#### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Church complex on flat ground in more built-up area, but still not cramped.</li> <li>Well positioned for local population.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Generally, robustly built building, however not very well maintained with signs of wear and tear on roof, and interior of building.</li> <li>Site coped well with Dorian, however, did not bear the brunt of it, or any storm surge.</li> <li>Would benefit from stronger roofing and more robust glass windows and shutters.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>No generator in place, and none provided by NEMA.</li> <li>Kitchen equipment (pots, pans etc) 'disappeared' after Dorian and needs replacing.</li> <li>No first aid kits / fire extinguishers.</li> <li>Adequate toilet facilities, but no shower.</li> <li>Reliant on supply potable water from Rotary and limited food from Govt (evacuees meant to bring their own). Telecoms equipment insufficient.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>No social services or defence force present, and no registration.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>No social services or defence force present, so run by church parishioners. No registration. No protection issues.</li> </ul>
Maintenance	POOR	<ul style="list-style-type: none"> <li>Building shows signs of neglect.</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### **Experience during Dorian:**

- Not an official shelter, but mobilised before Dorian and received some NEMA support, but not the whole service, and had no social services or defence force present during Dorian.
- Building fared ok during Dorian, but did not have to deal with flooding or the highest winds.

#### **Recommended Improvements:**

For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<ul style="list-style-type: none"> <li>Upgrade toilets, kitchen, roof and windows/shutters to make it more robust.</li> </ul>	<ul style="list-style-type: none"> <li>The building nominated for a shelter is 75m<sup>2</sup>. Even after refurbishment, it could</li> </ul>

<ul style="list-style-type: none"> <li>• Emergency lighting (solar lights / torches)</li> <li>• Add fire extinguishers and medical kit</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<p>only house 20 people, so not recommended for a long-term solution on basis of economics of scale.</p>
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**Overall Summary:**

- Not an official shelter, although well situated in a concentration of people with few other shelter options.
- Mobilised before Dorian and received some NEMA support, but not the whole service, and had no social services or defence force present during Dorian.
- Building fared ok during Dorian, but did not have to deal with flooding or the highest winds.
- Would benefit from an upgrade, including additional kitchen facilities, and pre-positioned stock.
- Adjacent church, at 1m higher, and with 260m2 could prove useful as additional capacity or if the hall is compromised due to flooding.
- Not suitable for a long-term shelter.

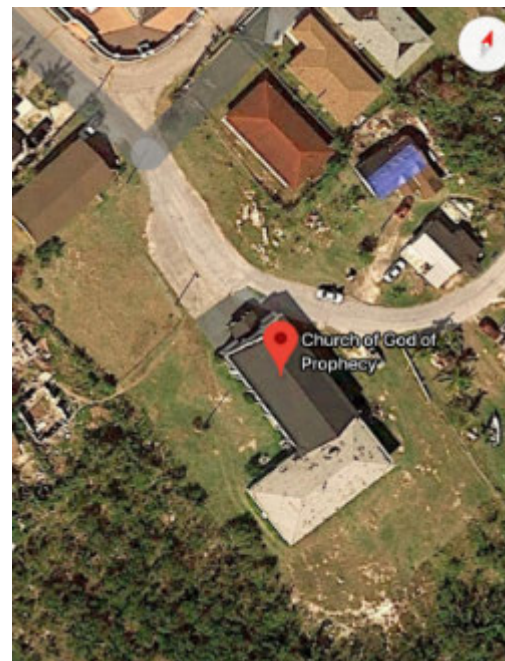
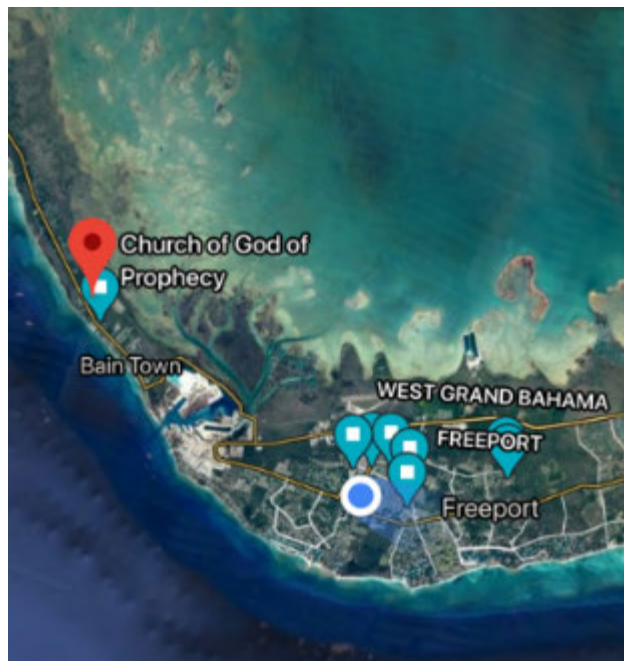
## 7.2.7 Church of God Prophecy, Sea Grape, West Grand Bahama

<b>GPS:</b>	26.5513,-78.8195	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Eudene (church warden) & Jimmy Smith (Mayor)	<b>Shelter Owner</b>	Church of God Prophecy
<b>Date of Assessment:</b>	27 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	140m <sup>2</sup> + 250M <sup>2</sup> (chapel)	<b>Stated Capacity</b>	80
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	90 + 170 (Chapel) = 260	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	40 (excluding chapel)
<b>Toilets</b>	4 Male + 4 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Poor
<b>Generator</b>	Small generator delivered a few days before Dorian by NEMA	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic Tank
<b>Roof</b>	Shingle roof, partially damaged during Dorian, currently being repaired	<b>Windows/Shutters</b>	Plain glass (some panes broken during Dorian) with CGI shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	No - steps at front of church

### Catchment Area:

This is the only shelter on the Government list for West Grand Bahama, which has a population of c.15,000 (West End + Eight Mile). Sea Grape itself has a population of c. 800. It is one of 3 shelters in West Grand Bahama that were actually used as shelters (others = Bethel Deliverance Shelter, and Church of God Prophecy), which combined had a capacity for emergency purposes of c.300.

### Map:





## Exterior:



## Interior:



Chapel: 250m<sup>2</sup> (21.2m x 11.8m)



Annex: 140m<sup>2</sup> (12.1m x 11.7m)

## Interior & Plan (of living area)



1.Church hall, 2. Chapel

### Issues:



1. Damaged / leaking ceiling
2. Broken glass example (clear planes: replaced post Dorian)
3. Damaged ceiling in annex

### Shelter Assessment

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Church and annex in tightly knit community on flat ground with spacious grounds and no obvious access issues.</li> <li>Sea is 700 metres away and church is not much above sea level so potential for storm surge if hurricane wind comes from south</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>Reasonably robust, although slightly old (c. 50 yrs) building, however it was evacuated after one day of Dorian due to significant roof leakage and broken windows made it flood.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>No showers, insufficient pots/pans, insufficient delivery of food (evacuees mainly brought their own dried goods), does not cater well for disabled (no ramps, no disabled toilet access), communication issues during Dorian.</li> <li>Supplies of beds/cots, water, generator just-in-time after hurricane warning.</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services. Defence Force in attendance.</li> <li>Communication issues, evacuation of 80 elderly evacuees could have been much better.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Mobilisation of social services, defence force, church staff quick and efficient.</li> <li>Communication with EOC difficult due to lack of sophisticated telecoms equipment</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> <li>Church staff not trained / selected for emergency experience</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

### Experience during Dorian: POOR

- Church evacuated after 2 days due to water ingress through roof. Broken windows also occurred. 76 elderly people had to evacuate to another shelter.
- In community, there are areas of informal housing (Haitian migrants) which were not taken into account.

### Recommended Improvements:

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Repairs to roof need to be completed to a high standard.</li> <li>Addition of ramp access for disabled would be beneficial.</li> <li>Strengthening of windows with reinforced glass is necessary.</li> <li>Training for church staff would be beneficial.</li> </ul>	<ul style="list-style-type: none"> <li>Not suitable for collective centre: <ul style="list-style-type: none"> <li>Capacity too small</li> <li>Chapel should not be used for collective centre, due to ongoing, community important use.</li> <li>Major upgrades to cooking, sanitation and disabled access would be required for a small</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Greater community participation and resilience needed – education, drills.</li> <li>• Enhancement of WaSH facilities required – add showers, enable disabled access toilets</li> <li>• More equipment needed – general cooking facilities/kitchen, pots/pans, crockery/cutlery insufficient to deal with more than a couple of days</li> <li>• Upgrade of equipment supplied by NEMA to include more sophisticated telecoms equipment,</li> <li>• Greater supply of food during emergency required.</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<p>number of people. Not economically sensible.</p>
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**Overall Summary:**

- The church and community central is the only realistic option for emergency shelter in Sea Grape.
- Fared badly during Dorian, with roof and window damage, and flooding meaning 80 (mostly elderly) people had to evacuate mid-storm.
- Needs to be repaired to a higher quality than before, with pre-positioned equipment and supplies to act as an evacuation shelter.
- Not suitable for a long-term shelter.



## 7.2.8 Eight Mile Rock School Gym – West Grand Bahama

<b>GPS:</b>	26.5456, - 78.8071	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Dwight Gavi & Mr. Keith Barr	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	26 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	School Gym	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	780m2 (excluding bleachers)	<b>Capacity</b>	400
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	520	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	220
<b>Toilets</b>	6 Male + 6 Female	<b>Showers</b>	10 (needing repair)
<b>Lighting/Ventilation</b>	Limited natural light	<b>Cooking facilities</b>	Excellent space, under equipped
<b>Generator</b>	No generator	<b>Water / Waste</b>	No freshwater supply; Septic tank.
<b>Roof</b>	Gable CGI roof, not in good repair with multiple leaks.	<b>Windows/Shutters</b>	Metal louvered windows/shutters.
<b>Comms</b>	No comms.	<b>Disability Access</b>	Yes

### Catchment Area:

This is not an official shelter, having failed the government inspection due to building maintenance issues. There is much need in West Grand Bahama as there is only 1 official shelter to house a population of c.15,000. Upgraded, this facility could be ideal.

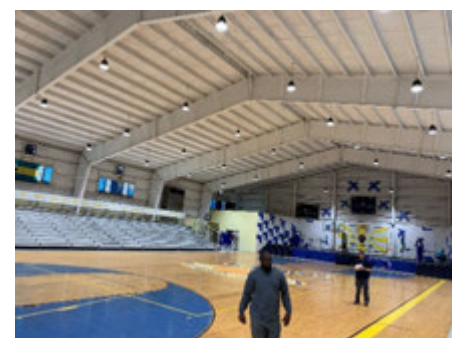
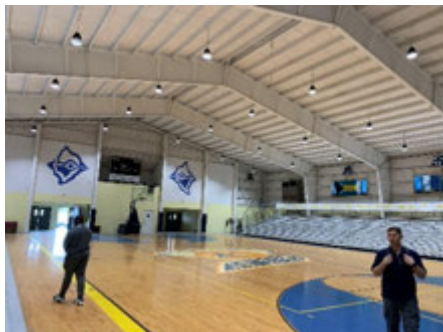
### Map:



## Exterior:

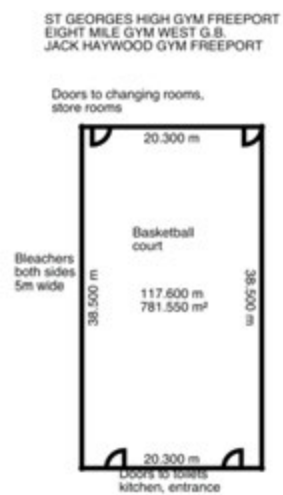


## Interior:



Hall (excluding bleachers): 780m<sup>2</sup> (38.5m x 20.3m)

## Interior & Plan (of living area):



#### Issues:



The additional building is not in excellent state of repair, as illustrated by these photos

#### Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Gym is on flat ground with spacious grounds. Large school next door, which could potentially also be used.</li> <li>Gym did not flood during Dorian, although there was flooding on the main road about ½ mile away.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>Very spacious hall, with significantly sized kitchen, many toilets and showers, and storage areas.</li> <li>Not maintained well, with evidence of water ingress through the roof, plumbing not working adequately, and a general state of disrepair. Damage from Mathew has not been fully repaired.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Large kitchen, but not adequately equipped. No generator in place. No first aid kits / fire extinguishers identified. Many toilets and showers but plumbing not working adequately.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water) if its repaired and used again as a shelter.</li> </ul>
Operations	N/A	<ul style="list-style-type: none"> <li>N / A</li> </ul>
Communications	N/A	<ul style="list-style-type: none"> <li>N / A</li> </ul>
Personnel	N/A	<ul style="list-style-type: none"> <li>N / A</li> </ul>
Maintenance	POOR	<ul style="list-style-type: none"> <li>See prior comments. Significant maintenance required.</li> </ul>

#### Experience during Dorian:

- Not used during Dorian as did not pass inspection.
- Was in an area that did not flood, and no additional damage to building.

#### Recommended Improvements:

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
Short-term (2020 season)	<ul style="list-style-type: none"> <li>Renovate the building to bring it up to standard, including: <ul style="list-style-type: none"> <li>Fitting out kitchen</li> <li>Fixing roof, and other structural issues</li> <li>Fixing plumbing issue</li> <li>Addition of fire extinguishers and first aid kits</li> <li>Install permanent generator</li> <li>Emergency lighting (solar lights / torches)</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The building has a capacity for 220 people on a longer-term basis</li> <li>It has the space and the facilities to be ideal for this purpose, and if the recommended improvements are made to bring it up to standard for an emergency evacuation shelter it would suffice for longer term stays.</li> </ul>



	<ul style="list-style-type: none"><li>○ Emergency equipment and supplies stored on-site.</li></ul>	
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**Overall Summary:**

- The school was not on the official list because of roof and plumbing repairs required and was not called into action during Dorian.
- With a strong maintenance / upgrade progress this could be very good for both emergency evacuation and as a longer-term collective centre, albeit being on a school site, strict measures would be required on protection if it was used for longer than a few days if school was running.

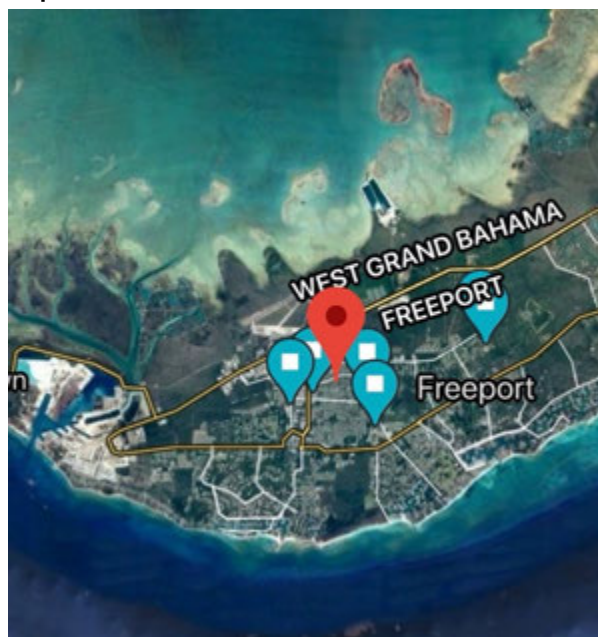
## 7.2.9 First Baptist Columbus Drive, Freeport – Grand Bahama

<b>GPS:</b>	26.5326, -78.6849	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Pastor Keith Russell	<b>Shelter Owner</b>	Central Church of God
<b>Date of Assessment:</b>	1 <sup>st</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church hall	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	170m <sup>2</sup> (hall) + 415m <sup>2</sup> (Chapel, not part of official shelter) & 230m <sup>2</sup> (community hall rooms)	<b>Capacity</b>	200 housed during Dorian at peak.
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	110 (Hall only)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	50 (Hall only)
<b>Toilets</b>	3 Male + 3 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Excellent space, but equipment destroyed by flooding
<b>Generator</b>	Generator supplied by NEMA a few days before.	<b>Water / Waste</b>	Water tanks supplied a few days before onsite; Septic tank which became overwhelmed
<b>Roof</b>	Gable CGI roof. Fared ok during Dorian with minor leaks.	<b>Windows/Shutters</b>	Plain glass with no shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

This is one of 10 shelters on the Government list for Freeport, which has a population of c.27,000. The combined official capacity of these 10 for emergency purposes of 1,300.

### Map:



## Exterior:



## Interior:

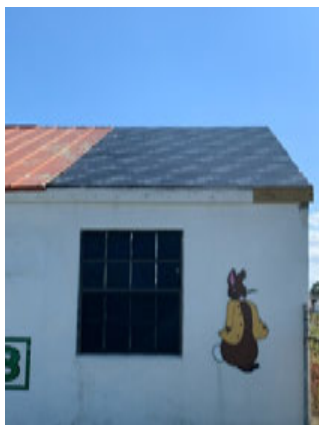


1.Community Area: 170m<sup>2</sup> (16.3m x 10.5m); 2.Church 415m<sup>2</sup> (20.6m x 20.2m); 3.rooms in community area including kitchen, meeting rooms and storage rooms: c.230m<sup>2</sup> (23.5m x c.10m)

## Plan (of living area):



## Issues:



Community centre and chapel flooded causing severe damage to furniture; some minor roof damage



### **Shelter Assessment (Current State of Preparedness)**

<b>Shelter Area</b>	<b>Assessment</b>	<b>Notable Observations</b>
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Church complex on flat ground with spacious grounds.</li> <li>Church flooded during Dorian.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Generally, robustly built building, however, site was compromised when building flooded. The entire shelter area had to be evacuated to the balcony in the chapel. Access to cooking and toilets became very limited at that time.</li> <li>Could benefit from more robust glass windows and shutters.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Kitchen was well equipped, but needs re-equipping after Dorian due to flooding.</li> <li>Cots and blankets for 40 supplied; 200 turned up, so insufficient.</li> <li>No first aid kits / fire extinguishers.</li> <li>Good toilet facilities, but no shower.</li> <li>Reliant on supply potable water from Rotary and limited food from Govt (evacuees meant to bring their own).</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services, but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

### **Experience during Dorian: POOR**

- The shelter accepted about 200 people at the start of Dorian, which overwhelmed its capacity. After a day the facility flooded and everyone evacuated to the chapel balcony, until the waters receded and then the evacuees returned to their homes, many of which had been flooded.
- Despite this, there were no reported protection issues, although communications with EOC were difficult due to equipment / reception.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Completion of building renovation after damage in Dorian to be completed</li> <li>Re-kitting out kitchen with equipment and supplies</li> <li>Transportation to be able to pick up people, especially from flooded areas</li> <li>Emergency lighting (solar lights / torches)</li> <li>Add fire extinguishers and medical kit</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>The building nominated for a shelter is 170m<sup>2</sup>. Even after refurbishment, it could only house 50 people, so not recommended for a long-term solution on basis of economics of scale.</li> </ul>

### **Overall Summary:**

- The hall and chapel flooded badly during Dorian, forcing 200 people to move to the chapel balcony for 2-3 days. Apart from the flooding, the facility fared ok during Dorian, albeit with some minor roof leaks.

- Centre needs to be better equipped and prepared. Pre-positioned equipment and supplies to act as an evacuation shelter.
- Not really suitable for long term shelter due to scale

## 7.2.10 Grand Lucaya Ballroom, Freeport – Grand Bahama

<b>GPS:</b>	26.5300, - 78.6756	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Mr. Glyine Delancy & Mr. Tucker	<b>Shelter Owner</b>	Central Church of God
<b>Date of Assessment:</b>	29 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Hotel Ballroom	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	1400m <sup>2</sup> (Ballroom)	<b>Capacity</b>	400 housed after Dorian passed through
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	930 (Ballroom only)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	400 (Ballroom only)
<b>Toilets</b>	18 Male + 18 Female	<b>Showers</b>	None by Ballroom. Many in hotel.
<b>Lighting/Ventilation</b>	No outside light in ballroom, but easy access to corridor with light.	<b>Cooking facilities</b>	Hotel kitchen capable of feeding thousands
<b>Generator</b>	Large generators capable of powering thousands of rooms	<b>Water / Waste</b>	Large septic tanks and water purifiers capable of servicing thousands of rooms
<b>Roof</b>	Flat concrete/steel roof. No damage during Dorian.	<b>Windows/Shutters</b>	Strong plain glass in hotel, but no windows in ballroom.
<b>Comms</b>	None	<b>Disability Access</b>	Yes

### Catchment Area:

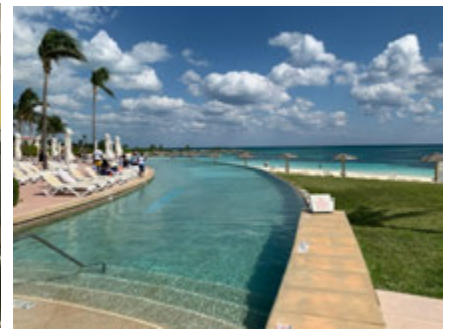
This is one of 10 shelters on the Government list for Freeport, which has a population of c.27,000. The combined official capacity of these 10 for emergency purposes of 1,300.

### Map:

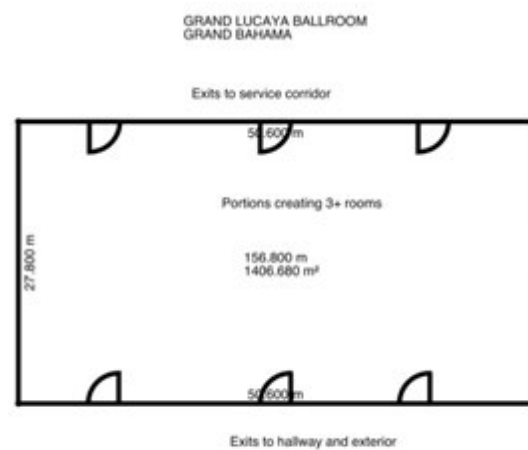
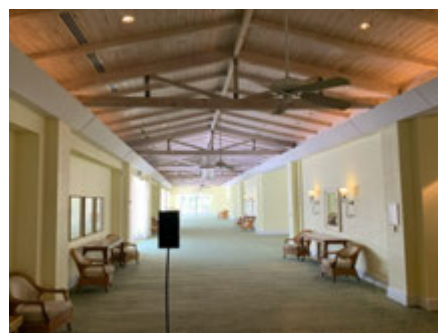




## Exterior:



## Interior & Plan (of living area):



Leica DISTO™ Plan

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3 very substantial rooms, separated by partition. C. 1200m<sup>2</sup> (15.4 x 27.8m, 19.7m x 27.8m, 15.5m x 27.8m);

### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Very substantial hotel complex on coast. Damage during hurricane Mathew closed it. Just sold to Royal Caribbean</li> <li>If storm surge comes from south east, it's very vulnerable. If from the North, it's very well protected with huge grounds.</li> </ul>
Building	EXCELLENT	<ul style="list-style-type: none"> <li>High spec hotel complex with very strong buildings.</li> <li>Ballroom used during Dorian, but the wider hotel complex has over 1400 rooms and could house 10,000 people for emergencies.</li> </ul>
Services, Equipment, Supplies	EXCELLENT	<ul style="list-style-type: none"> <li>Kitchen, bathrooms and services very good.</li> <li>Supplies not really sufficient. If used in future, pre-positioned supplies and comms equipment would be beneficial.</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	ADEQUATE	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Only used after Dorian, so no real comms issues.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Hotel + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Large international hotel so ongoing maintenance done to high standard</li> <li>No drills</li> </ul>

### **Experience during Dorian:**

- Not officially on the list, but activated after Dorian for additional capacity. High end hotel facility so worked very well, and didn't have to deal with the brunt of Dorian.
- Capacity for 400 people easily, but if the wider hotel complex was used could cater for up to 10,000 people, and is seriously worth considering for short term capacity.
- Some areas, such as the ballroom, could be used for longer term shelter, however it's a commercial going concern and anything longer than a few days is likely to be met with considerable resistance.

### **Recommended Improvements:**

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>The ballroom is deal for a collective centre if an agreement can be reached with the owner, which is unlikely given it's a commercial concern.</li> </ul>

### **Overall Summary:**

- Activated after Dorian to provide additional capacity.
- High end hotel with very good facilities, and ideal for emergency shelter provided that there is not storm surge from south east.
- Worth trying to come up with an agreement for using the hotel on a short-term basis in case of emergency not involving storm surge form south east. Could add up to 10,000 people capacity in the short term.

## 7.2.11 Hilton Outten Auditorium, Freeport –Grand Bahama

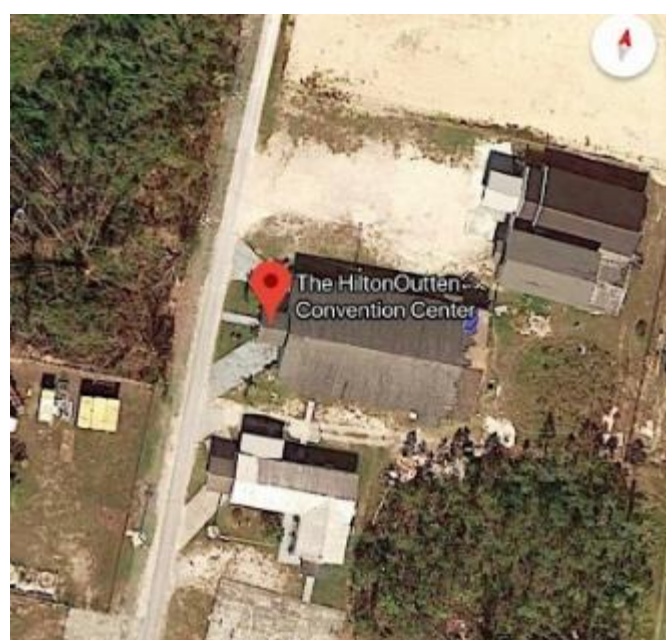
<b>GPS:</b>	26.5478, - 78.8192	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	None available	<b>Shelter Owner</b>	Unknown
<b>Date of Assessment:</b>	28 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Hall	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	Unknown	<b>Capacity</b>	150
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	Unknown	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	Unknown
<b>Toilets</b>	Unknown	<b>Showers</b>	Unknown
<b>Lighting/Ventilation</b>	Unknown	<b>Cooking facilities</b>	Unknown
<b>Generator</b>	Unknown	<b>Water / Waste</b>	Unknown
<b>Roof</b>	Gable shingle roof damaged during Dorian. In need of repair.	<b>Windows/Shutters</b>	Plain glass with no shutters.
<b>Comms</b>	None on site	<b>Disability Access</b>	No - steps at front

**We could not get access to this facility. It is currently being renovated.**

### Catchment Area:

This is one of 10 shelters on the Government list for Freeport, which has a population of c.27,000. The combined official capacity of these 10 for emergency purposes of 1,300.

### Map:





**Exterior:**



**Overall Summary:**

- With a nominated capacity of 150, the shelter quickly became flooded after the arrival of Dorian, and also received roof damage. Evacuees had to flee in the middle of the storm to seek safe refuge elsewhere.
- The facility is clearly not currently in a state to act as a shelter currently, and needs renovation, particularly the roof.
- The centre is well situated for the local population however is not really large.
- The building needs to be repaired to a higher quality than before, with pre-positioned equipment and supplies to act as an evacuation shelter for a small group.
- Not suitable for a long-term shelter due to size.

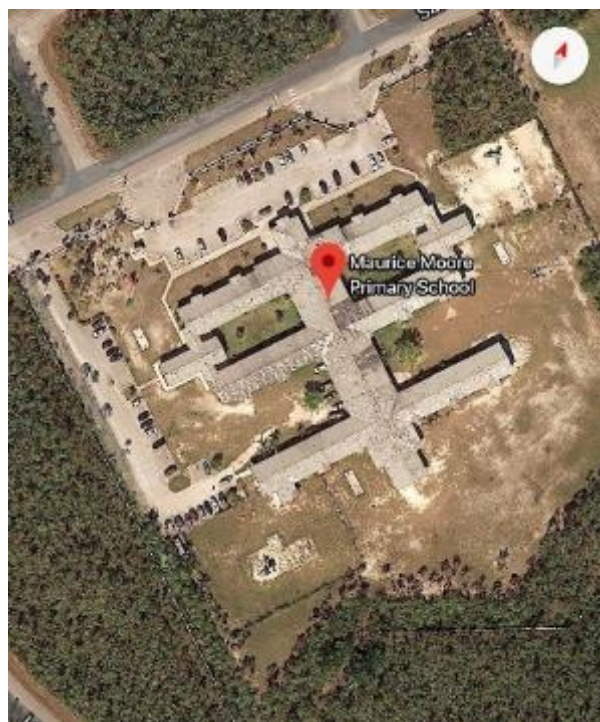
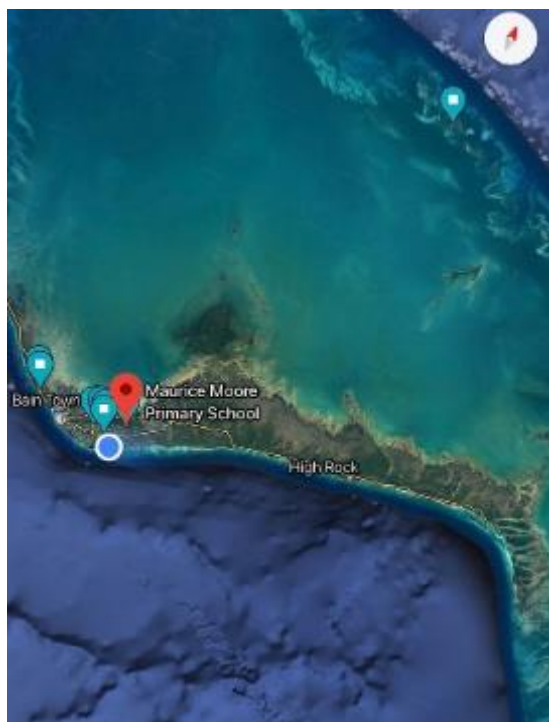
## 7.2.12 Maurice Moore Primary School, Freeport – Grand Bahama

<b>GPS:</b>	26.5434, - 78.6399	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Vice Principal Remelda Been	<b>Shelter Owner</b>	Dept. of Education
<b>Date of Assessment:</b>	28 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Primary School	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	310m <sup>2</sup> ( 5 classrooms) + 310m <sup>2</sup> (additional 5 classrooms not planned for shelters but used in Dorian)	<b>Capacity</b>	400 housed during Dorian
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	205 (5 rooms)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	90 (5 rooms)
<b>Toilets</b>	10 Male + 10 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Destroyed during Dorian
<b>Generator</b>	None.	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank which flooded.
<b>Roof</b>	Gable Shingle roof, fared badly during Dorian with many leaks.	<b>Windows/Shutters</b>	Plain glass with shutters on some windows.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

This shelter, with a capacity of 400 is designated for residents of east Grand Bahama, which has a population of c.10,000.

### Map:



## Exterior:



## Interior & Plan (of living area)



5 classrooms: 310m<sup>2</sup> (8.5m x 7.3m \* 5 rooms). Plan is example of 1 classroom (all classrooms have same layout)

## Issues:



Multiple instances of roof damage still evident. Kitchen in process of being refitted but with very little equipment currently



### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>School is on a large plot of land with spacious grounds, and no dangerous trees/pylons/access issues.</li> <li>School flooded during Dorian.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>Large complex. Generally, robustly built building, largely made of concrete, however, as well as flooding, there were numerous leaks in the roofs of the school.</li> <li>Could benefit from more robust glass windows and shutters.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Kitchen was well equipped, but needs re-equipping after Dorian due to flooding. No generator in place, and none provided by NEMA. Insufficient first aid kits / fire extinguishers. Good toilet facilities, but access via outside covered walkway. No shower. Reliant on supply potable water from Rotary and limited food from Govt (evacuees meant to bring their own). Telecoms equipment insufficient.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services, but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out.</li> <li>Operational school so ongoing maintenance done to a certain degree.</li> <li>No drills.</li> </ul>

### **Experience during Dorian: POOR**

- Was used for evacuees from East Grand Bahama.
- Main shelter area was compromised when storm surge flooded the area. Population self-evacuated to other areas. A neighbour took approx. 100pp into her home. There was no official help and no transportation options.
- 5 classrooms were designated as shelter but additional 5 used due to number of people arriving.
- The shelter was compromised on multiple levels. Roof leaks as well as flooding.

### **Recommended Improvements:**

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Completion of roof renovation after damage in Dorian.</li> <li>Re-kitting out kitchen with equipment and supplies</li> <li>Transportation to be able to pick up people, especially from flooded areas</li> <li>Emergency lighting (solar lights / torches)</li> <li>Additional fire extinguishers and medical kit</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>The building did not cope well during Dorian (flooding and roof damage) and the population evacuated. The facility is very large though and has c. 30 classrooms, providing c. 1900 m<sup>2</sup> (500 people at 3.5m<sup>2</sup> per person) of living space. Although disruptive to school, could be used as a collective centre for a slightly longer time (1 month ?) although this would be disruptive in trying to get the school back up and running. Significant improvements would need to be made including: <ul style="list-style-type: none"> <li>Addition of showers</li> <li>Significant increase in cooking and dining facilities</li> </ul> </li> </ul>

**Overall Summary:**

- The school is nominated to handle all evacuees from East Grand Bahama, with a population of 10,000 and a capacity of 400 it is woefully inadequate.
- The school was badly compromised during Dorian, with flooding and roof damage. The whole population of the school ended up fleeing mid storm.
- Needs repairing to a higher standard, in particular the roofing. It also needs pre-positioned equipment and supplies to act as an evacuation shelter.
- Not suitable for a long-term shelter.

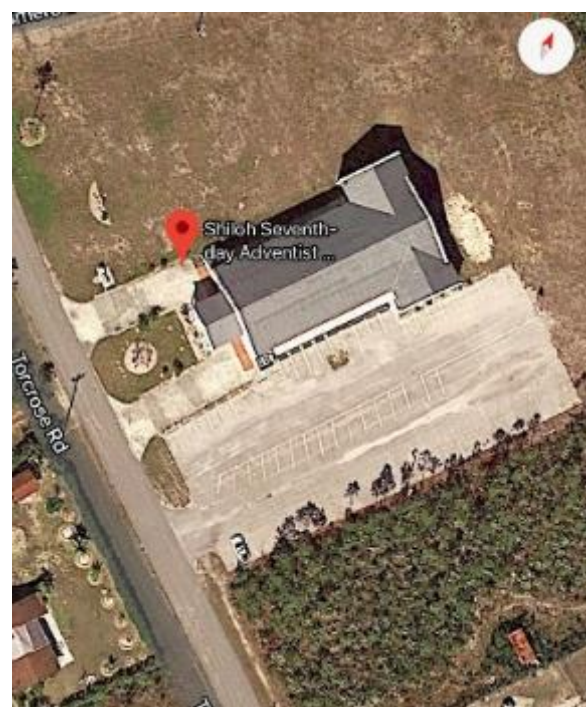
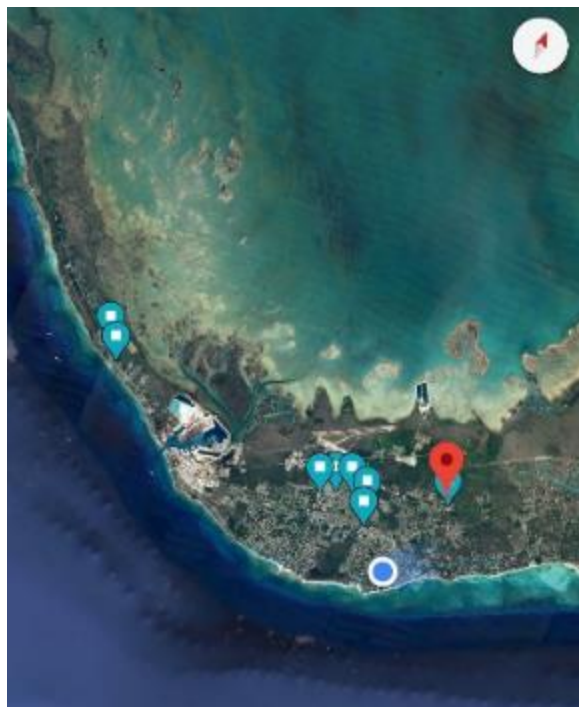
### 7.2.13 Seventh Day Adventist Church, Shiloh – Grand Bahama

<b>GPS:</b>	26.5458, -78.6414	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Pastor Andrew Burrows	<b>Shelter Owner</b>	Seventh Day Adventist Church
<b>Date of Assessment:</b>	28 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	130m <sup>2</sup> (room) + 270m <sup>2</sup> (Chapel) + 70m <sup>2</sup> (Chapel stage)	<b>Capacity</b>	50 (60 housed during Dorian at peak)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	85 (room only)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	35 (room only)
<b>Toilets</b>	4 Male + 4 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Destroyed during Dorian
<b>Generator</b>	None.	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank which flooded.
<b>Roof</b>	Gable CGI roof, fared well during Dorian.	<b>Windows/Shutters</b>	Plain glass with no shutters observed.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

#### Catchment Area:

This is one of 10 shelters on the Government list for Freeport, which has a population of c.27,000. The combined official capacity of these 10 for emergency purposes of 1,300.

#### Map:





## Exterior:



## Interior:



Community Area: 130m<sup>2</sup> (16.8m x 8.0m minus cut-outs); Church 210m<sup>2</sup> (16.5m x 16.3m)

## Interior & Plan (of living area):



## Issues:



1.Kitchen needs refitting, 2. Toilet / storerooms in process of being renovated

### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Church complex on flat ground with spacious grounds.</li> <li>Church flooded during Dorian.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Generally, robustly built building, however, site was compromised when building flooded. The entire shelter area had to be evacuated to the stage in the chapel (70m<sup>2</sup>). Access to cooking and toilets became very limited at that time.</li> <li>Could benefit from more robust glass windows and shutters.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Kitchen was well equipped, but needs re-equipping after Dorian due to flooding. No generator in place, and none provided by NEMA. Insufficient first aid kits / fire extinguishers. Good toilet facilities, but no shower. Reliant on supply potable water from Rotary and limited food from Govt (evacuees meant to bring their own). Telecoms equipment insufficient.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services, but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	EXCELLENT	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

### **Experience during Dorian: POOR**

- With a nominated capacity of 40, the shelter accepted about 60 people at the start of Dorian. After a day the facility flooded to a depth of about 3 feet, and everyone evacuated to the stage church (70m<sup>2</sup>), until the waters receded and then the evacuees returned to their homes, many of which had been flooded.
- The initial shelter was basic, but relatively well set up. After the building became compromised and everyone moved to the church stage, the environment was not at all well set up and was overcrowded (about 1m<sup>2</sup> per person). Despite this, there were no reported protection issues, although communications with EOC were difficult due to equipment / reception.

### **Recommended Improvements:**

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Completion of building renovation after damage in Dorian (carpet), renovating toilets and kitchen.</li> <li>Re-kitting out kitchen with equipment and supplies</li> <li>Transportation to be able to pick up people, especially from flooded areas</li> <li>Emergency lighting (solar lights / torches)</li> <li>Additional fire extinguishers and medical kit</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>The building nominated for a shelter is 130m<sup>2</sup>. Even after refurbishment, it could only house 35 people, so not recommended for a long-term solution on basis of economics of scale.</li> </ul>

**Overall Summary:**

- The church and community centre got flooded during Dorian, with evacuees needing to huddle on the small chapel stage for 2-3 days. Damage to bathroom and kitchen in need of repair.
- Needs pre-positioned equipment and supplies to act as an evacuation shelter.
- Not suitable for a long-term shelter.

## 7.2.14 Sir Jack Haywood School Gym, Freeport – Grand Bahama

<b>GPS:</b>	26.5339, - 78.6671	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Janitor	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	26 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	School Gym	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	780m2 (excluding bleachers)	<b>Capacity</b>	400 during Dorian
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	520	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	220
<b>Toilets</b>	8 Male + 8 Female (plumbing in poor shape)	<b>Showers</b>	10 Male + 10 Female (plumbing in poor shape)
<b>Lighting/Ventilation</b>	Limited natural light	<b>Cooking facilities</b>	Excellent space, under equipped
<b>Generator</b>	Generator delivered by NEMA a few days before Dorian.	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank which doesn't work well due to water pressure issues.
<b>Roof</b>	Gable CGI roof, not in good repair with multiple leaks.	<b>Windows/Shutters</b>	Steel louvered windows/shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

This was not on the official shelter list, having failed the government inspection due to building maintenance issues, however, was opened up due to high demand, and housed 400 people for 3-4 days. Freeport has a population of c.27,000 and a combined emergency shelter capacity of 1,300.

### Map:





## Exterior:

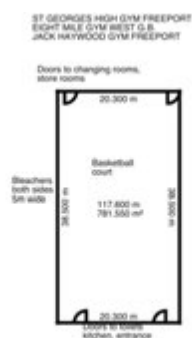


## Interior:



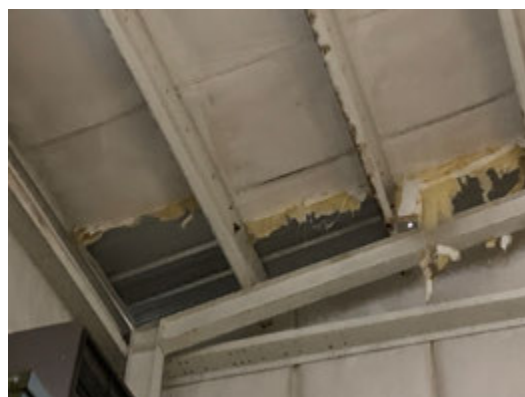
Hall (excluding bleachers): 780m<sup>2</sup> (38.5m x 20.3m)

## Plan (of living area):



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## Issues:



The building is in poor repair, evidenced by 1. Broken doors 2. Evidence of water ingress 3. Damaged roof

### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Gym is on flat ground with spacious grounds. Large school next door, which could potentially also be used.</li> <li>Gym did not flood during Dorian, although there was flooding in the general area.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>Very spacious hall, with significantly sized kitchen, many toilets and showers, and storage areas.</li> <li>Not maintained well, with evidence of water ingress through the roof, plumbing not working adequately, and a general state of disrepair.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Large kitchen, but not adequately equipped. People ate dried food or used small burner stoves during Dorian. No generator in place. Not enough first aid kits / fire extinguishers. Many toilets and showers but plumbing not working adequately.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water).</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services, but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>School staff + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	POOR	<ul style="list-style-type: none"> <li>See prior comments. Significant maintenance required.</li> <li>No drills</li> </ul>

### **Experience during Dorian:**

- Although not on official list, it was activated for Dorian due to the severity / large demand for 3-4 days.
- Although it served its purpose, the poor maintenance of the building, unequipped kitchen facilities and plumbing issues made the whole experience very uncomfortable for the 400 people staying there.
- It did not flood, but there was flooding in the general area. There was considerable water ingress into the building during Dorian due to the poorly maintained roof and windows.

### **Recommended Improvements:**

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
Short-term (2020 season)	<ul style="list-style-type: none"> <li>Renovate the building to bring it up to standard, including: <ul style="list-style-type: none"> <li>Fitting out kitchen</li> <li>Fixing roof, and other structural issues</li> <li>Fixing plumbing issue</li> <li>Addition of more fire extinguishers and first aid kits</li> <li>Install permanent generator</li> <li>Emergency lighting (solar lights / torches)</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Emergency equipment and supplies stored on-site.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The building has a capacity for 220 people on a longer-term basis</li> <li>It has the space and the facilities to be ideal for this purpose, and if the recommended improvements are made to bring it up to standard for an emergency evacuation shelter it would suffice for longer term stays.</li> </ul>

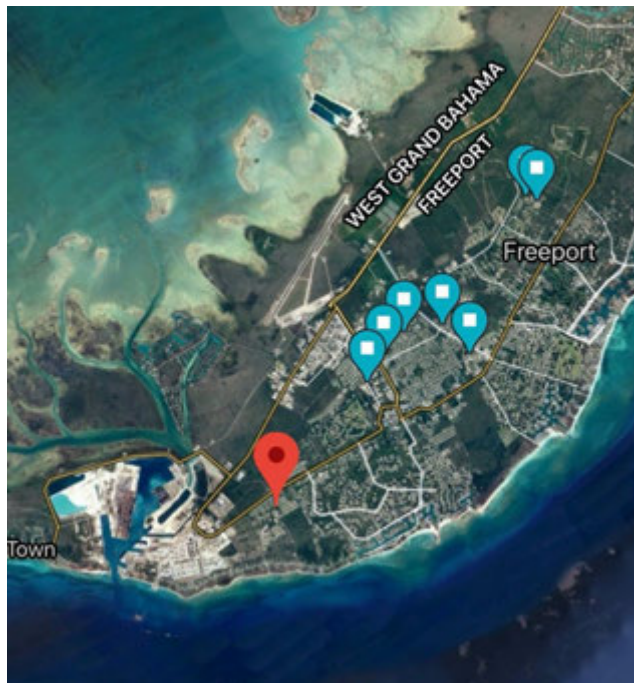
### **Overall Summary:**

- The school was not on the official list because of roof and plumbing repairs required but was called into action due to demand for shelters. Although large it was not great with leaks and poor facilities, supplies and communication.
- With a strong maintenance / upgrade progress this could be very good for both emergency evacuation and as a longer-term collective centre, albeit being on a school site, strict measures would be required on protection if it was used for longer than a few days if school was running.

## 7.2.15 NEMA Warehouse, Freeport – Grand Bahama

<b>GPS:</b>	26.5128, - 78.7339	<b>Shelter Owner</b>	NEMA
<b>Interviewed</b>	Tammi Mitchell, NEMA	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Date of Assessment:</b>	2 <sup>nd</sup> March 2020	<b>Generator</b>	Own generator onsite
<b>Capacity</b>	320 m <sup>2</sup>	<b>Roof</b>	Gable CGI roof, very minor damage during Dorian
<b>Toilets</b>	1 Male + 1 Female	<b>Water / Waste</b>	Water Tank; Septic Tank
<b>Lighting/Ventilation</b>	No natural light		

### Map:



### Exterior:





**Interior:**



Full size: 430m<sup>2</sup> (36.2m x 11.9m). Storage area: 320m<sup>2</sup> (27.2m x 11.9m). Office on left, toilets on right after entrance, then into storage area.

**Issues**



Minor damage to roof due to Dorian winds. Bright patch on picture is currently open to the elements

**Overall Summary:**

- This is the only NEMA warehouse to serve Grand Bahama, Bimini & The Abaco Islands. It was built by the US Army a few years ago
- The warehouse fared well during Dorian, with some flooding on surrounding roads and a very small part of the roof blown away.
- There is currently not a great deal of stock in the warehouse, as it hasn't been replenished after Dorian.
- There is no warehouse manager. This is something that Tammi Mitchell does in addition to everything else.
- If the capacity of shelters is increased greatly, the storage facility will not be large enough.
- No stock made it from the warehouse to the Abaco Islands. Additional storage facilities should be positioned on The Abaco Islands and/or at shelter locations



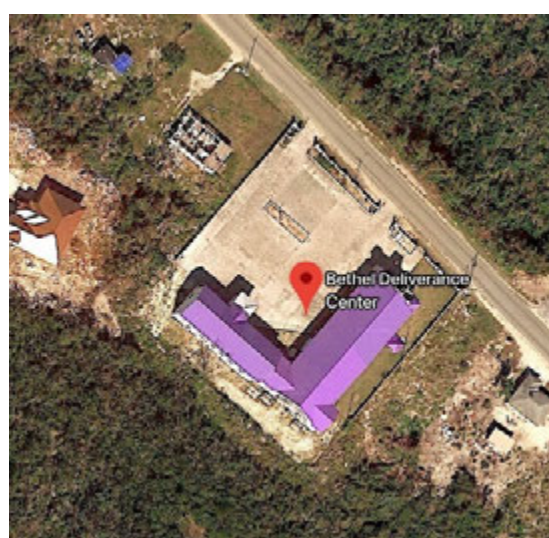
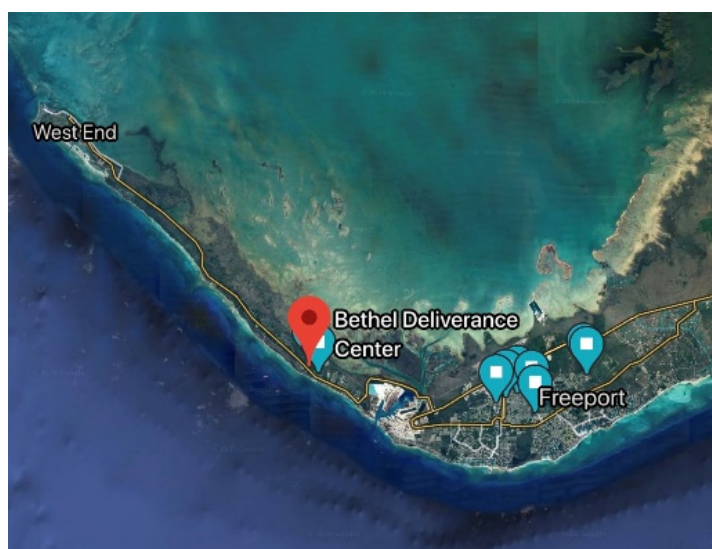
## 7.2.16 Bethel Deliverance Centre – West Grand Bahama

<b>GPS:</b>	26.5478, - 78.8192	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Deacon Roelle	<b>Shelter Owner</b>	Church
<b>Date of Assessment:</b>	27 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	325m <sup>2</sup> (Chapel Floor) + 140m <sup>2</sup> (Chapel stage) + 140m <sup>2</sup> (chapel balcony + c.200m <sup>2</sup> (lower floor in attached building) + c. 200m <sup>2</sup> (upper floor in attached building). TOTAL = c.1000m <sup>2</sup>	<b>Capacity</b>	200 housed during Dorian at peak.
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	265 (attached building) + 670 (church)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	115 (attached building only)
<b>Toilets</b>	6 Male + 6 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Adequate
<b>Generator</b>	Own generator plus small generator delivered a few days before Dorian by NEMA	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank which became overwhelmed
<b>Roof</b>	Gable CGI roof barely damaged during Dorian.	<b>Windows/Shutters</b>	Plain glass (some panes broken during Dorian) with CGI shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cellphone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

There is only one official Government shelter for West Grand Bahama, which has a population of c.15,000. Two other shelters, including this one, were actually used as shelters during Dorian which combined had a capacity for emergency purposes of c.300

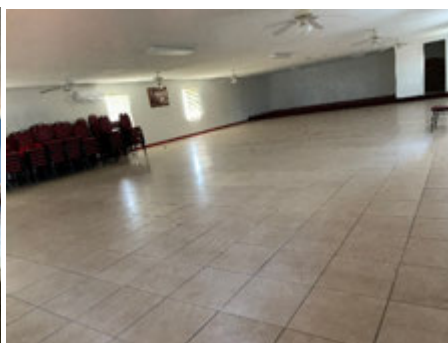
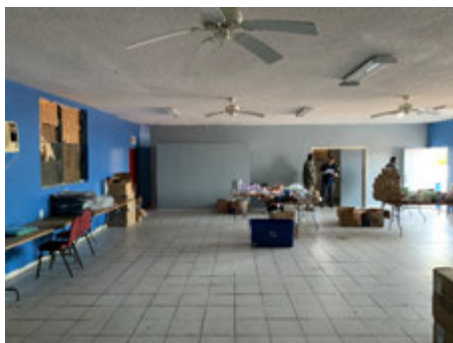
### Map:



## Exterior:

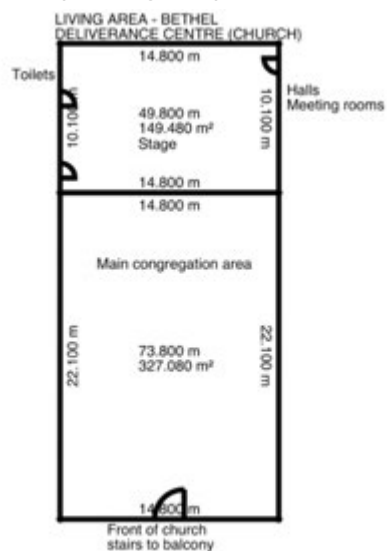


## Interior:



Community Area: 130m<sup>2</sup> (16.8m x 8.0m minus cutouts); Church 210m<sup>2</sup> (16.5m x 16.3m)

## Interior & Plan (of living area):

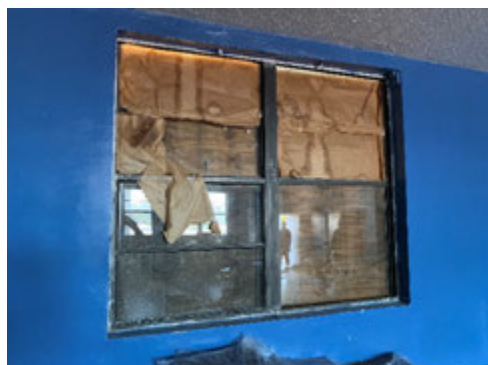


Leica DISTO™ Plan

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Plan of church, which was the main area used during Dorian. Additional space in adjacent building

## Issues:



The additional building is not in excellent state of repair, as illustrated by these photos

## Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Church complex on flat ground with spacious grounds and parking.</li> <li>On main access route in West Grand Bahama</li> <li>Relatively close to sea on south side, so if storms come from that direction there is likely a risk of storm surge.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>Generally robustly built building, however the annex especially is in relatively poor repair. There is evidence this is currently being remedied.</li> <li>No damage during Dorian except a broken window. Although there are hurricane shutters, glass could be upgraded.</li> <li>Site has a great deal of capacity when include chapel and annex (&gt; 1000m<sup>2</sup>)</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Basic kitchen facilities, ok for a few days but not for a longer stay. Own generator, supplemented by a NEMA one. Insufficient first aid kits / fire extinguishers. Good toilet facilities, but no shower. Reliant on supply potable water from Rotary and limited food from Govt (evacuees meant to bring their own). Telecoms equipment insufficient.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services, but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	EXCELLENT	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out, but presumably either failed or they withdrew support because they are not on the official list.</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

## Experience during Dorian:

- Not on the official list, it opened its doors, and was supported by NEMA/Social Services/Defence Force to shelter 200 people for 3-4 days. It withstood Dorian very well, with no flooding and only 1 broken window. Of all the sites we visited, this one sustained the least damage, and remained open throughout the entire event. It's location on the west of the island, on the south side clearly saved it from the worst, and is a good example of having options which you can use for different scenarios.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• The building is not on the official list, but has capacity (including chapel) of 1,000m<sup>2</sup>. Upgrading the facilities would potentially give refuge to up to 600 people for a few days.</li> <li>• Additional annex should be upgraded, including upgrading kitchen facilities</li> <li>• Emergency lighting (solar lights / torches) would be very helpful.</li> <li>• Additional fire extinguishers and medical kit needed</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• Using the chapel for the long term is not advisable, but using the 400m<sup>2</sup> of the annex is a good option, and could house up to 110 people.</li> <li>• The facilities would need upgrading including adding shower facilities and upgrading the kitchen.</li> </ul>

### **Overall Summary:**

- The church and annex building offers substantial space in an area poorly served by shelters.
- Church are very community minded and have skill in sheltering and post disaster distribution.
- It fared well during Dorian, albeit without being inundated by storm surge or the worst of the winds.
- Worth investing in the annex to make the building more robust, and pre-position more equipment and supplies.
- Annex maybe suitable for a small long-term shelter, but would need upgraded facilities.



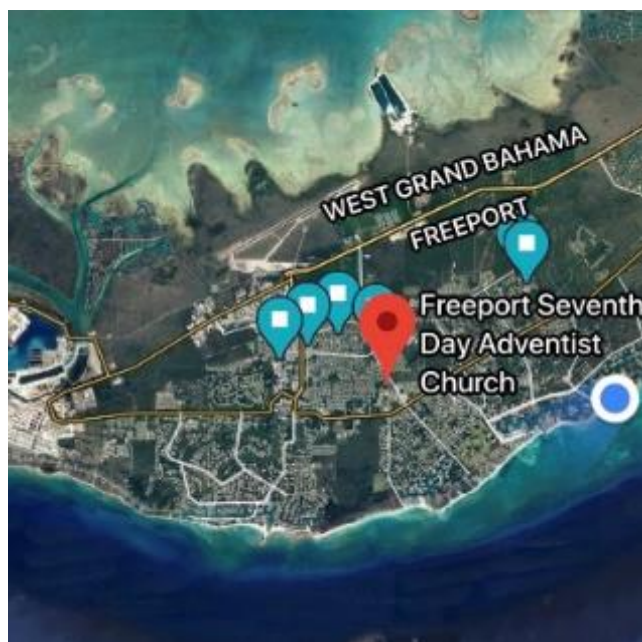
## 7.2.17 Seventh Day Adventist Church, Freeport – Grand Bahama

<b>GPS:</b>	26.5214, -78.6732	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Pastor Clarke, Arlene Sands, & Mervin Dean	<b>Shelter Owner</b>	Seventh Day Adventist Church
<b>Date of Assessment:</b>	28 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	130m <sup>2</sup> (room) + c.210m <sup>2</sup> (Chapel)	<b>Capacity</b>	40 (300 housed during Dorian at peak)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	85 (room only)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	35 (room only)
<b>Toilets</b>	5 Male + 5 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Destroyed during Dorian
<b>Generator</b>	Small generator delivered a few days before Dorian by NEMA	<b>Water / Waste</b>	Water tank delivered a few days before Dorian by NEMA; Septic tank became overwhelmed by volume.
<b>Roof</b>	Gable shingle roof, partially damaged during Dorian, currently being repaired	<b>Windows/Shutters</b>	Plain glass (some panes broken during Dorian). No shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

This is one of 10 shelters on the Government list for Freeport, which has a population of c.27,000. The combined official capacity of these 10 for emergency purposes of 1,300.

### Map:



Wall/roof at one end of evacuee room caved in during Dorian causing significant damage needing wall, roof, floor, kitchen replacement

Other :



The church have broken ground in building a Hurricane Shelter. They also have a very well stocked distribution centre.

#### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Church complex on flat ground with spacious grounds.</li> <li>New Hurricane Shelter in the process of being built.</li> <li>Distribution building on site (c. 70m<sup>2</sup>), stocked with food, water, clothing.</li> <li>Considerable local flooding nearby (within 200 metres) during Dorian, however this didn't reach the church.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>Generally, robustly built building, however, site was compromised when part of the roof blew off in heavy winds. The entire shelter area had to be evacuated to the chapel. Access to cooking and toilets became very limited at that time.</li> <li>Could benefit from more robust glass windows and shutters.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Kitchen was well equipped, but needs re-equipping after Dorian. Shortage of first aid kits / fire extinguishers for volume of people. Good toilet facilities, but no shower. Reliant on supply of generator, potable water and food from Govt / Rotary. Septic tank overwhelmed during Dorian. Telecoms equipment insufficient.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services, but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	EXCELLENT	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### **Experience during Dorian:**

- With a nominated capacity of 40, the shelter accepted over 150 people at the start of Dorian. After a day the end of the building and roof became severely damaged, and everyone evacuated to the church, along with an additional 150 persons who had stayed at home, but found their homes compromised during the storm.
- The initial shelter was relatively well set up but severely overcrowded. After the building became compromised and everyone moved to the church, the environment was not at all well set up and was massively overcrowded (less than 1m<sup>2</sup> per person). Despite this, there were no reported protection issues, although communications with EOC were difficult due to equipment / reception.

- The pastor and his staff are remarkably resilient and forward thinking. They are part way through rebuilding the property with church funds / donations from overseas, and have broken ground on a 'hurricane shelter'.

#### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Completion of building renovation after damage in Dorian (roof, wall, flooring)</li> <li>• Re-kitting out kitchen with equipment and supplies</li> <li>• Transportation to be able to pick up people, especially from flooded areas</li> <li>• Emergency lighting (solar lights / torches)</li> <li>• Additional fire extinguishers and medical kit</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• The building nominated for a shelter is 130m<sup>2</sup>. Even after refurbishment, it could only house 35 people, so not recommended for a long-term solution on basis of economics of scale.</li> </ul>

#### **Overall Summary:**

- The community centre fared badly during Dorian, with the end of the centre collapsing, forcing evacuees to flee to chapel.
- Centre n process of being repaired. Needs to be repaired to a higher quality than before, with pre-positioned equipment and supplies to act as an evacuation shelter.
- Not suitable for a long-term shelter.
- The church is being very proactive, in building a purpose-built hurricane shelter with:
  - mobile partitions for both genders and families.
  - elevated above flood level.
  - impact windows.
  - kitchen/shower/toilet facilities for 400pp.
  - cots,
  - generator,
  - water pump.
  - concrete building with steel roof, hurricane straps and well secured for Cat5.



## 7.2.18 Holmes Rock Chapel – West Grand Bahama

<b>GPS:</b>	26.5698, - 78.8490	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Pastor Edward Monroe	<b>Shelter Owner</b>	Holmes Rock Church
<b>Date of Assessment:</b>	2 <sup>nd</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	No
<b>Living Area</b>	200m <sup>2</sup>	<b>Capacity</b>	Unknown
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	130	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	55
<b>Toilets</b>	1 Male + 1 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Adequate	<b>Cooking facilities</b>	None
<b>Generator</b>	No generator	<b>Water / Waste</b>	No potable water supply. Septic tank
<b>Roof</b>	Gable shingle roof damaged during Mathew and Dorian. In poor condition.	<b>Windows/Shutters</b>	Plain glass with no shutters.
<b>Comms</b>	None on site	<b>Disability Access</b>	No - steps at front of church

**This is not an official shelter and was not used for Dorian, so only a light review completed.**

### Catchment Area:

This is not an official shelter, and was not used in Dorian because it failed inspection. There is much capacity needed in West Grand Bahama as there is only 1 official shelter to house a population of c.15,000. The shelter is currently unsuitable due to a damaged roof.

### Map



## Photos



The building is not in excellent state of repair due to roof damage, and general lack of maintenance.

### **Overall Summary:**

- The church is situated on flat grounds, close to a population that does not have many other shelter options, and next to a primary school and community centre that could provide additional capacity / facilities.
- The church's roof is not in a good state of repair, and during Dorian there was considerable water ingress but not flooding. There is considerable debris behind building. The building would need to be repaired to a higher quality than before, with pre-positioned equipment and supplies to act as an evacuation shelter.
- Not suitable for a long-term shelter

## 7.2.19 Foster Pastiana Centre, Freeport – Grand Bahama

<b>GPS:</b>	26.5318, - 78.6911	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Lindsey Adderly	<b>Shelter Owner</b>	Cathedral of Christ The King
<b>Date of Assessment:</b>	28 <sup>th</sup> February 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Primary School	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	280m <sup>2</sup> (Foster Pestina) + 350m <sup>2</sup> (Cathedral, not used/official, but used during Jean)	<b>Capacity</b>	200
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	185	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	80
<b>Toilets</b>	4 Male + 4 Female	<b>Showers</b>	1 Male + 1 Female
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Destroyed during Dorian
<b>Generator</b>	Own generator	<b>Water / Waste</b>	Emergency water supply onsite; Septic tank which flooded.
<b>Roof</b>	Gable CGI roof (chapel), Flat roof on community centre. Fared ok during Dorian with minor leaks.	<b>Windows/Shutters</b>	Plain glass with no shutters.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

This shelter, with a capacity of 200 is designated for patients with special needs (e.g. pregnant mothers almost at term and mothers who have recently given birth). It is for the entire population of Grand Bahama of c.55,000.

### Map:





## Exterior:



## Interior:



Foster Pastina Centre: 280m<sup>2</sup> (18.3m x 15.3m); Cathedral: 350m<sup>2</sup> (23.1m x 15.4m)

## Interior & Plan (of living area):





### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Cathedral complex is on a large plot of land with spacious grounds, and no dangerous trees/pylons/access issues. Very large car park.</li> <li>Centre flooded during Dorian.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Large complex. Generally, robustly built building, largely made of concrete.</li> <li>Could benefit from more robust glass windows and shutters.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Kitchen was well equipped, but needs re-equipping after Dorian due to flooding. Generator on-site. Insufficient first aid kits / fire extinguishers. Good toilet facilities, and 2 showers. On site potable water supply. Telecoms equipment insufficient.</li> <li>Pre-positioned cots/blankets and 7-day supply of water, food.</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services, with defence force in attendance.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Communication with EOC managed by social services, but failed quickly. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Church + Social Services + Defence Force appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out.</li> <li>Operational building so ongoing maintenance done to a certain degree.</li> <li>No drills.</li> </ul>

### **Experience during Dorian: POOR**

- This facility is used for patients and people with special needs. It has close proximity to the hospital which is useful.
- This facility has been used for hurricanes for many years and is generally well prepared and operates well.
- The main shelter area was compromised when storm surge flooded the area. Patients stayed on the elevated stage of the community centre until water receded.

### **Recommended Improvements:**

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Re-kitting out kitchen with equipment and supplies</li> <li>Pre-position emergency supplies.</li> <li>New, more sophisticated telecoms system for better communication with EOC.</li> </ul>	<ul style="list-style-type: none"> <li>The building and its staff are well equipped to deal with special needs patients. For a longer term it could accommodate 80 people with special needs.</li> </ul>

### **Overall Summary:**

- The community centre is for special needs patients, and has experience of this during many hurricanes.
- Building fared ok during Dorian, albeit with flooding and some minor roof leaks.
- Centre is well equipped and prepared, albeit with flood risk. Pre-positioned equipment and supplies to act as an evacuation shelter.
- Suitable for a long-term shelter for patients with special needs.

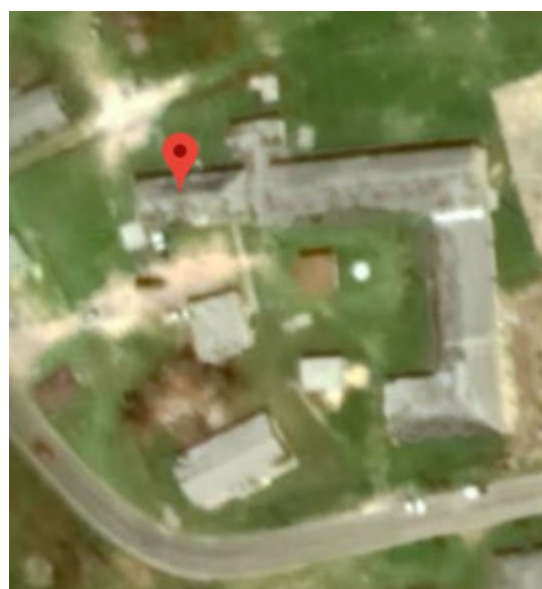
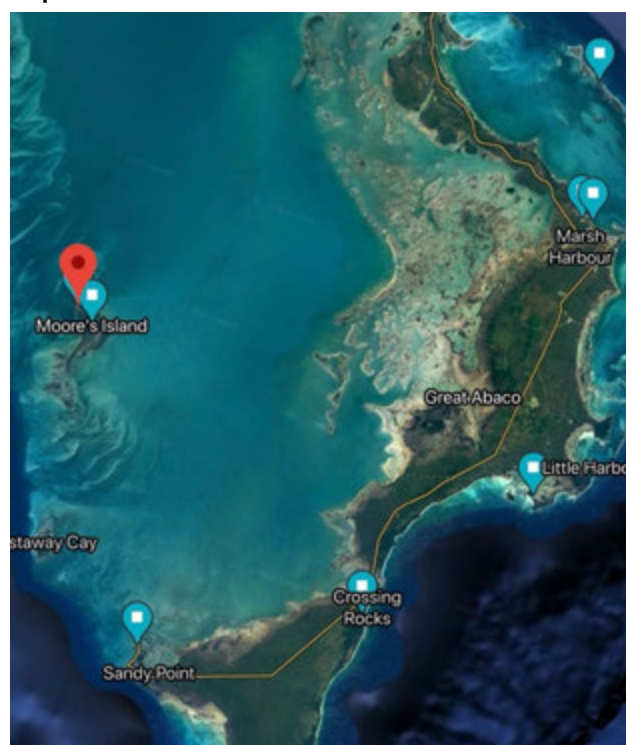
## 7.2.20 Moore's Island School - Abaco

<b>GPS:</b>	26.3154, - 77.5751	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Chief Councilor Stuart & Sophia Smith	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	11 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	School	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	105 m <sup>2</sup> (outbuilding). Additional 10 classrooms not part of shelter (420m <sup>2</sup> )	<b>Capacity</b>	260 (official), 0 (during Dorian)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	70	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	30
<b>Toilets</b>	2 Male + 2 Female (via outside walkway)	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	None
<b>Generator</b>	None	<b>Water / Waste</b>	Large cistern under school, but needs pump + filtration/boiling ; septic tank
<b>Roof</b>	Gable shingle roof, damaged during Dorian, currently being repaired	<b>Windows/Shutters</b>	Robust steel louvered shutters, but many blown out during Dorian.
<b>Comms</b>	Govt issued VHF radio, but could not use this to communicate with EOC.	<b>Disability Access</b>	No

### Catchment Area:

There are 2 shelters on Moore's Island, servicing a population of nearly 600. The school is the back-up option. At short notice, there is no option to evacuate the island, so having a local emergency shelter is important. There are at least 2 other options (an unfinished athletics dorm and a dormitory formerly used as a shelter).

### Map:



## Exterior:

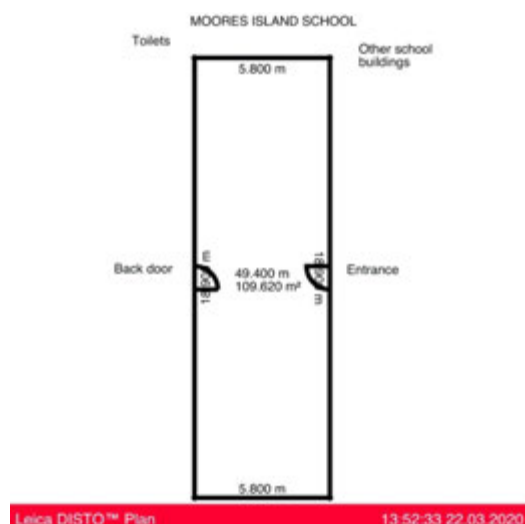


## Interior:



1 outbuilding totalling 109m<sup>2</sup> (5.8m x18.9m)

## Plan (of living area):



#### Issues:



Damage to roof windows due to Dorian winds.

#### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Primary school complex on relatively flat ground with sizeable amount of grounds. Site is slightly above sea level which, during Dorian, saved it from flooding.</li> <li>Well situated close to population centres.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>Very old (c. 80 yrs old) building, not very well maintained.</li> <li>Roof was badly damaged, and a number of windows were blown out during Dorian, resulting in water ingress.</li> <li>Some work has been done to shore up roof, with some more work to be done. Needs to be significantly stronger than pre-Dorian to be effective.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>No generator.</li> <li>Large water tank, however, this requires pump and boiling / filtering to drink.</li> <li>Male and 2 Female toilets, no shower.</li> <li>No kitchen, no fire extinguishers, small first aid kit.</li> <li>No supplies sent. Evacuees instructed to bring their own things.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>Shelter is not operated by anyone, it's simply opened. No trained shelter manager, defence force, or any medical staff present.</li> <li>No procedures, registration etc.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Govt issues VHF radio, but not able to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>No trained shelter manager, defence force, or any medical staff present.</li> </ul>
Maintenance	POOR	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational school so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### **Experience during Dorian: POOR**

- The shelter, with an official capacity of 200, was opened but no-one used it.
- An old building, there was some damage to the roof, windows and doors caused leaking.
- The shelter had to be very self-sufficient. No govt personnel came to manage it, and no equipment or supplies were sent. Post Dorian, the community have been left to try and make repairs.
- No reported protection issues.
- No ability to communicate with EOC.



### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Completion of building renovation after damage in Dorian (roofing, windows, structural repairs).</li> <li>• Add water pump/filtration system.</li> <li>• Emergency lighting (solar lights / torches) recommended.</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• With the building being on the small side, and being a school, this would be at the expense of the school operating and not taking advantage of economies of scale, and is therefore not advisable.</li> </ul>

### **Overall Summary:**

- The school is one of two options on Moore's Island, a remote location.
- During Dorian there was damage to the roof and some windows blew out causing leaking. Currently being repaired by an NGO, Global Emergency Mission.
- Needs to be repaired to a higher quality than before to act as an evacuation shelter, with additional equipment.
- The cays are left to be far more self-sufficient than the mainland. A shelter of some description is needed as there is no plan B in an emergency otherwise, so worth investing in ensuring these buildings are able to perform.
- Capacity is nowhere near enough for whole Cay if there is a rush to leave homes next time.
- Not suitable for a long-term shelter.

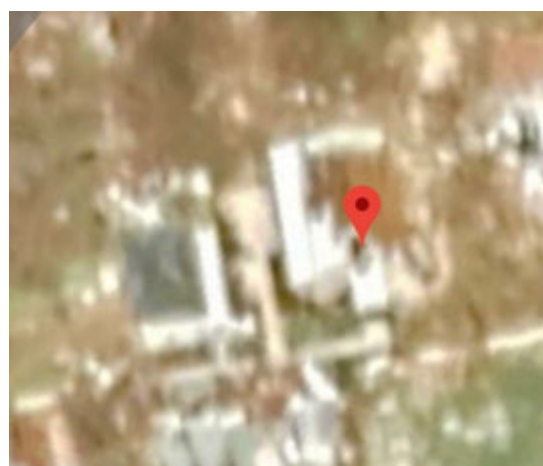
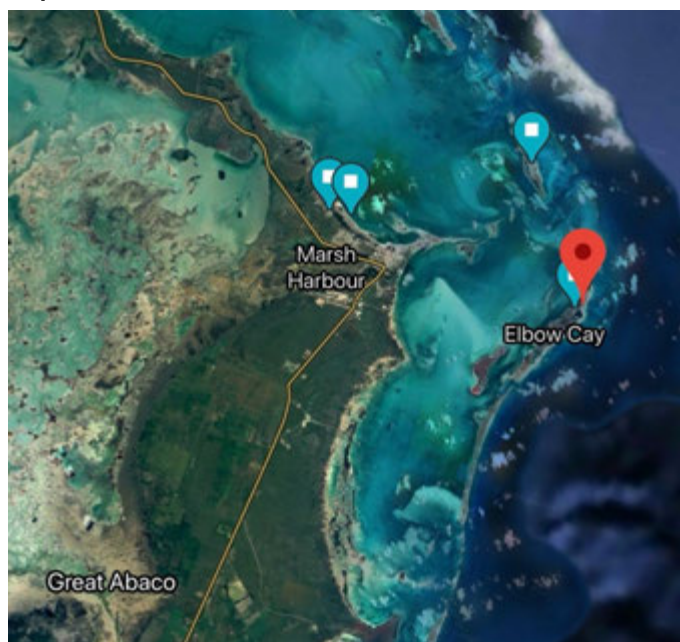
## 7.2.21 Hope Town Community Centre - Abaco

<b>GPS:</b>	26.5402, - 76.9588	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Monica Cook and Stafford Patterson	<b>Shelter Owner</b>	Hope Town Community
<b>Date of Assessment:</b>	9 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Community Centre	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	120 m <sup>2</sup>	<b>Capacity</b>	15 (official), 30 (during Dorian)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	80	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	35
<b>Toilets</b>	2 Male + 2 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	None
<b>Generator</b>	Own generator onsite which was destroyed.	<b>Water / Waste</b>	No emergency water supply; septic tank
<b>Roof</b>	Gable shingle roof, heavily damaged during Dorian. Tarp covering roof currently.	<b>Windows/Shutters</b>	Plain glass with shutters. Some windows broken.
<b>Comms</b>	None (cell phone only)	<b>Disability Access</b>	Yes (back)

### Catchment Area:

This is the only shelter on Hope Town, which has a population of c.400. At short notice, there is no option to evacuate the island, so having a local emergency shelter is important, and this appears to be the best option. A school was formerly used, but this was badly damaged during Dorian.

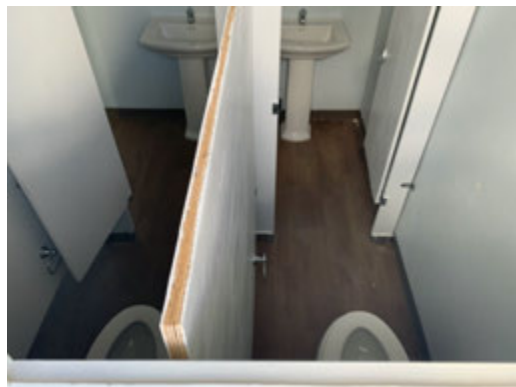
### Map:



**Exterior:**



**Interior:**

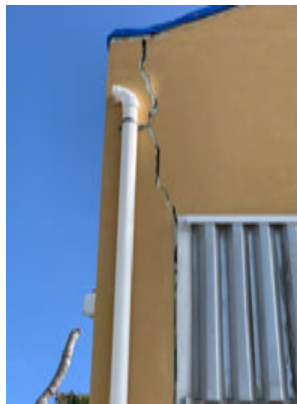


1 large room with various rooms (kitchen, meeting room, toilets) off it. 120m<sup>2</sup> (11.9m x 10.2m)

## Plan (of living area):



## Issues:



Major damage to roof. Minor damage to doors and windows due to Dorian winds. Structural issues.

## Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Community centre centrally located for the cay population. Slightly narrow entrances.</li> <li>Site currently has building materials due to repair construction.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>The only shelter on Guana Cay.</li> <li>Roof received major damage. Doors and windows were partially damaged during Dorian. Evidence of structural damage.</li> <li>Major redevelopment work required, to a higher standard than before. Currently trying to raise funds.</li> <li>Good hurricane shutters which were partially successful.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Own generator which was destroyed.</li> <li>No freshwater tank. Septic tank for sewerage.</li> <li>2 Male and 2 Female toilets, no shower.</li> <li>Kitchen, kitchen equipment satisfactory.</li> <li>No fire extinguishers, first aid kit.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>Shelter was opened and run by a local shelter manager (member of community).</li> <li>No trained shelter manager, defence force, or any medical staff present.</li> </ul>



Communications	POOR	<ul style="list-style-type: none"> <li>No registration process.</li> <li>No specialized telecoms equipment, so no ability to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>Shelter was left to a shelter manager (member of community).</li> <li>No defence force staff or social services.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational community centre so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### **Experience during Dorian: POOR**

- The shelter, with a capacity of 15, housed 30 people during Dorian. Major damage to the roof. Minor damage to windows and doors.
- The shelter had to be very self-sufficient. No govt personnel came to manage it, and no equipment or supplies were sent. Post Dorian, the community have been left to try and make repairs.
- No reported protection issues.
- No ability to communicate with EOC.

#### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Completion of building renovation after damage in Dorian (roofing, windows, doors, structural repairs).</li> <li>Add freshwater tank/water pump/filtration system.</li> <li>Emergency lighting (solar lights / torches) recommended.</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>Not advisable on basis of economies of scale. Next door there is a 'heritage building' which acted as a long-term shelter for a few people which could be used.</li> </ul>

#### **Overall Summary:**

- The school is the only realistic option for emergency shelter in Hope Town.
- Fared badly during Dorian, with major damage to the roof, and minor windows and doors damage.
- Needs to be repaired to a higher quality than before to act as an evacuation shelter, with additional equipment.
- The cays are left to be far more self-sufficient than the mainland. A shelter of some description is needed as there is no plan B in an emergency otherwise, so worth investing in ensuring these buildings are able to perform.
- Capacity is nowhere near enough for whole Cay if there is a rush to leave homes next time.
- Not suitable for a long-term shelter.

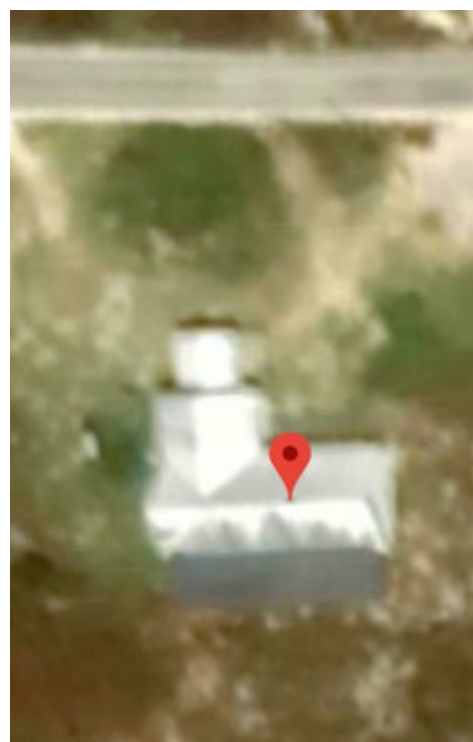
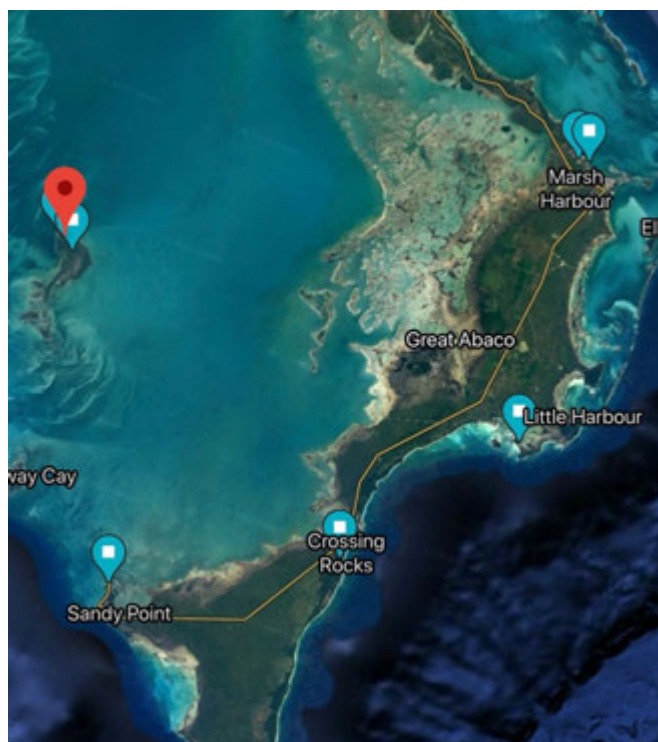
## 7.2.22 Soul Seeking Ministries, Moore's island - Abaco

<b>GPS:</b>	26.3141, - 77.5676	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Chief Councilor Stuart	<b>Shelter Owner</b>	Soul Seeking Evangelistic Ministries
<b>Date of Assessment:</b>	11 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	205 m <sup>2</sup> (chapel). Additional lean-to not part of shelter (135m <sup>2</sup> )	<b>Capacity</b>	100 (official), 20 (during Dorian)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	135	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	60
<b>Toilets</b>	2 Male + 2 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	None
<b>Generator</b>	None	<b>Water / Waste</b>	No access to potable water; septic tank too small and doesn't work when power is out
<b>Roof</b>	Gable shingle roof, very minor damage during Dorian.	<b>Windows/Shutters</b>	Plain glass windows with no shutters.
<b>Comms</b>	Govt issued VHF radio, but could not use this to communicate with EOC.	<b>Disability Access</b>	Yes

### Catchment Area:

There are 2 shelters on Moore's Island, servicing a population of nearly 600. The church is the primary option. At short notice, there is no option to evacuate the island, so having a local emergency shelter is important. There are at least 2 other options (an unfinished athletics dorm and a dormitory formerly used as a shelter).

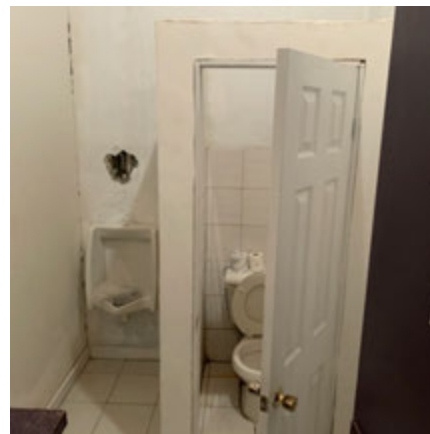
### Map:



**Exterior:**

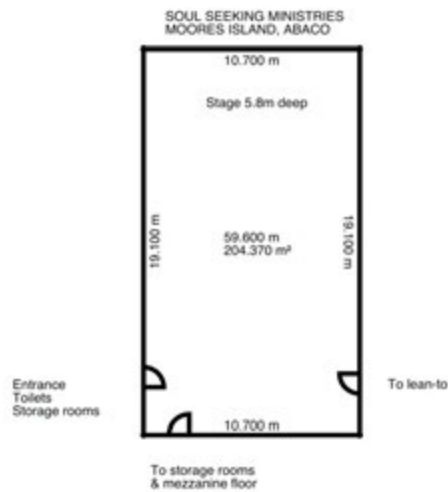


**Interior:**



Chapel totalling 205m<sup>2</sup> (10.7m x 19.1m). Lean-to being constructed 135m<sup>2</sup> (22.9m x 6.0m)

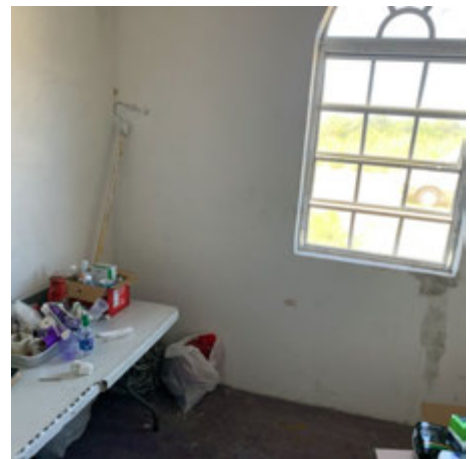
#### Plan (of living area):



Leica DISTO™ Plan

17:42:49 22.03.2020

#### Issues:



Minor damage to roof, doors and windows due to Dorian winds. General lack of maintenance

#### Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Church complex on relatively flat ground with sizeable amount of grounds. Site is slightly above sea level which, during Dorian, saved it from flooding.</li> <li>Well situated close to population centres.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Building not very well maintained. New lean-to being (poorly) built. Evidence of lack of maintenance in eaves, widows etc.</li> <li>Roof, windows and doors received minor damaged during Dorian, resulting in water ingress.</li> <li>Building could do with being re-enforced to be effective, such as addition of hurricane strapping.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>No generator.</li> <li>No freshwater tank.</li> <li>, however, this requires pump and boiling / filtering to drink.</li> <li>2 Male and 2 Female toilets, no shower.</li> <li>Septic tank system not up to the job. Does not work without power.</li> </ul>



		<ul style="list-style-type: none"> <li>No kitchen, no fire extinguishers, small first aid kit.</li> <li>No supplies sent. Evacuees instructed to bring their own things.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>Shelter is not operated by anyone, it's simply opened. No trained shelter manager, defence force, or any medical staff present.</li> <li>No procedures, registration etc.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Govt issues VHF radio, but not able to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>No trained shelter manager, defence force, or any medical staff present.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### **Experience during Dorian: POOR**

- The shelter, with an official capacity of 100, was opened and about 20 people used it.
- There was some minor damage to the roof, windows and doors but in general it stood up well to Dorian.
- The shelter had to be very self-sufficient. No govt personnel came to manage it, and no equipment or supplies were sent. Post Dorian, the community have been left to try and make repairs.
- No reported protection issues.
- No ability to communicate with EOC.

#### **Recommended Improvements:**

	For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>Completion of minor building renovation after damage in Dorian (roofing, windows, structural repairs).</li> <li>Add water tank/pump/filtration system.</li> <li>Emergency lighting (solar lights / torches) recommended.</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>With the building being an operational church, this would be at the expense of the chapel operating, and is therefore not advisable.</li> </ul>

#### **Overall Summary:**

- The school is one of two options on Moore's Island, a remote location.
- During Dorian there was minor damage to the roof and windows which require some repair, but it's currently operational.
- The cays are left to be far more self-sufficient than the mainland. A shelter of some description is needed as there is no plan B in an emergency otherwise, so worth investing in ensuring these buildings are able to perform.
- Capacity is nowhere near enough for whole Cay if there is a rush to leave homes next time.
- Not suitable for a long-term shelter.

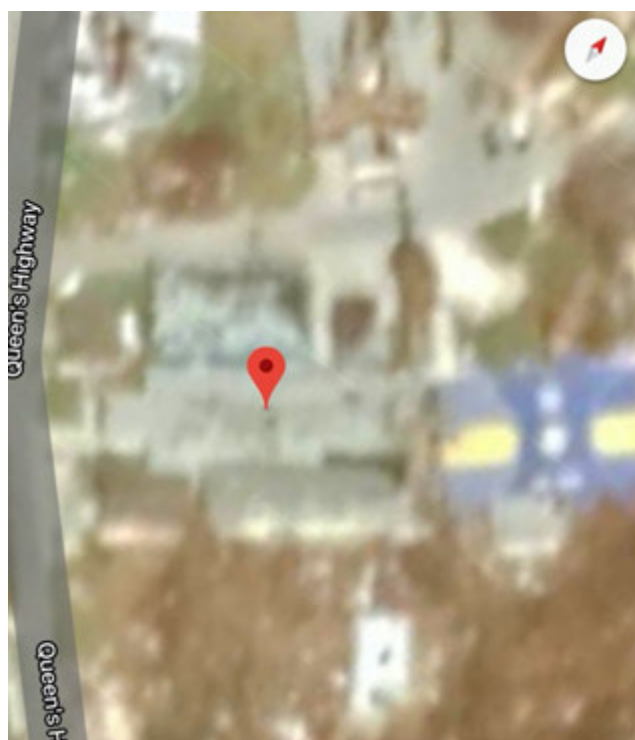
## 7.2.23 Man-O-War School - Abaco

<b>GPS:</b>	26.5957, - 77.0048	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Emily Russell and Debbie Clarke	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	9 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	School	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	140 m <sup>2</sup> (4 classrooms)	<b>Capacity</b>	40 (official), 6 (during Dorian)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	90	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	40
<b>Toilets</b>	2 Male + 2 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Adequate
<b>Generator</b>	Own generator onsite	<b>Water / Waste</b>	Large cistern under school with a week's worth of water, but needs filtering/boiling; septic tank
<b>Roof</b>	Gable shingle roof, partially damaged during Dorian, currently being repaired	<b>Windows/Shutters</b>	Plain glass with no shutters.
<b>Comms</b>	None (cell phone only)	<b>Disability Access</b>	Yes (back)

### Catchment Area:

This is the only shelter on Man-O-War, which has a population of c.300. At short notice, there is no option to evacuate the island, so having a local emergency shelter is important, and this appears to be the best option. A wooden church opposite the school was formerly used, but this was badly damaged during Dorian.

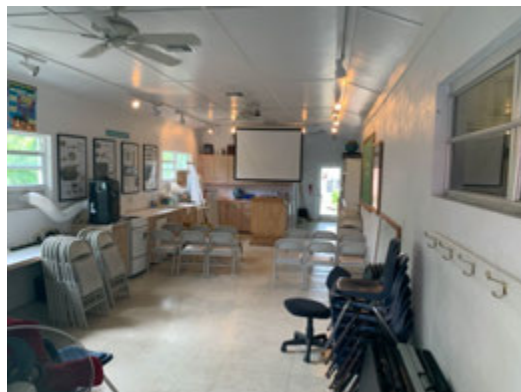
### Map:



**Exterior:**



**Interior:**



4

classrooms totalling 128m<sup>2</sup> (5.8m x 5.5m, 5.8m x 4.7m, 5.8m x 6.3m, 10.3 x 4.4m)

**Plan (of living area):**



#### Issues:



Minor damage to roof, doors and windows due to Dorian winds.

#### Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Primary school complex on flat ground on the top of a hill with a small amount of grounds. Site is at the top of a hill which is good for storm surge but not so good for wind protection.</li> <li>Site currently has building materials due to repair construction.</li> <li>Relatively narrow path to front door, up a flight of stairs.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>The only shelter on Man-O-War. Roof and windows were partially damaged during Dorian. Some work has been done to shore up roof, with some more work to be done, but it's currently operating as a school fine.</li> <li>Would be good to add extra security to roof e.g. hurricane strapping.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Own generator and own large water tank, however this requires boiling / filtering to drink.</li> <li>4 classrooms, 2 Male and 2 Female toilets, no shower.</li> <li>Kitchen, kitchen equipment, fire extinguishers, first aid kit satisfactory. Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>Shelter was opened and run by 2 dedicated local leaders, but there was no trained shelter manager, defence force, or any medical staff present.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>No specialized telecoms equipment, so no ability to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>Shelter was left to manage itself, with no trained shelter manager, no defence force staff or social services.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational school so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### Experience during Dorian: POOR

- The shelter, with a capacity of 40, housed 6 people during Dorian. Some minor damage to the roof, windows and doors caused leaking but on the whole the building stayed together reasonably well.
- The shelter had to be very self-sufficient. No govt personnel came to manage it, and no equipment or supplies were sent. Post Dorian, the community have been left to try and make repairs.
- No reported protection issues.
- No ability to communicate with EOC.



### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Completion of building renovation after damage in Dorian (roofing, windows, structural repairs).</li> <li>• Add water pump/filtration system.</li> <li>• Emergency lighting (solar lights / torches) recommended.</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• With the building being on the small side, and being a school, this would be at the expense of the school operating and not taking advantage of economies of scale, and is therefore not advisable.</li> </ul>

### **Overall Summary:**

- The school is the only realistic option for emergency shelter in Man-O-War
- Fared ok during Dorian, with Some minor damage to the roof, windows and doors caused leaking but on the whole the building stayed together reasonably well.
- Needs to be repaired to a higher quality than before to act as an evacuation shelter, with additional equipment.
- The cays are left to be far more self-sufficient than the mainland. A shelter of some description is needed as there is no plan B in an emergency otherwise, so worth investing in ensuring these buildings are able to perform.
- Capacity is nowhere near enough for whole Cay if there is a rush to leave homes next time.
- Not suitable for a long-term shelter.

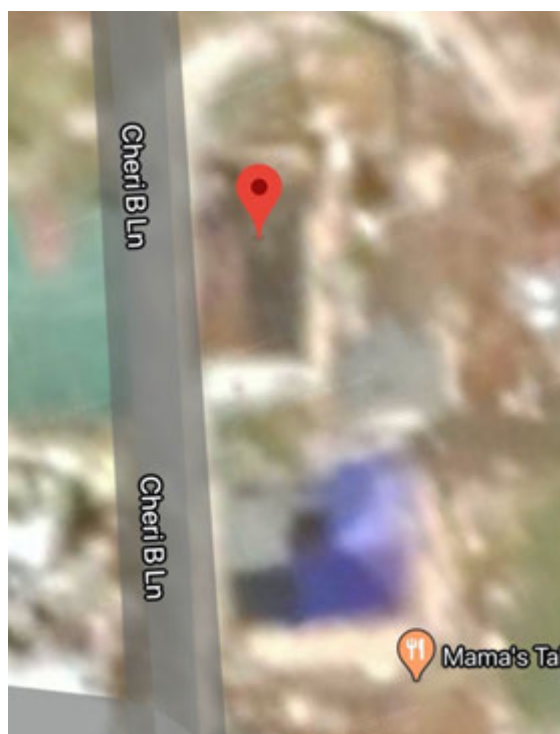
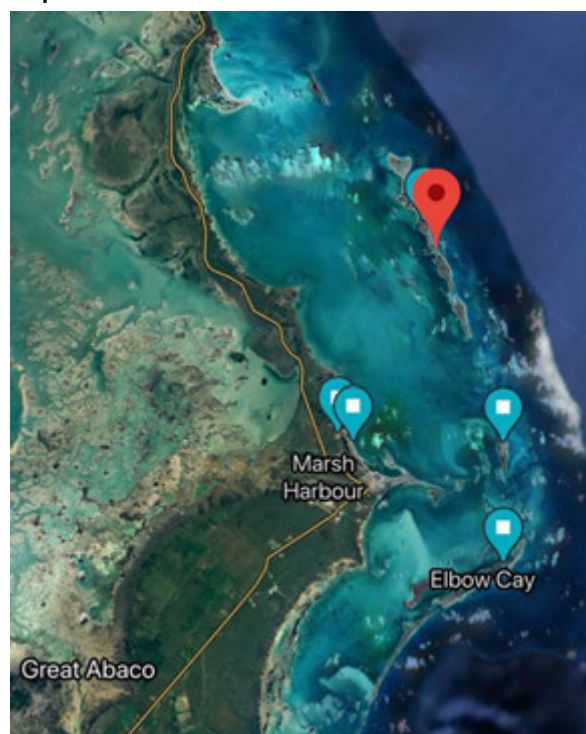
## 7.2.24 Great Guana Cay School - Abaco

<b>GPS:</b>	26.6676, - 77.1106	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Donna Sands and Mrs. Williams	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	10 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	School	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	105 m <sup>2</sup> (2 classrooms)	<b>Capacity</b>	40 (official), 6 (during Dorian)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	70	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	30
<b>Toilets</b>	1 Male + 1 Female (destroyed)	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	None
<b>Generator</b>	No generator	<b>Water / Waste</b>	Large cistern under school with a week's worth of water, but needs filtering/boiling; septic tank
<b>Roof</b>	Gable shingle roof damaged during Dorian. Partial repair done.	<b>Windows/Shutters</b>	Plain glass with strong wooden shutters.
<b>Comms</b>	None (cell phone only)	<b>Disability Access</b>	No

### Catchment Area:

This is the only shelter on Guana Cay, which has a population of c.150. At short notice, there is no option to evacuate the island, so having a local emergency shelter is important, and this appears to be the best option. A wooden church on the coast was formerly used, but this was badly damaged by storm surge during Dorian.

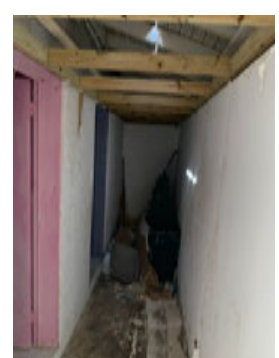
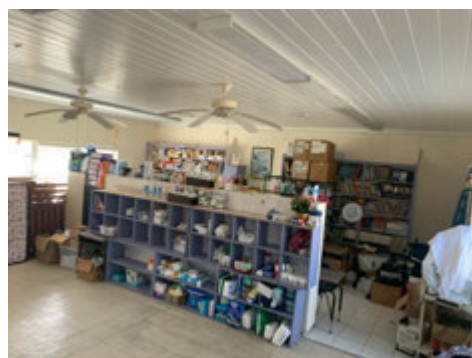
### Map:



# Exterior:

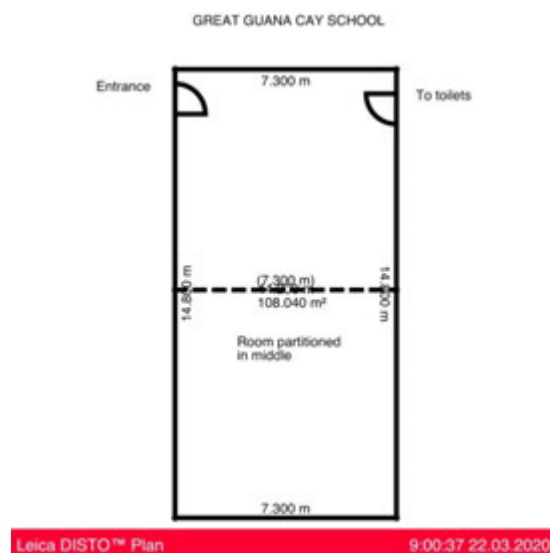


# Interior:

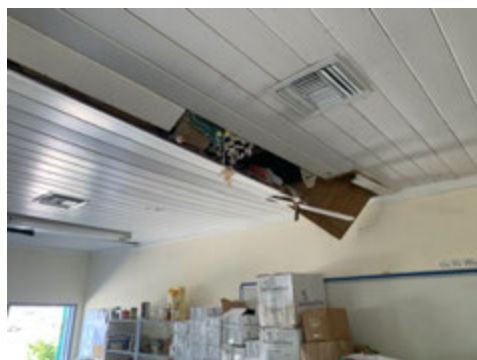


2 classrooms with partition totalling 105m<sup>2</sup> (7.4m x7.3m, 7.4m x7.3m)

# Plan (of living area):



# Issues:



Damage to roof, doors and windows due to Dorian winds.

## Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Primary school complex on flat ground on the top of a hill with very little grounds. Site is at the top of a hill which is good for storm surge but not so good for wind protection.</li> <li>Site currently has building materials due to repair construction.</li> <li>Steep path up to school</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>The only shelter on Great Guana Cay Roof, doors and windows were damaged during Dorian. Some work has been done to shore up roof, with some more work to be done.</li> <li>Currently a distribution centre and makeshift clinic, but not capable of acting as a shelter.</li> <li>Building reasonably solid but would need strengthening to be effective as a robust shelter e.g. hurricane strapping.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Own generator and own large water tank, however this requires boiling / filtering to drink.</li> <li>1 Male and 1 Female toilet via a poorly constructed walkway outside the main building, no shower.</li> <li>No kitchen, no fire extinguishers, small first aid kit.</li> <li>No supplies provided pre-Dorian.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>Shelter was opened but no staff present and no administration</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>No specialized telecoms equipment, so no ability to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>Shelter was opened but no staff present.</li> </ul>
Maintenance	POOR	<ul style="list-style-type: none"> <li>No annual hurricane inspection carried out</li> <li>Operational school but no evidence of a great deal of ongoing maintenance.</li> <li>No drills</li> </ul>



### **Experience during Dorian: POOR**

- A very basic shelter, with no kitchen or cooking facilities, and no generator or power. Also lost water supply when power went out, so lost plumbing at that time as well. They had filled some buckets for flushing the toilets, but those were also limited. There were also no cots or bedding of any kind.
- Roof, doors and some windows were damaged, allowing water ingress.
- 12 people used the shelter during Dorian. The shelter had to be very self-sufficient. No govt personnel came to manage it, and no equipment or supplies were sent. Post Dorian, the community have been left to try and make repairs.
- They are hoping to build a new community shelter in the future.
- The site is now being used as a distribution centre and clinic. Approximately 110 people in this community, and another 100 in Bakers Bay to the north (No Shelter there, but very strongly built houses).
- No reported protection issues.
- No ability to communicate with EOC.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Completion of building renovation after damage in Dorian (roofing, windows, doors, structural repairs) to a higher quality than before.</li> <li>• Add water pump/filtration system.</li> <li>• Emergency lighting (solar lights / torches) recommended.</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• With the building being on the small side, and being a school, this would be at the expense of the school operating and not taking advantage of economies of scale, and is therefore not advisable.</li> </ul>

### **Overall Summary:**

- The school is the only realistic option for emergency shelter in Great Guana Cay
- Had a tough time during Dorian, with Some minor damage to the roof, windows and doors caused leaking but on the whole the building stayed together reasonably well.
- Needs to be repaired to a higher quality than before to act as an evacuation shelter, with additional equipment.
- The cays are left to be far more self-sufficient than the mainland. A shelter of some description is needed as there is no plan B in an emergency otherwise, so worth investing in ensuring these buildings are able to perform.
- Capacity is nowhere near enough for whole Cay if there is a rush to leave homes next time.
- Not suitable for a long-term shelter.

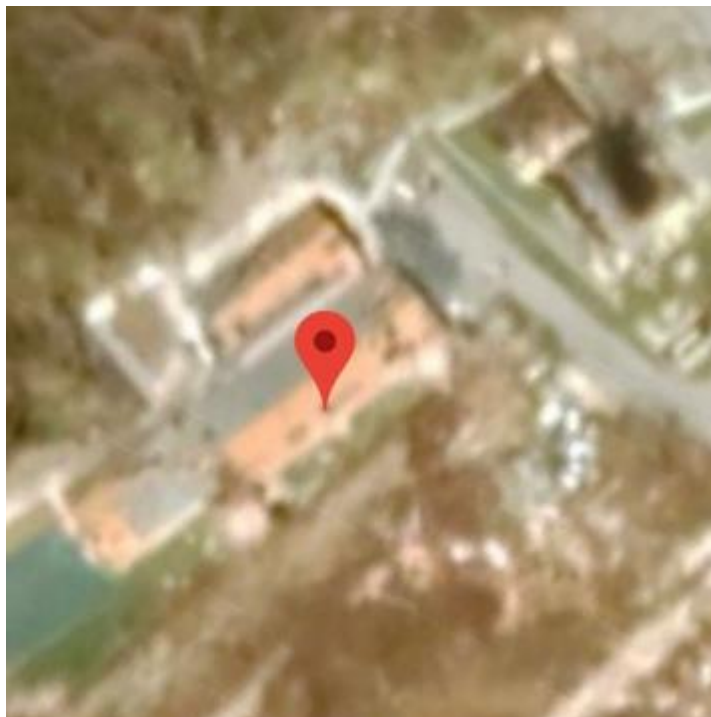
## 7.2.25 Amy Roberts Primary School, Green Turtle Cay - Abaco

<b>GPS:</b>	26.7569, - 77.3258	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Sara Roberts (headmistress) & Gisele McIntosh (local councillor)	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	8 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	School	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	128 m <sup>2</sup> (4 classrooms)	<b>Capacity</b>	35 (official), 46 (during Dorian)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	85	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	35
<b>Toilets</b>	4 Male + 4 Female (destroyed)	<b>Showers</b>	1 Male + 1 female
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Space and equipment destroyed by Dorian
<b>Generator</b>	Small generator onsite	<b>Water / Waste</b>	500-gallon freshwater tank; septic tank
<b>Roof</b>	Shingle roof, badly damaged during Dorian, currently being repaired	<b>Windows/Shutters</b>	Inadequate. Plain glass with some shutters.
<b>Comms</b>	None (cell phone only)	<b>Disability Access</b>	Yes

### Catchment Area:

This is the only shelter on Green Turtle Cay, which has a population of c.500. Formerly 2 other structures (church, hall) but these have been taken off the list as they are wooden and, in an area, that usually floods. They were both severely compromised during Dorian. Its mainly people living on the 'back street' who go to the shelter, as it usually floods.

### Map:



**Exterior:**

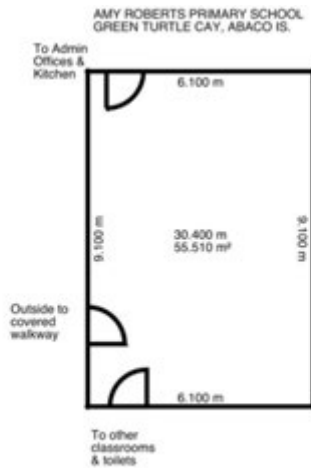


**Interior:**



4 classrooms totalling 128m<sup>2</sup> (6.1m x 9.1m, 6.3m x 6.1m, 3.3m x 5.7m, 3.0 x 5.8m) plus a separate, much older building (c. 1929, not used as shelter).

# Plan (of living area):



Leica DISTO™ Plan 15.22.56 12.03.2020

## Issues:



Extensive damage to all the buildings due to Dorian winds. All roofs either completely ripped off or severely damaged. Roof on main / newer building partially repaired. Many windows blown out.

## Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Primary school complex on flat ground on the top of a hill with a small amount of grounds. Site is at the top of a hill which is good for storm surge but not so good for wind protection.</li> <li>Site currently has debris and building materials due to repair construction.</li> <li>Relatively narrow driveway to access the site, with electrical cables across the entrance. Some taller trees around site.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>The only shelter on Green Turtle Cay. Roof and windows were severely damaged during Dorian. Some work has been done to temporarily shore up roof, and a major plan to renovate the whole site, building a multi-purpose school/hurricane shelter has been made but requires c.\$2M, of which about 20% has been found.</li> <li>Door, roof and window material of old building inadequate, and will be replaced in due course.</li> <li>4 classrooms, 4 Male and 4 Female toilets, , and 1 male and 1 female shower.</li> <li>Kitchen and equipment destroyed and needs replacing.</li> </ul>



Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>• On site generator and large freshwater tank</li> <li>• Kitchen was well equipped, but needs replacing after Dorian.</li> <li>• No provision of comms equipment, blankets, cots, food, or water from Govt prior to Dorian (evacuees had to bring their own).</li> <li>• Good toilet and shower facilities when rebuilt.</li> <li>• Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>• Shelter was left to manage itself, with no trained shelter manager.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>• No specialized telecoms equipment, so no ability to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>• Shelter was left to manage itself, with no trained shelter manager, no defence force staff or social services.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>• Annual hurricane inspection carried out</li> <li>• Operational school so ongoing maintenance done to a certain degree</li> <li>• No drills</li> </ul>

### **Experience during Dorian: POOR**

- The shelter, with a capacity of 36, housed 46 people during Dorian. Most of the building was compromised early on through roof, window and door damage. For most of the storm everyone was in a small storage room at the back of 3.0m x 5.8m (17m<sup>2</sup> = 0.35m<sup>2</sup> each) which had a window blown out and water coming through the ceiling.
- The shelter had to be very self-sufficient. No govt personnel came to manage it, and no equipment or supplies were sent. Post Dorian, the community have been left to try and make repairs.
- No reported protection issues.
- No ability to communicate with EOC.
- Roof has been patched up, but considerable work still required to make it usable as a shelter again. The community have a plan to create a multi-purpose school / hurricane shelter, but this is likely to need \$2M, or which about 20% is funded so far.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Completion of building renovation after damage in Dorian (roofing, windows, structural repairs, electrical and plumbing repairs).</li> <li>• Re-kitting out kitchen with equipment and supplies.</li> <li>• Emergency lighting (solar lights / torches) recommended.</li> <li>• Fire extinguishers and medical kit required</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• With the building being on the small side, and being a school, this would be at the expense of the school operating and not taking advantage of economies of scale, and is therefore not advisable.</li> </ul>

### **Overall Summary:**

- The school is the only realistic option for emergency shelter in Green Turtle Cay.
- Fared badly during Dorian, with severe roof, window and door damage. 46 evacuees ended up in a 17m<sup>2</sup> room with bad leaks and a blown-out window for the majority of Dorian.
- Needs to be repaired to a higher quality than before to act as an evacuation shelter.
- Not suitable for a long-term shelter.
- Longer term, the school is trying to raise funds for a multi-purpose building capable of being a hurricane shelter, which can be supported.

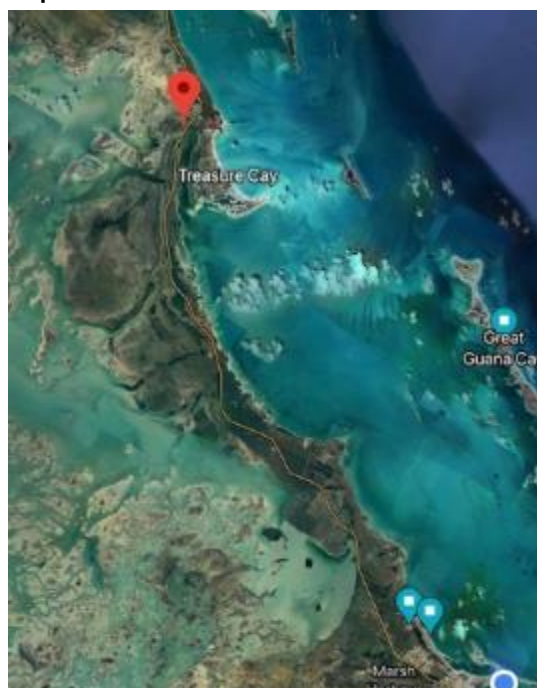
## 7.2.26 New Haitian Mission Baptist Church (The Pink Church), Treasure Cay - Abaco

<b>GPS:</b>	26.6892, - 77.3188	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Julson Macsena, Bishop Cherelus Exante, Brother Charles	<b>Shelter Owner</b>	Church
<b>Date of Assessment:</b>	8 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	410m <sup>2</sup>	<b>Capacity</b>	150 during Dorian
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	270	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	115
<b>Toilets</b>	2 Male + 2 Female	<b>Showers</b>	4 (temporary, outside)
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Basic temporary kitchen set up
<b>Generator</b>	Small generator delivered by NEMA	<b>Water / Waste</b>	Small water tank delivered a few days by NEMA; Septic tank which became overwhelmed
<b>Roof</b>	Shingle gable roof, minor damaged during Dorian.	<b>Windows/Shutters</b>	Plain glass with CGI shutters.
<b>Comms</b>	No special comms in place	<b>Disability Access</b>	No

### Catchment Area:

The only official shelter on the mainland in North Abaco, servicing c. 3,500 people, is in Coopers Town. The Pink church was used by Haitian migrants as refuge out of desperation when it was clear the devastation that Dorian would bring.

### Map:



**Exterior:**



**Interior:**



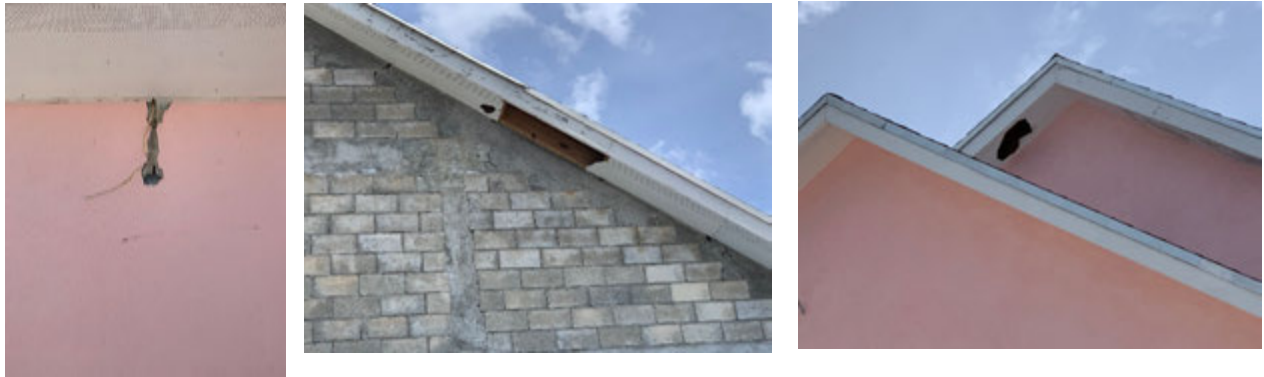
Main church area = 21.3m x 19.4m (410m<sup>2</sup>).

**Plan (of living area):**





#### Issues:



In addition to renovation of the kitchen and meeting areas to the back of the church, there are minor structural issues to walls and roof.

#### **Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Church informally set up as a shelter, mainly for Haitian migrants.</li> <li>Low lying and close to water so significant flood risk (flooded 6 ft during Dorian), and in an area exposed to wind.</li> <li>On main road</li> <li>Currently has an informal tent settlement for Haitian migrants set up around it.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Large building. Quite strong concrete structure which held together well during Dorian despite 6 ft flooding.</li> <li>Minor structural, roofing repairs required as well as completion of kitchen, storage rooms including new furniture and equipment.</li> <li>Should be reinforced (hurricane strapping, stronger roof, stronger windows).</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Kitchen was well equipped, but needs repairing and then re-equipping after Dorian.</li> <li>No generator in place or freshwater supply in place.</li> <li>Will need completely re-kitting with first aid kits, fire extinguishers.</li> <li>Toilet and shower facilities very basic and insufficient.</li> <li>Receives very limited supplies of dried food and bottled water from Govt (evacuees meant to bring their own).</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>No facility management, documentation and processes. Opened its doors, and let people in.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>No specialized telecoms equipment, so no ability to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>No specialist personnel.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

### **Experience during Dorian: POOR**

- An unofficial shelter, it opened its doors to a nearby informal settlement for Haitian migrants of c. 150. The shelter was flooded to about 6 ft, and people took refuge in the rafters of the church.
- The shelter is basic, short of supplies and back up electrical and water supply, and specialized personnel.
- Despite the terrible circumstances, there were no reported protection issues.
- No ability to communicate with EOC.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Whilst the building, with some renovation, is a good size and could be used as an emergency shelter, it is situated in an area that floods, and is likely to be severely compromised during a hurricane.</li> <li>• It is not recommended as an emergency centre. But could be used as a back-up if it's clear the area will not flood.</li> <li>• In that case, it needs to be much better equipped.</li> </ul>	<ul style="list-style-type: none"> <li>• Although the building is large enough for a collective centre, given it is in an area prone to flooding, and is an operating church, it is not advisable.</li> </ul>

### **Overall Summary:**

- The church performed a very valuable service during Dorian but was severely compromised by flooding, and should be used with extreme caution.
- If used, needs to be far better equipped with pre-positioned equipment and supplies to act as an evacuation shelter.
- Not suitable for a long-term shelter, although the area is currently being used as an informal camp.

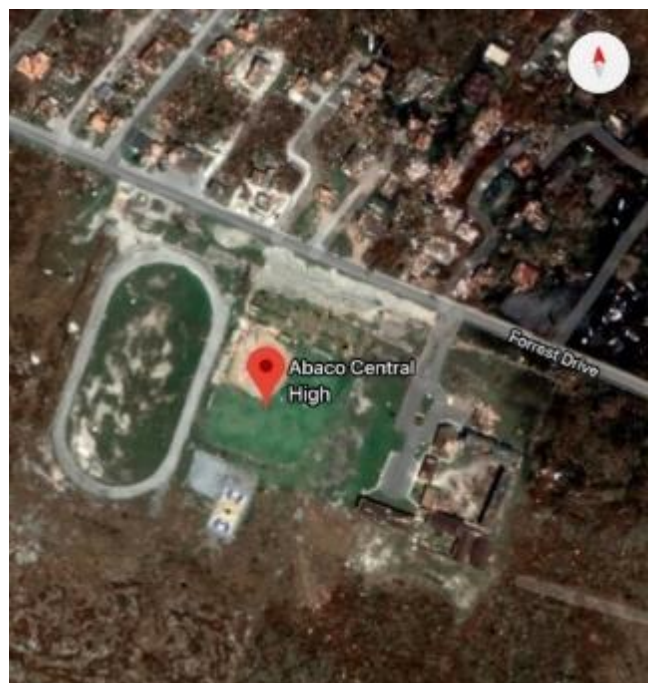
## 7.2.27 Central Abaco High School, Dundas Town - Abaco

<b>GPS:</b>	26.5475, - 77.0965	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Christine Lightbourne, Bahamas Red Cross	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	6 <sup>th</sup> March 2020	<b>Assessors</b>	Richard Lines
<b>Building Type</b>	School	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	1575m <sup>2</sup> (27 classrooms)	<b>Capacity</b>	240
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	1050	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	450
<b>Toilets</b>	Unknown	<b>Showers</b>	Unknown
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Space and equipment destroyed by Dorian
<b>Generator</b>	None	<b>Water / Waste</b>	Unknown
<b>Roof</b>	Gable Shingle roof largely destroyed.	<b>Windows/Shutters</b>	Metal louvered shutters on all windows. Many blew out of frame.
<b>Comms</b>	None	<b>Disability Access</b>	No

### Catchment Area:

This is one of 2 shelters on the Government list for the Marsh Harbour area, servicing Dundas Town, Marsh Harbour, Murphy Town, The Peas and The Mudd which has a population of c.8,700. The combined official capacity of these 2 shelters for emergency purposes is 840. Prior to Dorian it was decided to take the High school off the list of official shelters because it was in a flood prone area.

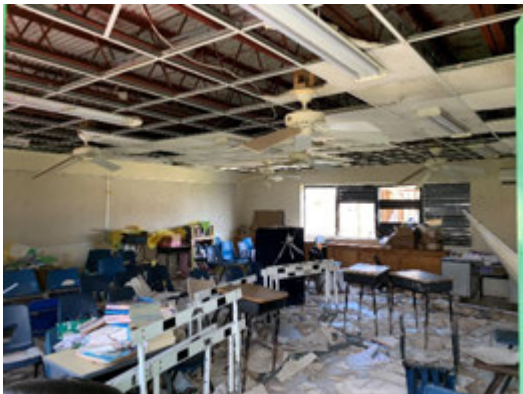
### Map:



# Exterior:



# Interior:



27 classrooms of 8.1m x 7.2m (60m<sup>2</sup>). All with extensive damage as above.

# Plan (of living area):



Standard classroom size



#### Issues:



Extensive damage to all the buildings due to Dorian winds. All roofs either completely ripped off or severely damaged. Most windows blown out.

#### Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	POOR	<ul style="list-style-type: none"> <li>School complex on flat ground with spacious grounds. Site is protected from sea by a ridge, but is not far away. The area floods on a regular basis. Power cables across entrance road.</li> <li>Site currently has significant debris and has not started to be repaired.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>School was severely damaged during Dorian.</li> <li>Building is a robust concrete building. If roof and windows are rebuilt more robustly it could cope very well.</li> <li>Very spacious with 27 classrooms, large toilet facility and kitchen, and storage areas, however moving from room to room is via an outside walkway.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Kitchen was well equipped, but needs repairing and then re-equipping after Dorian.</li> <li>Will need completely re-kitting with first aid kits, fire extinguishers.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	N / A	<ul style="list-style-type: none"> <li>Not used during Dorian</li> </ul>
Communications	N / A	<ul style="list-style-type: none"> <li>Not used during Dorian</li> </ul>
Personnel	N / A	<ul style="list-style-type: none"> <li>Not used during Dorian</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational school so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### Experience during Dorian:

- The school was not used during Dorian.
- The roof was severely damaged, and windows blown out during Dorian

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Renovate building after damage in Dorian (roofing, windows, structural repairs, electrical and plumbing repairs).</li> <li>• Re-kitting out kitchen with equipment and supplies.</li> <li>• Transportation to be able to pick up people would be advantageous.</li> <li>• Emergency lighting (solar lights / torches) recommended.</li> <li>• Additional fire extinguishers and medical kit need replacing.</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• Although the building is large enough and potentially well enough equipped for a collective centre, given it is a school, this would be at the expense of the school operating, and is therefore not advisable.</li> </ul>

### **Overall Summary:**

- The school was not used during Dorian because it was taken off the official list due to it being in an area that regularly floods.
- Even when repaired, even to a higher standard, it should not be used unless in exceptional circumstances due to flood risk, or if it's clear that the trajectory of the hurricane will mean there is not going to be a storm surge or exceptional rainfall levels in Marsh Harbour.

## 7.2.28 Central Abaco Primary School, Dundas Town - Abaco

<b>GPS:</b>	26.5395, - 77.0797	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Christine Lightbourne (Bahamas Red Cross & Shelter Manager)	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	6 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	School	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	2000m <sup>2</sup> (32 classrooms)	<b>Capacity</b>	600
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	1300	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	570
<b>Toilets</b>	9 Male + 15 Female (destroyed)	<b>Showers</b>	12 (destroyed)
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Space and equipment destroyed by Dorian
<b>Generator</b>	Existing generator failed. Two small generators brought (one by defence force, one by evacuee)	<b>Water / Waste</b>	No emergency water supply; Septic tank.
<b>Roof</b>	Gable Shingle roof completely destroyed. Being replaced with CGI.	<b>Windows/Shutters</b>	Metal louvered shutters on all windows. Many blew out of frame.
<b>Comms</b>	VHF radio delivered before Dorian but didn't work during storm. Irregular cell phone signal.	<b>Disability Access</b>	Yes

### Catchment Area:

The high school was taken off the list before Dorian due to flooding fears, so this was the only official shelter on the Government list for the Marsh Harbour area, servicing Dundas Town, Marsh Harbour, Murphy Town, The Peas and The Mudd which has a population of c.8,700.

### Map:



# Exterior:



# Interior:



32 classrooms of 8.7m x 7.2m (60m<sup>2</sup>), currently being reconstructed. 10 classrooms expected to be ready end-April.

# Plan (of living area):

Central Abaco Primary School

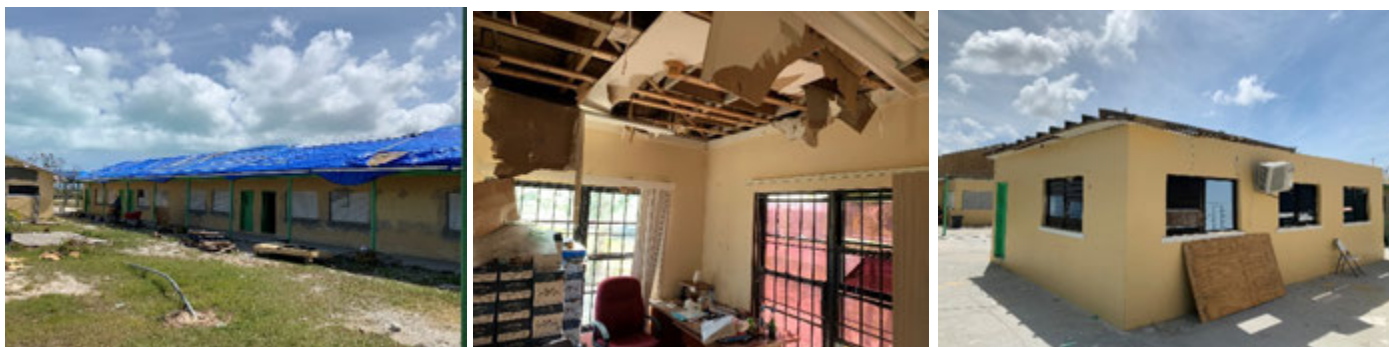


Leica DISTO™ Plan 8.54.30 10.03.2020

Standard classroom size



## Issues:



Extensive damage to all the buildings due to Dorian winds. All roofs either completely ripped off or severely damaged. Most windows, particularly at the back of the school, blown out.

## Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Primary school complex on flat ground with spacious grounds. Site is at the top of a hill which is good for storm surge but not so good for wind protection.</li> <li>Site currently has significant debris and building materials due to repair construction.</li> </ul>
Building	POOR	<ul style="list-style-type: none"> <li>The main shelter on Abaco, with a nominated capacity of 600. Was severely damaged during Dorian and needed evacuation.</li> <li>When repaired, and built back better (hurricane strapping, stronger roof, stronger windows) it should be far more robust.</li> <li>Very spacious with 32 classrooms, over 20 toilets, and 12 showers, and a large kitchen.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Kitchen was well equipped, but needs repairing and then re-equipping after Dorian.</li> <li>Generator in place but wasn't working, and none provided when shelter opened. An evacuee and the defence force brought 2 small generators which provided basic lighting.</li> <li>Will need completely re-kitting with first aid kits, fire extinguishers.</li> <li>Good toilet and shower facilities when rebuilt, and a dirty water well, but no onsite potable water.</li> <li>Receives very limited supplies of dried food and bottled water from Govt (evacuees meant to bring their own). 10 blankets brought by red cross, and 75 cots brought by defence force.</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	EXCELLENT	<ul style="list-style-type: none"> <li>The Shelter Manager is extremely experienced and very well organized.</li> <li>Very thorough set-up inspection, registration, communication on rules with evacuees, scenario run throughs with team.</li> <li>Excellent management of shelter during Dorian.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared worked well.</li> <li>No specialized telecoms equipment, so no ability to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	EXCELLENT	<ul style="list-style-type: none"> <li>Shelter Managers (Ms. Lightbourne and Mr Kennedy) plus 4 red cross assistants + 1 from Social Services for registration + 2 Defence Force + 2 Nurses appeared to work well, with no protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational school so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

### **Experience during Dorian: POOR**

- The shelter managers were very experienced and professional in setting up and managing the shelter during Dorian.
- With a nominated capacity of 600, the shelter housed 438 people in 28 rooms when the storm started. During the first part of Dorian, many rooms became compromised with roofs severely damaged and windows blown out, so by the time the eye arrived there were only 7 rooms being used. The shelter evacuated all but 13 people during the eye to the Govt Building. More people arrived when the storm got going again, with c. 250 people in 5 rooms for the second part of Dorian.
- Very little equipment and supplies were provided to the shelter.
- Despite the terrible circumstances, there were no reported protection issues.
- No ability to communicate with EOC.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Completion of building renovation after damage in Dorian (roofing, windows, structural repairs, electrical and plumbing repairs).</li> <li>• Re-kitting out kitchen with equipment and supplies.</li> <li>• Transportation to be able to pick up people would be advantageous.</li> <li>• Emergency lighting (solar lights / torches) recommended.</li> <li>• Additional fire extinguishers and medical kit required</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• Although the building is large enough and potentially well enough equipped for a collective centre, given it is a school, this would be at the expense of the school operating, and is therefore not advisable.</li> </ul>

### **Overall Summary:**

- The school, with a maximum capacity of 600 is the main shelter in central Abaco, and was severely damaged during Dorian, and is currently being (slowly) rebuilt.
- Needs repairing to a higher standard, in particular the roofing. It also needs pre-positioned equipment and supplies to act as an evacuation shelter.
- Not suitable for a long-term shelter.

## 7.2.29 Primary School, Crossing Rock - Abaco

<b>GPS:</b>	26.5395, - 77.0797	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Israel Williams (Shelter Manager / Mayor)	<b>Shelter Owner</b>	Ministry of Education
<b>Date of Assessment:</b>	7 <sup>th</sup> March 2020	<b>Assessors</b>	Richard Lines
<b>Building Type</b>	School	<b>Used during Dorian</b>	Opened but no-one came
<b>Living Area</b>	150m <sup>2</sup> (4 classrooms)	<b>Capacity</b>	36
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	100	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	40
<b>Toilets</b>	4 Male + 4 Female (via outside walkway)	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Good
<b>Generator</b>	Small generator onsite	<b>Water / Waste</b>	Emergency water tote supplied by Mr Williams; large septic tank
<b>Roof</b>	Shingle roof gable. No Dorian damage.	<b>Windows/Shutters</b>	Louvered metal shutters.
<b>Comms</b>	Govt issues VHF radio. Insufficient to communicate with EOC.	<b>Disability Access</b>	No

### Catchment Area:

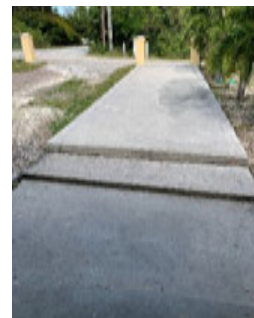
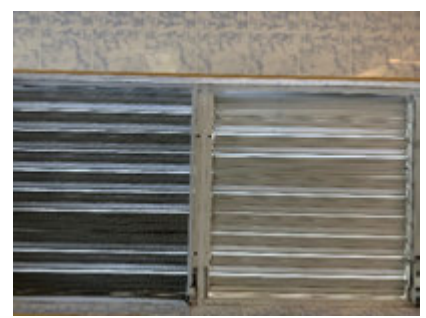
This is one of 3 official shelters on the Government list for onshore South Abaco which has a population of c.1,300 (2010 Census). The capacity of these 3 shelters is 366. Specifically, Crossing Rocks has a population of 300 (2010 Census), and a shelter capacity of 36.

### Map:

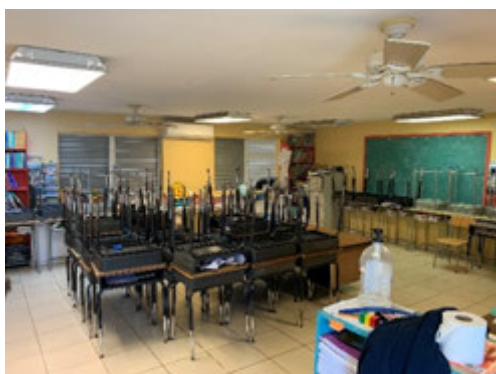




## Exterior:



## Interior:



4 classrooms totalling 130m<sup>2</sup> (2 \* 7.5m x 7.1m, 1 \* 7.6m x 3.3m, 1 \* 4.6m x 3.6m) 60m<sup>2</sup>).

## Plan (of living area):





Example classroom layout

**Issues:**



Minor structural damage outside one room (to be fixed). All rooms connected via an outside walkway.

**Shelter Assessment (Current State of Preparedness)**

Shelter Area	Assessment	Notable Observations
Environment	ADEQUATE	<ul style="list-style-type: none"> <li>Primary school complex on a slight slope with spacious grounds.</li> <li>It is close to the coast and so maybe liable to storm surge and high winds if the storm comes from the east, although the school has never flooded from storm surge before.</li> <li>There is an electrical cable running across the entrance to the school.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Solid building which appears to have weathered storms before. Similar design and maintenance level to all primary schools, so if hit hard by a severe hurricane maybe compromised like Central Abaco primary school was.</li> <li>Outside walkway connected rooms and toilets, which is not ideal.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Kitchen is well equipped.</li> <li>Generator and spare fuel in place.</li> <li>Water tote with potable water delivered before hurricane.</li> <li>Large septic tank.</li> <li>VHF radio but unlikely to help given distance to EOC.</li> <li>School has 4 fire extinguishers but no known medical kit (I would have thought this unlikely, but the headmistress was not present).</li> <li>Major issue is that toilets are only accessible via outside covered walkway.</li> <li>Receives very limited supplies of dried food and bottled water from Govt (evacuees meant to bring their own).</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Mr Williams. Registration forms sent by social services. Somewhat informal.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>VHR radio, but this is insufficient to communicate with EOC.</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Shelter Manager + 1. Although Mr Williams is trained and a leader of the community, this might be insufficient if the hurricane hits with full force.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational school so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

### **Experience during Dorian: ADEQUATE**

- Shelter was opened and ready, but no-one used it, everyone stayed at home or a friend / relative.
- Shelter fared well during Dorian, with no material issues with the building.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• Emergency lighting (solar lights / torches) recommended.</li> <li>• Medical kit required</li> <li>• New, more sophisticated telecoms system for better communication with EOC</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• Given it is a relatively small school, this would be at the expense of the school operating, and would not have economies of scale, and is therefore not advisable.</li> </ul>

### **Overall Summary:**

- The school is the best option for emergency shelter in Crossing Rocks.
- Operated efficiently by Chief Councilor Williams, was opened for Dorian but no-one came. Building did not suffer any damage.
- Some enhancement is recommended including better comms, medical kit, pre-positioned stock.
- Like all schools, toilets are only accessible via an outside covered walkway which is far from ideal.
- Not suitable for a long-term shelter.

### 7.2.30 Casuarina Point Fire Station - Abaco

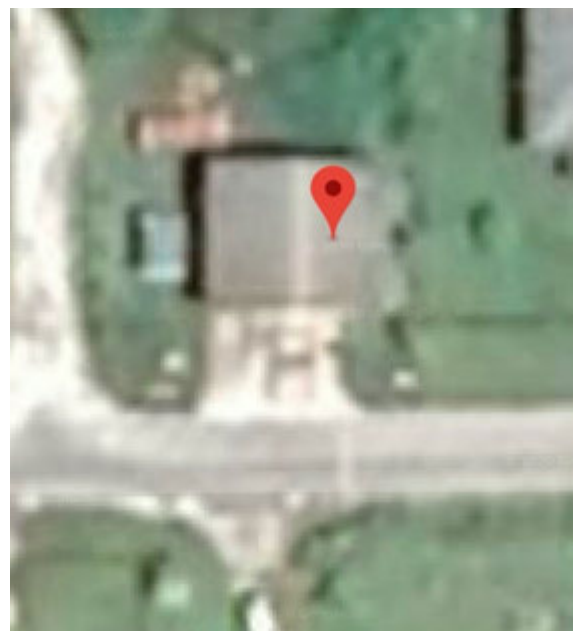
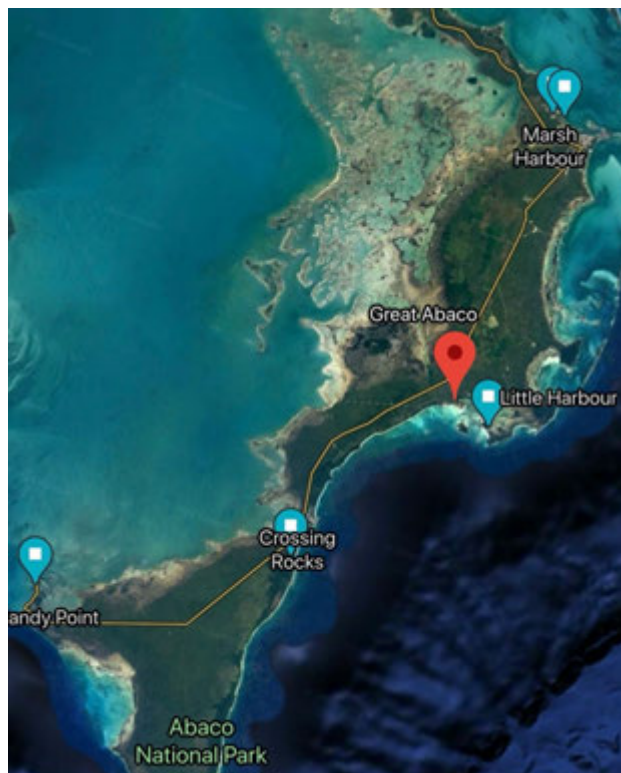
<b>GPS:</b>	26.2923, - 77.0915	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Jason Quashie	<b>Shelter Owner</b>	Casuarina Point community
<b>Date of Assessment:</b>	7 <sup>th</sup> March 2020	<b>Assessors</b>	Richard Lines & Ned Morris
<b>Building Type</b>	Fire Station	<b>Used during Dorian</b>	No (as distribution point)
<b>Living Area</b>	70m <sup>2</sup>	<b>Capacity</b>	Not an official shelter
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	45	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	20
<b>Toilets</b>	1 Male , 1 Female	<b>Showers</b>	1 Male , 1 Female
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Small well-equipped kitchen
<b>Generator</b>	Own generator (not working)	<b>Water / Waste</b>	Large storage tank available; septic tank
<b>Roof</b>	Gable shingle roof, little damage during Dorian.	<b>Windows/Shutters</b>	Plain glass (although few windows) with no shutters
<b>Comms</b>	Unknown.	<b>Disability Access</b>	Yes

**This is a fire station which acted as a distribution point after Dorian.**

#### **Catchment Area:**

There are 3 official shelters on the Government list for onshore South Abaco which has a population of c.1,300 (2010 Census). The closet to Palm Shores is at least 30 minutes' drive away.

#### **Map:**



**Photos:**



**Overall Summary:**

- Fire engines helped with water distribution and food distribution to Palm Shores, but was not used as an evacuation centre, could work well for the Casuarina Point population if hit harder and needing shelter, although close to the coast could mean that it became flooded.
- The station is well situated for the local population, who don't have any other local options, however, is not really large.
- Not suitable for a long-term shelter due to size.



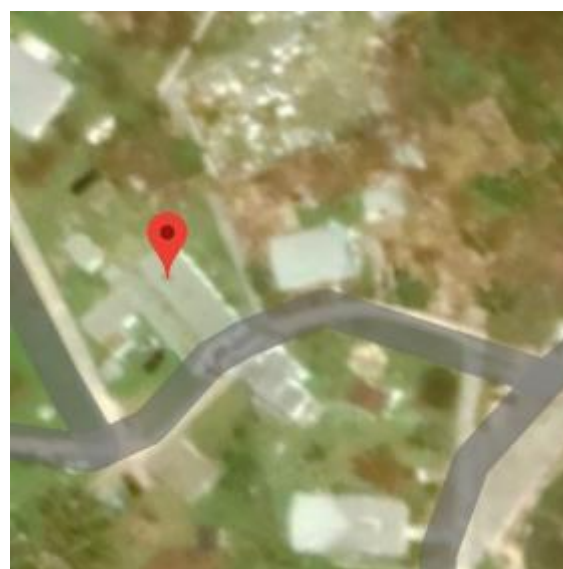
## 7.2.31 Assemblies of God Church, Cherokee Rocks - Abaco

<b>GPS:</b>	26.2824, - 77.0525	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Mikey Lowe	<b>Shelter Owner</b>	Assemblies of God Church
<b>Date of Assessment:</b>	7 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	130m <sup>2</sup>	<b>Capacity</b>	30
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	85	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	35
<b>Toilets</b>	1 Male + 1 Female in outside building	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	Small kitchen in outside building
<b>Generator</b>	None	<b>Water / Waste</b>	None; Small Septic tank powered by electricity which doesn't work if power out.
<b>Roof</b>	Shingle roof gable. Very minor Dorian damage.	<b>Windows/Shutters</b>	Plain glass windows with no shutters.
<b>Comms</b>	None	<b>Disability Access</b>	No

### Catchment Area:

This is one of 3 official shelters on the Government list for onshore South Abaco which has a population of c.1,300 (2010 Census). The capacity of these 3 shelters is 366. Specifically, Cherokee Rocks has a population of 170 (2010 Census), and a shelter capacity of 30.

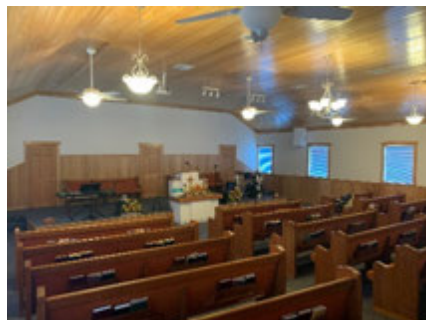
### Map:



# Exterior:



# Interior:



Church = 12.1m x 10.9m (130m<sup>2</sup>)

# Plan (of living area):



#### Issues:



Building is in good shape, with minor damage to roof and a few leaks, which have been repaired. Some minor surface cracks at rear and front of building.

#### Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	POOR	<ul style="list-style-type: none"> <li>Church on a slight slope with spacious grounds and a well-maintained environment.</li> <li>Access is via a narrow path.</li> <li>There are electricity cables around the entrance.</li> <li>Cherokee Rocks can flood and being on the coast, is a candidate for storm surge.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>Strong building which weathered Dorian well.</li> <li>No shutters, and shingle roof which may be vulnerable.</li> </ul>
Services, Equipment, Supplies	POOR	<ul style="list-style-type: none"> <li>Kitchen and toilets are outside in a separate building.</li> <li>No generator in place, and none provided when there is a hurricane.</li> <li>No first aid kits, fire extinguishers, emergency lighting or showers.</li> <li>No supplies provided by Govt when the shelter opens (evacuees meant to bring their own supplies).</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	POOR	<ul style="list-style-type: none"> <li>No support from social services, no documentation.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>No specialized telecoms equipment, so no ability to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>No Shelter Manager, Social Services or Defence Force. Church opened and anyone can use it if they like.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational church so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### Experience during Dorian: ADEQUATE

- The shelter opened and was used by c. 20 people during Dorian. The roof received some minor damage (a few shingles came off) and there was some minor leaks, but it held up quite well.
- The shelter was not managed by anyone, and had no supplies or equipment delivered. There was no generator and no communications equipment.

### **Recommended Improvements:**

	<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<b>Short-term (2020 season)</b>	<ul style="list-style-type: none"> <li>• This is not an ideal emergency shelter due to location (risk of flooding and storm surge, narrow path, electrical cables) and the need to go to another building for kitchen and toilet facilities.</li> <li>• Having said that, for a rural community this is the only real back up option for people who cannot stay in their home/friends' home, or have their home compromised.</li> <li>• In order to make it more acceptable, the shelter should be properly managed, stocked with equipment and supplies, and with an inside solution for cooking and ablutions.</li> <li>• The community is currently planning on building a larger facility on higher ground, to double up as a fire station and emergency shelter, capable of housing 250 people during an emergency. It would be better to help fund this, than put money into the church.</li> </ul>	<ul style="list-style-type: none"> <li>• As an operating church, and also due to economies of scale, it is not advisable to use the church as a collective centre.</li> </ul>

### **Overall Summary:**

- The church is the best option for emergency shelter in Cherokee Rocks, however, is in an area that is often flooded and cut off from the mainland. It's also in a church, with no alternative power or water supply, and toilets only accessible from the outside. In short, it's unsuitable, and should definitely not be used for more than a few days.
- The community are currently trying to raise funds for a multi-purpose building (fire station / hurricane shelter), on higher ground, and capable of protecting 250 people. This should be encouraged.



## 7.2.32 Palm Shores Fire Station - Abaco

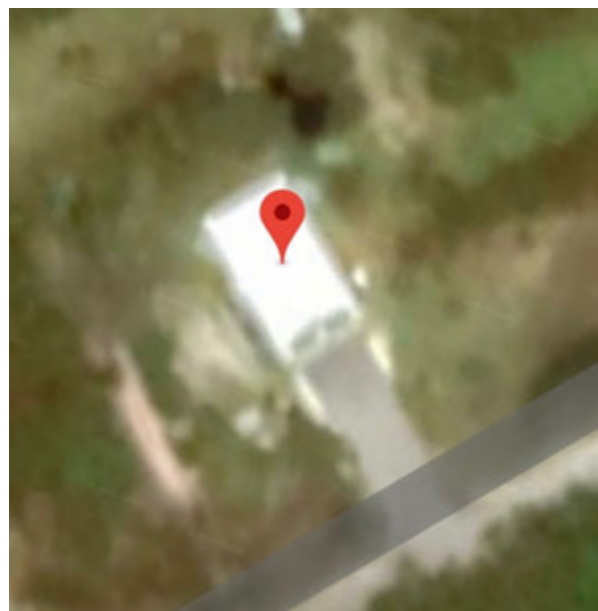
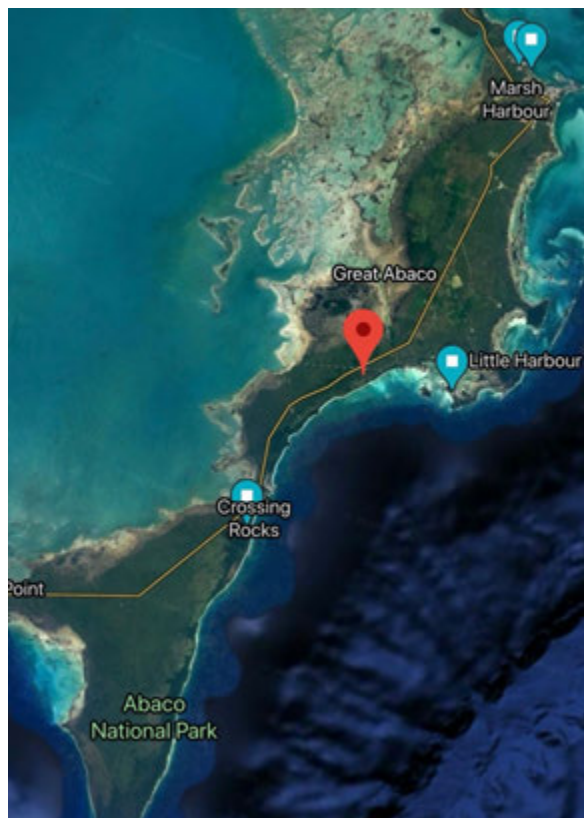
<b>GPS:</b>	26.2683, - 77.1330	<b>Official Gov Shelter?</b>	No
<b>Interviewed</b>	Bruce Smith	<b>Shelter Owner</b>	Casuarina Point community
<b>Date of Assessment:</b>	7 <sup>th</sup> March 2020	<b>Assessors</b>	Richard Lines
<b>Building Type</b>	Fire Station	<b>Used during Dorian</b>	No (as distribution point)
<b>Living Area</b>	90m <sup>2</sup>	<b>Capacity</b>	Not an official shelter
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	60	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	25
<b>Toilets</b>	1 Male , 1 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Good	<b>Cooking facilities</b>	None
<b>Generator</b>	Own generator	<b>Water / Waste</b>	Large pond behind station; septic tank
<b>Roof</b>	Gable CGI roof, no damage during Dorian.	<b>Windows/Shutters</b>	Plain glass with wooden shutters. Good.
<b>Comms</b>	Unknown. Presumably fire station comms.	<b>Disability Access</b>	Yes

**This is a fire station which acted as a distribution point after Dorian.**

### Catchment Area:

There are 3 official shelters on the Government list for onshore South Abaco which has a population of c.1,300 (2010 Census). The closet to Palm Shores is at least 30 minutes' drive away.

### Map:



**Photos:**



**Overall Summary:**

- Fire engines helped with water distribution to Marsh Harbour and food distribution to Palm Shores, but was not used as an evacuation centre, could work well for the Palm Shores population if hit harder and needing shelter, although close to the coast could mean that it became flooded.
- The station is well situated for the local population, who don't have any other local options, however, is not really large.
- Not suitable for a long-term shelter due to size.

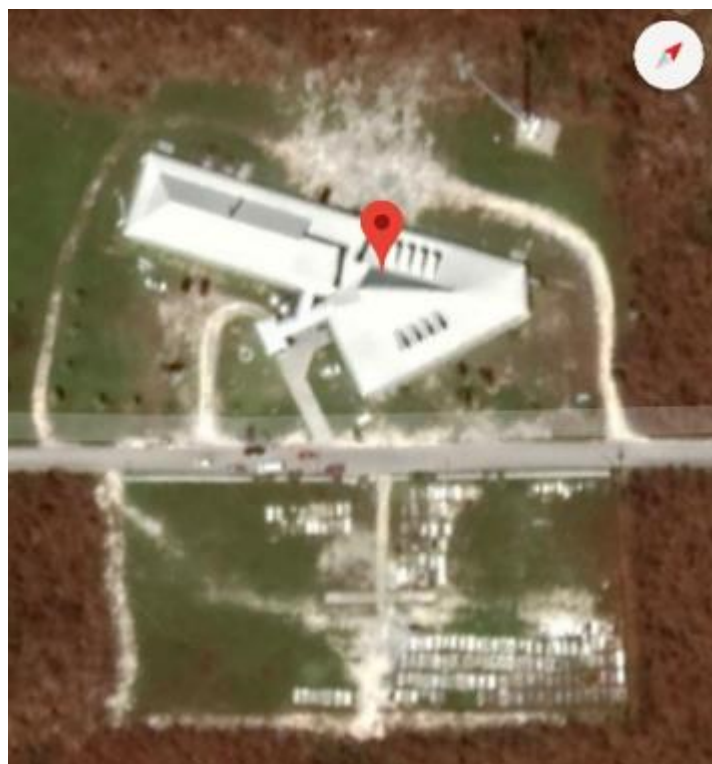
### 7.2.33 Faith Walk Church of God, Coopers Town - Abaco

<b>GPS:</b>	26.8715, - 77.5160	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Pastor Edgecombe	<b>Shelter Owner</b>	Faith Walk Church of God
<b>Date of Assessment:</b>	8 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Church	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	335m <sup>2</sup> (community hall including stage). Chapel (not used) c.600m <sup>2</sup>	<b>Capacity</b>	100 (200 during Dorian)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	220 (hall) + 400 (chapel)	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	95 (hall) + 170 (chapel)
<b>Toilets</b>	4 Male + 4 Female	<b>Showers</b>	1 Male + 1 Female
<b>Lighting/Ventilation</b>	Excellent	<b>Cooking facilities</b>	Excellent
<b>Generator</b>	Own generator	<b>Water / Waste</b>	Emergency water supply onsite. Septic tank onsite but became overwhelmed by number of people
<b>Roof</b>	Gable CGI roof, partially damaged during Dorian, currently being repaired	<b>Windows/Shutters</b>	Plain glass (some panes broken during Dorian) with no shutters.
<b>Comms</b>	No specialized comms system during Dorian.	<b>Disability Access</b>	Yes

#### Catchment Area:

The only official shelter on the mainland in North Abaco, servicing c. 3,500 people, with a stated capacity of 100.

#### Map:

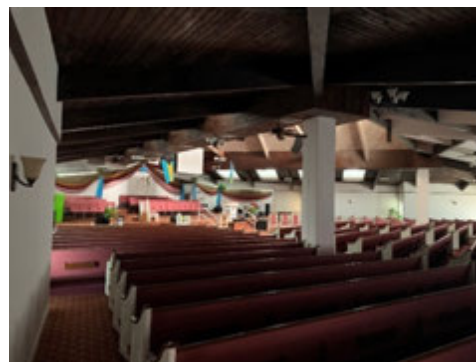




# Exterior:



# Interior:



Community hall including stage: 335m<sup>2</sup> (23.1m x 14.6m). Chapel (not used) c.600m<sup>2</sup> (19m x 27m)

# Plan (of living area):





#### Issues:



Minor damage to portions of the roof and windows due to Dorian winds. Main window above chapel leaks, causing water to drain into chapel.

#### Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Large church complex, close to large community, set back from the sea, up a slight incline at the top of a hill.</li> <li>Might be exposed to full force of the wind.</li> <li>The location of North Abaco's emergency power is adjacent to the church.</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>The main shelter in North Abaco, with a nominated capacity of 200.</li> <li>Robust building with CGI roof and concrete walls / floors/ foundations. Stood up well to Dorian with no flooding and some wind damage to roof and windows.</li> <li>When repaired, and built back better (hurricane strapping, stronger roof, stronger windows) it should be an excellent shelter.</li> <li>Chapel, not used, could add significant additional capacity in an emergency.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>Own generator.</li> <li>Emergency water supply onsite.</li> <li>Adequate toilet and shower facilities</li> <li>Septic tank onsite but became overwhelmed by number of people</li> <li>Small, well equipped kitchen</li> <li>No first aid kits, fire extinguishers.</li> <li>Receives very limited supplies of dried food and bottled water from Govt (evacuees meant to bring their own).</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>

Operations	POOR	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services. Became overwhelmed by numbers and after 45 people they stopped registering people.</li> </ul>
Communications	POOR	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>No specialized telecoms equipment, so no ability to communicate with EOC or anyone else. Only comms were via mobile network, which was inadequate and unreliable.</li> </ul>
Personnel	POOR	<ul style="list-style-type: none"> <li>No Defence Force or medical staff in attendance – given it's the main shelter in North Abaco, this is not acceptable. However, there were no recorded protection issues.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational school so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### **Experience during Dorian: ADEQUATE**

- With a nominated capacity of 200, the shelter was popular with local residents. Once past 45 registration ceased and there were issues with septic tanks. No defence force or medical staff were in attendance.
- Despite this, the shelter worked ok, with a strong building, and good equipment (generator, water supply, toilets, showers etc). Additional equipment – solar lights, additional kitchen equipment, fire extinguishers and medical supplies – would be good.
- Minor roof and window/door damage.
- No ability to communicate with EOC.

#### **Recommended Improvements:**

<b>For Emergency Centre (2-3 days)</b>	<b>For Collective Centre (3-6 months)</b>
<ul style="list-style-type: none"> <li>Building requires some investment in repairing roof, doors and windows – to a higher quality than before.</li> <li>Upgrade kitchen equipment and supplies</li> <li>Emergency lighting (solar lights / torches) recommended.</li> <li>Fire extinguishers and medical kit required</li> <li>New, more sophisticated telecoms system for better communication with EOC</li> <li>Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>The building is large enough and potentially well enough equipped for a small collective centre, for c. 100 people.</li> <li>Upgrade of certain equipment (outlined for emergency shelter) required.</li> </ul>

#### **Overall Summary:**

- The church and community centre is the largest shelter in North Abaco. It is the best option for emergency shelter in the area.
- Fared ok during Dorian, with minor roof, door and window damage.
- Needs to be repaired to a higher quality than before, with some equipment upgraded, better organized/manned and with pre-positioned equipment and supplies to act as an effective evacuation shelter.
- Suitable as a small long-term shelter.

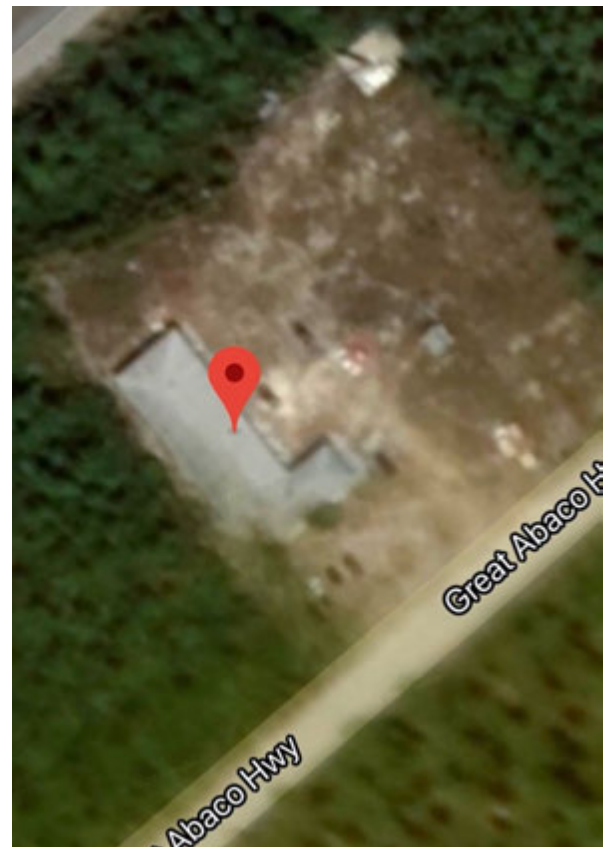
## 7.2.34 Sandy Point Community Centre - Abaco

<b>GPS:</b>	26.0070, - 77.3697	<b>Official Gov Shelter?</b>	Yes
<b>Interviewed</b>	Administrator Rolle	<b>Shelter Owner</b>	Sandy Point community
<b>Date of Assessment:</b>	7 <sup>th</sup> March 2020	<b>Assessors</b>	Ned Morris & Richard Lines
<b>Building Type</b>	Community Centre	<b>Used during Dorian</b>	Yes
<b>Living Area</b>	315m <sup>2</sup> (including stage)	<b>Capacity</b>	200 (115 during Dorian)
<b>Indicative Capacity (Em. Shelter @ 1.5m<sup>2</sup>)</b>	210	<b>Indicative Capacity (Collective Centre @ 3.5m<sup>2</sup>)</b>	90
<b>Toilets</b>	1 Male + 1 Female	<b>Showers</b>	None
<b>Lighting/Ventilation</b>	Excellent	<b>Cooking facilities</b>	Adequate but not enough
<b>Generator</b>	No generator	<b>Water / Waste</b>	No emergency water supply onsite apart from a small tank. . Septic tank onsite but don't work when power out.
<b>Roof</b>	Gable shingle roof, minor damage/leaks during Dorian, currently being repaired	<b>Windows/Shutters</b>	Plain glass with shutters in poor condition.
<b>Comms</b>	Sat. phone in shelter	<b>Disability Access</b>	No

### Catchment Area:

This is one of 3 official shelters on the Government list for onshore South Abaco which has a population of c.1,300 (2010 Census). The capacity of these 3 shelters is 366. Specifically, Sandy Point has a population of 550 (2010 Census), and a shelter capacity of 300.

### Map:



**Exterior:**

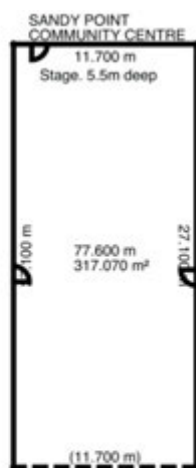


**Interior:**



Community hall including stage: 315m<sup>2</sup> (27.1m x 11.7m)

**Plan (of living area):**



Open plan to:  
- kitchen  
- toilets  
- storage



#### Issues:



Minor damage to portions of the roof and windows due to Dorian winds. Main window above chapel leaks, causing water to drain into chapel.

#### Shelter Assessment (Current State of Preparedness)

Shelter Area	Assessment	Notable Observations
Environment	EXCELLENT	<ul style="list-style-type: none"> <li>Excellent. Just off main road, a distance from sea, with no major site access issues.</li> <li>Only downside is that it is a few kms from sandy point itself</li> </ul>
Building	ADEQUATE	<ul style="list-style-type: none"> <li>The main shelter in South Abaco, with a nominated capacity of 200.</li> <li>Robust building with CGI roof and concrete walls / floors/ foundations. Stood up well to Dorian with no flooding and some minor wind damage to roof.</li> <li>When repaired, and built back better (hurricane strapping, stronger roof, stronger windows) it should be an excellent shelter.</li> </ul>
Services, Equipment, Supplies	ADEQUATE	<ul style="list-style-type: none"> <li>No generator or emergency water supply onsite.</li> <li>Only 2 toilets and no shower facilities</li> <li>Septic tank onsite but became overwhelmed by number of people</li> <li>Small, poorly equipped kitchen</li> <li>No first aid kits, fire extinguishers.</li> <li>Receives very limited supplies of dried food and bottled water from Govt (evacuees meant to bring their own).</li> <li>Would benefit from pre-positioned emergency equipment and supplies (beds, food, water)</li> </ul>
Operations	ADEQUATE	<ul style="list-style-type: none"> <li>Facility management, documentation and processes led by Social Services. Well run, with no reported protection issues.</li> </ul>
Communications	ADEQUATE	<ul style="list-style-type: none"> <li>Communications to mobilise shelter appeared to work well.</li> <li>Sat phone in shelter</li> </ul>
Personnel	ADEQUATE	<ul style="list-style-type: none"> <li>Appeared to work ok. Adm. Rolle very resourceful and committed.</li> </ul>
Maintenance	ADEQUATE	<ul style="list-style-type: none"> <li>Annual hurricane inspection carried out</li> <li>Operational community centre so ongoing maintenance done to a certain degree</li> <li>No drills</li> </ul>

#### Experience during Dorian: ADEQUATE

- With a nominated capacity of 200, the shelter was used by about 115 people.
- The shelter worked ok, with a strong building, minor roof damage and leaks.
- Frailties showed themselves in a lack of equipment – no generator, water supply, insufficient toilets, no showers, kitchen capacity not enough etc.
- Additional equipment – solar lights, additional kitchen equipment, fire extinguishers and medical supplies – would be good.

**Recommended Improvements:**

For Emergency Centre (2-3 days)	For Collective Centre (3-6 months)
<ul style="list-style-type: none"> <li>• Building requires some investment in repairing roof to a higher quality than before.</li> <li>• Upgrade of kitchen equipment and supplies, additional toilet facilities, a generator, and addition of shower required.</li> <li>• Emergency lighting (solar lights / torches) recommended.</li> <li>• Fire extinguishers and medical kit required</li> <li>• Ideally, emergency equipment and supplies stored on-site.</li> </ul>	<ul style="list-style-type: none"> <li>• The building is large enough and potentially well enough equipped for a small collective centre, for c. 100 people.</li> <li>• Upgrade of building and equipment (outlined for emergency shelter) required for this.</li> </ul>

**Overall Summary:**

- This is the largest shelter in South Abaco. It is the best option for emergency shelter in the area.
- Fared ok during Dorian, with minor roof damage.
- Needs to be repaired to a higher quality than before, with a big improvement in facilities and with pre-positioned equipment and supplies to act as an effective evacuation shelter.
- Suitable as a small long-term shelter with upgrade.