Appendix E, Attachment C – Socio-Economic – Assessment of Alternatives

Environmental Statement

East-West Arterial Extension:

Section 2 (Woodland Drive – Lookout Road)
Section 3 (Lookout Road – Frank Sound Road)

North Side
Freshwater Lens

Mastic
Reserve

B1

B1/B2/B3

B4

Central
Mangrove
Wetland

Meagre
Bay
Pond

Lower Valley
Freshwater Lens

Socio-economic FINAL

Assessment of Alternatives

Grand Cayman East-West Arterial Extension

NRA
NATIONAL ROADS
AUTHORITY

February 26, 2024

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Attachments

Attachment A – Land Use Charrette Memorandum

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List of Terms

CBA	Cost Benefit Analysis
CoS	Compendium of Statistics
CUC	Caribbean Utilities Company, Ltd.
DEH	Department of Environmental Health
DK/NS	Don't Know/Not Stated
EA	Enumeration Area
ECCE	Early Childhood Care and Education
EIA	Environmental Impact Assessment
EMC	Emergency Medical Centres
ESO	Economics and Statistics Office
EWA	East-West Arterial
GDP	Gross Domestic Product
HSA	Health Services Authority
LOS	Level of Service
LTS	Level of Traffic Stress
NAU	Needs Assessment Unit
NRA	National Roads Authority
ToR	Terms of Reference
UK	United Kingdom
US	United States
WebTAG	UK Department for Transport "Transport Analysis Guidance"

1   Introduction

The East-West Arterial (EWA) Extension Environmental Impact Assessment (EIA) is proposed to evaluate an alternative east-west travel route on Grand Cayman. The Terms of Reference (ToR) for the proposed EWA Extension EIA was finalized on April 4, 2023. Since then, five Build alternatives (B1, B2, B3, B4, and C1), in addition to the No-Build scenario, were developed and assessed as part of the Longlist Alternatives Evaluation. A separate Longlist Alternatives Evaluation Document has been prepared to document this analysis.

As a result of the Longlist Alternatives Evaluation, four Build alternatives (B1, B2, B3, and B4) and the No-Build scenario were advanced as a shortlist for evaluation. This report focuses on the assessment of socio-economics for these shortlisted alternatives. Information from this report will be incorporated within the Shortlist Alternatives Evaluation Document and Environmental Statement.

2   Shortlist Evaluation

Social-economic components including employment, income, and education affect how humans and communities live. Assessing the proposed project's potential to affect changes in these components provides an understanding of the comprehensive and interrelated needs of individuals and the local communities.

The following provides information on the anticipated impacts of the shortlisted alternatives on the identified socio-economics components described in **Section 3: Baseline Conditions**. The Shortlist of Alternatives includes the No-Build scenario, plus the four Build alternatives (B1, B2, B3, and B4) as depicted in **Figure 1**. The four Build alternatives all share the same common section beginning at the western terminus, near Woodland Drive, and continuing east to near Lookout Road. They also share the same common improvements to the local roadway network referred to as the Will T Connector. Additional details describing the Shortlist of Alternatives including full descriptions of the No-Build scenario and each Build alternative along with typical design sections can be found in the **Shortlist Evaluation Document** and in the **Traffic Technical Report**.
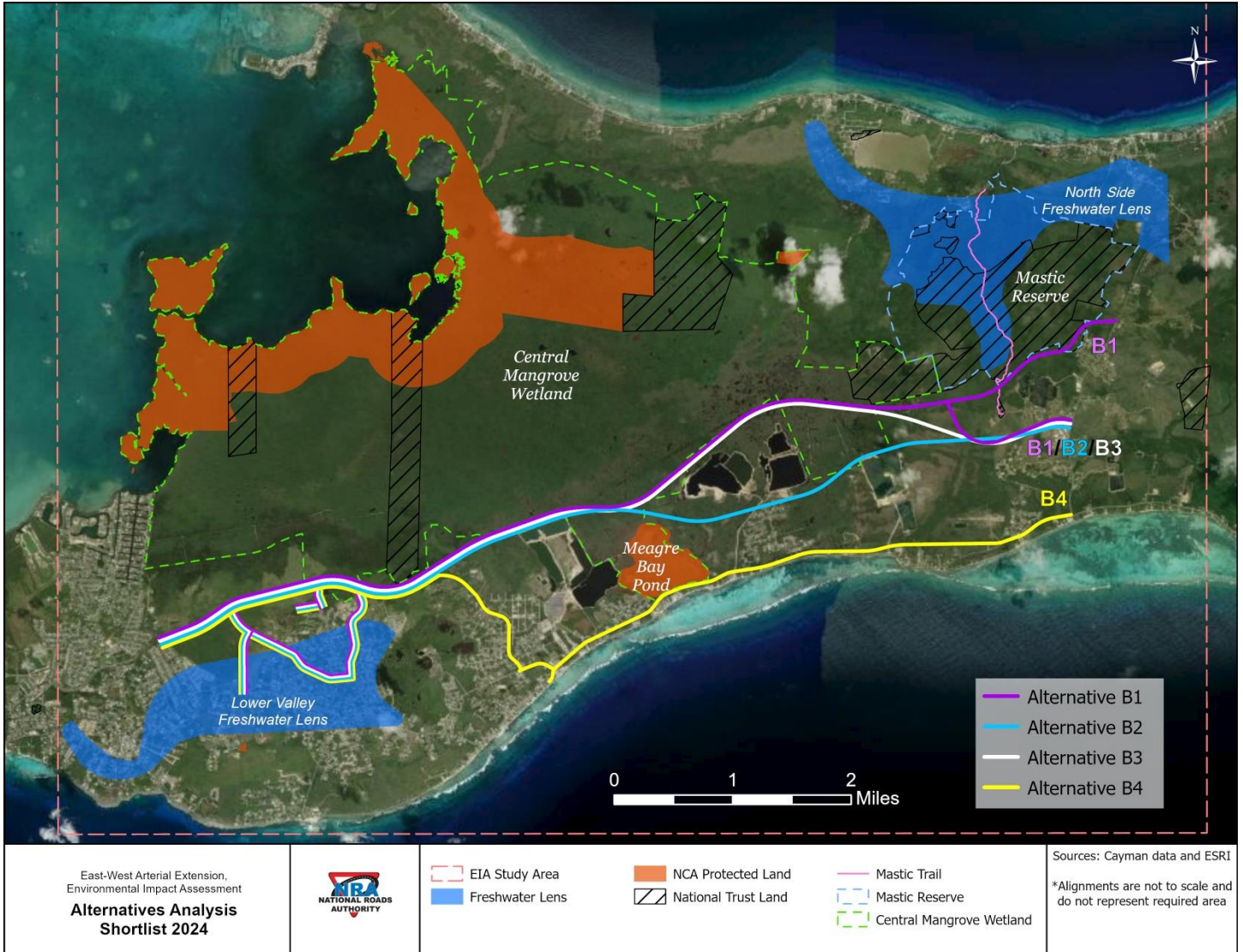
Figure 1: Shortlist of Alternatives

3   Baseline Conditions

3.1   Description of Study Area

The socio-economic study area includes all of Grand Cayman owing to the island-wide effects that could result from a new east-west roadway on population, employment, businesses, and housing. Grand Cayman has five districts: George Town, West Bay, Bodden Town, North Side, and East End (**Figure 2**), and each district is comprised of Enumeration Areas (EA; **Figure 3**). EAs separate districts into smaller statistical areas; they represent the smallest statistical units in census data. Households in EAs are specifically canvassed by enumerators to obtain necessary data. In the Cayman Islands, EAs are comprised of 100 households.

The Cayman Islands' 2021 Census of Population and Housing, and the Cayman Islands' 2021 Compendium of Statistics (CoS) were used as references to create a demographic profile and

examine the social characteristics within the study area. These documents were developed by the Cayman Islands Economics and Statistics Office (ESO), and they provide information about population, demographics, and social and economic conditions. Additional 2021 data at the district and enumeration area level were provided to the EWA EIA project team by the ESO.

While the ESO released a 2022 CoS in late 2023, that demographic data is based on small surveys rather than a larger decennial census count, and it does not contain the level of detail that the 2021 Census of Population and Housing offers. Additional data received directly from the ESO came from the 2021 census. Therefore, when summarizing demographic information, the data used for this Technical Report came primarily from the 2021 Census due to the need for consistency and the greatest accuracy.
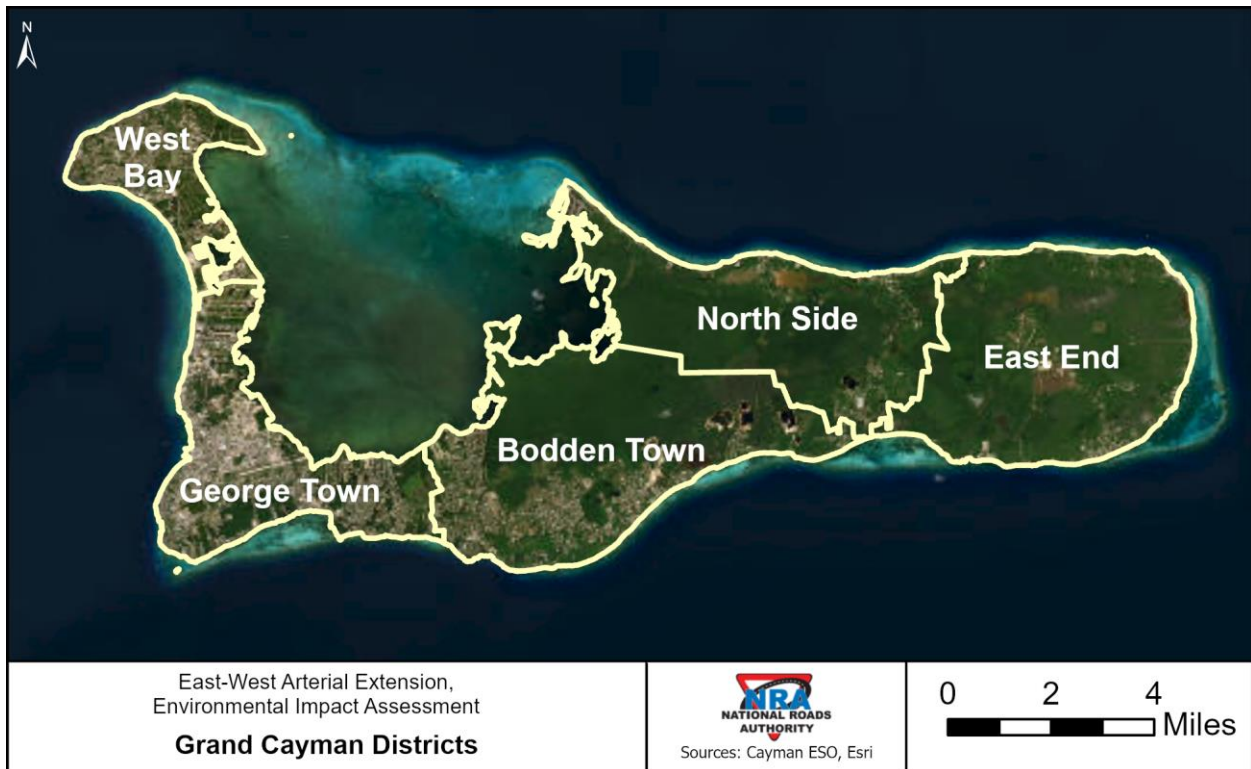
Figure 2: Grand Cayman Districts
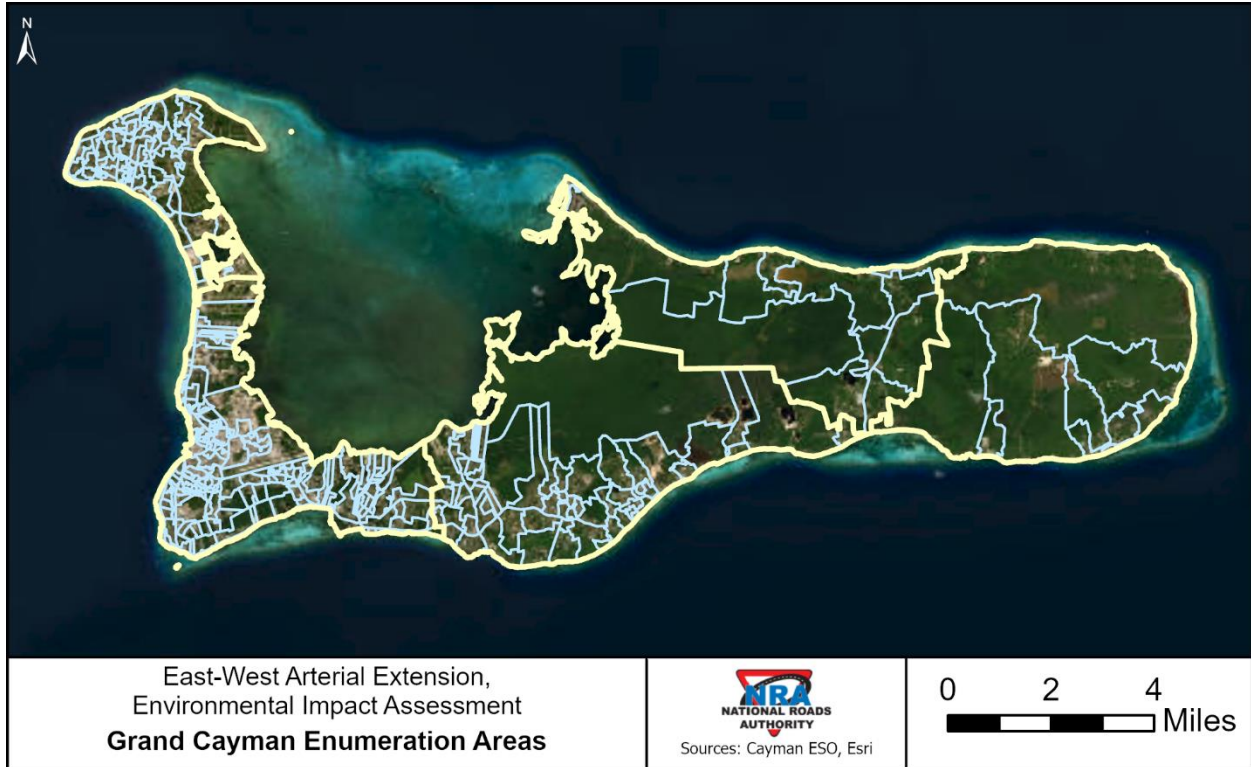
Figure 3: Grand Cayman Enumeration Areas by District

3.2 Data Sources Evaluated

Primary data collected for this evaluation came from consultations with key local Cayman stakeholders and government entities, as well as from the project area information collected during the July 24-28, 2023, field visit. Throughout the data collection process, there have also been numerous coordination events with multiple Cayman agencies like the ESO and the Lands & Survey Department to obtain socio-economic data.

3.2.1 Desktop Review

The Cayman Islands National Roads Authority (NRA), ESO, Lands & Survey Department, and Department of Education provided data and information for compiling baseline conditions and examining potential effects (**Table 1**). Secondary data sources included publicly available government information and data, news sources, non-governmental organization reports, and tourism materials.

Table 1: Socio-economic Data and Sources

File Name	Description	File Type	Providing Agency	Date Provided
"Census 2021 – NRA Data Request"	2021 Census information by Enumeration Area	Excel	ESO	7/18/2023
"ESO 2010 Census – NRA Data Request"	2010 Census information by Enumeration Area	Excel	ESO	7/18/2023
"2019_Enumeration _Area"	2019 Enumeration Areas	Shapefile	ESO	7/18/2023
"2010_Enumeration _Area"	2010 Enumeration Areas	Shapefile	ESO	7/18/2023
"Shapefiles_for_Select _Data_Requested.zip"	Includes: • Cemeteries • Government Facilities • Civic Facilities • Schools	Shapefile	Lands & Survey Department	7/31/2023
"Government School Enrolment – 2022-23"	Enrolment numbers for government school facilities for the 2022-23 school year	Excel	Department of Education	7/31/2023
"Department of Education Staff – 2022-23"	Staff numbers and parcel information for schools in 2022-23	Excel	Department of Education	7/31/2023
"Preschool Locations and Number of Staff and Children"	Staff, enrolment, and parcel information for preschools	Excel	Department of Education	7/31/2023
"Private Schools_Enrolment and Staff numbers_22-23"	Private school enrolment data for 2022-23	Excel	Department of Education	8/3/2023
"Recreation_Areas"	Recreation areas and type of facility	Shapefile	NRA	9/18/2017
"PlanningZones"	Development Plan Zoning Designation Map	Shapefile	Lands & Survey Department	7/31/2023
"Buildings"	Buildings square footage data	Shapefile	Lands & Survey Department	7/31/2023

3.2.2 Laws, Standards, and Reports

Relevant Cayman Islands laws, United Kingdom (UK) standards/guidelines, and Cayman Island government reports were reviewed to determine the needed methodology used to assess socio-economics. The assessed laws, standards, and reports included:

Laws

- Data Protection Act (2021 Revision)
  - The Cayman Islands Data Protection Act regulates how personal information can be processed and the right to privacy for residents for their personal information.
- Disaster Preparedness and Hazard Management Act, 2019 Revision
  - The Cayman Islands Disaster Preparedness and Hazard Management Act establishes a plan for preparing for, addressing, and responding to hazards, disasters, and emergency situations on the Islands.
- Disabilities (Solomon Webster) Law, 2016
  - The Cayman Islands Disabilities Law ensures that persons with disabilities receive the same legal protections and human rights as all persons and are able to participate fully in society.
- Education Act (Act 48 of 2016)
  - The Cayman Islands Education Act establishes standards, procedures, and requirements for the education system in the country and mandates that all persons aged between 5 and 17 are required to attend school.
- Employment Law (Act 3 of 2004) & Labour Act (2021 Revision)
  - The Cayman Islands Employment Law and the Cayman Islands Labour Act both establish standards for the conditions of employment on the Cayman Islands, such as terms of employment, period of employment, benefits provided, and other employee protection measures.
- Gender Equality Act (Act 21 of 2011)
  - The Cayman Islands Gender Equality Act ensures the fair and equitable treatment of all employees regardless of gender and that employment opportunities are available for all people regardless of their gender.
- Health Insurance Act (2021 Revision)
  - The Cayman Islands Health Insurance Act establishes a framework for health insurance coverage for Cayman Islands employees and establishes the requirements and obligations of employers in regard to the provision of health insurance coverage.
- Health Practice Act (2021 Revision)
  - The Cayman Islands Health Practice Act establishes the requirements for being a registered entity that provides health care services to residents.
- Health Services Authority Act (2018 Revision)
  - The Cayman Islands Health Services Authority Act established the Cayman Islands Health Services Authority and details the powers, duties, and responsibilities of the agency in their provision of health care services to residents.
- Labour Act (2021 Revision)
  - The Cayman Islands Labour Act establishes standards and conditions for employment, such as base salary requirements, leave conditions, and categories of employment.

- Land Acquisition Act (1997 Revision)
  - The Cayman Islands Land Acquisition Law establishes a process for government land acquisition and the fair compensation to those whose land was acquired.
- Older Persons Act (Act 14 of 2017)
  - The Cayman Islands Older Persons Act ensures that older persons are able to access the same resources and services as all other residents in the Cayman Islands and establishes a Council to ensure older persons have a voice in the legislation process.
- Poor Persons (Relief) Act (1997 Revision)
  - The Cayman Islands Poor Persons (Relief) Act establishes a framework for providing financial assistance and access to services to those who cannot financially afford it.
- Public Health Act (2021 Revision)
  - The Cayman Islands Public Health Act establishes a framework and standards for protecting the public health of the Cayman Islands population, such as the water supply quality, the handling of garbage, or the regulation of cemeteries, among others.
- Workmen's Compensation Act (1996 Revision)
  - The Cayman Islands Workmen's Compensation Act establishes a framework for the proper compensation of workers following any death or injury that occurs during their period of employment.
- Tourism Act (2002 Revision)
  - The Cayman Islands Tourism Act establishes the Department of Tourism and describes the rules, and procedures for how tourist activities should be regulated, as well as the promotion of tourism.
- Trade Union Act (2019 Revision)
  - The Cayman Islands Trade Union Act provides for the establishment of trade (labour) unions, which is an organization of workers to promote the betterment of work conditions in that sector.

Standards
UK Department for Transport's Transport Analysis Guidance (WebTAG):
- WebTAG unit A4-1 social impact appraisal
- WebTAG unit A4-2 distributional impact appraisal

Reports
Reports from Cayman Islands government agencies include valuable statistical information necessary for this socio-economic analysis. Those that informed this technical report include:
- *Cayman Islands' Census of Population and Housing 2021* – ESO
- *Cayman Islands' CoS 2021* – ESO
- *The Cayman Islands' Gross Domestic Product (GDP) Report 2021* – ESO
- *Data Report for the Academic Year 2021-22* – Department of Education Services

- *'Go East:' A Strategy for the Sustainable Development of the Eastern Districts of Grand Cayman 2009* – Ministry of Tourism, Environment, Investment and Commerce
- *United Nations 2030 Agenda for Sustainable Development* – United Nations

3.2.3 Stakeholder Engagement

The results of an infrastructure project like the EWA extension continue for decades after the project is completed. To assess the long-term impacts of the proposed EWA extension in the EIA, a horizon year for analysis needed to be chosen. According to the UK Green Book, which is the Central Government Guidance on Appraisal and Evaluation, "Costs and benefits should be calculated over the lifetime of an intervention. As a guideline, a time horizon of 10 years is a suitable working assumption for many interventions. In some cases, up to 60 years may be suitable, for example for buildings and infrastructure." Therefore, the EWA EIA Steering Committee chose to use a 50-year time horizon, 2074, that would represent the life-cycle year for construction and the common year used for all evaluations.

During the June 2023 Phase 2 Kick-off Meeting, growth rates (particularly population projections for future year 2074) were identified as a primary concern by the Steering Committee as they may suggest unrealistically high future populations, which could influence Cost Benefit Analysis (CBA) results and other critical analyses. Based on this feedback, the Land Use Charrette focused on determining three different land use scenarios that may occur on Grand Cayman in future year 2074 that included both geographically based and intensity-based components: where will the people be and how many people will be there. Main categories for consideration included: locations and number of population/density, employment, hotels, and cruise ships. The Charrette provided consensus on growth scenarios and geographical distribution to run the traffic modelling efforts, which would dictate engineering requirements (number of lanes), and the CBA in terms of benefit (travel times, benefited population).

The methodology for projecting the population in 2074 revolved around using the expertise of Caymanians along with past population trends to determine likely population scenarios for 2074. To forecast the population on Grand Cayman in 2074, the project team gathered members of the EWA EIA Steering Committee and relevant government ministries and departments with the aim of agreeing on population growth scenarios that could then be used for EWA study and modelling purposes. On July 25, 2023, the EWA EIA project team conducted a Land Use Planning Charrette to achieve this aim. See **Attachment A** for more detail.

Members of the EWA EIA Steering Committee and relevant government ministries and departments were in attendance; such government ministries and departments included:

- NRA
- Department of Environment
- Environmental Assessment Board
- Department of Planning
- Water Authority Cayman
- Ministry of Planning, Agriculture, Housing, and Infrastructure

- Ministry of Sustainability & Climate Resiliency

In three groups, attendees agreed on future Grand Cayman population projections for the year 2074. The groups came up with a variety of population growth scenarios and after discussion and voting chose a final population growth number for three scenarios: a low, a medium, and a high scenario. Attendees then mapped the placement and growth of population, job, and tourism growth for each scenario (**Figure 4**).
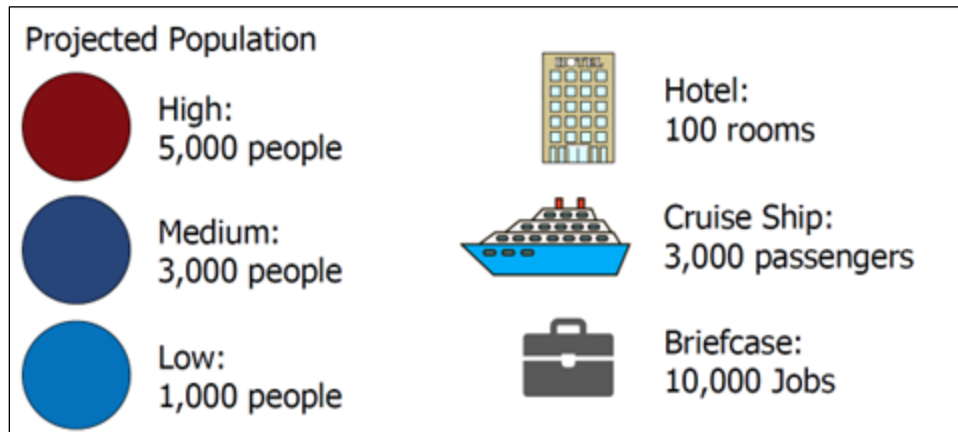
Figure 4: Legend for the Growth Scenario Activity

Current population (68,848 in 2021, rounded to 70,000 people for the purpose of the activity) for the Cayman Islands came from the 2021 CoS, and a baseline population growth of 30,000 people was assumed based on planned development data provided by the NRA, totalling an assumed baseline population of 100,000 in 2046. Data about planned developments (plans from 2017 through 2046) includes residential and commercial projects. Many planned developments would be concentrated in West Bay and George Town, but several larger developments by both acreage and predicted population distribution would occur in the East End, to the east of Frank Sound Road based on approved Planned Area Development projects (**Figures 5** and **6**).
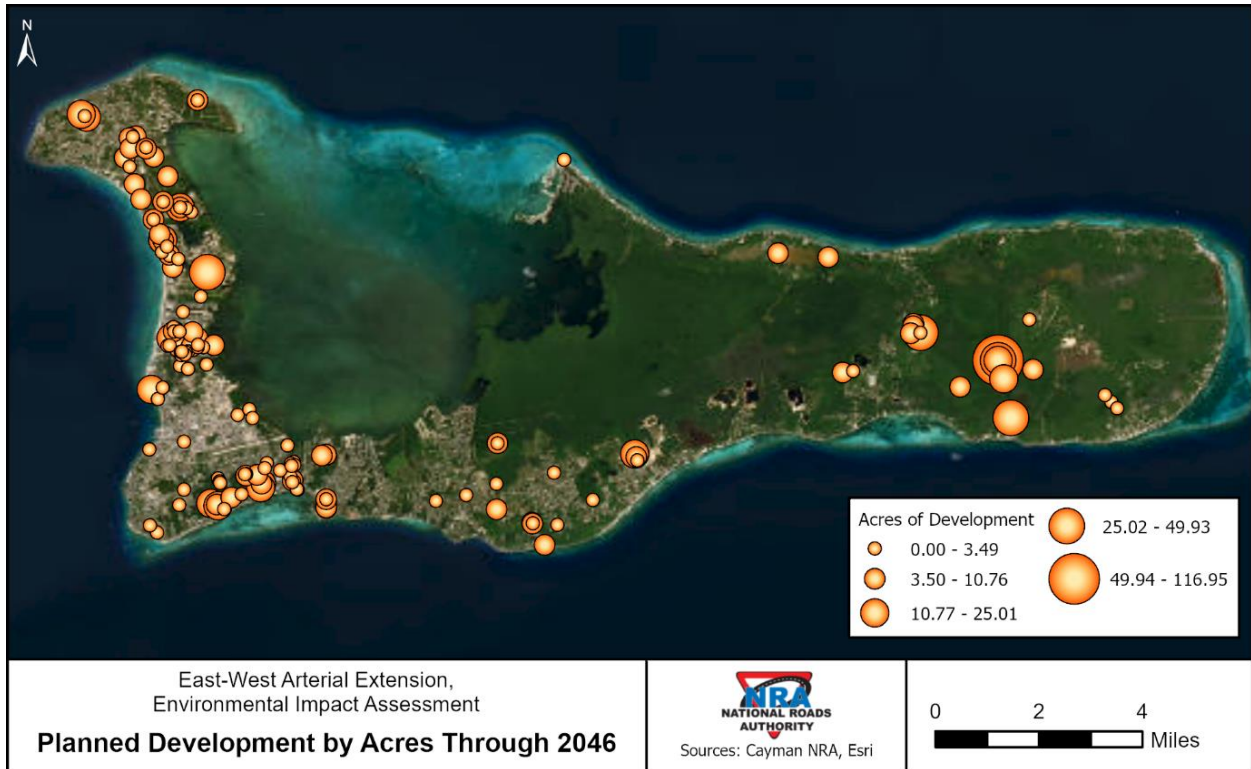
Figure 5: Planned Development by Acres through 2046
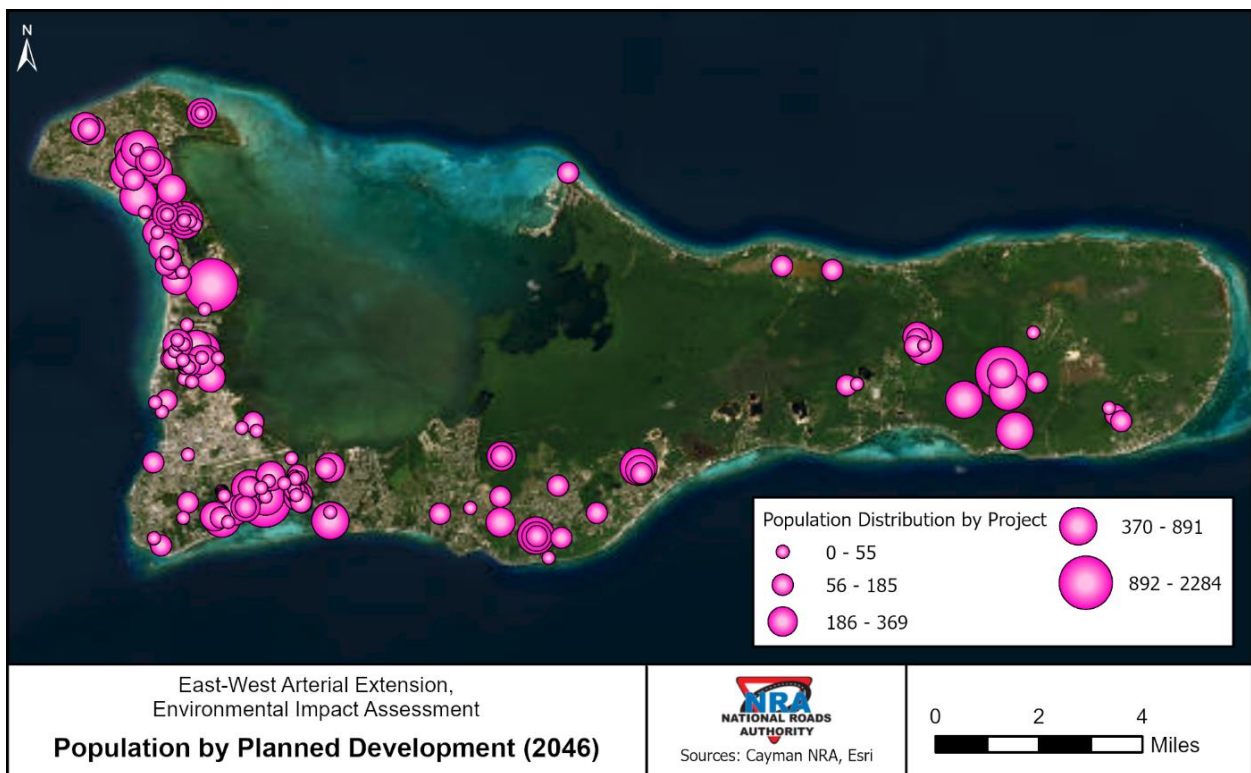
Figure 6: Population by Planned Development through 2046

The low, medium, and high growth scenarios involved additional population forecasts added to this baseline population to create a projected 2074 population per growth scenario (**Table 2**). Job growth was based on an approximate 70% employment rate (a high-level calculation to capture the approximate number of people employed based on the 2021 Census of Population and Housing and the 2021 CoS).

Table 2: 2074 Population Projections from Land Use Charrette

	Baseline Population	Added Population	Projected Population
Low Growth Scenario	100,000 (70,000 current + 30,000 projected)	15,000	115,000
Medium Growth Scenario	100,000 (70,000 current + 30,000 projected)	35,000	135,000
High Growth Scenario	100,000 (70,000 current + 30,000 projected)	200,000	300,000

After agreeing on the low, medium, and high population growth numbers, attendees received tokens representing population growth, jobs, and tourism (**Figure 4**) and were tasked with putting these tokens on the maps to represent where they believed the growth would occur. When mapping each population scenario, attendees started with a blank map. This allowed for the creation of unique population growth scenarios that did not build on the previous scenarios already mapped as part of the group activity. Finally, attendees voted and chose three winning scenarios to represent the placement of low, medium, and high growth, including populations, cruise ships, overnight tourist locations, and jobs, for the Cayman Islands (with a focus on Grand Cayman) through the year 2074 (**Figures 7, 8,** and **9**).

3.2.3.1   Low Population Growth Scenario

The low-growth population scenario projects a mixture of low, medium, and high population densities, with high densities in existing population centres of West Bay and George Town and mid and low densities focused in Bodden Town, North Side, and East End. Employment opportunities are spread across the island (**Figure 7**). This projection maintains the existing port facility location in George Town. It also projects boutique cruise ships (smaller, high-end ships) with fewer cruise ships total coming to port per month (approximately 23 per month). Hotel locations are projected along Seven Mile Beach and in West Bay. One Airbnb token was added in the East End, which represents roughly 50 homes or rental units.

The total population for the low-growth scenario was 115,000 people. This includes an assumed baseline population of 100,000 (70,000 people for the current population and 30,000 people added in planned development) and 15,000 of added population growth agreed upon during the charrette (note that tokens representing 16,000 people were placed on the map instead of 15,000 people). The low-growth scenario map represented in **Figure 7** includes an additional 30,000 people represented in growth symbols to demonstrate the baseline population growth projection.
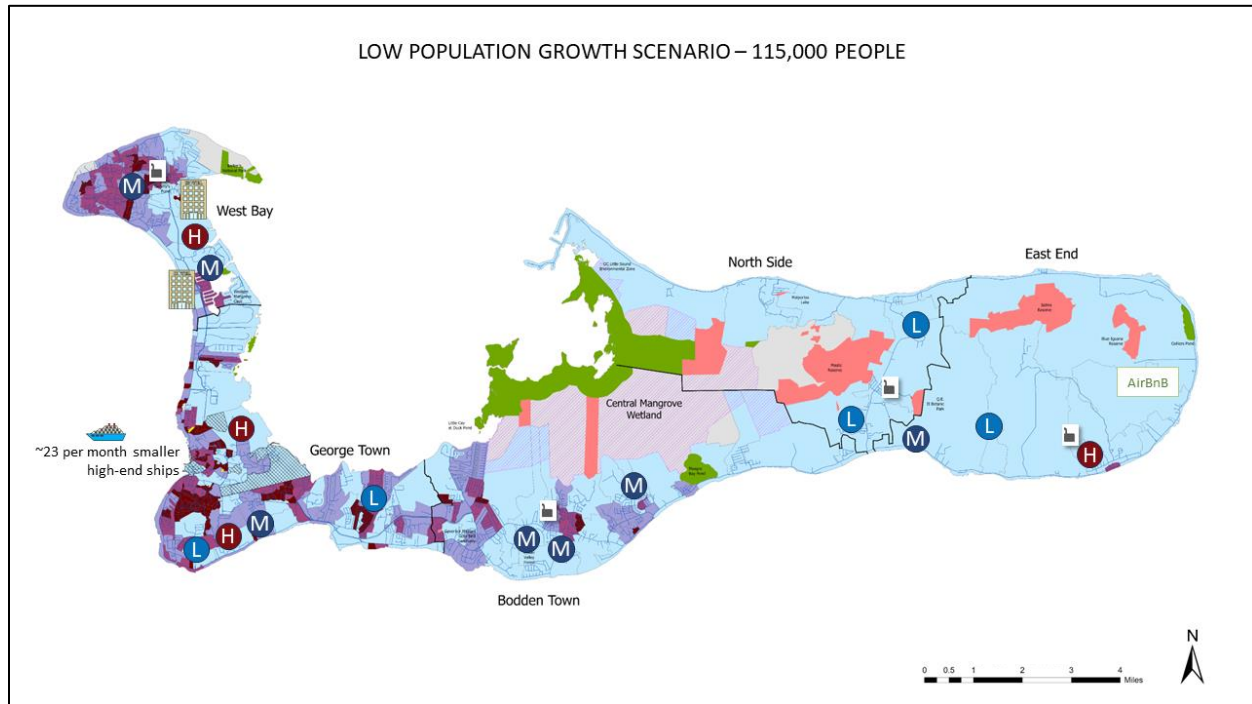
Figure 7: Low Population Growth Scenario

3.2.3.2   Medium Population Growth Scenario

The medium-growth population scenario assumes higher density locations mostly in West Bay and George Town, with modest growth in East End and North Side. It also assumes job growth across the island, but with more jobs concentrated in George Town and the western portion of Bodden Town than on the eastern side of the island, plus a small amount of growth on Cayman Brac (**Figure 8**). This projection maintains the existing port facility location in George Town. It also projects boutique cruise ships (smaller, high-end ships) with fewer cruise ships total coming to port per month (approximately 23 per month). The medium scenario also projects Airbnbs and vacation rentals (about 50 homes per Airbnb token, or 200 total) versus hotels in West Bay, Bodden Town, and East End.

The population for the medium-growth scenario was 135,000 people (100,000 people as a baseline, and 35,000 agreed upon growth). Like with the low-growth scenario map, the medium-growth scenario map represented in **Figure 8** includes an additional 30,000 people represented in growth symbols to demonstrate the baseline population growth projection. This 135,000-person growth scenario was used in evaluations as the "core" scenario for the Shortlist Evaluation.
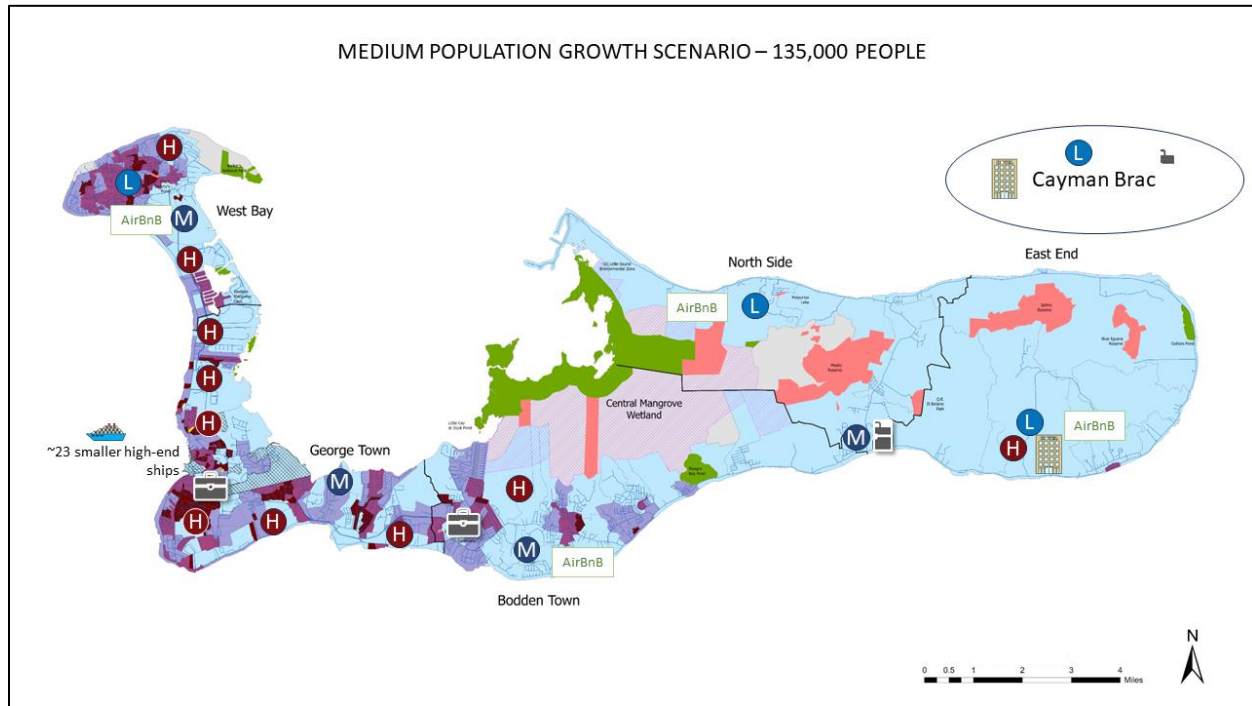
Figure 8: Medium Population Growth Scenario

3.2.3.3   High Population Growth Scenario

The high-growth population scenario projects medium and high-density population growth across the island, with emphasis on West Bay, George Town, and Bodden Town. Employment is also projected to grow across the island, with a focus in George Town and Bodden Town (**Figure 9**). Along with maintaining the existing cruise port facility location in George Town, this projection also assumes a new cargo facility east of Pease Bay in Bodden Town. It also places hotel locations along the shorelines in West Bay, Bodden Town, and East End.

The population for the high-growth scenario was 300,000; made up of a baseline population of 100,000 (70,000 current population plus 30,000 planned development) and an additional 200,000 people (note that tokens for an additional 203,000 people were placed on the map). While this high-growth scenario map assumes the same baseline level of growth due to planned development as represented in the low-growth and medium-growth scenarios (30,000 additional people), symbols representing this baseline growth are not represented in **Figure 9** to avoid symbol crowding.
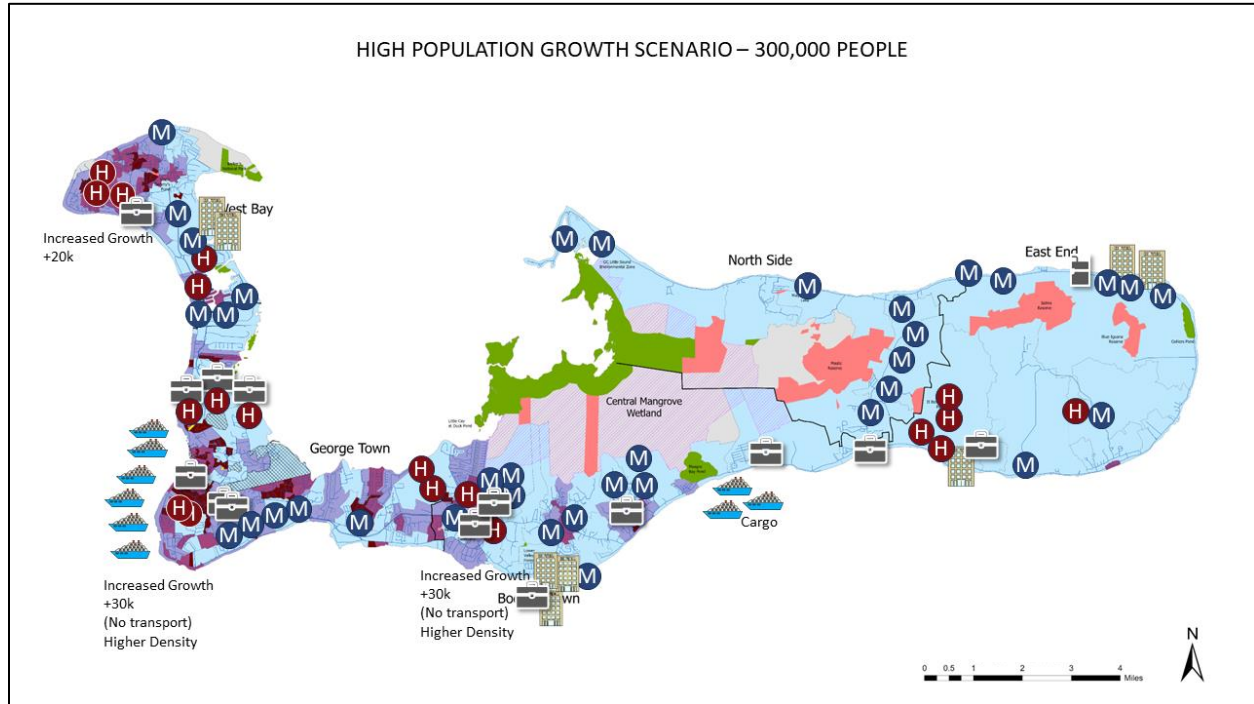
Figure 9: High Population Growth Scenario

3.2.3.4 Summary

The Land Use Charrette provided valuable information about potential population growth scenarios for 2074. These scenarios provided modelling inputs and context for evaluation of future conditions when assessing the Build alternatives compared with the No-Build scenario. **Table 3** summarizes the results of the low, medium, and high growth mapping scenarios voted on at the charrette. The medium growth scenario became the "core" scenario for further analysis.

Table 3: Land Use Charrette Growth Scenarios Summary

Population	Employment	Hotels	Cruise Ships
Low			
115,000 • 100,000 base population (70,000 existing and 30,000 planned) • Estimated 15,000 additional	1 briefcase (10,000 jobs)	2 hotels (200 rooms); 1 Airbnb (50 homes)	23 smaller, high-end ships per month (number of passengers not clarified)
Medium			
135,000 • 100,000 base population (70,000 existing and 30,000 planned) • Estimated 35,000 additional	2.5 briefcases (25,000 jobs)	1 hotel (100 rooms); 4 Airbnbs (200 homes)	23 smaller, high-end ships per month (number of passengers not clarified)
High			
300,000 • 100,000 base population (70,000 existing and 30,000 planned) • Estimated 200,000 additional	14 briefcases (140,000 jobs)	8 hotels (800 rooms)	9 cruise ships (18,000 passengers)

3.3   Demographics

3.3.1   Population, Growth, and Density

According to 2021 census data reported by ESO, 71,105 persons reside on the Cayman Islands, which are made up of Grand Cayman, Cayman Brac, and Little Cayman; 68,848 persons live on Grand Cayman. **Table 4** shows population growth from 1989 to 2021 and **Figure 10** shows population growth from 1960 to 2021.

Table 4: Cayman Islands Population, 1989-2021

	1989	1999	2010	2021
Cayman Islands	25,355	39,020	55,036	71,105
Grand Cayman	**23,881**	**37,083**	**52,740**	**68,848**
George Town	*12,921*	*20,626*	*28,089*	*34,921*
West Bay	*5,632*	*8,243*	*11,222*	*15,335*
Bodden Town	*3,407*	*5,764*	*10,543*	*14,845*
North Side	*1,064*	*1,371*	*1,407*	*1,902*
East End	*857*	*1,079*	*1,479*	*1,846*

Source: Cayman Islands Compendium of Statistics (2021) Table 1.08 (p. 20) and Table 1.10 (p. 22)
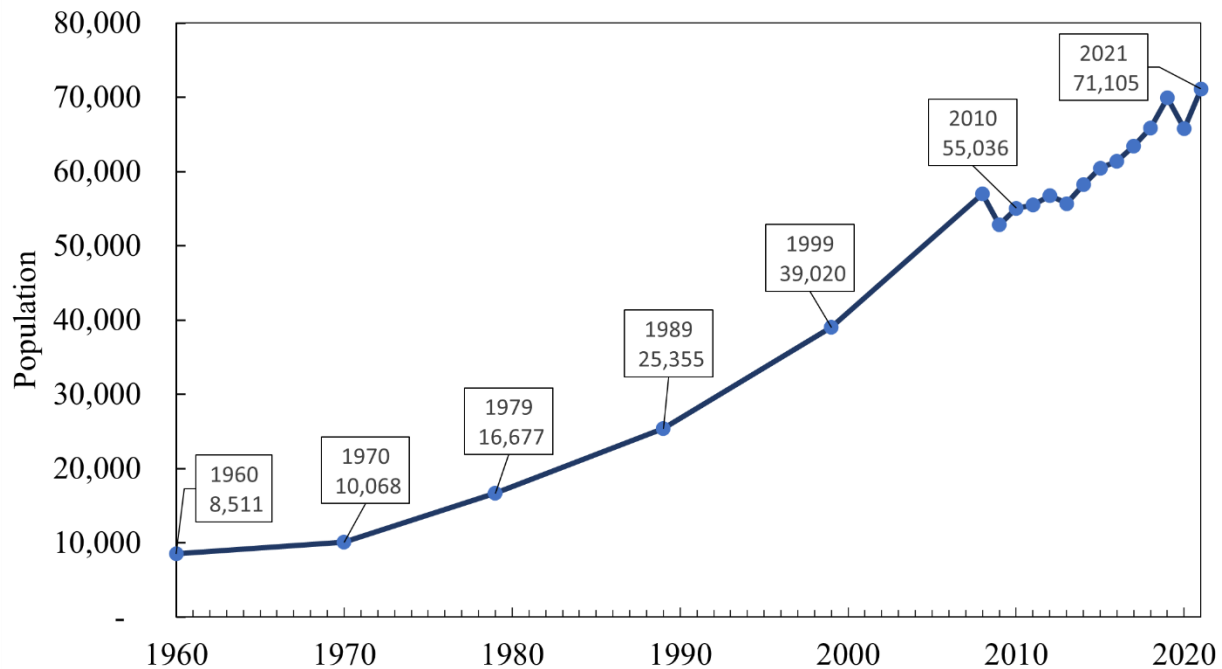
Figure 10: Cayman Islands Population Growth, 1960-2021
Source: Data provided by the ESO

Grand Cayman is the most populous of the three islands. In 2021, 34,921 persons resided in George Town; 15,335 persons resided in West Bay; 14,845 persons resided in Bodden Town; 1,902

persons resided in North Side; and 1,846 persons resided in East End (**Table 4**). **Figure 11** illustrates the population growth by district from 1960 to 2021.
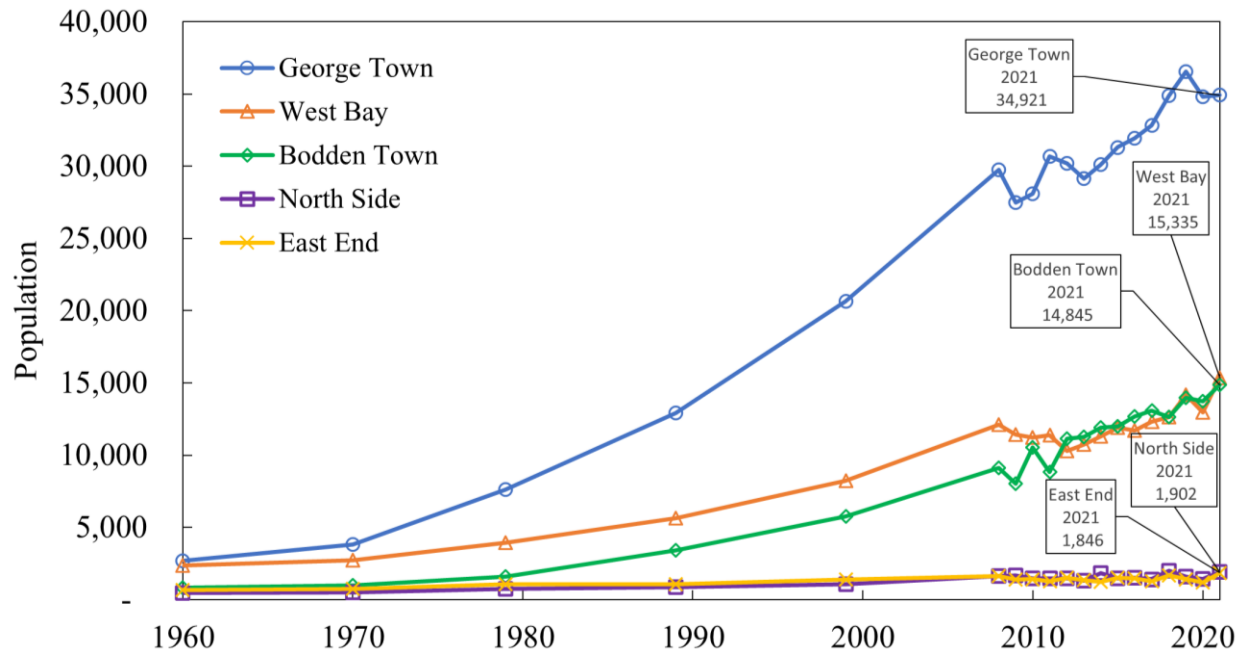
Figure 11: Grand Cayman Population Growth by District, 1960-2021
Source: Data provided by the ESO

From 1989 to 1999, the Cayman Islands grew by 53.9%; from 1999 to 2010, the Islands grew by 41%; and from 2010 to 2021, the Islands grew by 29.2% (**Table 5**). George Town, West Bay, and Bodden Town experienced the highest growth over this period. From 1989 to 1999, George Town grew by 59.6%, West Bay grew by 46.4%, and Bodden Town grew by 69.2%; North Side and East End grew at slower rates, with 28.9% and 25.9% growth, respectively. From 1999 to 2010, Bodden Town experienced the highest growth on Grand Cayman, with 82.9% growth during this period. George Town, West Bay, and East End grew at rates of 36.2%, 36.1%, and 37.1% growth, respectively. North Side's growth from 1999 to 2010 was 2.6%. From 2010 to 2021, Bodden Town continued to experience the highest growth on Grand Cayman, with 40.8% growth. West Bay and North Side grew at rates of 36.6% and 35.2% growth, respectively. From 2010 to 2021, George Town and East End experienced rates of 24.3% and 24.8% growth, respectively (**Table 5**).

Table 5: Cayman Islands Population Percentage Growth 1989-2021

District	1989-1999		1999-2010		2010-2021	
	% Growth	Annual % Growth	% Growth	Annual % Growth	% Growth	Annual % Growth
Cayman Islands	53.9	4.4	41.0	3.2	29.2	2.4
George Town	59.6	4.8	36.2	2.8	24.3	2.0
West Bay	46.4	3.9	36.1	2.8	36.6	2.9
Bodden Town	69.2	5.4	82.9	5.6	40.8	3.2
North Side	28.9	2.6	2.6	0.2	35.2	2.8
East End	25.9	2.3	37.1	2.9	24.8	2.0

Source: Compendium of Statistics (2021) Table 1.10 (p. 22)

Population density in the Cayman Islands and on Grand Cayman has almost tripled between 1989 and 2021. With an area of 76 mi^2 (197 km^2) and a population of 68,848, Grand Cayman's density was 906 people per mi^2 (350 people/km^2) in 2021, versus 314 people per mi^2 in 1989 (121 people/km^2; **Table 6**).

Table 6: Cayman Islands Population Density 1989-2021

	Area mi^2 (km^2)	1989		1999		2010		2021	
		Population	Density people/mi^2 (people/km^2)	Population	Density people/mi^2 (people/km^2)	Population	Density people/mi^2 (people/km^2)	Population	Density people/mi^2 (people/km^2)
Cayman Islands	102 (264)	25,355	249 (96)	39,410	386 (149)	55,036	540 (208)	71,105	697 (269)
Grand Cayman	76 (197)	23,881	314 (121)	37,473	493 (190)	52,740	694 (268)	68,848	906 (350)

Source: Compendium of Statistics (2021) Table 1.11 (p. 22)

Compared to other countries and cities of similar land size, Grand Cayman has a lower population density (**Table 7**). Aruba, with an area of 75 mi^2 (193 km^2) and a population of 106,537 people, has a population density of 1,533 people per mi^2 (551 people per km^2). San Juan, Puerto Rico, with an area of 77 mi^2 (199 km^2) and a population of 342,259 people, has a population density of 4,445 persons per mi^2 (1,720 persons per km^2). Milan, Italy, with an area of 70 mi^2 (181 km^2) and a population of 1,371,498 people, has a population density of 19,593 people per mi^2 (7,577 people per km^2). Buenos Aires, Argentina, with an area of 78 mi^2 (203 km^2) and a population of 3,120,612 people, has a population density of 40,008 people per mi^2 (15,372 people per km^2).

Table 7: Population Density of Cities/Countries of Similar Size

City/Country	Area mi^2 (km^2)	Population	Density people/mi^2 (people/km^2)
Grand Cayman	76 (197)	68,848	906 (350)
Aruba	75 (193)	106,537	1,533 (551)
San Juan, Puerto Rico	77 (199)	342,259	4,445 (1,720)
Milan, Italy	70 (181)	1,371,498	19,593 (7,577)
Buenos Aires, Argentina	78 (203)	3,120,612	40,008 (15,372)

Source: World Bank Data Catalogue, World Development Indicators Databank (2023)

George Town is Grand Cayman's most densely populated district, with 2,772 people per mi^2 (1,071 people per km^2) as of the 2021 census (**Table 8**). West Bay has a similar population density (2,396 people per mi^2, 924 people per km^2) despite having less than half of the population of George Town, because West Bay, by area, is about half the size of George Town.

Since 1989, George Town has added between 500 and 600 people per mi^2 each decade (between 200 and 250 people per km^2). East End, the least densely populated district, has added about 17 people per mi^2 (7 people per km^2) each decade between 1989 and 2021.

Table 8: Grand Cayman Districts Population Density 1989-2021

District	Area mi^2 (*km^2*)	Population				Density people/mi^2 (*people/km^2*)			
		1989	**1999**	**2010**	**2021**	**1989**	**1999**	**2010**	**2021**
George Town	12.6 (*32.6*)	12,921	20,262	28,082	34,921	1,025 (*396*)	1,637 (*633*)	2,229 (*862*)	2,772 (*1,071*)
West Bay	6.4 (*16.6*)	5,632	8,243	11,257	15,335	880 (*339*)	1,288 (*497*)	1,753 (*676*)	2,396 (*924*)
Bodden Town	21.3 (*55.2*)	3,407	5,764	10,543	14,845	160 (*62*)	271 (*104*)	495 (*191*)	697 (*269*)
North Side	16.7 (*43.3*)	1,064	1,371	1,407	1,902	64 (*25*)	82 (*32*)	84 (*32*)	114 (*44*)
East End	19.4 (*50.2*)	857	1,079	1,479	1,846	44 (*17*)	56 (*21*)	76 (*29*)	95 (*37*)

Source: Shapefiles and census data provided by ESO, area geospatially calculated using ArcGIS 3.0.4

3.3.2 Population Distribution by Age & Sex

Table 9 and **Figure 12** show the distribution of the population by age and sex on the Cayman Islands: 35,984 persons are male, and 35,058 persons are female. The age bracket containing the largest number of people is age 30-39, with 13,863 persons, followed closely by age 40-49, with 13,429 persons. The smallest age bracket is age 10-19 with 7,185 persons. In each age category, males slightly outnumber females, except the 60 and older group, with 4,717 females and 4,240 males. In George Town, West Bay, North Side, and East End males outnumber females. In Bodden Town females outnumber males, with 7,674 females and 7,162 males (**Table 10**).

Table 9: Cayman Islands Population by Age and Sex, 2021

Age Group	Total by Age	Male	Female	DK/NS
0-9	7,384	3,729	3,635	20
10-19	7,185	3,656	3,522	7
20-29	8,997	4,553	4,443	-
30-39	13,863	7,104	6,758	1
40-49	13,429	6,932	6,496	1
50-59	10,772	5,483	5,289	-
60+	8,960	4,240	4,717	3
DK/NS	515	286	199	30
Total	71,105	35,984	35,058	63

Source: Compendium of Statistics (2021) Table 1.02a (p. 13)
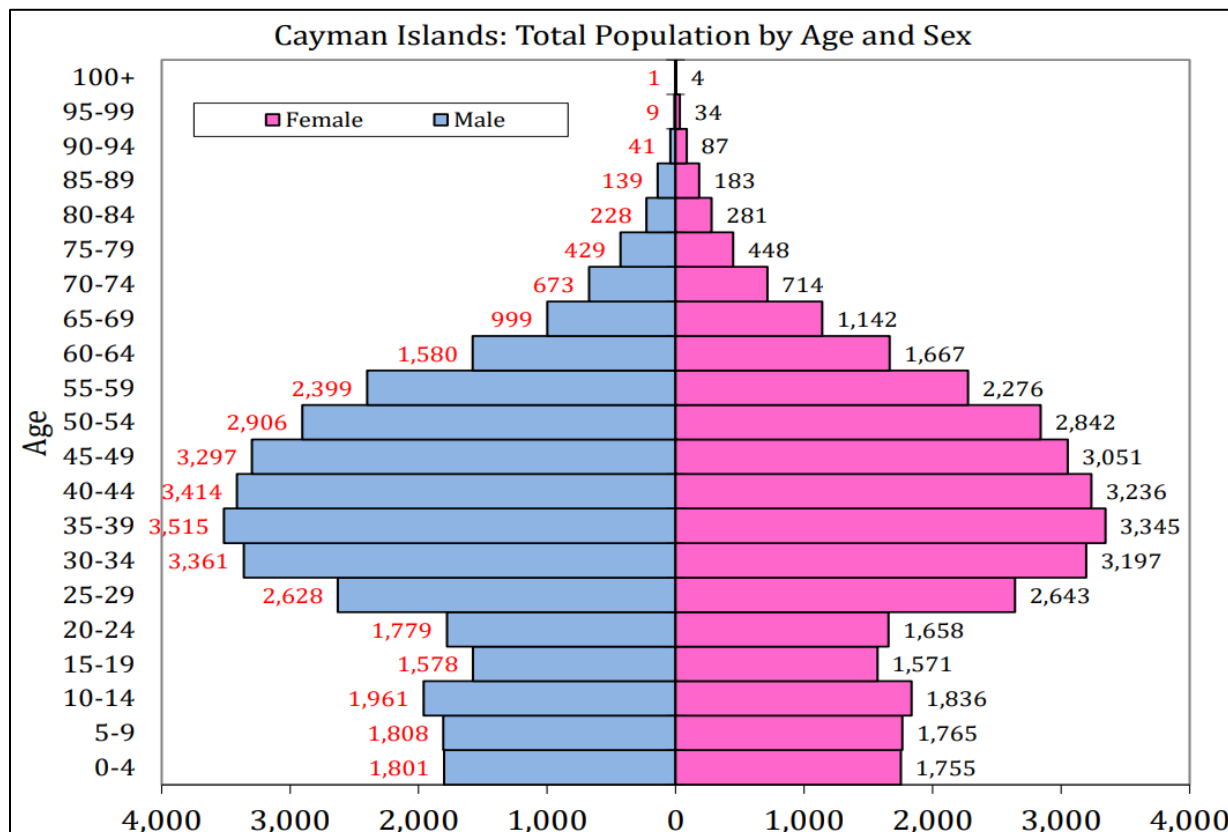
Figure 12: 2021 Cayman Islands Population Histogram
Source: Census of Population and Housing (2021) Figure 1.2E (p. 14)

Table 10: Grand Cayman Population by District and Sex, 2021

District	Total Population	Male	Female	DK/NS
George Town	34,921	18,064	16,815	42
West Bay	15,335	7,778	7,549	8
Bodden Town	14,845	7,162	7,674	9
North Side	1,902	956	945	1
East End	1,846	926	920	-
Grand Cayman	**68,848**	**34,886**	**33,903**	**60**

Source: Compendium of Statistics (2021) Table 1.01a (p. 12)

3.3.3 Housing Characteristics

According to the Cayman Islands CoS 2021, there are a total of 29,699 households in the Cayman Islands, with 28,639 households on Grand Cayman (**Table 11**). On Grand Cayman, George Town is the district with the most households, with a reported 15,331 households; in West Bay, there are 6,408 households; in Bodden Town, there are 5,478 households; in North Side, there are 726 households; and in East End, there are a reported 696 households.

Table 11: Cayman Islands Total Households, 2016-2021

	2016	2017	2018	2019	2020	2021
Cayman Islands	25,561	25,197	27,925	28,834	27,084	29,699
Grand Cayman	**24,415**	**24,131**	**27,053**	**27,667**	**26,197**	**28,639**
George Town	*13,591*	*13,497*	*14,534*	*16,136*	*15,359*	*15,331*
West Bay	*4,986*	*4,913*	*6,012*	*5,531*	*5,052*	*6,408*
Bodden Town	*4,485*	*4,466*	*4,866*	*4,945*	*4,866*	*5,478*
North Side	*708*	*644*	*942*	*545*	*491*	*726*
East End	*645*	*611*	*699*	*510*	*428*	*696*

Source: Compendium of Statistics (2021), Table 1.14 (p. 24)

For both the Cayman Islands as a whole and for Grand Cayman, the average household size is 2.4 persons per households (**Table 12**). In George Town, the average household size is 2.3 persons; in West Bay, the average is 2.4 persons; in Bodden Town, the average is 2.7 persons; in North Side, the average is 2.6 persons; and in East End, the average is 2.7 persons.

Table 12: Cayman Islands Average Household Size, 2016-2021

	2016	2017	2018	2019	2020	2021
Cayman Islands	2.4	2.5	2.4	2.4	2.4	2.4
Grand Cayman	**2.4**	**2.5**	**2.4**	**2.4**	**2.4**	**2.4**
George Town	*2.3*	*2.4*	*2.4*	*2.3*	*2.3*	*2.3*
West Bay	*2.3*	*2.5*	*2.1*	*2.6*	*2.6*	*2.4*
Bodden Town	*2.8*	*2.9*	*2.6*	*2.8*	*2.8*	*2.7*
North Side	*2.1*	*2.2*	*2.1*	*2.9*	*2.9*	*2.6*
East End	*2.3*	*2.1*	*2.4*	*2.8*	*2.8*	*2.7*

Source: Compendium of Statistics (2021), Table 1.14 (p. 24)

The average size of households without children in George Town is 1.8 persons; in West Bay it is 1.9 persons; in Bodden Town it is 2.0 persons; in North Side it is 1.9 persons; and in East End it is 2.1 persons. The average size of households with children in George Town is 3.9 persons; in West Bay it is 4.1 persons; in Bodden Town it is 4.2 persons; in North Side it is 4.5 persons; and in East End it is 4.7 persons (**Table 13**).

Table 13: Grand Cayman Districts Average Household Size With and Without Children, 2021

	Without Children	With Children
George Town	1.8	3.9
West Bay	1.9	4.1
Bodden Town	2.0	4.2
North Side	1.9	4.5
East End	2.1	4.7

Source: Data provided by ESO

In George Town, 78.6% of households within the district have an automobile; 80.5% of households have an automobile in West Bay; in Bodden Town, 85.3% of households have an automobile;

80.3% of North Side households have an automobile; and 69.7% of East End households have an automobile. East End is the district with the most households that do not have an automobile (30.3%) (**Table 14**).

Most households at the district level are households without children and with an automobile, including 57.2% of George Town households, 57.9% of West Bay households, 54.4% of Bodden Town households, 52.2% of North Side households, and 49.1% of East End households. In all districts the percentage of households with children and without a vehicle is below two percent.

Table 14: Grand Cayman Districts Households With or Without Automobiles and With or Without Children, 2021

District	Households with Auto (with children)		Households Without Auto (with children)		Households With Auto (without children)		Households Without Auto (without children)	
George Town	3,275	21.4%	206	1.3%	8,767	57.2%	3,084	20.1%
West Bay	1,448	22.6%	97	1.5%	3,715	58.0%	1,149	17.9%
Bodden Town	1,690	30.9%	77	1.4%	2,980	54.4%	731	13.3%
North Side	204	28.1%	8	1.1%	379	52.2%	135	18.6%
East End	143	20.5%	11	1.6%	342	49.1%	200	28.7%

Source: Data provided by ESO

3.3.4 Vulnerable Populations

To consider transportation-related impacts, vulnerable populations in the Cayman Islands most likely to benefit from improved access due to the EWA were identified. **Table 15** highlights the characteristics of these vulnerable groups.

Table 15: Vulnerable Groups per District for Grand Cayman (2021 census)

	George Town	West Bay	Bodden Town	North Side	East End
Population	34,921	15,335	14,845	1,902	1,846
Households	15,331	6,408	5,478	726	696
Households with children	3,480	1,545	1,767	212	154
Households without automobile	11,851	4,863	3,711	143	211
Children 14 and under	5,106	1,503	2,671	335	268
Persons age 65+	2,225	1,326	1,146	208	206
Persons commuting to work by walking	757	168	89	22	168
Persons earning less than CI$14,399	1,745	828	702	110	125
Households receiving financial assistance from NAU	808	759	511	130	159
Households (Able-bodied) receiving financial assistance	43	39	33	9	6
Households (Disabled) receiving financial assistance	138	126	68	16	24

	George Town	West Bay	Bodden Town	North Side	East End
Households (Elderly) receiving financial assistance	563	530	326	91	117
Households (Families) receiving financial assistance	64	64	84	14	12

Source: Compendium of Statistics (2021)

This social impact appraisal includes a focus on the higher proportion of vulnerable persons within the populations of North Side and East End, to ensure that the benefits of the EWA Extension would be equally shared by these vulnerable and underserved populations.

As reported in the 2021 CoS, North Side has 726 households and East End has 696 households. Like Grand Cayman as a whole, most households in North Side and East End are households without children. As calculated from the reported data, 29% of households in North Side have children, and 22% of households in East End have children. In addition, 20% of the households in North Side are without a vehicle, and 30% of the households in East End are without a vehicle.

In the Cayman Islands, the Needs Assessment Unit (NAU) provides financial assistance and resources to Caymanian residents that qualify, including older persons, disabled and able-bodied persons, and families. There are several qualifications to be eligible for financial assistance; financially, a person must make less and have saved less than the thresholds developed by the NAU. Just over 8% of Grand Cayman households receive financial assistance from the NAU. The majority of residents (68%) that receive financial assistance from the NAU are older persons.

A larger proportion of the population in North Side and East End receive financial assistance from the NAU compared to residents in the districts of George Town, Bodden Town, and West Bay. Overall, 18% of North Side households receive financial assistance and in East End, 23% of households receive financial assistance, as opposed to 5% in George Town, 12% in West Bay, and 9% in Bodden Town. In North Side, of the financial assistance provided, 7% is provided to households with able-bodied persons, 12% is provided to households with disabled persons, and 70% is provided to households with older persons. In East End, of the financial assistance provided, 4% is provided to households with able-bodied persons, 15% is provided to households with disabled persons, and 74% is provided to households with older persons.

3.3.5 Languages Spoken at Home

The ESO provides information regarding the languages spoken across Cayman Islands' households. In all of Grand Cayman's Districts, the main language spoken is English. In George Town, 85.3% (29,769 persons) of the population speaks English primarily; in West Bay, 89.0% (13,646 persons) of the population speaks English primarily; in Bodden Town, 95.2% (14,130 persons) of the population speaks English primarily; in North Side, 94.7% (1,801 persons) of the population speaks English primarily; and in East End, 89% (1,643 persons) of the population speaks English primarily.

The second most common language spoken varies depending on the district. In George Town, the second most common language spoken is Filipino, representing 6.2% (2,164 persons) of the population. In West Bay and Bodden Town, the second most common language spoken is Spanish, representing 6.2% (948 persons) and 2.8% (415 persons) of the population, respectively. Finally, in North Side and East End, the second most common languages spoken are various Indian Languages, representing 2.7% (51 persons) and 7.0% (129 persons), respectively. **Table 16** identifies the main language spoken in households in Grand Cayman. Several other languages are spoken by the Cayman Islands' residents (French, German, Italian, Portuguese, Sign Language), however, those languages have been included in the other category in the table below.

Table 16: Main Language Spoken in Households by Grand Cayman District

	George Town		West Bay		Bodden Town		North Side		East End	
English	29,769	85.3%	13,646	89.0%	14,130	95.2%	1,801	94.7%	1,643	89.0%
Spanish	1,321	3.8%	948	6.2%	415	2.8%	33	1.8%	37	2.0%
Filipino	2,164	6.2%	343	2.2%	135	0.9%	2	0.1%	21	1.2%
Indian Languages	535	1.5%	34	0.2%	17	0.1%	51	2.7%	129	7.0%
Other	852	1.6%	282	1.0%	50	0.1%	5	0.05%	4	0.06%
DK/NS	278	0.8%	82	0.5%	98	0.7%	9	0.5%	11	0.6%

Source: Census of Population and Housing (2021), Tables 4.8A-4.8G (pp. 105-111)

3.4 Employment

In 2021, 44,441 persons were employed in the Cayman Islands, compared with a working age population of 57,360 persons and a labour force of 47,120 persons (**Table 17**). From 2015 to 2021, the working age population grew by 16.2%, or 7,991 persons; the labour force grew by 15.3%, or 6,250 persons; and the number of employed persons grew by 13.5%, or 5,303 persons.

3.4.1 Labour Force

According to the ESO, the labour force is comprised of the "non-institutionalised population" who are 15 years old and above, either employed or unemployed and looking for work. The participation rate refers to how much of the working age population makes up the labour force. On the Cayman Islands, the participation rate in the labour force has been above 80% from 2015 to 2021 (**Table 17**). From 2015 to 2019, the labour force in the Cayman Islands grew each year at an average of 4.7% per year. Between 2019 and 2020, the labour force declined by 10.5%. In 2021, the labour force then increased by 7.3%, although the number of persons in the labour force did not increase to 2019 levels.

More than 500 additional people were unemployed in 2020 than in 2019, a change from 3.5% to 5.2% unemployment rate. From 2020 to 2021, unemployment rose from 5.2% to 5.7%, an addition of 400 unemployed people.

Table 17: Cayman Islands Labour Force Indicators, 2015-2021

	2015	2016	2017	2018	2019	2020	2021
Working Age Population 15+	49,369	50,613	52,771	54,150	59,262	54,620	57,360
Labour Force	40,870	42,196	42,942	46,178	49,089	43,922	47,120
Employed	39,138	40,411	40,856	44,887	47,394	41,644	44,441
Unemployed	1,732	1,785	2,086	1,291	1,695	2,279	2,679
Not in the Labour Force	8,499	8,416	9,831	7,972	10,173	10,697	10,240
Participation Rate* (%)	82.8%	83.4%	81.4%	85.3%	82.8%	80.4%	82.1%
Unemployment Rate (%)	4.2%	4.2%	4.9%	2.8%	3.5%	5.2%	5.7%

Source: Compendium of Statistics (2021), Table 10.01a (p. 94)
*Participation rate = percent of the labour force in the working age population (15+ years)

3.4.2 Employment Characteristics by Sex

The working age population from 2015 to 2021 has been made up of roughly the same number of males and females, other than in 2016, when there were just over 1,500 more females than males in the working age population (**Table 18**). Labour force participation has been higher for males than for females every year from 2015 through 2021, with male participation rates ranging from 83.4% to 88.0%, and female participation rates ranging from 78.6% to 82.7%.

From 2015 to 2021, a greater number of women were unemployed each year when compared with men, except for 2016, when the female unemployment rate was 3.5% compared with the male rate of 4.9%, and 2018, when the unemployment rates were equal for each sex at 2.8%. In 2021, a peak number of males (1,267 persons, 2.7%) and females (1,411 persons, 3.0%) were classified as unemployed.

Table 18: Cayman Islands Labour Force by Sex, 2015-2021

	2015	2016	2017	2018	2019	2020	2021
Working Age Population 15+	**49,369**	**50,613**	**52,771**	**54,150**	**59,262**	**54,620**	**57,360**
Male	24,550	24,438	26,467	26,206	*29,367*	*27,241*	*28,976*
Female	24,819	26,175	26,304	27,944	*29,895*	*27,378*	*28,379*
Labour Force	**40,870**	**42,196**	**42,942**	**46,178**	**49,089**	**43,922**	**47,120**
Male	20,772	21,053	22,261	23,056	*25,222*	*22,732*	*24,765*
Female	20,098	21,143	20,681	23,122	*23,867*	*21,190*	*22,355*
Employed	**39,138**	**40,411**	**40,856**	**44,887**	**47,394**	**41,644**	**44,441**
Male	20,086	20,015	21,313	22,401	*24,368*	*21,772*	*23,497*
Female	19,052	20,396	19,543	22,486	*23,026*	*19,872*	*20,944*
Unemployed	**1,732**	**1,785**	**2,086**	**1,291**	**1,695**	**2,279**	**2,679**
Male	686	1,038	948	655	*854*	*961*	*1,267*
Female	1,046	747	1,138	636	*841*	*1,318*	*1,411*
Not in the Labour Force	**8,499**	**8,416**	**9,831**	**7,972**	**10,173**	**10,697**	**10,240**
Male	3,778	3,384	4,207	3,150	*4,145*	*4,509*	*4,211*
Female	4,721	5,032	5,624	4,822	*6,028*	*6,188*	*6,025*

	2015	2016	2017	2018	2019	2020	2021
Participation Rate (%)	**82.8**	**83.4**	**81.4**	**85.3**	**82.8**	**80.4**	**82.1**
Male	*84.6*	*86.1*	*84.1*	*88.0*	*85.9*	*83.4*	*85.5*
Female	*81.0*	*80.8*	*78.6*	*82.7*	*79.8*	*77.4*	*78.8*
Unemployment Rate (%)	**4.2**	**4.2**	**4.9**	**2.8**	**3.5**	**5.2**	**5.7**
Male	*3.3*	*4.9*	*4.3*	*2.8*	*3.4*	*4.2*	*5.1*
Female	*5.2*	*3.5*	*5.5*	*2.8*	*3.5*	*6.2*	*6.3*

Source: Compendium of Statistics (2021), Table 10.01a (p. 94)

+ Unemployment rate = Percent of unemployed persons in the labour force.

3.4.3   Employment Characteristics by Age

The ESO divides employment characteristics into six age brackets, as shown in **Table 19**. The age cohort with the highest number of people in the labour force is 35-44 (13,510 people), followed by 25-34 (11,245) and 45-54 (11,223). In 2021, people ages 25-34 and 35-44 had the highest labour force participation rate, at 95.1% for each group. The next highest participation rate occurred for the 45-54 age cohort at 92.8%. The age category with the lowest unemployment rate is 35-44 (3.9%), and the category with the highest unemployment rate is 15-24 (17.4%).

Table 19: Cayman Islands Labour Force and Employment Status by Age, 2021

Age	15-24	25-34	35-44	45-54	55-64	65+
Working Age Population	6,586	11,830	13,510	12,097	7,924	5,414
Labour Force	3,236	11,245	12,854	11,223	6,569	1,995
Total Employed	2,671	10,662	12,350	10,746	6,195	1,817
Total Unemployed	565	583	503	477	373	178
Participation Rate (%)	49.1	95.1	95.1	92.8	82.9	36.8
Unemployment Rate (%)	17.4	5.2	3.9	4.3	5.7	8.9

Source: Compendium of Statistics (2021), Table 10.01c (p. 96)

3.4.4   Employment Characteristics by District

George Town is the district with the highest labour force participation rate (85.0%) and the lowest unemployment rate (4.4%). George Town contains the largest working age population and the largest labour force of any district. West Bay and Bodden town have similar labour force sizes (9,834 persons and 9,418 persons respectively) and participation rates (79.1% and 80.9% respectively), West Bay has a slightly higher unemployment rate (7.7%) when compared with Bodden Town (6.6%). North Side and East End have the smallest labour forces (1,146 persons and 1,131 persons, respectively) but the highest unemployment percentages (8.7% and 8.1%, respectively). **Table 20** represents a comparison of labour force participation and unemployment rates in Grand Cayman's districts.

Table 20: Employment Characteristics by District, 2021

District	Working Age Population	Labour Force	Employed	Unemployed	Participation Rate (%)	Unemployment Rate (%)
George Town	28,513	24,232	23,170	1,062	85.0	4.4
West Bay	12,430	9,834	9,081	753	79.1	7.7
Bodden Town	11,648	9,418	8,792	625	80.9	6.6
North Side	1,523	1,146	1,047	100	75.2	8.7
East End	1,463	1,131	1,039	92	77.3	8.1

Source: Census of Population and Housing (2021), Table 9.3A (p. 246)

3.4.5 District of Employment and Residence

As the most populated district, George Town is also the district offering the most employment opportunities. **Table 21** represents a comparison of the district in which people work versus the district in which they live. 13,640 people who work in George Town live in one of the other four districts: 6,410 people (19.6%) live in West Bay; 6,239 (19.1%) in Bodden Town; 568 (1.7%) in North Side; and 405 (1.2%) in East End. In total, 7,212 people who work in George Town live in Bodden Town, North Side, or East End. More people who live in West Bay, Bodden Town, and North Side work in George Town than work in their respective districts of residence. **Figure 13** illustrates the distribution of employment and population centres on Grand Cayman based on 2021 ESO data.

Table 21: Employment by District of Residence vs. District of Employment

		District of Residence								
		George Town		West Bay		Bodden Town		North Side		East End	
District of Employment	George Town	19,021	58.3%	6,410	19.6%	6,239	19.1%	568	1.8%	405	1.2%
	West Bay	2,393	46.5%	2,274	44.3%	424	8.3%	24	0.5%	20	0.4%
	Bodden Town	774	28.1%	200	7.3%	1,638	59.5%	69	2.4%	77	2.7%
	North Side	107	20.2%	23	4.4%	115	21.7%	256	48.4%	28	5.3%
	East End	165	17.9%	18	1.9%	167	18.1%	103	11.2%	470	50.9%

Source: Data provided by ESO
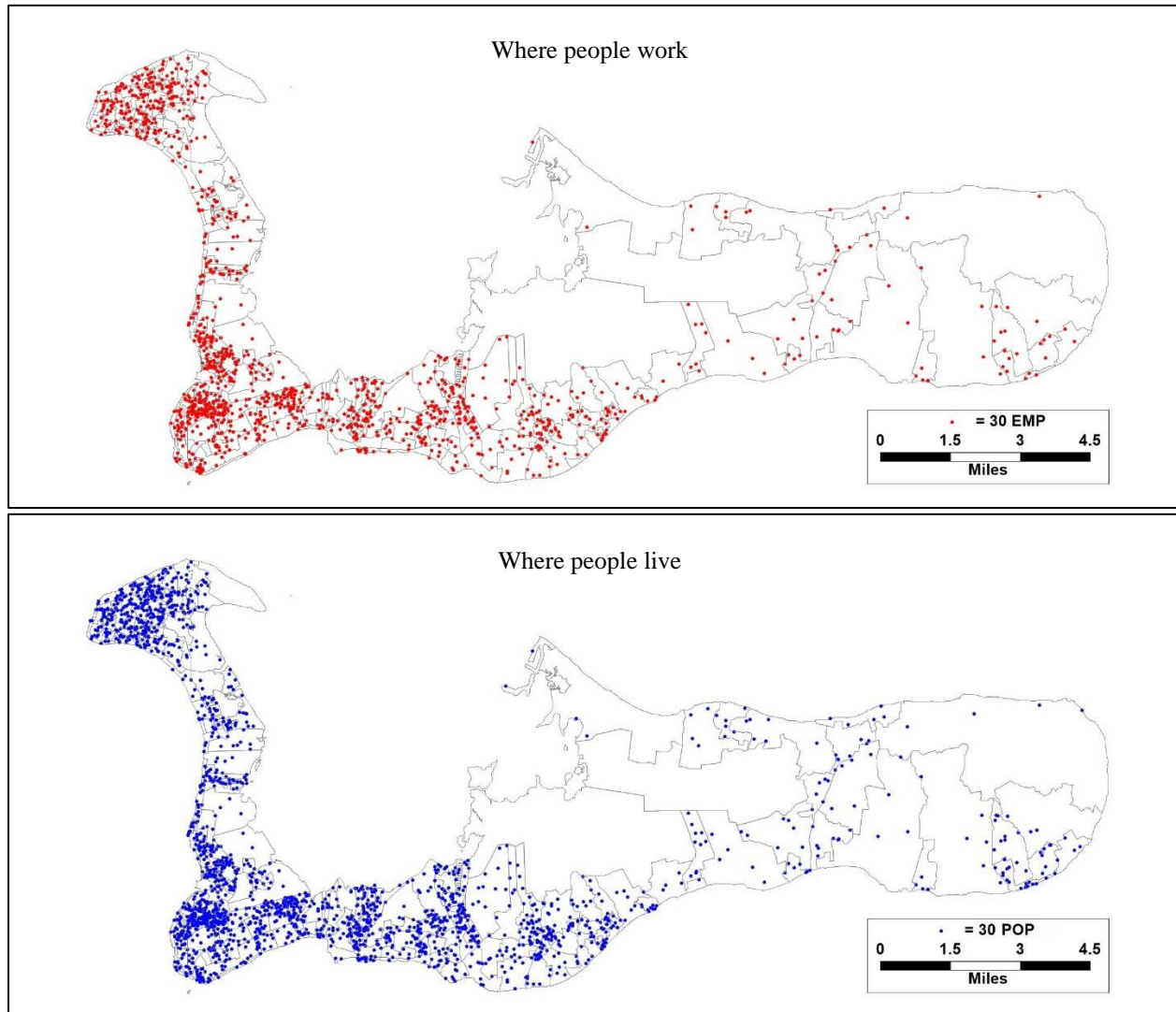
Figure 13: 2021 Grand Cayman Employment and Population Distribution

3.4.6 Occupation

In 2021, the "Professionals, Technicians, and Associate Professionals" occupation category employed 31% of Cayman workers, or 13,757 persons (**Table 22**). "Service and Sales Workers" made up the next greatest number of workers at 17.6% (7,815). The smallest occupation category was "Armed Forces," which employed 11 persons. The second smallest occupation category was "Skilled Agricultural & Fishery," which accounted for 1.2% (518) of employed persons.

Though there were more employed persons in 2021 than in 2020, between 2020 and 2021, some occupation categories saw a decline in number of employed persons. These include "Professionals, Technicians, and Associate Professionals;" "Plant & Machine Operators;" and "Skilled Agricultural & Fishery." All other occupation categories saw an increase in number of employed persons between 2020 and 2021. The occupation category that gained the most people (by both number of persons and percent) in 2021 was "Elementary Occupations."

Table 22: Cayman Islands Employed Persons by Occupation, 2017-2021

Occupation	2017	2018	2019	2020	2021
Senior Officials and Managers	3,531	4,005	5,070	4,289	4,919
Professionals, Technicians, and Associate Professionals	14,203	14,144	15,233	14,364	13,757
Clerical/Support Workers	2,840	3,750	3,328	3,072	3,262
Service and Sales Workers	8,570	8,984	8,711	6,715	7,815
Skilled Agricultural & Fishery	1,036	595	1,281	811	518
Craft & Related Trade Workers	5,205	5,305	5,742	5,813	6,263
Plant & Machine Operators	1,074	1,600	1,394	1,473	1,453
Elementary Occupations	4,279	6,257	6,187	4,770	5,894
Armed Forces	-	-	-	-	11
Not Stated	118	102	449	337	549
Total	*40,856*	*44,743*	*47,395*	*41,644*	*44,441*

Source: Compendium of Statistics (2021), Table 10.3a (p. 98)

3.4.7 Income

According to the 2021 ESO census survey, a total of 45,919 persons answered questions about income, with 43,692 reporting their income, and 2,227 reporting "Don't Know/Not Stated (DK/NS)." Information regarding income levels in the Cayman Islands are based on income ranges: employed persons making less than CI$14,399, making between CI$14,400 and CI$57,599, and making more than CI$57,600. As shown in **Table 23**, most who reported their income in the Cayman Islands made between CI$14,400 and CI$57,599 per year from their primary job. On Grand Cayman, 57.7% of those who reported income made between CI$14,400 and CI$57,599 from their primary job, 29.6% made over CI$57,600, and 7.9% made less than CI$14,399.

Table 23: Cayman Islands Employed Persons by Income From Main Job

	Employed persons by income from main job				
	Total	Less than CI$14,399	CI$14,400 - CI$57,599	More than CI$57,600	DK/NS
Cayman Islands	45,919	3,746	26,600	13,347	2,227
Grand Cayman	**44,516**	**3,510**	**25,702**	**13,169**	**2,136**
George Town	23,869	1,745	13,504	7,640	981
West Bay	9,419	828	5,345	2,711	535
Bodden Town	9,065	702	5,479	2,423	461
North Side	1,072	110	688	223	50
East End	1,091	125	685	172	109

Source: Data provided by ESO

In all five districts on Grand Cayman, most of the employed population falls into the second category, those making between CI$14,400 and CI$57,599. In North Side and East End, 64.2% and 62.8% of the employed population falls into this category, respectively. A difference between the income levels across Grand Cayman is evident by the proportion of the population that makes

more than CI$57,600. In George Town, West Bay, and Bodden Town, more than 25% of the population makes over CI$57,600. In North Side and East End, 20.8% and 15.9% of the population makes over CI$57,600, respectively.

3.4.8   Modes of Transportation

Per **Tables 24** and **25**, most workers on Grand Cayman (37,624 or 84.5%) use a private vehicle to commute to work. George Town has the most employed persons commuting via a private vehicle by number (20,036). In Bodden Town, 87.6% of the district's employed persons commute via a private vehicle, which is the highest percentage of the districts. Over 80% of the working population in each district uses a private vehicle to get to work in each district, other than East End, where 70.9% of workers (773 people) use a private vehicle to commute.

The public bus is the next most common way of commuting to work; a total of 2,884 workers on Grand Cayman (6.5%) use the bus to commute. In East End, 15.4% of the district's working population walks to work (168 people). That is also the same number of people who reportedly walk to work in West Bay, but given West Bay's higher population, it represents 1.8% of the district's working population. For information regarding the number of households with and without an automobile, see **Table 14**: Grand Cayman Districts Households With or Without Automobiles and With or Without Children, 2021.

Table 24: Mode of Commute by District 2021 (by Persons)

District	Total	Private Vehicle	Public Bus	Walking	Work from Home	Other+
George Town	23,869	20,036	1,450	757	507	1,119
West Bay	9,419	7,960	765	168	306	220
Bodden Town	9,065	7,941	518	89	340	176
North Side	1,072	914	82	22	40	13
East End	1,091	773	69	168	45	36
Total	44,516	37,624	2,884	1,204	1,238	1,564

Source: Data provided by ESO
+Other includes bicycle, boating, taxi, motorcycle/moped, and DK/NS

Table 25: Mode of Commute by District 2021 (by Percent)

District	Private Vehicle	Public Bus	Walking	Work from Home	Other+
George Town	83.9%	6.1%	3.2%	2.1%	4.7%
West Bay	84.5%	8.1%	1.8%	3.3%	2.3%
Bodden Town	87.6%	5.7%	1.0%	3.8%	1.9%
North Side	85.3%	7.7%	2.1%	3.7%	1.2%
East End	70.9%	6.3%	15.4%	4.1%	3.3%
Total	84.5%	6.5%	2.7%	2.8%	3.5%

Source: Data provided by ESO
+Other includes bicycle, boating, taxi, motorcycle/moped, and DK/NS

3.5 Economic Characteristics

3.5.1 Major Industries

According to the ESO's 2021 Gross Domestic Product (GDP) Report, the financial and insurance services industry was the highest contributor to Cayman Islands GDP from 2017 to 2021. Other industries with high contributions to GDP include professional, scientific, and technical activities; real estate activities; wholesale and retail trade; and public administration and defence (**Table 26**). Tourism historically has also been a major contributor to the GDP of the Cayman Islands. Before the COVID-19 pandemic, the Cayman Islands had more than one million visitors each year.

Table 26: Top 5 Industries Contributing to Cayman Islands GDP[+]

Industry	2019	2020	2021
Financial & Insurance Services	1,378,451.7	1,391,018.6	1,404,656.3
Professional, Scientific & Technical Activities	583,695.6	618,941.9	651,523.2
Real Estate Activities	378,847.0	368,440.3	368,810.9
Wholesale & Retail Trade	291,691.7	286,515.1	293,164.8
Public Administration & Defence	237,996.9	246,961.7	260,513.4

Source: Gross Domestic Product Report (2021), Table 2, p. 9
[+]GDP at constant basic & purchasers' prices, 2015=100 (CI$'000)

In 2021, the industries that employed the most people were construction; wholesale and retail; and professional, scientific, and technical activities. **Table 27** illustrates the major industries in 2019, 2020, and 2021 by the number of people employed in each industry.

Table 27: Major Industries and Employment in the Cayman Islands

Industry	2019	2020	2021
Construction	5,368	5,074	6,324
Wholesale and Retail	5,365	4,935	5,103
Professional, Scientific and Technical activities	4,715	3,706	4,667
Financial Services	3,502	3,659	3,654
General Public Administration Activities	3,191	3,287	3,100
Administrative and Support Service Activities	2,715	2,645	2,895
Activities of households as employers	4,042	2,883	2,886
Restaurants and Mobile Food Services Activities	2,747	1,916	2,528
Human Health and Social Work Activities	2,218	1,915	2,368
Education	2,351	1,898	2,053
Transportation and Storage	1,945	1,438	1,589
Accommodation	3,131	1,913	1,486
Other Service Activities	836	1,262	1,200
Information and Communication	868	679	825
Manufacturing, Mining and Quarrying	846	924	823
Arts, Entertainment and Recreation	1,115	753	788
Real Estate	705	892	705
DK/NS	713	1,087	567
Electricity, Gas, Steam and Air Conditioning Supply, Water Supply and Sewerage	455	335	548
Agriculture and Fishing	567	419	326

Industry	2019	2020	2021
Extra-territorial organizations	-	24	8
Total	*47,395*	*41,644*	*44,441*

Source: Compendium of Statistics (2021), Table 10.04 (p. 100)

3.5.1.1   Financial and Insurance Services

In 2021, the financial and insurance services industry contributed more than a quarter of the Cayman Islands' total GDP, per the 2021 GDP Report. According to the Ministry of Financial Services, the government has been enacting financial services legislation since the 1960s, making the islands a business-friendly environment and allowing the financial sector to grow as a significant portion of Cayman Islands GDP.

3.5.1.2   Tourism

The tourism industry in the Cayman Islands experienced a downturn during the COVID-19 pandemic. In 2019, before the pandemic, the Real GDP of hotels and restaurants (tourism-dependent industries) was CI$251 million, according to the ESO's GDP Report of 2021. The same report details that the hotels and restaurants industry's Real GDP fell to CI$122 million in 2020 and contracted a further 13.6% in 2021; one of the main factors regarding this 2021 contraction was the reduction in overnight visitors.

From a tourism perspective, Bodden Town, East End, and North Side are rich in cultural and ecological value but have remained relatively unknown to visitors, according to the "Go East" report prepared in 2009 by The Tourism Company for the Cayman Islands Department of Tourism. George Town and West Bay, in contrast, represent the core of the Cayman Islands tourism industry, with many attractions: the airport, seaport, major hotels, and established restaurants located in these areas. In addition, the Sister Islands, renowned for their tranquillity, diving, nature, and culture, have long had a distinct voice in tourism promotions. As for other attraction areas, outside of Rum Point and Cayman Kai, and to a lesser extent various timeshare properties along the North Coast, Bodden Town, East End, and North Side have not had a coherent tourism model. The consequences of having less tourism in these districts results in fewer economic advantages for the residents there. These districts complement the breadth of experiences available in Grand Cayman with much Caymanian architecture, natural environment, and culture remaining intact and highly visible in these areas (**Figure 14**). (The Tourism Company, 2009)
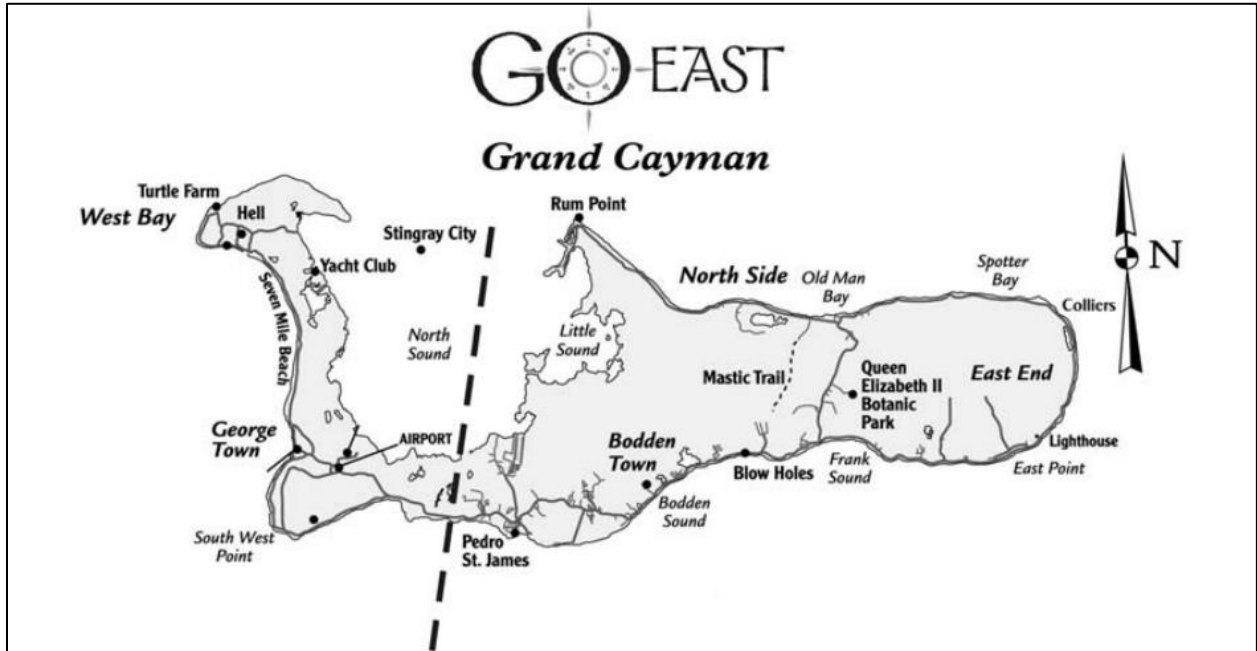
Figure 14: The Western and Eastern Districts of Grand Cayman
Source: The Tourism Company (2009).

3.6   Services

3.6.1   Transportation Services

3.6.1.1   Public Transportation

The Public Transport Unit governs and regulates the Cayman Islands' public transportation system, per the Traffic Law of 2011. **Figure 15** below depicts the current public transportation routes along Grand Cayman.
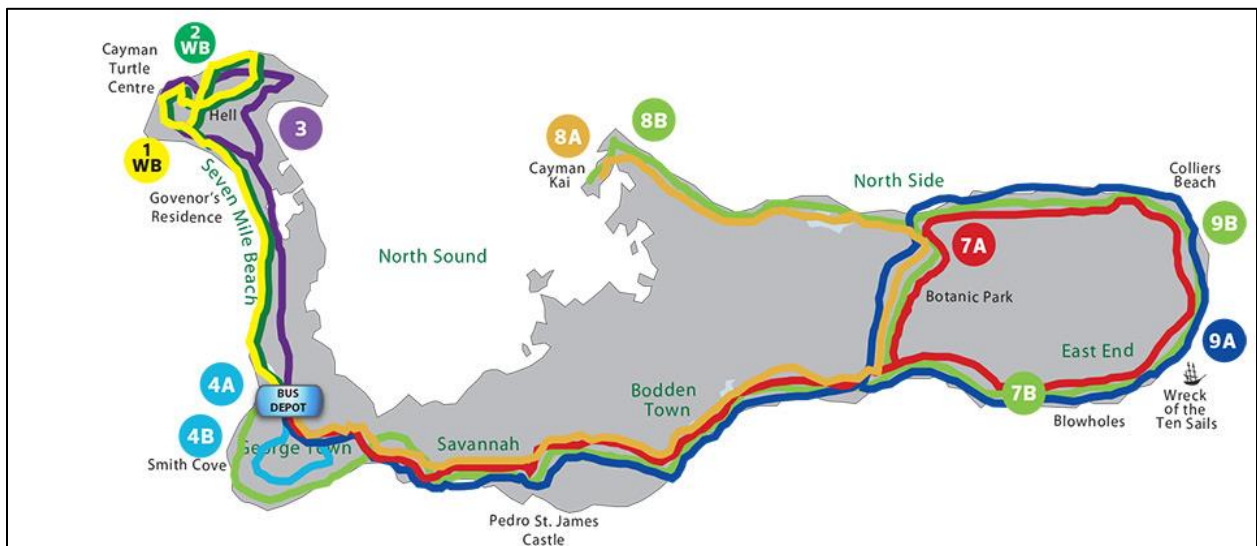
Figure 15: Cayman Bus Routes, 2022
Source: Explore Cayman (https://www.explorecayman.com/getting-around-in-cayman/buses-in-cayman)

3.6.1.2   Airports

The Cayman Islands Airports Authority owns and operates Cayman's airport facilities, which consist of two international aerodromes: Owen Roberts International Airport on Grand Cayman and Charles Kirkconnell International Airport on Cayman Brac, and the Edward Bodden Airfield on Little Cayman. The Owen Roberts International Airport, the only public airport located on Grand Cayman, is located at 210 Roberts Dr, George Town, Cayman Islands. Based on the Cayman Islands Airports Authority 2021 Statistics, Owen Roberts International Airport transported over 177,886 passengers; 568,041 kilograms of freight; and 5,644 kilograms of mail in 2021.

3.6.1.3   Cayman Port

The Port Authority of the Cayman Islands operates the Port of George Town and Port of Cayman Brac. The Port of George Town, the only port located on Grand Cayman, is located at 19.2954° N, 81.3832° W. The Port of George Town handles both cargo and passenger service on Grand Cayman.

The Port Authority averaged approximately 60,000 tons of cargo each month in 2021. The Port Authority statistics show a wide variation in cruise ship passengers, notably between season (winter versus summer) and aligning with the COVID-19 pandemic in early 2020. Passenger numbers appeared to peak in January of 2019 at over 250,000 passengers and fell to zero starting in April 2020 and continued through March of 2022. Cruise ship passengers in 2023 still appear to be lower than the pre-April 2020 values (**Figure 16** and **Figure 17**). Please reference the **Traffic Technical Report Section 4.5.3: Tourist Travel Times** for additional information regarding cargo and cruise ship passenger assumptions in relation to the traffic evaluation.
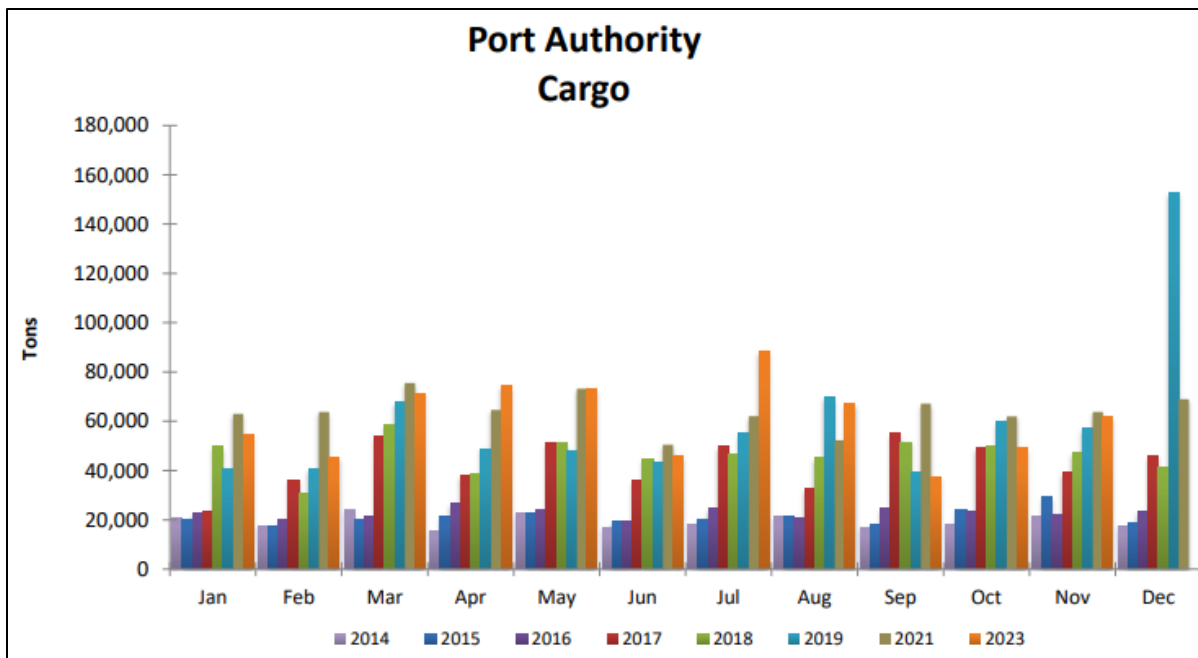
Figure 16: Port Authority Cargo
Source: Port Authority of the Cayman Islands (https://www.caymanport.com/statistics/)
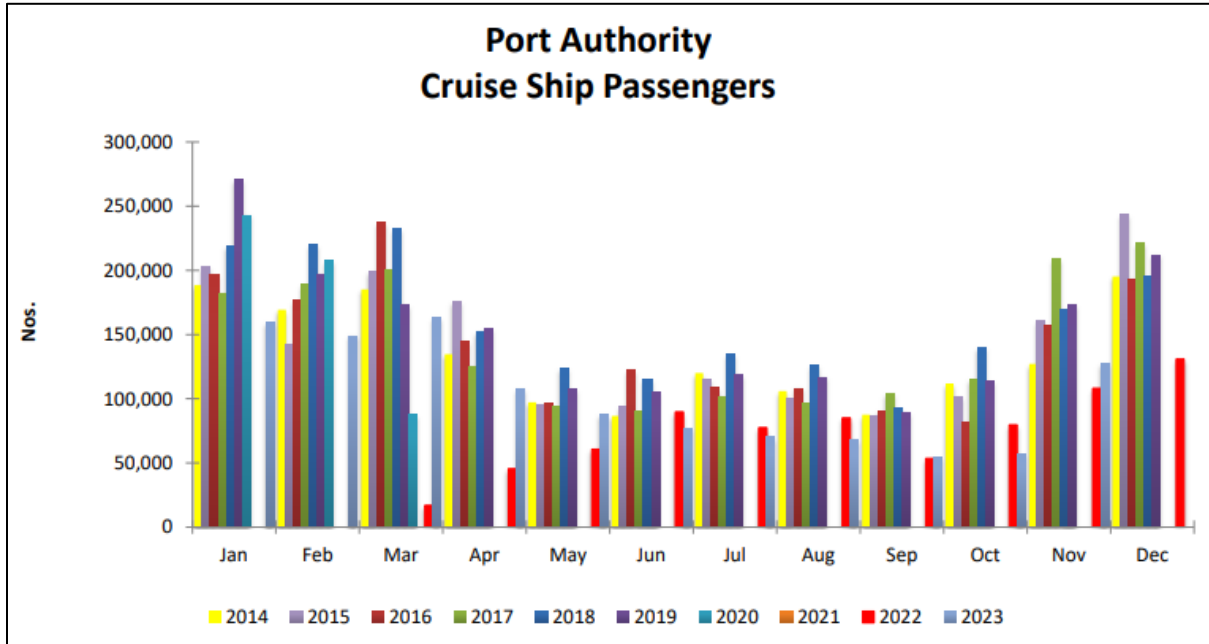
Figure 17: Port Authority Cruise Ship Passengers
Source: Port Authority of the Cayman Islands (https://www.caymanport.com/statistics/)

3.6.2 Emergency Services

The Cayman Islands Government provides emergency services to Cayman Islands residents in the form of medical, police, and fire. **Figure 18** depicts the locations of the government-operated emergency services available on Grand Cayman.

3.6.2.1 Police

Cayman Islands has a unified, national police service, the Royal Cayman Islands Police Service. Along with administrative facilities, Grand Cayman has five police stations, one in each district. The service is unarmed but is capable of an armed response if necessary. The command structure is similar to the police command structure of the UK.

3.6.2.2 Fire

The Cayman Islands Fire Service is primarily a fire fighting and rescue service. There are currently three stations in Grand Cayman, located in West Bay, George Town, and on Frank Sound Road. There are 166 personnel employed by the Fire Service. The Fire Service is called on to respond to a variety of incidents such as aircraft accidents, fires, building collapses, road accidents, situations requiring rescue techniques, and fire prevention. The Fire Service also plays a role in hurricane preparedness and carries out rescue operations in time of need.
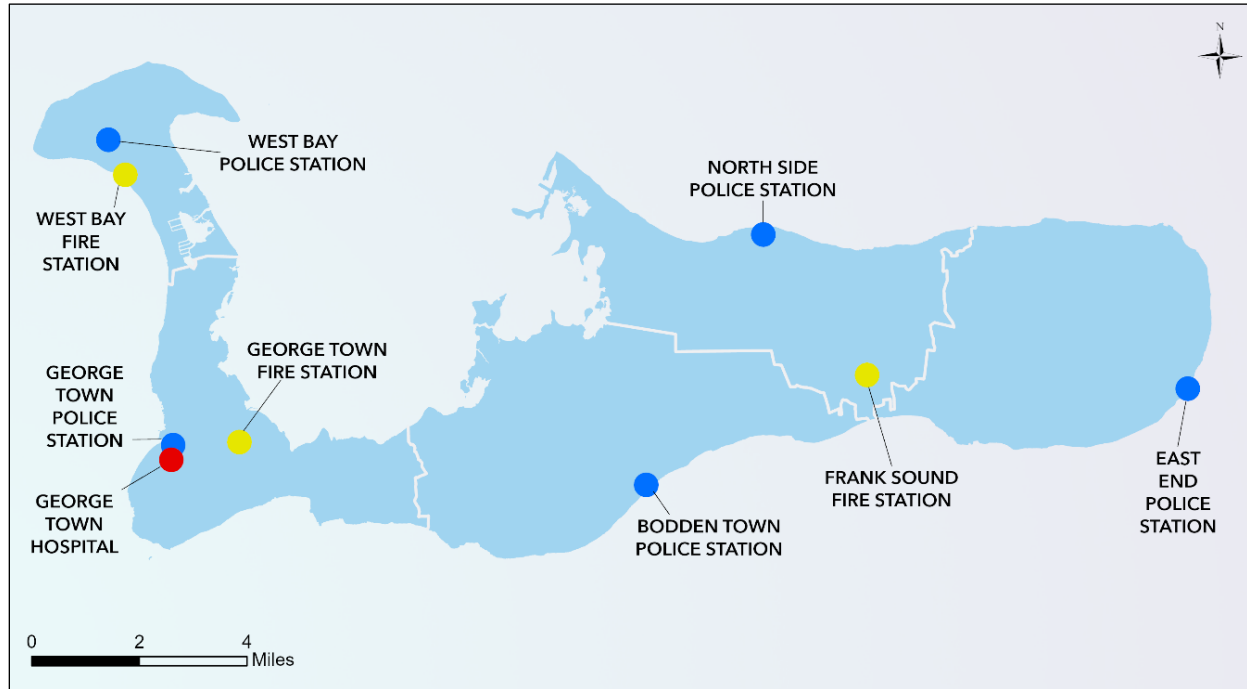
Figure 18: Government Provided Emergency Services on Grand Cayman

3.6.2.3 Medical

Grand Cayman's main hospital is George Town Hospital, part of the Health Services Authority (HSA). Per the HSA website, George Town Hospital's Accident & Emergency Unit is the Cayman Islands' only authorized provider of emergency medical services and is the destination of any dispatched government ambulances.

While George Town Hospital is the only authorized provider of 24-hour Accident & Emergency services, other hospital services are available on Grand Cayman. A private hospital, Health City Cayman Islands, located in East End, also provides emergency services. The HSA provides health centres throughout Grand Cayman that can address a variety of other medical needs.

3.6.2.4 Hurricane Shelters

As of 2022, there are 14 hurricane shelters on Grand Cayman (**Figure 19**). Seven of these operate as Emergency Medical Centres (EMC), and two shelters also accept cats and dogs. Depending on the severity of the threat and other factors, Hazard Management Cayman Islands will decide how many shelters to open. EMCs are established in key locations on Grand Cayman, Cayman Brac, and Little Cayman to provide medical care for people whose age, frailty, mobility, functional and/or medical condition make them particularly vulnerable and at risk in disaster situations.
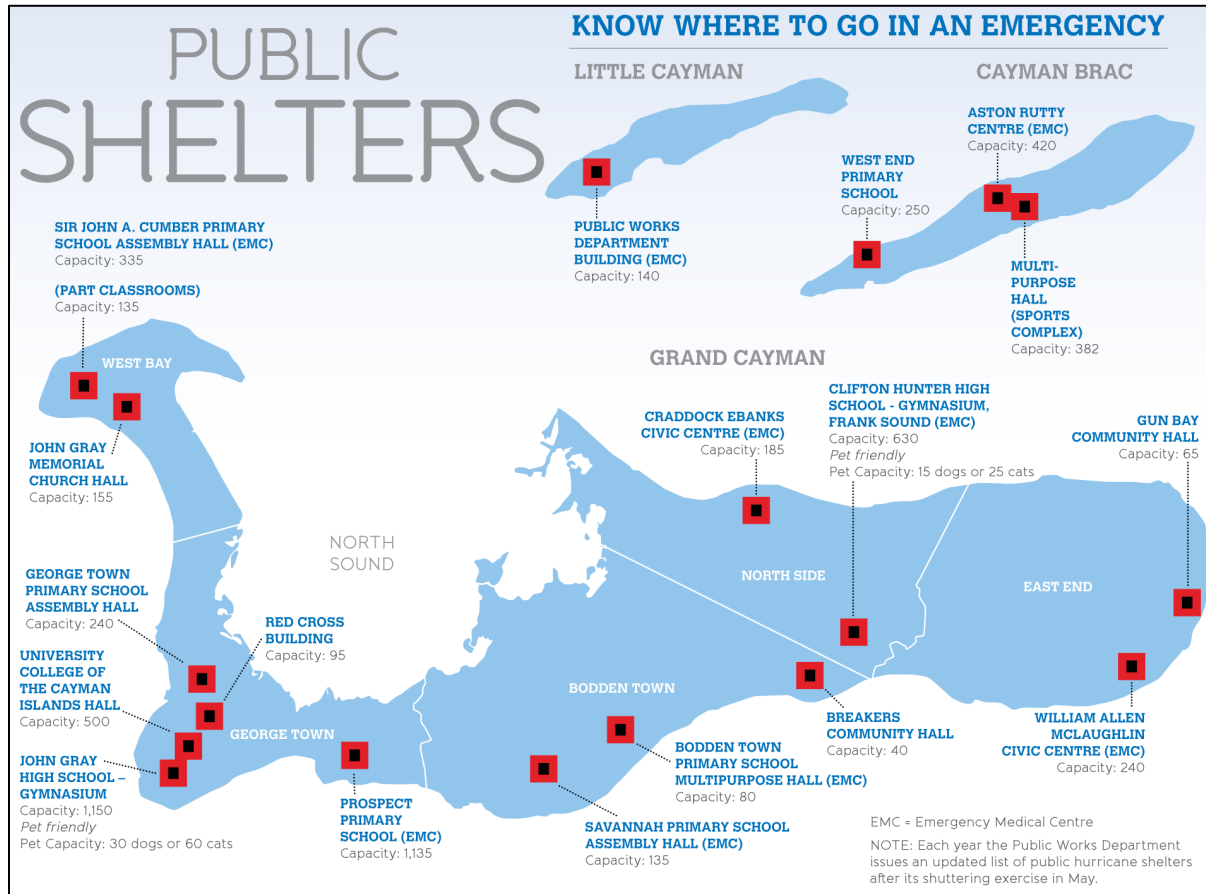
Figure 19: Public Shelters in the Cayman Islands.
Source: *Shelters*, by Cayman Islands Hazard Management (https://www.caymanprepared.gov.ky/resources/shelters)

3.6.3   Utility Services

3.6.3.1   Telecommunication Services (Phone and Internet)

The Cayman Islands has two cell phone network providers: Digicel and FLOW. FLOW is the Cayman Islands' largest mobile network providing landline, internet, mobile and entertainment service. Digicel is a mobile and internet provider. The Cayman Islands has four internet providers: Logic, FLOW, C3 Pure Fibre, and Digicel. Logic, FLOW, and C3 offer fibre optic installation.

3.6.3.2   Power

The Caribbean Utilities Company, Ltd. (CUC) is Grand Cayman's only public electric utility. The company is licensed under Generation and Transmission & Distribution Licenses with the Cayman Islands Government. Grand Cayman relies on imported diesel fuel for its electricity production. As of November 2023, the CUC's power system consists of seventeen diesel engines, two gas turbines, and one steam turbine with a combined capacity of 165.66 megawatts. One solar facility is connected to the Bodden Town Substation and provides 5 megawatt capacity.

3.6.3.3   Water and Wastewater

Water Authority – Cayman provides drinking water to over 17,000 service connections and manages the collection and treatment of wastewater. In 1983, the Water Authority Law established the Authority, which is overseen by the Ministry of District Administration and Lands. The full legal framework governing the Water Authority includes the Water Authority Act, Water Authority Regulations, Water Collections and Treatment Act, Water (Production and Supply) Law, and Wastewater Collection and Treatment Law.

The Water Authority relies on reverse osmosis to make saline groundwater safe to drink. The water plants produce drinking water, which is then stored in 10 reservoirs (8 of which are on Grand Cayman). As of November 2023, these reservoirs have a total storage capacity of 15.35 million US gallons.

3.6.3.4   Waste Collection and Disposal

The Department of Environmental Health (DEH) is responsible for waste collection and disposal on the Cayman Islands. The Cayman Islands Public Health Law charges the DEH with collecting waste. Waste is collected from the kerb from residential areas, and from large rental waste containers for commercial customers. The DEH also responds to hazardous waste and roadside litter cleanup.

Grand Cayman's George Town Landfill is located adjacent to Esterly Tibbetts Highway in George Town's Industrial Park. Along with weekly waste pickup, a drop-off facility at the landfill is open 24-hours a day for individuals to drop off small quantities of waste.

The DEH also manages recycling for the Cayman Islands. The recycling centre is located on the landfill site. Large public recycling receptacles are available throughout Grand Cayman and at the George Town Landfill's 24-hour drop-off site. The DEH collects the recycling until sufficient quantities have built up, at which point the recycling is shipped to the US.

3.6.4   Education

In the Cayman Islands, children between the ages of 5 and 17 must attend compulsory education. During the 2022-23 school year, 5,308 students were enrolled in public school (including the Cayman Islands Further Education Centre), and a total of 4,776 students were enrolled in private school, according to information received from the Department of Education. The Cayman Islands has 12 public primary schools (11 on Grand Cayman and 1 on Little Cayman) and 3 public secondary schools (all on Grand Cayman). Grand Cayman houses one school encompassing all grades (Lighthouse School), and a Further Education Centre. According to data provided by the Department of Education, Grand Cayman also houses 19 private primary and secondary schools that serve a number of age ranges and grades (**Figure 20**).

Figure 20: Location of Schools by District on Grand Cayman

Source: Cayman Islands Department of Education, provided by NRA

According to the 2022 data report by the Department of Education, encompassing the 2021 to 2022 school year, the Cayman Islands has a total of 43 Early Childhood Care and Education (ECCE) centres, 39 of which are on Grand Cayman. Per the same report, George Town houses 28 of the island's 39 ECCE centres (which may be public or private and which may also contain other grades) and 15 of the island's 23 primary and secondary schools. In the 2021-2022 school year, 6,404 primary- and secondary-age children (of 8,648 on Grand Cayman) went to school in George Town. In the same year, 1,625 children were enrolled in ECCE centres in George Town, compared with 1,930 in total on Grand Cayman. ECCE is not part of the compulsory education system.

Almost three quarters (74%) of primary- and secondary-aged children go to school in George Town, and 84% of ECCE children go to school in George Town. Of the households with children on Grand Cayman, close to 49% live in George Town. Almost 30% of all households with children live east of George Town, and over 5% of households with children live in East End or North Side (**Table 28**). In 2022-23, the Department of Education employed 898 teachers and support staff. Private schools employed an additional 818 teachers and support staff.

Table 28: Percentage of All Grand Cayman Households with Children by District

District	Number of Households with Children	Percentage of Grand Cayman Households with Children
George Town	3,480	48.6%
West Bay	1,545	21.6%
Bodden Town	1,767	24.7%
North Side	212	3.0%

District	Number of Households with Children	Percentage of Grand Cayman Households with Children
East End	154	2.1%
Total	7,158	100%

Source: Data provided by ESO

The ESO reports age in 5-year brackets as census data; to assess the population of school-aged children counted by the census, children 0-4, 5-9, and 10-14 were considered when evaluating access to education. The next age bracket is 15-19; to avoid counting adults no longer attending secondary school, this census age bracket was not considered. This age group was captured in enrolment data provided by the Department of Education. Per **Table 29**, children 0-14 years represent children who are eligible for ECCE through middle school; and children 5-14 represent children who are eligible for primary or secondary school (through middle school).

Table 29: Populations of School-Age Children by District

	West Bay	George Town	Bodden Town	East End	North Side
Children 0-14 years	2,271	5,106	2,671	327	255
Children 5-14 Years	1,571	3,273	1,990	171	243

Sources: Cayman Islands Census of Population and Housing (2021) tables 4.4A-4.4E (pp. 89-93,) and data provided by ESO

At least one public school is available in every district; however, schools serving all ages of children are not available in every district. Bodden Town and East End do not have any high schools, and North Side and East End do not have any private schools (**Table 30**). George Town contains more schools than the other four districts combined, and several schools in the district are located on Walkers Road.

Table 30: Number of Schools (Public and Private)

	West Bay	George Town	Bodden Town	East End	North Side
# of Schools serving ages 0-14	5	36	4	1	1
# Schools serving ages 5-14	3	23	2	1	1
# of Schools (excluding post-secondary)	5	38	4	1	2
# of Public schools	1	6*	2	1	2
# of Public Primary Schools	1	3	2	1	1
# of Public High Schools	0	2	0	0	1

Source: Data provided by Department of Education
*Note: Total public schools in George Town includes Lighthouse School which encompasses all grades

3.6.5   Community Facilities

3.6.5.1   Recreation Areas

Grand Cayman has recreational facilities in every district, with the highest concentration of facilities on the west side of the island (**Figure 21**). Recreation facilities include public parks, school playgrounds and sports facilities, and private sports facilities. Of these facilities, there are 12 family parks, 2 multi-purpose facilities, 11 public beaches, along with football, baseball, and cricket fields, tennis courts, golf courses, swimming pools, and skating facilities.

Figure 21: Recreation Areas on Grand Cayman
Source: Provided by NRA

3.6.5.2   Public Libraries

There are six public libraries in the Cayman Islands as follows:
- George Town Library, 68 Edward Street, George Town
- Bodden Town Library, 69 Bodden Town Road, Bodden Town
- East End Library, 2739 Sea View Road, East End
- North Side Library, 891 North Side Road, North Side
- Emily "Teacher Redly" Powery Library, 182 Reverend Blackman Road, West Bay
- UCCI Library, located at the University College of the Cayman Islands

3.6.5.3   Post Offices

Mail delivery directly to houses and businesses is not supplied in the Cayman Islands, so P.O. Boxes are used instead. There are 16 post offices and numerous blue mailboxes located throughout the Islands. The largest post office branches are the Airport, General Post Office downtown, and

Seven Mile Beach, but there are also post offices in Savannah, Bodden Town, North Side, East End, Hell, and West Bay (**Figure 22**).

Figure 22: Post Offices on Grand Cayman
Source: Provided by NRAS

3.7 Zoning for Land Use

Cayman's Development and Planning Law establishes a Central Planning Authority for Grand Cayman. This body reviews planning permission applications, required for land development or change of zoning, and authorises enforcement. The 1997 Development Plan designates the following categories and subcategories of development planning zones:
- Agricultural/Residential
- Residential
    - Low Density
    - Medium Density
    - High Density
- Beach Resort/Residential
- Hotel/Tourism
- Commercial
    - General Commercial
    - Neighbourhood Commercial
    - Marine Commercial
- Industrial
    - Light Industrial
    - Heavy Industrial

- Institutional
- Mangrove Buffer
- Public Open Space
- Historic Overlay
- Scenic Coastline

Figure 23 depicts the zoning information for Grand Cayman as of 2022 per the Planning Department's Development Plan. Subcategories of residential, commercial, and industrial were aggregated into their respective main categories. West Bay and George Town have the most Commercial and Hotel/Tourism planning zones. George Town contains the only lands with the Industrial zoning designation. Bodden Town is primarily Residential zoning. North Side and East End are primarily zoned for Agricultural/Residential with some Low Density Residential.
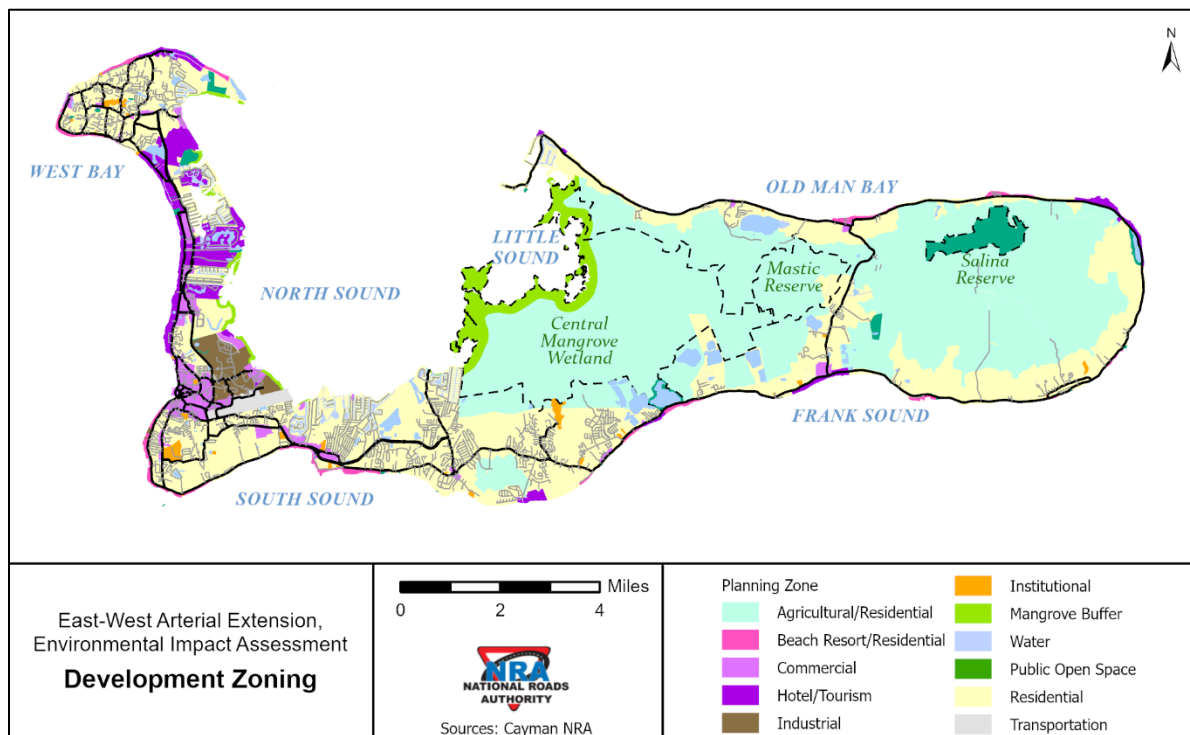
Figure 23: Zoning for Grand Cayman

3.8 Baseline Summary and Key Findings

These baseline conditions have been compiled and utilized to supplement a variety of disciplines throughout the EIA, including Traffic and Engineering. Information about the social and economic characteristics of Grand Cayman allow for appraisal of the social impacts of the four Build alternatives and No-Build scenario, which is discussed in the next section.

3.8.1 Key Findings – Demographics

The population of the Cayman Islands has more than doubled since 1989, with most of the population living on Grand Cayman. The islands experienced 4.4% annual growth between 1989

and 1999, 3.2% annual growth between 1999 and 2010, and 2.4% annual growth between 2010 and 2021. The population of George Town remains the largest of the five Grand Cayman districts. Bodden Town has grown the fastest, and now has roughly the same number of people as West Bay. Age distribution on the island favours working-age individuals; age group 30-39 contains the largest proportion of the population, and age group 40-49 contains the second-largest proportion of the population.

3.8.2 Key Findings – Employment

George Town provides the most jobs of any Grand Cayman district. Many people from West Bay, Bodden Town, North Side, and East End rely on commuting to George Town for employment opportunities. North Side and East End have the highest unemployment rates compared to other districts (over 8% while the rest are under 8%). Most people rely on a private vehicle to commute to work.

3.8.3 Key Findings – Economic Characteristics

Financial and insurance services is the top industry in the Cayman Islands in terms of GDP contribution. In 2021, the industry employing the most people was construction. Tourism is a contributor to multiple industries on Grand Cayman, however, the limited advertisement for tourism destinations in Bodden Town, North Side, and East End combined with the difficulty of day-trippers reaching these districts means that most tourism occurs in George Town and West Bay.

3.8.4 Key Findings – Services

The port and the airport are both located in George Town. The port location makes cruise passenger tourist trips to Bodden Town, North Side, and East End more difficult, and the airport location means longer travel times for residents of these three eastern districts. Police and fire stations are distributed across the island. The only Accident & Emergency hospital authorized by HSA is in George Town, though a private hospital is also available in East End. Public schools are available in each district, but the majority of private schools are situated in George Town. George Town is also home to two of Grand Cayman's three public high schools.

4   Social Impact Appraisal

This section summarizes the potential impacts of constructing the EWA Extension, as it relates to social, economic, and land use characteristics in the vicinity of the project. This social impact appraisal has been developed in reference to WebTAG unit A4-1 and WebTAG unit A4-2. WebTAG unit A4-1 describes how to assess the social impacts that are an important element of the proposed project, on either a monetary, quantitative, or qualitative scale. WebTAG unit A4-2 offers additional information on distributional impacts of some impacts described in unit A4-1.

Consideration of social impacts allows for the evaluation of how a project might affect quality of life in both beneficial and adverse ways through factors like access to employment, goods, and other services; confidence in the ability to obtain emergency services; and choices between different modes of transportation. A social impact analysis also notes vulnerable and underserved

populations to ensure they share equally in the benefits of a proposed project, and that they do not bear a greater cost than the rest of the population.

For this analysis, the No-Build scenario acts as a basis for comparison against which the four Build alternatives are evaluated. In future, the No-Build scenario (i.e. not building the EWA or making on-alignment improvements to Bodden Town Road) will impact socio-economic conditions on Grand Cayman as well. However, this social impact appraisal is evaluating the impacts of the four Build alternatives on socio-economic conditions, which requires a baseline for comparison. Because the No-Build is the basis for comparison, it receives a score of "Neutral" in all categories.

For the EWA EIA, each social component described in WebTAG unit A4-1 was assessed to determine whether the project could potentially result in an impact. Potential impacts have been identified to provide a comparative evaluation of alternatives under consideration. Where a potential impact was projected, the data for that component was reviewed to determine the type of evaluation that was most appropriate. Additional economic effects (e.g., cost of construction, monetary value of improved travel time) were assessed as part of the CBA prepared for this project.

Based on the type of project and the categories within WebTAG unit A4-1, the following were determined to be the most applicable criteria for use in this Shortlist Evaluation via quantitative and qualitative evaluation:

- Accessibility
- Severance
- Journey Quality
- Option Values

The categories of Accidents, Physical Activity, Security, and Personal Affordability were not included in this evaluation due to insufficient data to make an evaluation. Accidents were not assessed due to a lack of data concerning accidents and casualties. Physical Activity was not included because the necessary data on regular walkers and cyclists, including length and time of journey, was not available. Security was not included because the formal guidelines for Security are meant to be applied to public transport, and the level of design detail necessary to apply the guidelines to road users was not available at this stage of analysis. Personal Affordability was not included because it requires a level of travel monetary assessment and data screening that requires more detailed data than what was available for this analysis.

4.1 Accessibility

Per guidance from UK's WebTAG unit A4-1, accessibility impacts can be the physical access to public transport or the ability to get to goods and services (e.g., hospitals or education; **Section 3.6: Services**), as well as the ability to obtain information regarding public transport or other transportation related services. Accessibility impacts are a key consideration in the appraisal and assessment of transportation improvements, as accessibility barriers can result in social exclusion. Overall, the EWA Extension project is projected to improve travel to and from community facilities, jobs, and amenities, especially between the easternmost districts of Grand Cayman

(North Side and East End), where these resources are relatively limited, and the westernmost districts of Grand Cayman (George Town and West Bay). As is illustrated in this document's **Section 3.4.5: District of Employment and Residence**, **Section 3.6.2: Emergency Services**, and **Section 3.6.4: Education**, employment opportunities, emergency services, and education opportunities are more plentiful in George Town than in any other district. The study of Accessibility focuses on the populations in Bodden Town, North Side, and East End.

According to the data collected, many people in the three eastern districts depend on opportunities in the two western districts for employment (**Section 3.4.5**). Of the 1,072 employed persons who live in North Side, 568 (53%) work in George Town and 24 (2.2%) work in West Bay. Overall, 55.2% of people who live in North Side work in a western district. Of the 1,091 employed persons who live in East End, 405 (37.1%) work in George Town and 20 (1.8%) work in West Bay. Overall, 38.9% of people who live in East End work in a western district. In total, 1,017 people (47%) who live in an eastern district work in a western district. As discussed in **Section 3.4.6: Income**, the two western districts have a higher percentage of people (per district population) that fall into the highest income bracket when compared with the three eastern districts.

To consider accessibility impacts, both a quantitative and a qualitative approach were used for this evaluation. This evaluation focuses on determining the effects of improvements to travel on people's access to services primarily located on the western side of Grand Cayman (e.g., employment and education). The level of access was determined based on where people live, where services and opportunities are located, and whether journeys between these origins are "appropriate in terms of time and cost" (WebTAG unit A4-1 p. 41). The No-Build scenario represents the "without scheme" scenario described in WebTAG unit A4-1, and it was the basis of comparison for the four Build alternatives (B1, B2, B3, and B4).

In addition, vulnerable groups who could benefit most from accessibility improvements were identified (**Section 3.3.5: Vulnerable Populations**), and members of these groups in Bodden Town, North Side, and East End are listed in **Table 15** and specifically highlighted for reference in **Table 31**. A discussion of the methodology and monetization of the travel times and trip opportunities can be found in the CBA prepared as part of this study.

Table 31: Vulnerable Groups Within the Eastern Districts (2021 census)

	Bodden Town	North Side	East End
Population	14,845	1,902	1,846
Households	5,478	726	696
Households with children	1,767	212	154
Households without automobile	3,711	143	211
Children 14 and under	2,671	335	268
Persons age 65+	1,146	208	206
Persons commuting to work by walking	89	22	168
Persons earning less than CI$14,399	702	110	125
Households receiving financial assistance from NAU	511	130	159
Households (Able-bodied) receiving financial assistance	*33*	*9*	*6*

	Bodden Town	North Side	East End
Households (Disabled) receiving financial assistance	68	*16*	*24*
Households (Elderly) receiving financial assistance	326	*91*	*117*
Households (Families) receiving financial assistance	84	*14*	*12*

Source: 2021 Compendium of Statistics

To qualitatively assess accessibility, the seven-point scale from WebTAG unit A4-2 was used to gauge the proportion of change in travel conditions for each Build alternative when compared with the No-Build (**Table 32**).

Table 32: Accessibility Analysis Scale

Proportionate Changes	Accessibility Analysis Score
> +16%	Large Beneficial
+6% to +15%	Moderate Beneficial
+2% to +5%	Slight Beneficial
-1% to +1%	Neutral
-2% to -5%	Slight Adverse
-6% to -15%	Moderate Adverse
> -16%	Large Adverse

Source: WebTAG unit A4-2: Distributional Impact Appraisal, Table 15 p. 57

The accessibility sub-factors of travel times, trip opportunities, employment access, level of service, and emergency access for each of the Build alternatives (B1, B2, B3 and B4) were compared with the No-Build scenario for the years 2026 and 2074. Because the No-Build scenario is the baseline comparison to the Build alternatives, it is assessed as "Neutral".

4.1.1   Travel Time

4.1.1.1   Travel Time between North Side/East End and George Town

Vehicle travel times were assessed between North Side/East End and George Town. Travel times were averaged between AM westbound movement and PM eastbound movement to evaluate access improvements for the eastern districts during peak travel times for both the opening year (2026) and the horizon year (2074). The projected Grand Cayman population for 2026 is 76,373, and the projected population for 2074 is 135,000. Please see the Grand Cayman Travel Demand Model in the **Traffic Technical Report Section 3.3: Travel Demand Model** for more information. A representative number of destinations in each district were selected to provide a summary of the anticipated accessibility impacts associated with the Build alternatives. To address accessibility questions surrounding emergency services, education, and other opportunities like travel and tourism, representative destinations in the western districts were chosen to be George Town Hospital, Walkers Road schools, and Owen Roberts Airport.

Changes in travel times were compared with the No-Build scenario to calculate the percent change per origin/destination combination and per Build alternative (B1, B2, B3, and B4). A positive number indicates a percent improvement, and a negative number indicates a percent deterioration. The travel time percent changes were then averaged per alternative to calculate an overall percent

change (**Table 33**). As illustrated in **Table 33**, all Build alternatives are expected to provide a notable improvement in travel times, compared to the No-Build. It was anticipated that these travel time improvements would apply to the entire populations of North Side and East End, with vulnerable groups gaining the most benefits and access to additional opportunities in George Town. Improved travel time is expected to provide expanded regional access for Caymanians who commute to places of employment and economic opportunities (**Section 3.4.8: Modes of Transportation**); additionally, the EWA Extension would be expected to improve traffic flow across Grand Cayman to benefit access to emergency services, education, and community facilities.

Table 33: North Side/East End AM and PM Average Travel Times and % Change, 2026 and 2074

Origin / Destination	No-Build	B1	B2	B3	B4
2026 AM and PM average travel time (minutes)					
North Side / George Town Hospital	55	47	48	48	51
North Side / Walkers Road Schools	49	43	42	42	46
North Side / Owen Roberts Airport	53	46	46	46	49
East End / George Town Hospital	56	53	53	53	52
East End / Walkers Road Schools	50	48	47	47	48
East End / Owen Roberts Airport	56	51	51	51	52
Average Travel Time East / West	52.8	47.6	47.7	47.8	49.4
% Change from No-Build	-	**10%**	**10%**	**9%**	**6%**
2074 AM and PM average travel time (minutes)					
North Side / George Town Hospital	80	63	60	64	67
North Side / Walkers Road Schools	83	65	65	68	71
North Side / Owen Roberts Airport	80	61	62	60	63
East End / George Town Hospital	72	66	64	66	66
East End / Walkers Road Schools	77	70	70	74	73
East End / Owen Roberts Airport	72	65	67	65	64
Average Travel Time East / West	77.1	64.8	64.4	65.9	67.2
% Change from No-Build	-	**16%**	**16%**	**15%**	**13%**

Source: Grand Cayman Travel Demand Model

4.1.1.2 Travel Time between Frank Sound Road and Hirst Road

Travel times within the EWA EIA study area (between Frank Sound Road and Hirst Road via Bodden Town Road and Shamrock Road and via the EWA extension) were assessed for both opening year 2026 and horizon year 2074 to capture the localized congestion effects for residents of Bodden Town that are expected to occur under the four Build alternatives when compared to the No-Build scenario.

With the No-Build scenario, residents traverse the existing Bodden Town Road and Shamrock Road between Frank Sound Road and the Agricola Drive Connector, at which point they can choose to either: 1.) continue on Shamrock Road between the Agricola Drive Connector and Hirst Road or 2.) use the Agricola Drive Connector and Section 1 of the EWA extension. With Alternatives B1, B2, and B3, residents can choose to traverse either available route: 1.) Bodden Town Road and Shamrock Road or 2.) EWA Extension, between Frank Sound Road and Hirst Road, depending on their origin or destination within Bodden Town. With Alternative B4, an improved route along Bodden Town Road is available when compared to the No-Build scenario.

Travel times were assessed westbound in the AM and eastbound in the PM to capture the prominent time-of-day traffic flow; this comparison illustrates changes in travel times along the available route(s) that Bodden Town residents would be using within the study area (**Figures 24 and 25**). The percent change from the No-Build scenario was calculated after AM and PM travel times were averaged per Build alternative (**Table 34**), illustrating that the EWA extension is expected to improve localized congestion within the study area for Bodden Town residents.
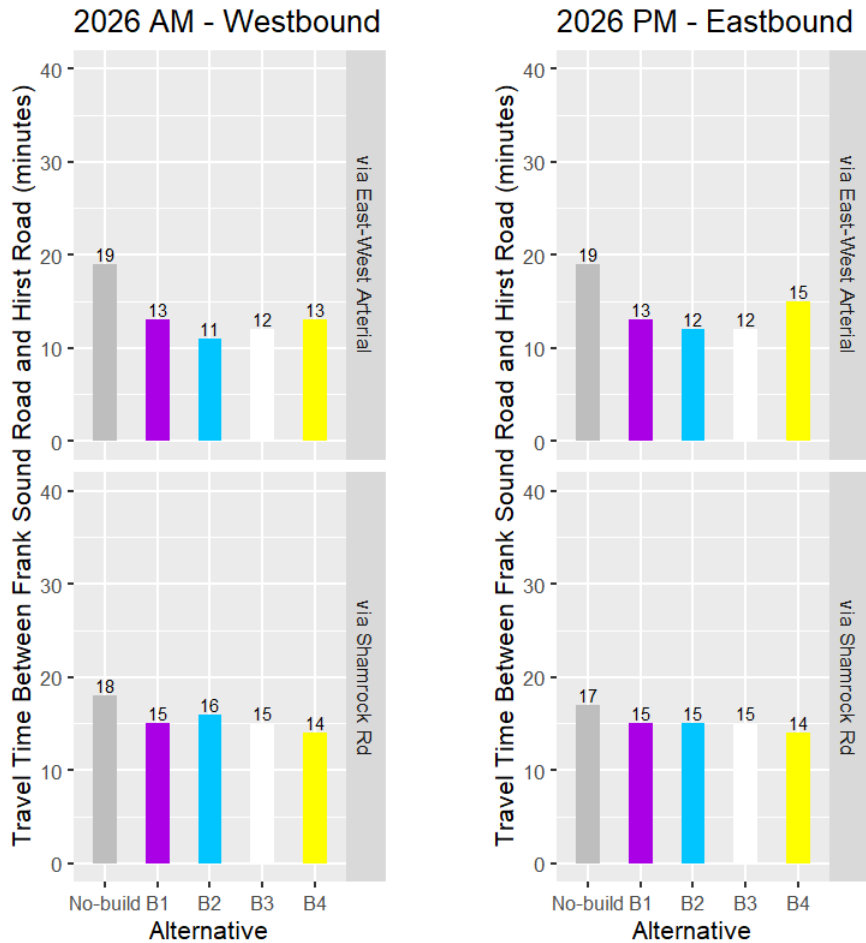

Figure 24: 2026 Travel Times between Hirst Road and Frank Sound Road
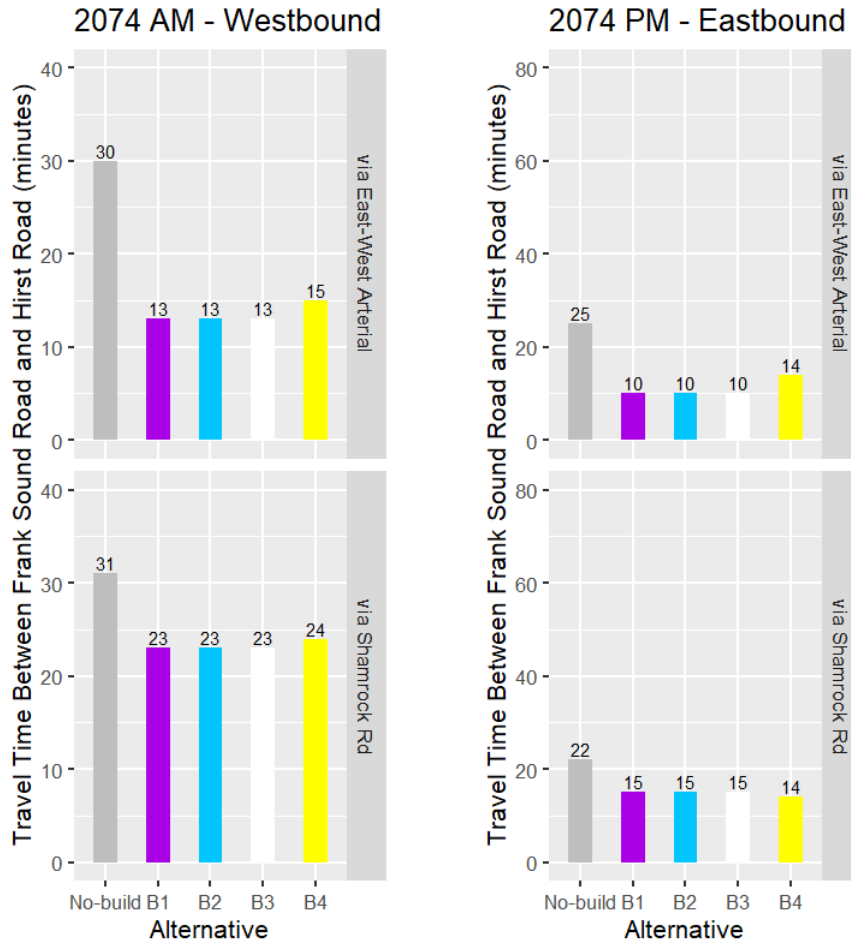
Figure 25: 2074 Travel Times between Hirst Road and Frank Sound Road

Table 34: Frank Sound Road to Hirst Road Travel Times and % Change, 2026 and 2074

	No-Build	B1	B2	B3	B4
2026 – Frank Sound Road/Hirst Road travel time (minutes)					
Via Bodden Town/Shamrock (AM)	18	15	16	15	14
Via EWA (AM)	19	13	11	12	13
Via Bodden Town/Shamrock (PM)	17	15	15	15	14
Via EWA (PM)	19	13	12	12	15
Average Travel Time East / West	18.3	14.0	13.5	13.5	14.0
% Change from No-Build	-	**23%**	**26%**	**26%**	**23%**
2074 – Frank Sound Road/Hirst Road travel time (minutes)					
Via Bodden Town/Shamrock (AM)	31	23	23	23	24
Via EWA (AM)	30	13	13	13	15
Via Bodden Town/Shamrock (PM)	22	15	15	15	14
Via EWA (PM)	25	10	10	10	14

	No-Build	B1	B2	B3	B4
Average Travel Time East / West	27.0	15.3	15.3	15.3	16.8
% Change from No-Build	-	**43%**	**43%**	**43%**	**38%**

Source: Grand Cayman Travel Demand Model

4.1.2 Trip Numbers

The capacity of the proposed roadway facility was also assessed to determine the additional trips that would be accommodated between North Side and East End and western districts as a result of access improvements from the EWA Extension. Improved access to and from the western side of the island is essential for employment, as well as other services on Grand Cayman and can be demonstrated by increased capacity and trip numbers compared to the No-Build. As of 2021, more than 7,000 people (more than 10% of the 2021 population of Grand Cayman) who work in George Town live in one of the three eastern districts (**Section 3.4.4: Employment Characteristics by District**).

Trip numbers were calculated from home base to work (east to west) during peak travel time in the morning and work to home base (west to east) during peak travel time in the evening. Trips between other destinations and districts of employment were also considered (**Table 35**). As illustrated in **Table 35**, all Build alternatives are expected to provide a marked increase in the number of trips compared to the No-Build, demonstrating the notable access benefits that the EWA Extension is expected to provide. Alternative B2 is predicted to provide the highest increase in work trips by 2026 and 2074. A consideration for this component is that access to employment can be restricted for vulnerable groups based on lack of vehicle, lack of childcare, low income, disability, and others.

Table 35: North Side/East End AM and PM Trip Numbers and % Change, 2026 and 2074

	No-Build	B1	B2	B3	B4
2026 - Eastern Districts / Western Districts Work Trips					
North Side / George Town	327	412	426	419	361
North Side / West Bay	37	46	47	46	40
East End / George Town	123	142	147	144	136
East End / West Bay	3	5	5	5	4
Total AM and PM Car Trips	490	605	625	614	541
% Change from No-Build	-	**24%**	**28%**	**25%**	**10%**
2074 - Eastern Districts / Western Districts Work Trips					
North Side / George Town	800	971	977	958	908
North Side / West Bay	55	66	68	70	62
East End / George Town	757	832	845	844	822
East End / West Bay	31	33	34	35	33

	No-Build	B1	B2	B3	B4
Total AM and PM Car Trips	1,643	1,902	1,924	1,907	1,825
% Change from No-Build	-	15%	17%	16%	11%

Source: Grand Cayman Travel Demand Model

4.1.3 Employment Access

As previously noted, (**Section 3.4.5: District of Employment and Residence**), more people who live in West Bay, Bodden Town, and North Side work in George Town rather than work in their respective districts of residence. The benefits associated with the EWA Extension may include improved accessibility to employment opportunities and industries across Grand Cayman.

In addition to the number of work trips generated, accessibility can also be examined based on potential increases or decreases in job opportunities that could occur as a result of the project. To assess a change in access to job opportunities, representative points in North Side and East End were selected based on the presence of existing residential neighbourhoods, and the number of jobs available within a morning commute of a certain duration (15 and 30 minutes) was calculated for the No-Build and the four Build alternatives for years 2026 and 2074 (**Figure 26** and **Table 36**). Percent change in number of jobs available was then calculated. **Table 36** shows that Alternatives B1, B2 and B3 are expected to provide the greatest improvement in access to the number of jobs when compared to the No-Build.
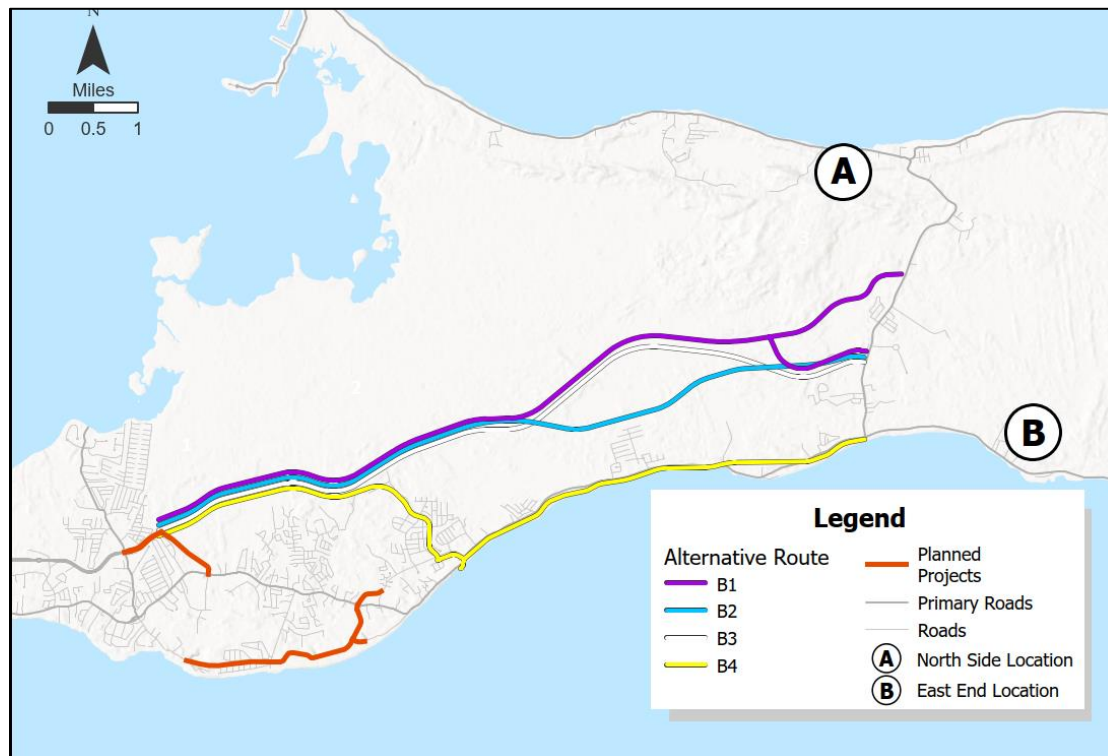

Figure 26: Representative Location in North Side for Employment Access Evaluation

Table 36: Employment Access From North Side and East End

	No-Build	B1	B2	B3	B4
2026					
Employment Access from North Side (no. of jobs)					
15 Minutes	1,187	1,536	1,536	1,536	1,310
30 minutes (additional jobs)	3,124	3,759	3,759	3,759	3,592
Employment Access from East End (no. of jobs)					
15 Minutes	1,437	1,485	1,707	1,707	1,485
30 minutes	3,581	3,759	3,759	3,759	3,759
Average Number of Jobs	**2,332**	**2,635**	**2,690**	**2,690**	**2,537**
% Change from No-Build	**-**	**13%**	**15%**	**15%**	**9%**
2074					
Employment Access from North Side (no. of jobs)					
15 Minutes	2,734	9,083	9,083	9,083	8,957
30 minutes (additional jobs)	9,119	13,100	13,100	13,100	13,100
Employment Access from East End (no. of jobs)					
15 Minutes	8,447	8,802	8,802	8,802	8,804
30 minutes	9,715	13,100	13,038	13,100	13,038
Average Number of Jobs	**7,504**	**11,021**	**11,006**	**11,021**	**10,975**
% Change from No-Build	**-**	**47%**	**47%**	**47%**	**46%**

Source: Grand Cayman Travel Demand Model

4.1.4   Emergency Access

Access between eastern and western districts is also directly affected by events that could cause road closures along Bodden Town Road. Given that this is the only road that currently connects the western and eastern districts, events like storms, crashes, and other disasters can cut off any movement (vehicular or other modes) between these districts. Depending on the severity of the event, access could be cut off for several hours or up to several days. Although some services are offered in each district, such as the Health City Cayman Islands Hospital (also known as Shetty Hospital) in East End and government district health clinics, many important goods and services are located on the western side of the island, including the Health Services Authority Hospital and Doctor's Hospital, the airport, the cargo port, most jobs, and most schools. A lack of accessibility due to a road closure can have severe effects on socio-economic quality of life, including the ability to reach emergency services, work, or school.

To assess this aspect of accessibility, the impacts of a road closure under the No-Build scenario were assessed for five segments along Bodden Town Road:

- Segment 1: Frank Sound Road to Betty Bay Pond Driveway
- Segment 2: Betty Bay Pond Driveway to Long Fellow Road

- Segment 3: Long Fellow Road to Bodden Town Bypass
- Segment 4: Bodden Town Bypass to Condor Road
- Segment 5: Condor Road to Hirst Road

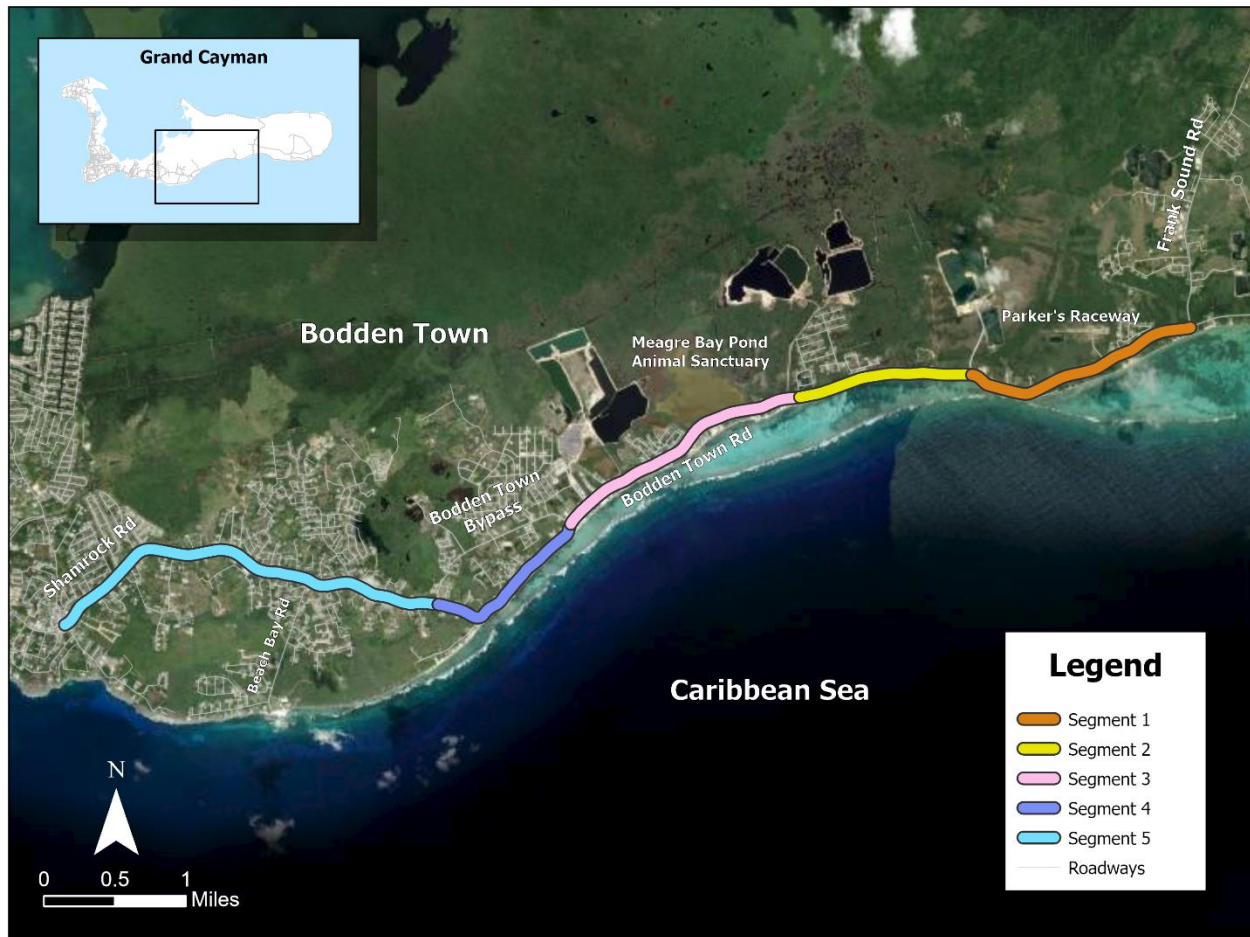**Figure 27** visualizes the segments.

Figure 27: Road Closure Segments
Source: Grand Cayman Travel Demand Model

The eastern population affected by an unavailable segment was calculated per segment, for each alternative. (**Table 37**). If Segment 5 was unavailable, the eastern population would still be able to reach the western districts. If Segments 1, 2, 3, or 4 were unavailable, the second east-west route that would be provided by Alternatives B1, B2, or B3 would prevent the eastern population from losing access to the west. However, similar to the No-Build scenario conditions, Alternative B4 would not offer a second, separate roadway to connect the eastern and western districts. Therefore, unavailability of Segments 1-4 would cause a loss of access for up to 7,782 people in 2026 (10% of the projected population of Grand Cayman), and a loss of access for up to 19,729 people in 2074 (15% of the projected population under the core growth scenario for Grand Cayman.) The entire

populations of East End and North Side would be disconnected from the western districts if Segments 1, 2, 3, or 4 were unavailable.

Table 37: Population Losing Access in the Event of Road Closure

	No-Build	B1, B2, B3	B4
Road Closure – Population with Lost Access in 2026			
Segment 1	3,082	0	3,082
Segment 2	4,056	0	4,056
Segment 3	4,431	0	4,431
Segment 4	7,882	0	7,882
Segment 5	8,820	0	0
Road Closure – Population with Lost Access in 2074			
Segment 1	10,893	0	10,893
Segment 2	14,515	0	14,515
Segment 3	15,356	0	15,356
Segment 4	19,729	0	19,729
Segment 5	14,772	0	0

Source: Grand Cayman Travel Demand Model

To determine the percent change from the No-Build, the population with lost access was subtracted from the total Grand Cayman population per year, per alternative, and per segment. This resulted in a population with maintained access between the west and the east should the road be closed due to an emergency. The population with maintained access per year and per alternative was calculated and averaged by segment, and the percent change from the No-Build was calculated (**Table 38**).

Table 38: Population with Maintained Access in a Road Closure and % Change from No-Build

	No-Build	B1	B2	B3	B4
Road Closure - Population with Maintained Access in 2026					
Segment 1	73,291	76,373	76,373	76,373	73,291
Segment 2	72,317	76,373	76,373	76,373	72,317
Segment 3	71,942	76,373	76,373	76,373	71,942
Segment 4	68,491	76,373	76,373	76,373	68,491
Segment 5	67,553	76,373	76,373	76,373	76,373
Average	70,719	76,373	76,373	76,373	72,483
% Change from No-Build	N/A	8%	8%	8%	3%
Road Closure - Population with Maintained Access in 2074					
Segment 1	124,107	135,000	135,000	135,000	124,107

	No-Build	B1	B2	B3	B4
Segment 2	120,485	135,000	135,000	135,000	120,485
Segment 3	119,644	135,000	135,000	135,000	119,644
Segment 4	115,271	135,000	135,000	135,000	115,271
Segment 5	120,228	135,000	135,000	135,000	135,000
Average	119,947	135,000	135,000	135,000	122,901
% Change from No-Build	N/A	13%	13%	13%	3%

4.1.5 Summary

The overall accessibility analysis score was calculated by averaging the anticipated percent improvements in travel time, number of trips, and employment access and the percent of people who would lose access in an emergency service for each of the Build alternatives in years 2026 and 2074 (**Table 39**). Both years were considered in calculating the overall percent improvement to capture the projected travel time, trip volume, and employment opportunity improvements and emergency access barriers for the current and future generations on Grand Cayman. The 2026 improvements would affect current vulnerable groups in the eastern districts. The 2074 improvements would affect future generations of vulnerable groups, accounting for a growing population across the island and in the eastern districts. The following describes the results of this evaluation for each of the Build alternatives, following the scale presented in **Table 32**.

Table 39: Accessibility Analysis Score, Alternatives B1-B4

	No-Build	B1	B2	B3	B4
2026 North Side/East End Travel Time	-	10%	10%	9%	6%
2074 North Side/ East End Travel Time	-	16%	16%	15%	13%
2026 Bodden Town Travel Time	-	23%	26%	26%	23%
2074 Bodden Town Travel Time	-	43%	43%	43%	38%
2026 Work Trips	-	24%	28%	25%	10%
2074 Work Trips	-	15%	17%	16%	11%
2026 Employment Access	-	13%	15%	15%	9%
2074 Employment Access	-	47%	47%	47%	46%
2026 Lost Access	-	8%	8%	8%	3%
2074 Lost Access	-	13%	13%	13%	3%
Average	-	**21%**	**22%**	**22%**	**16%**
Accessibility Analysis Score	**Neutral**	**Large Beneficial**	**Large Beneficial**	**Large Beneficial**	**Large Beneficial**

Alternatives B1, B2, and B3

When compared with the No-Build scenario, Alternatives B1, B2, and B3 would offer a "**Large Beneficial**" improvement to accessibility of the eastern districts on Grand Cayman. Alternatives B2 and B3 have a slightly higher percent improvement overall (20% for B2 and B3 vs. 19% for B1).

The access benefits associated with Alternatives B1, B2, and B3 would be expected to translate to improved public transport services, as the proposed facility would provide the opportunity for new future bus transit services to reach areas of Grand Cayman (e.g., North Side) where current access is limited or circuitous. Additionally, access to education would be improved, particularly for residents and families traveling from East End or North Side to private educational facilities located in George Town.

Alternatives B1, B2, and B3 enhance accessibility during emergencies and/or road closures by providing a second, separate route between the eastern and western sides of the island. For example, in the event of an emergency (e.g., a storm that causes flooding or fallen debris, or a crash that blocks traffic in one or both directions) that results in a closure on Bodden Town Road, residents on the eastern side of the island are cut off from important emergency services, like the hospital, under the No-Build scenario. Additionally, eastern residents may be cut off from access to jobs, school, and family members on the western side of the island. With the redundancy of a second roadway facility, Alternatives B1, B2, and B3 are expected to increase the likelihood that the most vulnerable on the east side of the island are not cut off from necessary resources.

Alternative B4

When compared with the No-Build scenario, Alternative B4 would offer a "**Moderate Beneficial**" improvement to the accessibility of the eastern districts on Grand Cayman. While this alternative offers an improvement in travel time, trip numbers, and employment access when compared with the No-Build, it offers less improvement in these categories when compared to the other Build alternatives due to longer comparative trip times and fewer possible journeys. Additionally, it does not provide emergency access to the western districts in the event of road closures along Bodden Town Road. Therefore, should an emergency occur that prevents travellers from using Bodden Town Road to reach the western districts, accessibility is fully impaired until the closure of Bodden Town Road is addressed.

The access benefits associated with Alternative B4 would be expected to translate to improved public transport services, as the proposed facility would improve travel times on existing bus transit service routes. Additionally, access to schools would be improved, particularly for residents and families traveling from East End or North Side to private educational facilities located in George Town. Implementation of the EWA Extension would also likely improve the ability for emergency services to respond to incidents more quickly along the east-west route due to higher capacity and congestion reduction, and access to residential areas in the eastern districts.

4.2   Severance

WebTAG unit A4-1 describes severance as the issue of transportation (infrastructure or traffic flows) affecting community members' abilities to reach the facilities and services they use within their communities. Severance can impact community cohesion, a concept relating to community identity that can be affected by splitting neighbourhoods, isolating a portion of a neighbourhood or an ethnic group, generating new development, changing property values, or separating residents from community facilities. WebTAG unit A4-1 notes that severance only becomes an issue if vehicle flows or infrastructure create a barrier to pedestrian movement, and not all transportation projects will result in negative impacts associated with severance. As **Section 3.4.7: Modes of Transportation** describes, 5,652 people who reside on Grand Cayman commute using a mode other than a private automobile. People who depend on modes of transportation other than a private vehicle are at a greater risk of impact from adverse severance conditions if multimodal accommodations are not provided as part of a proposed transportation infrastructure project.

Some transportation projects result in an increase in severance (an adverse consequence) while other projects result in no change (a neutral consequence) or a decrease in severance (a beneficial consequence). The analysis of severance focuses on pedestrians and their ability to reach parts of communities. In the case of this project, because specific design features are included to benefit both pedestrians and other non-vehicular travel, allowing for them to be considered separately, biking and other micromobility movements were considered as additional sub-factors alongside pedestrian movement. **Table 40** defines the four levels of severance as defined in WebTAG unit A4-1. While **Table 40** offers definitions of the four levels of the adverse effect of increased severance, a decrease in severance is also possible for projects that encourage non-vehicular movement when compared with the No-Build scenario.

To assess severance, vulnerable populations (households with children, households with no vehicle) were identified where data was available at the EA level. Population distribution in EAs intersected by the Build alternatives (B1, B2, B3, and B4) was assessed based on aerial imagery and known building locations. Based on the proposed new roadway alignment for each of the Build alternatives, a determination was made if the alternative would travel through communities in the EAs it would intersect. Where community intersection would occur, the typical section was examined to determine the impact on community severance. Additions like multimodal paths that would facilitate walking, biking, and other modes of transport could reduce severance (i.e. improve access and mobility for micromobility users), whereas additions like concrete barriers along median strips or additional lanes could increase severance. Potential locations for pedestrian crossings to mitigate severance could be evaluated as part of the Preferred Alternative.

Table 40: Four Levels of Severance Classification

Level	Description
None/Neutral	Little or no hindrance to pedestrian movement.
Slight Adverse	All people wishing to make pedestrian movements will be able to do so, but there will probably be some hindrance to movement.
Moderate Adverse	Pedestrian journeys will be longer or less attractive; some people are likely to be dissuaded from making some journeys on foot.
Large Adverse	People are likely to be deterred from making pedestrian journeys to an extent sufficient to induce a reorganisation of their activities. In some cases, this could lead to a change in the location of centres of activity or to a permanent loss of access to certain facilities for a particular community. Those who do make journeys on foot will experience considerable hindrance.

Source: WebTAG unit A4-1, Severance Impacts 5.1.3 p. 26

The overall assessment (from WebTAG Unit A4-1 p. 27) was based on the following guidelines, with the assessment being **beneficial** if severance would be reduced, and **adverse** if severance would be increased:

- the overall assessment is likely to be **Neutral** if increases in severance are broadly balanced by relief of severance;
- the overall assessment is likely to be **Slight** where change in severance is slight or the total numbers of people affected across all levels of severance is low (less than 200 per day, say);
- the overall assessment is likely to be **Large** where change in severance is large, and affects a moderate or high number of people or the total numbers of people affected across all levels of severance is high (greater than 1,000, say); and
- the overall assessment is likely to be **Moderate** in all other cases.

Additionally, the degree of adverse or beneficial effect was considered alongside the number of people affected. For example, if a transportation change was likely to provide additional facilities for pedestrians but in an area where few pedestrian destinations are available, the magnitude of the benefit was adjusted accordingly.

A summary of the number of households and the population that could potentially be affected by each alternative is described in **Table 41**. The population shown is based on the EAs intersected by the Build alternative, as well as by which households have children or which households have automobiles (the data that was available at the EA-level necessary to conduct a severance analysis). To determine whether an EA would likely be affected by the Build alternative in question, geospatial buildings data were examined to determine whether the alternative would pass through neighbourhoods or near to any buildings. The No-Build scenario was the baseline for assessment, against which increases or decreases in severance were evaluated.

Table 41: Summary of 2021 Vulnerable Populations Potentially Impacted by Severance

Alternative	Households	Households With Children	Households Without Automobile
No-Build	--	--	--
B1	1,161	393	168
B2	1,180	408	161
B3	1,069	373	142
B4	1,880	590	313

The proposed improvement options for the Build alternatives would likely reduce severance, offering a beneficial impact for nearby communities. Because data on specific pedestrian and other non-vehicular movement was not available for this study, two access points on the eastern side were chosen to represent community hubs that many people would need to access: Valu-Med Pharmacy in Bodden Town (Evron Plaza, 126 Anton Bodden Drive) and Clifton Hunter High School (**Figure 28**). Access to Valu-Med Pharmacy and to Clifton Hunter High School were both assessed by determining the 2074 population that could reach them with a 30-minute walk, bike, or micromobility commute (**Figures 29** and **30**).

Based on conditions such as traffic volumes, speed limits, shoulder widths, bike lane availability, and sidewalk availability, some roads are deemed suitable for biking and micromobility while being ill-suited for walking. For both the No-Build scenario and Build alternatives, people would have better access to the Valu-Med Pharmacy when traveling by bike or micromobility than by walking because biking modes provide higher travel speeds, allowing people to travel farther distances compared to walking.
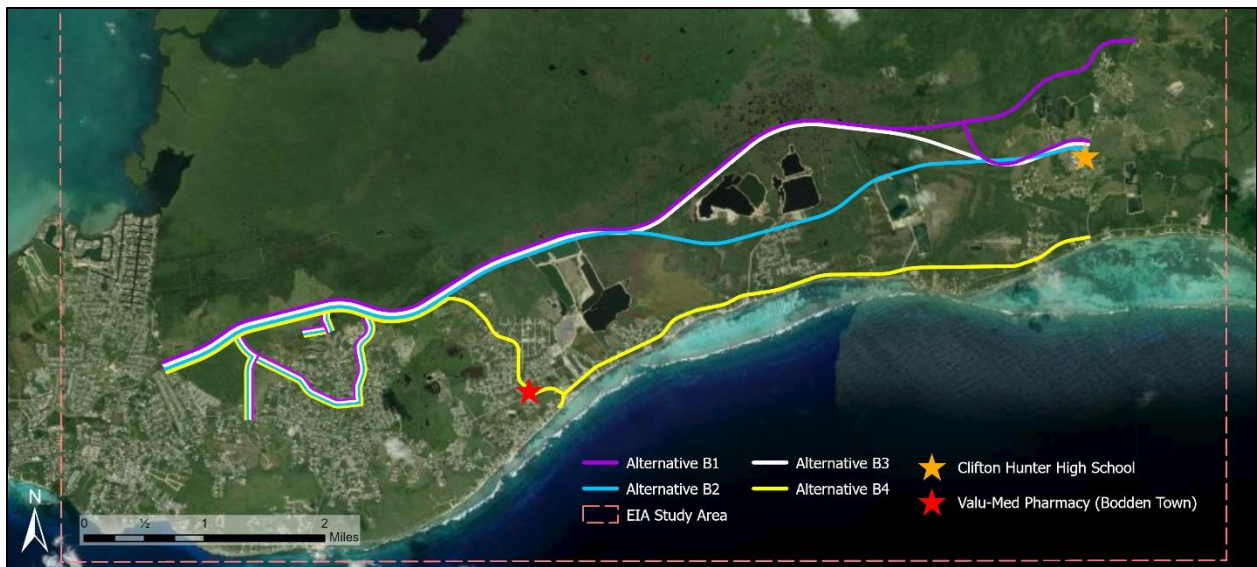

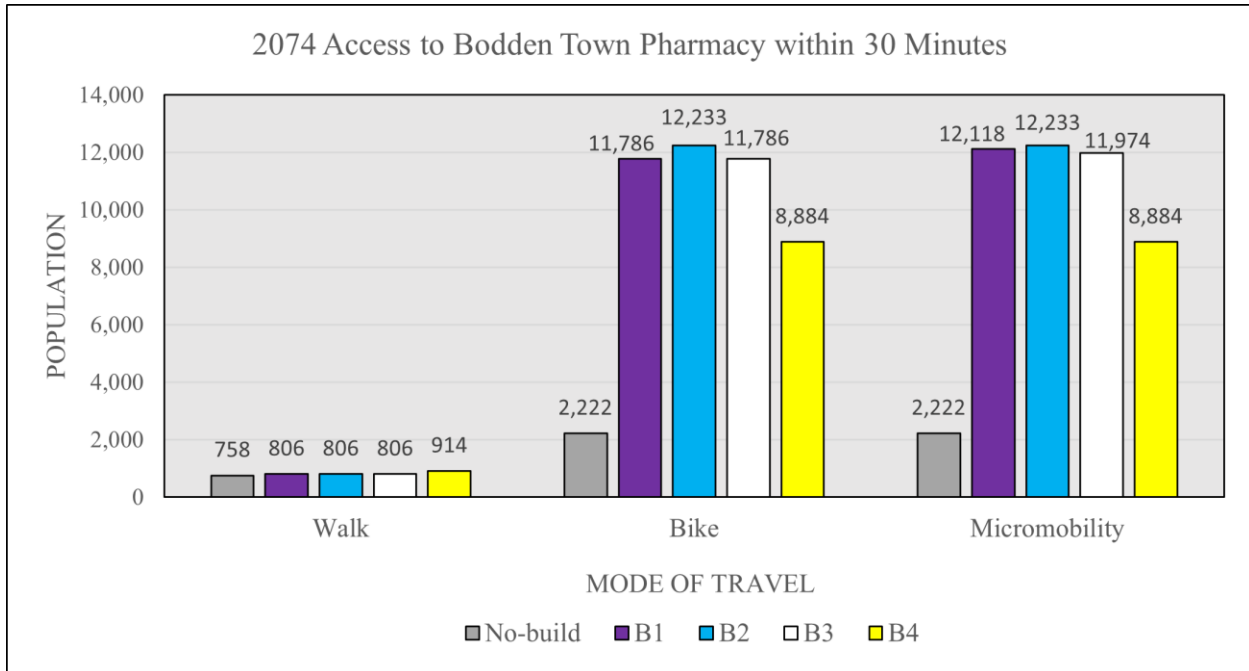**Figure 28: Location of Pharmacy and High School**

Figure 29: Potential Non-Vehicular Access to Bodden Town Pharmacy
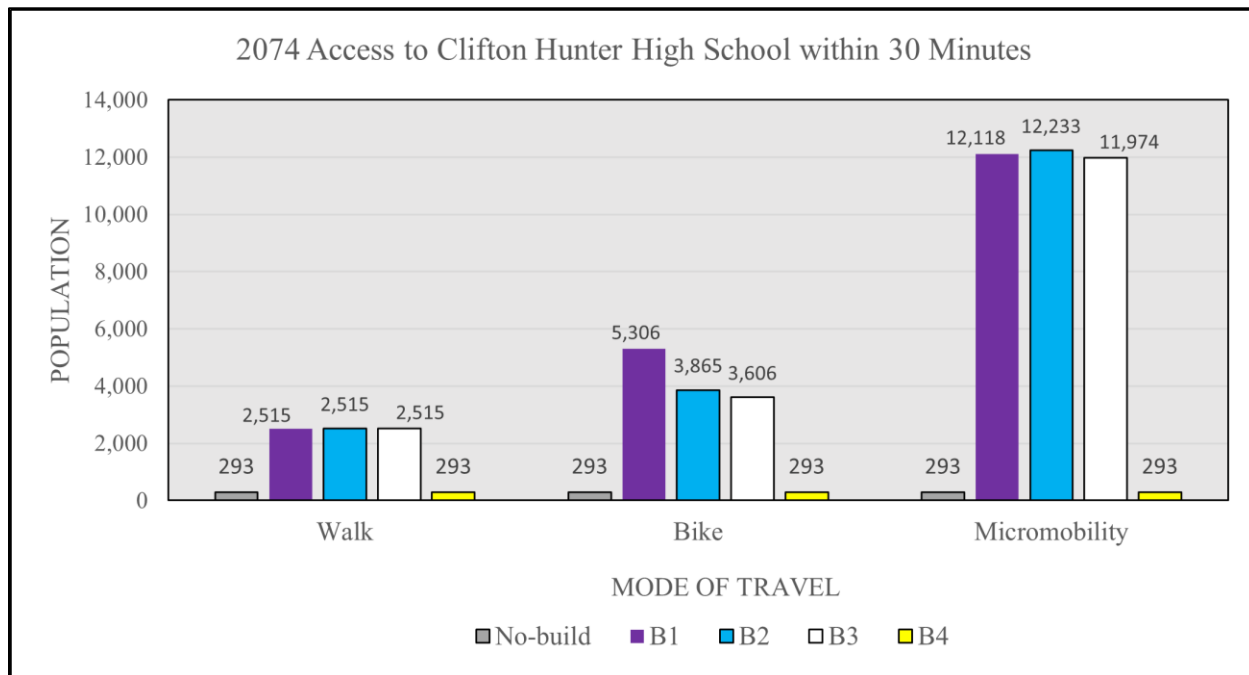Source: Grand Cayman Travel Demand Model

Figure 30: Potential Non-Vehicular Access to Clifton Hunter High School
Source: Grand Cayman Travel Demand Model

No-Build

The No-Build serves as the baseline of comparison for the Build alternatives. Therefore, the severance impact for the No-Build scenario was determined to be "**Neutral**".

Alternative B1

Alternative B1 would intersect 21 EAs but would not directly impact the populations of all EAs it intersects, due to the distribution of the population within each EA and the placement of Alternative B1 (**Figure 31**). Based on the evaluation of intersected EAs, Alternative B1 would be expected to directly intersect communities within the EAs outlined in grey (**Figure 31**), which includes 1,161 households: 393 households with children and 168 households without automobiles.
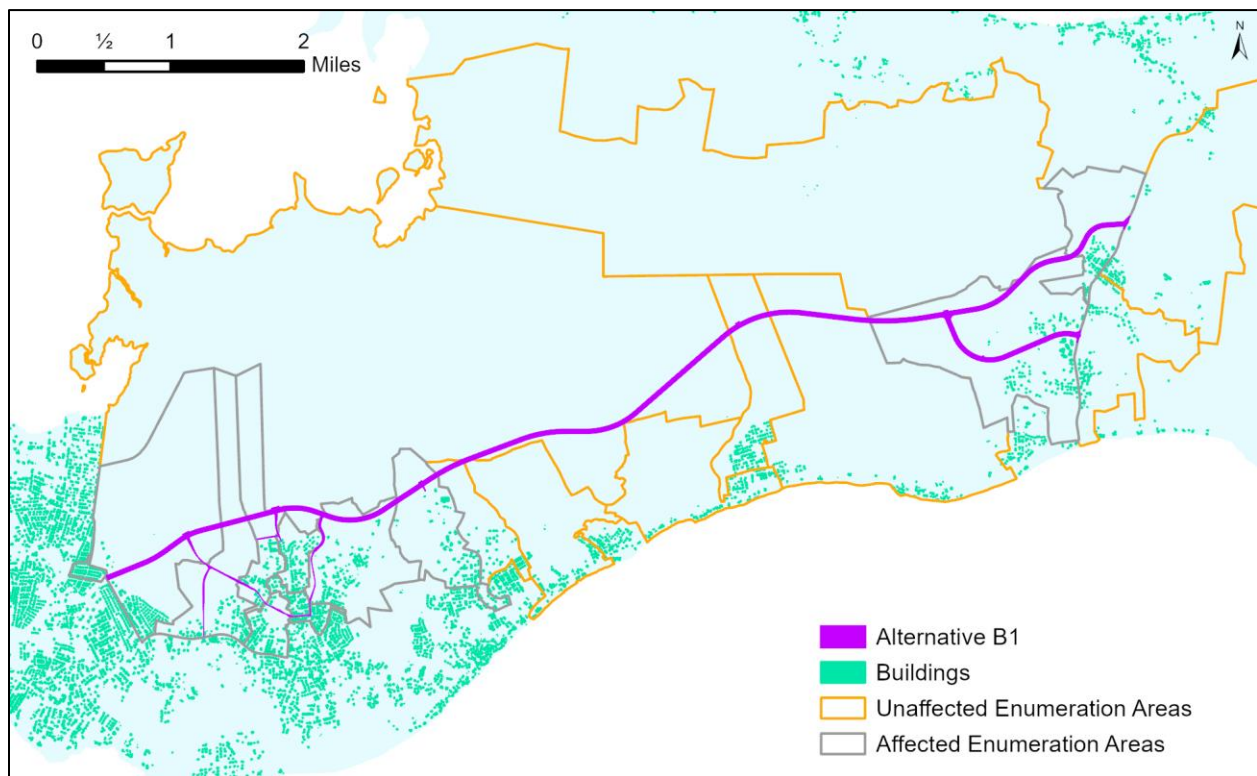

Figure 31: Alternative B1 Potential Impact on Enumeration Areas

Most of the affected households (809 out of 1,161) are located along the Will T Connector, which intersects neighbourhoods along existing roadway networks. As shown in the anticipated typical section, **Figure 32**, the new facility would include a two-lane roadway with bicycle lanes located on both sides, as well as a sidewalk for pedestrian travel. While there is the potential for severance because of some increased traffic on these roadways, the provisions for bicycle and pedestrian travel, as well as the lack of a physical barrier, could reduce severance due to the increased mobility options for walking, biking, and other micromobility transportation modes.
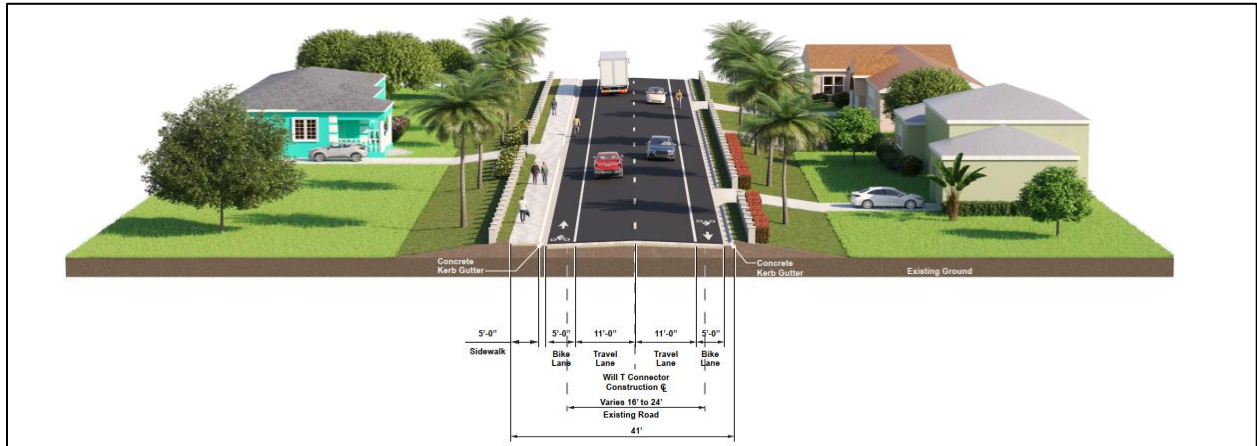
Figure 32: Will T Connector Typical Section

The remainder of affected households (352 out of 1,161) are located along the main east-west corridor for Alternative B1. As shown in the anticipated 2074 cross-section, the new facility would include a physical (concrete) barrier, as well as a sidewalk for pedestrian travel and micromobility path for bicyclists on the southern side of the trail, offering the possibility of future connectivity with southern neighbourhoods **(Figure 33)**.

The total potentially affected population is greater than 1,000 persons, however there are limited amenities identified immediately north or south of the corridor. Due to the number of people affected but the limited number of destinations for non-vehicular populations to reach, the severance impact for Alternative B1 would be "**Moderate Beneficial**."
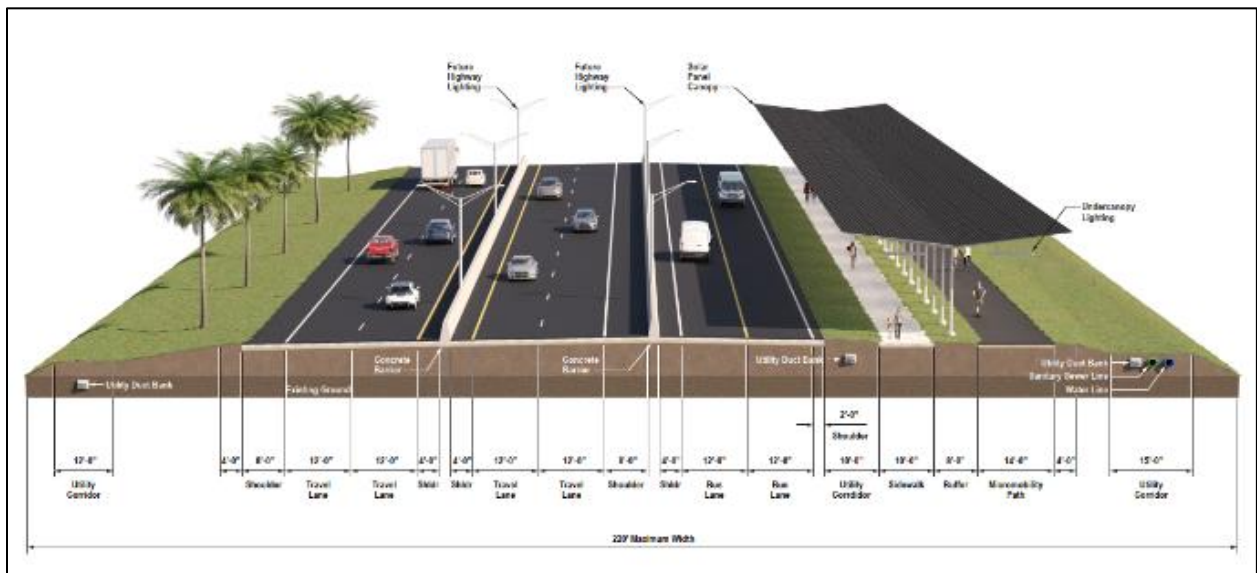

Figure 33: 2074 Build Alternative Section 2 Cross-Section for all Alternatives and Section 3 Cross Section for B1, B2, and B3

Alternative B2

Alternative B2 would intersect 18 EAs but would not directly impact the populations of all the EAs it intersects (**Figure 34**). Based on the evaluation of intersected EAs, Alternative B2 is expected to intersect the EAs outlined in grey (**Figure 34**), which includes 1,180 households: 408 households with children and 161 households without automobiles.
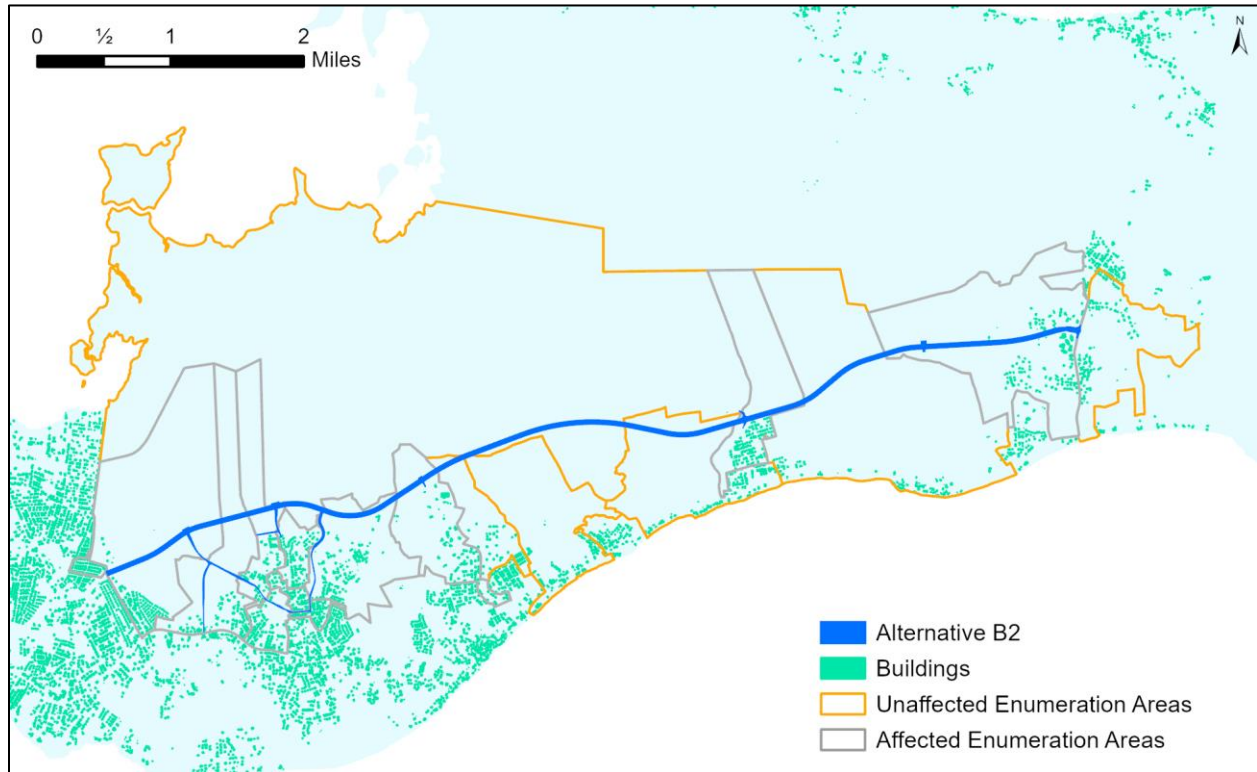

Figure 34: Alternative B2 Potential Impact on Enumeration Areas

As described with Alternative B1, Alternative B2 also includes the Will T Connector, which intersects neighbourhoods along existing roadway networks and comprises most of the affected households (809 out of 1,180). The evaluation of the Will T Connector is the same for Alternative B2 as previously described for Alternative B1.

The remainder of affected households (371 out of 1,180) are located along the main east-west corridor for Alternative B2 (**Figure 33**). The evaluation for this portion of Alternative B2 is also the same as Alternative B1. Therefore, the severance impact for Alternative B2 would be "**Moderate Beneficial**."

Alternative B3

Alternative B3 would intersect 18 EAs but would not directly impact the populations of all the EAs it intersects. Based on the evaluation of intersected EAs, Alternative B3 is expected to

intersect the EAs outlined in grey (**Figure 35**), which includes 1,069 households: 373 households with children and 142 households without automobiles.
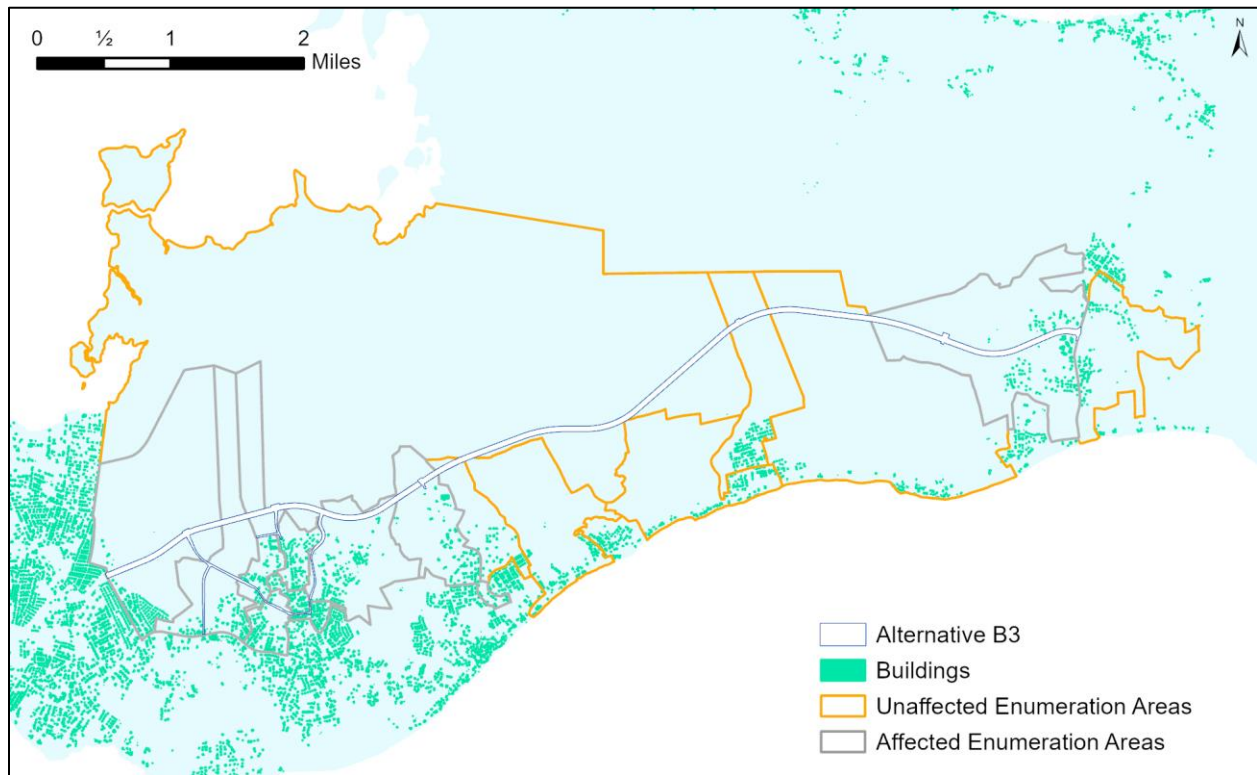

Figure 35: Alternative B3 Potential Impact on Enumeration Areas

As described with Alternatives B1 and B2, Alternative B3 also includes the Will T Connector, which intersects neighbourhoods along existing roadway networks and comprises most of the affected households (809 out of 1,069). The evaluation of the Will T Connector is the same for Alternative B3 as previously described for Alternatives B1 and B2.

The remainder of affected households (260 out of 1,069) are located along the main east-west corridor for Alternative B3 (**Figure 33**). The evaluation for this portion of Alternative B3 is the same as Alternatives B1 and B2 above. As a result, the severance impact for Alternative B3 would be "**Moderate Beneficial**."

Alternative B4

Alternative B4 would intersect 24 EAs but would not directly impact the populations of all the EAs it intersects. Based on the evaluation of intersected EAs, Alternative B4 is expected to intersect the EAs outlined in grey (**Figure 36**), which includes 1,880 households: 590 households with children and 313 households without automobiles.
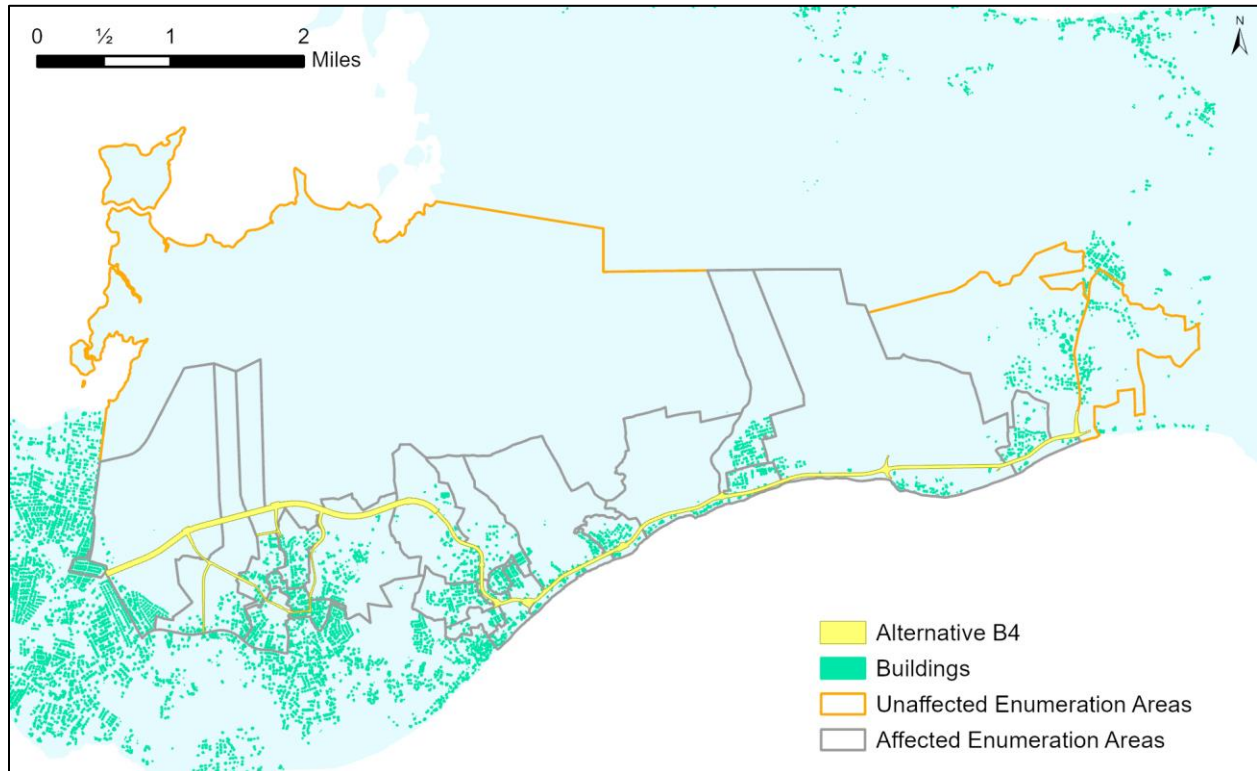
Figure 36: Alternative B4 Potential Impact on Enumeration Areas

As described with Alternatives B1, B2 and B3, Alternative B4 also includes the Will T Connector, which intersects neighbourhoods along existing roadway networks and comprises many of the affected households (809 out of 1,880). The evaluation for the Will T Connector is the same for Alternative B4 as previously described for Alternatives B1, B2, and B3.

In addition, Alternative B4 includes improvements to Anton Bodden Road and Bodden Town Road, and as a result, would bisect the existing communities along both roadways, affecting most households along Alternative B4 (1,071 out of 1,880). As shown in the typical section, **Figure 37**, the roadway would be widened from the existing two-lane to a four-lane road, and a concrete barrier would be constructed between the eastbound and westbound travel lanes. This wider roadway with median barrier would place a physical barrier between the north and south sides of Bodden Town Road. This physical barrier may have the potential to isolate residents on both the north and south sides from amenities on either side of the road, and added traffic along the coastal road would make crossing more difficult. The typical section also includes a sidewalk and two bike lanes, which improves on the current non-vehicular facilities of the coastal road.
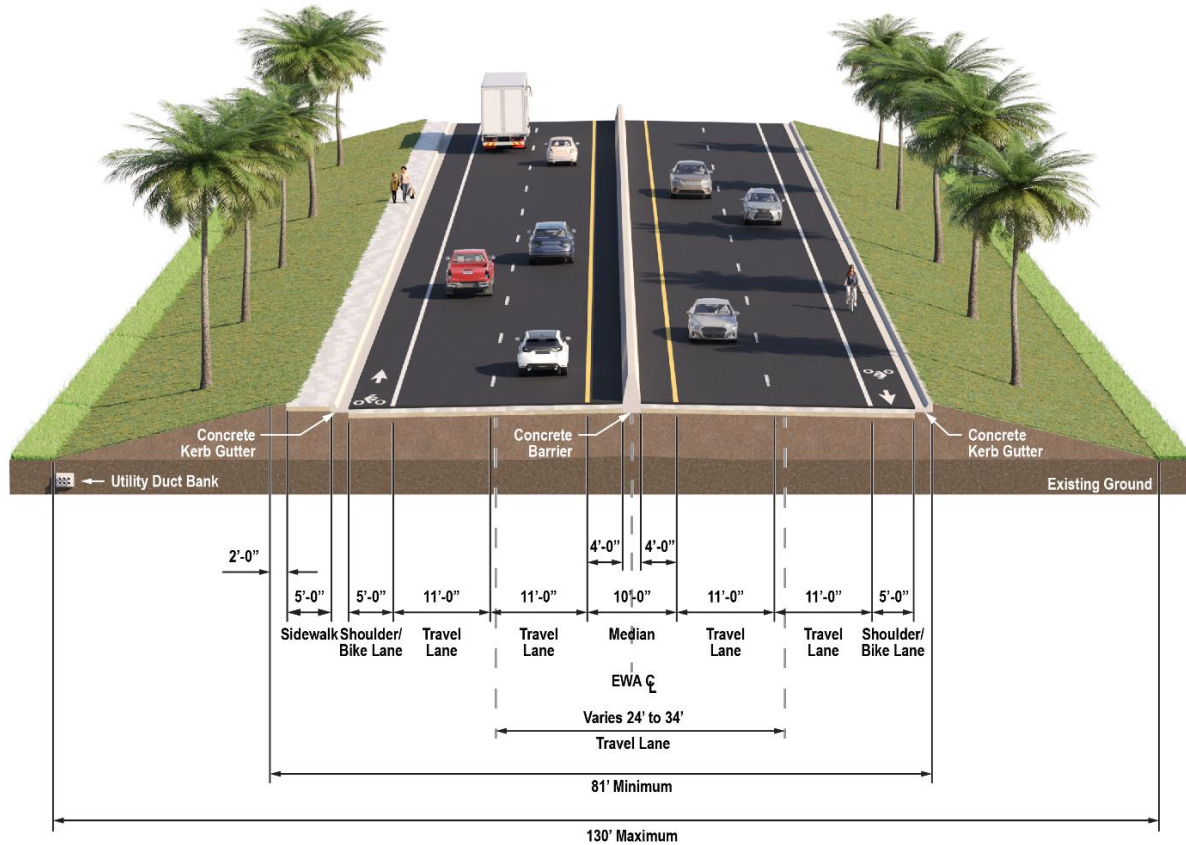
Figure 37: Alternative B4 Typical Section for 2026 (Lookout Road to Frank Sound Road)

As shown in **Figure 38**, along the south side of Bodden Town Road adjacent to Alternative B4, there are two beach access points for people to access public beach areas (blue markers) and nine shoreline access points for people to access the shoreline (red markers). There is currently one restaurant, Southcoast Bar and Grill, located on the south side of Bodden Town Road. Alternative B4 would place a physical barrier between the residents on the north side of Bodden Town Road to these beach access points, shoreline access points, and other amenities such as the restaurant on the south side of Bodden Town Road.
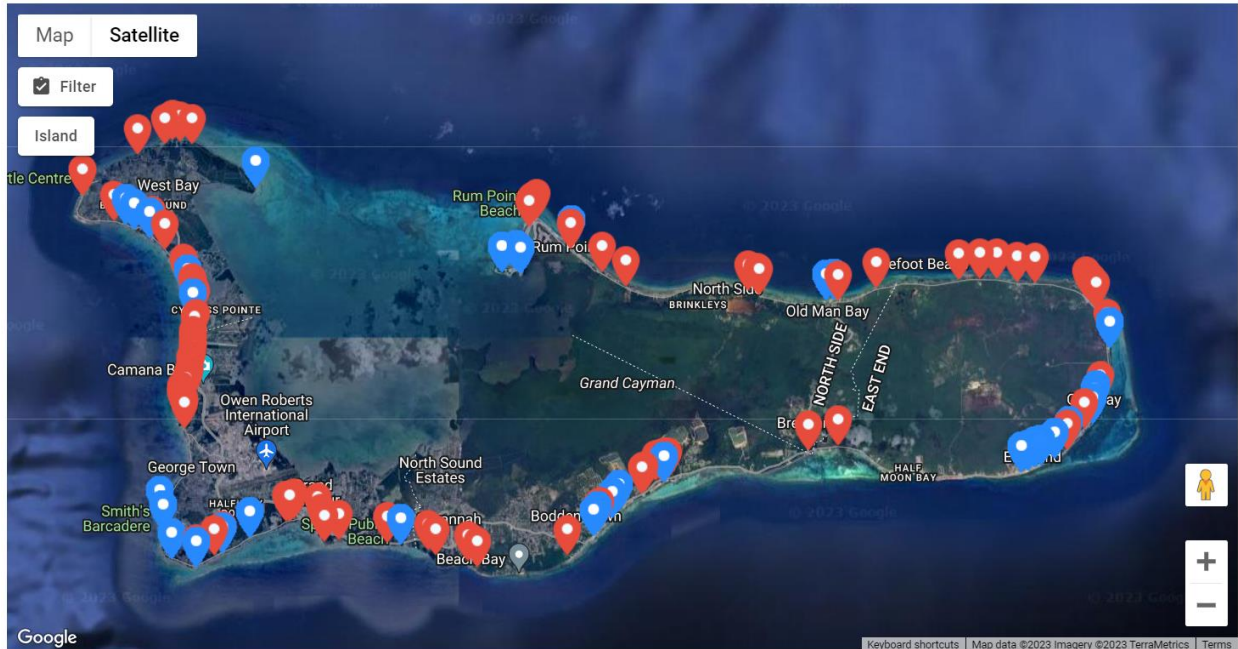
Figure 38: Public Beaches (Blue) and Shoreline Access Points (Red) on Grand Cayman
Source: Public Lands Commission, accessed 10/27/2023. (https://www.gov.ky/plc/)

Along the north side of Bodden Town Road, there are a number of restaurants, community facilities, and civic facilities. There are two restaurants, Czech Inn Grill and Everglo Bar and Restaurant; two parks and community facilities, Haig Bodden Playing Fields and the Bodden Town Civic Centre; government facilities, the Department of Vehicle and Driver's Licensing and the Bodden Town Police Station; two health facilities, the Bodden Town Health Clinic and the Jessi Ritch Memorial Health Centre; and one National Trust site, Meagre Bay Pond.

The population that could be affected by Alternative B4 is greater than 1,000 people. In the example of Bodden Town Pharmacy, more people could access the pharmacy within a 30-minute non-vehicular commute in 2074 when compared with the No-Build, indicating a benefit. In the example of Clifton Hunter High School, the same number of people could access the high school as in the No-Build, indicating no change (**Figure 30**).

Alternative B4 contains a physical barrier within the median that could cause access issues between existing amenities and community facilities on the north and south sides of the road, but it also includes a sidewalk and two bike lanes, which facilitate better pedestrian and cyclist movement when compared with the No-Build. Alternative B4 would also increase traffic in both directions by adding additional travel lanes, making crossing from one side to the other more difficult. As a result of the aforementioned conditions, which include significant increases in severance with a few features that could reduce severance, the severance impact of Alternative B4 would be "**Moderate Adverse**."

Summary

As summarized in **Table 42**, Alternatives B1, B2, and B3 are anticipated to have a "Moderate Beneficial" impact on severance due to the ability to accommodate non-vehicular travel and a lack of physical barriers, affecting over 1,000 households, and relatively few pedestrian destinations. Alternative B4 is anticipated to have a "Moderate Adverse" impact on severance, due to a combination of adverse impacts (extra vehicle travel lanes, higher traffic volumes, and a physical barrier) and a few beneficial impacts (such as sidewalks and bike lanes) affecting over 1,000 households.

Table 42: Severance Impacts Summary

	No-Build	B1	B2	B3	B4
Households	0	1,161	1,180	1,069	1,880
Households With Children	0	393	408	373	590
Households Without Automobile	0	168	161	142	313
Severance Analysis Score	Neutral	Moderate Beneficial	Moderate Beneficial	Moderate Beneficial	Moderate Adverse

4.3   Journey Quality

Journey quality associated with transportation improvements is a measure of the real and perceived physical and social environment experienced while travelling. Poor journey quality may dissuade individuals from utilizing a roadway facility. A qualitative assessment of factors influencing journey quality was completed as part of this social impact evaluation for the EWA Extension. The assessment has been prepared following the approach identified in WebTAG unit A4-1, which recommends a qualitative appraisal of the following three groups of quality impacts and their sub-factors:

- **Traveller care**: aspects such as cleanliness, level of facilities, information, and the general transport environment;
- **Traveller views**: the view and pleasantness of the external surroundings in the duration of the journeys; and
- **Traveller stress**: frustration, fear of accidents, and route uncertainty.

This social impact appraisal utilizes a qualitative approach to evaluating Journey Quality. The approach utilizes population assessment guidelines described in WebTAG unit A4-1. This evaluation was modified to also consider the extent to which each sub-factor will affect potential travellers before making a final assessment. By 2074, over 10,000 people are projected to benefit from the transportation scheme from a Journey Quality perspective, which would give each alternative a "Large Beneficial" rating if the assessment were based solely on population. To differentiate between the Build alternatives, rankings were also assessed based on the approximate extent each sub-factor would benefit travellers (i.e. how much of the alignment is likely to be affected). The guideline in WebTAG unit A4-1 is as follows:

- the assessment is likely to be **neutral**, if the assessment is neutral for all or most of the sub-factors, or improvements on some sub-factors are generally balanced by deterioration on others;
- if the change in impact across the sub-factors is, on balance, for the better, the assessment is likely to be **beneficial**, and, conversely, it is likely to be **adverse** if there is an overall change for the worse;
- the assessment is likely to be **slight** (beneficial or adverse) where the numbers of travellers affected is low (less than 500 a day, say);
- the assessment is likely to be **large** (beneficial or adverse) where the numbers of travellers affected is high (more than 10,000, say);
- the assessment is likely to be **moderate** (beneficial or adverse) in all other cases.

Consistent with WebTAG Unit A4-1, only sub-factors that have not been considered in other subsections of the Social Impact Appraisal are considered under Journey Quality.

4.3.1 Traveller Views

Travel is among the most common ways that people interact with external surroundings. Viewer response to aesthetics and visual resources can impact the overall character and quality of travel. WebTAG unit A4-1 describes impacts to traveller views relative to the surrounding landscape and the presence of impediments to views of the countryside or townscape. Scientific research indicates that humans prefer natural views (Beute & de Kort, 2019). For the purposes of this analysis, the presence of natural views versus views of man-modified and urban areas has been assessed in comparison with the No-Build scenario. Geospatial landcover and habitat data has been evaluated at the desktop level to determine the amount of natural space (not man-modified landcover classifications) each Build alternative would pass through; for more information on landcover and habitat, please see the **Terrestrial Ecology Technical Report**.

The No-Build scenario would provide less than 15% natural views along its length (and more than 85% urban or man-modified views). As discussed earlier in Section 4, the No-Build is the basis for comparison, therefore it is assessed as "**Neutral**."

Alternative B1 would provide 68% natural views along its length, Alternative B2 would provide 54% natural views, and Alternative B3 would provide 63% natural views. Because Alternatives B1, B2, and B3 would provide natural views for over half the length of their journeys, a three-fold increase over the No-Build scenario, these alternatives are assessed as "**Moderate Beneficial**."

Alternative B4 would provide 30% natural views along its length. Because Alternative B4 would provide natural views for significantly less than half the length of its journeys, a two-fold increase over the No-Build scenario, this alternative is assessed as "**Slight Beneficial**."

4.3.2 Traveller Stress

Traveller safety and perceptions of safety can influence the number of people utilizing a transportation facility and impact the level of stress experienced as part of the overall journey. The EWA Extension project is being designed to provide a safe transportation facility. This new facility

would include specific design measures, such as adequate shoulder widths and turning radii, to maintain safety and minimize the possibility of traffic incidences. Traveller stress is assessed with the sub-factors of frustration, fear of potential accidents, and route uncertainty.

Frustration

One way WebTAG defines the Traveller Stress sub-factor of frustration is the "ability to make good progress along a route." To assess this sub-factor, the ability to travel locally within Bodden Town was evaluated. As discussed in the **Traffic Technical Report Section 4.6: Operations**, a specific methodology was used to assess the amount of time a vehicle will be slowed when moving through an intersection, thereby calculating delay at each intersection. This delay per intersection is translated into a letter grade, known as level of service (LOS). LOS ranges from "A" (which indicates minimal delay) to "F" (which indicates failing characteristics such as high delay, systemic breakdowns, long queues, or slow travel). Letter grades A through D typically indicate "acceptable" operations whereas letter grades E and F indicate poor or "failing" operations. Existing and proposed intersections within the EWA EIA study area were assessed for LOS in 2026 and 2074 (**Figure 39**). More information about calculating delay and LOS thresholds is available in the **Traffic Technical Report Section 4.6: Operations**.
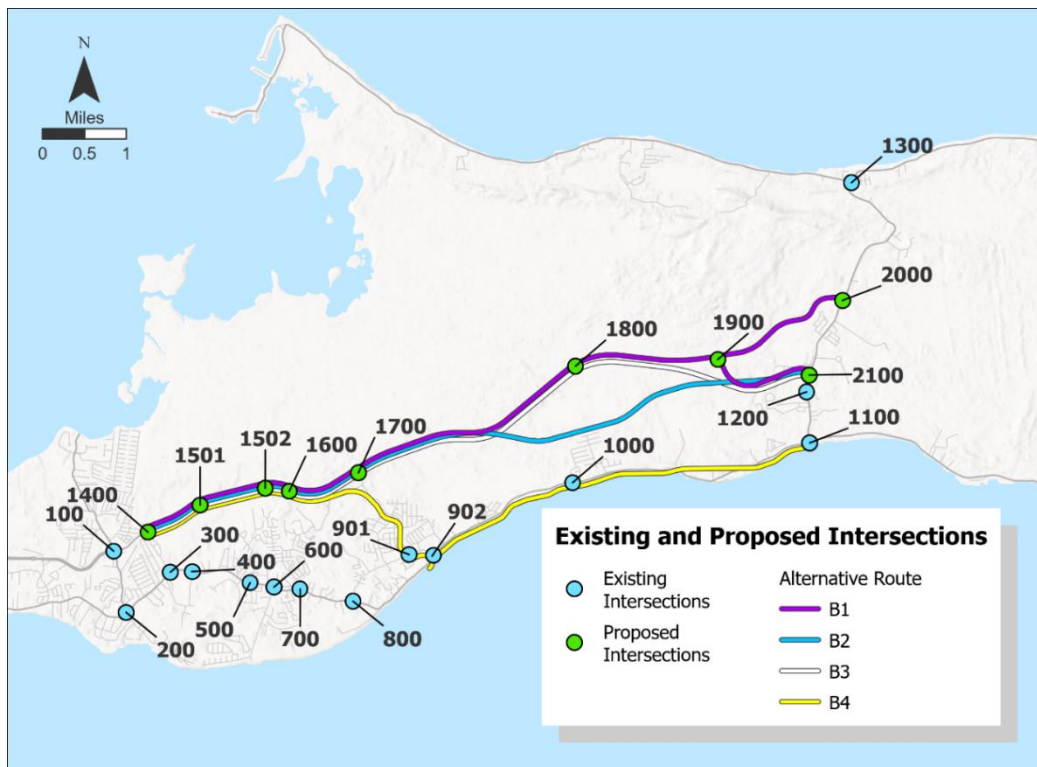

Figure 39: Traffic Analysis Intersections

To assess the ability to travel locally within Bodden Town and the EWA EIA study area, LOS was examined during both AM and PM peak hours to determine the worst-case peak for each study area intersection; a percentage of intersections operating acceptably at LOS D or better was then

calculated for both 2026 and 2074 (**Table 43**). This evaluation considered the conditions of these intersections under the No-Build scenario and the four Build alternatives.

Table 43: Percentage of Intersections Operating at LOS D or Better (2026 and 2074)

% Operating at LOS D or Better	No-Build	B1	B2	B3	B4
2026: Based on worst-case peak hour (AM or PM)	64%	100%	100%	100%	100%
2074: Based on worst-case peak hour (AM or PM)	14%	64%	71%	67%	68%

Source: Grand Cayman Travel Demand Model & Associated Operational Model

In 2026, the No-Build scenario is expected to have approximately 64% of intersections operating at LOS D or better whereas all Build alternatives are expected to have 100% of intersections operating at LOS D or better based on worst-case peak hour.

In 2074, the No-Build scenario will likely only have approximately 14% of intersections operating acceptably; this indicates that several intersections within the study area are expected to have high delay, systemic breakdowns, long queues, and/or slow travel. All Build alternatives are anticipated to have at least 64% of intersections operating acceptably at LOS D or better, with Alternative B2 operating the best at approximately 71% based on the worst-case peak hour. The existing intersections expected to show the most improvement in operations include those at and east of Bodden Town Road at Anton Bodden Road (intersection 902 in **Figure 39**).

The Build alternatives are anticipated to have all intersections operating at LOS D or better in 2026, and more than half of intersections operating at LOS D or better in 2074. Therefore, all Build alternatives are assessed as "**Large Beneficial**."

Fear of potential accidents

To assess the potential impacts to journey quality and traveller safety, considering the possibility of crashes as a sub-factor, a qualitative evaluation has been performed by measuring the number of potential conflict points associated with each alternative relative to the existing (No-Build) condition. Conflict points occur when two objects (e.g., vehicle/vehicle, pedestrian/pedestrian, vehicle/pedestrian, etc.) try to occupy the same space at the same time. More access points (e.g., cross-street intersections and driveways) along a roadway create more conflict points as vehicles enter and exit the roadway. People travelling along a corridor create opportunities for crashes at these conflict points, so roadways with higher traffic volumes result in more potential for conflicts. For this assessment, conflict points included both cross-street intersections and driveway access points. For this assessment it was assumed that all existing cross-streets and driveways access points would be maintained.

The No-Build scenario was the baseline for the number of cross-street intersections and driveway access points along the existing east-west corridor made up of Shamrock Road and Bodden Town Road. Therefore, changes to traveller safety are projected to be "**Neutral**."

Utilizing Alternatives B1, B2, and B3 as the primary east-west corridor would reduce the number of cross-street intersections and driveway access points by at least 75% as compared to the No-Build scenario. This is a result of bypassing the developed areas along Hirst Road, Shamrock Road, and Bodden Town Road and passing primarily through undeveloped areas. As a result, Alternatives B1, B2, and B3 are projected to have a "**Large Beneficial**" impact.

Utilizing Alternative B4 as the primary east-west corridor would reduce the number of cross-street intersections and driveway access points by approximately 50% as compared to the No-Build scenario. This is a result of bypassing the developed areas along Hirst and Shamrock Roads, while still passing through developed areas along Lookout Road and Bodden Town Road. As a result, Alternative B4 is projected to have a "**Moderate Beneficial**" impact.

Route uncertainty

This sub-factor considers elements like road signs and network maps. The level of design is not complete enough to consider these elements at this time, therefore this sub-factor is not being considered for the Shortlist Evaluation. Provisions for these elements may be considered for the Preferred Evaluation as applicable.

Overall, Traveller Stress impacts are evaluated as "**Large Beneficial**" for Alternatives B1, B2, and B3, and "**Moderate Beneficial**" for Alternative B4.

4.3.3   Summary

Journey quality impacts of the Build alternatives have been qualitatively assessed in comparison to the No-Build scenario. **Table 44** summarizes the consideration of each journey quality factor.

Table 44: Assessment of Journey Quality Factors

	No-Build	B1	B2	B3	B4
Traveller Views	Neutral	Moderate Beneficial	Moderate Beneficial	Moderate Beneficial	Slight Beneficial
Traveler Stress	Neutral	Large Beneficial	Large Beneficial	Large Beneficial	Moderate Beneficial
Journey Quality Analysis Score	**Neutral**	**Large Beneficial**	**Large Beneficial**	**Large Beneficial**	**Moderate Beneficial**

4.4   Option Values

Option values are defined by WebTAG unit A4-1 as the "willingness-to-pay to preserve the option of using a transport service for trips not yet anticipated or currently undertaken by other modes, over and above the projected value of any such future use." Option values are assessed when there is a change in the availability of a transportation facility or service in the study area, such as the introduction of a new roadway facility or local bus service; values are assessed as beneficial when a service is introduced and conversely as adverse when a service is removed. Consistent with WebTAG unit A4-1, the appraisal of impact on option and non-user values is focused primarily on the availability of public transport facilities or services to users and non-users within a study

area or along a given route. The availability of these transport services offers users and non-users a variety of transportation options when reaching different parts of the island, including community facilities (**Section 3.6.5**) and recreation opportunities (e.g., tourists who dock in George Town receiving the option to reach sight-seeing opportunities on the east side of the island **Section 3.5.1.2: Tourism**).

The EWA Extension project would not include implementation of new public transport services; however, each of the Build Alternatives (B1, B2, B3, and B4) includes the preservation or anticipated provision for transit lanes (dedicated bus lanes or bus pull-offs) and bicycle lanes to accommodate future public transport and beneficial option values.

To assess the anticipated option value benefits associated with the Build alternatives for the EWA Extension, an evaluation of bicycle journeys and Level of Traffic Stress (LTS), was conducted in comparison to the No-Build scenario. LTS is a performance measure that ranks a roadway facility's suitability for bicycle, pedestrian, and other micromobility access. Facilities are ranked on a scale of 1 to 4, with 1 being the most suitable for a variety of bicyclists or micromobility users, ages, and abilities and 4 being the least suitable (**Table 45**). LTS offers information on modes of transport other than vehicular that would become a user and non-user option under the various Build Scenarios. For a more in-depth discussion of LTS and non-vehicular access, please see the **Traffic Technical Report Section 4.8.1: Bicycle Level of Traffic Stress** and the **Traffic Technical Report Section 4.8.2: Non-Vehicular Access**.

Table 45: Bicycle Levels of Traffic Stress Definitions

LTS 1	Suitable for children – there is physical separation from traffic or mixing with traffic on low speed, low volume roadways
LTS 2	Suitable for the average adult – there is physical separation from high speed and multilane traffic or mixing with traffic on low, but higher than LTS 1, speed and volume roadways
LTS 3	Suitable for "enthusiastic and confident" riders – there is mixing with traffic on moderate speed, multilane traffic or mixing with high speed traffic with some separation
LTS 4	Suitable only for "strong and fearless" riders – there is mixing with high speed traffic with little separation

Source: Furth & Putta (2016), "Visualizing and Measuring Low-Stress Bicycle Network Connectivity in Delaware"

If an alternative contained provisions for additional public transport, such as bus lanes or pull-offs, and it demonstrated an LTS improvement compared with the No-Build scenario, it was considered to provide a beneficial option value for potential users. The assessed number of households in relevant districts (East End, North Side, and Bodden Town) for which the transportation intervention could potentially change the availability of transport services, including walking, biking, and other, helped inform the magnitude of impact of the option value. The option values are connected with the appraisal of Accessibility (**Section 4.1**) and with Severance impacts (**Section 4.2**), because these evaluations focus on the convenience of the facility and number of people potentially affected by each alternative.

The following qualitative assessment criteria was used to help inform the magnitude of these impacts, consistent with WebTAG unit A4-1 for social impact appraisals:

- Large impact (beneficial or adverse): ≥1,000 households
- Moderate impact (beneficial or adverse): 250-999 households
- Slight impact (beneficial or adverse): 1-249 households
- Neutral impact (beneficial or adverse): 0 household

Under 2021 base year conditions, Hirst Road, Shamrock Road, Bodden Town Road, and Frank Sound Road have LTS classifications of 3 or 4, resulting from lack of bicycle facilities, high vehicle speeds, and high vehicle volumes (**Figure 40**). As a result, vulnerable populations (see **Section 3.3.4**) utilizing these existing facilities, particularly those walking (see **Table 24**) or biking, do not have the benefit of existing safe low LTS transportation options.
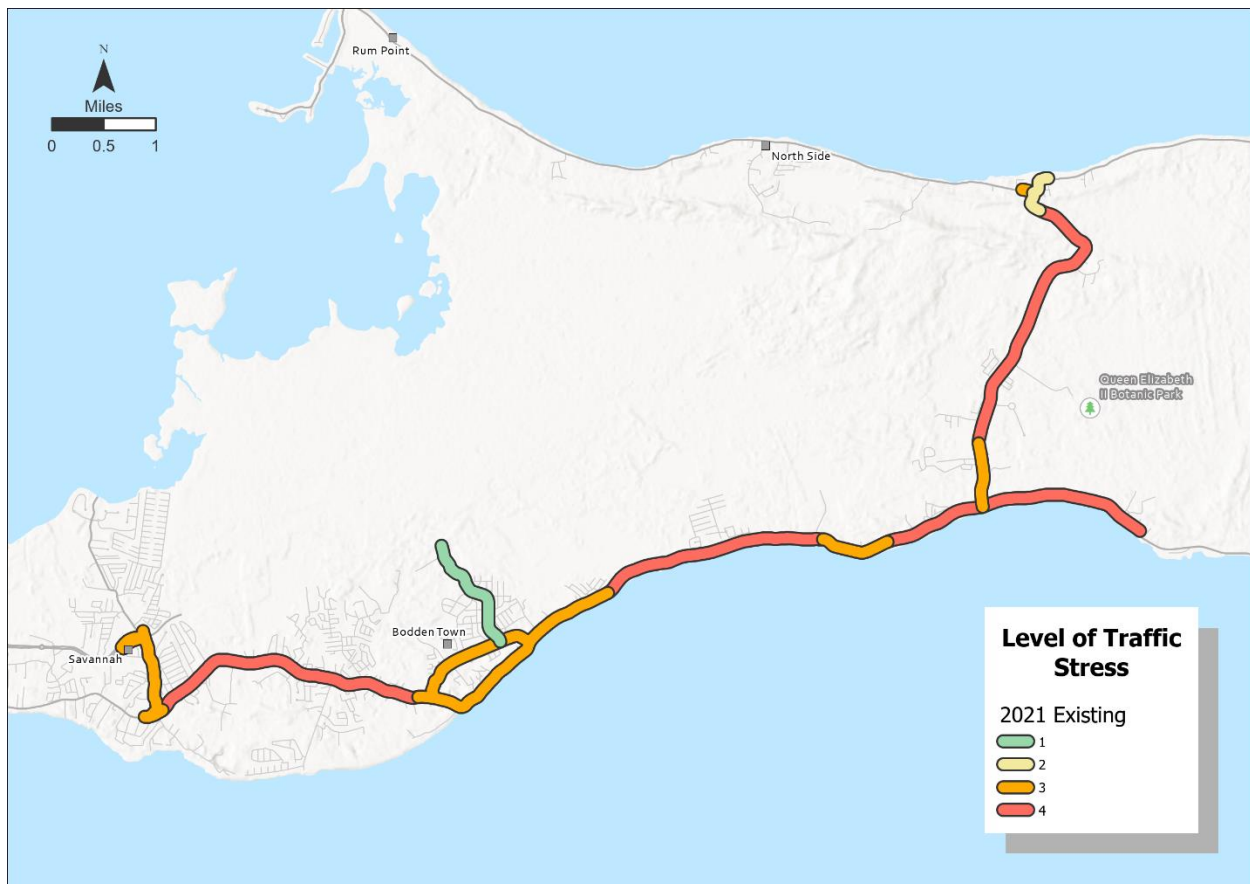

Figure 40: 2021 Base Year Bicycle Level of Traffic Stress (LTS)

Option and non-use value impacts were determined based on the assessed number of households in relevant districts (East End, North Side, and Bodden Town) for which the transportation intervention could potentially change the availability of transport services, including walking, biking, and other micromobility users. **Table 46** provides a summary of the number of households that were projected to have access to transport services based on the provisions of each of the Build Alternatives.

No-Build

The No-Build scenario would not result in the provision of new public transport services. This scenario also does not improve LTS. Because it is the basis for comparison for the Build alternatives, this scenario is assessed as "**Neutral**"; however, under the No-Build scenario, bicyclists, pedestrians, and other micromobility users would continue to be subjected to poor LTS options, as illustrated in **Figure 41**.
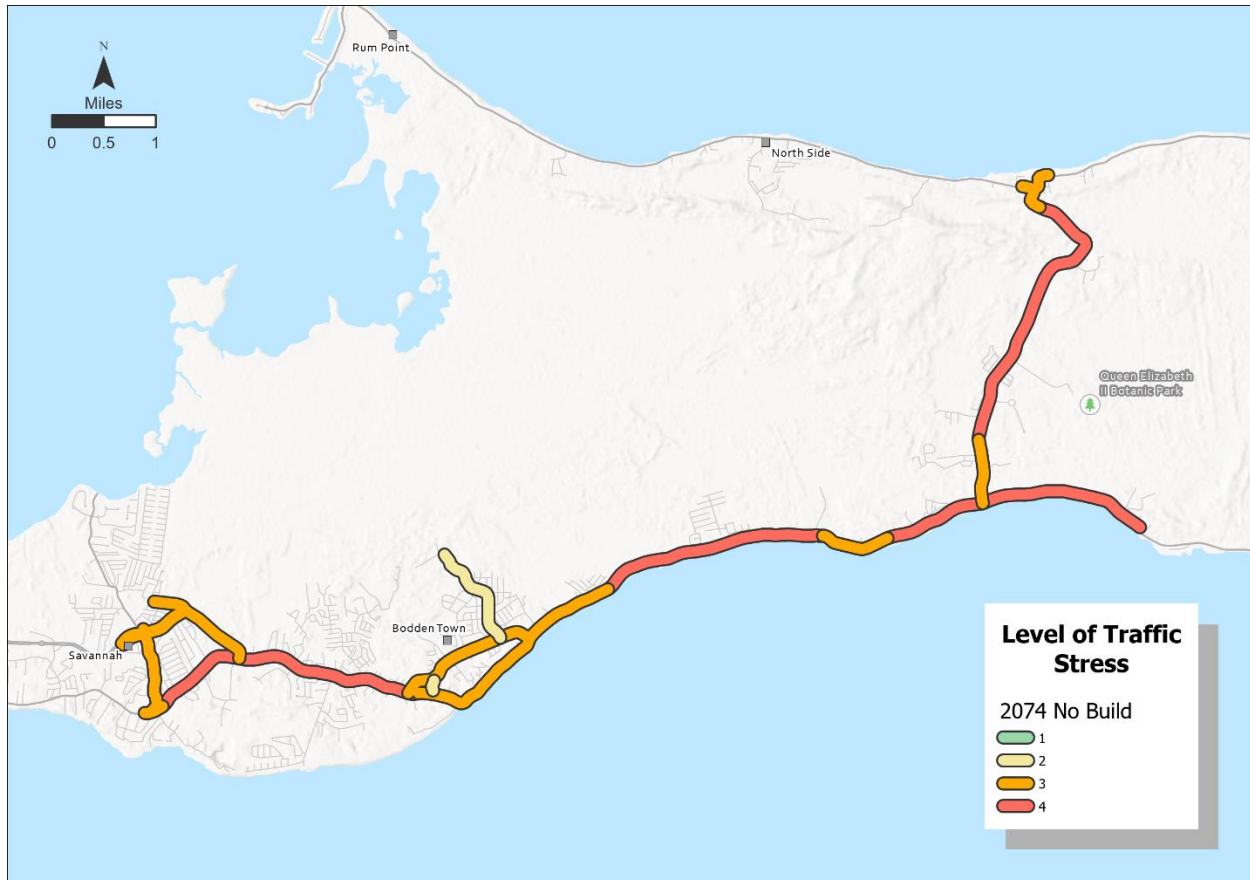

Figure 41: Level of Traffic Stress (LTS) for the No-Build Scenario

Alternatives B1, B2, and B3

Alternatives B1, B2, and B3 could accommodate a 12-foot bus lane in both directions. The inclusion of this provision could potentially facilitate the provision of new transit services along the corridor, which would add new service directly to Bodden Town and North Side. These alternatives could also accommodate separate multi-use and micromobility paths, facilitating bicycle journeys and foot traffic, by 2074. All three alternatives would have an LTS rating of 1 with the installation of separated micromobility paths, which is an improvement over the No-Build (**Figure 42**). Based on the current number of households in these districts (**Table 14**), Alternatives B1, B2, and B3 are projected to have a "**Large Beneficial**" impact on the potential option value for future public transport provisions.
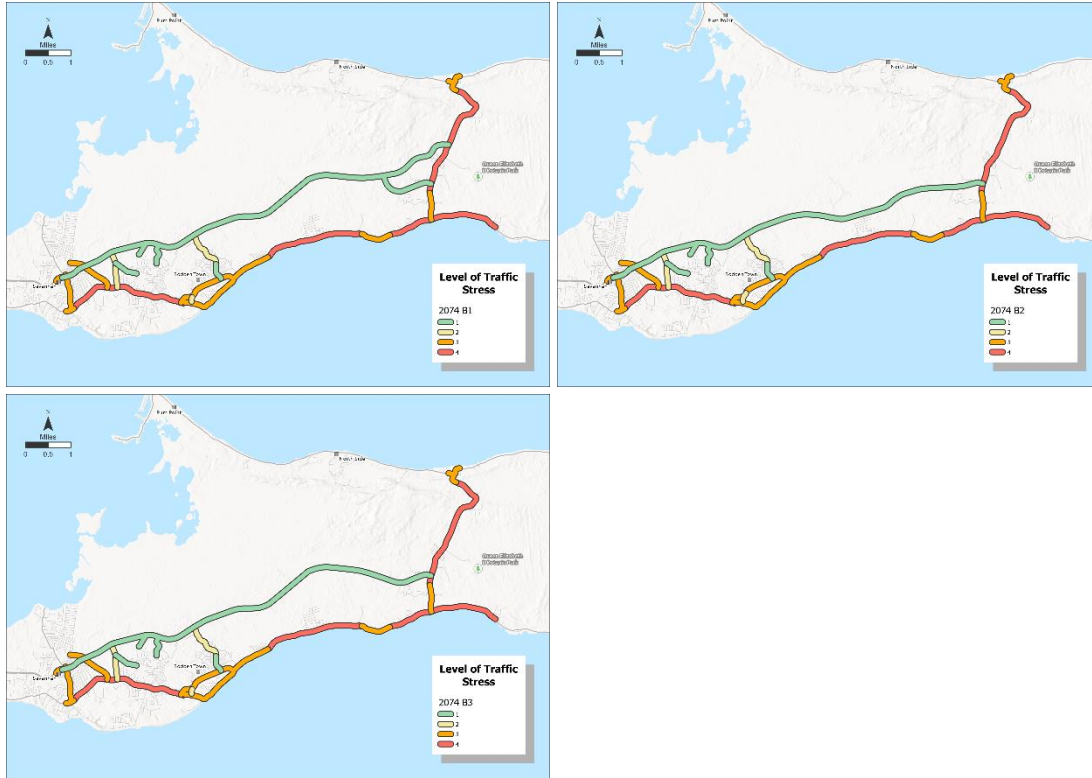
Figure 42: Level of Traffic Stress (LTS) for B1, B2, and B3 with Multi-Modal Path

Alternative B4

Alternative B4 could accommodate bus pull-offs at select locations. The inclusion of this provision could potentially facilitate the provision of enhanced transit services along the corridor. However, Alternative B4 provides a less robust public transport option when compared with Alternatives B1, B2, and B3, which could accommodate independent bus lanes and increased redundancy provided by having two east-west roads. Additionally, Alternative B4 would improve LTS over the No-Build for Section 2 of the proposed alternative, which demonstrates an LTS of 1 (**Figure 43**). Based on the current number of households in the Bodden Town District (**Table 14**) and limited potential for public transport enhancements, Alternative B4 is projected to have a "**Slight Beneficial**" impact on the potential option value for future public transport provisions.
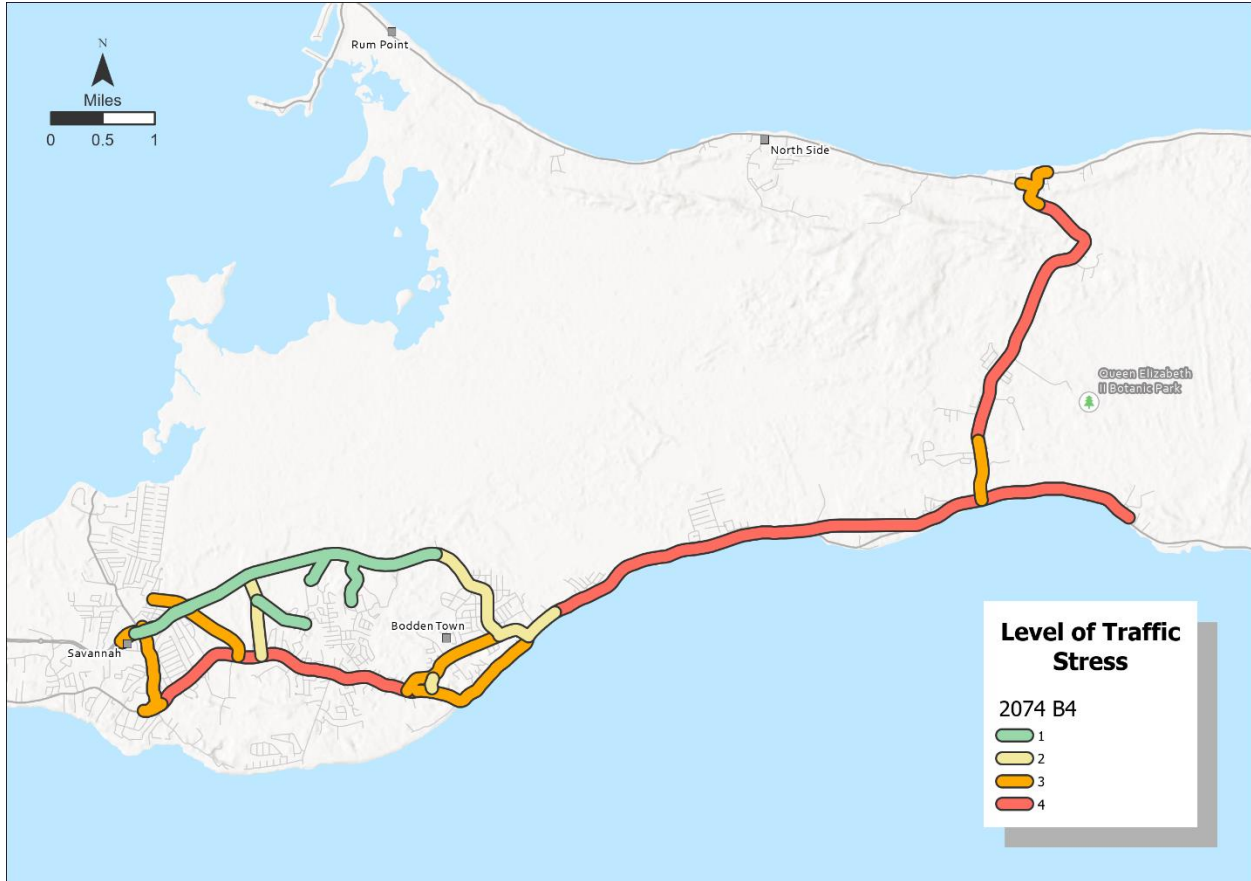
Figure 43: Level of Traffic Stress (LTS) for B4

Summary

Alternatives B1, B2, and B3 demonstrated a "**Large Beneficial**" impact on option values, due to the alternatives being able to accommodate new public transit lanes, micromobility movement, and lower LTS. These alternatives would have the potential to affect over 1,000 households. Alternative B4 also has the potential to affect over 1,000 households, but it would accommodate more limited options in terms of public and non-vehicular transport, such as bus pull-offs (instead of dedicated lanes) and micromobility and LTS improvements on only one portion of its length. Therefore, Alternative B4 demonstrated a "**Slight Beneficial**" impact on option values **Table 46**.

Table 46: Option Values Summary Table and Qualitative Score

	No-Build	B1	B2	B3	B4
Households with Automobile	--	5,253	5,253	5,253	4,670
Households Without Automobile	--	951	951	951	808
Total Households	--	6,204	6,204	6,204	5,478
Option Value Analysis Score	Neutral	**Large Beneficial**	**Large Beneficial**	**Large Beneficial**	**Slight Beneficial**

5   Shortlist Evaluation Summary

The No-Build scenario and each of the Build Alternatives (B1, B2, B3 and B4) were assessed according to WebTAG unit A4-1, Social Impact Appraisal, and WebTAG unit A4-2, Distributional Impact Appraisal, in the categories of accessibility, severance, journey quality, and option values. **Table 47** summarizes the outputs of each evaluation for the Overall Qualitative Rating.

Table 47: Socio-economic Shortlist Evaluation Summary Table

	No-Build	B1	B2	B3	B4
Accessibility	Neutral	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial
Severance	Neutral	Moderate Beneficial	Moderate Beneficial	Moderate Beneficial	Moderate Adverse
Journey Quality	Neutral	Large Beneficial	Large Beneficial	Large Beneficial	Moderate Beneficial
Option Values	Neutral	Large Beneficial	Large Beneficial	Large Beneficial	Slight Beneficial
Overall Qualitative Rating	**Neutral**	**Large Beneficial**	**Large Beneficial**	**Large Beneficial**	**Slight Beneficial**

The following summarizes the results of the analysis for the identified socio-economic categories:

- *No-Build* – The No-Build scenario is anticipated to have a "Neutral" impact in the categories of accessibility, severance, journey quality, and option values, due to it being assessed as the baseline for comparison for the Build alternatives. This results in an overall **Neutral** qualitative rating.

- *Alternatives B2 and B3* – Alternatives B2, and B3 would offer significant benefits from a socio-economic standpoint, since both received a "Large Beneficial" rating in three of four categories, resulting in an overall **Large Beneficial** qualitative rating. Though Alternative B1 also received a "Large Beneficial" rating in three of four categories, Alternatives B2 and B3 both received a 22% score under accessibility, versus a 21% score for Alternative B1. At this level of evaluation there is no significant difference in the level of benefit between Alternatives B2, and B3.

- *Alternative B1* – Alternative B1 would offer significant benefits from a socio-economic standpoint since it received a "Large Beneficial" rating in three of four categories, resulting in an overall **Large Beneficial** qualitative rating. For the reasons stated in the above paragraph, it is slightly less suitable than Alternatives B2 and B3; however, at this level of evaluation there is no significant difference in the level of benefit between Alternative B1 and Alternatives B2 and B3.

- *Alternative B4* – Alternative B4 would offer the least benefit from a socio-economic standpoint since it received ratings of "Moderate Adverse," "Slight Beneficial," "Moderate Beneficial," and "Large Beneficial," resulting in an overall **Slight Beneficial** qualitative rating. It would offer improvements in the categories of accessibility, journey quality, and option values, however in these categories it would offer a smaller improvement when compared with the other Build alternatives. This alternative would provide an adverse impact to community severance. Alternative B4 also does not offer a second east-west route in the event of a road closure along Bodden Town Road.

This Socio-economic Assessment is one in a series of Technical Reports that have been prepared for the Shortlist Evaluation. The level of impacts and the identification of the least impactful or most beneficial alternative will differ based on the resource/feature evaluated in each of the Technical Reports. Therefore, the most beneficial alternative described in this evaluation summary and in each technical document **does not** move an alternative forward to the Preferred Evaluation nor does it constitute any special weighting or extra consideration in the Shortlist Evaluation Document. The comprehensive analysis of all the resources/features evaluated along with the rationale for the identification of the Preferred Alternative are presented in the Shortlist Evaluation Document.

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