

Appendix C - Land Use Planning Charrette Summary Memorandum



Environmental Statement

East-West Arterial Extension:

Section 2 (Woodland Drive – Lookout Road)

Section 3 (Lookout Road – Frank Sound Road)



MEMORANDUM

Date: September 8, 2023

To: Edward Howard, NRA Managing Director
Denis Thibeault, NRA Project Manager

From: Lindsey Ulizio, PE

Subject: Land Use Planning Charrette Summary

Contract Number: PPC-2022-NRA-007-RFP

WRA Work Order Number: 35184-000

Project: Phase 2 for the East-West Arterial Extension
Environmental Impact Assessment

CC: Gina Ebanks-Petrie, DoE Director (EAB);
Scott Thompson-Graves, PE, PTOE

In support of the National Road Authority's (NRA) East-West Arterial (EWA) Extension Environmental Impact Assessment (EIA), Whitman, Requardt and Associates, LLP (WRA) submits this summary of the Land Use Charrette, which occurred on July 25, 2023.

The purpose of the charrette was to determine three (3) different land use scenarios that may occur on Grand Cayman in future year 2074. The scenarios could include geographically based and/or intensity-based components: where will the people be and how many people will be there.

The Charrette took place from 12:30 to 4:30 PM at the George Town Yacht Club. Members of the Steering Committee and relevant government ministries/departments were in attendance (see **Attachment A** for full attendance list as well **Photo 7** in **Attachment C**).

After a presentation outlining past population growth and future population projections on Grand Cayman (see **Attachment B**), the attendees, divided into three (3) groups, proposed population growth projections for a low, medium, and high population scenario for future year 2074 (**Photo 1** in **Attachment C**).

The attendees agreed on the population projections, then mapped the three (3) scenarios reflecting where they thought population growth, job growth, and cruise ship berthing, would occur in each of these three (3) scenarios (**Photo 2** in **Attachment C**). The groups had different colored dots differentiating projected population density as well as cut-outs of hotels, cruise ships, and briefcases (representing employment/jobs) to place on individual Grand Cayman maps for each scenario. The number of briefcases per scenario was based on an approximate 70% employment rate (which was a high-level calculation to capture approximate number of people employed per the whole CI population and based on the compendium of statistics from the last Census) for that particular population value. The population and employment growth assumptions for each scenario are listed in the following table.

Population	Employment	Hotels	Cruise Ships
Low			
115,000 (~100k already planned + 15k additional)	1 briefcase (10,000 jobs)	As many as desired.	As many as desired.
Medium			
135,000 (~100k already planned + 35k additional)	2.5 briefcases (25,000 jobs)	As many as desired.	As many as desired.
High *			
250,000 (~100k already planned + 150k additional)	10.5 briefcases (105,000 jobs)	As many as desired.	As many as desired.
300,000 (~100k already planned + 200k additional)	14 briefcases (140,000 jobs)	As many as desired.	As many as desired.

**Please note that Groups 1 and 3 agreed on a projection of 300,000 people total, while Group 2 did not agree on a projection that high and chose to create a 250,000-people scenario.*

Each group presented its low, medium, and high land use scenarios to the rest of the attendees, providing justification and insight as to why they placed the different pieces where they did. Attendees then voted on each scenario presented, selecting the best of the low, medium, and high options (**Photo 3 in Attachment C**). See **Photos 4 – 6 in Attachment C** to view the three chosen scenarios. **Attachment D** also illustrates detailed scans of each scenario. Highlights of each selected scenario are listed in the following table.

Population	Highlights of the Selected Scenario
Low (115,000 total people)	<ul style="list-style-type: none"> Boutique cruise ships (potentially smaller and higher end) with less total amount coming to existing port per month (~23 per month). Maintain existing cargo facility location. Mixture of low, medium, and high population densities, with higher density locations emphasized in the West Bay/George Town areas while mid- to lower density locations emphasized in the Bodden Town and East End areas. Most hotel locations focused along Seven Mile Beach and West Bay areas while employment locations spread throughout the entire island.
Medium (135,000 total people)	<ul style="list-style-type: none"> Boutique cruise ships (potentially smaller and higher end) with less total amount coming to existing port per month (~23 per month). Maintain existing cargo facility location. Assumed higher density locations, mostly within the West Bay and George Town areas. Not much growth assumed in the North Side or East End of the island compared to the West Bay and George Town areas. Assumed more AirBnBs rather than hotels to be in West Bay, Bodden Town, and East End.
High (300,000 total people)	<ul style="list-style-type: none"> Maintain existing port location while also providing a new cargo port/facility in Bodden Town. Assumed mid- to higher density locations throughout the entire island with emphasis in the West Bay, George Town, and Bodden Town areas. Most hotel locations focused along the shorelines in West Bay, Bodden Town, and East End areas. Employment spread throughout the entire island with emphasis in the George Town and Bodden Town areas.

Based on the consensus of the three (3) selected land use scenarios, the EWA EIA project team will implement these results into the future forecasting analysis for future year 2074.

X 

Gina Ebanks-Petrie
Environmental Assessment Board Chair

X 

Edward Howard
National Roads Authority Managing Director



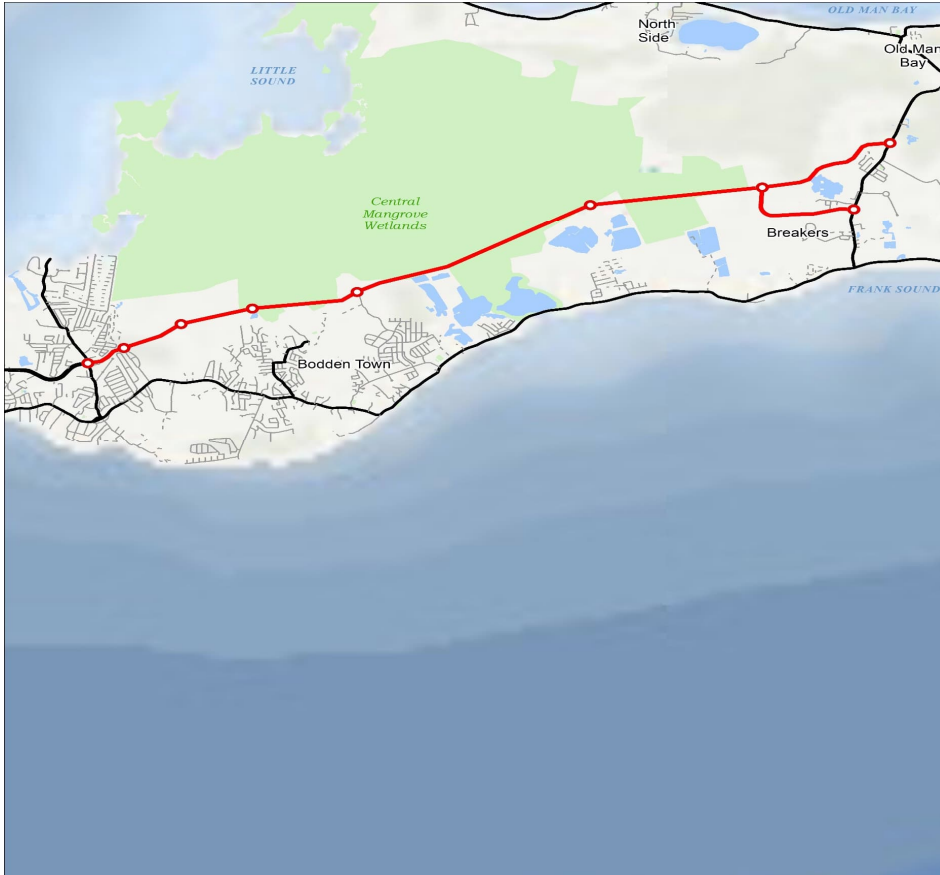
Attachment A

Land Use Charrette Attendance List

Attendee	Department – Position
Edward Howard	National Roads Authority (NRA) – Managing Director
Denis Thibeault	NRA – Assistant Director, Transportation & Planning Unit
Marion Pandohie	NRA – Transportation Planner
Craig Dilbert	NRA – Plan Review Analyst (observer)
Jerica Hurlston	NRA – Plan Review Analyst (observer)
Faith Powery	NRA (observer)
Shena Ebanks	NRA (observer)
Gina Ebanks-Petrie	Department of Environment – Director; Environmental Assessment Board (EAB) Chair
Timothy Austin	Department of Environment – Deputy Director
Lauren Dombowsky	Department of Environment – Manager, Environmental Management Unit
Haroon Pandohie	Department of Planning – Director of Planning
Richard Mileham	Department of Planning – Planning Officer, Policy & Development
Eric Bush	Ministry of Planning, Agriculture, Housing, and Infrastructure (PAHI) – Chief Officer (via Teams call)
Tristan Hyde	Ministry of PAHI – Deputy Chief Officer
Stacie Sybersma	Ministry of PAHI – Senior Policy Advisor
Jennifer Ahearn	Ministry of Sustainability & Climate Resiliency – Chief Officer
Kristen Smith	Ministry of Sustainability & Climate Resiliency – Senior Policy Advisor (Energy)
Emily Gilman	Ministry of Sustainability & Climate Resiliency – Policy Advisor (Environment)
Yasmin James	Water Authority – Water Resources Technologist
Kodie Scott	Water Authority – Senior Development Technologist (via Teams call)
Moderator/Observer	EWA EIA Project Team (On Behalf of the NRA) – Position
Scott Thompson-Graves	Whitman, Requardt & Associates, LLP (WRA) – Project Director
Lindsey Ulizio	WRA – Project Manager
Monica Del Real	WRA – Environmental Coordinator
Nicholas Nies	WRA – Cultural & Natural Heritage Lead
Alexandra Shostak	WRA – Environmental Scientist / GIS Analyst
Jeffry Marcus	TYLin – Principal Environmental Scientist

Attachment B

Land Use Charrette Presentation



East-West Arterial Extension

Land Use & Population
Planning

Project Stakeholders

Project Team



Land Use Stakeholders



Ministry of Sustainability & Climate Resiliency

Cayman Islands Government



Ministry of Planning, Agriculture, Housing & Infrastructure

Cayman Islands Government



Ministry of Tourism and Ports

Cayman Islands Government



DEPARTMENT OF ENVIRONMENT CAYMAN ISLANDS GOVERNMENT



CAYMAN ISLANDS GOVERNMENT PUBLIC WORKS DEPARTMENT



Water Authority - Cayman "Suppliers of the World's Most Popular Drink"



DEPARTMENT OF PLANNING Cayman Islands Government



Meeting Objectives

1

Identify likely areas for growth

2

Identify how the project may impact development patterns

3

Agreement on population and employment projections

4

Agreement on visitor projections

Agenda

1

Introduction & Overview

2

**Environmental Impact
Assessment (EIA) Process**

3

**Population Growth in the
Cayman Islands**

4

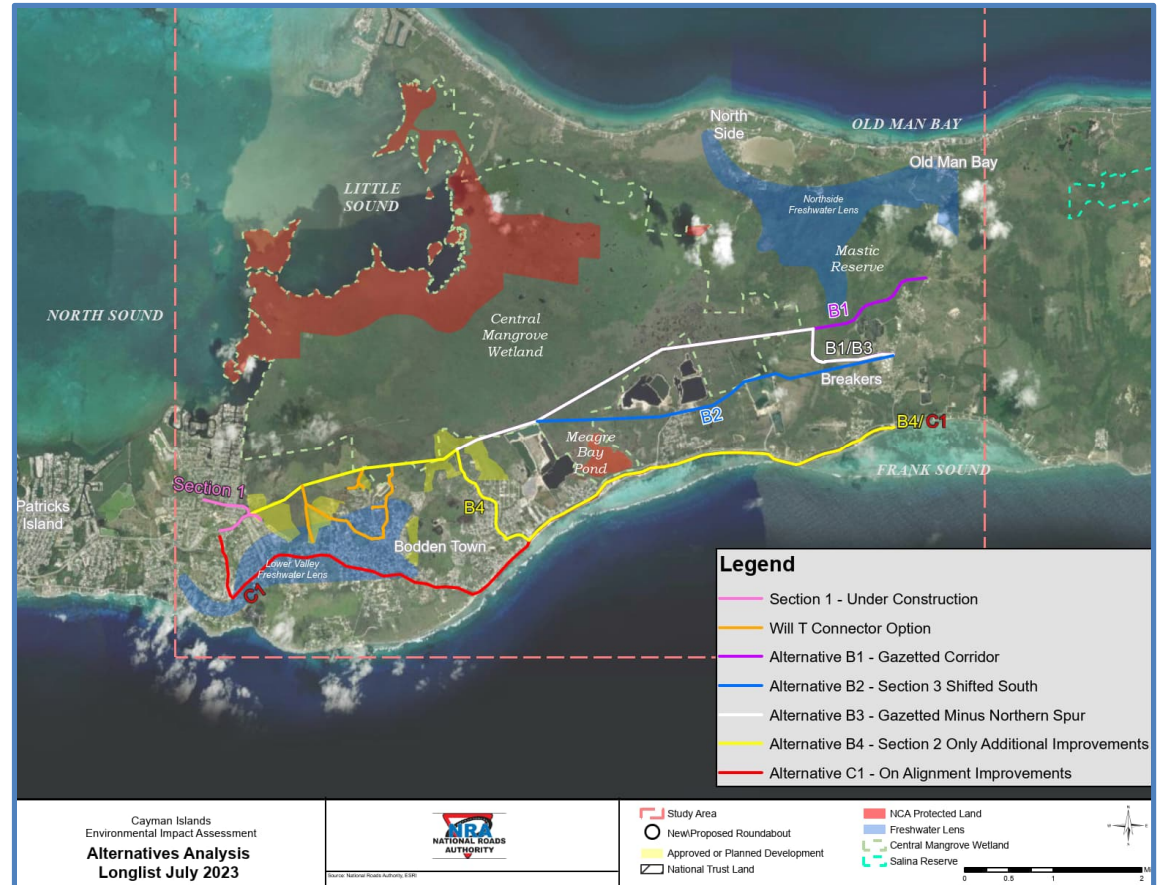
Growth Rate Discussion

5

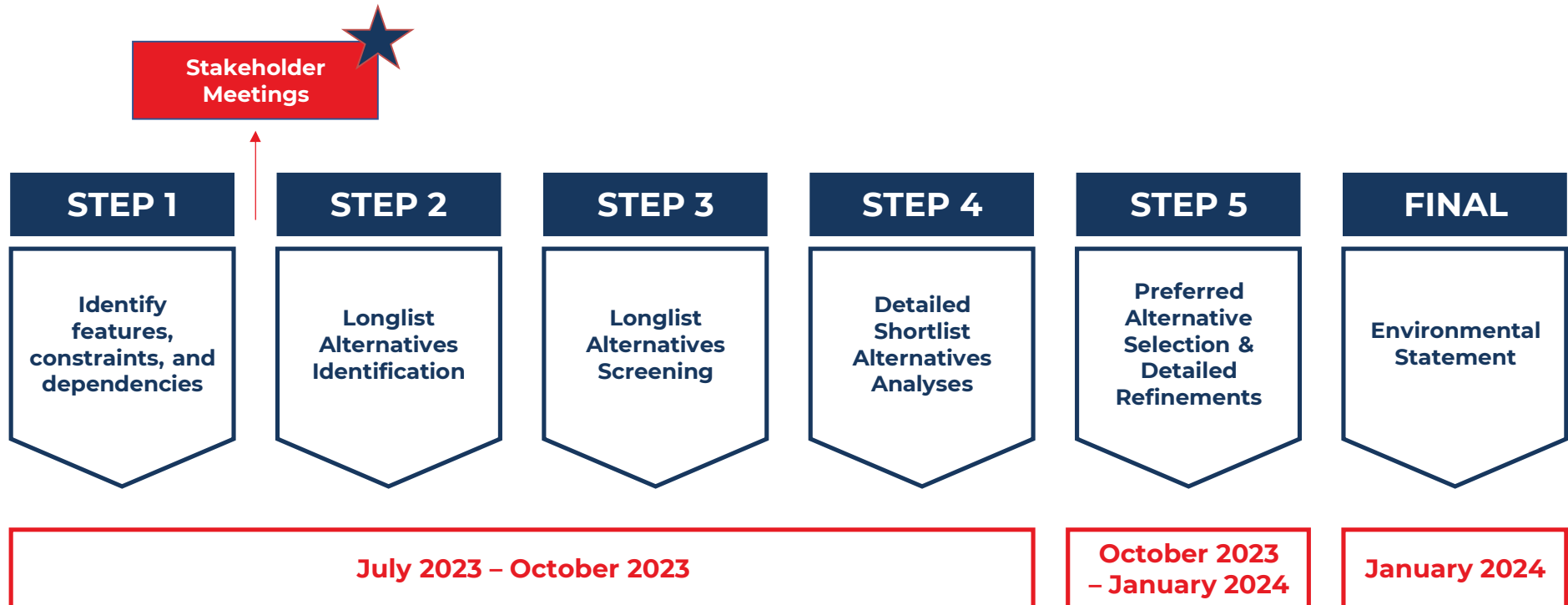
**Possible Land Use Scenarios
(Breakout Session)**

Project Overview

- East West Arterial Extension
- Extends from Woodland Drive to Frank Sound Road
- A variety of alternative alignments being evaluated



EIA Alternatives Development Process



★ Denotes current step in process

Critical Success Factors

Create an alternative travel route to the existing two-lane Bodden Town Road

Provide a resilient roadway travel route between North Side/East End and George Town/West Bay

Improve travel time between North Side/East End and George Town/West Bay

Support current and future traffic demand

Critical Success Factors

Accommodate utility expansion (electricity, fiber, water, central sewerage system)

Provide opportunity to safely accommodate and expand public transportation

Reduce tourism travel time between North Side/East End and George Town/West Bay

Improve safe vehicular travel by reducing roadway conflict points

Provide opportunity for enhanced and safe pedestrian and bicycle travel

- Resources to be evaluated in EIA process

Traffic &
Roadway
Analysis

Socio-
Economic
Conditions

Hydrology &
Drainage

Geo-
Environmental

Terrestrial
Ecology

Cultural &
Natural
Heritage Sites

Greenhouse
Gas Emissions

Noise &
Vibration

- Three types of people will be evaluated

Residents
(Caymanian
and Non-
Caymanian)

- What will the population of the island be by 2074
 - Where will they live
 - Where will they work

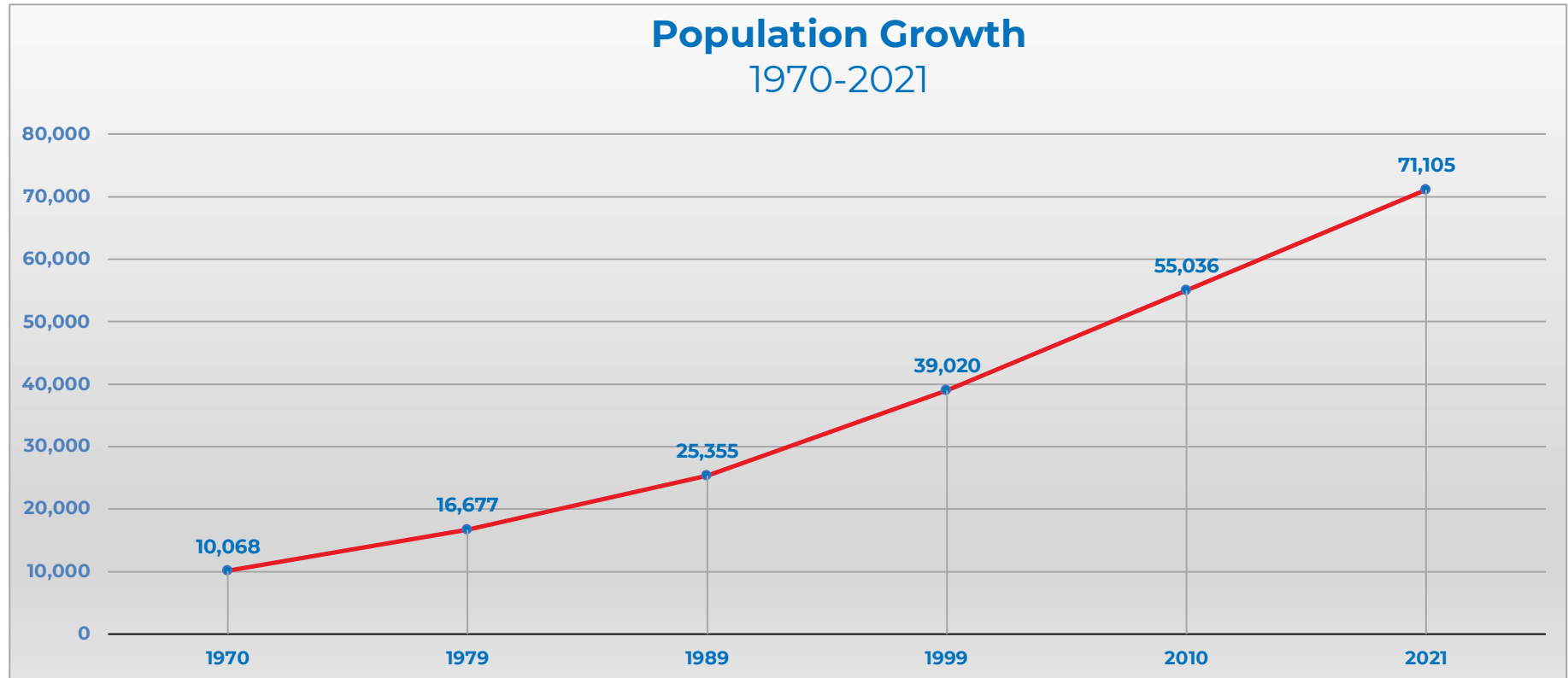
Cruise Ship
Passengers

- How many cruise ships will visit on an average weekday?
- Will cargo still use the main terminal?

Longer Term
Visitors

- How many new hotel rooms, condos, rental houses should we expect?
- Where will these be?

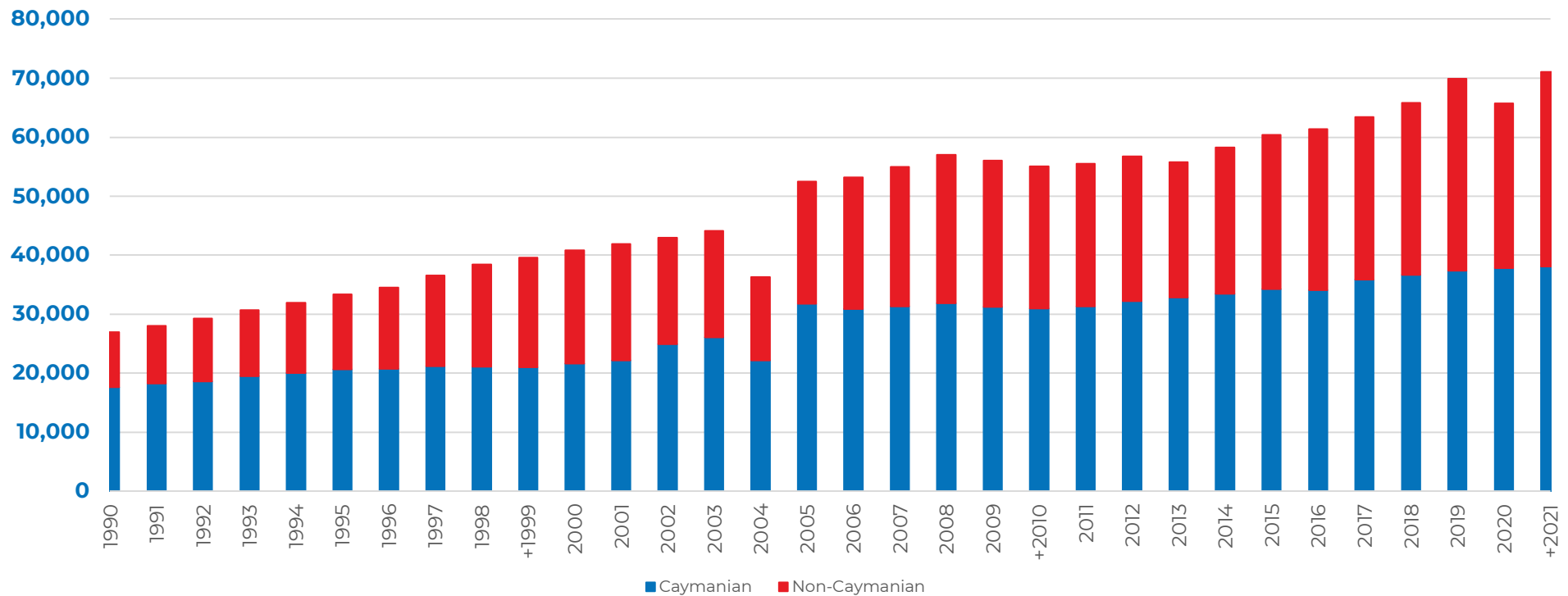
Growth in the Cayman Islands



1970-2007: Population Scenarios: Past Trends and Future Possibilities Policy Brief 05/07
2007-2021: The Cayman Islands' Compendium of Statistics 2021

Caymanian vs. Non-Caymanian Growth

Resident Composition



Growth in the Cayman Islands

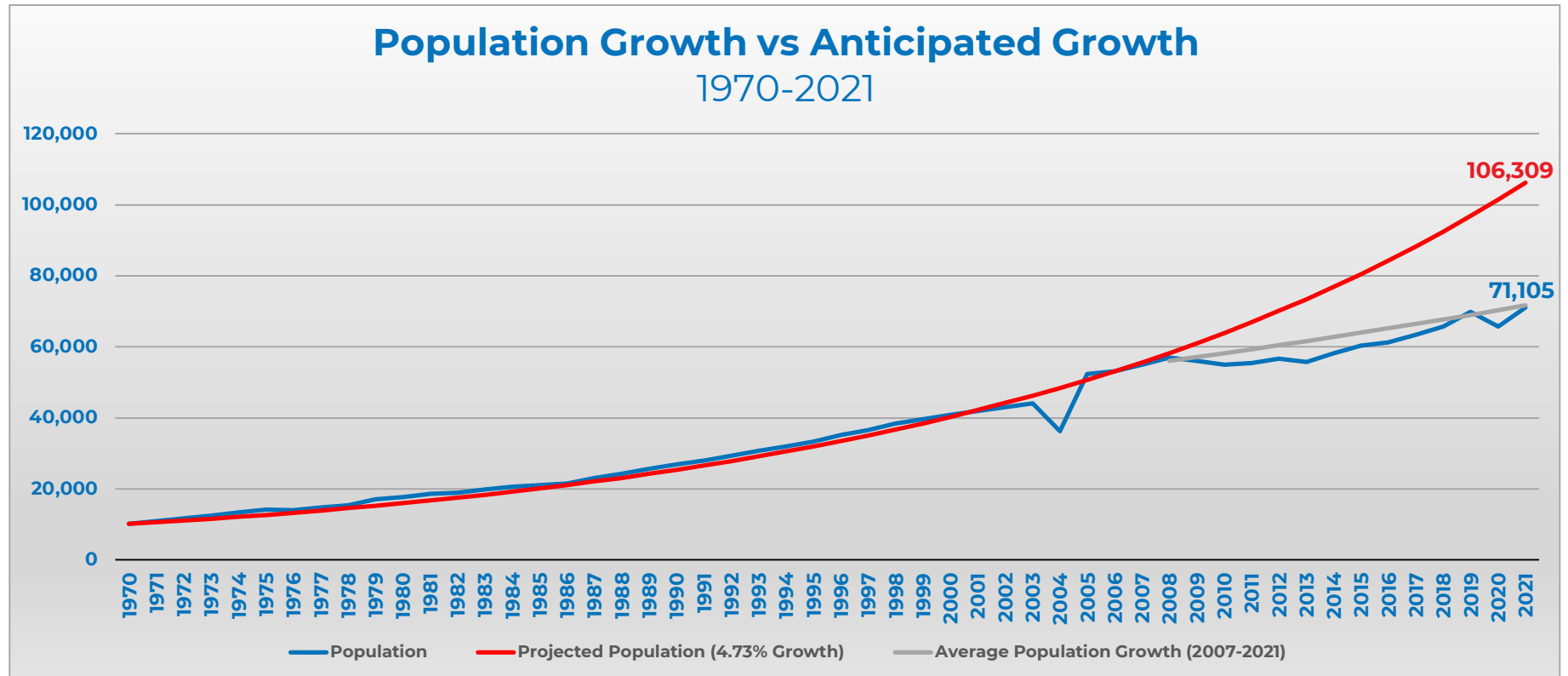


*Population Scenarios:
Past Trends and Future Possibilities*

*Policy Brief 05/07
Prepared for the Chief Secretary and
The Portfolio of Internal and External Affairs
By Dr. Philip Pedley, Principal Policy Advisor
December 2007*



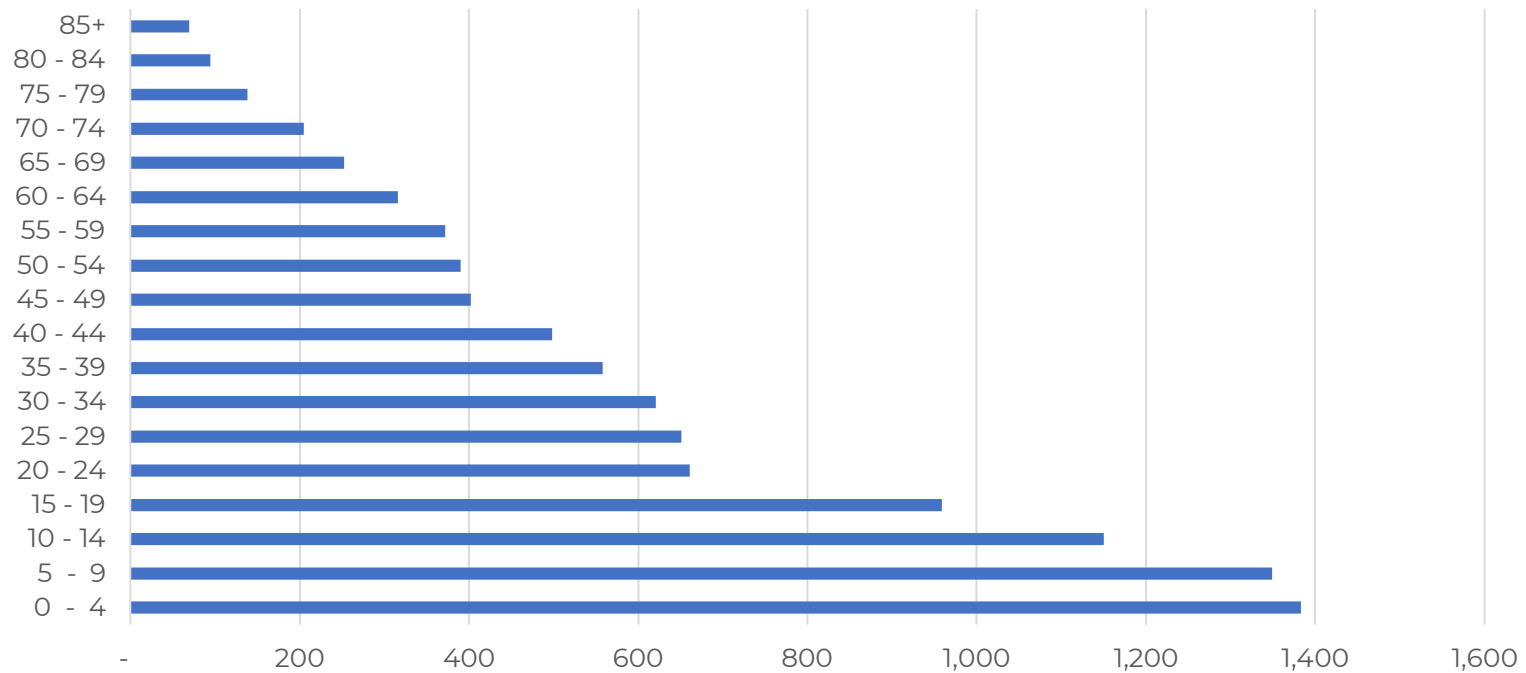
Growth in the Cayman Islands



1970-2007: Population Scenarios: Past Trends and Future Possibilities Policy Brief 05/07
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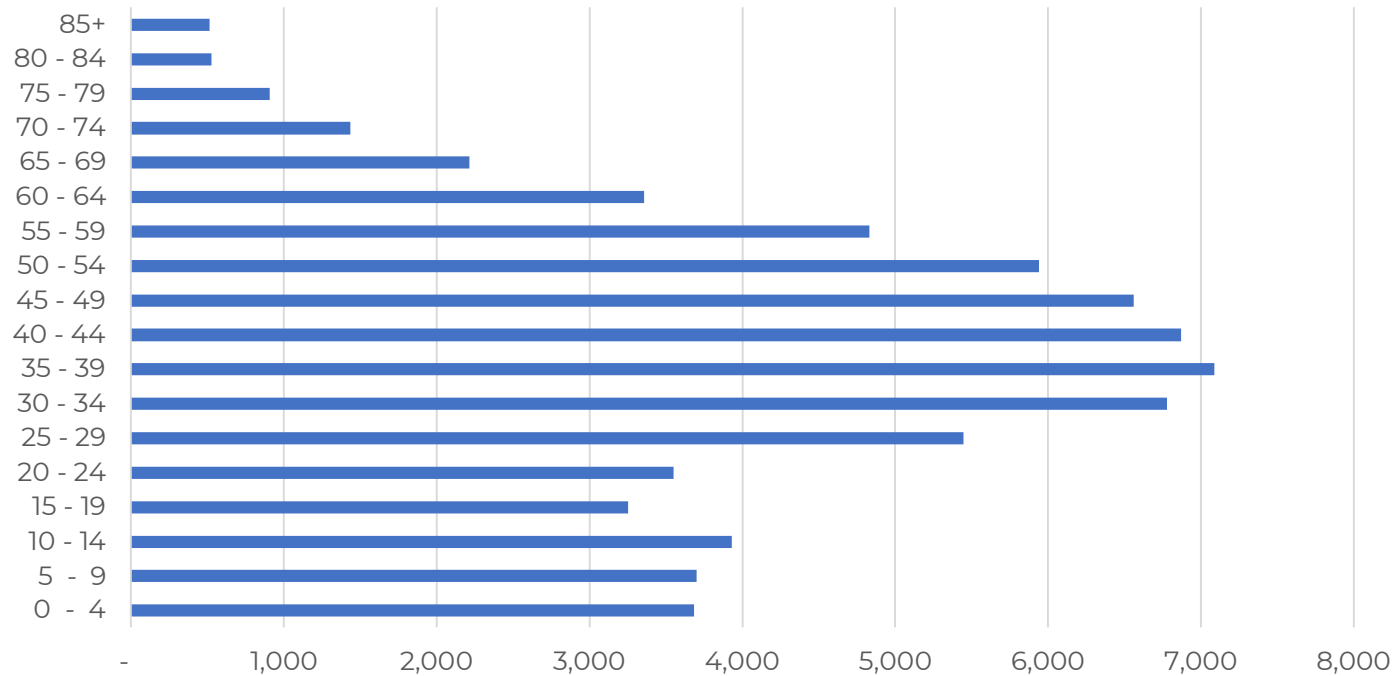
Age Groups 1970 vs. 2021

1970 Population by Age Group

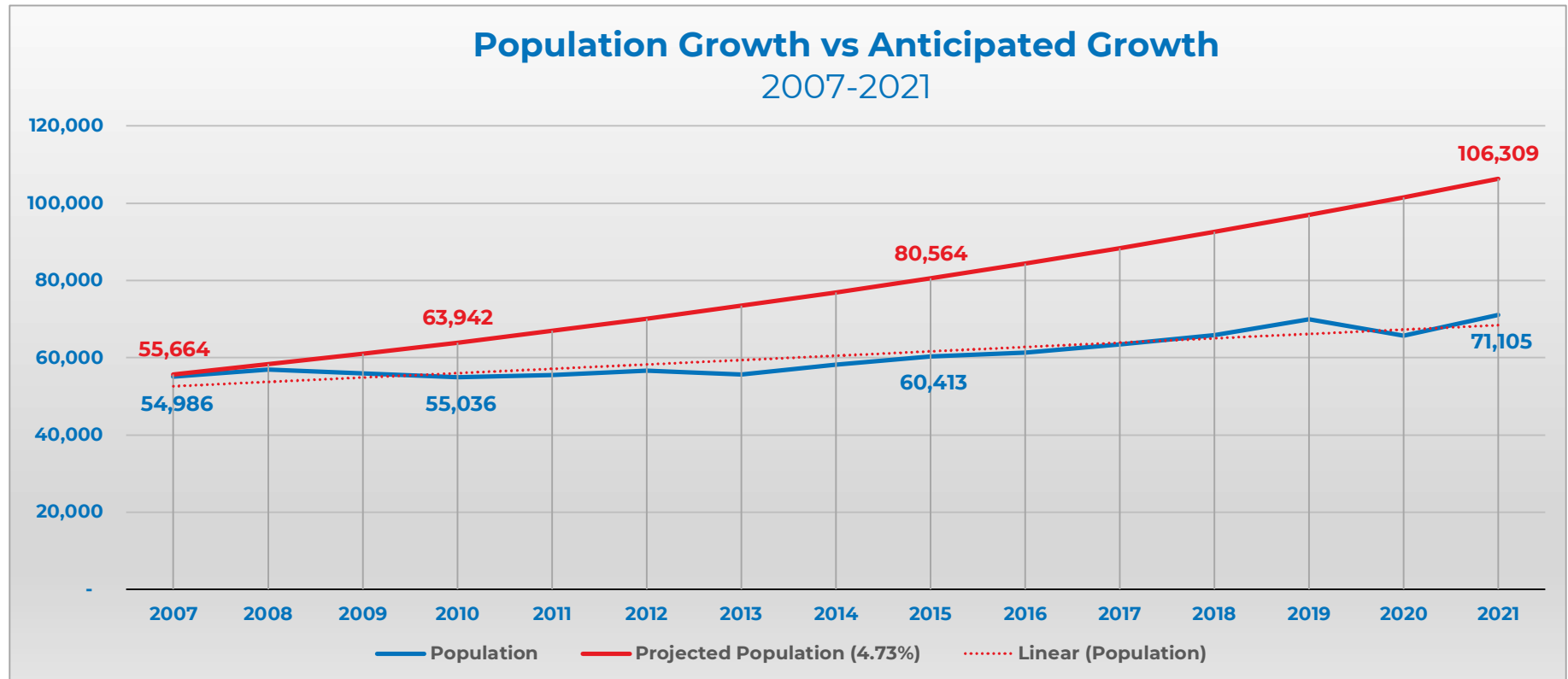


Age Groups 1970 vs. 2021

2021 Population by Age Group

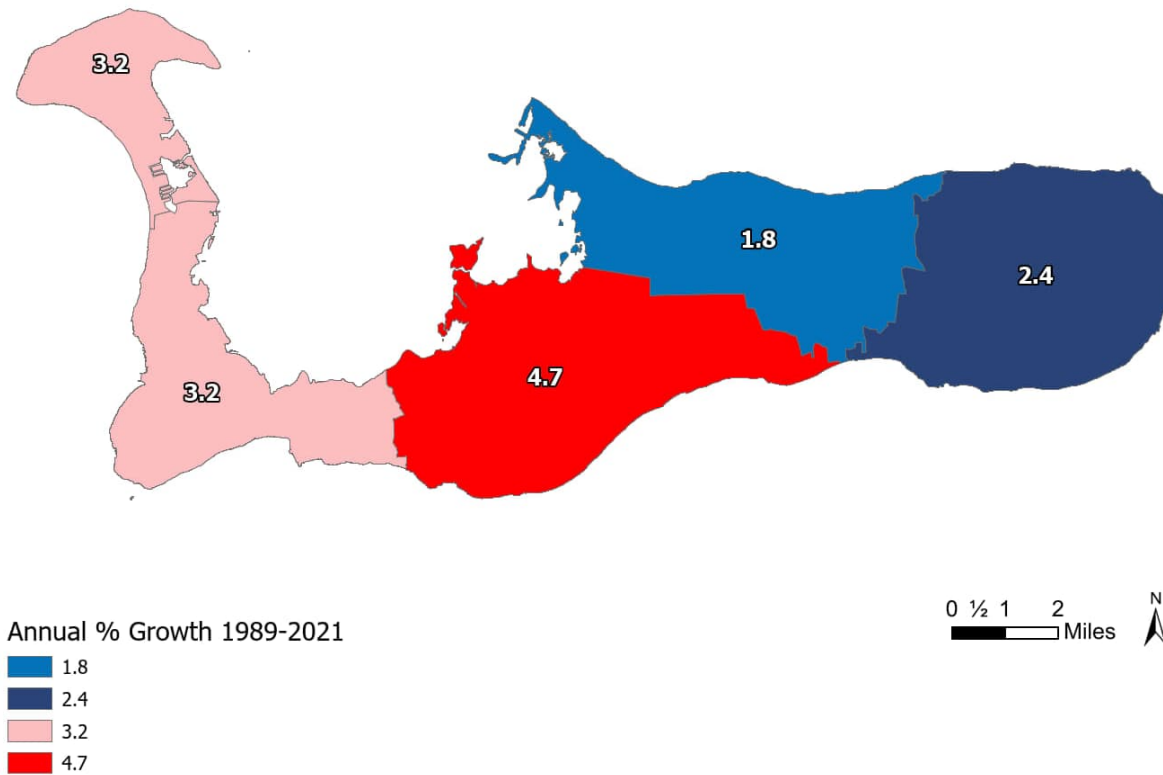


Growth in the Cayman Islands



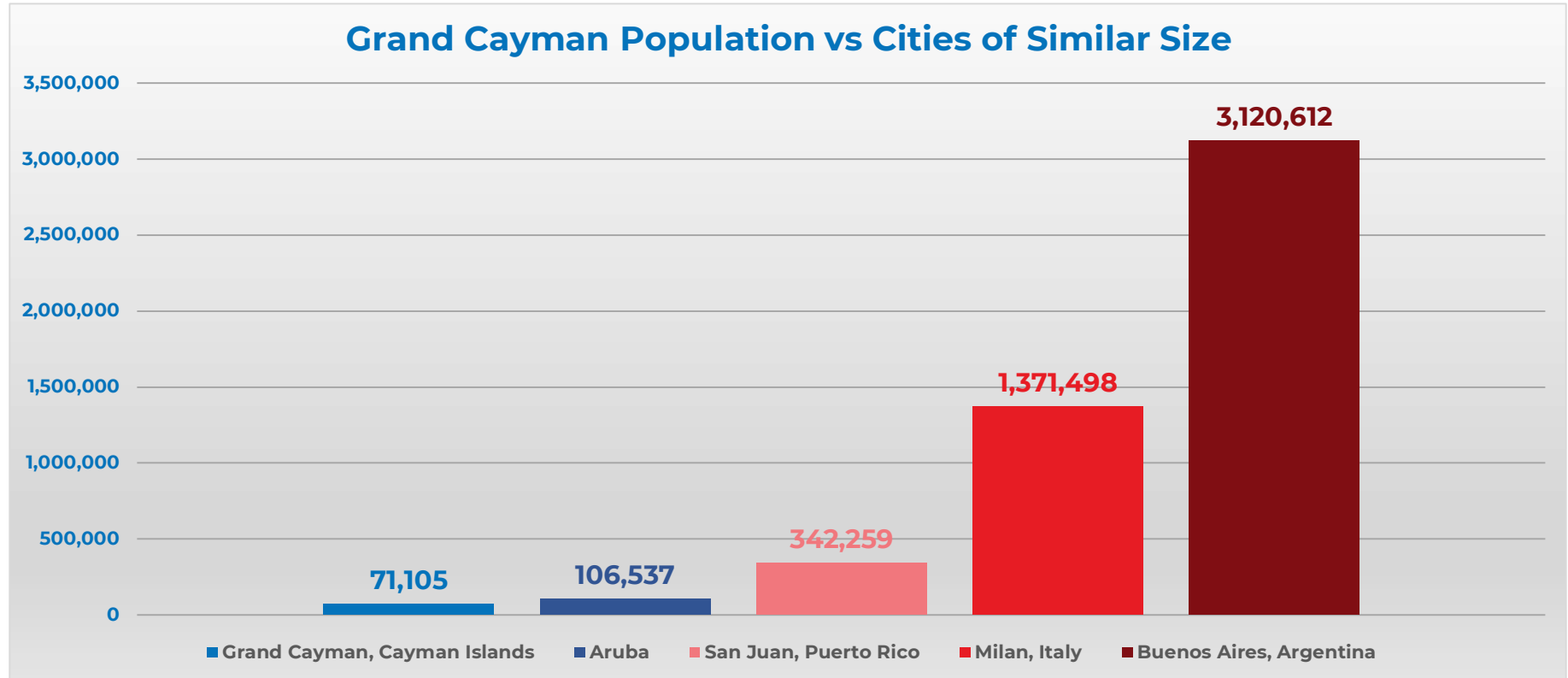
2007-2021 Red: Population Scenarios: Past Trends and Future Possibilities Policy Brief 05/07
2007-2021 Blue: The Cayman Islands' Compendium of Statistics 2021

Growth in the Cayman Islands



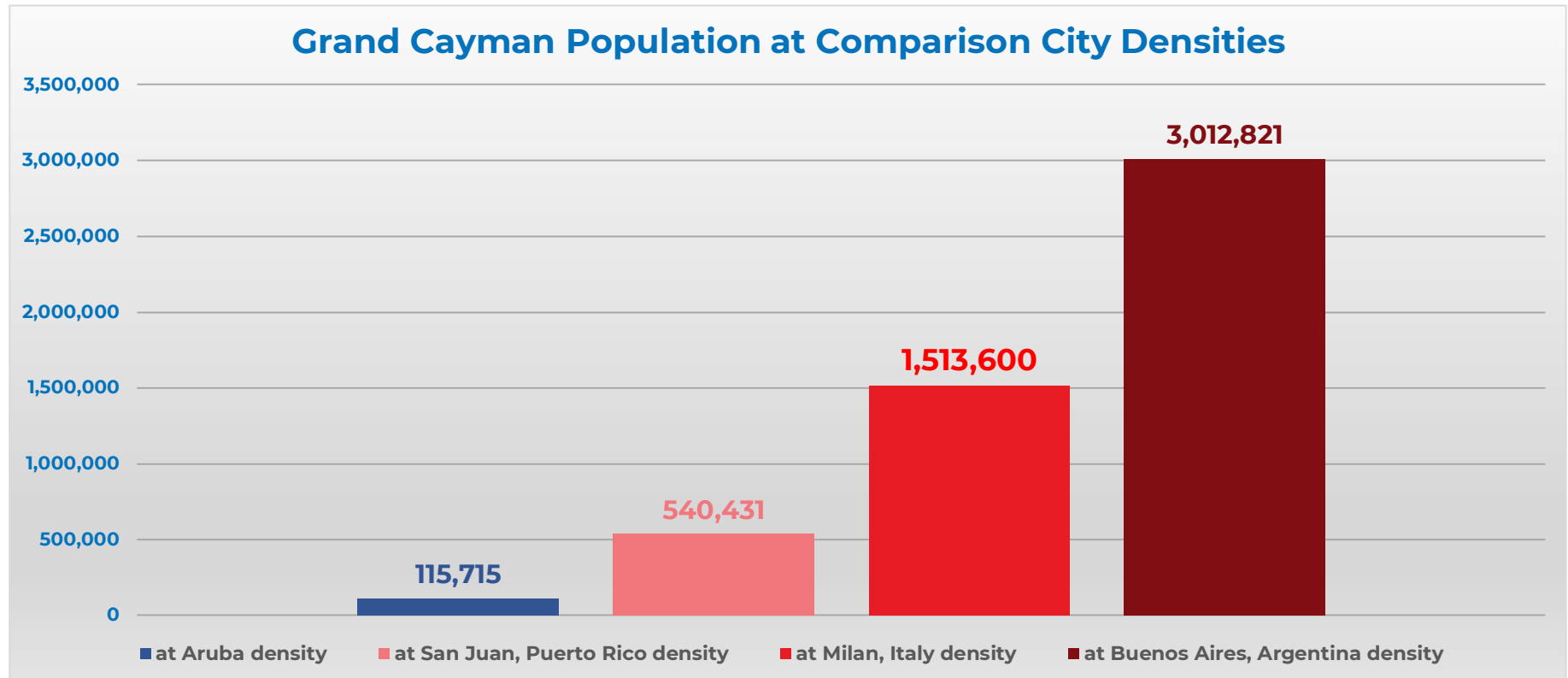
Credits: Cayman Economics and Statistics Office

How do the Cayman Islands Compare?

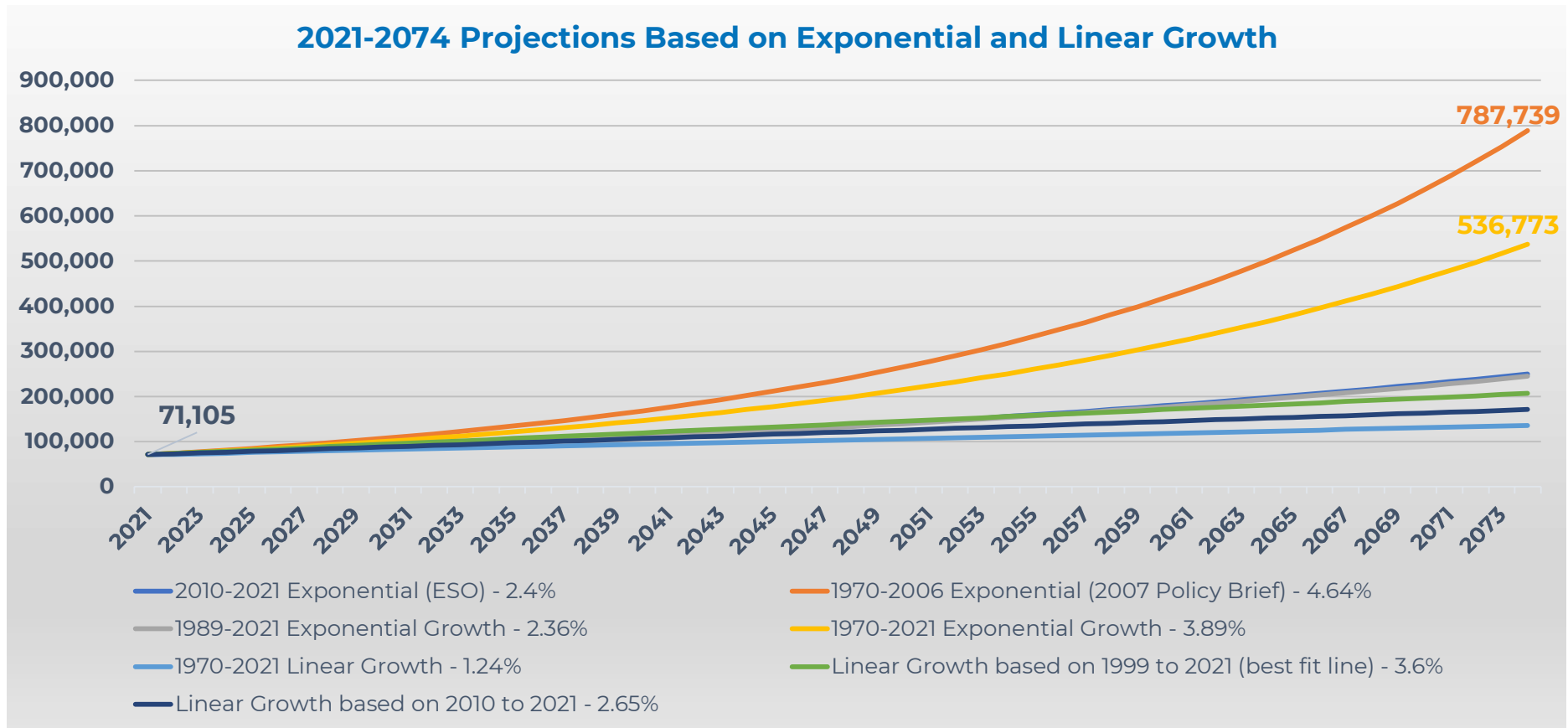


The Cayman Islands' Compendium of Statistics 2021
United States Census Bureau

Growth in the Cayman Islands

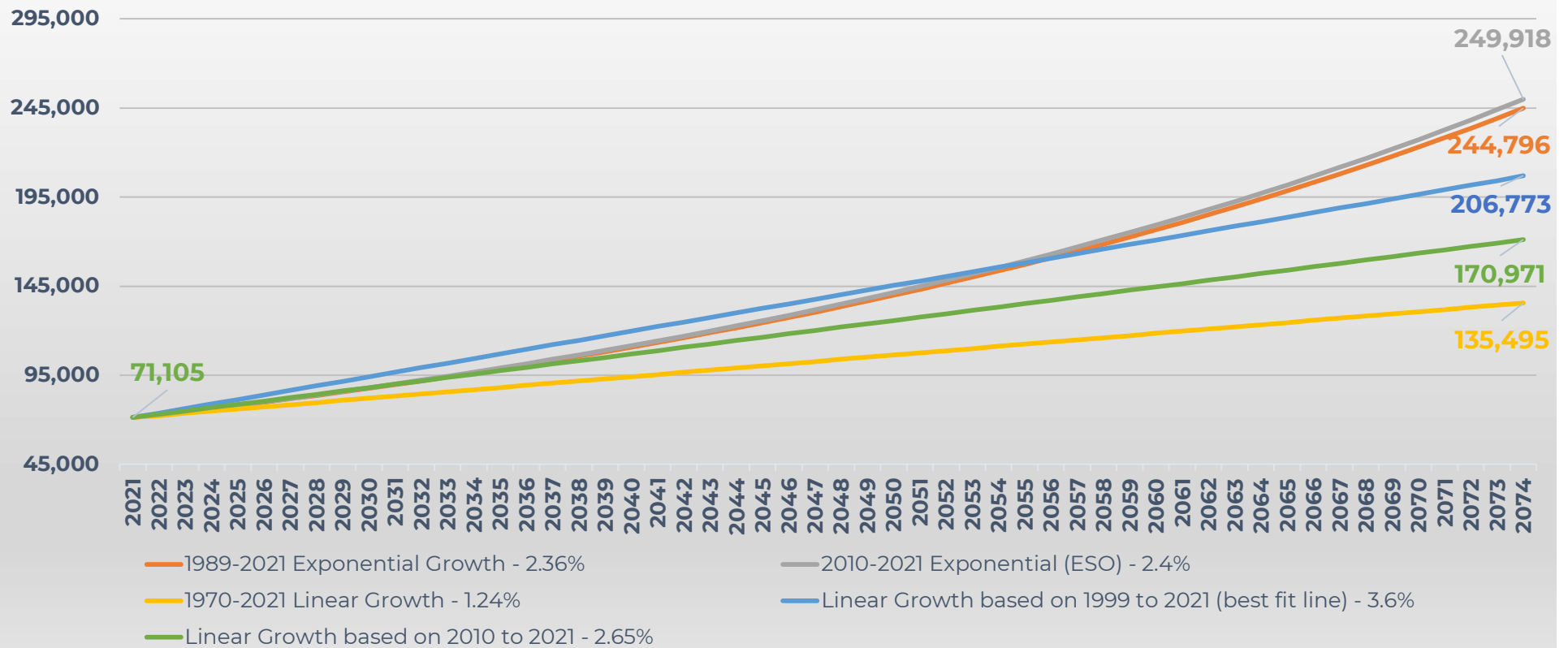


Potential Growth Rates



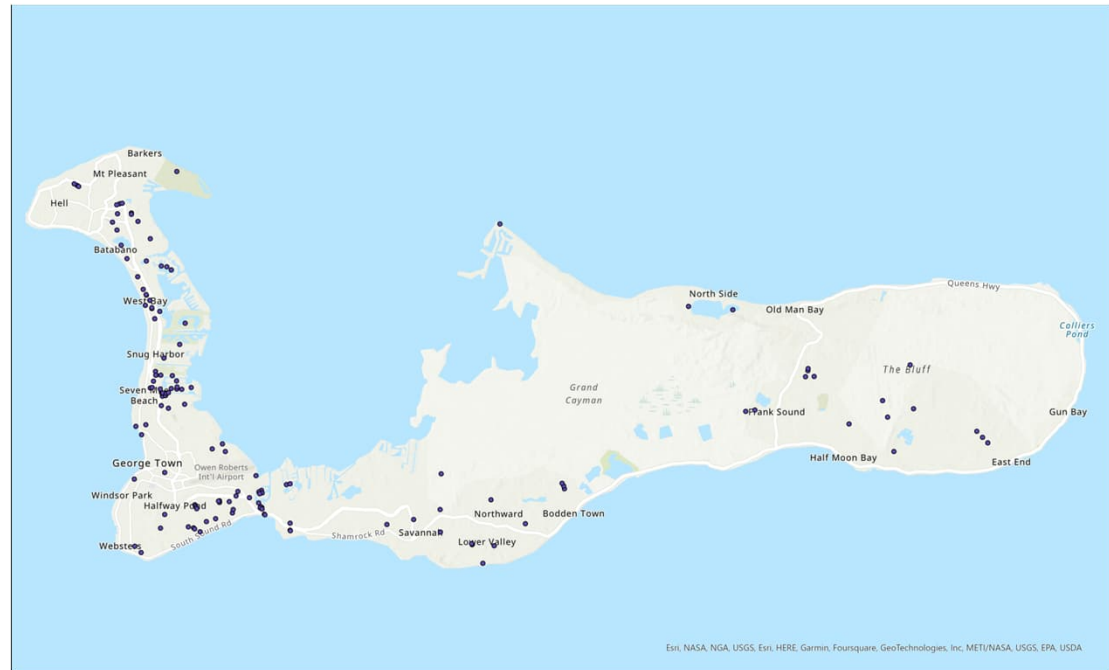
Potential Growth Rates

2021-2074 Projections Based on Exponential and Linear Growth



Planned Development – Projects in the Development Pipeline

District	Projected Additional Population
George Town	13,286
West Bay	8,036
Bodden Town	2,873
North Side	1,329
East End	5,975
Total Planned Development	31,499
2021 Census	71,105
Total Combined (Planned plus 2021 Census)	102,604



4

Things to Consider

- Provision of services (trash, drinking water, wastewater treatment, food, jobs, etc) needs to scale with population
- Denser development supports higher level transit
- Denser development supports walking and biking



0-2 units per acre
Demand Responsive



3-7 units per acre
Demand Responsive



8-14 units per acre
Fixed Route Bus



15-34 units per acre
Express Bus



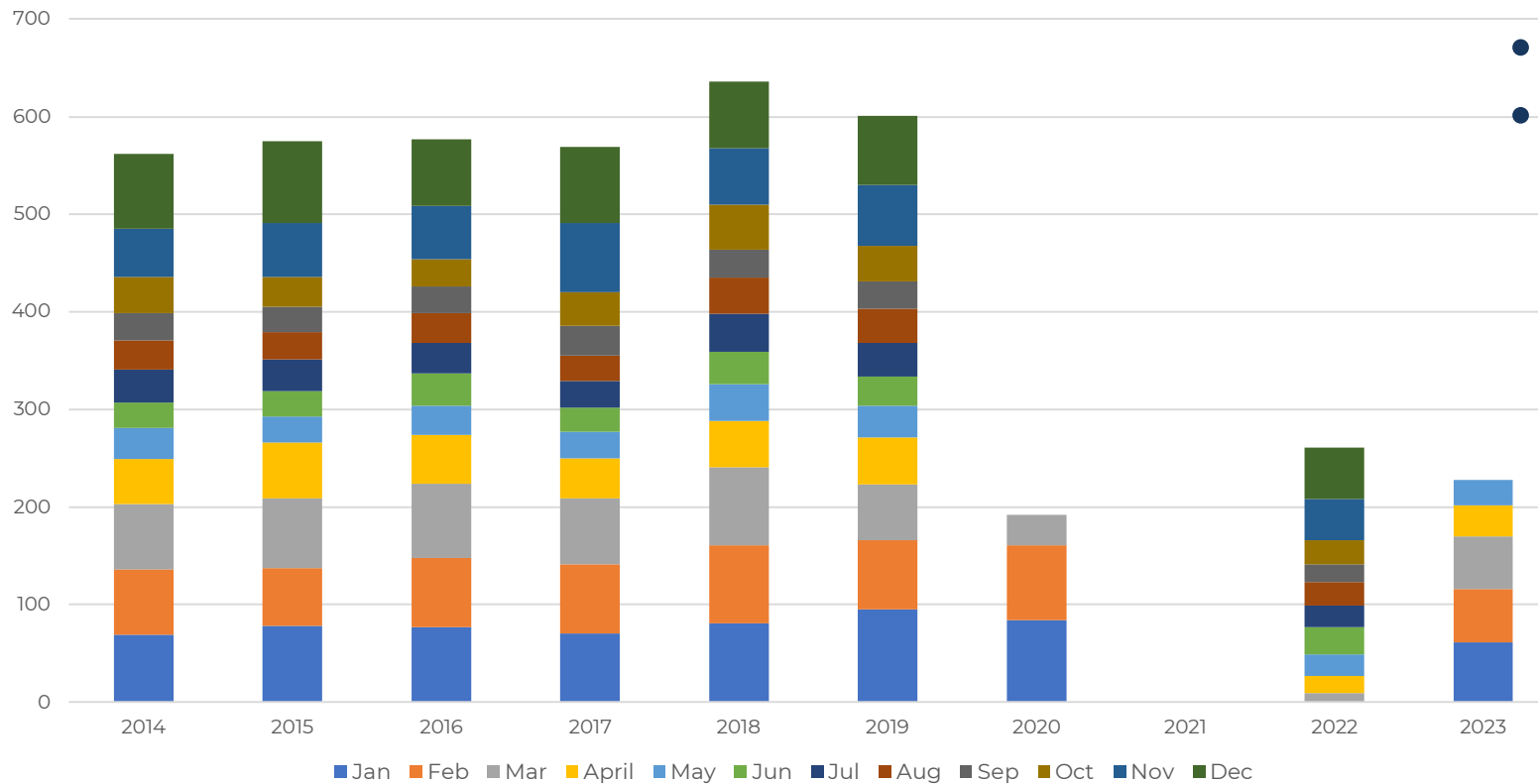
35-70 units per acre
Rapid Bus Transit /
Light Rail Transit



71+ units per acre
Light Rail Transit /
Heavy Rail

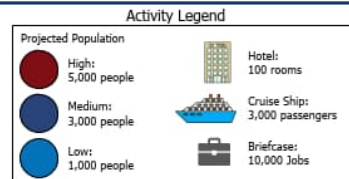
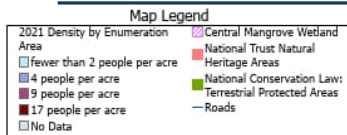
Cruise Ships Cayman Islands

Annual Cruise Ship Vessels 2014-2023



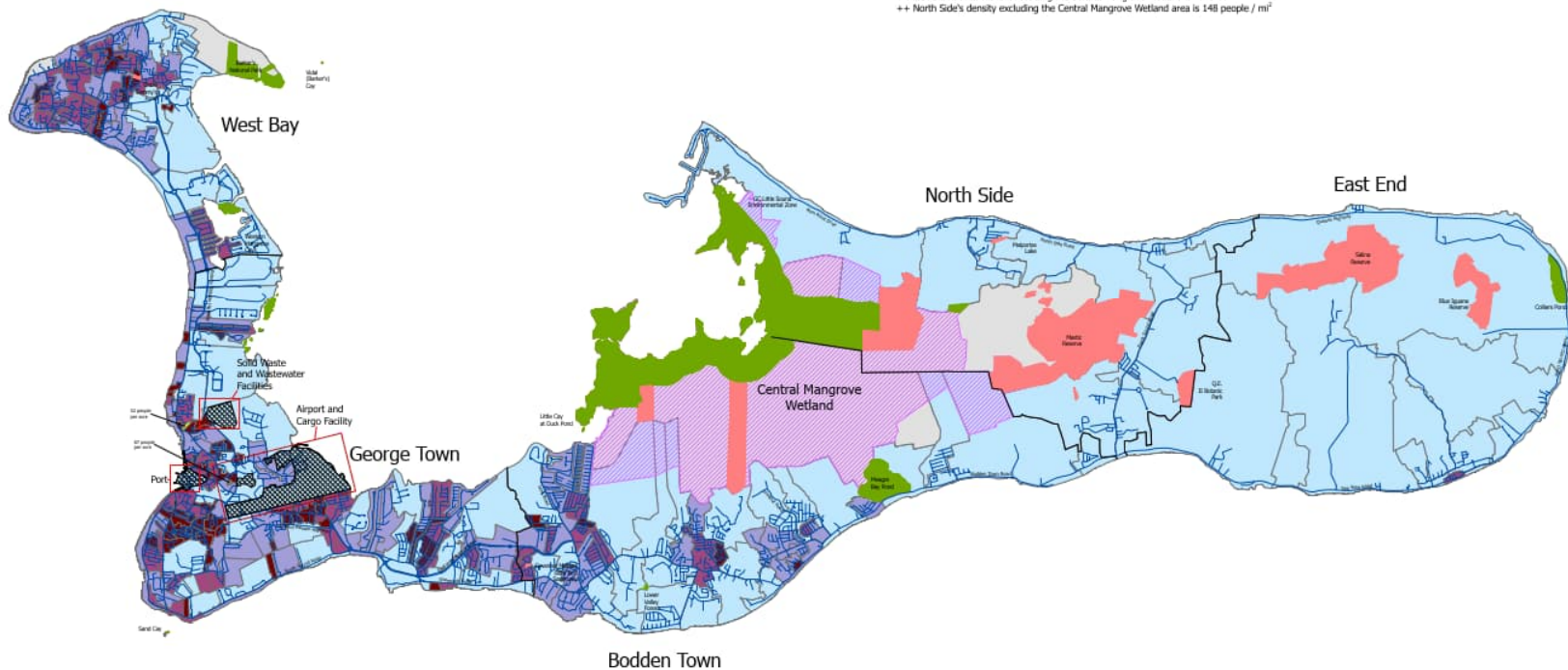
- Pre-Pandemic
 - Max 95 (January)
 - Min 25 (June)

Small Group Exercise



2021 Census Demographics			
District	Area (square miles)	2021 Population	Density (people / square mile)
Bodden Town	21.3 [*]	14,845	697 ^{**}
East End	19.5	1,846	95
George Town	12.6	34,921	2,765
North Side	16.8 ⁺	1,857	111 ⁺⁺
West Bay	6.4	15,335	2,397

^{*} Bodden Town's area without including the Central Mangrove Wetland is 12.1 mi²
^{**} Bodden Town's density excluding the Central Mangrove Wetland area is 1225 people / mi²
⁺ North Side's area without including the Central Mangrove Wetland is 12.6 mi²
⁺⁺ North Side's density excluding the Central Mangrove Wetland area is 148 people / mi²



6 cm = 1 mile

0 0.5 1 2 3 4 Miles



5

Exercise

- Pick 3 Future Year Development Scenarios
 - How many new hotel rooms and where?
 - How many cruise ships?
 - Where will the Cargo Port be located?
 - How many future people and where?
 - Where will future jobs be?

Discussion

Employed Person by District of Employment and District of Residence

District of Residence		District of Employment							
	Total	George Town	West Bay	Bodden Town	North Side	East End	Cayman Brac	Little Cayman	DK/NS
George Town Total	23,869	19,021	2,393	774	107	165	21	4	1,384
West Bay Total	9,419	6,410	2,274	200	23	18	4	2	487
Bodden Town Total	9,065	6,239	424	1,638	115	167	12	1	470
North Side Total	1,072	568	24	69	256	103	1	-	51
East End Total	1,091	405	20	77	28	470	-	-	92
Grand Cayman Total	44,516	32,642	5,135	2,758	529	922	38	7	2,484

Source: Economics and Statistics Office (ESO)

Attachment C

Land Use Charrette Photos

Photo 1: Chosen population growth scenarios

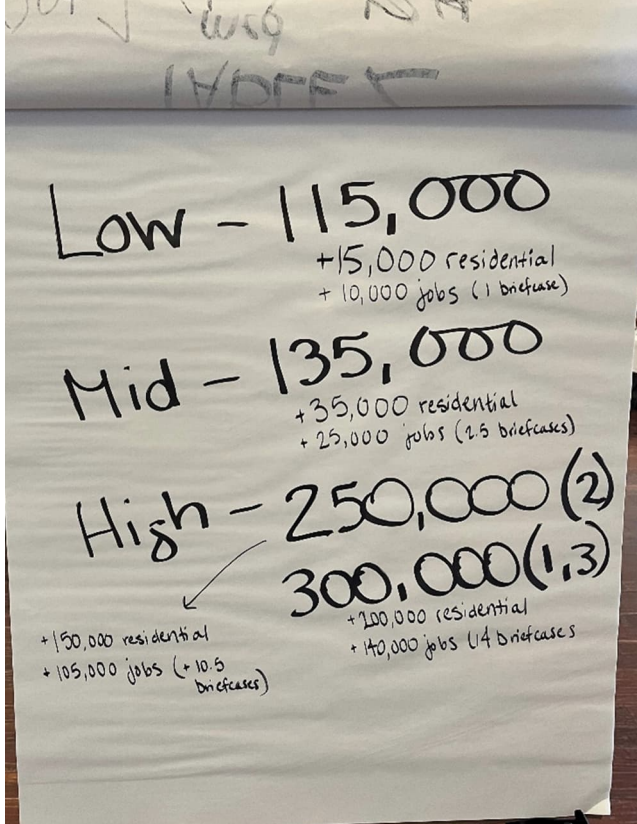


Photo 2: The groups mapping out the three population growth scenarios.



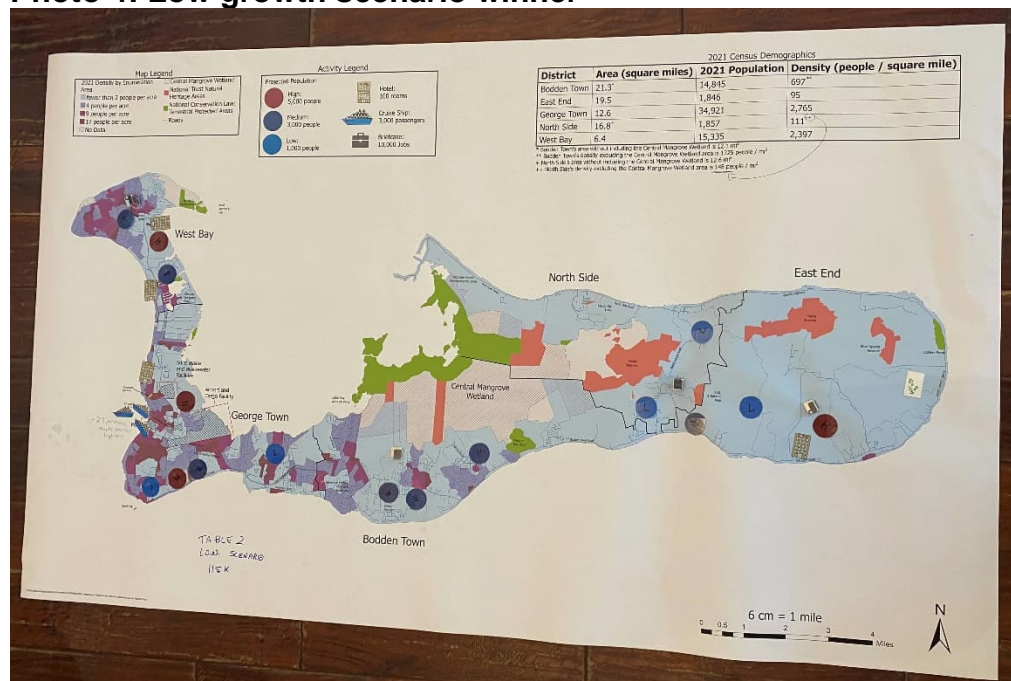
Photo 3: Attendees examining and voting on the proposed scenarios.**Photo 4: Low growth scenario winner**

Photo 5: Medium growth scenario winner

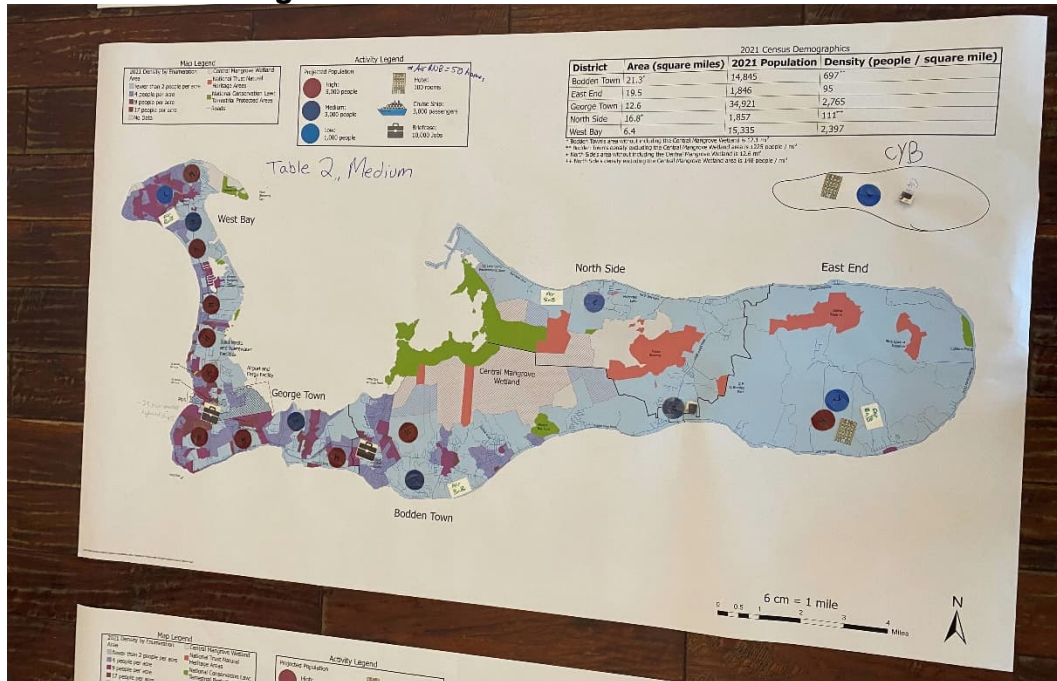


Photo 6: High growth scenario winner

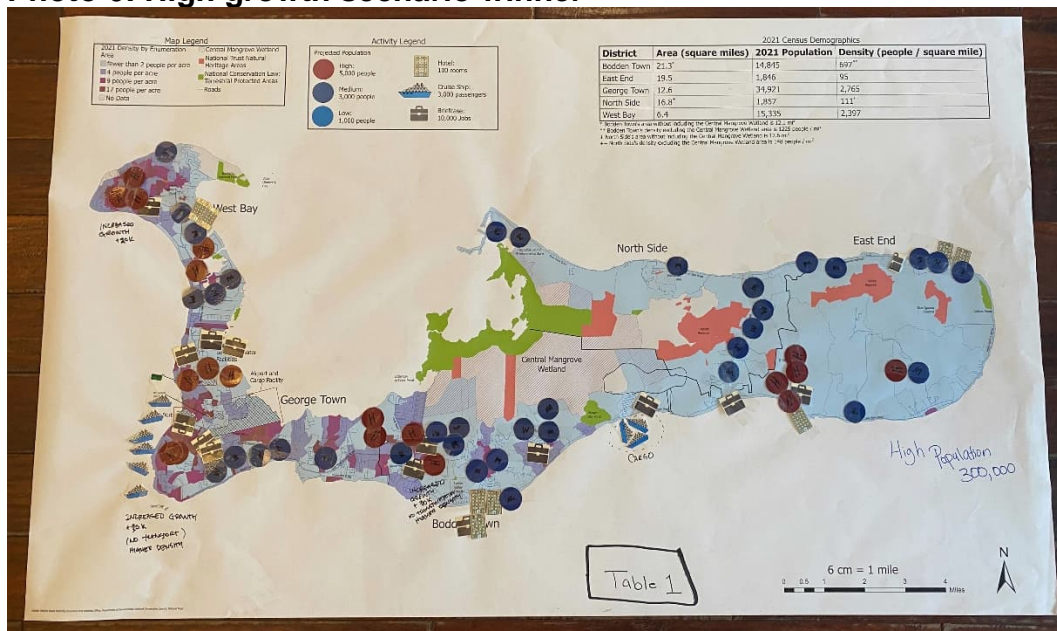
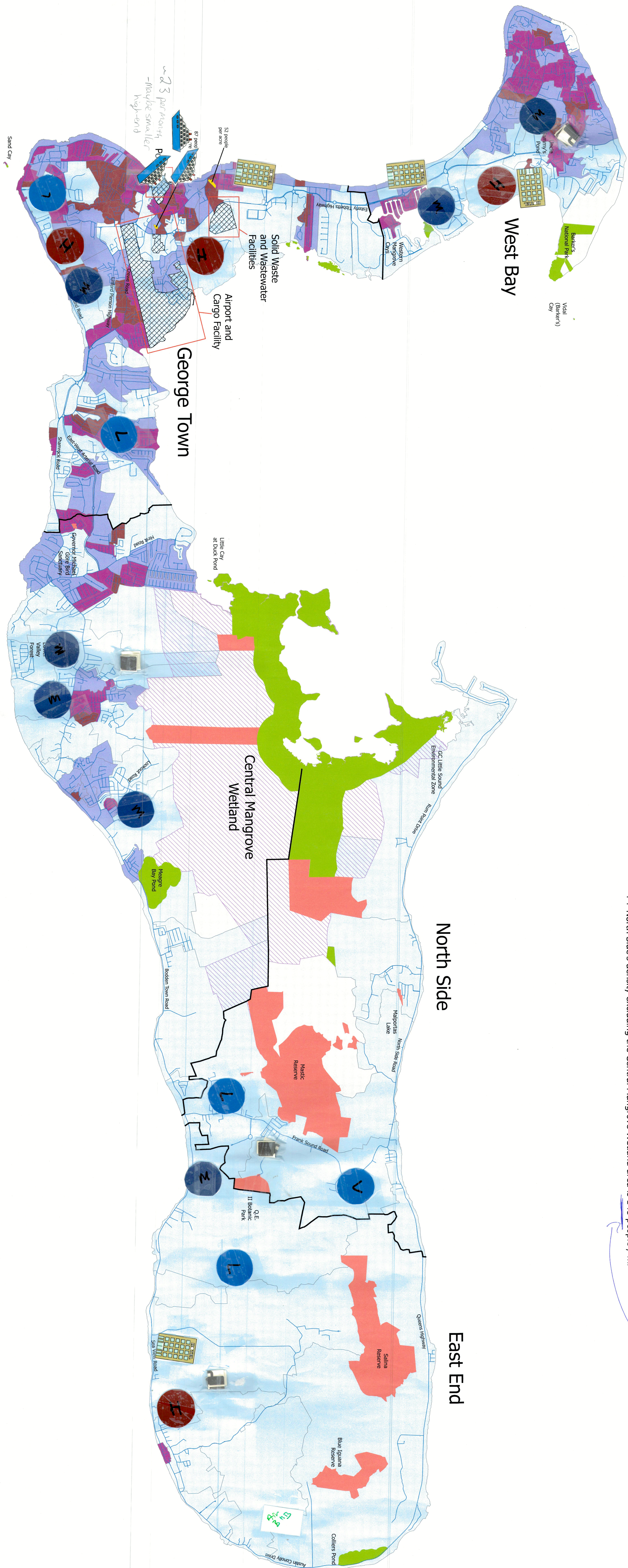
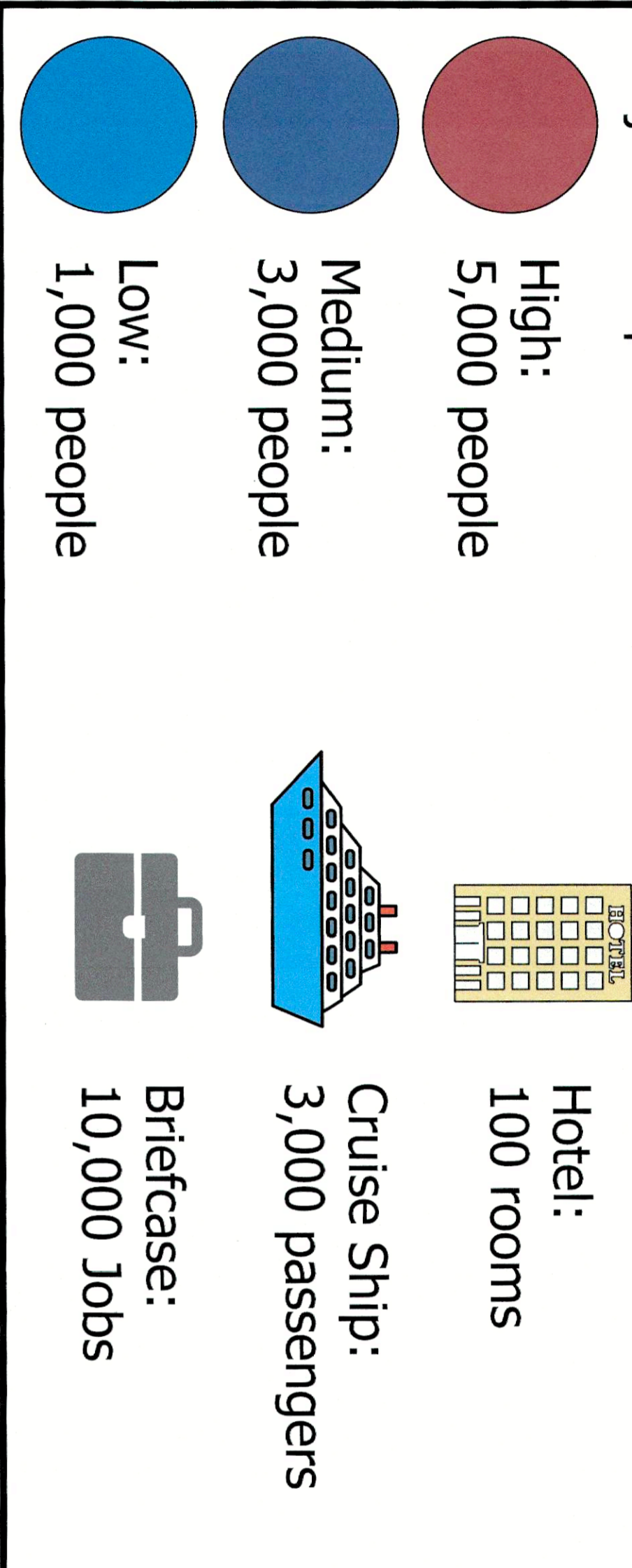


Photo 7: Charrette attendees



Attachment D

Land Use Charrette Selected Scenarios



Area	Population Density (people / mi ²)	Population (people)
Bodden Town	21.3*	14,845
East End	19.5	1,846
George Town	12.6	34,921
North Side	16.8 ⁺	1,857
West Bay	6.4	15,335

* Bodden Town's area without including the Central Mangrove Wetland is 12.1 mi²

** Bodden Town's density excluding the Central Mangrove Wetland area is 1225 people / mi²

+ North Side's area without including the Central Mangrove Wetland is 12.6 mi²

++ North Side's density excluding the Central Mangrove Wetland area is 148 people / mi²

TABLE 2
LOW SCENARIO
115K



Map Legend

2021 Density by Enumeration Area		Central Mangrove Wetland	
	Area		National Trust Natural
	fewer than 2 people per acre		Heritage Areas
	4 people per acre		National Conservation Law:
	9 people per acre		Terrestrial Protected Areas
	17 people per acre		Roads
	No Data		

Activity Legend

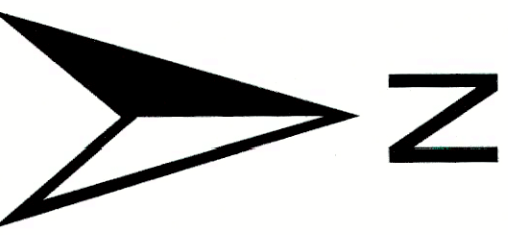
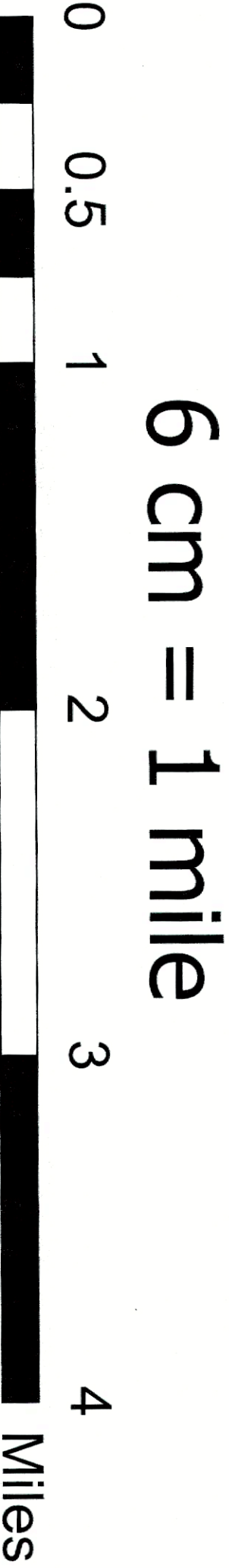
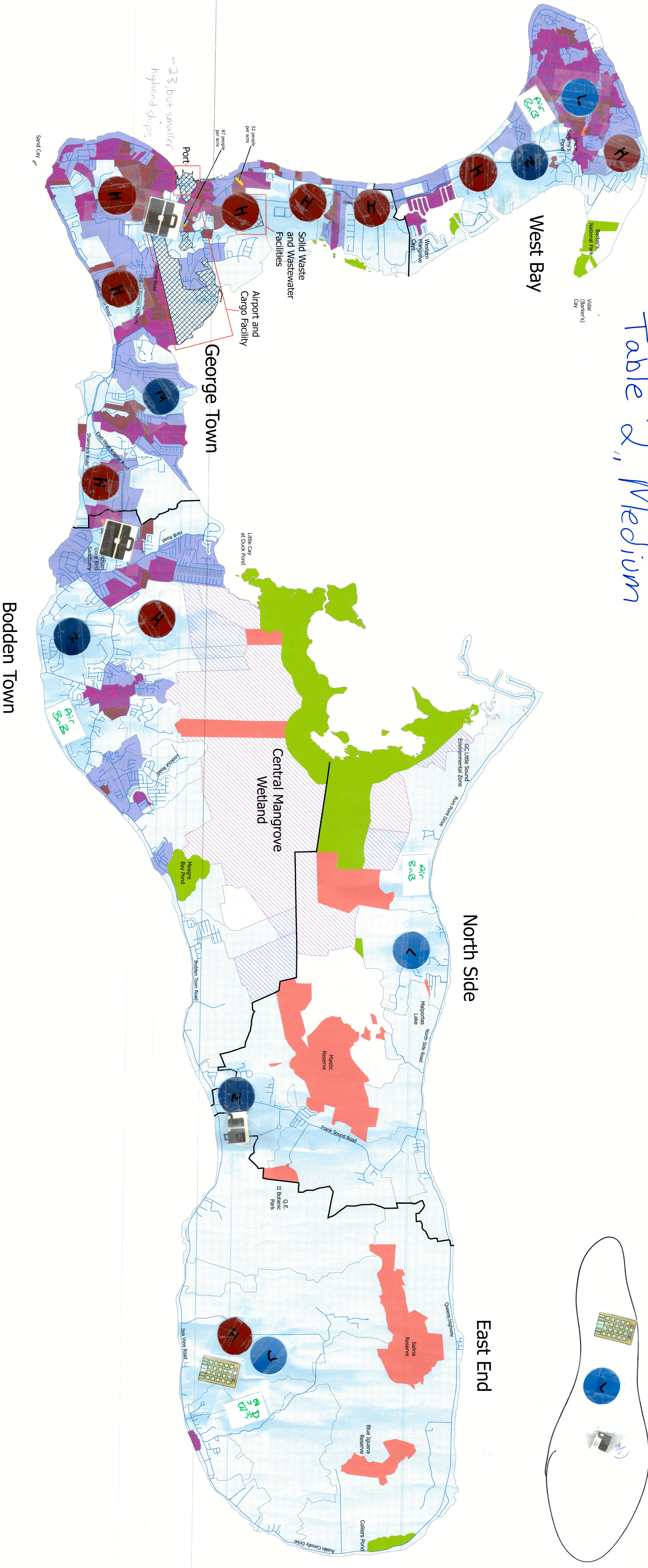
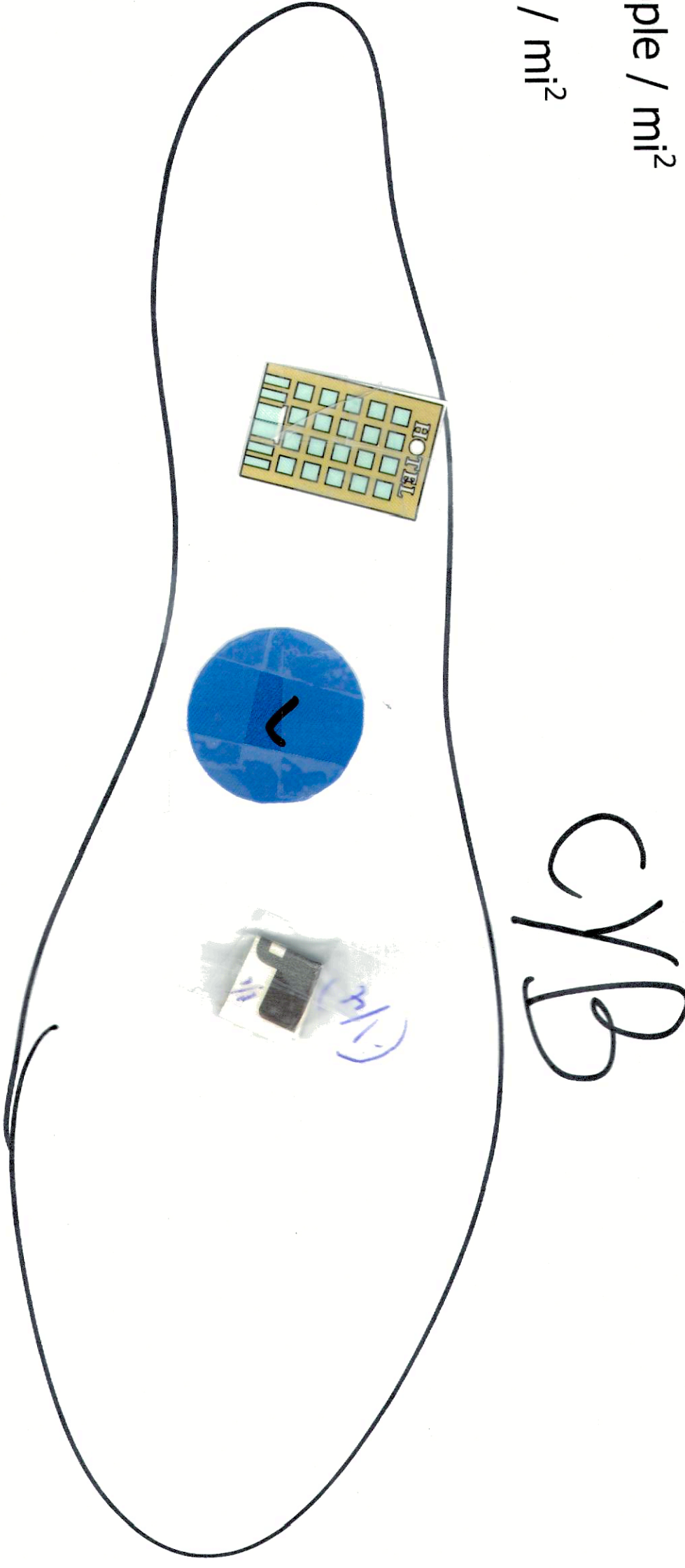
Projected Population			
	High: 5,000 people		Hotel: 100 rooms
	Medium: 3,000 people		Cruise Ship: 3,000 passengers
	Low: 1,000 people		Briefcase: 10,000 Jobs

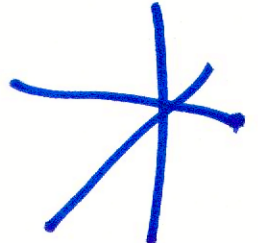
* Air BNB = 50 homes

Table 2, Medium

District	Area (square miles)	2021 Population	Density (people / square mile)
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George Town	12.6	34,921	2,765
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** Bodden Town's density excluding the Central Mangrove Wetland area is 1225 people / mi²
⁺ North Side's area without including the Central Mangrove Wetland is 12.6 mi²
⁺⁺ North Side's density excluding the Central Mangrove Wetland area is 148 people / mi²





Map Legend

2021 Density by Enumeration Area		Activity Legend	
	Central Mangrove Wetland Area		National Trust Natural Heritage Areas
	fewer than 2 people per acre		National Conservation Law: Terrestrial Protected Areas
	4 people per acre		Roads
	9 people per acre		
	17 people per acre		
	No Data		

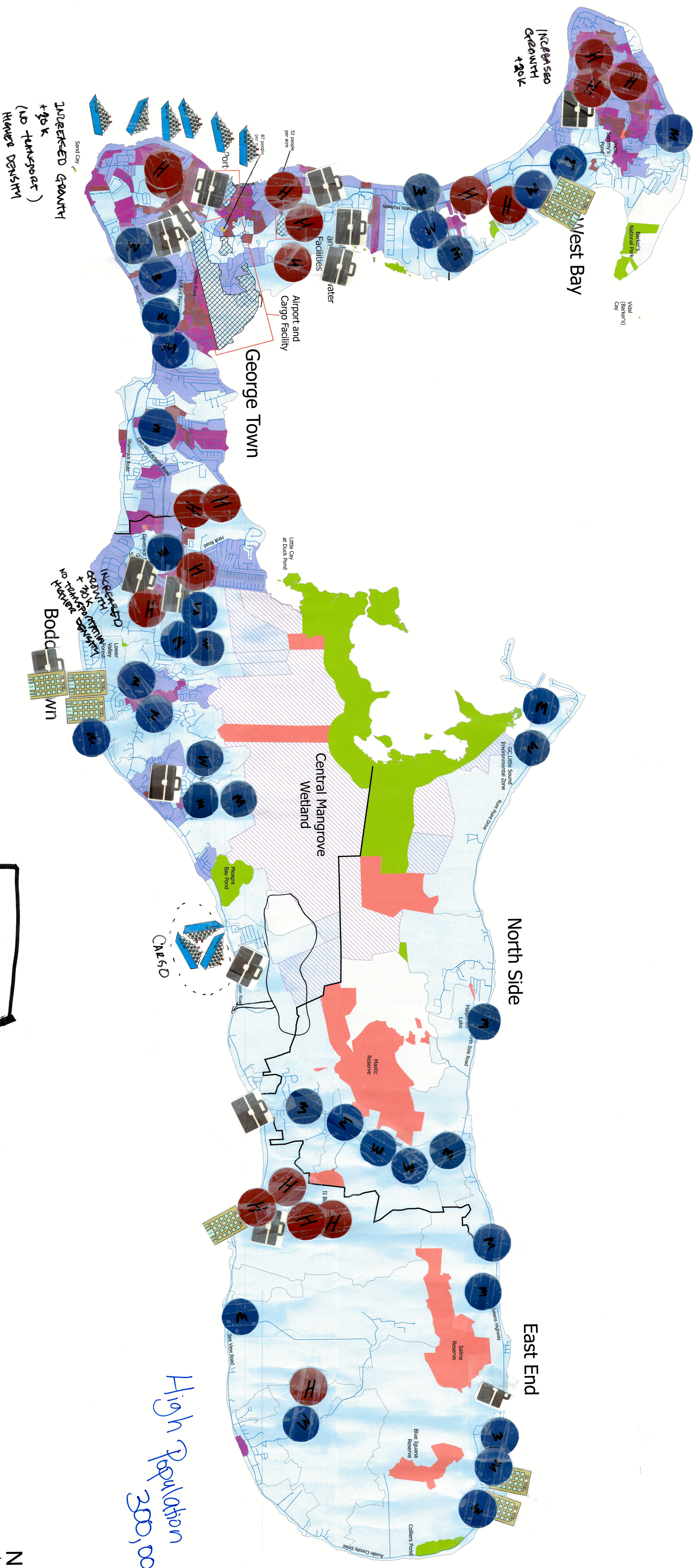
Activity Legend

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2021 Census Demographics

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High Population
300,000

Table 1

