



2019 **Transport** Green Paper



GOVERNMENT OF BERMUDA

Ministry of Tourism and Transport



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The Transport Green Paper is an Initiative from the 2017 SPEECH FROM THE THRONE

The following is an excerpt... (from page 17)

...“Technology is modernising transportation globally, and Bermuda must examine those trends when taking into account the future of public, private and public-service transportation. Bermuda is also modernising and is now home to three-wheeled vehicles, two-person rental cars, limousines and water taxis.

*The Government will conduct a thorough review of transportation and will produce a **Green Paper on the future of transport in Bermuda** that will provide various options for modernisation, which also takes into account the needs of the differently-abled. Residents who rely solely on public buses to get to and from work are severely impacted when a lack of available buses detrimentally affects the service, which in turn causes them to be late. The former Government left 14 mechanic positions vacant, which caused the lack of sufficient buses to meet demand. In order to increase reliability of published routes, to instil confidence in the service, and to reduce overtime paid to repair ageing buses, the Government will invest in new buses and will immediately fill six vacant maintenance positions.”*



J.L. CECIL SMITH

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20.8

2019 Transport Green Paper

This document can be found on the Government of Bermuda website:
www.gov.bm/transportgreenpaper

Disclaimer:

This is a consultation and discussion document only and represents the collective views of the respondents to the open consultative period November 2017 to December 2018. The issues, stakeholder comments and thoughts that are documented herein do not reflect those of the Government of Bermuda, but rather those of the people of Bermuda and visitors who have spoken frankly about transport in Bermuda, either on the record or in confidence. At the end of each of the 12 Sections, you will find Government's Perspective today regarding the future of transportation in Bermuda.

Any enquiries or comments regarding this publication should be sent to:
transportgreenpaper@gov.bm between 17th of May and 17th of June 2019



2019 Transport Green Paper
Throne Speech Initiative
Transport Planning Team

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Foreword

By The Hon. Zane DeSilva, JP MP
Minister of Tourism and Transport

17th of May 2019

Dear Reader,

A comprehensive review of transportation in Bermuda was last undertaken in 2002 when technology was transforming the industry. Now seventeen years later, electric and hybrid vehicles are the norm, smart phone apps incorporate GPS tracking, and secure self-driving cars are very much on the horizon. On-island transport continues to modernise with options expanding to include minicars and minibuses, and vehicles 'pre-loaded' with customer enhancements such as Bluetooth, Wi-Fi hotspot capability and home-theatre quality sound. In fact, all cars have at least one computer system, something that was scarcely imaginable just 50 years ago.

The Bermuda Government's decision to conduct a thorough review of transportation was timely and, per the Throne Speech, this Green Paper on the future of transport in Bermuda provides "...various options for modernisation, which also takes into account the needs of the differently-abled."

In the process of seeking information and opinions on Bermuda's transport future, 2,402 people responded to this Ministry's Transport Survey – a record number! We thank the Ministry of Education which surveyed 2,705 middle and senior school students, and the Bermuda Tourism Authority which surveyed 16,305 visitors. The Ministry met with and interviewed an additional 137 key managers representing 76 organisations.

This Green Paper was exhaustive in its outreach and the results contained here show that. The Bermuda community took the time to bring all of its transport ideas and issues to our attention, and we are doing more than just taking note. Already, we have implemented roadside sobriety checkpoints, purchased new buses and are moving on with Phase 2 of Operation Caution to increase road safety.

This Government recognises that addressing the needs of the differently-abled requires particular care and attention, and we are committed to seeking viable solutions.

As it happens, the new fifty-bus bus schedule, which you will read about in these pages, was implemented and subsequently withdrawn. This initiative was intended to provide a reduced public bus service that could be reliably met, while efforts continue to replenish the aging bus fleet. However, the frequency and capacity of the new schedule was insufficient to meet the demands of our commuters, visitors and students. A version of the previous schedule is currently reinstated. The Government remains dedicated to replenishing the bus fleet, as that will ultimately improve the service for all.

The overall themes of safe, reliable, accessible and frictionless transport experiences which emerge from this Green Paper are reasonable expectations for residents and visitors alike. The Government of Bermuda will actively pursue these, implementing the latest technology wherever and whenever possible. Bermuda's modern transport future begins now.

Executive Summary



This Green Paper, *The Future of Transport in Bermuda*, highlights the challenges faced by residents, visitors, students, businesses, the working population and persons who are differently-abled as they travel around the island. It provides context for the issues raised and lays out the public's thoughts and comments regarding possible solutions. At the end of each chapter, the Paper provides the Government of Bermuda's perspective and position for consideration.

It is clear that Bermuda is more than ready to embrace the technologies that have modernised transportation and traffic management globally.

The research and consultation revealed **public bus transportation** is used primarily by students and visitors, as well as for daily commuting by the working population. The main issue with buses is their reliability. The Government has recently revised the bus schedule to one that depends on fewer buses at peak times and increases consistency, while investment to build up the fleet continues. At the same time, the Government is investigating the efficacy of moving to electric buses. During this time, the intention is to gather ridership information so as to assist with analysis of existing and future bus routes and the vehicles used on those routes.

The **ferry service** provided by the Department of Marine and Ports Services is used primarily by visitors to the island but its schedule does accommodate peak commuting times for residents. The main challenge is the flexibility of the ferry fleet to incorporate a schedule that is more extensive in terms of frequency and stops. The Government acknowledges that the current high speed ferries are expensive to run and, therefore, will switch to a fast ferry instead, as the fleet is replaced. This will enable the Department to be more flexible.

The ability to reduce the expense of public transportation is key to developing the services further. When asked, most respondents pointed to the need for more frequency, extended hours and additional stops to encourage use of public transportation.

With respect to both buses and ferries, an issue for residents and visitors is the existing antiquated form of **transport fare media** used in Bermuda – paper tickets, passes and tokens. The travelling public is ready for a vastly different approach to ticketing. Government is committed to moving to a transport fare solution that is cashless, allows for online payment and is available as a smart phone app. The app would be GPS-enabled to facilitate real-time tracking of buses and ferries.

In terms of **student transportation** the Green Paper identifies the key issues as safety and reliability. A significant percentage of Bermuda's middle school and senior school students use the bus regularly and would benefit from having a dedicated school bus service. The Government recognizes that additional investment in the bus fleet is needed for this to happen. However, dedicated school buses could be used to transport visitors between school shifts.

For the differently-abled, **accessible transport** that is reliable, affordable and, quite simply, available is continually challenging. Bermuda requires a better solution for our ageing and mobility challenged residents. The Government will work with private sector partners to increase the transport options, rather than building a new bus fleet for this purpose. Government recognizes, though, that more data is needed to inform decisions. For visitors, the Government is already moving to have more wheelchair-accessible minibuses approved for the upcoming summer season.

Residents' opinions on **private transportation** were conflicted on a main issue of vehicle size. The Green Paper shows a strong percentage feel there are too many large cars on the island and an equally strong percentage believe the current car sizes are acceptable. While there is enthusiasm for minicars, it does not extend to the idea of a minicar replacing the family car. Government is not considering a relaxation of the current 'one car per assessment number' rule.

With respect to **Public Service Vehicles**, such as minibuses, taxis and community service vehicles, the key issue for all respondents was taxi availability. All taxis are not on the road 16 hours per day, and there continues to be difficulty getting taxis in particular areas and at certain times of the day. It is notable that 67.40 percent of survey respondents favoured the introduction of a prepayment app service like the ride-hailing service, Uber. This reflects a distinct frustration with the taxi service available in Bermuda today.

The Government acknowledges that, in terms of modernization, our **taxi industry** lags far behind other countries. To start, the Government is working with taxi despatchers to ensure taxis are on the road for the legally required number of hours. It will continue to encourage the adoption of customer-friendly practices like credit card processing and a taxi app. In addition, the Government will increase the current caps on the numbers of minibuses and minicars so that additional lift options are available, plus issue an additional 88 permits for 'special permit' taxis.

With respect to **commercial trucks**, the concerns centred on truck size and weight. There are more trucks on the island now, and such heavy vehicles can damage our roads and bridges. As a first step, the Government will be working with our ports to gather data on the weight of trucks that come off the docks.

Certainly, in terms of the **environmental impact** of cars, trucks and motor cycles, there is strong support for a transition from the internal combustion engine to an electric (or other non-fossil fuel) vehicle, if the price is right. The Government recognizes that such a switch may be more challenging for heavy trucks but will lead the way in transitioning the Government fleet of vehicles.

Respondents and stakeholders alike point to our unsatisfactory **road traffic** conditions as a key issue, demonstrated by the alarming trend of collisions, which are generally evidence of poor driving habits. The future of transport in Bermuda ought to be one that is collision-free. Government is committed to continuing with Phase 2 of Operation Caution, which will bring road safety education to our primary students, in addition to revamping '**project ride training programme**' and revamping our existing driving tests. Further, key legislation will be reviewed and penalties revisited.

Unfortunately, poor road traffic conditions undermine the efforts of the health sector to encourage

active transport. Pedestrians do not enjoy sidewalks along all of our public roads and for those on pedal cycles, our bad driving behavior is a disincentive to cycle more. The Government is of the view the active transport spaces, such as the Railway Trail, that can be used more, should be encouraged. A review of safety considerations for the Trail will be undertaken. Also, support for the work of the Friends of the Railway Trail to connect all parts of the former tracks will be ongoing.

In addition to a survey of, and meetings with, residents and key business stakeholder groups, a survey of **visitor transportation** was undertaken by the Bermuda Tourism Authority (BTA). The BTA surveyed air and cruise visitors specifically about transport, and the Ministry met with key cruise line managers. For visitors, public bus transportation and the taxi service are the main areas of concern, specifically in terms of reliability. Government recognizes that cruise ships are larger and carry more passengers and, as such, it is committed to continuing its investment in the bus fleet and to working with the taxi industry on modernizing its approach to customer service and the availability of taxis, generally.

Finally, as part of the Green Paper, the Ministry reviewed the applicability of **intelligent transport systems** to our island. Intelligent transport relies on extensive data collection, its swift communication and transmission, prompt data analysis and the delivery of traveller information in real-time.

While Bermuda may not yet be ready for a '**smart city**' with fully enabled intelligent transport systems, we have some systems in place already. Government is committed, for example, to completing the upgrade of the electronic vehicle registration system and to implementing a transportation fare and real-time information solution that is GPS-enabled.

Ultimately, the aim is to put in place a more connected and comprehensive system of traffic and travel management that operates seamlessly across the responsible ministries. The future of transport in Bermuda is one that embraces new technologies and focuses on customer service.



Introduction

What you should know before reading the 2019 Transport Green Paper

What is a Green Paper?

A Green Paper is a consultative or discussion document that is designed to offer options and to pose questions that need to be answered in order for the Government to formulate policy. It is not a statement of Government policy, but of propositions put before the whole community to stimulate discussion and elicit responses. After appropriate consultation and feedback, the matters at hand may be advanced further to become the topic of a White Paper, which lays out the Government's policy or proposed policy on a topic of current concern, or may lead directly to legislative changes.

What was the direction provided for the Green Paper?

The Transport Green Paper consultation process was designed to stimulate debate on a range of options for strengthening the transportation sector and to better plan for the future. The public were invited to comment and engage in discussion on the future of transportation in Bermuda, with a view to identifying and modernizing transportation efficiencies and policies that are realistic, fiscally prudent, and enhance transportation safety and experiences for all.

Parameters set out to guide the consultation process included:

- a) identify what information we have now to compare data to The National Transportation Management Report published in 2002, with data referenced from 1999;
- b) document the outcomes of the stakeholder consultation period to help shape a 'Modernisation Plan for Transport';
- c) engage social media to play an important role in the general public engagement;
- d) carry out confidential interviews with Public Authorities and key business groups to understand the real issues in transport today, to help the Ministry of Transport identify potential questions for the public survey, to gather public response;
- e) create a transportation vehicle infrastructure sheet with past & present figures for comparison purposes; and
- f) focus on going forward, not backward.

Who participated in the Green Paper consultation?

Between November 2017 and December 2018 (the 'stakeholder consultation period') an overwhelming 21,567 residents, students, managers within Public Authorities and business groups and visitors participated through the Ministry of Tourism & Transport and the Bermuda Tourism Authority outreach.

Participation included:

- I) 2018 Public Transport Survey, see Explanatory Note (i) below for the demographics of the 2,402 respondents, including 533 pages of open comments in March/April 2018 survey.
- II) 2018 Student Transport Survey, 2,705 middle and senior school students in May 2018.
- III) 2017 Air Exit (Visitor) Survey, 15,468 completed the on-line survey.
- IV) 2017 Cruise Passenger Survey, 837 passengers participated in the in-person intercept at cruise ports.
- V) 2017 & 2018 Public Authority and business group interviews (confidential) took place with 137 key managers, representing 76 organisations, and in some instances, key Authorities were re-interviewed to ensure the context and comments and thoughts outlined in this Green Paper were documented accurately.
- VI) By writing to transportgreenpaper@gov.bm and comments by mail addressed to the Transport Green Paper Throne Speech Initiative, Ministry of Transport, 11 North Street, Hamilton HM17. 18 residents commented by e-mail and mail.

Explanatory Note (i):

- Of those who responded to the Transport Survey 65% were female and 35% were male.
- Half (50%) of the respondents were aged between 45 and 64. Other age groups responded as follows: 18-24 (4%), 25-34 (13%), 35-44 (23%), and 65-74 (9%), 75 + (1%).
- More than three-quarters (77%) of respondents work full time. Other groups reported part-time employment (8%), not employed (6%), retired (9%), and disabled (unable to work) (less than 1%).

What is the format of the 2018 Transport Green Paper?

- 1) An **Overview** is given in each section and in some sub-sections where necessary.
Where possible, comparative data between 1999 and 2018 is used to help paint a picture of 'then and now' and illustrate what has changed since the last time the Ministry of Transport undertook a similar research and consultative project. In some instances, 1997, 2000, 2014 and 2016 data is used as the reference point when 1999 or 2018 is not available.
- 2) **Issues** identified during the stakeholder consultation period are distinguished by a green header and 1., 2., 3., depending on the number sub-issues.
- 3) **Context** refers to relevant legislation, policy, statistics or information of interest surrounding the issues identified.
- 4) **Stakeholder Comments & Thoughts** were provided by the public which includes residents, Public Authorities, key business groups, students and visitors during the 'stakeholder consultation period'.

- 5) **Graphs (1-53) and Tables (1-16)** are inserted where applicable. Graphs related to the 2018 Public Transport Survey ('Transport Survey') are in blue and the Student Transport Survey ('Student Survey') graphs are in green. These are used in key areas along with historical data collected for this project which is presented in Tables (see Table List at Appendix I)
- 6) **Government's Perspective** was added prior to publishing the Green Paper. This measure, although uncommon in this format, was taken to help readers understand Government's position today, having reviewed all of the comments and thoughts of the responders.
- 7) **Percentages** related to 2018 Public Transport Survey and 2018 Student Transport Survey are used throughout the document and are rounded up or down.

Acronyms

BLDC	Bermuda Land Development Corporation
BTA	Bermuda Tourism Authority
BPS	Bermuda Police Service
BRSC	Bermuda Road Safety Council
CADA	Encouraging Responsible Alcohol Behaviour
CSV	Community Service Vehicle
DPT	Department of Public Transportation
EV	Electric Vehicle
GOB	Government of Bermuda
GTA	General Transportation Area
M&P	Marine & Ports Department
PSVLB	Public Service Vehicle Licensing Board
TCD	Transport Control Department
WEDCO	West End Development Corporation

What key references are used in the 2018 Transport Green Paper?

- 2018 Public Transport Survey, Ministry of Transport
- 2018 Student Transport Survey, Ministry of Transport
- 2017 Air Exit (Visitor) Survey, Bermuda Tourism Authority
- 2017 Cruise Passenger Survey, Bermuda Tourism Authority
- Population in Bermuda, 2000 Population and Housing Census, Department of Statistics
- Population in Bermuda, 2010 Population and Housing Census, Department of Statistics, estimated wheelchair users, see technical note attached as [Appendix K](#)
- Population in Bermuda, 2016 Population and Housing Census, Department of Statistics
- Population in Bermuda, 2016 Population and Housing Census, under age 19 and seniors eligible for free public transportation

- Bermuda Tourism Authority 2018 Year End Report with Historical Arrival Totals
- Corporation of Hamilton, City of Hamilton statistical information provided for this Green Paper Project in 2018
- City of Hamilton June 2018 Website
- 2018 Department of Statistics, number of residential units
- Motor Car Act 1951
- Transport Control Department, listing of licensed vehicles between 2014 and 2018 by category, see list at (Appendix J)
- 2018 DPT cost for new buses, price subject to fluctuation in exchange rates
- 2018/19 Government of Bermuda, Approved Estimates for Revenue and Expenditure, Budget Book
- 2018 Bermudaaairport.com
- Meyer Freight, cargo maximum weights
- 2002 The National Transportation Management Report, Ministry of Transport
- Transport related legislation, see full list at (Appendix B)
- Number of air visitors: (73,000 fewer air visitors in 2018)

1999	2018
355,000 ¹	282,000 ²

- Number of cruise ship passengers: (289,000 more cruise ship passengers in 2018)

1999	2018
195,000 ³	484,000 ⁴

- Total Number of visitors: (221,000 more visitors in 2018)

1999	2018
550,000 ⁵	771,000 ⁶

1 Bermuda Tourism Authority 2018 Year End Report with Historical Arrival Totals

2 Bermuda Tourism Authority 2018 Year End Report with Historical Arrival Totals

3 Bermuda Tourism Authority 2018 Year End Report with Historical Arrival Totals

4 Bermuda Tourism Authority 2018 Year End Report with Historical Arrival Totals

5 Bermuda Tourism Authority 2018 Year End Report with Historical Arrival Totals

6 Bermuda Tourism Authority 2018 Year End Report with Historical Arrival Totals

- Number of disabled parking permit issues by CoH:

2000	2018
Less than 500 ⁷	1130 ⁸

- Number of disabled parking spaces in Hamilton:

1999	2010
11 ⁹	36 ¹⁰

- Number of 4-wheel vehicle parking spaces in Hamilton:

1999	2018
5,400 ¹¹	3,809 ¹²

- Number of 2-wheel vehicle parking spaces in Hamilton:

1999	2018
2,674 ¹³	2,258 ¹⁴

- Number of residential units in Bermuda:

1999	2018
27,493 ¹⁵	32,400 ¹⁶

7 Corporation of Hamilton, City of Hamilton statistical information provided for this Green Paper Project in 2018

8 Corporation of Hamilton, City of Hamilton statistical information provided for this Green Paper Project in 2018

9 Corporation of Hamilton, City of Hamilton statistical information provided for this Green Paper Project in 2018

10 Corporation of Hamilton, City of Hamilton statistical information provided for this Green Paper Project in 2018

11 2002 The National Transportation Management Report, Ministry of Transport (includes private parking spaces)

12 Corporation of Hamilton, City of Hamilton statistical information provided for this Green Paper Project in 2018 (minus private parking spaces)

13 2002 The National Transportation Management Report, Ministry of Transport

14 Corporation of Hamilton, City of Hamilton statistical information provided for this Green Paper Project in 2018

15 2002 The National Transportation Management Report, Ministry of Transport

16 2018 Department of Statistics, number of residential units

- Table 1, 2, 3

Table 1

2000 and 2016 Population and Housing Census, under age 19 and seniors' eligible for free public transportation

Age	2000 ¹⁷	2016 ¹⁸	Eligible for Free Transport ¹⁹
Under 5	3,989	2,996	2,996
5-19 (school age is 5-18)	11,400	9,676	9,676
20 – 24	3,222	2,965	
25 – 29	4,661	3,468	
30 – 44	17,307	13,781	
45 – 64	12,141	20,192	
65 and over	6,722	10,704	10,704
Total	62,059	63,779	23,376

(approximately 36.7% of Bermuda's population is eligible for free public transportation)

Table 2

Two Wheel and Four Wheel Vehicle Breakdown – TCD licensed vehicles on the road		
	1999 ²⁰	2018 ²¹
2-wheel vehicles	24,927	20,805(c)
4 plus-wheel vehicles	27,505	27,885
Total	52,432	48,690

17 Population in Bermuda, 2000 Population and Housing Census, Department of Statistics

18 Population in Bermuda, 2016 Population and Housing Census, Department of Statistics

19 Population in Bermuda, 2016 Population and Housing Census, under age 19 and seniors eligible for free public transportation

20 2002 The National Transportation Management Report, Ministry of Transport

21 2018 Vehicles on Road by Category, Transport Control Department

Table 3

All Vehicle Breakdown – TCD licensed vehicles on the road by category		
	1999(a)	2018(b)
Cars	22,567	22,592(d)
Limousine	0	12
Airport Limousine	16	4
Auxiliary Cycles	10,831(c)	3,621 (c)
Motor Cycles	14,096 (c)	17,184 (c)
Commercial Truck/Utility Vehicles	4,062	4,400(e)
Military Vehicles	39	43
Public Carriage (Horse & Carriage)	41	8
Omnibus (public bus)	107	77
Community Service	66	42
Locomotive (train)	0	4
Minibus	7	147
Taxi	600	556
Total	52,432	48,690

(3,742 fewer vehicles on Bermuda's Roads in 2018)

Explanatory Note (a): The figures listed in 1999 above derive from the historical records held at Transport Control Department that correlate to the top line numbers listed in the 2002 National Transportation Management Report.

Explanatory Note (b): The 2018 figures were correlated by the Transport Control Department on 31 December 2018 and represent the average number of vehicles licenced during 2018 and were correlated for this research project.

Explanatory Note (c): In 2018, there are 4,122 fewer 2-wheel vehicles on the road mostly due to the down turn in the livery rental market (auxiliary cycles).

Explanatory Note (d): In 2018, cars include 22,131 private, 10 classic, 84 doctors, 237 Government, 40 loaner PC, 69 minicars, 19 instructional, 2 luxury limos. This level of detail was not available in 1999.

Explanatory Note (e): In 2018, there are 338 more commercial type vehicles on the road than there were in 1999.

Section 1 Public Transportation

The 2018 Public Transport Survey and the 2017 Visitor Surveys revealed that the public transportation system is mostly utilized by visitors, seniors and students rather than resident paying passengers.

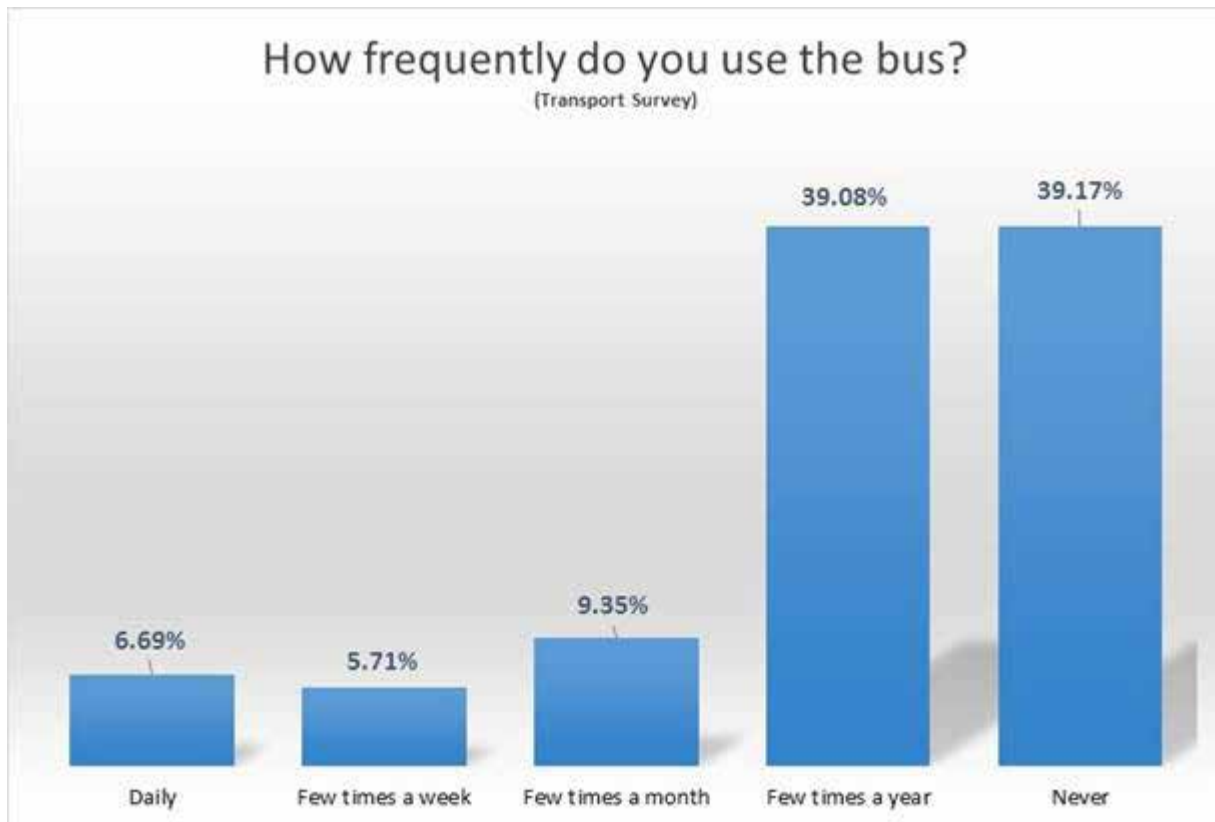
1.1. Public Bus

Overview

Bermuda traditionally had an efficient, punctual and reliable bus service that safely served commuters, students and visitors. More recently, investment in the fleet has not kept pace with demands made on the fleet with the result that the Department of Public Transportation (DPT) is unable to deliver the level of service it is mandated to provide.

In 2018 the Public Transport Survey revealed that 7 % of Bermuda residents use the bus daily, 9% few times a month, 39% a few times a year and 39% said they never do. Parents responding to the Public Transport Survey indicated that 27% of primary students, 43% of middle school students and 42% of senior school students use the bus to get to school. Among tourists surveyed in 2017, 49% of air visitors and 18% of cruise ship passengers used the public bus during their visit. It is notable that there has been a steady decline in bus service satisfaction indicators among visitors from 81% in 2009 to 49% in 2017.

Graph 1



Graph 2



1.1.1. Ageing Bus Fleet and Cancellations

Issues

- 1) Department of Public Transportation (DPT) bus fleet is ageing and does not meet daily schedule expectations.
- 2) Of the 105 public bus vehicles in inventory in 2018, 58 vehicles are greater than ten years old and only 77 were licensed in 2018. Of the 77 public buses licensed, approximately 56 public buses per day operated in the bus schedule because on average 21 buses were out of service most of the time. This led to a high number of bus cancellations.

Context

- A) Roughly 50% of the fleet is out of service on a regular basis. This is due to an assortment of issues ranging from uneven and delayed investment in new buses, maintenance resources (technicians, parts and tooling), repairs and vandalism, and the unavailability of qualified drivers. This leads to daily cancellations of a number of bus routes.
- B) In 1999 the bus fleet consisted of 107 buses and included three smaller buses that were used for remote locations inaccessible by the larger 38-seat buses. These smaller buses are no longer in service.
- C) In 2018 the bus fleet included 105 buses of which only 77 were licensed. The four new buses that arrived in 2018 form part of the licensed public bus fleet. A further eight buses are on order for delivery in 2019. These newest buses cost approximately \$369,000²²each.
- D) Approximately 88 buses are required to meet the current bus schedule at its peak, including the additional buses on school routes.
- E) When the number of buses in service drops below 88, bus runs must be cancelled and/or drivers' rosters modified.
- F) Each bus has the capacity to hold 50 passengers: 38 on seats and 12 standing.
- G) In 1999 the public bus expenditure was \$13.9M²³, and in 2016/17 the expenditure was \$20.1M²⁴. An increase in operational expenditure is attributed to inventory and supply purchases for the maintenance of the ageing bus fleet, as well as employee overtime and the increase in fuel costs and inflation (affecting operating cost and new bus cost/depreciation expense).
- H) In 1999 the public bus revenue was \$5.8M²⁵ and in 2016/17 the revenue was \$7.2M²⁶.
- I) The Motor Car Act 1951 states that an "omnibus" is a motor car, being a motor car (other than an airport limousine or a minibus) which has seating accommodation for not less than 11 passengers, which is lawfully used for the conveyance of passengers for hire or reward.
- J) As the bus fleet ages there is a higher level of maintenance required to keep the buses in service.

Stakeholder Comments & Thoughts

²² 2018 DPT cost for new buses, price subject to fluctuation in exchange rates

²³ 2002 The National Transportation Management Report, Ministry of Transport

²⁴ 2018/19 Government of Bermuda, Approved Estimates for Revenue and Expenditure, Budget Book

²⁵ 2018/19 Government of Bermuda, Approved Estimates for Revenue and Expenditure, Budget Book

²⁶ 2018/19 Government of Bermuda, Approved Estimates for Revenue and Expenditure, Budget Book

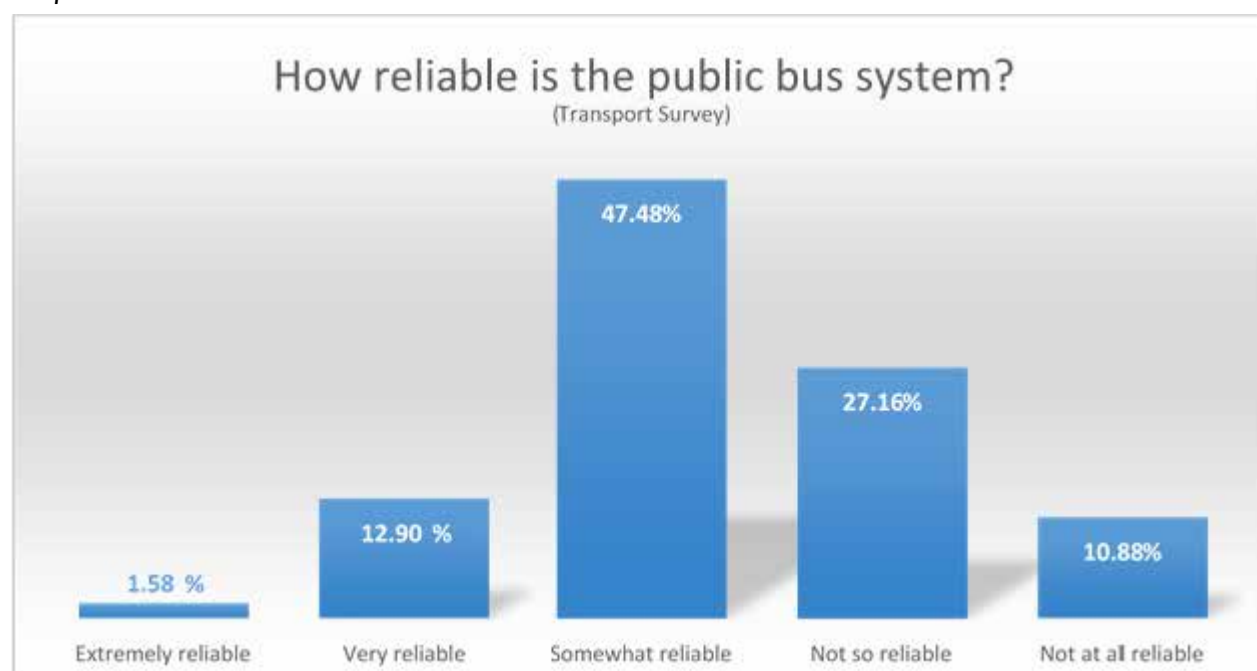
- Replace and modernize the ageing bus fleet with renewable energy, efficient, electric buses offering cleaner, greener and safer experiences, including seatbelts, Wi-Fi and GPS tracking for better service.
- Create a long-term strategy to replace the existing fleet with 120 new energy efficient or electric vehicles over five to ten years that would be smaller, cheaper and cleaner to operate.
- Consider a short-term strategy to convert old diesel buses to electric technology, using electric bus conversion.
- Improve enforcement of the Omnibus (Conduct) Regulations 2012 and enhance customer service training provided to drivers.
- Introduce hybrid/electric vehicle training for current DPT maintenance crew in anticipation of new technologies becoming available.
- Reduce the number of bus routes in the later evening.
- Reduce diesel emissions on public buses.
- Establish a better bus cleaning programme at each bus depot.

1.1.2. Bus Schedule & Reliability

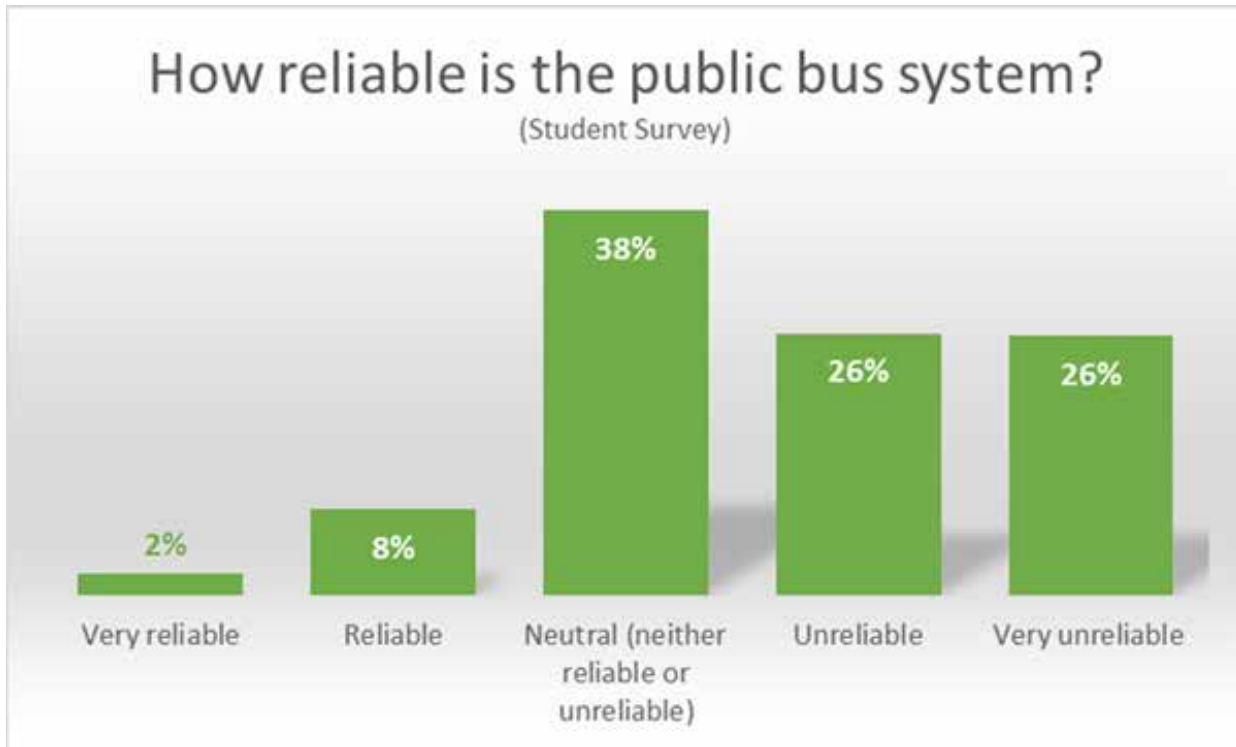
Issue

- 1) The unavailability of buses directly affects the bus schedule, such that the service does not adequately meet commuter, student and visitor demand and is considered unreliable.

Graph 3



Graph 4



Context

- A) Some routes have less passenger demand in non-peak times, leaving some buses with a very light passenger load. Others do not have enough capacity to meet demand at peak times in the day.
- B) The public bus service operates a total of 11 routes. Frequency varies by route and time of day, every 15-minutes during peak times and hourly during off-peak times. Nine routes operate Monday through Sunday and two routes do not offer Sunday service.
- C) There is an unpublished 'grey' bus schedule for school students, however other passengers are allowed to travel on the grey schedule buses.
- D) There are 27 buses scheduled for school service in the morning and 34 buses scheduled in the afternoon. Although these buses service students, they are not defined as school buses.
- E) The Government of Bermuda is utilising a public bus schedule that is largely unchanged since 1999 even though Bermuda received 289,000²⁷ more cruise ship passengers in 2018 and new residential developments have grown up.
- F) Currently, DPT is working on a new winter bus schedule.
- G) There are approximately 23,376²⁸ students and seniors who are eligible for free public transportation.
- H) Students' ridership coincides with that of commuters between 7.30am and 8.30am and between 2.30pm and 5.30pm. From the west end, the ridership coincides with that of both commuters and visitors. These peak times are a challenge due to the limited number of buses available to meet demand.

27 Bermuda Tourism Authority 2018 Year End Report with Historical Arrival Totals

28 Population in Bermuda, 2016 Population and Housing Census, under age 19 and seniors

Stakeholder Comments & Thoughts

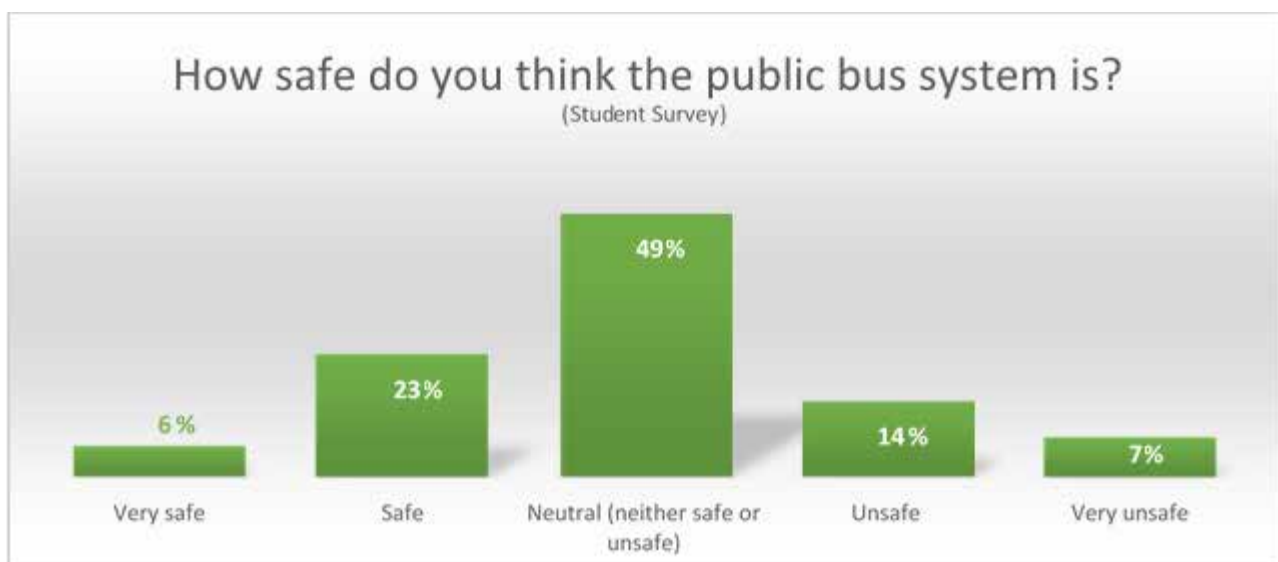
- Negotiate a sustainable and affordable bus schedule to reduce bus cancellations.
- Create a digital trip planning app with the bus schedule to include real-time purchase of bus fare, status of bus and times, cancellations and or next available option.
- Integrate the bus schedule and ferry schedules to offer better connectivity options, meaning, allow ten minutes between a ferry arrival in Hamilton and a bus departure out of the Hamilton Bus Terminal to avoid passengers having to wait too long, or allow ten minutes in between the St. George ferry departure schedule and the next departing bus from St. George, in case the ferry is full.
- Post a printed bus schedule at each bus stop.
- Add more bus service in North Hamilton.
- Investigate the efficacy of using smaller buses.
- Increase revenues and decrease operating costs; two steps which are critical to reducing the burden on tax payers to subsidize the bus service.

1.1.3. Bus Passenger Safety

Issues

- 1) The bus fleet is susceptible to breakdowns due to its age. This leads to concerns regarding the safety of passengers.
- 2) There is also a concern, particularly for children, that DPT buses do not have seatbelts.
- 3) There are concerns regarding buses being driven at high speeds and hitting low hanging trees, curbs and sidewalks.

Graph 5



Context

- A) Seat belts are not mandatory in Bermuda nor are they mandatory on public buses in most other jurisdictions, e.g. London, Miami, New York and Toronto.
- B) Consumer Affairs receives approximately 15 complaints regarding bus operators in the summer season and an average of eight complaints in the winter season. These complaints range from incivility to safety concerns.

Stakeholder Comments & Thoughts

- Ensure all bus drivers are properly trained for emergency situations.
- Provide safety training to address poor driving behaviors of bus operators.
- Require the Departments of Parks and Public Works to initiate a more vigorous programme for cutting roadside trees and bushes.
- Ensure proper and regular maintenance on buses is carried out.

1.1.4. Bus Driver's Safety, Health and Wellbeing

Issue

- 1) Bus operators have safety concerns of their own that range from unreliable buses to passengers who commit wilful damage, carry offensive weapons or who behave in a disorderly or offensive manner. These behaviours can prevent bus operators from performing their duties.

Context

- A) The Omnibus (Conduct) Regulations 2012 were created to provide a framework to guide behavior on a bus, and in that way provide protection to bus operators and bus property. For example, the Regulations address failure or refusal to pay fares, offensive behaviour, offensive weapons, wilful damage, loitering and more. Fines range from \$300 to \$2,500.

Stakeholder Comments & Thoughts

- Purchase new buses.
- Remove from service any bus that is older than 15 years.
- Make permanent arrangements around the island for bathroom breaks for bus operators.
- Provide driver protection training.
- Install Wi-Fi and GPS for tracking bus issues and performance.
- Install cameras on the buses with a live feed to DPT Depot to provide proof of any misconduct.
- Address the antisocial behavior of passengers on buses, especially the youth.

1.1.5. Sightseeing & Charter Bus Services

Issues

- 1) Cruise ship shore excursion providers can no longer use public buses for sightseeing tours (currently suspended). Large tour groups are now broken up into smaller groups using minibuses. This measure has increased the cost of sightseeing tours to the passenger and reduced the annual revenue to DPT.
- 2) Qualified Sightseeing Tour bus drivers are not currently using their skill sets; they took a lot of pride in conducting tours.

Context

- A) DPT made a policy decision in 2016, due to lack of bus inventory, to withdraw between eight and 12 public buses from sightseeing tours, with effect from 1 April 2017. This represents an approximate loss of \$1M annually in sightseeing revenue to DPT.
- B) This measure left shore excursion agents to rely heavily on the minibus inventory from the General Transportation Area (GTA). This policy results in approximately 30 to 60 minibuses being unavailable to operate out of the Dockyard GTA for trips that are not pre-arranged. This number of minibuses will increase as cruise ship passenger numbers increase.
- C) Due to the lack of minibus inventory, on days when there are two ships in port at Dockyard, long queues of passengers are left waiting in the sun for a minibus or a taxi to take them to the beach.

Stakeholder Comments & Thoughts

- Purchase 12 new buses specifically for cruise passenger sightseeing.
- Approve up to 20 more minibus applications for general conveyance.
- Allow cruise lines to import their own sightseeing omnibuses with a minimum of 38 seats and appoint a local agent to manage the cruise passenger sightseeing operation.

1.1.6. East End Public Bus Service

Issue

- 1) There has been inconsistent public bus transport to St. David's, for visitors as well as for residents and workers in the Southside area. Due to bus cancellations, particularly the # 6 bus (access to Clearwater Beach and Coopers Island), visitors have been left stranded at Clearwater Beach.

Context

- A) Inconsistent public transport service into and out of St. David's directly affects those who live and work in St. David's. Several attendees at the BLDC April 2017 public consultation voiced concerns about the lack of public transport in St. David's.
- B) BLDC's mandate to reinvigorate the area is affected by inconsistent bus service. There is little

incentive for visitors or locals without their own transport to visit the area if reliable public transport is not available. Businesses in St. David's appear 'cut off' without transportation. The number of St. David's' residences has increased over the last ten years, but public transportation has not kept pace with the population increase.

- C) Due to bus cancellations, St. George's stakeholders have tried, unsuccessfully, to sustain a minibuss service between King's Square in St. George's and Clearwater Beach between April and October, primarily for cruise ship guests. Generally minibuss owners are more supportive of the Dockyard to Horseshoe Bay beach 'run' as it caters to a greater volume of traffic and is more financially viable.

Stakeholder Comments & Thoughts

- Run a feeder service for this area using smaller public buses.
- Outsource these runs to private minibuss operators using public transportation fares.
- Sponsor a private minibuss service for this area.

1.1.7. Government's Perspective on Public Buses

- 1.1.7.1. The 2018 Public Transport Survey and 2017 Visitor Survey results indicate that the bus service is used mostly by visitors and school students. However, commuters have a fairly strong ridership as well. All three groups require a reliable and punctual bus service.
- 1.1.7.2. Three factors can contribute to a more reliable bus service and a decrease in, if not an elimination of, bus cancellations: first, a change in the public bus schedule to reduce the number of buses needed at peak times and throughout the day; two, restoration of a budget allocation to allow for new bus purchases and, three, a proper annual maintenance budget. The Government continues to act on all three of these factors.
- 1.1.7.3 During the course of 2018/2019, DPT has crafted a new bus schedule that requires 50 buses rather than 88. Also, DPT has taken delivery of four new buses, with an additional eight buses on order and due for delivery in 2019. It should be noted that servicing a reduced public bus schedule will allow DPT the flexibility to respond more easily in situations where additional lift is required (e.g. on days that are busy with cruise ship visits). Having the bus schedule and tracking on a smart phone app will also eliminate the need to provide printed schedules, which get vandalised, at each bus stop.
- 1.1.7.4. Even with a new bus schedule, tracking buses and obtaining real-time information on punctuality is one customer service feature of public transport that Bermuda can and should embrace. It requires the installation of GPS tracking software and equipment on all buses. At present, only a small percentage of buses have this capability. Part of modernizing Bermuda's bus fleet involves bringing this capability to residents' and visitors' smart phones, which the Government is committed to doing. Work has already commenced with Google Transit for GPS bus tracking in real-time. This is taking place alongside the publishing of an RFI on gov.bm to identify available and affordable technology to implement a cashless, digital fare media solution, with real-time trip planning features.
- 1.1.7.5. Rounding out the customer experience would be the availability of WiFi on all public

transport.

- 1.1.7.6. Future planning of routes and schedules must be based on more than anecdotal evidence. DPT requires actual ridership information. At present, there are no passenger counts being carried out on the public buses – either manually or with automatic counters. The Government will seek to outfit the bus fleet with the necessary equipment to enable automatic passenger counts.
- 1.1.7.7. With respect to the purchase of new buses, the majority of buses manufactured in the world are still diesel-driven. Given that fossil fuels are non-renewable, fuel costs are high and diesel emissions contribute to greenhouse gases, public transit authorities are increasingly turning to hybrid (diesel-electric), biofuel-powered or battery-electric alternatives. For Bermuda, a transition to a full fleet of battery electric buses – which may or may not use solar energy as the power source – requires an assessment of the cost, not only of the buses, but the charging infrastructure, equipment and training involved. The Government is currently reviewing all options available.
- 1.1.7.8. The Government considers the age of the fleet to be too old to make an investment in ‘electric conversion’ technology as it is not financially viable.
- 1.1.7.9. An ongoing issue for transportation planners is the ‘first mile/last mile’ challenge. That is, how best to design routes that assist potential passengers in reaching the closest transit stop to catch a bus or ferry and, at the end of their journey, to be dropped off in reasonable proximity to their destination. There are advocates for smaller buses, minibuses or shuttles – either private ventures, public-private ventures or entirely subsidized by the public purse to fill the ‘first mile/last mile’ gap.
- 1.1.7.10. Government recognises that employee training is important. ‘Train the Trainer’ employee training commenced October 2018 on customer skill and code of conduct training for employees, as well as additional safety training for bus drivers.
- 1.1.7.11. An MOU commenced 14 November 2018 between GOB and Rocky Mountain Institute (RMI) USA to investigate and develop a strategy to transition from the current fossil fuel infrastructure to electric bus fleet. This may include smaller buses.
- 1.1.7.12. The Ministry of Transport is coordinating with the Ministry of Public Works to ensure regular tree trimming on bus routes as a safety precaution to prevent damage to buses and reduce any interference with the bus operators’ ability to manoeuvre the buses.
- 1.1.7.13. The Ministry will use ridership counts and undertake a route analysis to determine the feasibility and viability of using smaller vehicles to overcome the ‘first mile/last mile’ challenge. However, the public bus service will not be privatized.
- 1.1.7.14. The Ministry of Transport is not considering seat belts on buses at this time.

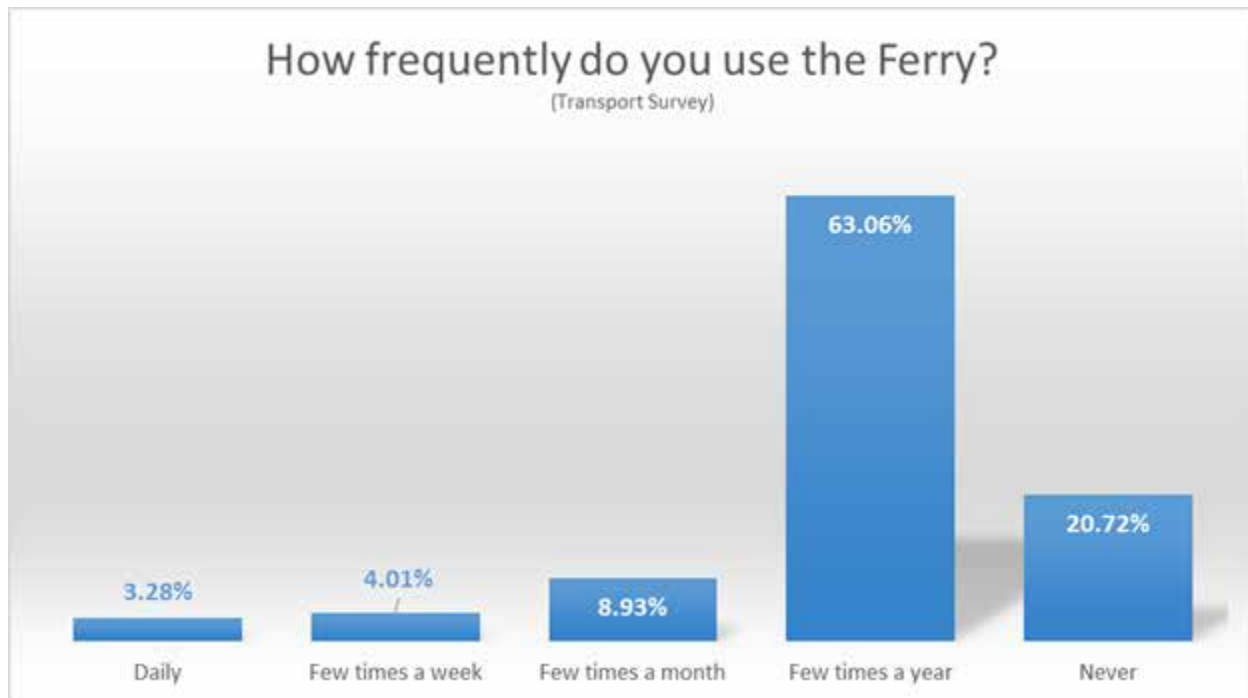
1.2. Public Ferry

Overview

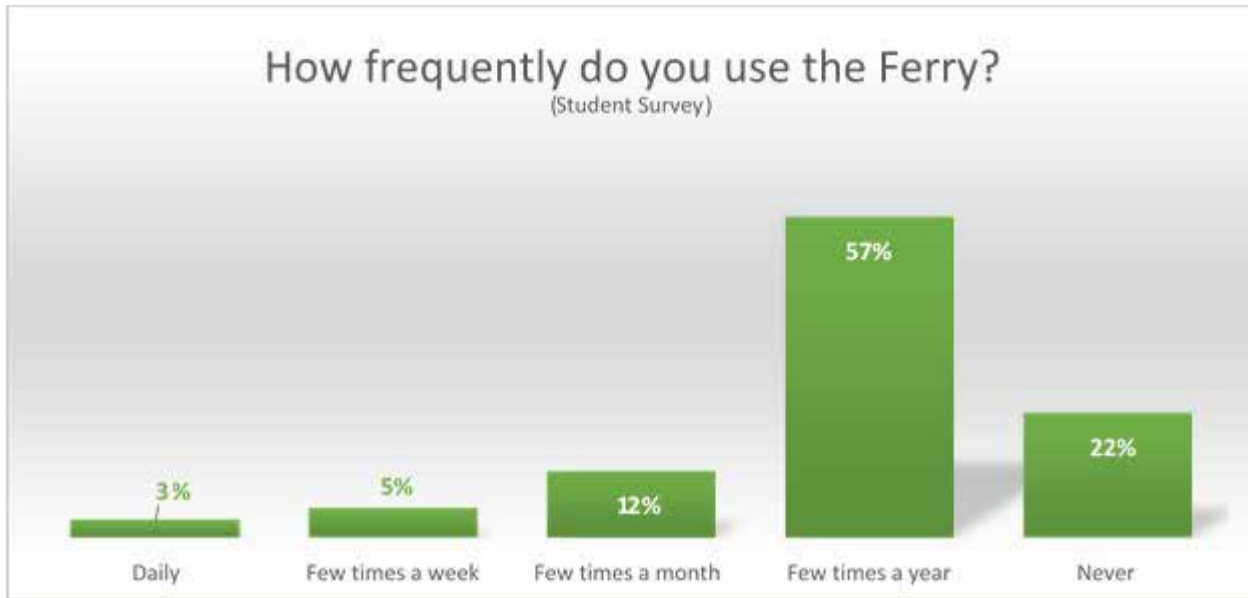
Bermuda's high speed ferry fleet is a vision born out of the National Transportation Management Report 2002. This section examines the feedback from surveys as well as issues of affordability and reliability surrounding the ferry service today. In 2017, visitors said the ferry service was "offering the best value compared to all other types of transportation services offered in Bermuda" and 95% of the general public who participated in the 2018 "public transport survey" said that the ferry system was reliable, with 5% saying that it was unreliable.

During the stakeholder consultation period, the ferry service was not mentioned as a concern compared with the public buses.

Graph 6



Graph 7

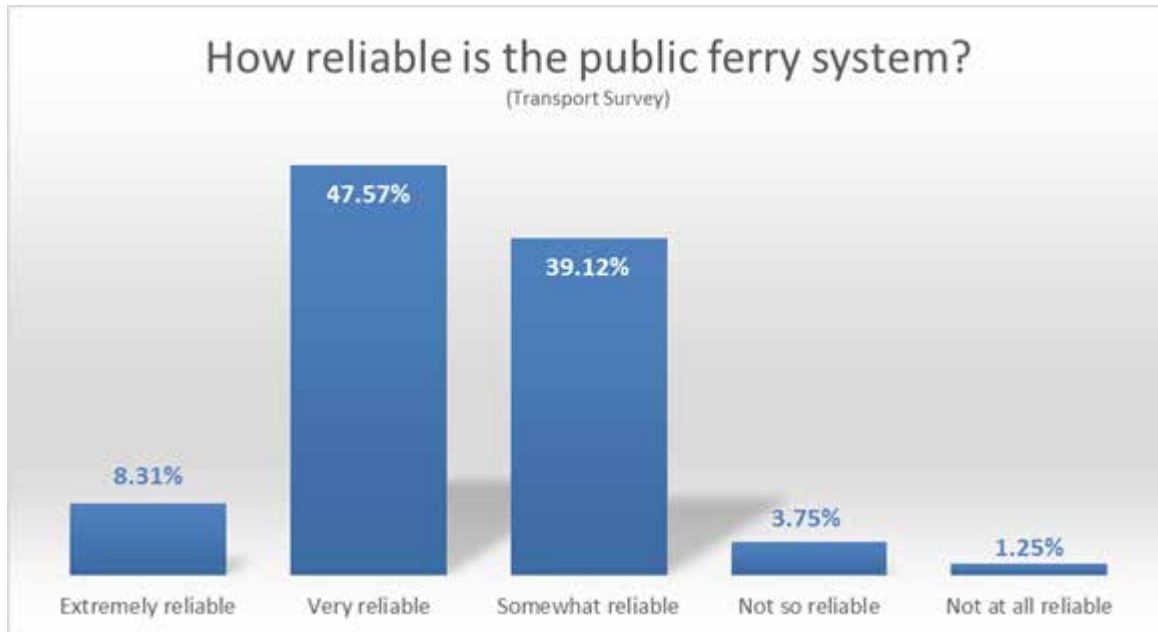


1.2.1. Ageing Ferry Fleet – Affordability, Reliability and Underutilisation

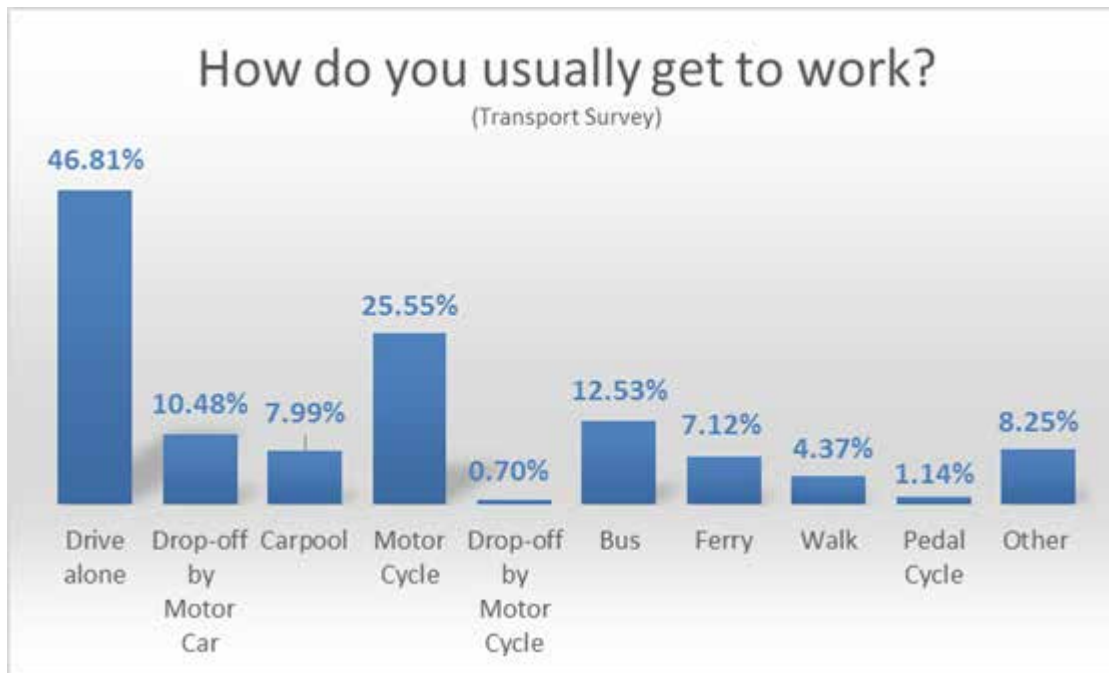
Issues

- 1) The public ferry service is underutilized by residents (7% adults and less than 3% of students take a ferry to work or school). The current ferry schedule primarily accommodates routes and times involving large volumes of passengers, west end commuters and visitors. This leaves many residents in the East End without a ferry commuter service to the City of Hamilton and residents in the West End without the flexibility to return home after work at a later ferry time.
- 2) The ferry service is expensive to operate primarily because of vessels' heavy fuel consumption, particularly with respect to the high speed (jet propulsion) ferries.
- 3) The ferry fleet is ageing and the next purchase of ferries will determine the extent to which a different service can be provided.
- 4) There are no handrails on the ferry docks and not enough signage on ferries or at ferry docks.

Graph 8



Graph 9



Context

- A) The 2018 public transport survey revealed that 7% of the responders use the ferry to go to work with 3% saying that they use the ferry service daily, 4% said a few times a week, 9% said a few times a month, 63% said a few times a year and 21% said they never use the ferry at all.
- B) In 2017, 41% of air visitors and 34% of cruise visitors who were surveyed said they used the public ferry, which was down 1% and 6% respectively from 2016.
- C) In 2017, 77% of air visitors and 80% of cruise visitors who were surveyed were completely satisfied with the public ferry service.
- D) Previously, ferry maintenance and upgrades were not undertaken regularly due to budget restrictions. With the restoration of funding, Marine & Ports provides a reliable and consistent ferry service.
- E) To operate a ferry service, Marine & Ports estimates that it costs approximately \$10,000 per day, per high speed ferry between Hamilton and the West End, \$4,000 per day for The Bermudian Tender, and \$13,000 per day for the high speed ferry between Dockyard and St. George during the summer season. These estimates include fuel and staff, but do not include the service hours for shore side maintenance staff, consumables and replacements parts to keep the fleet running though the year.
- F) In 2012, the St. George to Hamilton commuter run was estimated to have cost GOB \$1M to operate for the six-month period, with one ferry departing from St. George's in the morning and one ferry leaving the City of Hamilton after work in the evening. The number of St. George's residents who took the service in week 1 was approximately 60 passengers, week 2 was approximately 30 passengers, week 3 approximately 10 passengers and by week 4 there were just a few passengers utilizing this service. With such low ridership figures, it was difficult to justify a continuation (or expansion) of the service.
- G) In 2016, the Dockyard to St. George's public ferry service was operated via contract lease with the Rhode Island Ferry (the Millennium) with a 400 passenger capacity vessel at an approximate cost of \$1.7M. The Millennium operated four times per weekday for three days a week, and three times per weekday for two days a week between April and September and carried 101,397 passengers during the 2016 season. Only 54% of the costs were recovered through revenue.
- H) In 2018 M&P took back this ferry service from Dockyard to St. George using an M&P's high speed, 350 passenger capacity vessel, between May and September, same weekly schedule at an approximate cost of \$13,000 per day. M&P took 66,268 passengers to St. George during the 2018 season. Only 38% of the costs were recovered through revenue.
- I) The current high speed ferry fleet is expensive to operate. The vessels are heavy and use jet propulsion so as to travel at speeds of up to 26 knots. Marine & Ports has researched alternatives to the high speed ferry. One such alternative is the fast ferry, which is generally lighter, propeller-powered and more fuel efficient. Hybrid and electric options are not yet available that could provide the speed and accommodate the volume of passengers required to meet demand.

Stakeholder Comments & Thoughts

- Move more people by ferry and increase the number of runs.
- Install more ferry signage at the ferry docks.
- Install handrails at ferry stops, up and down the stairs and pathways leading to the ferry.

- Establish a ferry dock at the new airport, similar to the temporary America's Cup dock in 2017.
- Schedule a later ferry to Dockyard from Hamilton in the winter (currently, the last ferry departs Hamilton at 4.30pm).
- Increase the fare to help offset the expense involved in increasing ferry service for the West End, particularly in the evening, and adding a direct commuter service to St. George from Hamilton.
- Continue the subsidization of the ferry service.
- Privatize the public ferry service because the ferry service is underutilized by resident commuters. e.g. the Paget/Warwick route.
- Sell current ferry fleet (e.g. the Venturilla and Tempest class vessels) and purchase a new more cost effective, low carbon fuel fast ferry fleet.

1.2.2. Motor Cycles on Ferries

Issues

- 1) The public who commute by ferry feel inconvenienced by the protocol limiting motor cycles on ferries and, in some circumstances, not allowing motor cycles on at all.
- 2) Securing motor cycles on ferries is not easy and impacts insurance premiums.

Context

- A) Motor cycles can only be accommodated on bow-loading ferries and only at the times published. Specifically, motor cycles are not allowed on ferries during peak ridership such as when cruise ship passengers embark and disembark.
- B) If a bow-loading ferry is pulled from a scheduled service and replaced with a side-loading ferry, then motor cycles cannot be accommodated even if this is contrary to the published schedule.
- C) Marine & Ports made the decision to restrict motor cycles on ferries in consultation with their insurers because of the increasing cost of public liability insurance on the ageing ferry fleet and to minimize risk factors.

Stakeholder Comments & Thoughts

- Procure a new fast ferry fleet with the ability to carry motor cycles and minimize risk factors.

1.2.3. Government's Perspective on Public Ferries

- 1.2.3.1. The ferry service is used primarily by visitors to the island, and it is an efficient way of moving a large number of people. To encourage residents to use the ferry more frequently and regularly, having an expanded service is a recurring theme.
- 1.2.3.2. The decision to move to a fleet of high speed ferries was made so that Bermuda's ferry service could directly compete with the private car commute. As that fleet ages, a decision must be made whether to continue with this strategy – which involves the further purchase of expensive bow-loading vessels using jet propulsion engines. The expense and configuration of the high speed ferry necessarily limits its use over a wider selection of possible routes and schedule times. M&P can consider additional ferry stops and a schedule that starts earlier and ends later if less expensive, slower, more fuel efficient fast ferries are used instead of high speed ferries. At this time, a privatization of the ferry service is not being considered. Instead, focus remains on increasing utilization and the strategies needed to achieve this.
- 1.2.3.3. As with many transit decisions, some compromise is needed. It is the bow-loading high speed ferry that can most easily accommodate motor cycles. This should be considered in light of the fact that only 7% and 3% of adults and students, respectively, take the ferry to work or school daily. Anecdotal evidence suggests that insufficient numbers of passengers bring motor cycles on the ferry to justify the additional expense involved in purchasing that type of ferry. Rather, Government will pursue a ferry service strategy that focuses on the purchase of fast ferries as those are less expensive to run and they will provide more flexibility in terms of routes and scheduling.
- 1.2.3.4. The Ministry of Transport is supportive of installing handrails at ferry stops and erecting more signage where possible and necessary.
- 1.2.3.5. Procurement for a new fast, more energy efficient ferry fleet is being reviewed. It is subject to capital project funds becoming available but will focus on fast ferries rather than high speed ferries. Capital costs may be partially offset by selling the current fleet.
- 1.2.3.6. Ministry of Transport is not considering outsourcing Marine & Ports ferry services (outside of the NCL Tender agreement through 2022).
- 1.2.3.7. The Ministry of Transport is actively pursuing a new cashless fare structure. Decisions on fare levels (remain the same or increase) will be made at a later date.

1.3. Public Bus & Ferry Fare Media and Revenue

Overview

In terms of public transportation, this section deals with both the public buses and ferries.

The term 'fare media' applies to both services and includes cash, tickets, tokens, student pass, transfer pass, multiday and monthly passes.

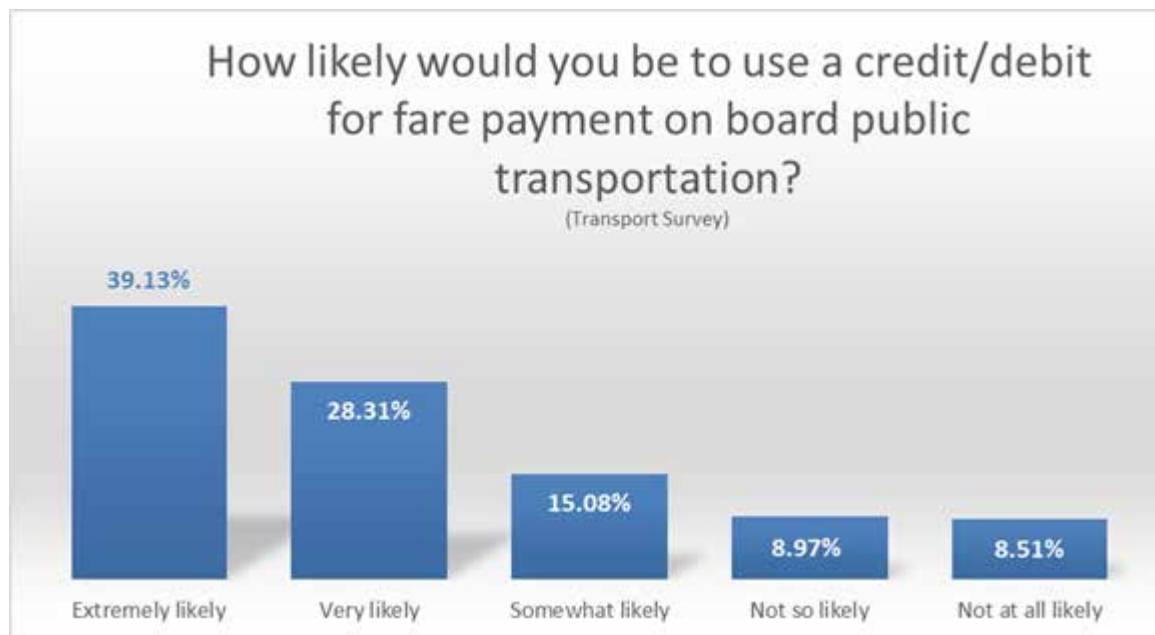
The 2018 Public Transport Survey revealed that 13% of the responders said that they take a bus to work and 7% said they take a ferry to work, compared to 65 % who say they drive alone or get dropped off by motor car or carpool to work. These statistics demonstrate that the public bus and ferry services are underutilized by the public who commute to work.

Feedback from the public indicates that if there were a 'park and ride' commuter service to Hamilton available now (please note that Rockaway ferry service fits this criterion however, the survey question did not separate out this route), 41% would use it. 81% said they would use a Public Transportation App for schedules, tickets, cancellation information etc., and, if the option was available today, users would pay by credit card at the time of boarding the bus or ferry. 17% said they would not necessarily use an App.

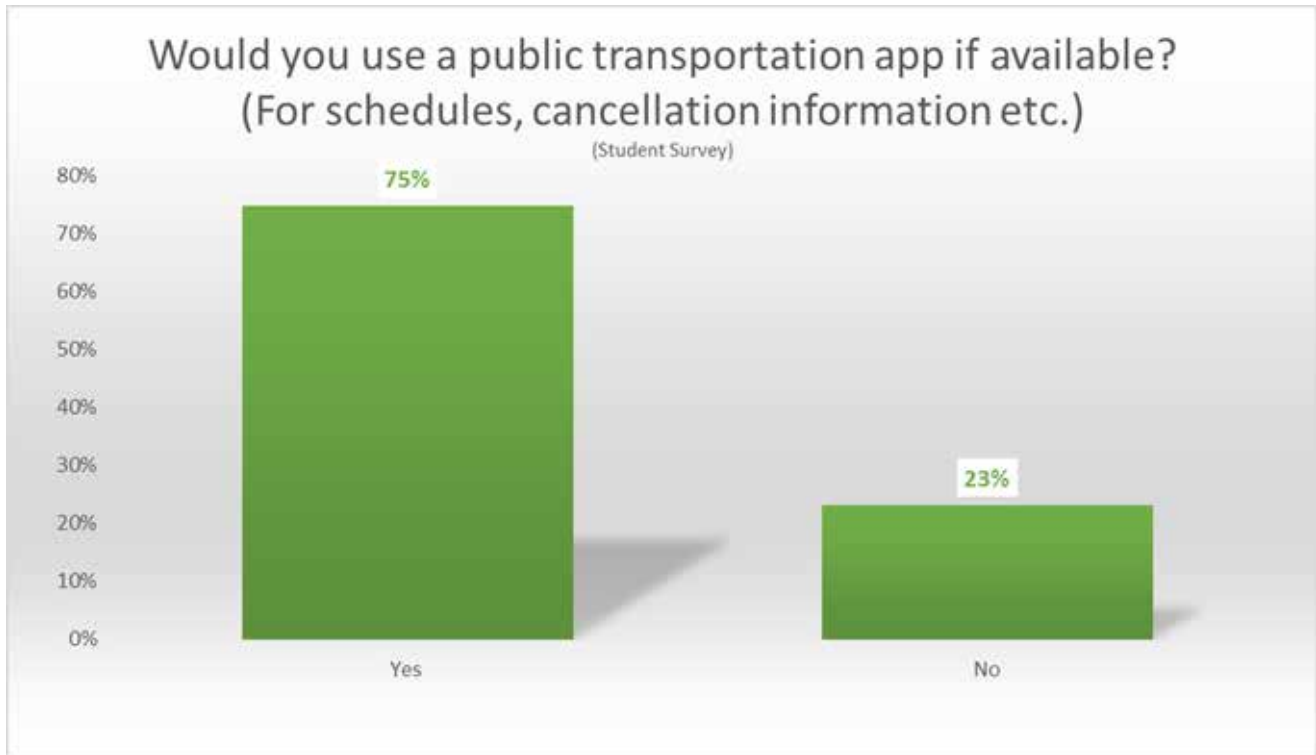
The public bus and ferry services are expensive to run, and are subsidized by the GOB in the amount of approximately \$22.4 million per year (see Section 1.3.1). Resident students, seniors and special persons travel for free. This constitutes an opportunity lost in terms of public transportation revenue.

1.3.1. Impact on Revenue and the need to go Cashless

Graph 10



Graph 11



Issues

- 1) Government subsidises public transportation, achieving a Revenue/Cost Ratio of 28% in 2016/17, and 26% in 2017/18. That is, the revenue covers only 28% of the costs to run public transportation making it one of the most expensive Government-run transportation systems in the world, next to Italy, France, USA and Australia.
- 2) Public transportation is open to fare media fraud through, for example, multiple people using the same ticket or pass.
- 3) The current revenue collection system does not provide sufficient revenue protection or data for ridership analysis and route optimization. The majority of fare media are purchased from the Visitor Service Centers using electronic payment (credit/debit card), thereby converting electronic payment into coins and tokens. This creates inefficiencies and risks for revenue reconciliation and assurance.
- 4) The inconvenience of procuring tickets, tokens and passes or needing exact change to board public transport is a deterrent when it comes to using the service.
- 5) The results of the consultation indicate that respondents favour modernising the public transportation fare system with digital and contactless solutions (cashless).

Context

- A) The actual cost to operate the public bus and ferry system in 2017/18 was \$30,410,000²⁹. Only 26% of the costs were recovered through revenue of \$7,979,000³⁰, leaving \$22,431 million dollars being subsidized by the GOB.

Table 4

	Revenue	Expenditure
Bus	\$6,484,000	\$21,764,000
Ferry	\$1,495,000	\$8,646,000
Total	\$ 7,979,000	\$ 30,410,000

- B) Revenue/Cost Ratio between 1999 vs. 2017/18

Table 5

	Bus	Ferry	Bus and Ferry
1999 ³¹	43%	33%	40%
2017/18 ³²	29%	17%	26%

- C) Government Omnibus (Fares) Regulations 1952 states that the fraudulent sale or purchase of fare media is an offence and is liable on summary conviction to a fine of \$500 for the first offence and a fine of \$1,500 for the second or any subsequent offence. This refers to the sale of any fare media by a person who is not authorised to buy, sell or issue fare media.
- D) There is an annual loss of approximately \$1 million in cruise ship related revenue as a result of the decision to suspend charter sightseeing bus service in 2016/17 due to the lack of in-service buses for sightseeing tours.
- E) School students, seniors and special persons ride the bus for free. This loss of revenue is not recorded, but the 2016 census conveys that there are approximately 23,376 persons who are eligible for free public transportation (12,672 under 19 years of age and 10,704 who are seniors, 65 and over).
- F) Public Transportation Act 1951 States in Section 5C –

That the “Department is to meet expenses out of revenue so far as is practicable, the Director shall administer the Department of Public Transportation and the Board shall levy such rents, fees, fares and other charges for services rendered by the Department as, together with such funds as may be appropriated by the Legislature for the purposes of public transportation, will result in the revenue of the Department being sufficient, to meet the expenditure and liabilities of the Department including allocations to reserve for replacement of plant and provision for depreciation of assets”

29 2019/20 Government of Bermuda, Actual Revenue and Expenditure for 2017/18, Budget Book

30 2019/20 Government of Bermuda, Actual Revenue and Expenditure for 2017/18, Budget Book

31 2002 The National Transportation Management Report, Ministry of Transport

32 2019/20 Government of Bermuda, Actual Revenue and Expenditure for 2017/18, Budget Book

Current one-way fares.

\$2.75 Cash 3-Zone, Child

\$3.50 Cash 3-Zone, Adult

\$2.75 Token per 3-Zone, Child & Adult

\$2.75 Cash per 14-Zone, Child

\$5.00 Cash per 14-Zone, Adult

\$2.75 Token per 14-Zone, Child

\$4.50 Token per 14-Zone, Adult

Adult 14-zone tickets (purchased in a booklet of 15) have a one-way value as low as \$2.50 per person per one-way trip and a Child 14-zone ticket has a \$1.66 value per trip, which is greatly undervalued.

- G) Digital and Near Field Communication (NFC) payment options are becoming more popular around the world as they are cashless technologies which reduce queuing times for the purchase of tickets and boarding of transit. Real-time data is collected, and no turnstiles are needed to track passenger movements. All that is needed is WiFi connectivity.
- H) Contactless and digital technologies have three major efficiencies that would benefit the Government of Bermuda as follows:
 - a. a cashless fare system will automatically reduce potential opportunities for fraud and enable better control(s) over the revenue collection;
 - b. real-time data can be collected on ridership by the number of passengers, time of day, routes/zones; and
 - c. quicker, more streamlined boarding.

The search for a tried and true technology solution is currently being sought.

- I) 81% of the 2018 Public Transport Survey said they would use a public transportation app for scheduling, tickets and cancellation information, and 82% of those surveyed said they would likely use a credit card for payment on board public transportation.

Stakeholder Comments & Thoughts

- Invest in a new, smart, energy efficient public bus and ferry fleet with Wi-Fi, GPS tracking and electronic ticketing capabilities, removing all cash fare options.
- Modernize the public transportation fare system with a digital ticketing app.
- Ensure transportation app supports real time information on bus and ferry services, delays and cancellations etc.
- Introduce a single fare digital system for each leg of public transportation. e.g. Hamilton to Dockyard (ferry), Dockyard to Southampton (bus); and, Southampton to Hamilton (bus).
- Introduce two fares, one for visitors (higher) and one for residents (lower) as the public transportation is subsidized by resident taxpayers and mostly used by visitors.
- Introduce a separate, higher fare for public ferry service of \$10.00 per person, each way for 14-Zone routes, as the ferry service is more expensive to run compared to the public bus service.

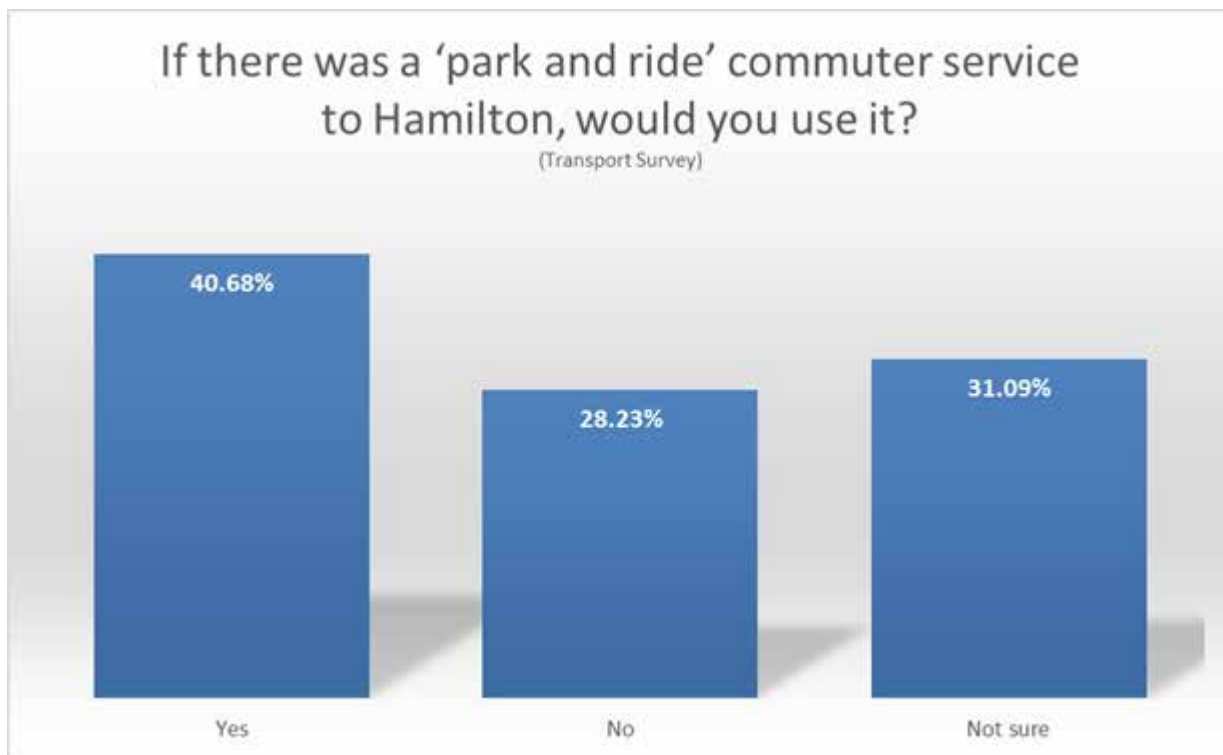
- Install cameras on all buses to monitor fare collection.
- Consider requiring students to pay for public transportation after 4.30pm on Mondays to Fridays during the school term and on weekends and holidays as well as outside the term time (see Section 1.4.2.).
- Implement a simpler system of purchasing online, or at kiosks, with credit cards.
- Implement an electronic system which may be topped up and has money deducted as transport is used. The card or phone app reads how much travel a passenger uses and deducts the equivalent of a 3 zone or 14 zone journey (if this fare structure is to continue).
- Ensure tracking chips are inserted into each senior, special person and student card to monitor and collect data on the use of free public transportation.

1.3.2. Park and Ride Commuter Service

Issue

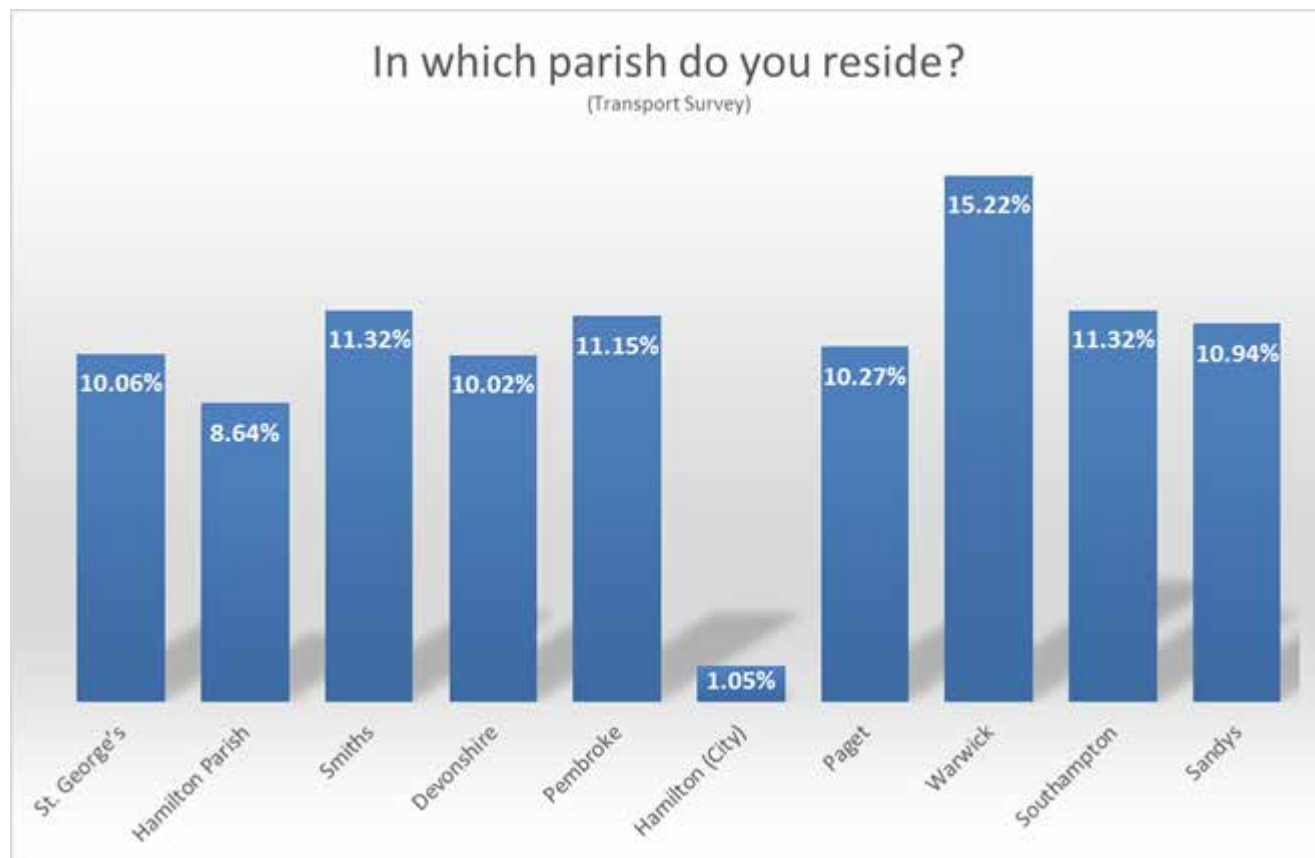
- 1) Bermuda road traffic, especially during commuting times in and out of the City of Hamilton, is said to be a major concern even though there are fewer vehicles on the road in 2018 compared to 1999 (see Table 3). Residents are somewhat supportive of a Park & Ride initiative so long as it is affordable and the times provide flexibility.

Graph 12



Graph 13

Graph 14



Context

- A) The 2018 Public Transport Survey revealed that 53% of the respondents said that they work in the City of Hamilton.
- B) 47% said that they drive to work alone.
- C) 41% said that if there was a 'park and ride' commuter service to Hamilton today, they would use it.
- D) 28% said they would not use a 'park and ride' commuter service.
- E) 31% said they were not sure if they would use a 'park and ride' commuter service.
- F) The ability to provide 'park and ride' options depends on having appropriate parking sites available in germane locations.

Stakeholder Comments & Thoughts

- Review the monthly public transportation commuter pass to make it more attractive for a park and ride scheme into the City of Hamilton from the East and West End.
- In order for a park and ride programme to be more appealing to commuters, (especially from the West End) provide later and earlier ferry times.
- To ensure more utilization of the ferry system by residents, extend ferry times on Fridays and Saturdays to 1am or 2am.

- Encourage residents to leave cars at home and put more buses and ferries into service on expanded routes.

1.3.3. Government's Perspective on Transportation Fare Media

- 1.3.3.1. Bermuda's fare media options are antiquated. In a world where travellers are increasingly used to accessing transport and fare information on smart phones, the island's continued use of tokens and paper tickets and passes is in need of change.
- 1.3.3.2. There are many options to pursue that allow for cashless payments, whether on a bus or ferry, at the same time as accommodating those who prefer not to purchase online. A critical component of any shift to contactless payments, however, is transaction time. Are Bermuda's processing speeds up to the task of split second transactions?
- 1.3.3.3. A convenient, modern transport payment solution is a key part of the strategy to increase the utilization of public transport by residents and improve the revenue/cost ratio for public transportation. The Government is currently investigating options that could be appropriate for Bermuda.
- 1.3.3.4. An RFI for a new public transportation digital fare media system has been published and the RFP will follow in the second quarter of 2019.
- 1.3.3.5. The Ministry of Transport is committed to introducing an energy efficient bus and ferry service with a cashless digital solution for improved customer service and satisfaction.
- 1.3.3.6. Government will review potential park and ride options when changes to the ferry fleet are made.

1.4. Student Public Transportation

Overview

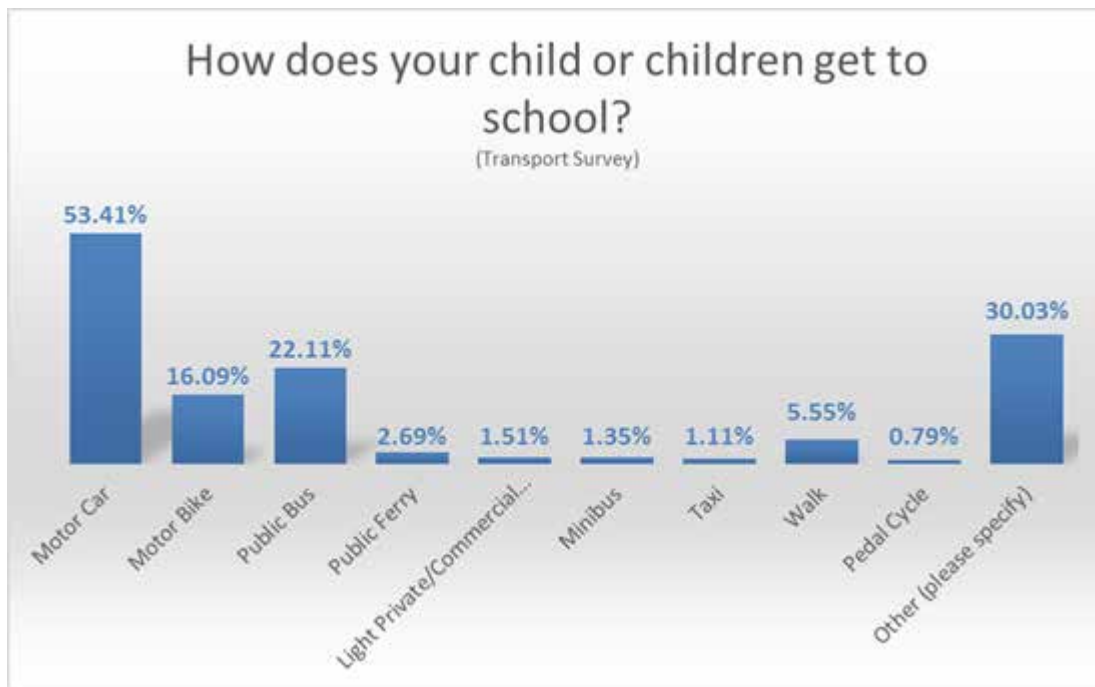
Reliable and safe transportation for students is of national importance.

Two surveys were conducted in 2018 to gauge student travel patterns by asking both the parents (2018 Public Transport Survey) and students (2018 Student Transport Survey) their opinions relating to public transportation.

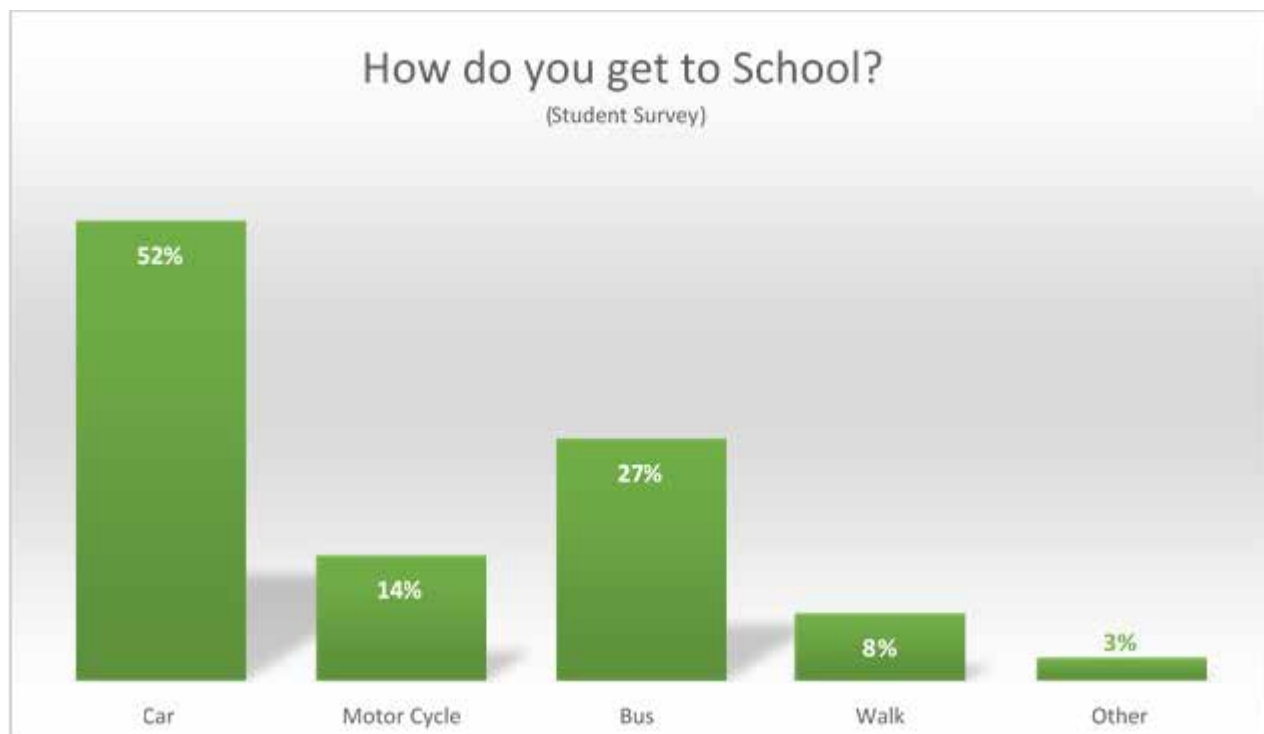
The 2018 Public Transport Survey was completed by 2,402 adult residents and the Ministry of Education, conducted a Student Transport Survey which was completed by 2,705 middle and senior school students.

The stakeholder consultation period identified the financial burden of providing free public transportation and the importance of having a dedicated school bus system. The theory suggests that students travelling on main bus routes discourage adult commuters from taking a bus to and from work because it is difficult to get a seat on a bus at peak commute times e.g. 7:30am and 5:00pm from the City of Hamilton.

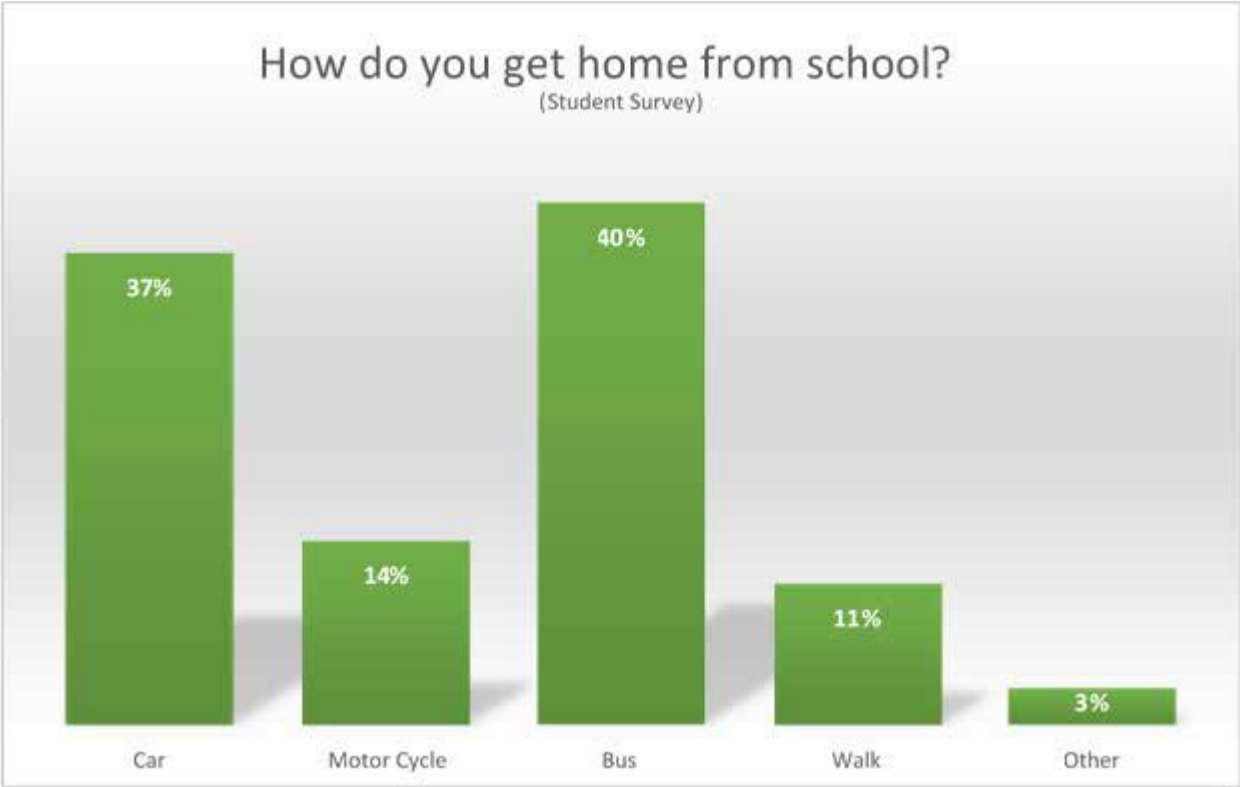
Graph 15



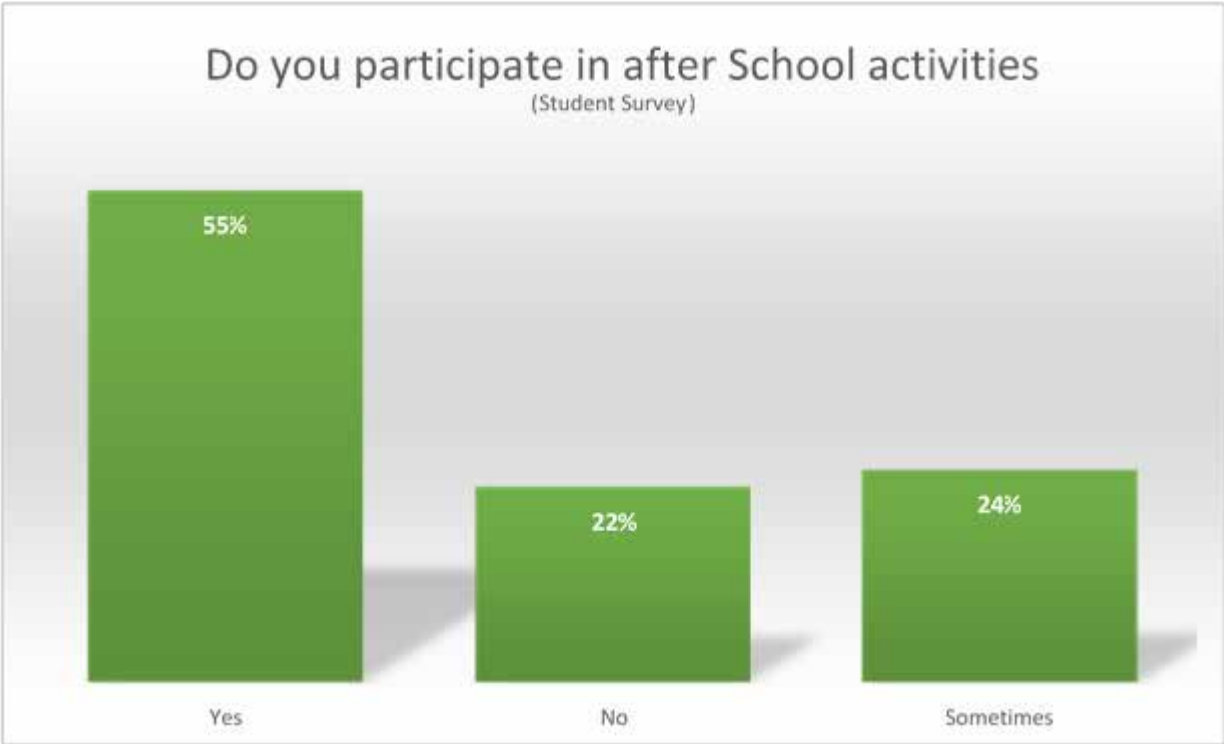
Graph 16



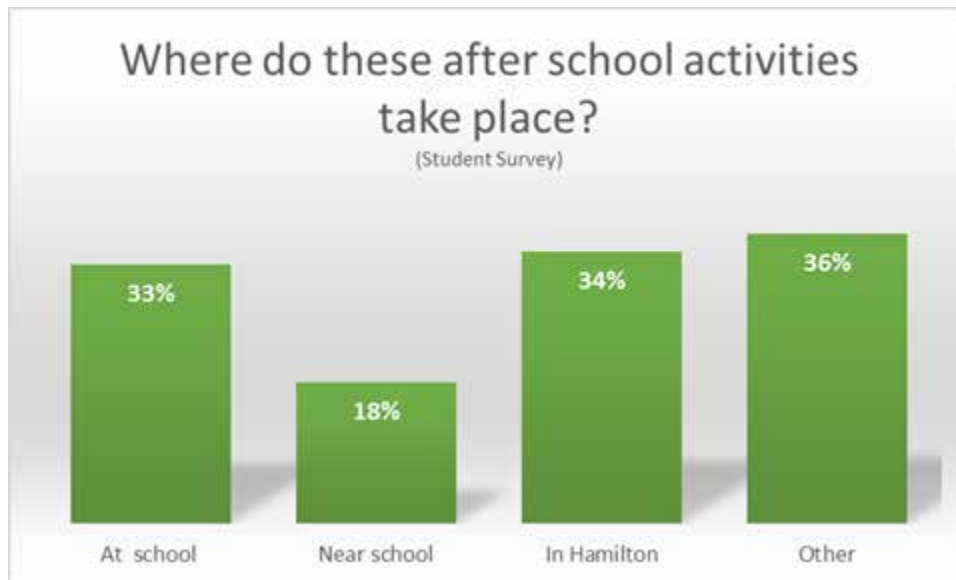
Graph 17



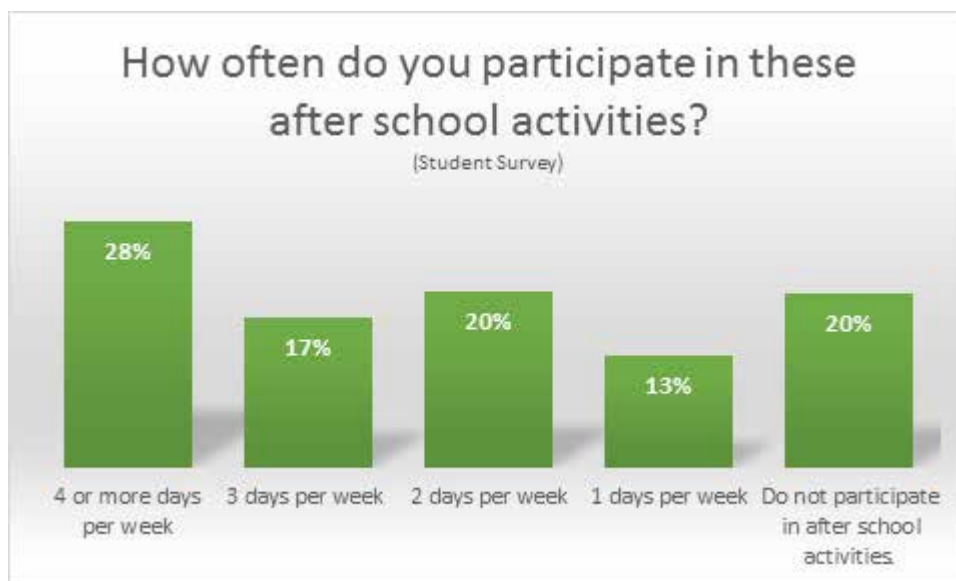
Graph 18



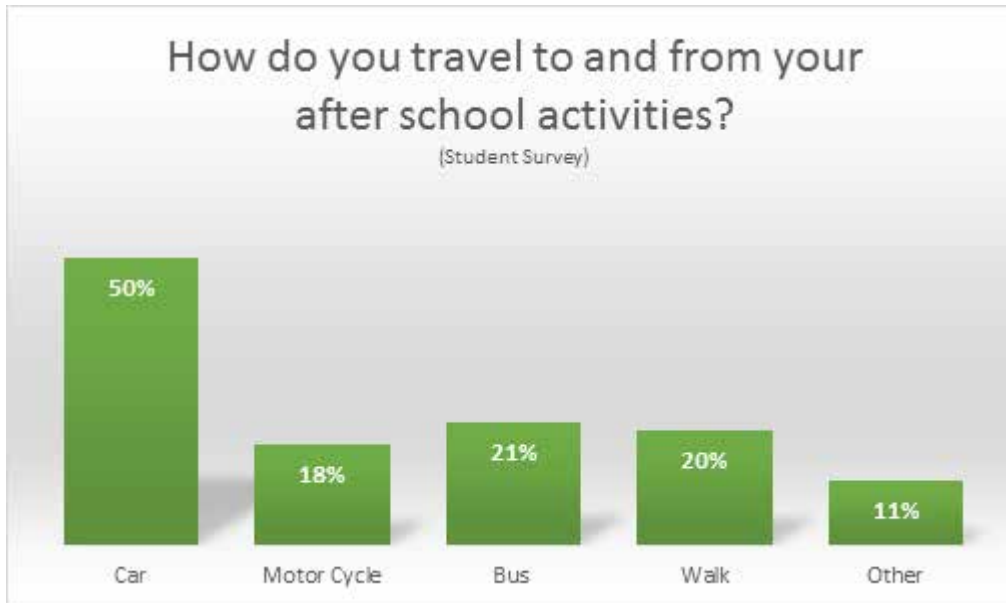
Graph 19



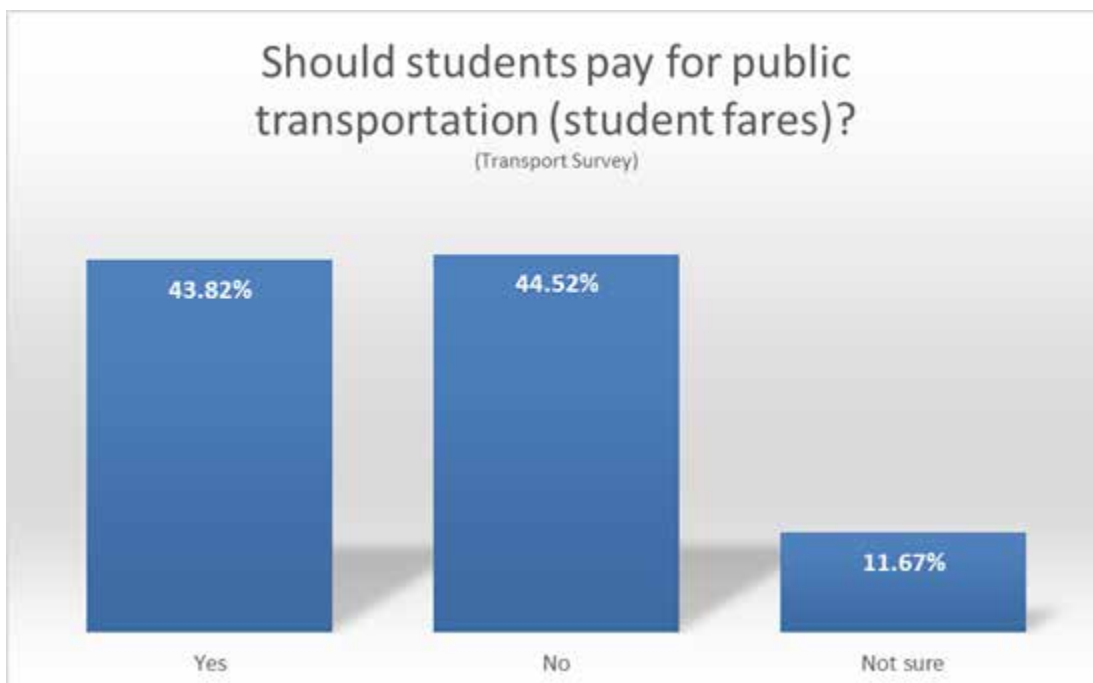
Graph 20



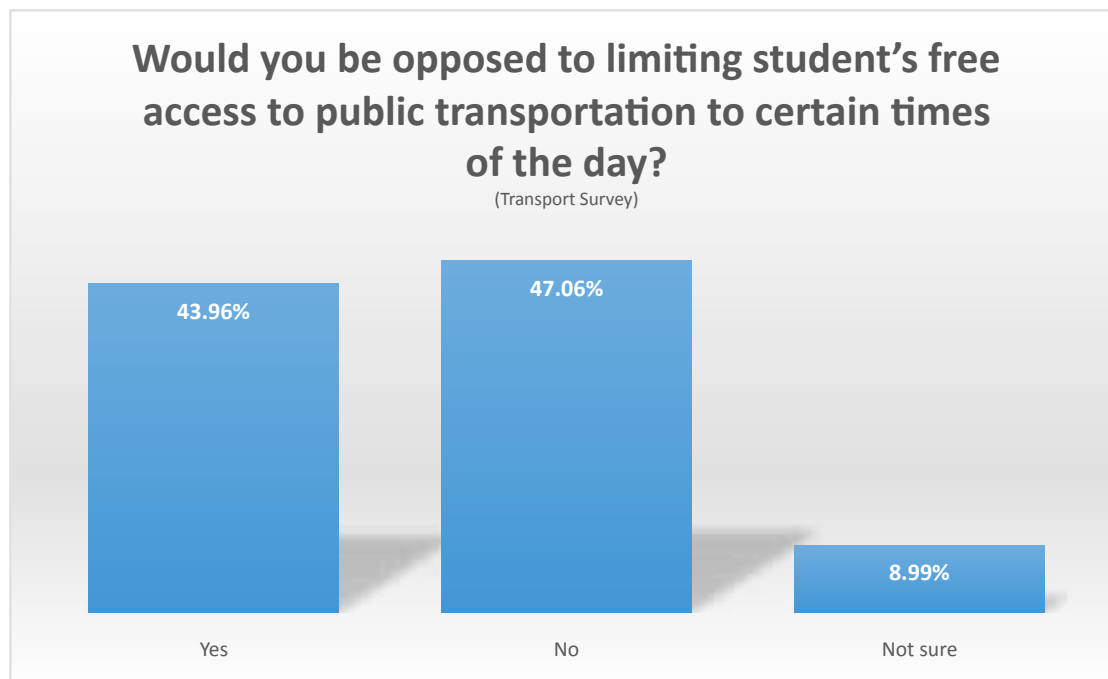
Graph 21



Graph 22



Graph 23



Graph 24



1.4.1. Student Safety

Issues

- 1) There are no seat belts on public buses and very young children are unsecured in their seats.
- 2) Public buses are not able to drop students off at a school entrance; this is especially concerning for the five- to 12-year olds.
- 3) Young students are required to cross major roads on their own.
- 4) Bus stops may be blocks away from school or a student's home, and children are at risk of being hurt while walking to the bus, school and home.
- 5) There are not enough sidewalks, and students are in danger when walking in the road.
- 6) Children are vulnerable and subjected to bullying from other students on the bus and when walking along the road.
- 7) Parents have concerns as a result of not knowing where children are in their journey when taking the bus.
- 8) Students go into the City of Hamilton to 'hang out' before going home.
- 9) Public buses are not reliable or consistent.
- 10) Students fear for their safety on older buses.
- 11) There are concerns about inappropriate behavior by adults in the vicinity of bus stops, strangers being too familiar with young children, approaching students, robbing students, and students being "jumped".

Context

A) The 2018 Public Transport Survey estimated that approximately 660 nursery and preschool children (22%) and 4,160 primary (27%), middle (43%) and high school (42%) students take a public bus to school.

B) Table 6

The 2018 public transport survey asked parents. How does your child or children get to school?				
*Answer Choices	Nursery/Pre-School	Primary School	Middle	High
Motor Car	53.23%	86.05%	76.39%	58.37%
Motor Bike	16.12%	20.35%	18.45%	36.58%
Public Bus	22.03%	26.74%	43.35%	42.02%
Public Ferry	2.71%	2.03%	3.86%	7.39%
Light Private/ Commercial Truck	1.52%	2.03%	1.72%	2.72%
Minibus	1.28%	2.62%	1.29%	78.00% (this number reflects when the minibus high school service was in effect for students)
Taxi	1.12%	2.03%	4.30%	1.56%
Walk	5.51%	7.85%	7.73%	8.95%
Pedal Cycle	0.80%	1.16%	1.72%	1.56%
Other (please specify)	30.25%	2.23%	4.29%	5.84%

*Above includes multiple selection responses

- C) The 2018 Student Transport Survey (of middle and senior school students) asked if students would feel safer going to and from school on a dedicated School Bus. 72% said 'yes' they would and 23% said 'no'.
- D) When asked how safe students think the public bus system is, 29% said 'safe' and 21% said 'unsafe', with 49% saying they were neutral on the issue. (Note, not all graphs are shown).
- E) When asked how reliable they thought the public bus system was for 'time and routes', 11% said reliable and 51% said unreliable.
- F) When asked how students go to school, 52% said by car, 14% by motor cycle, 27% by bus and 8% walk.
- G) When asked how students get home from school, 37% said by car, 14% by motor cycle, 40% by bus and 11% said they walk.
- H) 82% of students said they travel into the City of Hamilton at least one day per week after school (44% said four or more days per week). 35% of these students go into Hamilton to attend an after school activity or go to work. 21% students said that they go to hang out and socialize. 18% said that they meet their parents and 26% said they go to Hamilton to transfer and take a bus home.
- I) 77% students said that they have ridden a public bus, with 22% saying that they do so daily. 19% said a few times a week, 14% said a few times a month, 22% said a few times a year and 23% said they never do.
- J) 75% of students said that they would use a transportation app if available for schedules, cancellation information etc.
- K) Students were asked if they rode the public ferry: 3% said they did daily, 5% said a few times a week, 12% said a few times a month, 57% said a few times a year and
- L) 22% said they never did.
- M) When asked if they thought the public ferry system was safe, 64% said it was safe and 5% said it was not safe.
- N) The consultation also revealed that students travelling to school in the morning in a family car are perceived to add to the congestion problem experienced by commuters going to work.
- O) Department of Public Transportation provides regular public buses on identified school routes (though this is not a dedicated school bus service), which has inadvertently caused several issues. For example, members of the public ride these special buses early in the morning and late afternoon to avoid having to change buses in Hamilton, thereby mixing adults with students more than intended.

Stakeholder Comments & Thoughts

- Implement a student ID tap-and-go programme on all public transportation to monitor student's whereabouts and/or any mischievous activity.
- Implement a student dedicated School Bus transportation system (ages 5 to 15).
- Ensure students return home after school and do not socialize in Hamilton. This trend takes peak time seats away from regular commuters leaving the City of Hamilton from 5pm.

1.4.2. Student Fares

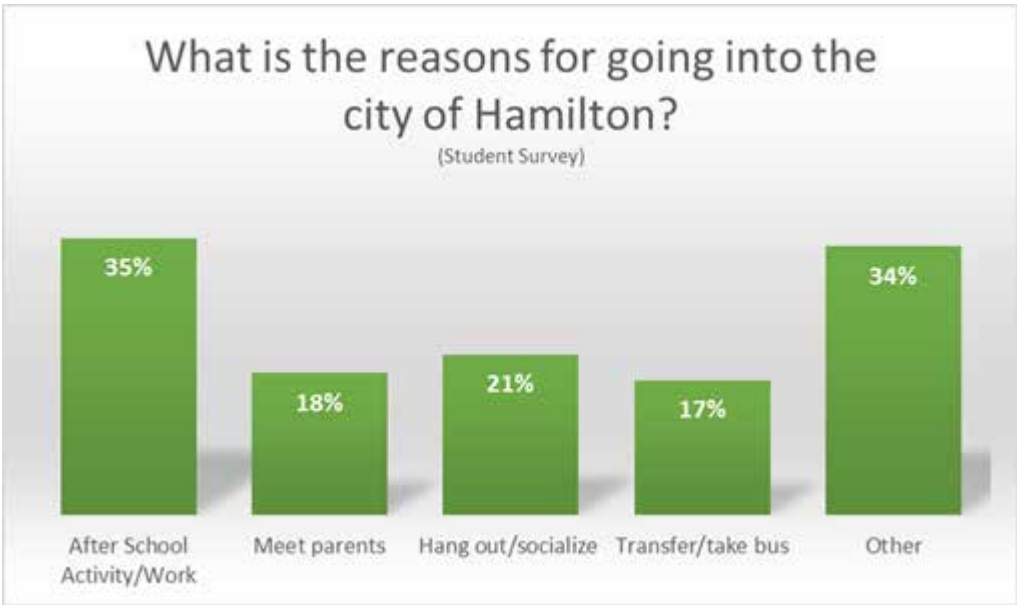
Issue

- 1. There is an impact on the public purse as a result of providing free public transportation to all students all the time, rather than only at certain times during the school week.

Graph 25



Graph 26



Context

- A) Approximately 23,376 of Bermuda's population is eligible for free public transportation of which 19 % (12,672) are children under the age of 19.
- B) Students with a student bus pass can ride public transportation for free.
- C) "Student" means any person under the age of 19 who is enrolled in school.
- D) "Student pass" means a pass issued by the Department of Public Transportation, free of charge, for a fixed period, in respect of any journey, to a student in Bermuda or a Bermudian who is not above the age of 18 years, and who is a student overseas.
- E) Student ridership at peak commuting times places additional demand on the regular bus schedule.
- F) Of the 44% of students saying that they go to the City of Hamilton after school at least four times per week, 35% say they are attending an activity and 20% (approximately 240 students per day or 6.3 buses) hangout for social reasons. Most of these students are taking a public bus from school to Hamilton and then another bus home. This makes it challenging for commuters who work in Hamilton to consider taking a bus, as buses are generally filled with students leaving the city at 5pm as well.

Stakeholder Comments & Thoughts

- Require students to pay full fare on the public bus system (after 4.30pm and 6:30pm) to deter students from going into the City of Hamilton to 'hang out' after school.
- Require students to pay full fare on weekends and holidays.
- Require private and public schools to have their own budget to fund a dedicated school bus system and contract directly with minibus operators.
- Unify the definition of 'student' and 'student bus pass' as the age of a student differs by one year i.e. 18 or 19 years of age.
- Bring student bus pass eligibility into line with the definition of 'student pass' and state the fixed period of time students are allowed to use the free pass.

1.4.3. Government's Perspective on Student Transportation

- 1.4.3.1. The 2018 Public Transport Survey asked parents how does your child get to school. The results show that 43% of middle school students and 42.02% of high school students use the bus to get to and from school. When the students were asked directly in the Student Survey, 27% said that they take the public bus to school and 40% said that they take the public bus home from school. Two different perspectives, but both demonstrate that student ridership has an impact on public bus availability. The new (reduced) schedule, combined with an increase in reliable buses through the purchase of new buses and the stabilization of the bus maintenance programme, will increase the lift available, so that DPT is able to introduce a dedicated school bus service for students in the future.
- 1.4.3.2. A dedicated school bus service will allow commuter runs to be used primarily by commuters rather than students. Importantly, bus operators will be able to deliver students closer to their schools, rather than to the nearest bus stop. If a free school bus is available, then there is no need for a free fare to apply to a regularly scheduled public bus during the week.
- 1.4.3.3. The Ministry of Transport is committed to working with the Ministry of Education to introduce a dedicated free school bus service for students between the age of 5 and 19 years, and it is envisaged as follows: between the following hours (Monday to Friday) 7:00am and 8:30am and then 2:45pm to 4:30pm during school days only. Free transport on regular public buses will not apply Monday to Friday. Students who ride the ferry to school will be able to continue to ride the ferry for free with no restrictions. All students will continue to ride the public bus and ferry transportation for free on weekends with no restrictions.
- 1.4.3.4. Dedicated school buses will join the public transportation bus inventory when not required for the dedicated school bus schedule, to support hotel and cruise ship demand.
- 1.4.3.5. The Ministry of Transport will not require seatbelts on buses at this time.



Section 2

Accessibility Transport

Overview

Government of Bermuda Operations Plan dated 25 July 2017 calls for the Ministry of Transport to:

- ▶ Ensure all new public transportation is accessible for Bermudians with physical disabilities.

Prior to this, the 2006 National Policy on Disabilities published by the Government of Bermuda National Office for Seniors and the Physically Challenged included amongst its goals to:

- *ensure public transportation is accessible for people with disabilities with special attention to ensuring people with disabilities can readily obtain transportation to their schools, places of employment, health care appointments, etc.; and,*
- *support people with disabilities to live in the community by enabling them to live functionally in their homes and to participate in the community without restrictions.*

The 2010 Census captured the number of persons living in Bermuda who use a wheelchair as 230 people. (Note: technical note at Appendix K) This represents an increase of 19% since the 2000 Bermuda Census. Some stakeholders believe this number is underestimated.

The more recent Long Term Care Action Plan 2017 produced by the Ministry of Health and Seniors reports that there are approximately 3,174 persons living with disabilities who are either living at home or at one of the 22 residential care homes on the island.

Both residents and visitors with disabilities require affordable and accessible transportation. However, the existing options are somewhat limited as public buses are not wheelchair friendly and there are only a few Public Service Vehicle options for a person using a wheelchair.

2.1. Lack of Affordable Transport Options for Disabled Persons

Issues

- 1) For some seniors and special persons on fixed incomes, who are not part of a community service programme, it is not affordable to use taxis as the primary mode of transportation. There is an expectation that public transportation for the disabled should be free, just as public transport is free to all Bermuda resident senior citizens who are able-bodied.
- 2) Hotel and cruise ship visitors with disabilities also need affordable wheelchair transport options. The few taxis and minibuses that have wheelchair accessible lifts are sometimes limited in their availability to handle special requests.
- 3) Bermuda's public transportation system is very limited in its ability to accommodate those with wheelchairs.
- 4) The definition of "disabled person" varies throughout legislation, including, for example: "a person who is suffering from mental or physical disablement" (Financial Assistance Act 2001); and, "a person who is substantially impaired in seeing, hearing, speaking, breathing, moving, learning or working. By reason of injury or disease, whether permanent or otherwise or by reason of some congenital cause"

(Residential Care Home and Nursing Home Act 1999). Not all disabilities are the same, making it a challenge to find sustainable solutions.

Context

- A) The Ministry of Health's Town Hall Meeting on 19 September 2017 for Transportation Services for persons with accessibility challenges revealed that some persons with disabilities only have a monthly pension of \$600. Unless they are on Government Financial Assistance or part of a community service programme, it can cost as much as \$200 for a return journey by taxi from home to the doctor, hospital or other appointments. This is not affordable on a restricted income.
- B) In 2018 there were only 12 licensed Public Service Vehicles that could accommodate persons in a wheelchair using a lift or ramp, and these included: three taxis (of which only one is able to accommodate a heavy motorized wheelchair), four minibuses and five Community Service Vehicles.
- C) With respect to public transportation, only bow-loading ferries can accommodate wheelchairs, but not all public ferries have wheelchair capabilities e.g. Blue Route and the Pink Route.
- D) There are many challenges associated with the GOB providing public bus transportation for persons in wheelchairs or with special needs. There are approximately 720 public bus stops, and they are not designed to accommodate wheelchairs. Laybys can have irregular sidewalks, so the alignment of ramps is awkward.
- E) In 2009 DPT³³ imported, on a trial basis, a few wheelchair accessible buses even though there were not many accessible bus stops or curbside pathways to handle wheelchair maneuverability. This test showed that buses needed at least 1½ lanes of Bermuda's two lane road width to lower the left-hand side 'lift' mechanism onto the road safely, and, with that positioning, they would block oncoming traffic. The test eliminated this type of wheelchair accessible bus from consideration for an accessible transportation programme. So, while DPT has several buses with a 'kneeling feature' and a wheel chair door, that are still operational today, these are not used for accessible transportation purposes owing to uneven sidewalk heights and/or space restrictions.
- F) DPT has posted signage on certain buses to state that the 'first three seats on this bus are reserved for persons with disabilities'.

Stakeholder Comments & Thoughts

- Create a National Disability Register to record residents' transport needs. This would allow for better planning.
- Publish an up-to-date transport accessibility inventory list to show the number of licensed community service vehicles, minibuses and taxis and the number of wheelchairs that can be accommodated in each with contact details.
- Implement a wheelchair and companion(s) accessible public transportation service, at certain times of the day, to and from three major stops to include the Royal Naval Dockyard, City of Hamilton Bus Terminal and the Town of St. George. This would allow locals and visitors to travel between these three destinations.
- Provide an on-demand Government subsidized minibus service for the same fare as public transportation rates.

33 Information documented at the DAC Town Hall Meeting September 19, 2017, Director of DPT as panelist

- Create a private or public central despatching system to handle all disability transport requests by phone and app.
- Ensure operators of handicapped accessible vehicles are not selective in the type of business they accept and enforce penalties for non-compliance.
- Identify organizations already receiving funding from GOB to provide wheelchair and accessible services and evaluate the business plan to assess the possibility and effectiveness of an expanded service.
- Reduce or eliminate customs duty for new and second hand private motor cars equipped with a wheelchair accessibility lift, meaning an electric lift for heavy motorized wheelchairs.
- Negotiate affordable or Government subsidized insurance for owners of Physically Challenged and Community Service vehicles.
- Implement the accessibility model identified in the 2014 Paratransit Initiative document and prioritize the recommendations in this section into short term and long-term goals to include:
 - issue an RFP to identify organisations who could provide on-demand transportation services e.g. three accessible shuttles in the first year to provide 2,448 rides and grow to five accessible shuttles by year five to provide 38,532 rides per year thereafter;
 - legislate a cashless flat rate 'one-way-fare' similar in cost to the public transportation system;
 - identify authority to oversee the tender process, annual subsidization and special needs training for operators/drivers;
 - create a Standard Operating Procedure (SOP) manual for employers of drivers dealing with persons with accessibility challenges;
 - create standards for respite services, i.e. a short period of rest from something difficult;
 - research mobility challenges.
 - Ensure all public ferries are capable of accommodating a person in a wheelchair.

2.2 Accessibility Issues on Public Buses

Issues

- 1) The 2006 National Policy on Disabilities called for support to ensure public transport is accessible for people with disabilities giving special attention to persons attending school, places of employment and healthcare appointments. (Further, the goal included accessibility to buildings, public places, footpaths, streets and parks.)
- 2) On September 19, 2018, at the Disability Advisory Council Town Hall 'Discussion on Accessible Transportation', the Ministry with responsibility for Disabilities asked the Ministry of Transport if they could take the lead role in providing services for persons with disability and mobility issues, through the Department of Public Transportation.

Context

- A) DPT's pilot project involving the use of wheelchair accessible public buses in 2009 revealed there is insufficient land mass in Bermuda to build safe wheelchair accessible bus stops along the main public bus routes.
- B) DPT has limited human resources. Bus operators would require special training to handle the special issues involved in driving physically challenged persons.
- C) The DPT bus fleet does not have wheelchair accessible buses, save the few which came to Bermuda in 2009. There is no proper infrastructure to support such a service as part of a normal public bus route. Nor does the public bus schedule accommodate the wait times needed for the use of lifts and ramps.
- D) No Government or private/public organisations has had the resources to fund a manager and central booking and despatching service to manage the proposed Business Plan for the Paratransit Service which outlined in its document the costs of approximately \$312,000 in the first year and steadily increasing to annual subsidization of up to \$817,000 by year four (4).

Stakeholder Comments & Thoughts

- Adopt one definition for Disability, and update all references in Bermuda Legislation.
- Ensure all DPT buses have three reserved seats, with signage and colour awareness for persons with special needs at the front of the bus.
- Provide trained bus personnel at the Hamilton Bus Terminal to assist persons getting on and off a bus.
- Provide a dial-in system for cancelled buses for persons with hearing and vision impairments.
- Implement a system on buses for visually and vocally impaired persons to hold a sign to indicate a bus stop destination. Also, install braille signage in the Hamilton Terminal.
- Require all DPT buses to have an operational kneeling function (bus lowering mechanism to make the first step climbing onboard much easier) and ensure bus drivers can assist persons in using this feature.
- Require DPT drivers to have skills in customer service for persons with special needs, including children.
- Require DPT drivers to be trained in CPR, First Aid, behavior management, seizure identification and the handling of small children and special persons.
- Operate a public transportation paratransit system with safe drop-off zones and purchase accessible buses, possibly with back loading option, to avoid current issues associated with uneven sidewalks and bus stops against a wall.
- Implement regulations to provide hand railings on stairways in all Public Service Vehicles.
- Introduce a hybrid or electric version of the 2014 Paratransit Initiative recommendations. Include a DPT dedicated multi-passenger fleet of wheelchair accessible vans, with certified trained drivers, to operate on demand shuttles for residents and visitors at the Omnibus fare structure for 3 zone and 14 zone routes, seven days a week and booked through the DPT despatching office.
- Legislate a cashless flat rate one-way-fare similar in cost to the public transportation system.

2.3 Disabled Parking Bays and Permits

Issues

- 1) Able bodied persons are parking in disabled parking bays.
- 2) More parking for disabled persons is needed, along with better enforcement and higher penalties.
- 3) Enlarge parking bays to accommodate motorized wheelchair PC vehicles.

Context

- A) There were 1,130 Disabled Parking Permits issued by the City of Hamilton to persons with disabilities (with a Doctor's note) between January and May 2018 for 36 disabled parking bays in the City of Hamilton. 20 disabled parking bays are on the street and 16 bays are located in the paid parking lots throughout the city.
- B) The Corporation of Hamilton state that a "disabled parking permit may only be used when the disabled person is actually being transported in a vehicle. It is an offence for anyone to use a disabled parking permit, other than the person to whom it has been issued. The permit is designed to be transferrable to whichever vehicle the disabled person is traveling in. Abuse of the privilege may result in the permit being cancelled".
- C) The Draft 2018 Bermuda Plan (ref TPT.22) states that any parking area designed to accommodate ten or more cars, the minimum number of parking spaces to be provided for a disabled person shall be one for ten to 25 and two for 26 to 50 and three for 51 or more parking bays.
- D) The Town of St. George's has one and Dockyard has ten disabled parking bays.
- E) Parking lots, whether stand alone or associated with specific businesses, provide some disabled parking bays, but there is abuse by ambulatory persons.
- F) All Parishes rely solely on the City of Hamilton Disabled Parking Permit to distinguish the right to disabled parking, as they are the only authority to have implemented a disabled parking permit system. The Permit is dated by year and month. These Permits belong to the person and not the vehicle and must be displayed.

Comments and Thoughts

- To deter abled bodied persons from parking in handicap parking bays, legislate higher fines, e.g. \$1,000, which is more likely to stop inconsiderate parking behavior.
- Corporation of Hamilton to be more disciplined about who is issued a parking permit.
- Establish better enforcement of disabled parking spaces.
- Install cameras and clamping mechanism in disabled parking bays to catch offenders who illegally park.
- Issue a standard Disabled Parking Permit, valid for all of Bermuda.
- Restrict Disabled Parking Permits to three-month intervals unless a person has a permanent disability.

2.4. Certified Special Needs Training for Drivers of Public Service Vehicles

Issues

- 1) Not all drivers of vehicles for hire are professionally trained to handle persons with mobility impairments, including taxis, minibus, public bus, public ferry and community service vehicle operators.
- 2) Operators should have proper certified training to handle behavioral challenges, seizures, health incidents and other matters which may arise. Drivers need to be physically fit themselves to handle all types of wheelchairs, passenger lifts, ramps and emergency equipment, and have a demeanor suited to handling any sensitive situation.
- 3) There is concern regarding the strength of certain drivers who drive wheelchair accessible vehicles, but may not be able to lift persons in need.
- 4) TCD does not mandate a set of 'driver standards' in order to operate a physically challenged Public Service Vehicle.

Context

- A) The DPT bus drivers perform the duties associated with their Job Description and the skill-sets required therein, and they do not specifically include special training to assist with disabled persons.
- B) Certified training to include CPR, first-aid, seizure identification along with sensitivity training and training in how to evacuate a vehicle with persons who have disabilities, is not a requirement by TCD to obtain a Public Service Vehicle permit or part of the operator licensing application process.

Comments and Thoughts

- Mandate all drivers of Public Service Vehicles to pass a certificate course in fire safety training to include the use of fire extinguishers.
- Mandate all Public Service Vehicle operators who transport passengers with disabilities, operate by a Code of Conduct similar to Minibus Safety Code of Practice from the Royal Society for the Prevention of Accidents in the United Kingdom.
- Align the design and specifications for public transportation vehicles and infrastructure with the Government policy on Accessibility.

2.5. Regulate Standards for Accessible Transport

- 1) There are no regulations or standards for handrails at ferry stops, nor are there enough hand rails.
- 2) Not all Public Service Vehicles have hand railings on stairways of vehicles.
- 3) There are no sidewalk standards for wheelchair accessibility, nor are there enough safe sidewalks.

Context

- A) As it relates to Community Service Vehicles, the vehicles are licensed to carry out a specific business, for example transporting children and/or the elderly. There is no requirement by TCD to have special training for drivers.
- B) The Motor Car Act 1951 has limited regulations or set standards for physically challenged vehicles (PC).
- C) Families who have members who use a wheelchair can own both a private car and a PC car with TCD approval.

Comments and Thoughts

- Establish a standard policy for sidewalks to include wheelchair accessibility.
- Establish handrail standards on stairwells in all Public Service Vehicles.
- Establish vehicle safety standards for all accessible transportation.
- Establish a central despatching service for accessible public & private transportation.
- Mandate disability awareness training for Public Service Vehicle transport drivers.
- Provide mobile notification for cancelled buses (e.g. seniors section of website).
- Legislate zero customs duty for all vehicles that can accommodate motorised wheelchairs.
- Where a Public Service Vehicle is equipped with wheelchair accessibility features, negotiate cheaper insurance rates for drivers.
- Create a standard disabled vehicle permit issued by GOB.
- Publish for hire, all accessible vehicle data in the Gazette and on GOB's website.
- Ensure employers mandate their drivers to have an annual accessibility vehicle driver fitness tests to ensure Public Service Vehicle drivers can lift certain weights when assisting passengers.
- Establish safety guidelines or regulations for minibus and taxi service providers, like the Minibus Safety Code of Practice from the Royal Society for the Prevention of Accidents in the United Kingdom.

2.6. Government's Perspective on Accessible Transportation

- 2.6.1. Eleven Public Service Vehicles is insufficient for the number of disabled persons living in Bermuda, and that number cannot service visitors to the island either. In the first instance, the Government supports the establishment of a National Register so that there is certainty about the level and type of disability and the number of persons affected. The Ministry of Tourism and Transport can work with the Ministry of Health to complete this task, recognizing that issues of privacy apply.
- 2.6.2. With a more complete understanding of need and the gap in service, the Ministry of Transport can work with the Ministry of Finance regarding more favourable importation conditions for vehicles providing transport to disabled persons.
- 2.6.3. Additionally, the Government will review options for disabled transportation service for residents that is based in the private sector but which may require initial funding assistance in the form of a grant. There are existing organisations providing such services that, in the first instance, may require financial assistance to stabilize their organization and expand their offerings. It is Government's view that a subsidy is a practical alternative to correcting the infrastructure (720 bus stops) needed for the public bus service to provide disabled transportation.
- 2.6.4. The Transport Control Department will issue permits to minibus operators seeking to import motorized wheelchair accessible vehicles to the island. TCD had 20 applications for minibus permits with wheelchair accessibility and, once these vehicles are approved and on the road, this will increase the available lift for wheelchairs from 11 Public Service Vehicles to 23 Public Service Vehicles, as an interim solution. The focus is on providing special transport services for residents and visitors.
- 2.6.5. Minibus operators who receive permits for, and licence, wheelchair accessible vehicles will be encouraged to establish a booking or despatch service for prearranged transport.
- 2.6.6. The Ministry of Transport will work with the Ministry of Health to determine training standards needed for drivers of Public Service Vehicles that provide transport for differently-abled persons.
- 2.6.7. The Ministry of Transport will undertake a review of its terminals, docks, bus stops, buses and ferries to identify improvements for signage and hailing for the physically, visually and hearing impaired.



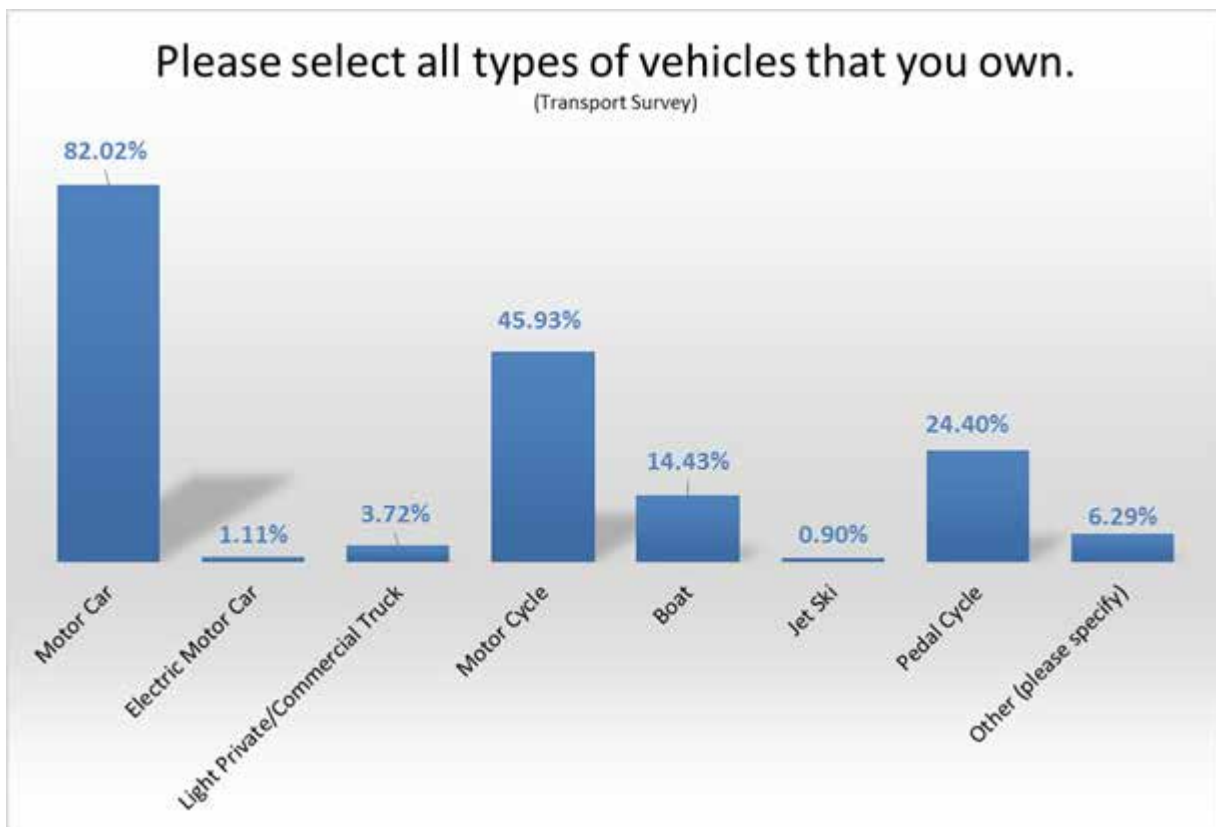
Section 3

Private Transportation

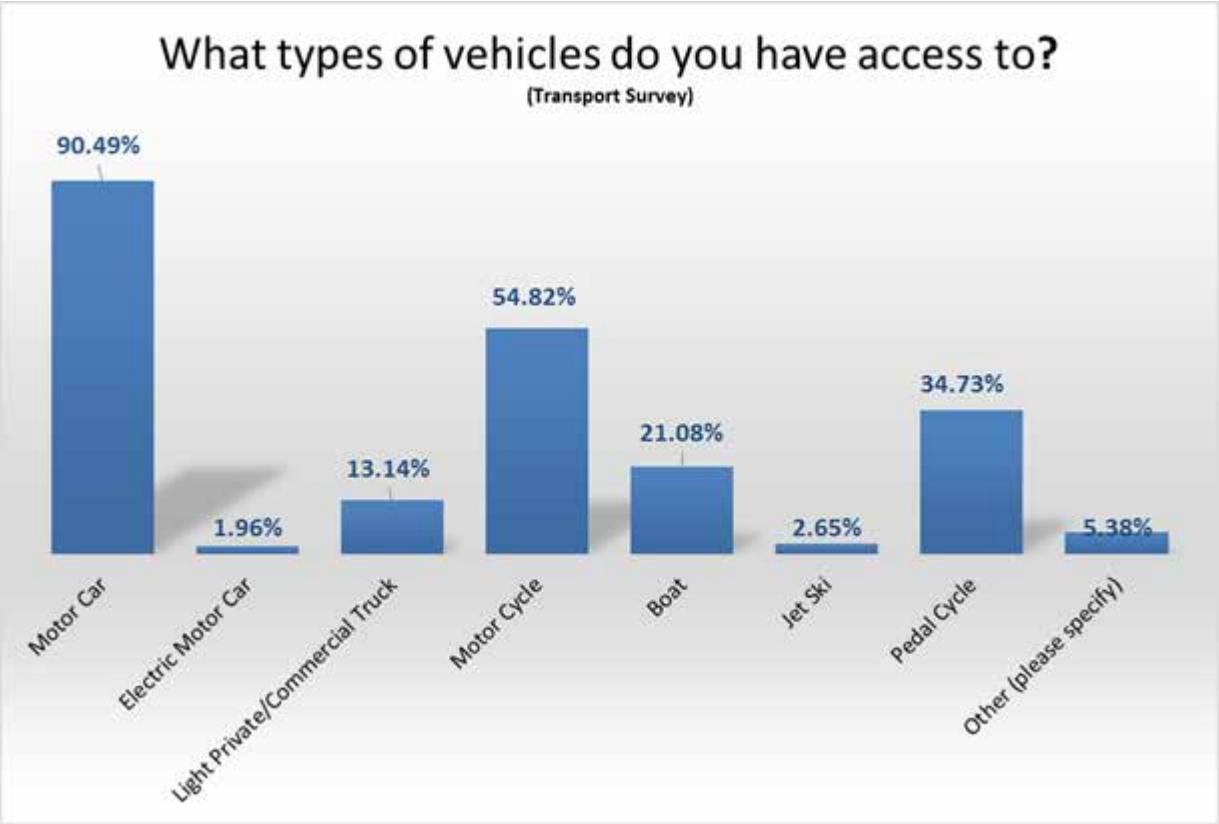
Overview

This section discusses the many conflicting views that residents have regarding private motor cars, auxiliary and motor cycles, and helmets. Some of the issues raised through the stakeholder consultation period pertained to matters that the GOB cannot address. For example, the newer LED head-lighting system on cars is a manufacturer's standard feature now.

Graph 27



Graph 28



There has been a change in the composition of vehicles on the road in recent years.

- ▶ There were 4,122 fewer auxiliary and motor cycles on Bermuda's roads in 2018 than there were in 1999, but only 25 fewer motor cars.
- ▶ Since 1999 there have been separate car categories added to the TCD vehicle licensing classification system to include loaner cars for garages, doctor's cars, limousines, classic cars and minicars. In 2018, there were a total of 22,592 licensed cars on the road, including GP cars.
- ▶ In 1999 there were 10,831 auxiliary cycles and in 2018 there were only 3,621.
- ▶ In 1999 there were 14,096 motor cycles and in 2018 there were 17,184.
- ▶ In 2018 there were 388 more commercial type vehicles licensed on the road.

3.1. Smaller Motor Cars

Issue

- 1) A strong percentage of residents feel that there are too many large cars in Bermuda, especially SUV's and trucks, while an equally strong percentage are satisfied for size of cars to remain as presently allowed.

Context

A) The 2018 Public Transport Survey revealed:

- a. 44% of the 2018 Public Transport Survey responders said that the size of cars should be decreased (smaller cars) and 46% said the sizes should remain the same as they are now.
- b. 7% said that the size of cars should be increased.
- c. 60% of the responders said that if it was available now, they would consider purchasing a minicar for personal use and 40% said they would not.
- d. When asked if residents would be willing to forgo their family car for a minicar, 21% said yes and 79% said no.
- e. When residents were asked if they would like to see more minicars in Bermuda, 75% said yes and 25% said no.

B) "private motor car" means a car other than a passenger truck, a Public Service Vehicle or a motor cycle, which is primarily used for the convenient conveyance of its owner from one place to another.

C) Motor Car Act 1951 - Motor Car Classification List of private cars licensed in 2018 follows and demonstrates the number and percentage by their size.

- a. **Class A (1,329) 6%:** Where the length overall does not exceed 3505 mm (138in.)
- b. **Class B (3,486) 16%:** Where the length overall exceeds 3505 mm (138 in.) but does not exceed 3658 mm (144 in.)
- c. **Class C (2,256) 10%:** Where the length overall exceeds 3658 mm (144 in.) but does not exceed 3810 mm (150 in.)
- d. **Class D (2,657) 12%:** Where the length overall exceeds 3810 mm (150 in.) but does not exceed 3963 mm (156 in.)

- e. **Class E (4,020) 18%:** Where the length overall exceeds 3963 mm (156 in.) but does not exceed 4115 mm (162 in.)
- f. **Class F (2,107) 10%:** Where the length overall exceeds 4115 mm (162 in.) but does not exceed 4217 mm (166 in.)
- g. **Class G (2,532) 11%:** Where the length overall exceeds 4217 mm (166 in.) but does not exceed 4293 mm (169 in.)
- h. **Class H (3,744) 17%:** Where the length overall exceeds 4293 mm (169 in.) but does not exceed 4445 mm (175 in.) **(Total Cars 22,131)**

Note 1: above includes the number of private cars licensed in 2018, but does not include GP cars, doctor's cars, instructional cars, loaner cars, classic cars or small luxury limousines as they fall into different categories of licensed vehicles, (see Note (d) in Table 3) in the all vehicle breakdown between 1999 and 2018 .

- D) Currently, residents are buying more E (18%) and H (17%) Class of motor car than any other classes – choice being limited by what models are available for the Bermuda market. Since the introduction of the H Class private car category, there are 3,744 more private larger cars on the road.
- E) The introduction of the Class H car, combined with the fact that there are 338 more commercial trucks on our roads, contributes to the belief that there are more, larger vehicles on the road today, despite the reduction in the overall number of vehicles in Bermuda.
- F) The City of Hamilton conducted two traffic surveys, one in 2006 and one in 2012, which confirmed a decrease in the number of vehicles entering the City of Hamilton in this period. This is attributed to the decrease in licensed vehicles after 2008 financial crisis and the loss of international business employment. This number rose again in 2016/17 pre/post America's Cup 2017 and reflects the financial recovery Bermuda started to experience.

Stakeholder Comments & Thoughts

- Ban larger motor cars in the licensing classifications system.
- Cap the size of vehicles to current legislation and numbers licensed in 2018 (listed in Section 3.1. above).
- Private Motor Car Class H should have a higher licensing fee than Class A-G, i.e. over \$2,000, currently the annual licence fee for Class H is \$1,678.08.
- Cap the size of vehicles at G Class, unless valid proof is provided to TCD that a family has more than two children and they need an H Class car.
- Improve promotion of electric motor vehicles because they are environmentally friendly and are duty free.

3.2. One Motor Car per Assessment Number

Issues

- 1) As evidenced by complaints lodged with Consumer Affairs, the “one motor car per household” rule has been abused by a number of residents who build an apartment onto their home so as to have a separate assessment number to provide their family with a second car. The apartment’s renter is then restricted to a motor cycle.
- 2) There is abuse by Light Private Truck permit holders who already own a private car and become a two-car family. Light and Intermediate trucks can be provided by business owners for their employees. In that way, the employees also become two-car families.
- 3) Most condominium residences have rules to discourage or prevent commercial vehicles parking within the complex overnight. However, residents devise ways to park off-site, e.g. on the street, in a carport or around the corner, to circumvent the rules, and this can cause issues with and for other nearby neighbourhoods.

Context

- A) It is illegal for Intermediate Truck permit holders to use an Intermediate Truck as a personal motor car.
- B) Light Private truck permit holders are not legally allowed to own a private motor car.

Stakeholder Comments & Thoughts

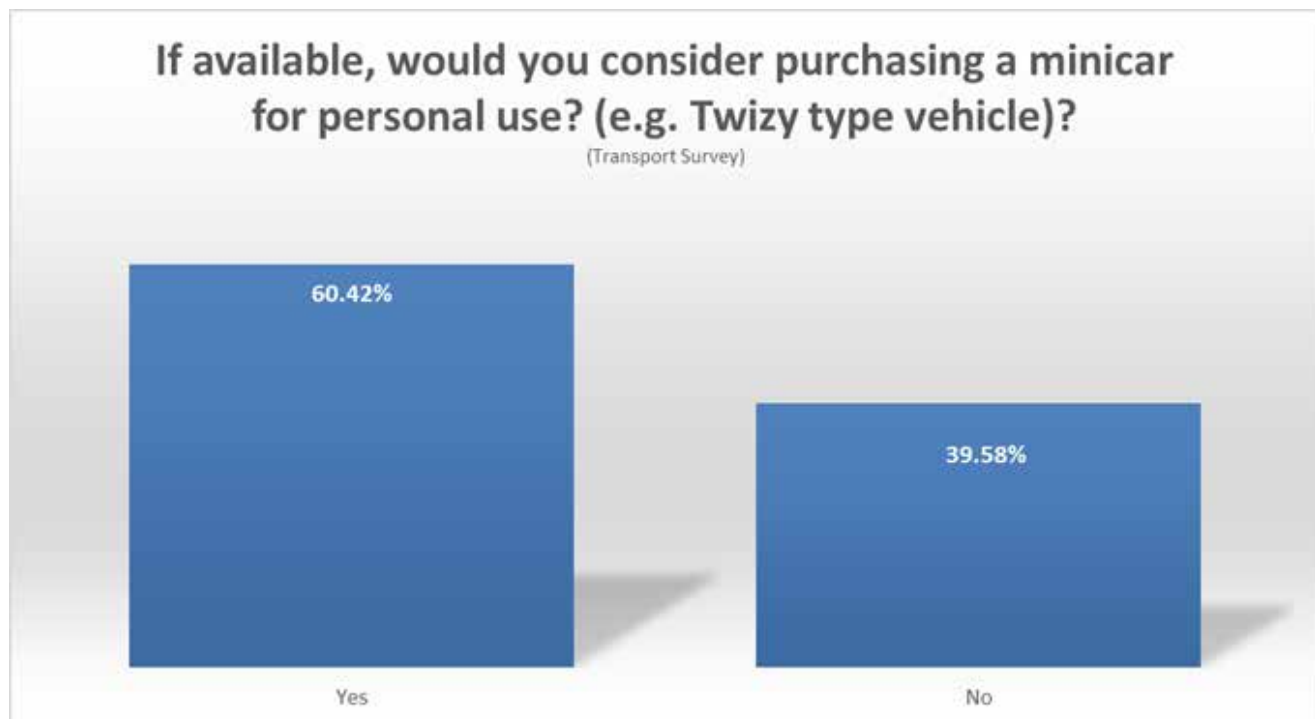
- Stop household tenants/owners having both a private car as well as a Light Private Truck.
- Improve enforcement of commercial vehicles (other than light private) being used for personal use i.e. taking children to school.

3.3 Two-seat minicar as a second car

Issue

- 1) Two-seat minicars on the road today are very popular, as confirmed through the stakeholder consultation period. Survey respondents would like to own a minicar for personal use (as a second car) but would not give up the family car. Minicars are motor cars and can be rented from a licensed minicar livery.

Graph 29



Context

- A) The 2018 Public Transport Survey revealed that 75% of the responders would like to see more minicars in Bermuda.
- B) There is a keen interest in owning a two-seat minicar but not replace the family car.
- C) Reasons given for wanting to see more minicars in Bermuda mainly centred on safety concerns (better than a motor cycle), their size compatibility with our roads and the ease of parking.

Stakeholder Comments & Thoughts

- Consider amending legislation to allow each assessment number the ability to own a motor car and one 2-seat minicar. This would allow family members to be safe, rather than riding an auxiliary bicycle or motor cycle.
- Parking for minicars should be made available at Bulls Head, Cavendish, ParLa-Ville, for example. There is already a shortage of parking spaces in Hamilton and an influx of minicars replacing motor

cycles for residents would exacerbate the lack of parking in Hamilton.

- City of Hamilton is of the opinion that if drivers obeyed the parking restrictions on the streets of Hamilton, space availability would not be an issue.

3.4. Electric Auxiliary Cycles (Pedal)

Issue

- 1) Electric pedal cycles have been introduced to Bermuda and there is confusion over their legal status.

Context

- A) Electric pedal cycles fall under the Auxiliary Bicycles Act 1954, which defines an “auxiliary cycle” as a vehicle with two or three wheels intended or adapted for use on roads and which is electrically propelled or is mechanically propelled and has a motor with a cubic capacity not exceeding 50 cubic centimetres.
- B) All legislation that applies to auxiliary bicycles applies to electric bicycles, including a valid driver’s licence, TCD registration and licence, insurance and wearing a helmet.
- C) Electric cycles are battery operated (some have 500-wat electric motor and 48-volt battery) with the average speed of 32 kilometers per hour.

Stakeholder Comments & Thoughts

- TCD has a campaign in progress to educate the public about licensing and helmet use on an electric pedal cycle.
- Improve enforcement of the legislation surrounding electric bicycles and ticket offenders who do not have a licence and/or are not wearing a helmet.

3.5. Dark Visor Helmets

Issue

- 1) Residents are concerned about dark visors on helmets, and, ear buds under helmets.

Context

- A) There is no legislation banning dark visors. Walking around while wearing a dark helmet visor is prohibited in most commercial premises. Helmets with dark visors have been used to conceal the identity of a person committing an offence.
- B) There is an overwhelming advocacy to ban dark visors on helmets as recommended in the open questions of the 2018 Public Transport Survey and many of the stakeholders interviewed said that they fear not being able to see a person’s eyes or facial intent through a dark visor e.g. to give way at crosswalks or intersections.

- C) Residents supporting dark visors on helmets say that the visor helps to protect their eyes in sunlight and reduces glare when driving.
- D) Residents are concerned that drivers of motor cycles are wearing ear phones or ear buds under their helmets listening to music or talking on the phone. This practice is further obscured by a dark visor that conceals the face of a person and the headphones. Residents find this frightening and dangerous, promoting bad driving behaviors and accidents waiting to happen.
- E) Motor Car (Construction, Equipment and Use) Regulations 1952, Section 43, “Hand-held mobile telephones and other hand-held devices” states that no person shall drive, or cause or allow any other person to drive, a motor car on a road if he is using— (a) a hand-held mobile telephone. (b) a hand-held device that can perform an interactive communication function by transmitting or receiving data, other than a two-way radio. or (c) a hand-held electronic entertainment device that can produce music or gaming systems (wireless and non-wireless)”.

Stakeholder Comments & Thoughts

- Ban dark visors on helmets.
- BPS to better enforce the illegal use of headphones under helmets for persons listening to music or speaking on a non-hand-held cellphone.
- Create specific legislation with fines to ban the wearing of all helmets with dark visors when not driving a motor cycle, e.g. walking down the street, going into a commercial place of business.

3.6. LED Car Lights

Issues

- 1) Residents have complained about the new motor cars with LED head-lighting systems that make driving at night more difficult, especially those vehicles with a u-shaped dotted lighting structure. Residents maintain that the LED lights are a menace to oncoming traffic and are causing a blinding effect, for several seconds, causing near accidents at night, particularly when travelling around corners.
- 2) Local vehicle distributors have found that vehicles failing the head beam test, have bulbs that were installed incorrectly, or, are not high intensity bulbs for the specific vehicle, or are trendy bulbs that give more of a flood light effect which causes a glare. Most are installed because they are in fashion (most a blue hue). Unfortunately, the vehicles have the correct bulbs when they are inspected and then the bulbs are changed after the inspection.

Context

- A) The light beam is set within a certain perimeter. There are adjustment screws on the light. Statutory requirements include: The beams of the vehicle’s headlights must comply with Regulation 16 of the Motor Car (Construction, Equipment and Use) Regulations 1952; and the vehicle must be fitted with left aiming headlights.

- B) Traffic Officers are carrying out random checks during the hours of darkness;
- C) Manufacturers of vehicles today use modern, longer life LED and high intensity discharge (HID) lighting technology. The newer vehicles imported to Bermuda come with this new technology and there are no options to replace the headlights with older technology once they arrive;
- D) Stakeholders advised through the consultation period that overseas manufacturing companies do not make vehicles specific to Bermuda's market. Vehicle prototypes can cost millions of dollars and do not take into consideration Bermuda's statutory regulations.; and
- E) Night time driving glasses are on the market now to help combat this problem.

Stakeholder Comments & Thoughts

- Request car dealers to work with their manufacturer(s) to make cars without the new LED lighting technology for the Bermuda market.
- Local car dealers to ask manufacturers for a solution to candle level/brightness.
- Better promote where in Bermuda one can buy night driving glasses.

3.7. Government's Perspective on Private Transportation

- 3.7.1. Despite calls for the size of cars to be reduced, Government does not agree it is necessary at this time. Clear concerns regarding road safety can be linked to poor driving habits as much as vehicle size. Through the work of the Bermuda Road Safety Council, Government will continue to educate the driving public with key messages on drinking and driving, inattention, running red lights, and more.
- 3.7.2. Recognising that minicars appear to present a safer alternative to motor cycles or auxiliary cycles, the Ministry of Transport will not pursue legislative changes to enable minicars to become a second car to residents whose household already has a family car.
- 3.7.3. Parking requirements set down by the Department of Planning and the real or perceived parking issues associated with the City of Hamilton are both challenges that will have to be overcome and minicars will need to be monitored very closely, including the concerns regarding congestion. Given concerns regarding parking and congestion, the TCD Traffic Officers will carefully monitor the impact of minicars on our roads and at our attractions.
- 3.7.4. Most immediately, then, Government will seek to solidify progress made to date in establishing minicar liveries. The Transport Control Department will process applications for minicar liveries to ensure a greater quantity of these vehicles are available for rent.
- 3.7.5. The Ministry of Transport will not ban or place a moratorium on any class of motor vehicle. Traffic congestion and collisions can be better managed or avoided if drivers take responsibility and adhere to the road traffic legislation and the policies stated on permits.
- 3.7.6. Banning dark visors on helmets is something that Ministry of Transport will seriously consider in light of the robberies that have taken place in broad daylight by persons wearing dark visor helmets.
- 3.7.7. The Ministry of Transport will work with stakeholders to seek alternative solutions for LED headlights.



Section 4

Public Service and Commercial Vehicles

Overview

Public Service Vehicles include omnibuses, minibuses, community service vehicles, motor taxis, airport limousines, limousines and other vehicles such as hotel shuttles and trains.

The Transport Control Department monitors and regulates the size, number and quality of all vehicles and their operation by performing the following functions:

- 1) undertaking vehicle inspections and emissions testing, as well as the registration and licensing of motor vehicles;
- 2) examining, registering and licensing of drivers;
- 3) monitoring and controlling all vehicles and issuing special permits;
- 4) traffic controlling for both motor vehicles and drivers;
- 5) managing road safety programmes and Project Ride; and,
- 6) inspecting public garages, filling stations, cycle and minicar liveries.

The Government of Bermuda Operating Plan dated 25 July 2017 calls for the Ministry responsible for Transport to:

- reduce the competition for tourism dollars between the Government and Public Service Vehicles;
- reduce the red tape for entrepreneurs looking to enter business by reforming and simplifying the antiquated system of acquiring a truck permit;
- extend the public transport network by use of minibuses to access areas that are not currently serviced by public buses; and
- provide the option for commercial vehicles to be licensed for six-month periods.

The Public Service Vehicle Licensing Board (PSVLB) is a statutory board under the Motor Car Act 1951 and is responsible for addressing all matters relating to Public Service Vehicles. The PSVLB reviews complaints brought against Public Service Vehicle drivers and makes decisions regarding permits for Public Service Vehicles.

The Trucks Advisory Committee is a sub-committee of the PSVLB and provides technical knowledge to assist with decisions regarding commercial trucks.

4.1. Community Service Vehicles

Issues

- 1) There are not enough Community Service Vehicles (CSVs).
- 2) CSVs are expensive to operate and most rely on sponsorship and donations which is not reliable for the long term.
- 3) Certain senior and special persons are vulnerable to paying expensive taxi fares, when family, friends and community service agencies are unable to assist with transportation needs.

Context

- A) The Motor Car Act 1951 states that a “Community Service Vehicle” means a motor car having the specifications given in Schedule 1 which has seating accommodation for not less than eight and not more than 15 passengers and which by virtue of a permit granted under section 25A(1) may be used by the grantee for the carriage of persons who are exclusively—
 - a. young children entrusted to the care of the grantee; or
 - b. elderly, disabled or infirm persons and persons assisting them, otherwise than for hire and reward.
- B) Community Service Vehicles (CSVs) are not for hire and reward like minibuses. They are intended to provide transport services for young children, the elderly, disabled or infirm persons where it is of demonstrable benefit to the public. This may take the form of a free service offered by a community service organisation or a fee, agreed in advance, for pre-arranged services. By contrast, minibuses operate a general conveyance service for hire and reward on a per-person, per zone fare basis.
- C) There were 42 licensed CSVs in Bermuda in 2018, compared with 66 in 1999. The CSVs currently in operation provide transport for daycare, nursery and pre-school programmes, church activities, seniors, senior rest homes and charities.
- D) Able-bodied seniors and special persons who live on fixed incomes or Financial Assistance rely on free public transportation. Differently-abled seniors and special persons will normally rely on community service organisations, family and friends to assist them with transportation needs.
- E) Community service organisations would welcome additional financial assistance to purchase more vehicles that can accommodate motorised wheelchairs and to hire the necessary personnel to assist those in the need of special services.

Stakeholder Comments & Thoughts

- Broaden the definition of a Community Service Vehicle to include services for all persons, not just the young or elderly.
- Ensure more financial support for charitable organisations that operate CSVs to meet the demand of persons with special needs, especially those that rely on free transport. (See Section 2 which speaks to accessibility and mobility transportation needs.)
- Build an awareness campaign to raise funds to increase the number CSVs to a minimum of 65 wheelchair accessible vehicles by 2020.

4.2. Commercial Trucks

Issues

This section speaks to the issues surrounding light private, light, intermediate and heavy trucks, including tank wagons (used for to carry bulk liquids) vehicles, tractors, trailers, tractor trailers and self-propelled construction and agriculture machines.

1) During the stakeholder consultation period, the following concerns were reported:

- a. there are too many large commercial trucks on the road;
- b. tank wagons loaded with fuel are a serious fire hazard when drivers speed or get into an accident;
- c. vehicles carry chemicals and fuels that do not have specific or correct markings to indicate the makeup of the load;
- d. commercial vehicles (except LP) are being used as private vehicles;
- e. over-sized loads spill content on the road;
- f. heavy, non-essential trucks, tractor trailers, construction and agricultural machines travel during peak commuting times;
- g. loads are being carried that are higher than 13 feet without being properly covered;
- h. without scales at our principal port of entry to verify the weight of vehicles (cargo, trailer, cab, fuel, driver) before they leave the dock, especially 48' flat beds with imported steel, and 40' containers, overweight vehicles may traverse our roads;
- i. overweight trucks damage Bermuda's roads and bridges; and,
- j. there is black smoke belching from diesel trucks which may cause health issues. Specifically, diesel exhaust particles are a Group 1 carcinogen.

2) Stakeholders in the business of trucking reported:

- a. it is an issue of perception that trucks are a problem in Bermuda;
- b. vehicle manufacturers are not making tractor trailers smaller;
- c. trucks "going green" is very expensive and unsustainable as EVs have a shorter life span of ten – 13 years versus fossil fuel vehicles which have a life span of 20+ years. (Note: this claim regarding EVs is disputed by technical officers in the energy field); and, excessive restrictions on trucks will result in higher operating costs which, in turn, will result in higher prices for goods and services.

Context

The Trucks Advisory Committee is responsible for reviewing applications and making recommendations to the Minister.

A) In 2018, there were 4,400³⁴ licensed commercial vehicles.

³⁴ Transport Control Department, listing of licensed vehicles between 2014 and 2018 by category

- B) In 2018, there were 338 more commercial vehicles on Bermuda's roads than recorded in 1999, when there were 4,062 commercial vehicles.
- C) As guided by the Department of Public Works, the maximum weight (gross vehicle weight with cargo) allowed on Bermuda's roads and bridges is 58,000³⁵ lbs.
- D) Container ships discharging in Bermuda set the maximum weight for 20 ft. and 40 ft. containers, as well as flat racks, at less than 50,000³⁶ pounds. This does not include the weight for the tractor trailer, fuel and driver weight.
- E) Container ships discharging in Bermuda set the maximum load weight for 45 ft. and 48 ft. road trailers at 55,000³⁷ pounds. This does not include the tractor trailer, fuel and driver weight. Or, any exceptions made by the shipping lines in connection to heavy commercial equipment, or bulk loads e.g. generators.
- F) The 2018 public survey revealed that:
 - a. 13% of the responders have access to, and use of, a commercial truck;
 - b. % of the responders said that they take their children to nursery, pre-school, primary, middle and high school in their private, light or commercial truck;
 - c. 65% of responders said that Bermuda roads are not properly maintained;
 - d. 57% said that they feel unsafe on Bermuda roads because of the road conditions; and,
 - e. 35% said that they felt unsafe because of the road congestion.
- G) It is speculated that the incidence of over-sized and overweight vehicles on the roads may contribute to the perceived road conditions and congestion issues. Of note, drivers of tractor trailers with containers do not always adhere to the restricted hours policy, which seeks to ensure large vehicles are not on the road during rush hours.
- H) *The Motor Car Act 1951 states:* The Minister, "in determining any application for the grant of a permit for the use of a heavy truck— shall take into consideration the number of heavy trucks already at the time of the application authorised to be used by holders of permits, the reasonable needs of the public for transport facilities, the character and condition of the highways, the amenities of Bermuda and the safety, comfort and convenience of the community".
- I) General restrictions on the use of trucks and passenger trucks include that no person shall use or cause or allow any other person to use a truck except under the authority and in accordance with the terms and conditions of a permit granted by the Minister.
- J) Any person engaged in a trade or business involving the carriage of goods, substances, animals or other loads, or involving the operation of a public utility service, may apply to the Minister for a permit to use a truck or passenger truck for the purpose of his trade or business or in the case of a light private truck, for purpose of his trade or business and as a private motor car.
- K) There are a variety of trucks, tractors, trailers and tractor trailers defined in the Motor Car Act which can be licensed for use on Bermuda's roads.
- L) The gross weight²⁸ of a vehicle (GVW) is the weight of the empty vehicle plus the weight of the maximum payload that the vehicle was designed to carry. Empty Weight of Vehicles vs Gross Vehicle Weight for refuse, concrete, fire engine, tractor-trailer, refrigerated truck and flatbed combinations

35 Ministry of Public Works, maximum allowable weight on roads and bridges

36 Meyer Freight

37 Meyer Freight

can range from 20,000 – 26,000 pounds in empty vehicle weight vs 33,001 – 81,000³⁸ pounds in gross vehicle weight. (Note: Diesel fuel weighs approximately 7 pounds per gallon).

- M) The stakeholder consultation period revealed that some commercial tractor trailers and flatbeds are leaving the Hamilton Docks overweight at 58,000+ pounds. (In the absence of weigh stations, a ship's manifest can be used to estimate weights.)
- N) The Bermuda Police Service Aide Memoire Road Traffic and Parking Offences dated October 2010 states "That self-propelled construction machines, trailers and a combination of tractors or trailers are not allowed on Bermuda's roads Monday to Friday between 0745 and 0915 and 1630 and 1800. There are exceptions for vehicles-leaving Dockyard at 0845 headed for Hamilton and farm tractors provided it is occasional and not abused, otherwise these exceptions may be withdrawn". However, this is a condition of the vehicle permit rather than legislation.

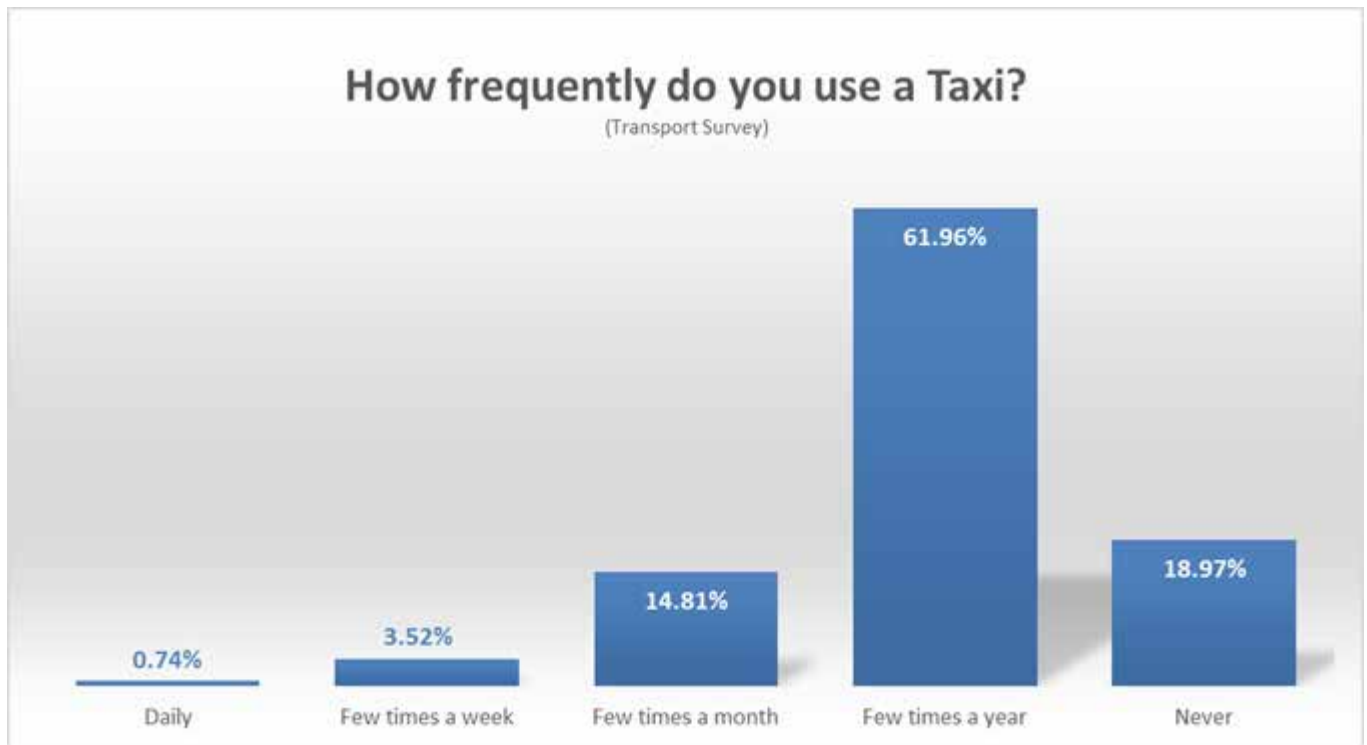
Stakeholder Comments & Thoughts

- Fuel truck (tank wagon) drivers caught speeding over 35 Km/h should automatically have their commercial truck licence revoked and become disqualified from driving any truck for an extended period.
- Cap the number of trucks in each class.
- Require trucks with oversized loads to be escorted by Bermuda Police Service only, and introduce a fee for this service.
- Amend the Motor Car Act 1951 and the Road Traffic Act 1947 to prohibit the passage of self-propelled construction machines, trailers and a combination of tractors or trailers on Bermuda's roads Monday to Friday between 0745 and 0915 and 1630 and 1800. This will formalize in law the current policy which is set out as a condition of the vehicle permit.
- Consider a ten-year plan to transition all commercial trucks to be hybrid or electric powered to reduce reliance on fossil fuels. (BELCO is leading by example with their twelve hybrid bucket trucks which are eco-friendly, durable and safe).
- Execute a plan to reduce the number of trucks on the road over the next ten years.
- Install weigh stations at the docks in Hamilton, Tiger Bay and Marginal Wharf and implement a mandatory weigh-in for all vehicles, including cargo, leaving docks.
- Restrict over-sized vehicles so that they travel on the road only between 8pm and 6am.
- Prohibit tractor trailers from driving along Front Street, Reid Street, Queen Street, Church Street, and Victoria Street in Hamilton.
- Prohibit all commercial trucks, Community Service and Public Service Vehicles (except Light Private vans) from parking overnight at private residences.
- Phase out GOB's fleet of vehicles and replace with electric or hybrid vehicles.

38 National Academy of Sciences, Technologies and Approaches to Reducing the Fuel Consumption of Medium and Heavy-Duty Vehicles, prepublication copy, March 2010, pp. 2-2 and 5-42.

4.3. Taxis

Graph 30



Issues

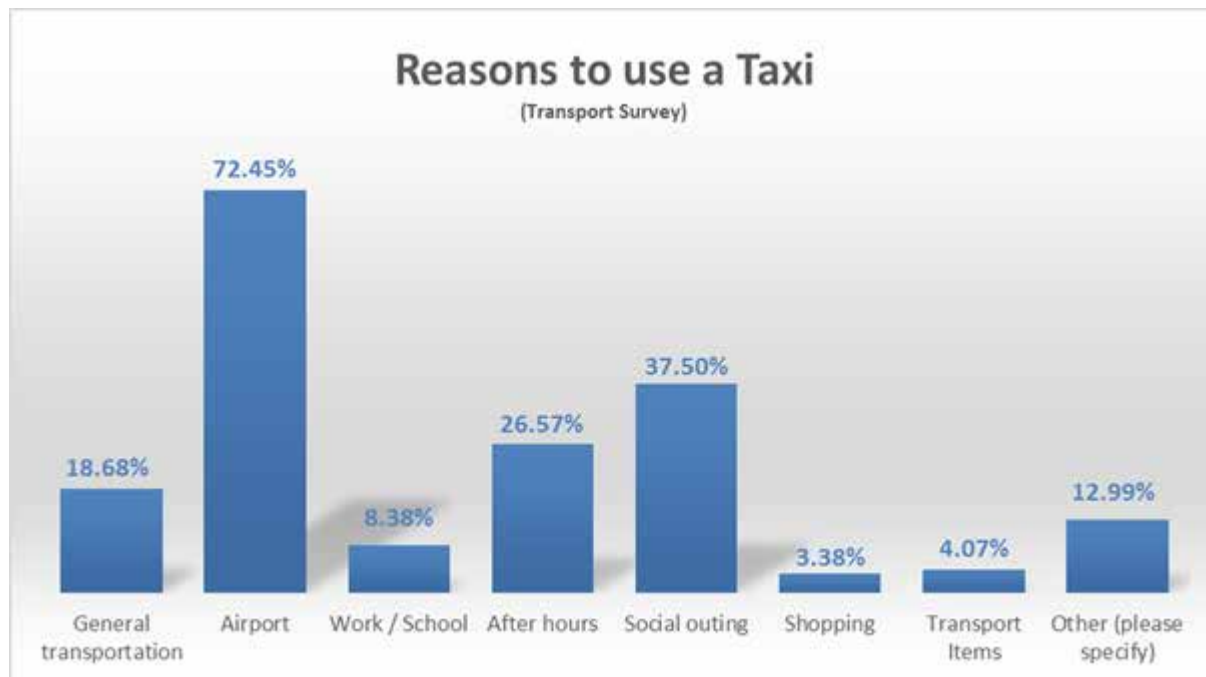
- 1) There are not enough taxis after 5pm, Saturdays, Sundays and Public Holidays, particularly at the Airport, Dockyard, St. George's and Front Street.
- 2) Taxi services cannot be relied upon.
- 3) It is hard to get a taxi when you really need one, e.g. Medicos (passengers going to the hospital from ships), after dinner in St. George's and after hours in Hamilton.
- 4) There is no centralised taxi despatching service.
- 5) Not all taxis are on the road 16-hours a day, as required by law. Not all taxis that are on the road are available for service.
- 6) Taxi drivers are being too selective in accepting business, e.g. refusing to go short distances or to take persons with sand on their feet. Passengers who are going short distances or are sandy can be verbally abused by taxi drivers.
- 7) Taxi drivers use Rate 3 when Rate 1 should be applied; better enforcement needed.
- 8) Taxi drivers are not motivated to drive at night unless using rate 3 (rate 3 runs from midnight to 6am).
- 9) There is fierce competition between taxi and minibus drivers.
- 10) Better enforcement of taxi regulations is needed.
- 11) HITCH provides a very good and reliable service. However, Hitch customers are paying a service fee, which is not legislated.
- 12) Some taxi drivers do not take pride in their dress anymore.

- 13) Some taxi drivers give poor tours, talk mostly about themselves or make stories up.
- 14) Complaints made to TCD and the Public Service Vehicles Licensing Board about bad driver behavior are overlooked or no action is taken.
- 15) Taxi fare structure is confusing and open to abuse.

Taxi drivers have issues of their own that include:

- 16) Taxi drivers are verbally abused by passengers.
- 17) Some passengers have a total disregard for taxi vehicles.
- 18) Some passengers who are drunk vomit in the taxis, making it difficult to clean and sometimes taxis must go 'out of service' for a period of time as a result.
- 19) Taxi drivers who operate late at night have no protection and are dealing with unruly people.
- 20) Taxi drivers are getting robbed at knife point during the day.
- 21) There is an unequal playing field between taxis and minibuses. Taxi owners have invested up to \$103,000 for their taxi permit whereas minibus operators, who can carry more passengers, have only paid \$5,450 for their minibus permit.
- 22) Taxi drivers are not happy waiting many hours to only get a short run. Also, Taxi Drivers feel they are waiting too long to get a taxi fare in Dockyard.
- 23) There is no shade at Horseshoe Bay beach GTA for drivers or passengers.
- 24) Gypsy Cabs are a concern to taxi drivers.

Graph 31



Context

- A) Bermuda has a taxi crisis in terms of availability and reliability. Only 556 vehicles out of the 600 taxi permits were licensed and on the road in 2018. Approximately 200 of these taxis are servicing pre-arranged, group and international business, leaving a shortage of taxis for general conveyance.
- B) All 600 taxi permits were originally sold. Today the value of a taxi permit may or may not include the vehicle as it is at the discretion of the taxi permit owner.
- C) The PSVLB approves the transfer of a taxi permit from one owner to another but does not regulate the resale price of taxi permit. The price is agreed between the buyer and the seller.
- D) By law, taxis are required to be on the road for a minimum of 16 hours a day. However, this does not happen.
- E) By law, taxis are required to have a two-way radio-set, a mobile data terminal, a global positioning device and an alarm device. At time of TCD inspection, taxi owners must confirm in writing their membership in a taxi despatching service in order to get the taxi passed.
- F) There are four licensed taxi despatching companies in Bermuda.
- G) The 2018 Public Transport Survey asked a series of questions regarding the use of taxis and here are the results:
 - a. How often do you use a taxi? 62% said that they only use a taxi a few times a year. 19% said that they never use a taxi. 0.66% said that they use a taxi daily. 4% said a few times a week and 15% said a few times a month.
 - b. What do you use a taxi for? 72% said they go to the airport, 27% said after hours, 37% said on a social outing and 8% said to work and school.
 - c. Are there enough taxis on the road at peak times? 55% said no and 45% said yes.
 - d. Should the taxi industry introduce flat zone fares (not shared ride) e.g. from the Airport to Grotto Bay or the Town of St. George and from Dockyard to Horseshoe Bay beach? 77% agreed.
 - e. Would you use a credit or debit card to pay for a taxi? 91% said yes and 9% said no.
 - f. Are you in favour of introducing a private transportation app service like Uber? 65% said yes and 12% said no.
- H) The maximum number of passengers that a taxi can accommodate is seven persons. Two children under 12 years of age count as one adult.
- I) Taxi drivers are obligated to accept passengers for lawful journeys.
- J) Taxi Offences include:
 - a. charging excessive fares;
 - b. unlawful stopping or starting meter;
 - c. carrying more than permitted;
 - d. defective taxi meter;
 - e. failure to display notices;
 - f. failure to illuminate equipment;
 - g. refusing to accept passenger for lawful journey;

- h. failing to wear a badge or display badge in taxi;
 - i. being disrespectful;
 - j. improper dress, smoking, using radio without consent;
 - k. displaying non-electronic advertising on the inside of the vehicle and displaying any advertising material on the outside
 - l. improper charge for baggage;
 - m. failure to maintain records, e.g. receipts; and
 - n. leaving a taxi unattended for more than 30 minutes.
- K)** In Bermuda the statutory fare structure for taxis starts with an initial charge at \$5.15 and increases in increments of \$0.55 for each subsequent one-fifth mile or part thereof as the meter advances. Sundays and public holiday have surcharges of 25% for up to four (4) passengers and 50% for taxis who carry five to seven (5-7) passengers.
- L)** In other jurisdictions south of Bermuda, taxi rates vary. Here is a sample of taxi fares in US dollars (in late 2017):
- a. Barbados – Not metered, promoted as roughly \$20.00 per hour.
 - b. St. Maarten – Typical fare ranges between \$6.00 and \$25.00, depending which side of St. Maarten Island you are travelling.
 - c. Bahamas – Metered rates. Usually a general flat rate is charged at \$3.00 for the first $\frac{1}{4}$ of a mile and then 40 cents every $\frac{1}{4}$ of a mile thereafter.
 - d. Puerto Rico – Metered rates. \$1.75 first mile, \$0.10 per $\frac{1}{19}$ of a mile thereafter and a minimum \$3.00 per trip.
 - e. Jamaica – Metered rates. Rates between Montego Bay and Kingston start at \$3.00 and \$1.00 every 5 miles.
 - f. Trinidad & Tobago – Not metered. Fares depend on distance travelled. Agree with driver before setting out. Fares can start at \$1.00.
- M)** In Bermuda the statutory taxi fares, by zone, from the airport, are as follows: to Grotto Bay, \$8.50; to Flatt's or St. George, \$13.50; to Cobb's Hill or City of Hamilton, \$25.00; to junction of South Road and Middle Road Southampton, \$30.00; to Watford Bridge, \$36.50 and to Dockyard, \$42.00.
- N)** In addition to the 600 taxi permits, all of which were sold many years ago, there is separate legislation called the Motor Taxi (Special Permit) Act 1970, which makes provision for eighty-eight (88) special permits for a restricted period of five years, for a permit fee up to \$50,000. The purpose of this legislation is to allow more than 600 taxi vehicles on the road, if required, but with restrictions.

Stakeholder Comments & Thoughts

- Establish a Central Taxi Despatching service to better regulate the taxi industry under one umbrella and require each taxi operator to have a binding contract for each licensed taxi.
- Introduce taxi flat zone fares instead of Rate 1/2/3 and surcharges, like the minibuses, then everyone knows how much it will cost to go from point A to point B.
- Make provision for more taxis with motorised wheelchair accessibility.

- Increase taxi rates by allowing Rate 3 to start at 10pm instead of midnight.
- Reduce taxi rates as they are too expensive.
- Enforce the taxi's 16-hour per day rule and amend legislation so that every taxi vehicle permit is required to have two drivers to fulfil the 16-hour rule.
- Revoke the taxi permits of operators who do not have their vehicle on the road 16-hours a day.
- Make it illegal for taxi drivers to be selective in routes and short distances.
- Require all taxi operators to accept credit cards.
- Implement an on-line customer reporting process to bring issues relating to taxi operators before the Public Service Vehicles Licensing Board for appropriate action.
- Utilise a Taxi App to help satisfy demand during periods when taxis are generally not on the road, after 5pm and on weekends and holidays.
- Taxi drivers should be required to pass a test or be interviewed every few years to ensure their skills remain satisfactory in terms of service quality and general knowledge.
- Amend taxi regulations for 'tours' whether for one person or seven people, to be \$80 per hour (currently the charge is \$50 1-4 passengers and \$70 4-7 passengers).
- Amend taxi regulations to allow the maximum number of passengers to increase from seven (7) to eight (8) passengers for the H1 larger vehicles.
- Implement an island-wide Taxi-Ride-Share programme, with per person fares booked on demand via an app.
- Create a 'fee' for passengers to pay only if they vomit in a taxi.
- Under the Motor Taxi (Special Permit) Act 1970, grant up to eighty-eight (88) special taxi permits to operate during periods when there is a lack of service e.g. 3pm to 4am and on Friday nights, weekends and holidays. Implement a special incentive permit rate e.g. \$2,000 for a four-seat taxi and \$4,000 for a seven-seat taxi. The legislation states that the holder of a special permit may only own one (1) special permit. The permit holders could be required to fill the gaps in service at the L. F. Wade International Airport, Dockyard, Horseshoe Bay Beach, and St. George's for trips to and from nightlife activities around Bermuda.

Dockyard and Horseshoe Bay Beach specific Comments and Thoughts

- Legislate shared ride taxi fares between Dockyard and Horseshoe Bay beach at \$7 per person fare one-way, as soon as possible (Note: this is not supported by most taxi drivers).
- Legislate flat taxi rates of \$32.00 for 4-seat and \$42 for 7-seat taxis between Dockyard and Horseshoe Bay Beach.
- Create a shuttle line for taxis and minibuses at Dockyard GTA and Horseshoe Bay beach for a legislated rate of \$7 per person, shared ride, between Dockyard and Horseshoe Bay Beach. Implement 15 minute maximum wait periods with the vehicle obligated to leave with whatever number of passengers are in that vehicle. Those in the shuttle line cannot use a metered rate.
- Work to ensure better control of Horseshoe Bay Beach GTA by Department of Parks.

- Enforce “No Solicitation” of taxi and minibus transportation services at Horseshoe Bay Beach or take down the sign.
- Provide shade in the parking area of Horseshoe Bay Beach GTA for waiting passengers and drivers.

4.4. Minibuses

Issues

- 1) There is a high demand for more minibuses for hire in cruise ship season, including wheelchair accessible vehicles. (See Section 10.4 regarding cruise line concerns about the lack of motorized wheelchair accessible transportation).
- 2) Minibus Regulations are needed to properly regulate the Minibus owners and operators.
- 3) Minibus operators said they would like the ability to contract with schools directly for any services rather than through the Ministry of Transport, per past practice. However, that depends on if the Ministry of Education wishes to pay for their services.
- 4) The public are concerned that minibus drivers are not qualified to transport small children to school and need special training.
- 5) There is reputational risk for Bermuda in not having minibus drivers dressed appropriately.
- 6) Minibus operators would like the ability to import vehicles at a 10% customs duty (like taxis), instead of the current custom duty rate of 35%.
- 7) Minibuses are needed to provide year-round service to communities that are not on a public bus or ferry route. However, service providers are not always available. Most operators prefer the cruise ship business, which is based on higher volume and this has left the residential communities at a disadvantage in high season. In winter months, minibus operators address repairs and maintenance and take vacation.
- 8) Minibuses should be required to offer affordable commuter ‘park and ride’ services.
- 9) The value of a minibus permit is grossly undervalued.
- 10) There is an urgent need for minibus operators to work at night and provide service to persons who do not wish to drink and drive.

Context

- A) In the mid-1990’s there were between seven and eight minibuses, and these were licensed to assist the community with feeder transport services in the East, West and Central areas. This involved taking commuters from home to a ferry stop or collecting special persons and transporting them to an appointment at fares generally cheaper than a taxi.
- B) In 2018, there were 147 licensed minibuses with only four minibuses having wheelchair accessibility. All can ply for general conveyance hire without restrictions on the type of customer service they wish to provide, e.g. community or visitor. Generally, however, the majority ply for hire where there is a volume of business, and that is found in catering to cruise ship and hotel visitors.

- C) A minibus is classified as having seating accommodation for not less than 11 passengers. The average number of seats is 20. Some of the newer and larger minibuses have seating capacity for 30 persons.
- D) Until December 2006, minibuses were assigned to operate in an approved parish. Thereafter, the Minister responsible for transport granted permission for all minibuses to operate island wide. This left certain communities without affordable short distance transport options. The fares, dress code, and hours of operation are determined by the PSVLB by policy, until the regulations become law.
- E) The operating conditions for a minibus is managed through policy, whereas the taxi industry is governed by Regulations approved by Parliament. This has caused some conflict between the taxi and minibus operators.
- F) Minibus and taxi transportation services mostly cater to the same customer base; both are for hire. A taxi provides its passengers the convenience of direct point to point uninterrupted service, while a minibus offers a point to point shared ride and can take longer to get to the desired destination.
- G) The fee structure for a minibus is different to that of a taxi. Minibus per passenger fares start at \$5.00 for the first parish, an additional \$2.00 for the second and third parish, and \$1.00 for each parish thereafter. The statutory fare rate for a taxi ride comprises an initial charge of \$5.15 and then \$0.55 for each subsequent one-fifth of a mile or part thereof as the meter advances. Also, there are fare structures for luggage fees, waiting fees, surcharges from midnight to 6am, and Sunday and public holiday surcharges. These charges do not apply to minibuses.
- H) In cruise ship season, on a sunny day, up to 5,000 cruise ship passengers may wish to visit Horseshoe Bay Beach and return. The public bus schedule only provides one, 38-seat bus, every 30-minutes from Dockyard via the South Shore, putting the burden of transportation on taxi and minibus providers.
- I) In 2017, DPT stopped making available 12 public buses to be used for cruise passenger sightseeing tours, thereby leaving minibuses to fill this demand for tour lift. This means between 20 and 60 minibuses are not available in the General Transportation Area, for general conveyance.
- J) Typically, minibus operators who provide the daytime transport services to cruise ship passengers, do not work at night. There is a need for more minibus drivers to be out at night giving residents the confidence that they can get transportation late at night and not drink and drive.
- K) Currently there are only two minibuses with wheelchair accessibility for general conveyance.

Stakeholder Comments & Thoughts

- Create and implement 'Minibus Regulations' to achieve a high level of professional service delivery, and ensure standards are maintained and enforced.
- In order to meet current demand, allow the number of minibuses to be increased to a maximum of one hundred and eighty (180) minibuses (or maximum of six thousand (6,000) seats).
- Give consideration to having thirty-three (33) more minibuses specifically licensed as outlined below:
 - a. Sixteen (16) minibus permits for 'general conveyance' out of Dockyard to service cruise ship passenger business, including ship shore excursions.
 - b. Twelve (12) minibus permits for wheelchair accessible vehicles where each minibus is to accommodate four wheelchairs (heavy motorised) as well as seats for companions and family members. These minibuses can be used for trips going to and from the airport and hotels to and from attractions, shops and restaurants, as well as, to and from cruise ships.

- c. Five (5) minibus permits for 'general conveyance' serving 'feeder routes' (for bus or ferry stops) for the residential communities in the East, West and Central Parishes. These minibuses could cater to the community who have special needs, especially persons using motorised wheelchairs, but do not have access to community service vehicle services.
- Make mandatory a special certificate course for all minibus drivers similar to the 'Minibus Safety Code of Practice from the Royal Society for the Prevention of Accidents in the United Kingdom' so they may become certified to handle small children without a parent present (e.g. school runs) and persons with differently abled needs, and include this requirement in the pending Minibus Regulations.
- Implement a minibus class structure, whereby any new minibus permit granted should state what type of specific service(s) the minibus can provide e.g. commuter feeder routes to public transportation, commuter park and ride services, tours, cruise passenger runs between Dockyard and South Shore beaches, evening and weekend airport pick-up, distinguishing, also, those with wheelchair accessibility. In that way the balance of services can be monitored and better managed to suit demand.
- Help create a level playing field between taxis and minibuses and allow both to be subject to a 10% customs duty relief. (Note: taxis are 10% and minibuses are 35%)
- Have minibuses provide an evening service so that residents and hotel visitors can enjoy restaurants and nightlife activities and know that there is transport available at the end of the evening.
- Have minibuses to offer affordable commuter 'park and ride' services.
- Find alternative beach destinations (to Horseshoe Bay) and develop a shuttle service between Dockyard and the other beaches.
- Allow advertising on the rear window of minibuses, similar to DPT buses.
- Have the ability to legally use jump seats for passengers on short runs.
- Have the ability to transfer a minibus permit (ownership) to another person through the sale of said permit upon the approval from the PSVLB.
- Allow a modified dress code due to religious beliefs providing it does not jeopardize the safe operation of the vehicle.
- Affix a Parish Map of Bermuda to the minibus rate sheet and ensure the map is properly displayed in each minibus.
- Have specific identifiable parking bay allocations for minibuses in Hamilton and at the L. F. Wade International Airport.
- Amend legislation to create three (3) Classes of minibuses:
 - Class A to accommodate not less than 9 and not more than 15 seats;
 - Class B to accommodate not less the 16 and not more than 23 seats; and
 - Class C to accommodate not less than 24 seats and not more than 30 seats.

4.5. Limousines (Luxury, Airport & Funeral)

Issues

- 1) There is general support for luxury limousines for the affluent traveller, however, residents are concerned that these luxury cars may get bigger.
- 2) There are issues surrounding the lack of airport transportation available, particularly for visitors arriving in the afternoon and evenings, seven days a week.
- 3) There were no reported issues surrounding Funeral Limousines.

Context

- A) Luxury limousines are different than Airport limousines and Funeral Home limousines in their scope of service. Airport and funeral home limousines are restricted in the service they provide.
- B) Luxury limousine dimensions do not exceed 210 inches in length and 77 inches in width and can accommodate a maximum of six passengers. The drivers must wear uniforms.
- C) Luxury limousine owners pay \$54,100 for a vehicle permit fee to operate a limousine service.
- D) In 1999 there were no luxury limousines in Bermuda. In 2018 there were 12 licensed vehicles.
- E) Motor Car Act 1951, Limousine Regulations 2007 state:
 - a. that a “fare” means the charge agreed between a person who hires a limousine and the person who operates a limousine service;
 - b. a limousine shall not be used for the purposes of standing or plying for hire;
 - c. the Minister may by order limit the number of passengers which may be lawfully carried in that limousine to four. No more than one passenger shall be carried in the front seat of a limousine. For the purpose of this regulation, a child in arms shall not be counted as a passenger, and two children under the age of twelve years shall count as one passenger; and
 - d. no advertising matter of any description shall be displayed in or on any limousine.
- F) Airport limousines are specifically dedicated to transferring passengers and their luggage to and from the airport. They may also provide school bus service but, generally, they do not cater to that market.
- G) Airport limousine dimensions may not exceed 5812 mm (230 in.) in length and 1931 mm (76 in.) in width.
- H) There were 16 Airport limousines in 1999, and in 2018 there were four licensed and on the road.
- I) Airport limousines use to be stationed at the airport and usually their work is prearranged. Their rates are not governed by the PSVLB and they are contracted like the minibuses. Airport Limousine operators must meet certain service standards such as carry the number of passengers approved. Meaning, if a company is approved to carry 300 passengers, it should have enough vehicles to move this number of people.
- J) In 2018, there were two funeral home limousines. These limousines are only allowed to cater to the funeral market.

Stakeholder Comments & Thoughts

- There are no issues with luxury limousines, so long as they do not get any bigger, currently legislated at 210 inches in length and 77 inches in width.
- Allow hotels to own and operate their own Hotel Shuttles for both airport and nightlife transfers for hotel guests, due to the lack of taxi availability.

4.6. Minicar Livery Rentals

Issues

- 1) There is concern that charging stations are different for each model of electric vehicle, making certain locations unsightly.
- 2) When the minicar rental business was considered for new legislation, it was only envisioned as an electric vehicle market, however, a decision was made at the drafting stage to not limit the minicar rental market to electric vehicles. Therefore, there is concern today that there may be a number of 2-stroke fossil fuel minicars (three and four wheels) imported unless specific legislation is created to avoid 2-stroke minicars from being imported.
- 3) There is concern about the limited parking options, especially in the City of Hamilton and visitor attractions.
- 4) There is concern by Taxi Operators that the minicars will be allowed to have more than two-seats in the future.

Context

- A) "Minicar" means a motor car owned by and ordinarily available for hire from a minicar livery. The minicar engine capacity cannot exceed 150 c.c.'s; length overall cannot exceed 115 inches; width overall cannot exceed 60 inches; horsepower cannot exceed 20 hp or 15 kilowatts; the number of wheels on which a minicar is supported is three or four; and the maximum number of seats is two.
- B) "Minicar livery" means a person or body of persons by whom minicars are let (rented) on hire for use by other persons.
- C) Ministry of Transport capped the number of minicar approvals at 298 in 2018, however not all vehicles were landed in Bermuda or licensed by 31 December 2018. Consideration for a further 206 minicars by 2020 will ensue following a thorough review of the minicar rental initiative, to a maximum total of 500 minicars.
- D) To date, there are seven approved minicar liveries.
- E) There has been overwhelming support for minicars by stakeholders and the public through the stakeholder consultation period.
- F) The 2018 Public Transport Survey revealed that 75% of the survey responders said that they would like to see more minicars in Bermuda. Most feel that the minicar is much safer vehicle than a rental cycle for visitors.
- G) The introduction of minicar rentals for visitors has seen a reduction in visitor related road accidents.

During the summer of 2017, the Bermuda Police reported 176 visitor cycle accidents where persons attended KEMH Emergency for injuries. During that same period, there were two minicar accidents and zero persons attended the hospital, although the vehicles were written-off.

- H) Parking for minicars was manageable at the 2018 figure of 69 minicars licensed and on the road. Corporation of Hamilton, Town of St. George and the West End Development Corporation all support the minicar rental initiative. Generally, hotels are also very supportive of minicar rentals and are making special provisions for parking for their guests.

Stakeholder Comments & Thoughts

- Create a standard policy on the types of approved minicars for charging stations.
- Amend the Motor Car Act 1951 to make 2-stroke fossil fuel minicars illegal.
- Create special parking areas for minicars in the City of Hamilton.

4.7 Auxiliary Cycle Livery Rentals

Issues

- 1) There are concerns regarding visitor safety on mopeds, especially with children as pillion passengers.
- 2) There are concerns regarding visitor handbag snatches while mopeds are in motion, which can cause accidents.
- 3) Poor instruction by livery agents when teaching visitors how to use a moped is a concern.
- 4) There is concern that 50cc Auxiliary cycles are mostly 2-stroke, which is bad for the environment.

Context

- A) "Auxiliary bicycle livery" means a person or body of persons by whom auxiliary bicycles are commonly let on hire for use by other persons.
- B) "Auxiliary cycle" means a vehicle with two or three wheels intended or adapted for use on roads that is electrically propelled or mechanically propelled and has a motor with a cubic capacity not exceeding 50 cubic centimeters.
- C) No person under the age of eighteen years who is not a resident of Bermuda shall drive an auxiliary bicycle.
- D) Auxiliary cycles are legislated at a maximum of 50cc, and livery rental cycles are legislated at a maximum of 50cc.

Stakeholder Comments & Thoughts

- Livery operators should do a better job at providing comprehensive training on how to use a moped and the rules of the road.
- Livery operators should better demonstrate to renters how to keep their valuables safe.

- Restrict the age of pillion passengers, i.e. no children.
- Require livery cycle riders to use daytime running lights.
- Require livery cycle riders to use hand signals.
- Ban 50cc, 2-stroke livery cycles as there are more choices in the marketplace suitable for rentals.

4.8. Government's Perspective on Public Service Vehicles

- 4.8.1. It is important to encourage and incentivize more Community Services Vehicles for persons with special needs, especially ones that can accommodate wheelchair users.
- 4.8.2. Government is not prepared to restrict, ban or put a moratorium on the number of commercial vehicles already licensed, including tractor trailers and large construction equipment. The increase of 338 more commercial vehicles is not sufficiently alarming to put any new legislation in place to reduce this category of vehicle.
- 4.8.3. Legislating the times when large trucks are allowed on the road is not a practical solution to solving congestion issues. Continuing with strict measures via policy to restrict the hours of large commercial vehicles on the road in the morning and evening will only impede commercial growth and raise prices on goods to residents and visitors.
- 4.8.4. Government recognizes the issue surrounding the lack of taxis at certain times of day and the enforcement thereof. Government is supportive of enacting the provisions under the Motor Taxi (Special Permit) Act 1970, and grant up to eighty-eight (88) special taxi permits. Consideration will further be given to seasonality and special need periods when there is a lack of service e.g. 3pm to 4am, especially on Friday nights, weekends and holidays. Also, Government tasked TCD with full enforcement of the requirement to be on the road 16-hours per day.
- 4.8.5. The maximum number of minibuses under consideration is 180 vehicles. This takes into consideration the needs identified in section 4.4. and section 2 to include 20 minibus applications with motorized wheelchair accessibility. The Minibus Regulations are under consideration and will be introduced at the end of the Transport Green Paper process.
- 4.8.6. The minicar livery business is being closely monitored, and, a maximum of 500 minicars in the rental pool by 2020 is being strongly considered. Final decisions will be made at the end of the 2019 summer season, after further consultation.

Section 5

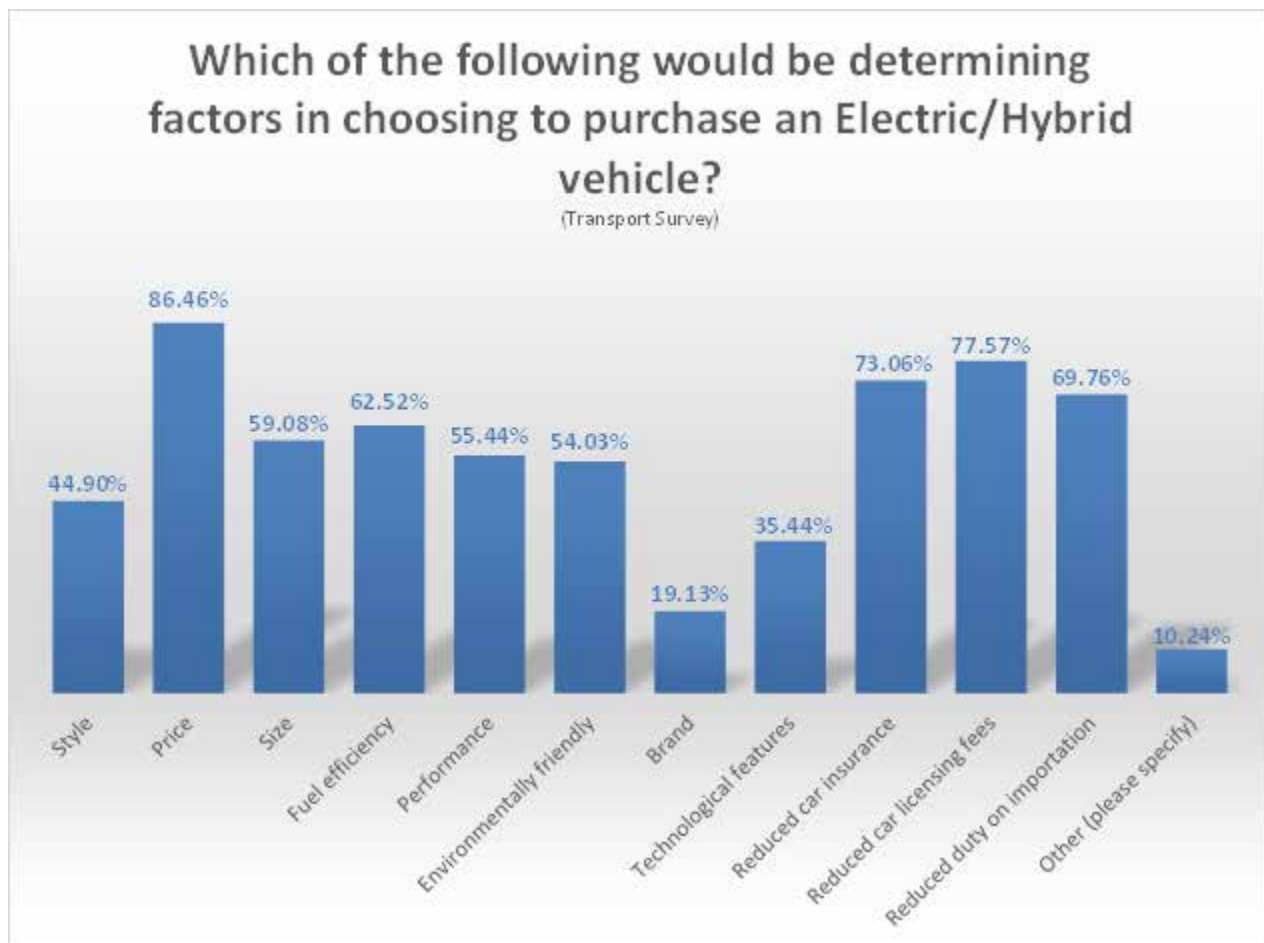
Electric and Hybrid Technology

Overview

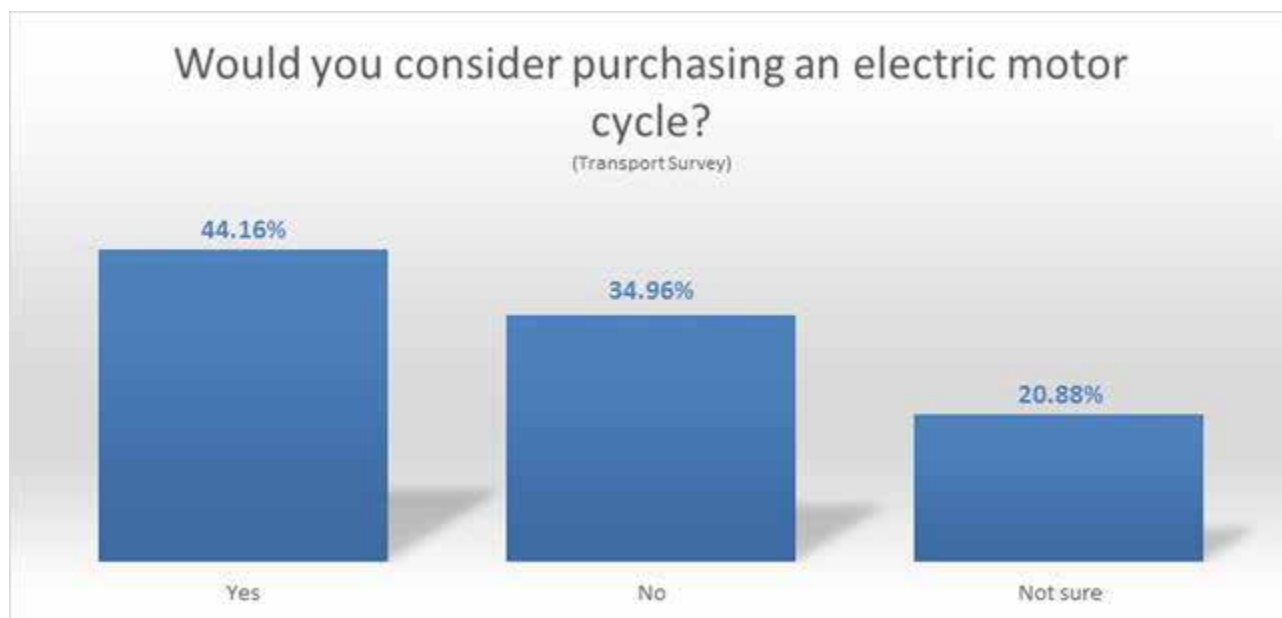
Bermuda residents' interest in adopting Electric Vehicle (EV) technology has fluctuated since the mid-1990's. However, with improvement in the technology, a reduction in the duty rate to 0% and the recent introduction of electric minicars to the Island, that interest has started to increase once again.

This section discusses electric and hybrid technology and the measures needed to promote the uptake of electric vehicles.

Graph 32



Graph 33



5.1 Reducing Bermuda's Carbon Footprint

Issues

- 1) Bermuda's consumption of fossil fuels, through the use of internal combustion engine vehicles, negatively affects not only residents' health and the environment, but also the balance of payments for the Island.
- 2) There are net benefits to investing in electric vehicles but there are currently local and global impediments to the broad adoption of the technology.

Context

- A) In 2018 there were approximately 240 electric vehicles licensed and on the road.
- B) Internal combustion engine vehicles were invented in the 1880's and the fundamental components of these types of engines have not changed significantly since that time. They rely on fossil fuels as their energy source and, in comparison to modern electric vehicles and hybrids, they are expensive to run and maintain and generate pollution.
- C) Hybrid vehicles have two or more engines, one is an internal combustion engine and the other an electric motor. The electric motor powers the car at lower speeds and an internal combustion engine at higher speeds.
- D) Electric-powered vehicles, commonly referred to as electric vehicles or EVs, use electrical energy stored in a battery to power an electric motor which provides propulsion to the vehicle. They have fewer moving parts, resulting in lower maintenance costs, and operate more quietly.

- E) There are several models of electric and hybrid vehicles currently being sold on the Island which fit within current vehicle licensing regulations. However, there are many on the international market which are physically too large or have too powerful a motor to be licensed in Bermuda.
- F) The 2018 Public Transport Survey revealed that 63% of the responders would be willing to replace their car with an Electric/Hybrid car. 15% said there were not willing and 22% were not sure.
- G) The 2018 Public Transport Survey revealed that 44% of the responders would consider purchasing an electric motor cycle and 35% said they would not. 21% were not sure.
- H) Current pricing of EVs in Bermuda is 1.5 to two times more than that of similarly sized internal combustion engine vehicles. It would appear (see Graph 32) to be one of the main reasons why residents are reluctant to purchase EVs.

Stakeholder Comments & Thoughts

- Develop a strategy for the Island to transition all of Bermuda's internal combustion engine vehicles to Electric Vehicles. Government to lead by example by piloting the transition of its fleets of vehicles, including public transportation buses, to EVs and installing necessary charging infrastructure.
- Develop a local training standard/certification for EV mechanics.
- Develop policy/procedures for safe disposal of EV batteries and EV components.
- Review and amend motor vehicle licensing requirements for EVs as needed.
- Assess the demand and need for an Island wide public/private charging infrastructure.
- Encourage the uptake of EVs by incentivizing their purchase either through rebates, a reduction in licensing fees, insurance etc.
- Provide education on, and promote, the long term benefits of EVs.
- Reduce TCD annual licensing fees for EV and Hybrid vehicles.

5.2. Government's Perspective on Electric Vehicles

- 5.2.1. The Bermuda Government is supportive of a transition to electric vehicles, be they cars or motor cycles. While the full environmental impact of the internal combustion engine is mitigated, and cost savings realised, when the charging mechanism for the electric vehicle is solar powered, first steps will be to encourage the take up of electric vehicles by residents.
- 5.2.2. To this end, Government will assess the identified impediments to EV purchases – price, fees, insurance, duty – with a view to determining whether reasonable incentives can be developed. Also taking note, that the vehicles will contribute to wear and tear of the roads like any other vehicle.
- 5.2.3. Given the rapid improvements in EV technology – fast chargers, longer range – it seems unlikely that a vast island-wide charging infrastructure will be required.



Section 6

Road Traffic

Overview

The Bermuda Government Operating Plan dated 25 July 2017 calls for the Ministry of Transport to:

- Enhance the Government's collaborative partnership with the Bermuda Road Safety Council and local insurers to improve the quality of the Project Ride Programme.

The Transport Green Paper stakeholder consultation period revealed a public desire for:

- a. more police presence;
- b. better enforcement of road traffic legislation;
- c. a plan to stop speeding, drunk, distracted and third lane driving behaviours;
- d. enhanced education and training programmes to produce safer drivers;
- e. safer road surfaces and bridges;
- f. more sidewalks;
- g. greater restrictions on dark tinting on vehicles and visors;
- h. increased traffic fines;
- i. reduction of congestion; and,
- j. more courteous driving habits.

Graph 34



History of accidents and deaths in Bermuda:

- ▶ There were 227 deaths attributed to road traffic collisions between 1997 and 2017, which is an average of 11.3 deaths per year.
- ▶ The Bermuda Hospitals Board provided the following statistics for 2016 and 2017:
 - Between January and December 2016 1,685 persons attended King Edward Memorial Hospital (KEMH) ER or the Lamb Foggo Urgent Care Centre due to a road traffic collision. The medical charges amounted to \$3,473,295.65. Of the 1,685 people, 189 were admitted to KEMH due to their injuries. Those medical charges amounted to \$3,412,090.10. There were 15 fatal accidents in 2016.
 - Between January and December 2017, 1,689 persons attended KEMH ER or the Urgent Care Centre for a road traffic collision. The medical charges amounted to \$2,686,380.46. Of the 1,689 people, 172 were admitted to KEMH, and the medical charges amounted to \$3,157,833.67. There were 15 fatal accidents in 2017.
- ▶ In 2017, the mean age of persons killed in a road traffic accident was 42 years old. 80% were male. 93% were either driving an auxiliary bicycle, motorcycle, livery cycle, or were a passenger on a motorcycle.

In 2018, the Minister responsible for transport successfully passed legislation to enable roadside sobriety checkpoints. The new law allows persons to be tested at the checkpoint to determine their blood alcohol content level. Arrests can be made after the driver fails the roadside breath test.

Roadside checkpoint notices are published by parish and date in traditional and social media platforms. These checkpoints will be highly visible to alert drivers of the upcoming checkpoint. All drivers of vehicles going through the checkpoint will be assessed by a police officer to determine if the driver should be tested or not. It is intended that the checkpoints will deter persons from drinking and driving and, in that way, make our roads safer.

In addition, the Road Safety Council launched the 2018 Road Safety Strategy. 'Operation Caution' which is a five-year plan for saving lives in Bermuda. The summary follows in Section 6.1.

6.1. Road Safety

Issues

- 1) Bermuda's culture of poor driving results in drivers who are:
 - a. speeding;
 - b. driving drunk;
 - c. distracted;
 - d. tired;
 - e. impatient;
 - f. careless;
 - g. tailgating;

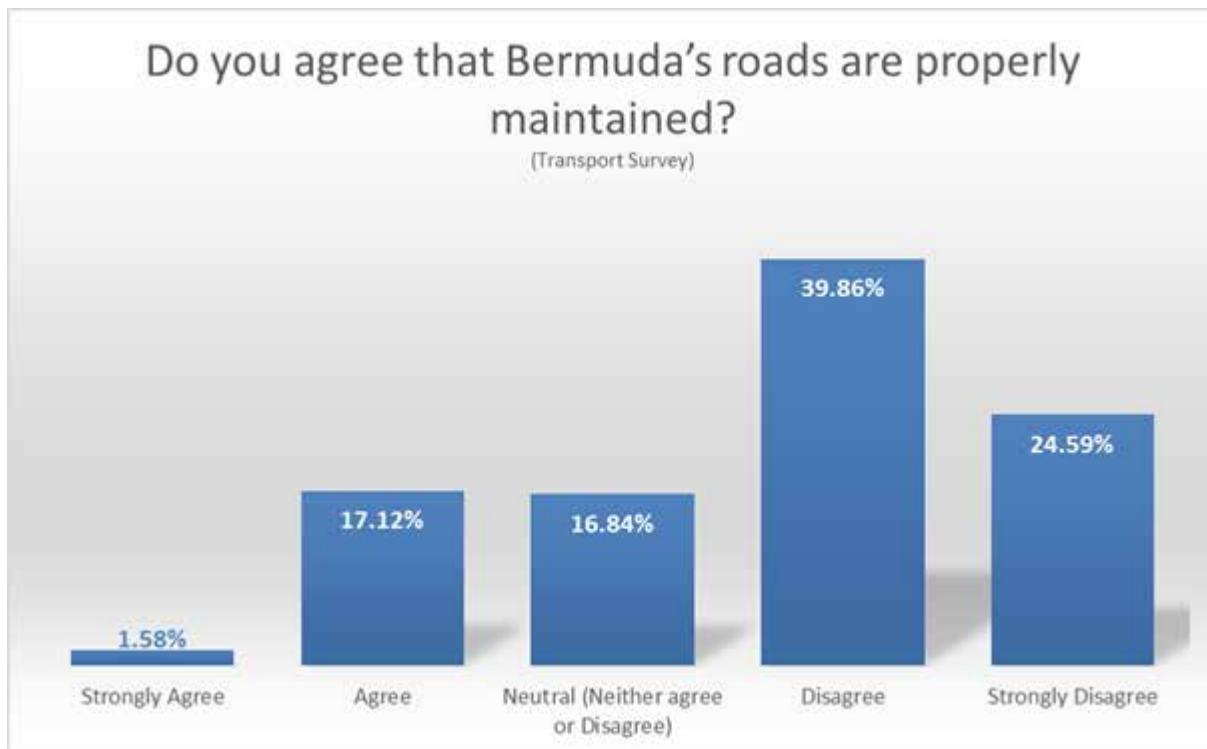
- h. running late;
- i. discourteous; and
- j. inconsiderate of others.

2) In addition to above, the following road safety issues are discussed in other sections:

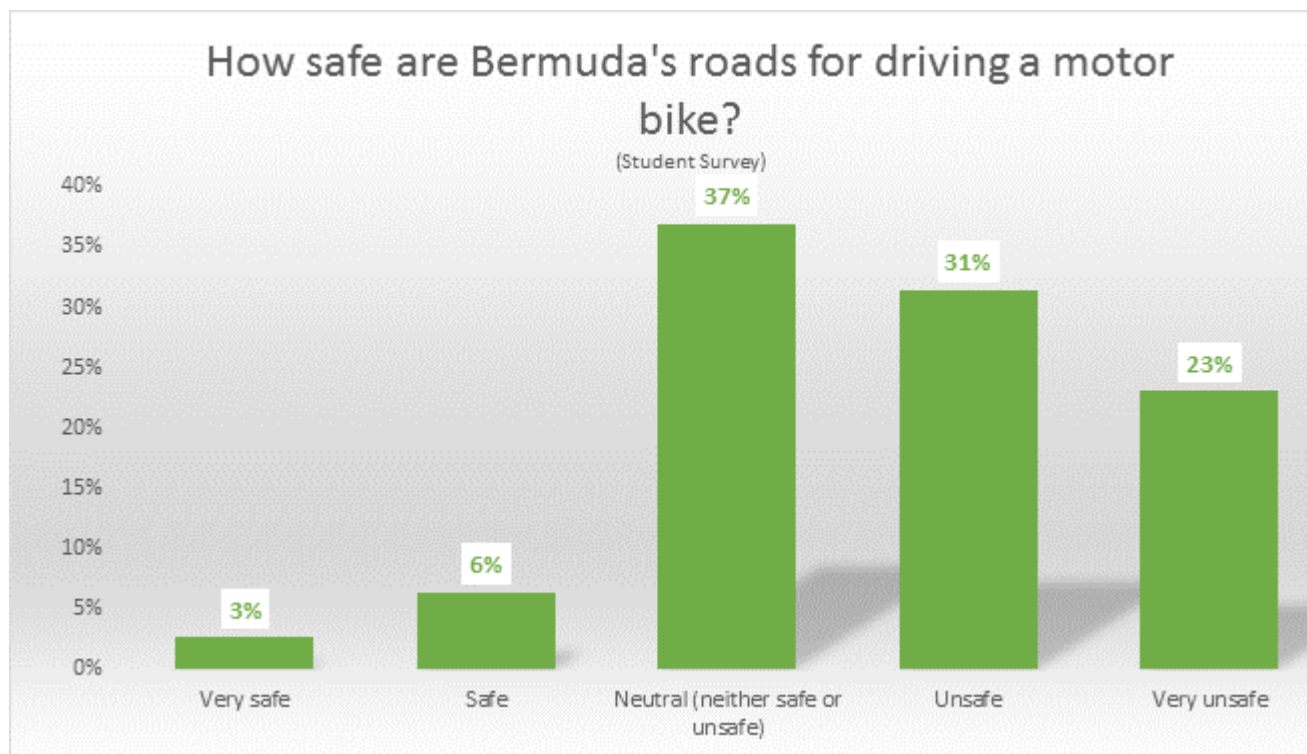
- a. damaged road surfaces;
- b. lack of safe spaces to walk;
- c. lack of sidewalks;
- d. dark tinting on vehicles and helmet visors;
- e. too many large cars and trucks on the road;
- f. lack of police presence; and,
- g. heavy load factors on bridges.

3) Unsafe road conditions.

Graphs 35



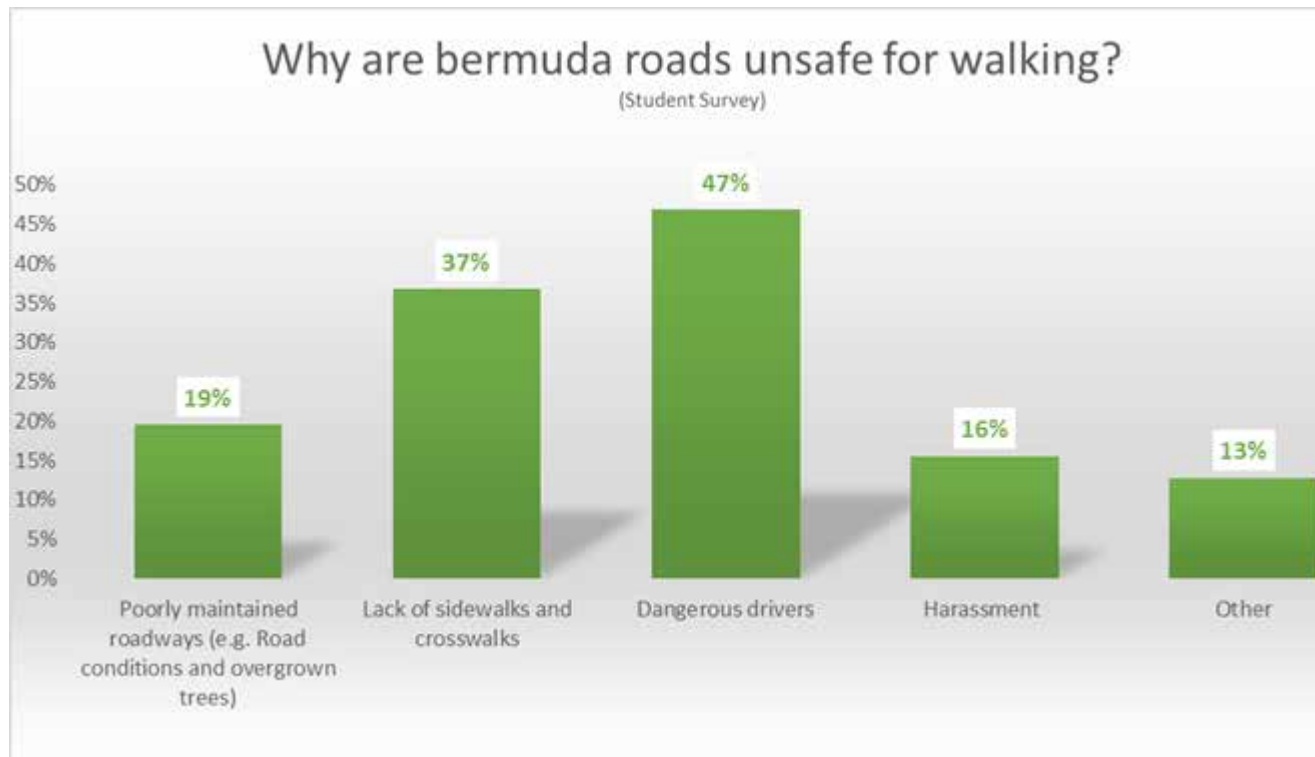
Graph 36



Graph 37



Graph 38



Context

- A)** The primary objective of the Bermuda Road Safety Council (BRSC) is to ensure compliance with general traffic laws and increase awareness of the results of making bad decisions on our roads. Promotions continue to focus on speeding and drunk driving as these issues are of great concern.
- B)** The goal of the Road Safety Programme is to promote road safety awareness through education, training and public awareness. As such, the activities of the programme are coordinated by the Road Safety Officer within the Transport Control Department, as well as the Road Safety Council.
- C)** The Bermuda Road Safety Council advises the Minister on transport matters pertaining to road safety and devises strategies and programmes to address key problems. In addition, the Council, in conjunction with the Road Safety Officer, recommends legislative changes.
- D)** The Road Safety Officer also coordinates the Project Ride Programme offered in Bermuda's public and private senior secondary schools.
- E)** The Royal Gazette's 2018 Drive for Change Campaign, as well as the film 'A Piece of the Rock' have done an outstanding job to help bring awareness to bad driving behaviours and the severity of road traffic collisions, accidents, injury and death on Bermuda's roads.
- F)** Bermuda Road Safety Council (BRSC), Encouraging Responsible Alcohol Behaviour (CADA), Bermuda Police Service (BPS) and Transport Control Department (TCD), believe there are three main approaches to change the culture of reckless driving and riding, they are: education, enforcement and engineering. These tools help to reduce road traffic collisions and fatalities.

Stakeholder Comments & Thoughts

- Change the drunk driving culture, and implement roadside sobriety checkpoints to encourage responsible drinking and driving (legislation is now passed to introduce this recommendation).
- Introduce higher penalties or criminal penalties for drunk driving (legislation is now passed).
- Implement a more robust road safety programme.
- Increase the road safety education of students from an earlier age.
- Introduce 'on the spot' fines for drunk driving and impound driver's vehicle for one year.
- Increase fines and demerit points for driving without due care and attention.
- Use technology to tag vehicles for bad driving behaviours.
- Use technology to issue tickets and fine offenders immediately and/or revoke the driving licence of offenders.
- Tie Traffic Court to the TCD system and do not relicense a driver's vehicle if the driver has outstanding traffic fines.
- Have vehicle free zones for walking.
- Stop third lane driving and overtaking on the inside left by cycles, and introduce higher penalties for these.
- Install Speed Cameras as soon as possible and introduce high penalties.
- Install Cameras in frequent collision spots.
- Raise the drinking age from 18 years to 21 years.
- Dispense with court dates for minor traffic offences and put tickets in the mail. If not paid within ten working days, arrest the driver and then go to court.
- Enhance Project Ride and turn it into a two year Graduated Licensing Program, including on the road training.
- Build more sidewalks to keep walkers safe.
- Create a walking and cycling lane on the Causeway to keep walkers and cyclists safe.
- Introduce higher fines for people driving while on the phone.
- Revise the TCD Traffic Code testing and make it more difficult.
- Implement incentives for good driving behaviours e.g. fuel discounts, car washing discounts.
- Show collision movies to students to demonstrate the detrimental effects of riding a motor cycle dangerously.
- Reduce the legal blood alcohol content level to zero for all drivers.
- Implement an annual driving 'Courtesy Week' awareness campaign.

- Fines for drinking under the influence of alcohol or drugs should be increased to a minimum of \$2,000. Judges have the right to charge \$1500 for a first time offence, plus points and time off the road.
- The driving public need to give way to emergency vehicles; it's the law.
- Ban overtaking on Harbour Road.
- No heavy trucks should be allowed to travel on Harbour Road unless they have a 'work order' for service.
- Install more mirrors at blind spots.
- Stop excessive dark tinting on vehicle windows as very dark windows prevent other drivers and pedestrians from seeing a driver's facial expression.
- Annual vehicle testing at TCD should include vehicle suspension and steering testing to look for safety issues and worn components.
- Introduce road safety signs to provide a short, sharp reminders on topics such as drunk driving, speeding, third lane driving etc.
- Crosswalks and crosswalk traffic lights should be consistent island-wide.
- Increase funding to enable better maintenance of roads.
- Replace bridges in St. George to safely handle bigger load capacities,.
- Implement a better roadside tree trimming programme.
- Take inventory of and fix blind and hazardous junctions.

6.2. Carpooling

Issue

- 1) Carpooling helps to reduce rush-hour congestion driving into and out of the City of Hamilton. Several attempts have been made to implement this type of service among friends, family and coworkers. To date, they have not met with success. The public consultation revealed that, at best, a strong minority of people would carpool to school or work. A similar strong minority would participate in a park and ride scheme.

Context

A) The 2018 Public Transport Survey revealed that:

- a. 40% of the responders would be willing to carpool to work or school.
- b. 23% of the responders to the 2018 Public Transport Survey said they are not sure if they would carpool to work or school.
- c. 47% of the responders to the 2018 Public Transport Survey said that they drive alone in a motor car to work, with 26% saying that they ride their motor cycle.

- d. 8% of the responders to the 2018 Public Transport Survey said that they already carpool to work.
 - e. 41% of the responders to the 2018 Public Transport Survey said that if there was a park and ride commuter service to Hamilton that they would use it and 28.19% said they would not. This is mentioned again (in Section 1) to demonstrate that there is some appetite on the part of residents to carpool.
 - f. 65% of responders in the 2018 Public Transport Survey said they were in favour of using a private payment app service such as Uber. 23% were neutral and 12% were opposed.
- B) There are multiple examples of ride-hailing companies like Uber and Lyft worldwide. Passengers can travel in a private vehicle driven by its owner for a fee and this is arranged in real time (optionally with other riders going in the same direction by an app or website).

Stakeholder Comments & Thoughts

- Create a regulated carpooling app among friends and work colleagues wishing to carpool to work, share fuel and parking expenses.
- Create a taxi and minibus ride-sharing service company app, where persons can order a shared ride in a taxi or minibus to and from work.
- Promote private ride-share and car-pooling opportunities.
- Further reduce the number of private motor cars on the road.
- Put a moratorium on the number of private motor cars allowed to travel into the City of Hamilton because of congestion issues, e.g. only licence plates ending with even numbers can drive on Mondays, Tuesdays, Wednesdays and only licence plates ending with odd numbers can drive into the city on Wednesdays, Thursdays and Fridays. All private motor cars can drive into the city on Wednesdays and weekends. This measure would encourage carpooling and decrease congestion.

6.3. Parking

Issues

- 2) Bad parking.
- 3) Not enough parking (short term and long term) in Hamilton.
- 4) Not enough disabled parking in Hamilton.
- 5) No specific parking for minicars in Hamilton.
- 6) Abuse of commercial vehicle 'loading zone' parking by the public.
- 7) Not enough parking outside the Dame Lois Brown building to pay parking fines.

Context

- A)** In 1999 there were 5,400³⁹ motor car parking spaces in the City of Hamilton; the exact breakdown was not available at the time of printing this report, however we know that this number includes private parking options e.g. business.
- B)** The last parking space data collected by the CoH was in 2009/10 and excludes private parking data. The CoH broke the numbers down into 3,809 parking spaces for 4-wheeled vehicles (including cars, loading zones, taxis and minibuses, residential permit holders, disabled permit holders, doctors, police, BTC truck permits and trucks that queue at No. 7 and 8 Gate) and 2,258 motorcycle parking bays. Of the 3,809 four-wheel parking spaces, 1,770 spaces are on the street and 2,039 are in CoH paid parking lots.
- C)** The Road Traffic Act 1947 states that it is an offence:
- to park on or over a sidewalk; or
 - as to obstruct the entrance to any alleyway or private drive; or
 - within 20 feet of the nearest curb of a cross road or road junction (within 5 feet for cycles); or
 - within 15 feet of any fire hydrant; or
 - within 20 feet of any sign indicating the position of a bus stop, being a sign placed, erected or marked under the Public Transportation Board Act 1951 (within 15 feet for cycles);
 - on or over any bridge or causeway; or
 - between a yellow lane marker and the curb opposite the marker; or park on or over a pedestrian crossing; or
 - in such a way as to obscure any traffic sign.
- D)** Parking in the City of Hamilton⁴⁰ includes all-day options and hourly options:
- car parks – all-day – Bull’s Head (\$5/day), Par-la-Ville (\$20.00/day), Elliot Street (\$5/day);
 - car parks - by-the-hour - No.1, No.5 and No.8 Front Street, City Hall, Par-la-Ville, Bull’s Head, Elliot Street;
 - street parking – by the hour;
 - disability parking - designated areas;
 - commercial vehicles - designated areas;
 - doctors’ parking - designated areas;
 - residential parking - designated areas;
 - service vehicles; and
 - tradesman vehicles.
- E)** Parking is controlled between the hours of 8.00 am and 6.00 pm, and fees apply on every day that is not Sunday or public holiday. Motorists may park in Loading Zones on weekends only.

39 2002 The National Transportation Management Report, Ministry of Transport

40 2018 City of Hamilton Website, parking lots and costs associated

Stakeholder Comments & Thoughts

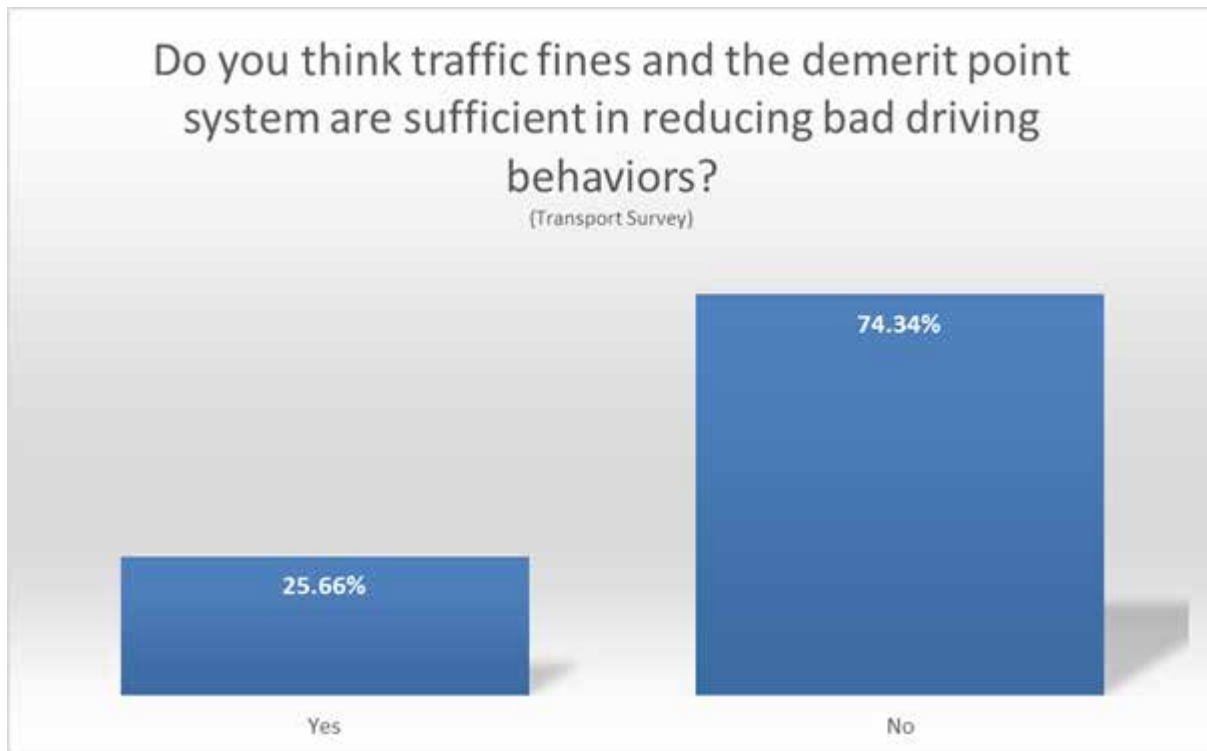
- Create free parking depots outside the City of Hamilton and shuttle people for free into the city from 7:30am to 6pm Monday to Saturday.
- Create an impound lot to take motor cars and motor cycles that park illegally, dangerously or in disabled parking bays without a permit.
- Better organise parking for taxi and minibuses in King's Square in St. George's.
- Implement a better payment and processing system for parking tickets i.e. install a 'Parking Ticket Payment Kiosk' at the Dame Lois Brown Building (outside the building) and, have two parking spots dedicated for five minutes, to make payment easier.
- Allow on-line banking transfers for parking tickets.
- Partner with banks for parking ticket payment options at ATM's island wide.
- Implement motor cycle parking fees in Hamilton.
- Create more motor car parking spaces in Hamilton.

6.4. Traffic Enforcement and Penalties

Issues

- 1) There is public confusion regarding the enforcement powers of TCD Traffic Officers.
- 2) A public awareness campaign is needed for the community to better understand the traffic enforcement powers of the following:
 - a. Bermuda Police Service's Police Officers.
 - b. Bermuda Police Service's Traffic Wardens.
 - c. TCD Traffic Officers.
 - d. WEDCO Traffic Coordinators.
 - e. L. F. Wade International Airport Traffic Officers.
- 3) Increase fines for traffic penalties.

Graph 39



Context

- A) Motor Car Act 1951 states that 'traffic' means vehicles of every description and pedestrians and animals while using the road.
- B) Police Officers and Traffic Officers have the power to arrest, without warrant, the driver of a motor car whom the Police Officer or Traffic Officer has reason to suspect of having committed an offence.

- C) Police Officers, Traffic Wardens and TCD Traffic Officers have statutory provisions in legislation that allow them to issue tickets for traffic offences for which a power of arrest exists.
- D) GOB intends to bring forward new legislation to create Traffic Officers for the L.F. Wade International Airport Traffic Officers and West End Development Corporation (WEDCO), with the power to ticket vehicles and operators that break the law.
- E) TCD Traffic Officers work closely with the Public Service Vehicles Licensing Board and the Trucks Advisory Committee to monitor and enforce the use of Public Service and Commercial Vehicles. The TCD Traffic Section is also responsible for issuing permits for the movement of Public Service Vehicles which includes trucks, community service vehicles, taxis, limousines, tractors and trailers, over-sized containers, heavy loads, unlicensed vehicles, and Sunday Permits for those vehicles which are normally not allowed on the road on a Sunday.
- F) TCD Traffic Officers are deployed on street patrols, and also manage the Electronic Vehicle Registration (EVR) system, to ensure all vehicles operating on Bermuda's roads are compliant with the legislation.
- G) TCD Traffic Officers are deployed to ports of entry where, for example, as many as 7,500 visitors can be found disembarking cruise ships at one time in the Royal Naval Dockyard. Traffic Officers attend the GTA area of Horseshoe Bay beach, as required, to assist with the large volume of passengers seeking transport back to their ships by taxi and minibus.
- H) With regard to Public Service Vehicles, Traffic Officers can move taxis off the 'taxi queue' at ports of entry if any taxi vehicle or driver is not meeting the Taxi Regulations. Examples of this include (i) unclean taxis (ii) badges and rate cards not displayed; and (iii) driver inappropriately dressed.
- I) Principal legislation includes the Motor Car Act 1951, the Road Traffic Act 1947, the Traffic Offences (Penalties) Act 1976 and the Traffic Offences Procedure Act 1974.
- J) It is an offence to:
 - a. speed in excess of 35 kph or in excess of 25 kph in identified areas such as the Town of St. George;
 - b. have vehicle windows tinted more than 35%;
 - c. use hand held communications device, i.e. cell phone or entertainment devices, while driving;
 - d. have flags, mascots obscuring view of driver;
 - e. drive a vehicle to cause excessive noise;
 - f. leave a vehicle in a dangerous position or condition;
 - g. not secure the hand break in an unattended vehicle or to turn off the engine;
 - h. fail to stop at an intersection
 - i. fail to stop before entering a private road from a highway or vice versa where there is no sign;
 - j. play a car radio when it can be heard more than 30 feet away;
 - k. not carry required lights or reflectors during hours of darkness when walking;
 - l. not stop at a pedestrian crossing when a person is on it;
 - m. drive a vehicle in a defective condition ;
 - n. not to stop after an accident;
 - o. fail to report an accident causing personal injury;

- p. for persons aged 16 to 18 to carry a passenger;
- q. have a licence plate that is unreadable or obscured or an unauthorised custom plate;
- r. ride a motor bike while using an entertainment device;
- s. not wear a seat belt;
- t. display signs, adverts on vehicles;
- u. drive an unauthorised car for hire (gypsy cabs);
- v. use a truck, other than a LP, for private purposes,;
- w. drive with a defective rear light;
- x. drive a motor vehicle without a-
 - i. valid driver's licence;
 - ii. third party insurance; and
 - iii. vehicle licence.
- y. drive a container truck on streets when and where there are restrictions.

Stakeholder Comments & Thoughts

- Implement a public awareness campaign around the enforcement powers of the traffic enforcement entities.
- Implement additional training programmes for Traffic Officers and Traffic Coordinators, e.g. how to handle hostile and unsafe situations.
- Implement a Traffic Report website where concerned residents can timestamp photos and videos of vehicle driver offences (clear photo of license plate) that may be considered as evidence and authorities could issue a ticket by mail for the offence.
- TCD Traffic Officers to give public and private middle and senior school lectures on Road Safety between November and March.
- TCD Traffic Officers to implement routine spot checks at senior schools to determine the incidence of students towing, riding unlicensed or having an uninsured auxiliary motor cycles, to curtail these and any other offences.
- Restrict personalised licence plates to be issued by TCD only, this measure would make it easier to identify licence plates of vehicles who are driving dangerously, so as to be reported and fined.
- Take action against the illegal parking of cars for sale along public roads.
- Implement a 'Did you Know' campaign to promote better road safety and deter bad driving and parking behaviours and, also, to encourage people to use designated drivers.
- Implement tougher road traffic penalties. The judicial system is perceived to be too lenient on road traffic offenders.
- Decriminalise parking offences.
- Dispense with court dates for traffic offences and implement fines on the spot – payable within 7-days or a court date will be set if not paid.

- Use technology to 'tag' vehicles that are driven by offenders.
- Increase legislative penalties for bad driving behaviours to a fixed penalty of \$300.

Graph 40



- Increase fines traffic fines, from/to as follows:

Table 7

Auxiliary Bicycles Act 1954				
Code	Offence	Section	Existing Fixed Penalty	Recommended Adjusted Fixed Penalty
3100	Driving auxiliary bicycle not having a driver's license	9(1)	\$100	\$300
3102	Allowing unlicensed person to use a private auxiliary bicycle	9(2)	\$50	\$300
3104	Failing to produce driver's license when required by a police officer (in less than 24hrs)	10(2)	\$25	\$300
3106	Driver of auxiliary bicycle failing to wear protective headgear	10A(2)	\$50	\$300
3106	Driver or passenger on auxiliary bicycle failing to have protective headgear properly fastened	10A(2)	\$50	\$300
3106	Driver of auxiliary bicycle permitting passenger without protective headgear	10A(2)	\$50	\$300
3108	Using or allowing use of improperly equipped or defective auxiliary bicycle	11(1)	\$25	\$300
3110	Using or allowing use of auxiliary bicycle in unsafe condition	12	\$35	\$300
3112	Using or allowing use of auxiliary bicycle in condition causing undue noise	13(1)	\$50	\$300
3114	Using or allowing use of an auxiliary bicycle causing unnecessary noise	14(2)	\$50	\$300
3120	Allowing person under 16 to use auxiliary bicycle	15(2)	\$35	\$300
3130	Failing to produce vehicle license when required (within 7 days)	38(2)	\$35	\$300

Table 8

Auxiliary Bicycles (Construction, Equipment and Use) Regulations 1955				
Code	Offence	Section	Existing Fixed Penalty	Recommended Adjusted Fixed Penalty
3136	Carrying something liable to obstruct view of approaching traffic	3	\$30	\$300
3152	Oversize handlebars (over 30")	4	\$20	\$300
3154	Defective braking system	5	\$50	\$300
3156	No bell or warning device	6	\$50	\$300
3158	No front or rear lights	7	\$50	\$300
3160	Defective throttle control	8	\$20	\$300
3162	Number plate unreadable or obscured	10	\$25	\$300

Table 9

Motor Cycles & Auxiliary Bicycles (Special Measures of Control) Act 1955				
Code	Offence	Section	Existing Fixed Penalty	Recommended Adjusted Fixed Penalty
3190	Driver failing to wear protective headgear on a motorcycle	6(2)	\$50	\$300
3190	Driver allowing passenger without protective headgear on a motorcycle	6(2)	\$50	\$300
3190	Passenger failing to wear protective headgear on a motorcycle	6(2)	\$50	\$300
3190	Driver or passenger on a motorcycle not having protective headgear properly fastened	6(3)(b)	\$50	\$300

Table 10

Motor Car Act 1951				
Code	Offence	Section	Existing Fixed Penalty	Recommended Adjusted Fixed Penalty
3013	Driver of motor car not wearing a seat belt	20C(1)(a)	\$50	\$300
3013	Front seat passenger over 18 not wearing a seat belt	20C(1)(b)	\$50	\$300
3013	Driver allowing passenger under 18 years not to wear a seat belt or in a proper seat	20C(2)	\$50	\$300
3201	Using vehicle not equipped as required or with equipment not in working order	11(2)	\$25	\$300
3208	Unauthorized use of a motorcycle (exceeding 150cc)	24	\$25	\$300
3212	Unauthorized use of motor taxi	33	\$50	\$300
3213	Unauthorized use of airport limousine	36	\$25	\$300
3216	Using truck on excepted day	40	\$25	\$300
3217	Using truck in contravention of Minister's permit	40	\$25	\$300
3217	Using truck for private purposes	40	\$25	\$300
3218	Using self-propelled construction machine on an excepted day	41	\$25	\$300
3218	Using self propelled construction machine in contravention of Minister's permit	41	\$25	\$300
3220	Use of tracked machine in contravention of Minister's permit	42	\$25	\$300
3220	Using tractor on excepted day	43	\$25	\$300
3222	Use of tractor in contravention of Minister's permit	43	\$25	\$300
3224	Use of tank wagon on excepted day	44	\$25	\$300
3226	Use of trailer in contravention of Minister's permit	47	\$25	\$300
3226	Allowing unauthorized use of trailer	47	\$25	\$300
3234	No driver's license or permitting unlicensed person to drive	74(1)	\$100	\$300
3236	Failing to produce driver's license when required by police officer (within 24hrs)	85(2)	\$35	\$300
3238	Failing to stop for a police officer (not on point duty)	111(1)	\$100	\$300
3240	Driver failing to give name and address	112(1)	\$100	\$300
3242	Failing to produce vehicle license when required by a police officer (within 7 days)	112(2)	\$35	\$300
3244	Owner failing to give information to police officer	114	\$100	\$300

Table 11

Motor Car (Examination, Licensing and Registration) Regulations 1952				
Code	Offence	Regulation	Existing Fixed Penalty	Recommended Adjusted Fixed Penalty
3400	Defacing or altering a motor car licence	14	\$100	\$300
3408	Failure to exhibit licence certificate in required manner (refers to stickers)	17	\$25	\$300
3410	Defacing licence certificate	22	\$100	\$300
3414	Failure to exhibit number plate in required manner (includes unlit number plate; unauthorized custom licence plates)	27	\$25	\$300
3416	Failure to exhibit trade plates in required manner	32	\$70	\$300
3418	Failure to carry trade licence	33	\$60	\$300
3420	Unauthorized person driving motor car under trade licence	34	\$70	\$300

Table 12

Motor Car (Construction, Equipment and Use) Regulations 1952				
Code	Offence	Regulation	Existing Fixed Penalty	Recommended Adjusted Fixed Penalty
3302	Defective Springs	4	\$25	\$300
3304	Defective brakes on motor car	5	\$50	\$300
3304	Defective brakes on truck	5	\$50	\$300
3304	Defective brakes on motor cycle	6	\$50	\$300
3302	Defective brakes on a SPCM	7	\$50	\$300
3304	Defective brakes on a tractor	8	\$50	\$300
3304	Defective brakes on a trailer	10	\$50	\$300
3306	Defective couplings on trailer	11	\$50	\$300
3308	Unable to reverse	12	\$60	\$300
3310	Defective mug guards	13	\$25	\$300
3312	Constructed so that there is avoidable smoke	14	\$50	\$300
3314	Not equipped with proper tires (includes wide tires)	15	\$25	\$300
3316	Defective headlights	16	\$25	\$300
3318	Defective speed indicator	17	\$25	\$300
3320	Defective windscreen wipers	18	\$25	\$300
3322	Defective mirror (or no mirror)	19	\$25	\$300
3324	Defective safety glass	20	\$25	\$300
3326	Defective horn	21	\$50	\$300
3328	Defective silencer (exhaust muffler)	22	\$25	\$300
3330	Defective direction indicator	23	\$25	\$300
3332	Defective stop light	24	\$25	\$300
3334	Defective reversing light	25	\$25	\$300
3338	Tare and maximum load improperly or not marked	27	\$25	\$300
3340	Using overloaded truck or trailer	28	\$70	\$300
3342	Using truck with unsecured tailboard or flaps	29	\$35	\$300
3344	Failure to maintain in a safe condition	30	\$70	\$300
3346	Failure to maintain steering gear or lights	31	\$35	\$300
3348	Failure to maintain wheels or tyres (bald tyres)	32	\$35	\$300
3350	Failure to maintain glass	33	\$25	\$300
3352	Flags, mascots etc obscuring view of driver	34	\$25	\$300
3354	Mascot likely to cause injury	35	\$25	\$300

3358	Filling tank with petrol whilst engine running or person smoking (on road)	37	\$100	\$300
3362	Using excessively noisy vehicle	39	\$35	\$300
3364	Driving so as to cause excessive noise	40	\$50	\$300
3366	Failure to stop engine when stationary	41	\$25	\$300

Table 13

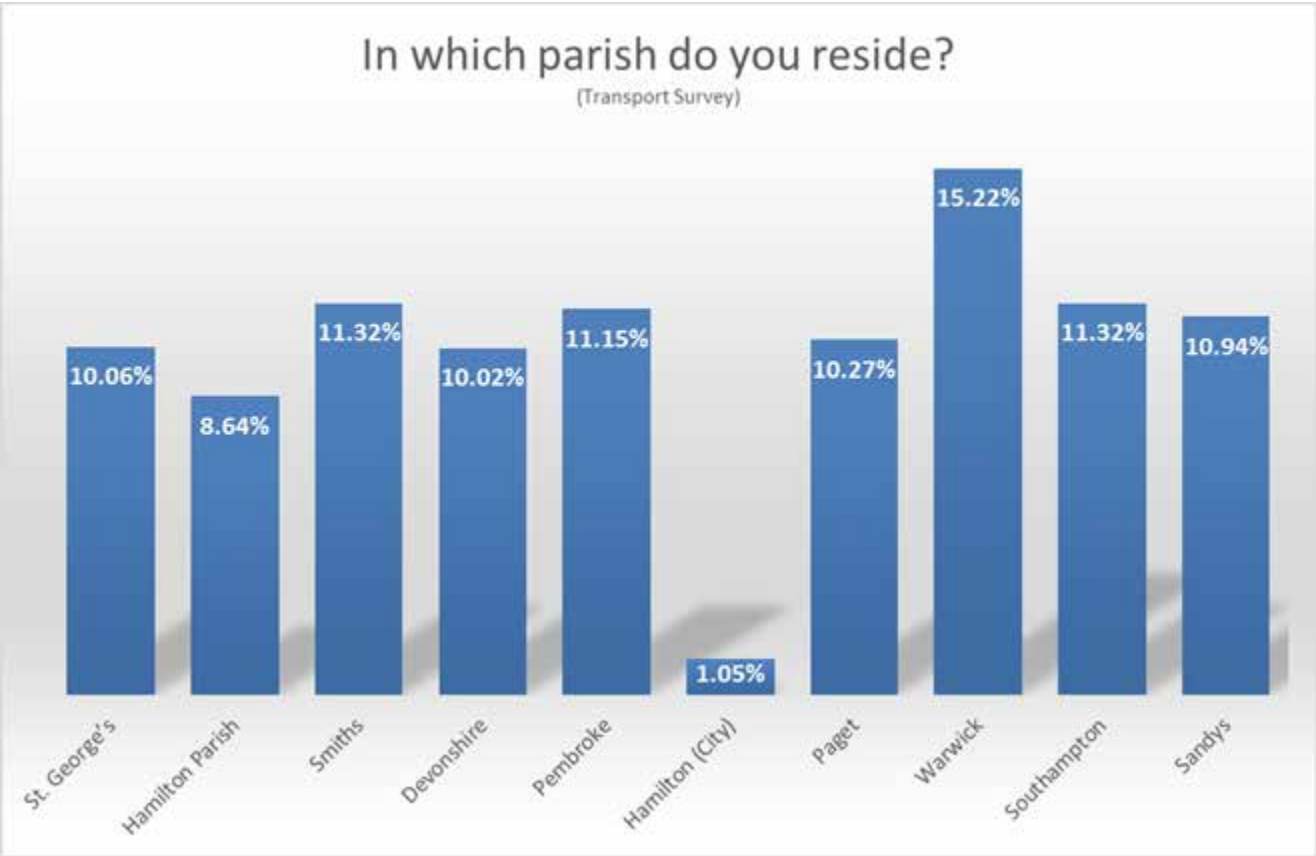
Motor Taxi Regulations 1952				
Code	Offence	Regulation	Existing Fixed Penalty	Recommended Adjusted Fixed Penalty
3504	Carrying more than the permitted number of passengers	6	\$70	\$300
3516	Failure to either wear badge or display badge in taxi	12	\$25	\$300

6.5 Traffic Congestion

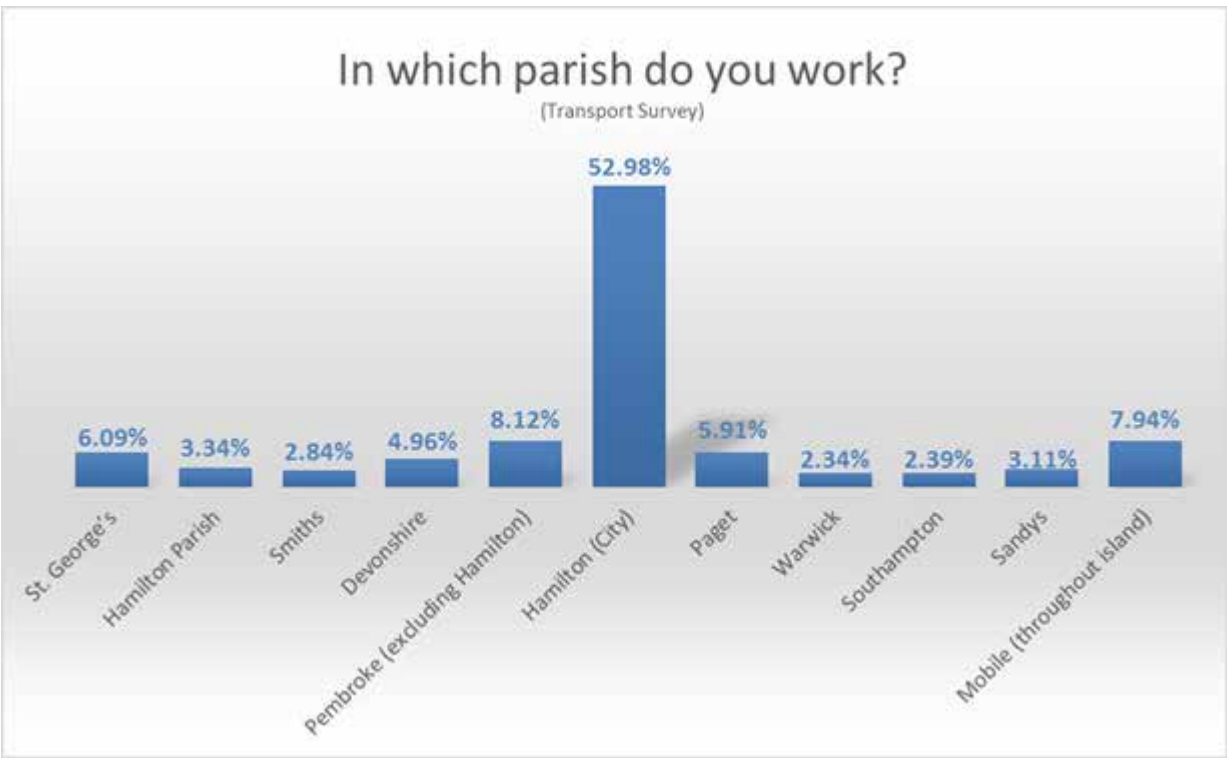
Issues

- 1) Too many vehicles on the road in the morning commute to Hamilton, especially from the West End.
- 2) Inadequate resources to monitor traffic congestion and offences.

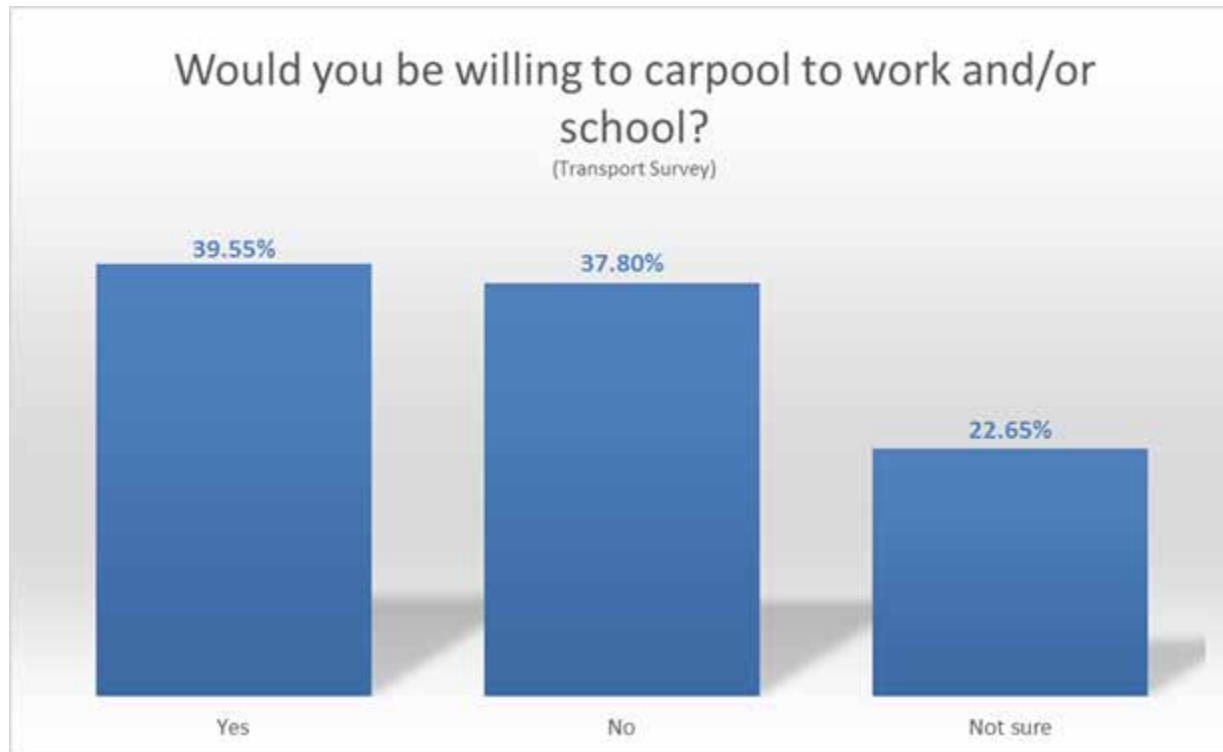
Graph 41



Graph 42



Graph 43



Context

- A) The word 'highway' means any street, road or place over which the general public may have a right of way.
- B) Traffic congestion is caused by vehicles moving at slower speeds because there are more vehicles on the road than can be accommodated, especially during commuting times. Congestion in Bermuda can change a normal 15-minute ride into a 45-minute ride.
- C) City of Hamilton is implementing 'smart' traffic light networking.

Stakeholder Comments & Thoughts

- Implement smart traffic lights to limit ongoing congestion around Bermuda.
- Promote more carpooling.
- Promote public transportation more and keep private cars off the road during commuting times.
- Find space and install more motorcycle parking bays in the City of Hamilton.
- Make it more difficult to park in Hamilton – so workers are encouraged to take public transportation or carpool.
- Do away with GP cars except for the Premier. Government Ministers and work related travel should be done by private car with a fuel stipend by mile.
- Commuters should pay a toll to enter Hamilton at the roundabouts, to promote carpooling.

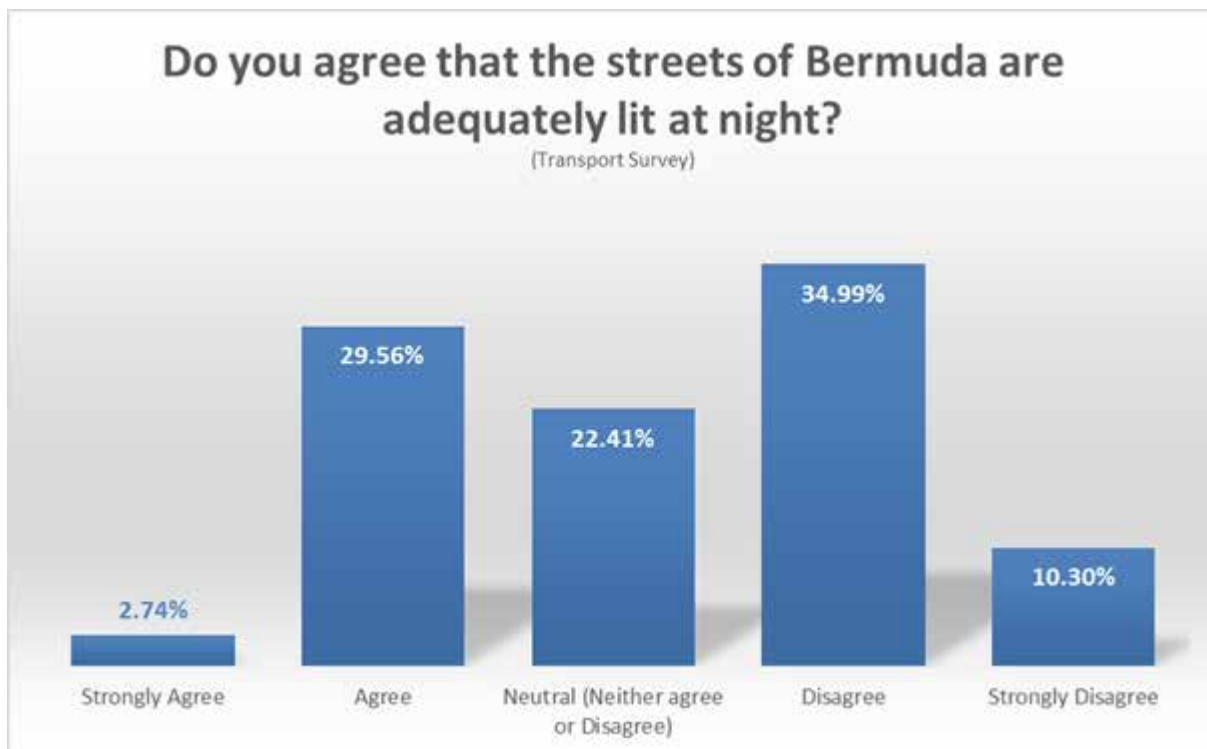
- Businesses to offer flexi-time to employees working in Hamilton to reduce congestion.
- Improve enforcement of third lane driving, it causes congestion.
- Improve monitoring of the congestion at the Paget traffic lights to avoid daily bottle neck.
- Widen the road along Rural Hill to accommodate a third lane.
- Have the relevant schools re-configure their system for the IN/OUT drop off and pick up of students to avoid cluster congestion, particularly Warwick Academy and Somersfield Academy on Middle Road.
- Require all school students to use dedicated school buses to reduce cars carrying out 'student runs'.
- Restrict deliveries to Hamilton, reduce commercial vehicles on the roads, especially Hamilton, and encourage nighttime deliveries to the City of Hamilton.
- Limit the number of vehicles on the road by class of vehicle or vehicle type, in legislation.

6.6. Pedestrian Crosswalks, Traffic Lights and Street Lights

Issues

- 1) Concern that traffic does not stop at crosswalks.
- 2) Concern that there are not enough street lights and traffic lights at crosswalks.

Graph 44



Context

- A) The 2018 public transport survey responders were asked if they agreed that streets in Bermuda are adequately lit at night.
- 32% agreed, while
 - 45% disagreed.

Stakeholder Comments & Thoughts

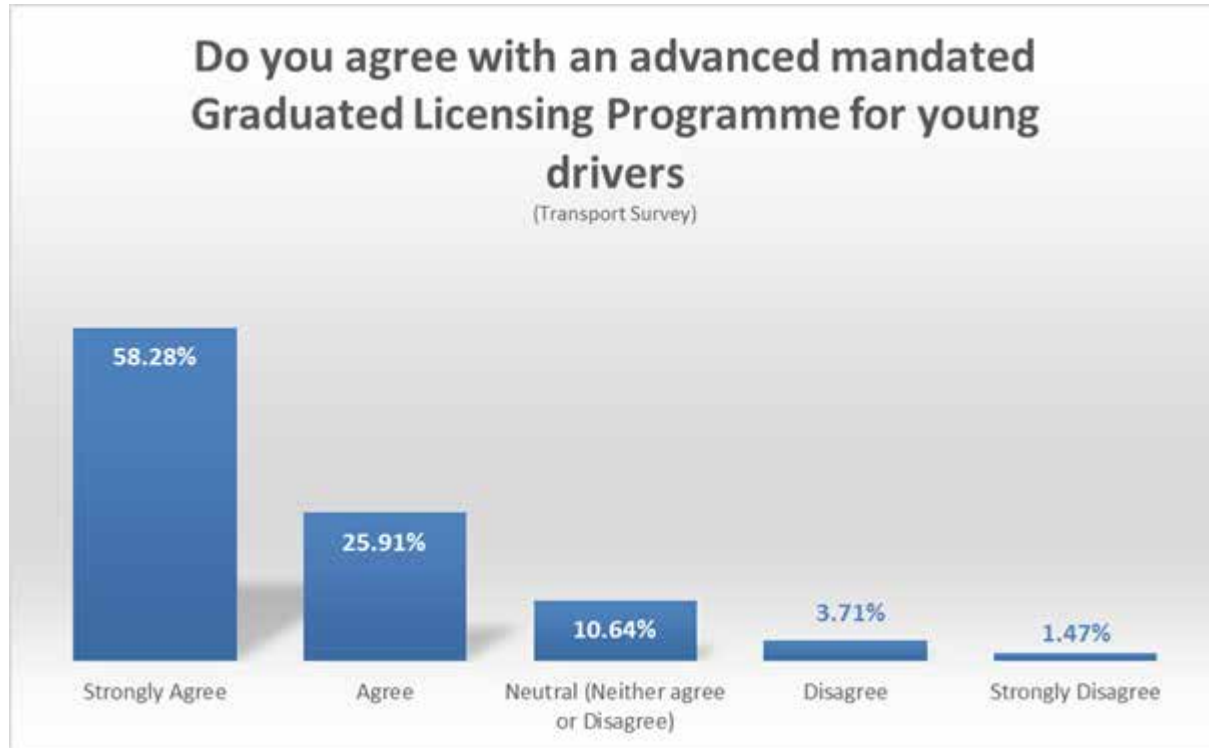
- Install more lights at crosswalks and more pedestrian crosswalks with lights.
- Develop standards for traffic lights and crosswalks so that they are consistent throughout the island.
- Traffic must stop at crosswalks. Improve enforcement of this.
- Level all sidewalks.
- Introduce cameras at all crosswalks to monitor traffic and poor driving behaviour.

6.7 Project Ride Training Programme

Issues

- 1) There is a concern that Bermuda's youth are not quite ready to drive an auxiliary motor bicycle at the age of 16, leading to the suggestion that the age limit for driving an auxiliary cycle should increase from 16 to 18 years of age.
- 2) There is concern that the Project Ride Training Programme is not sufficiently robust to prepare Bermuda's youth to drive safely on an auxiliary bicycle.
- 3) Project Ride Training Programme statistics prove that the programme is successful, yet the public has a different viewpoint.

Graph 45

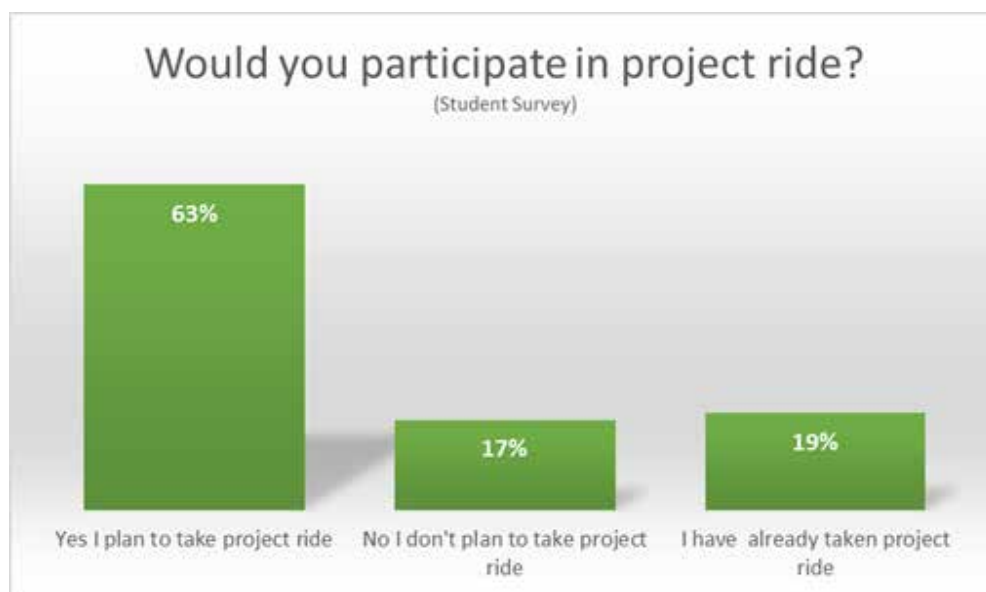


Context

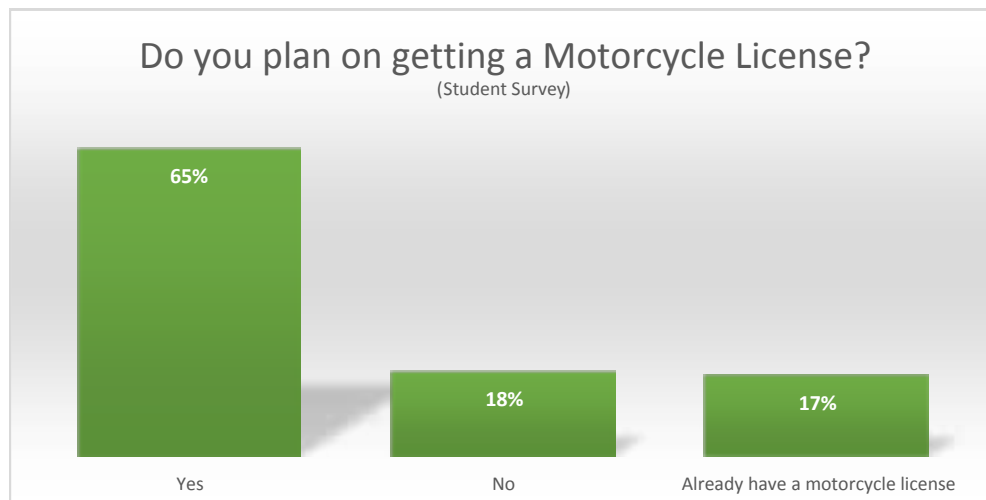
- A)** Project Ride is an auxiliary bicycle training course for teenagers aged from fifteen and a half. This twelve-hour course is designed to introduce students to various aspects of road use, concentrating on correct and safe procedures for dealing with Bermuda's congested roadways. The aim of the course is not only to teach the skills required for safe riding, but also to teach an attitude that demonstrates responsibility and caring for other road users. At the successful conclusion of the course, Project Ride students can obtain a Bermuda Youth Licence. Project Ride began as a voluntary programme in the 1990s, but became mandatory in 2010.
- B)** Persons aged 16-18 are not permitted to ride their auxiliary bicycle without their Project Ride certificate or ride between the hours of 1am and 5am. Additionally, Bermuda Youth Licence holders may not take a pillion passenger. If riders disobey restrictions they will receive a fine of \$300 and between 5 and 7 demerit points with a possible month ban from riding on the road.
- C)** Project Ride does not include on the road training.
- D)** Project Ride is effective; the number of student accidents between 2007 and 2016, fell from 514 to 161.
- E)** Some believe that raising the auxiliary cycle driving age from 16 to 18 will allow more time for students to mature, thereby reducing the risk of collisions and deaths. Also, due to the fact that a person can obtain a car licence from the age of 18, a family has the option of allowing their 18-year-old to drive the family car, which is a safer option than an auxiliary or motor cycle.
- F)** The Transport Control Department states that it has a highly successful graduated licensing programme, which comprises Project Ride coupled with the Bermuda Youth Licence scheme. This provides for structured pre-licensing instruction and testing.

- G) The Bermuda Road Safety Council's Operation Caution seeks to:
- reduce road collisions by 25%;
 - reduce road fatalities by 25%;
 - introduce a comprehensive road safety education programme in schools;
 - increase public awareness of road safety and road safety issues; and
 - decrease the incidence of reported cases of driving under the influence of alcohol or drugs.
- H) The 2018 Public Transport Survey asked whether there should be a mandated graduated licensing programme for young drivers to include on-the-road experience and 84% agreed. Private cycle lessons that include on the road practice are available now, but drivers must be Project Ride Training graduates.

Graph 46



Graph 47



Stakeholder Comments & Thoughts

- Introduce a full 2-year enhanced graduated licensing programme as part of Project Ride for students aged between 16 and 18. Include on the road driving experience, after passing a written exam and before being eligible for a youth licence.
- Increase the age of a person eligible to drive a 50cc auxiliary bicycle from 16 to 18 years of age.
- Increase the age of a person eligible to drive a 150cc motor cycle from 18 to 25 years.
- Ban the use of 150cc motor cycles in Bermuda for all ages as there is no need to have excessive power and loud engine noise on a 21 square mile island.
- Make the driving test (theory and practical) more difficult.
- Between the age of 16 and 18, allow students to ride a regulated-electric pedal cycle instead of an auxiliary cycle.
- Implement a zero tolerance for drinking and driving and increase the legal age to drink alcohol from 18 to 21 years of age. This effort would decrease road traffic collisions and deaths while riding an auxiliary or motor cycle.

6.8. Government's Perspective on Road Traffic

- 6.8.1. On one aspect of road traffic, the survey respondents confirmed what we know: more than half of us travel to the City of Hamilton to work. Of those surveyed, 53% travel into Hamilton for work, whilst the percentage travelling to other parishes for work ranged from 2% (Warwick) to 8% (Pembroke, excluding Hamilton).
- 6.8.2. Unsurprisingly, the daily convergence of vehicular traffic into Hamilton puts the spotlight on our roads and how they are used. Survey respondents and stakeholders interviewed expressed alarm and frustration about: poor driving habits: bad parking; congestion; a lack of care and attention on the part of drivers with respect to other drivers and pedestrians; a seeming lack of enforcement of rules of the road; and, even if ticketed or prosecuted, a lack of punitive judgment.
- 6.8.3. The Government takes seriously its responsibility to ensure our roads are safe, well lit and comfortable for all to use – walkers, pedal cyclists, motor cyclists and car and truck drivers. There is no doubt, however, that the motoring public must be take responsibility for its own actions too.
- 6.8.4. Government is of the view that encouraging businesses and schools to incorporate carpooling in their transportation options is a meaningful step towards relieving the congestion on our roads that continues to be concerning to residents. There are apps which can be developed to assist the public in pursuing this option; it does not need to be a Government programme.
- 6.8.5. GOB, working in conjunction with BRSC, CADA, BPS and TCD, will continue to work to change Bermuda's reckless driving culture through education, enforcement and engineering.
- 6.8.6. The Transport Control Department will review the current Traffic Handbook and licensing requirements to determine what modernization is necessary, and take steps to implement any changes.

- 6.8.7. The Ministry of Transport will work with the Ministry of National Security to task the Bermuda Police Service and TCD with reviewing licensing standards and detection tools with a view to upgrading existing equipment or securing new tools, as relevant, to ensure the highest levels of standards.
- 6.8.8. TCD will review the penalties laid out in the Road Traffic Act 1947 with a view to updating and strengthening them.
- 6.8.9. While parking within the City of Hamilton and Town of St George is for the respective municipalities to address, the GOB will bring forward legislation to establish Traffic Officers for the L. F. Wade International Airport and the WEDCo area (to be paid by those respective entities). In addition, the Parks Department will be tasked with hiring Traffic Coordinators for the summer season for the Horseshoe Bay GTA. As a result, the TCD Traffic Officers and the BPS will be able to better utilize their time engaged in enforcement matters.
- 6.8.10. The BRSC will work with the Ministry of Education to implement the next phase of Operation Caution, which calls for road safety education to be part of the school curriculum from an early age.
- 6.8.11. With the successful implementation of roadside checkpoints, the BRSC will design and implement a Designated Driver education campaign.

Section 7

Active Transport

Overview

Health issues related to inactivity including obesity and diabetes, which are on the rise, can be combated with more exercise including walking, running, cycling and the use of stairs.

Indeed, the Ministry of Health implemented the “Bermuda Health Strategy 2014-2019”, which is supported by the “Bermuda Health Action Plan 2014-2019” and the “2017 Proposed National Plan to Halt the Rise in Obesity and Diabetes”. The plan highlights that Bermudian adults lack physical activity and that there is a real need to foster active and healthy choices, to promote physical activity.

A lack of safe spaces to enjoy healthy activities such as walking and cycling undermines the concept of active transport. Ministry of Health recommendations in this regard are outlined below.

- a. Encourage the community be physically active and eat a healthy diet.
- b. Create and manage more safe spaces for incidental and planned physical activity, addressing safety, crime and inclusion (cycling/walking routes, bicycle parking, safe play areas, complete streets – pedestrian crossings, sidewalks, and walking schemes, buildings’ access to and use of stairs/walkways).
- c. Encourage and promote access to physical activity, through travel system plans, providing showers, secure pedal-cycle parking, encouraging use of stairs etc.
- d. Create a supportive physical environment, e.g. safe and pleasant stairwells, providing showers and secure bicycle parking.
- e. Support workplace programmes for healthy eating and active living, e.g. recreational opportunities, out-of-hours social activities, lunchtime walks, and use of local exercise/leisure facilities.

Active transport refers to trips taken by walking or pedal cycling, or walking or cycling in combination with public transportation. Instead of driving a car, a trip may combine a cycle ride with a ferry ride. Or may combine a cycle ride with a bus ride (where the bus has a cycle rack). The result is a transport solution that is active not passive.

7.1. Walking & Cycling

Issues

- 1) Public highways are not wide enough to safely walk and cycle.
- 2) There is concern that there are not enough safe sidewalks to walk in Bermuda, see Section 6.6.
- 3) Pedal cyclists are riding in the middle of the road, overtaking motor vehicles on the left, and riding side-by-side, making it dangerous for motor vehicles to share the road with cyclists.
- 4) Residents would like to see a cycle lane created along the public highways of Bermuda.
- 5) There are many pedestrian/vehicle near miss collisions on Bermuda's roads.
- 6) Impatient motor vehicle drivers create unsafe circumstances by overtaking pedal cyclists too closely and/or in haste.

Context

The 2018 Public Transport Survey revealed:

- A) 1% of respondents said that they pedal cycle to work;
- B) 24% of respondents said that they own a pedal cycle;
- C) 34% of respondents said that they have access to a pedal cycle;
- D) A strong minority of respondents, 36%, would participate in a pedal cycle 'bike share' programme but the majority, 64%, would not;
- E) 63% of respondents said that the roads are unsafe for walking, 16% said the roads are safe and 21% were neutral on the matter;
- F) When asked why are the roads unsafe, 88% said because of motorists' poor driving;
- G) 65% of respondents indicated Bermuda's roads are not properly maintained, whilst 19% said that they are maintained;
- H) Residents would like to see better enforcement of third lane driving by pedal cycles;
- I) Road mass is limited in Bermuda and roads are not wide enough to accommodate a special cycle lane, especially with all the larger vehicles on the road.

Stakeholder Comments & Thoughts

- Institute better enforcement for third lane driving of pedal cycles.
- Improve the knowledge of pedal cyclists with respect to Bermuda's Traffic Code, which restricts pedal cyclists to single lane driving when riding on highways. Pedal cyclists must keep to the left-hand side of the road and give way to pedestrians, where appropriate.
- Create a pedal cycle lane on Bermuda highways.
- Encourage safer walking best practises, i.e. the use of lights, reflectors, vests etc.
- Make Harbour Road one-way, so that cyclists and walkers can get exercise at certain times of the day by walking or cycling safely.

- Create more sidewalks and pedestrian crosswalks.
- Improve enforcement of the rule that drivers must stop for pedestrians.
- Make pedal cycles duty free to encourage more people to ride pedal cycles for exercise.
- Create a bike-share scheme with electric pedal cycles. To assist renters in using safer roads, create cycle map for visitors.
- Install bicycle racks on the front of buses to encourage cycling.
- Require helmets for pedal cyclists.
- Restrict times for cycling teams to be on the road.
- Encourage more use of the Bermuda Railway Trail for cyclists.
- Make Hamilton pedestrian only.
- Have a National Walk to Work day, each year, or each quarter of the year.

7.2. Bermuda Railway Trail

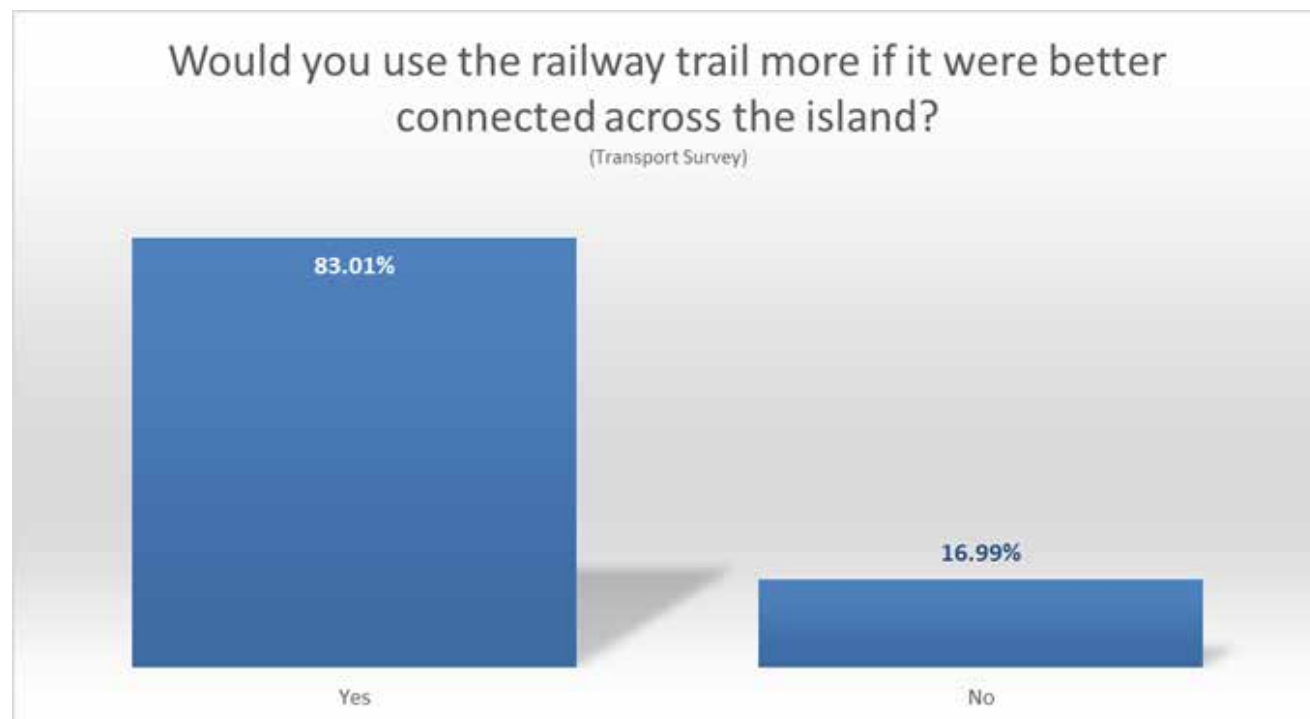
Issues

- 1) Continue to connect all parts of the Bermuda Rail Way Trail.
- 2) Make the Bermuda Railway Trail safer, e.g., with more lights, even surfaces, and panic buttons for emergency services.
- 3) Make the Bermuda Railway Trail pedal cycle friendly.

Graph 48



Graph 49



Context

A) The 2018 Public Transport Survey revealed:

- a. 83% of the respondents said they would use the Bermuda Railway Trail more if it were better connected across the whole island and 17% said they would not.
- b. 56% said they walk on the Bermuda Railway Trail;
- c. 2% said they pedal cycle on the Bermuda Railway Trail;
- d. 19% said they walk and pedal cycle the Bermuda Railway Trail; and,
- e. 23% said they do not use the Bermuda Railway Trail.

Stakeholder Comments & Thoughts

- The community group called “Friends of the Bermuda Railway” has done an extraordinary job to date creating a private/public partnership connecting the Bermuda Railway Trail with bridges; however, more public and private financial support is needed to keep this momentum going.
- Make the Bermuda Railway Trail more pedal cycle friendly.
- Promote the Bermuda Railway Trail to be used more by cyclists.
- Promote more walking on the Bermuda Railway Trail.
- Find a way to link the whole railway trail so people do not have to go on the roads.
- Ensure better cleaning of trash from the Bermuda Railway Trail.
- Install lights, sensors and CCTV cameras on the Bermuda Railway Trail, connected to the Bermuda Police Service.
- Encourage additional community support to help raise funds to connect other parts of the Bermuda Railway Trail.

7.3. Government's Perspective on Active Transport

- 7.3.1. The Government is keen to encourage active transport as we tackle the impact of obesity and diabetes on our population. However, the Public Transportation survey revealed justifiable concerns regarding our roads' safety. Respondents indicated overwhelmingly more sidewalks and better lighting would make walkers feel safer. Indeed, an active transport culture thrives where footpaths and sidewalks provide pedestrian protection and pedal bikes are separated from motorized vehicular traffic.
- 7.3.2. GOB recognizes that the ability to provide new sidewalks and bicycle lanes is limited by the existing road widths and extent of private land ownership. Nonetheless, residents can be urged to walk to the nearest bus stop or ferry dock. The Bermuda Railway Trail presents an immediate opportunity for residents to become (more) active by walking and cycling.
- 7.3.3. GOB will investigate where sidewalks can be added to enable pedestrian safety. The Ministry of Public Works will be tasked with creating a schedule for the repair of lights along the public road.
- 7.3.4. The Bermuda Road Safety Council will be tasked with working with stakeholders to develop a campaign promoting safe walking, i.e., for walkers to wear reflective gear, equip themselves with lights and, where possible, to walk facing the oncoming traffic.
- 7.3.5. GOB will continue to assist with the work of the Friends of the Railway Trail by taking on the maintenance and repair of each new connection and ensuring the landscaping of the Trail as a whole.



Section 8

Cruise Ships and Ports, Airport and Commercial Docks

8.1. Cruise Ships

Overview

The Transportation Planning Team (TPT) section sits within the Ministry of Transport and oversees cruise ship logistical, operational, regulatory and legislative matters. The team works closely with the Department of Marine & Ports Services and the Bermuda Tourism Authority to ensure the efficient integration of all transportation services. Together with the Minister responsible for tourism and transport, the group formulates Bermuda's cruise ship strategy.

Table 14 The following cruise ships are scheduled to make regular calls to Bermuda in 2019:

Ship	Calls	Capacities*
Celebrity Summit	15	2259/2538
Grandeur of the Seas	18	2172/2538
Anthem of the Seas	24	4365/4905
Norwegian Gem	22	2670/3000
Norwegian Escape	27	4450/5000
	106	

* Capacities - Average for season/occupancy expected June - September

Cruise Ship Economic Impact to Bermuda's Community

Table 15

	2014	2015	2016	2017	2018	2019 Projected
Contract Calls	104	100	95	100	104	108
Occasional Calls	26	36	44	61	76	86
TOTAL Calls	130	136	139	160	171	194
# of passengers	355,880	377,398	397,904	418,049	484,339	545,000
Passenger Spending	\$35.9M	\$45.5M	\$44.5M	\$47.9M	\$110.1M	\$123M
Crew Spending	\$5.7M	\$5.3M	\$3.4M	\$2.9M	\$5.2M	\$5.5M
Passenger Taxes (Cabin and Departure Tax) 2014-2018	\$19.6M	\$22.3M	\$21.2M	\$22.2M	\$24.1M	\$32.3M (Pax Tax \$27.7M/ \$4.6M Large Ship)
BTA Visitor Fee (new in 2019)						\$7.9M
Cruise Line Disbursement Expenses (conservative estimate)	\$6.5M	\$6.8M	\$7M	\$8M	\$9M	\$10M
Total Economic Impact to Community	\$67.7M	\$79.9M	\$76.1M	\$81M	\$148.4M	\$178.7M

The 2018 cruise ship strategy included a strong focus on increasing cruise ship passenger spending and attracting a mixture of smaller, premium cruise ships for Hamilton and the Town of St. George between March and November. It also sought to extend the cruise ship season either side of the April to October period.

There has been a significant increase in the number of cruise ship passenger arrivals since 1999 when 195,000 passengers visited Bermuda versus 484,000 in 2018. This represents an increase of 289,339 in the last 20 years. This is significant because the 2012 National Tourism Plan called for an increase in

cruise passenger arrivals to 428,000 by the year 2022. This means, that in 2018, which was five years before the goal date, Bermuda hosted approximately 56,000 more passengers than originally targeted in the 2012 plan.

In 2019 the cruise passenger estimate will rise to 545,000 passengers. The Ministry of Transport recognized that 2018 was a 'tipping point' year for cruise ship activity, especially with six cruise ships in port on 31 October 2018.

Cruise passenger tax revenue increased from \$22.2M in 2017 to \$24.1M in 2018.

Cruise passenger spending in Bermuda rose from \$47.9M in 2017 to \$110M in 2018. This increase is attributed to an increase of 16% more cruise ship passengers in 2018 over 2017. The survey sampling numbers are much larger because data is collected more efficiently, and more accurately, via on-line surveys conducted by the Bermuda Tourism Authority.

8.1.1. A Strategy for Cruise Lines and Cruise Visitors

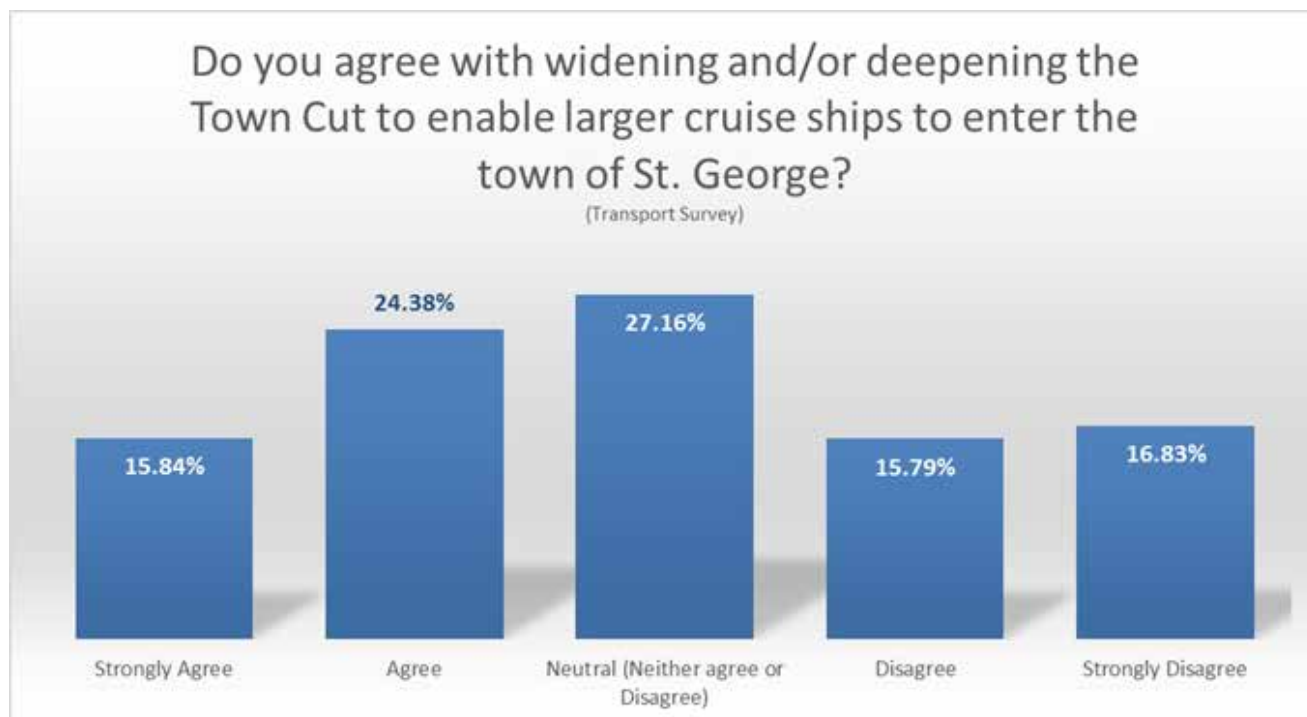
Issues pertaining to cruise ship calls were discussed at meetings held in Miami, Florida with management teams of the three major cruise lines that call on Bermuda on 1 & 2 March 2018: Royal Caribbean Cruises International Limited (RCCL), Norwegian Cruise Lines Limited (NCL) and Carnival Corporation LLC (CCL). Together with their affiliated brands, these three cruise lines brought 92% of the 171 scheduled cruise ship calls (484,000 cruise ship passengers) to Bermuda in 2018.

A general consensus on issues was derived from these interviews.

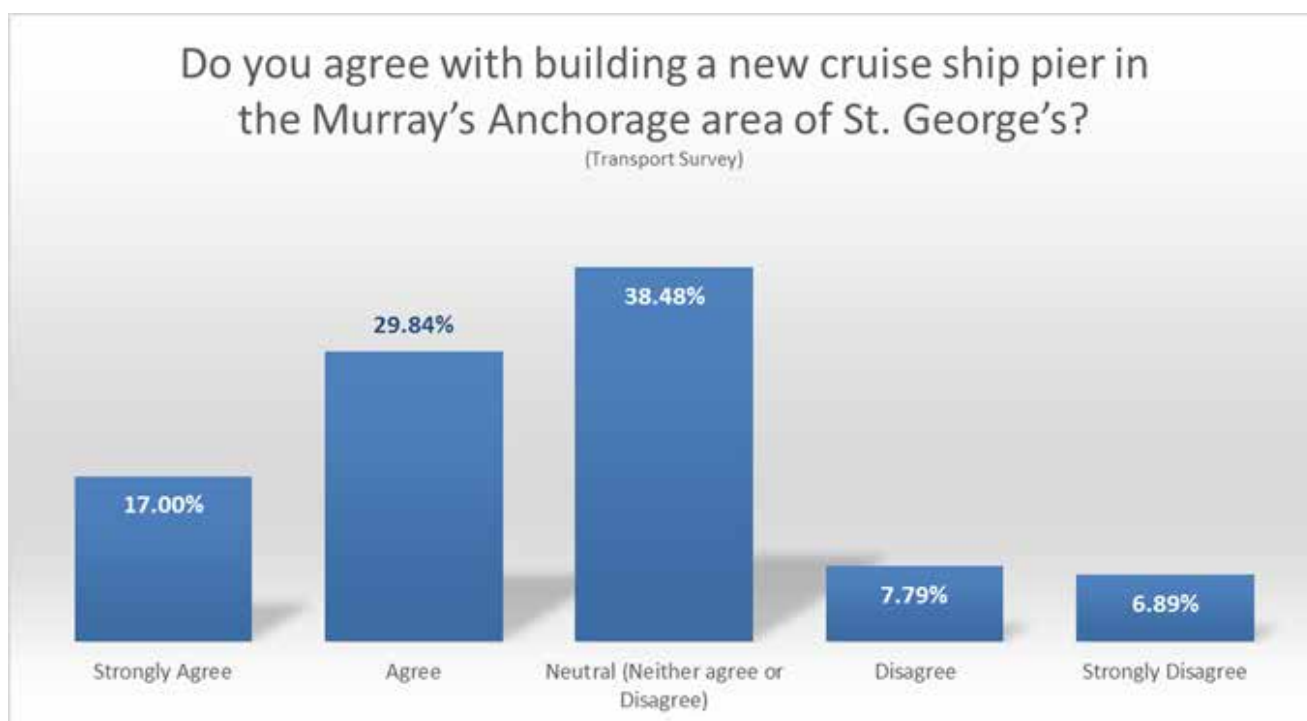
Issues

- 1) There is a need to ensure cruise visitors experience the Town of St. George and the City of Hamilton. This relieves the transport bottleneck experienced in Dockyard and distributes the visitor spend more evenly across the island.
- 2) Ships are getting bigger not smaller, and Bermuda should consider further pier enlargements and upgrades to dock infrastructure to accommodate the newer cruise ships.
- 3) There is a need to widen and deepen Town Cut and Two Rock Passage to accommodate larger cruise ships for regular service to St. George and Hamilton, which will allow cruise lines the opportunity to offer 2-port itineraries.
- 4) There is a need to upgrade and expand King's Wharf to reduce the pressure on Heritage Wharf.
- 5) To avoid major congestion of passengers arriving at the same time, i.e. two or three ships berthing within minutes of each other, there is a need to stagger arrival times more efficiently.
- 6) There is a need for Marine & Ports to have reliable tugs.
- 7) See Section 10.4 with regards to cruise line feedback regarding visitor transportation issues.

Graph 50



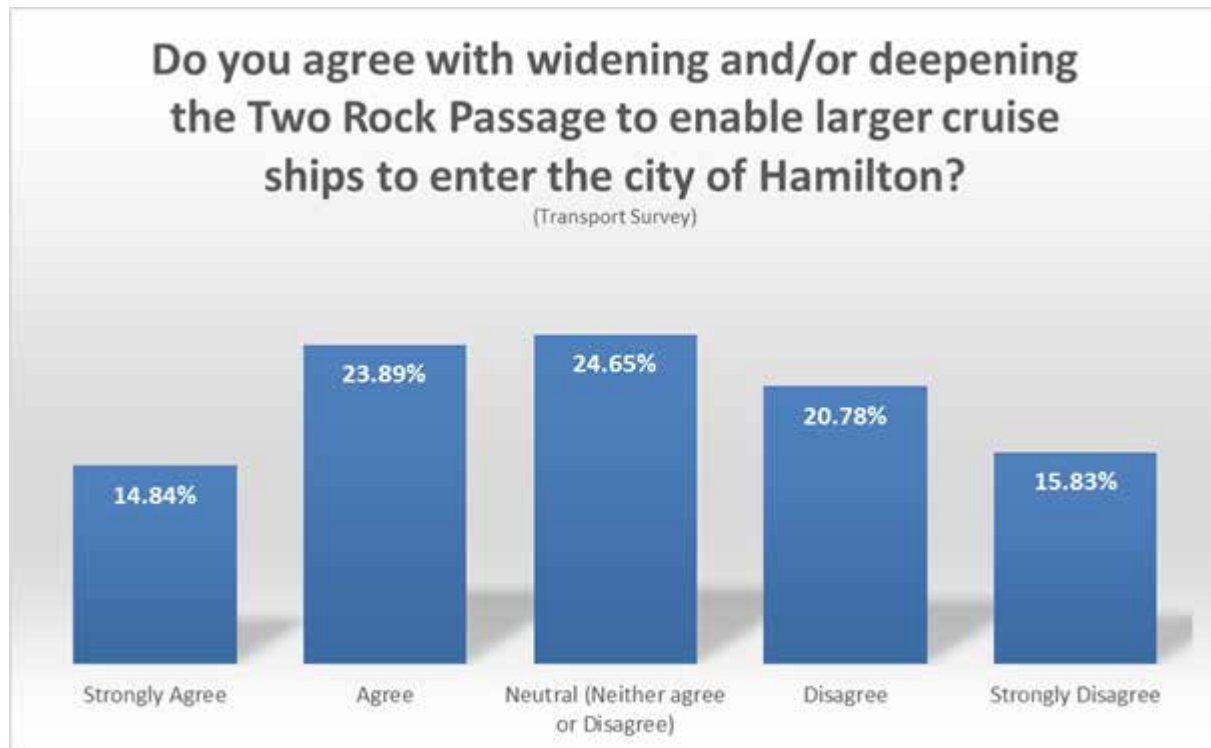
Graph 51



Context

- A) The majority of cruise ships come to port in the Royal Naval Dockyard. A vast number of the cruise visitors want to go to Horseshoe Bay Beach, particularly those visiting for just one day. This can result in between 3,000 and 6,000 passengers disembarking at the same time and seeking out one destination.
- B) In addition to the Marine & Ports Fast Ferry from Dockyard to St. George's, which took approximately 40,000 passengers to the Old Towne in 2018, NCL also operates a private direct tender which took 60,000 passengers in 2018. Use of the NCL tender impacts upon the public ferry service revenue, which decreased revenue by approximately 30% in 2018. This number is expected to go down with the additional cruise ship calls and estimated 545,000 passengers in 2019.
- C) The Cruise Lines are willing to financially partner with Bermuda to help develop or redevelop the necessary port and transportation infrastructure required to meet present and future demand. The question remains, is Bermuda willing to tip the scale in favour of cruise ship passenger arrivals over air visitors? If the answer is yes, a major planning project is required to meet the needs of almost 550,000 passengers annually.

Graph 52



Stakeholder Comments & Thoughts

- Create a five-year plan to partner with cruise lines for further pier enlargements of King's Wharf, Hamilton 5/6 Dock and Penno's Wharf to accommodate the larger ships.
- Consider a new cruise port development at Sallyport (behind Snorkel Park in the West End) with a large Water General Transportation Area, where transport will be primarily by water instead of land, out of the West End to St. George's, Hamilton and Flatts Village.
- Consider a new cruise port development at Murray's Anchorage (Ferry Reach Area in the East End).
- Widen and deepen Town Cut, St. George's, to attract a regular cruise ship for the Old Towne.
- Modify and deepen Two Rock Passage in Hamilton Harbour to attract a Tier 2 (post panama ships) regular cruise ship for the City of Hamilton.
- Focus more on:
 - balancing air and cruise visitors;
 - attracting smaller ships for Hamilton and St. George's, preferably regular callers who can provide two-port itineraries;
 - targeting fast growing European brands;
 - encouraging more overnight stays, as one day callers put a significant strain on local transportation;
 - providing relief for Bermuda's stressed public transport system; and
 - engaging the assistance of cruise line partners to invest in port and transport infrastructure.
- Marine & Ports to provide the service of night time pilotage, allowing cruise ships the opportunity to depart Bermuda later.
- Marine & Ports to invest in two new tugs and a reliable public ferry fleet.
- Build up the public bus fleet so that sightseeing tours can be reinstated to service the increase in cruise visitor numbers.

8.2 Airport



Overview

Opening in 2020, the new L. F. Wade International airport terminal will be a state-of-the art facility, operated by ⁴¹Bermuda Skyport Corporation Limited, which is responsible for the airport's operations, maintenance and commercial functions. It will be accessible to all passengers, and include features such as covered passenger boarding bridges. It will provide the comfort that travelers have come to expect with spacious, modern lounges. There will be improved concessions, restaurants and duty-free offerings as well as views of Bermuda's beautiful waters for passengers to enjoy.

Pre-clearance for US departures will remain and security screening and immigration will be streamlined and modernised for a more efficient check-in and arrivals.

Transport related issues exist at the current airport location that need to be addressed, rather than transferred to the new terminal. This includes the creation of a short-ride queuing area where taxis can do numerous short trips e.g. Grotto Bay Beach Resort or St. George's Club without having to join the main queue upon return; better communication between airlines and ground transport providers around the passenger loads arriving on each flight, which will help taxi operators know in advance potential demand levels when making decisions to attend the airport late at night (information needs to be shared at least one hour prior to arrival); and, the creation of a special queue for the taxi operators who take credit cards verses those who just take cash.

41 Bermudaairport.com

8.2.1. Airport General Transport Area and Airport Docks

Issues

- 1) There is a severe shortage of taxis to meet arrival and departure demand in the afternoon from 3pm and in the evening after 9pm every day.
- 2) More enforcement of Taxi Regulations is needed so that taxis are on the road 16 hours a day as legislated, especially on weekends and public holidays.
- 3) Require taxi owners to have a second driver so that taxis are on the road for the legislated period.
- 4) Allow hotels to provide their own shuttle service to and from the airport.
- 5) Airport Traffic Officers with enforcement powers are needed.
- 6) Public Transportation buses need to have luggage racks.
- 7) Reinstate the Airport dock, previously in place for the America's Cup (west of new airport), for pick-up and drop-off of travellers by boat.
- 8) The Castle Harbour Airport Dock (south of the new airport) needs to be renovated for use again by Rosewood Bermuda and Tucker's Town residents.
- 9) Approve minicar rentals at the airport.

Context

- A) More taxi capacity is needed to meet the airline arrivals and departure schedule. An example of the winter 2818/2019 schedule is below (times subject to change).

Table 16

ARRIVALS			
Gateway City	Airline	Time	Aircraft Capacity
New York	Delta	12:00pm	132
Toronto	Air Canada	12:00pm	146
Boston	Jet Blue	1:30pm	150
Boston	Delta	2:01pm	150
Philadelphia	American	2:21pm	150
Atlanta	Delta	2:40pm	160
London	British Airways	7:10pm	226
New York	American	8:42pm	160
Miami	American	9:47pm	160
New York	Jet Blue	10:25pm	150

DEPARTURES			
Gateway City	Airline	Time	Aircraft Capacity
New York	American	8:30am	160
New York	Jet Blue	8:30am	150
Miami	American	8:53am	160
New York	Delta	1:00pm	132
Toronto	Air Canada	1:40pm	146
Boston	Delta	2:25pm	150
Boston	Jet Blue	3:01pm	150
Philadelphia	American	3:26pm	150
Atlanta	Delta	3:52pm	160
London	British Airways	8:15pm	226

- B)** Taxi issues are addressed in Section 4.3.
- C)** The 2018 Public Transport Survey asked the following question. Would you utilize a dock at the Bermuda airport?
- 53% said yes; and
 - 47% said no.
- D)** Until and unless Longbird Bridge (Causeway) is replaced, docks are needed on both sides of the airport, south and west, to accommodate water transport, especially should the causeway be impacted by a natural disaster. Investment is needed to make the docks more viable and long lasting.

Stakeholder Comments & Thoughts

- Reinstate the Airport dock on both the west and south sides of the airport.
- Pass legislation to establish Airport Traffic Officers for improved traffic and parking management for all.
- Do not prevent general conveyance minibuses attending the airport in the afternoon and evening to collect travellers in need of transportation.
- Create a special minibus line at the airport.
- Implement a short ride queue for taxis to conduct short runs e.g. airport to Grotto Bay and back, then get back in the short ride queue for the next short ride without have to go to the back of the taxi line.
- Approve a minicar livery operation at the airport.
- DPT should consider including luggage racks in new buses.
- Ask Rosewood Bermuda to take the lead in repairing the dock on the southern side of the airport.
- Require airlines to provide passenger load counts for every flight, 1-hour before landing in Bermuda for publication, so taxi and airport limousine operators can better provide lift to meet demand.

8.3. Commercial Docks

Overview

The Hamilton cargo dock is operated by Stevedoring Services Limited (SSL) on licence from the City of Hamilton, and SSL is a subsidiary of Polaris Holding Company Ltd. SSL moves approximately 35,000 containers a year, and 2018 appeared to be a record year for importation due to major hotel developments and the new airport terminal currently under construction.

Three cargo ships (the Oleander, Somers Isles and Bermuda Islander) carry 98% of all goods that are imported to the Island.

8.3.1. Commercial Docks - Hamilton

Issues

- 1) City of Hamilton needs to consider viable options if the cargo docks are moved elsewhere.
- 2) Tractor trailers, which are significantly larger than most vehicles on Bermuda's roads, leave the Hamilton dock and traverse the relatively narrow roads of the city center.
- 3) Some consider a 40 ft. container on a trailer to be a road hazard, requiring solutions to ensure its safe passage.
- 4) Carriage of loads in an unlawful manner.
- 5) There are no large scales to weigh trucks and tractor trailers before they leave the dock.

Context

- A) Between HM Customs and Stevedoring Services Ltd., it takes between 13 and 20 minutes to process a container and remove it from the dock.
- B) City of Hamilton is preparing an RFP for the provision of stevedoring services from 2021.
- C) Alternative sites considered for Bermuda's main cargo dock included Penno's Wharf, Marginal Wharf and Dockyard.
- D) Moving the operation of Bermuda's principal cargo dock from its current location will result in increased costs for transportation and increased pressure on the roads and infrastructure.

Stakeholder Comments & Thoughts

- Containers parked on roads at night should be well lit.
- Improve enforcement of the requirement for all large trailers and oversized trucks to be escorted.
- Stop 40 ft. containers from being allowed to ship to Bermuda regularly, it disadvantages small business as they are not able to compete.
- Install truck scales on the dock. Any vehicle and load over 58,000 lbs. should be subject to load redistribution.
- Marine & Ports to provide the service of night time pilotage, allowing cargo ships to depart Bermuda later.

8.3.2 Ships Wharf (Marginal Wharf) – St. David's

Overview

The Bermuda Land Development Company Limited (BLDC), a Government Quango, has plans to develop Ships Wharf (Marginal Wharf) in the East End as a cargo port to accommodate two ships. The objective is to make 'best use of the commercial land in the East End' and grow the economy by creating business and job opportunities for Bermudians. There are also plans to create an energy generation facility in the area. As at this date, those plans have not yet come to fruition. Should they do so, the ability of East End bridges to carry heavy loads on a permanent basis will need to be assessed.

Background

An Expression of Interest was published by BLDC in 2014, requesting proposals for the development of BLDC land at Ships Wharf (Marginal Wharf).

Several proposals were received to revitalize the existing docks which were originally built and used by the United States armed forces as part of the Kindley Airforce Base.

A BLDC Board Sub-committee short listed and interviewed applicants recommending the two proposed concepts, Cargo Port and Energy Plant, which was accepted by the full Board.

Proposals endorsed by the Minister of Public Works and an RFQ for a Cargo Port and an Energy Plant were issued on March 27th 2018, with the closing date on May 23rd 2018.

Detailed information captured in the RFQ Technical Document, including results of the Bermello Ajamit & Partners 2008 Report, assessed five different potential locations for a cargo port, including three on North Shore, Morgan's Point and Marginal Wharf.

The project is intended, but subject to change, to attract Atlantic transshipping, a fish processing plant and have a bonded warehouse, with facilities for stripping containers into less than container load cargo, for delivery in smaller trucks island-wide. This service is intended to reduce the number of 40'containers on the roads of Bermuda.

BLDC anticipates entering into a Landlord/Tenant relationship with the successful developer(s) with a 21+ year lease granted.

8.4. Government's Perspective on Ports & Airport

- 8.4.1. The location of the island's ports has an undeniable impact on our transport and roads infrastructure.
- 8.4.2. For cruise ships, a concentration of most calls in Dockyard presents issues, at times, with thousands of visitors attempting to leave to experience our south shore beaches. There are two ways of tackling this situation.
- 8.4.3. One way is to ensure there are more taxis, minibuses and reliable public buses available. Bermuda has not satisfied the transport demand in a manner that avoids a drop in passenger satisfaction indicators in recent years. This, despite a year-over-year increase in the number

of approved minibuses on our roads. Additionally, 2019 will see even more visitors arriving on our shores by cruise ship. While improvements to our public bus system will provide much needed relief, Bermuda needs to consider alternatives.

- 8.4.4. To this end, an alternative option to addressing the situation is to move the cruise ships. In other words, position our other two ports, Hamilton and St George's, so that they are capable of accommodating regular cruise ship calls. The NCL tender has been invaluable in providing additional lift that swiftly transfers passengers from Dockyard to St George, resulting in much needed visitor spend in the Olde Towne. If the ships themselves were able to dock in St George and Hamilton, then cruise visitors would be automatically distributed to different parts of the island. This option requires improvements to Two Rock Passage and, possibly, Town Cut as well.
- 8.4.5. While expanding the cruise ship port options can be of benefit to the island's tourism industry, a relocation or expansion of the cargo port options brings with it additional difficulties. These difficulties are related, mainly, to road safety and carrying capacity. The ability of our roads and bridges to accommodate heavy and oversized loads would require further investigation.
- 8.4.6. The Ministries of Tourism and Transport and Public Works will explore the infrastructure implications and needs, both structural and capital, with our cruise ship partners and the three ports to include the following:
 - King's Wharf Pier – extending platform 100 ft on both sides of Terminal to accommodate ships with 4 gangways and better service area for grey water and sewage removal and garbage.
 - Modify Hamilton Dock Infrastructure to connect 5/6 and No. 1 Dock – with one Hamilton Cruise Terminal building (at Flag Pole area) to service two ships when needed (current 5/6 facility to be event space only for City of Hamilton).
 - Dredge Hamilton Harbour out to Dundonald Channel.
 - Modify Two Rock Passage for larger Tier 1 and Tier 2 ships.
- 8.4.7. The Ministry of Tourism and Transport will work with the Ministry of Home Affairs and Stevedoring Services Ltd regarding the installation of truck scales at the Hamilton Docks, as it would be good to know the weight of cargo traveling on Bermuda's roads.
- 8.4.8. TCD will work with taxi operators to improve island-wide coverage of taxis for hire. Of necessity, this will involve adherence to the requirements set out in the legislation.
- 8.4.9. The Government believes that the two levels of Government (national and municipal) can no longer operate in economic or decision-making silos.
- 8.4.10. The 2018 Throne Speech initiative states "The Government is committed to modernising the role of municipalities in today's Bermuda. Consultation with both Corporations began in May 2018 and has now been completed. During this session, a bill will be tabled to implement further reforms to the municipalities setting a platform for their growth and development as centres of commerce, tourism and thriving community life."

- 8.4.11. At present the municipalities are responsible for mainly infrastructure. The available evidence suggests that neither Corporation has the financial and other means to achieve and sustain the vision to rejuvenate the cities. It is also evident that Central Government has greater access to the resources and expertise needed to achieve the vision.
- 8.4.12. Both Hamilton and St. George's must be rejuvenated into becoming vibrant entities in order to attract more visitors and greater investment opportunities in our island and its people. At present, both entities have crumbling infrastructure and empty buildings that do not reflect a thriving city and town that is attractive to both visitors and investors.
- 8.4.13. The vision is a "smart city" infrastructure with a thriving residential centre and entertainment hub with distinct districts (see Section 12 Intelligent Transport which elaborates on smart city technology related specially to transport).

In order to achieve this vision, the following needs must be met:

- The development of a multi-faceted waterfront;
- Increased city living;
- Increased use of vacant office space;
- Effective traffic management using "smart city" technology;
- Encouraging the development of "districts", e.g. financial, entertainment, restaurant, etc.

- 8.4.14. In St. George's, it is envisioned that there will be a mega-yacht port and marina with enhanced infrastructure, amenities and activities.

In order to achieve this vision, the following needs must be met:

- A sustainable management plan for the UNESCO World Heritage Site with the appropriate legislation and funding that will give the municipality the ability to effectively implement any recommendations that are identified;
- A sustainable year-round (non-seasonal) industry;
- Infrastructure and amenities to address the needs of the community, including its businesses;
- General necessary infrastructure upgrades.

Section 9

Environmental Factors

Overview

Noise and air pollution from transportation have a harmful impact on human and animal health as well as a negative overall effect on the environment.

In 1999 the Ministry of Transport conducted a poll of 1,100 residents with 88% saying they were concerned about vehicle emissions and air pollution.

According to a similar transportation survey of 1,784 visitors in the same year, 25% of those who responded said that they were also concerned about pollution in Bermuda.

Following recommendations in the 2002 National Transportation Management Report, the Transport Control Department was modernized and vehicle emissions testing became part of the annual vehicle testing process at TCD.

In 2017, only 151 (.004%) vehicles failed the annual emissions testing at TCD out of 48,280 vehicles.

The 2018 Public Transport Survey revealed that visible emissions and air contaminants are two areas of concern. The Department of the Environment monitors five testing sites across Bermuda, with East Broadway, arguably Bermuda's busiest road, registering consistently higher levels than any other site.

9.1. Noise Pollution

Issue

- 1) Modified motor cycle and motor car exhaust systems are an easily identifiable source of modern noise pollution in Bermuda. The resulting increase in levels of ambient noise directly affects the quality of life and health of everyone on the Island. This relates to emissions and pollution.

Context

- A) GOB banned the sale of 2-stroke motor cycles over 50cc on 31 December 2004. However, those that were in Bermuda before this time were grandfathered in.
- B) Bermuda Environmental Sustainability Task-Force (BEST) said in 2016, "one aspect of pollution has been abandoned or sidelined over time has been that of noise pollution. We know that noise pollution can not only destroy a Bermuda ambience and image that is central to tourism, but it will also trigger very real mental and physical health issues".
- C) The European Federation for Transport & Environment AISBL, T & E 2017 Annual Report said that "according to the World Health Organisation (WHO), noise is second only to air pollution in the impact it has on health. It is a major cause, not only of hearing loss, but also of heart disease, learning problems in children and sleep disturbance. Yet traffic noise could easily be halved, with existing technology, if more stringent limits were adopted".

Stakeholder Comments & Thoughts

- Ensure the enforcement of all current and future vehicle noise emission standards.

9.2. Vehicle Air Pollution

Issue

- 1) Emissions from motor vehicles directly affect the health, safety and welfare of all humans, animals and environment in Bermuda.

Context

A) The Clean Air Act 1991 states that-

- a. “air contaminant” means any solid, liquid or gas, or any combination of solids, liquids and gases, whose presence in the air results directly or indirectly from the activities of man.
- b. “air pollution” means the presence in the ambient air of any air contaminant— in a concentration exceeding the maximum prescribed concentration:
 - 1) causing an odour in contravention of any regulation regulating offensive odours; or
 - 2) that directly or indirectly is likely to endanger the health, safety or welfare of humans; or
 - 3) cause damage to any plant, animal, property or ecosystem.
- c. “ambient air” means that portion of the air, excluding the air internal to any building or other structure, to which the general public has access.
- d. Under the Clean Air Act 1991 the Minister responsible for the environment made regulations (Clean Air Regulations 1993) that prescribe the maximum permissible concentration of air contaminants at ground level. The concentration limits were set based on international data of the known health effects on people.
- e. Air contaminants⁴² are monitored to the standards of the US Environmental Protection Agency (EPA) and Clean Air Regulations 1993 at five monitoring sites across Bermuda including:
 - 1) Cemetery Lane
 - 2) Langton Hill
 - 3) Prospect
 - 4) East Broadway
 - 5) BIOS

Levels measured at East Broadway are consistently higher than other monitoring sites.

- B) In 1997 the Ministry of Transport and Aviation and Ministry of Environment commissioned a study⁴³ to assess pollution from motor vehicles in Bermuda. The study identified that particulate

⁴² Information provided by the Department of Environment 2017

⁴³ Information provided by the Department of Environment 2017

matter emitted from diesel engines and two-stroke motorcycles is hazardous to public health and that implementing an 'Inspection and Monitoring' programme could achieve immediate reductions in motor vehicle pollution.

- C) Local scientific studies⁴⁴ carried out by the Department of Environment and Natural Resources (DENR), Bermuda Institute of Ocean Sciences (BIOS) and the Bermuda Zoological Society (BZS) show that concentrations of pollutants in the air, water and soil in Bermuda are high for Bermuda standards and that vehicle emissions are a significant contributor of these pollutants, yet as stated above in Section 9.2.5., only 0.004% of motor vehicles failed the emissions test in 2017.
- D) Permission was granted by the European Federation for Transport & Environment AISBL, to reference their T&E 2017 Annual Report on the following four transport and environmental issues that impact the European Union. They are listed below for general information, quote:

Biofuels

- a. Palm oil ends up in cars, vans, and trucks in the form of biodiesel, biofuels also impact European food prices. Palm oil is the highest-emitting Biofuel consumed today in Europe and is causing deforestation and destroying natural habitats in many countries around the world.

Diesel

- a. Road transport is a major source of air pollution that harms human health and the environment. Diesel cars are the leading cause of air pollution (NO₂) in European cities where illegal levels of nitrogen dioxide are emitted and responsible for approximately 71,000 premature deaths in Europe, every year. The invisible killer causes lung cancer and heart disease. Cities across Europe are now adopting bans on dirty diesels to tackle the legacy of the Volkswagen 'Dieselgate' scandal.

Trucks

- a. Trucks represent 5% of all European vehicles and are responsible for 26% of road transport emissions. Trucking plays a vital part in the European economy yet it poses a major challenge for the environment and road safety. T&E are pushing law makers in Europe to introduce the EU's first ever truck CO₂ standards as well as effective vehicle safety regulations without delay. Fuel consumption of new truck tractor units could be reduced by 24% in 2025 if manufacturers introduced proven fuel efficiency technologies.

Cars

- a. In Europe, cars are the biggest source of greenhouse gas from transport. Looking to the future, 'electromobility' is the future in order to achieve zero emissions.

Stakeholder Comments & Thoughts

- GOB to lead by example by transitioning the Government's fleet of cars, vans, trucks and buses to electric vehicles.
- Continue to phase out the importation and sale of 2-stroke auxiliary motorcycles on the Island which are currently used by students aged 16-18 and visitors through livery cycle rentals.
- Implement a more modern emissions testing protocol.

- Continue to monitor the air, soil and water for pollutants throughout the Island and ensure the safe disposal of all roadside run off sediment including the cleaning out of roadside drains of toxic materials.
- Enact previously approved motor vehicle exhaust emission cut point legislation under the Motor Car Act 1951 (Section 53B) and Auxiliary Bicycles Act 1954 (Section 17B).

9.3. Government's Perspective on Environmental Factors

- 9.3.1. The GOB is supportive of transitioning the Government fleet of vehicles to electric and/or hybrids to the extent possible. The current investigation regarding a transition of the bus fleet to EVs will be helpful.
- 9.3.2. Although today's cars come equipped with diagnostic equipment, the island would benefit from having the final step in the emissions testing programme in place - the standards.

Section 10

Visitor Transportation

Overview

The Ministry of Transport would like to thank the Bermuda Tourism Authority (BTA) for contributing the following information found in this section via its:

- 2017 Air Exit Surveys – 15,468 visitors completed the surveys, conducted online; and
- 2017 Cruise Exit Surveys – 837 passengers completed the surveys, conducted in person intercept.

Survey responses are weighted on the following to ensure results are representative of the visiting population:

- Age
- Country of Residence
- Purpose of Visit (air surveys)
- Distribution by Cruise Ship (cruise surveys)

The BTA also conducted industry stakeholder interviews for the updating of the National Tourism Plan in 2018.

For visitors, the BTA survey revealed that the four key types of transportation show a steady decline in complete satisfaction indicators:

- a. Public ferry service dropped 15% from 92% in 2003 to 77% in 2017.
- b. Minibus service data collection started in 2015. In 2015, 70% of visitors had a complete satisfaction rating in service. This number has dropped 6% to 64% in 2017.
- c. Taxi service had an 82% complete satisfaction score in 2003. This number has dropped 28% in 2017 to 54%.
- d. The public bus service has dropped 32% from 81% in 2003 to 49% in 2017.

Overall, the quality of transportation in Bermuda has shown a steady decline of 30% in complete satisfaction indicators from 76% in 2003 to 46% in 2017.

The results obtained by the BTA show that transport options in Bermuda are misaligned with visitor desires and consumer demand. Save for ferry services, the island is falling short of desired performance. Here are some of the reasons why:

- ▶ travellers desire credit card payment options when riding in taxis – too few taxi drivers offer this option;
- ▶ travellers desire ride sharing apps they recognize when travelling – Uber, Lyft, etc. which are not available in Bermuda;

- ▶ travellers desire more car rental options – only a limited inventory is available;
- ▶ travellers desire online and other non-cash payment options for bus and ferry rides and up-to-the-minute updates using technology about bus and ferry services – non-cash options are available only sparingly and technologic updates are slow in coming; and
- ▶ travelers desire reliable taxi service out of St. George – taxis are difficult to find in the East End of the island, the existing minimum operational time of 16 hours per day is not well enforced, and there has been no noticeable increase in the number of taxi permits.

The concerns cited herein explain the decline in customer satisfaction in visitor transportation.

10.1. Main Issues with Visitor Transportation in Bermuda

Issues

1. The three main issues are:

- a. taxi reliability;
- b. more or larger rental cars needed; and
- c. public bus reliability.

Context

A) Feedback from visitors:

- a. There is an insufficient number of minicars available for rent. It is important that competition to Twizys be opened up so as to avoid monopolistic tendencies and provide greater options to the consumer.
- b. Taxis are expensive and not enough accept credit cards.
- c. Taxis congregate in a few areas on the Island, making it difficult and time consuming to get a taxi if one is not near these areas. This acts as a disincentive to go to certain places. For example, visitors may not want to go to St. Georges at night since they are not sure how to get back.
- d. There is often a shortage of taxis due to a number of taxi drivers who do not ensure their taxi is in operation the required minimum of 16 hours per day.
- e. Older taxi vehicles do not meet customer standards.
- f. Bus routes are not sufficient for getting visitors to certain parts of the Island, such as Clearwater Beach.
- g. The bus schedules are currently inconsistent because there is a limited number of buses that are fully operational.

Stakeholder Comments & Thoughts

- Allow more taxi permits so to have more taxis on the road to meet visitor demand day and night.
- Ensure taxis are on the road for 16-hours a day.
- Ensure the taxi despatching companies provide a reliable service.
- Allow more rental cars.
- Fix the problem with public buses so they are more reliable.

10.2. Air Visitors – BTA Survey

Issue

- 1) Only 46% of air arrival visitors to Bermuda are completely satisfied with the quality of transport. That number is down 29% from the 1999 visitor satisfaction high of 75% where visitors (air & cruise combined) gave a very good or good rating on the quality of service.

Context

Use of On-island Transportation in 2017:

- A) Buses are used by 41% of air visitors. Over the past several years, complete satisfaction with bus service has declined among both air and cruise visitors;
- B) Taxis are used by 80% of air visitors. The taxi service continues to be by far the most commonly used mode of transportation, with consistent usage over the past several years. The popularity of other modes of on-Island transportation is relatively low, including the rental of motor scooters and bicycles and the use of minibuses;
- C) The taxi service, though the most popular mode of transportation across all visitor segments, is most commonly used by: American visitors (business and leisure travellers); those staying in hotel accommodations; visitors that are accompanied by family or other travel party compositions; more affluent visitors; and, the Active Families, Experience Enthusiasts and Elite Jetsetters target audiences; and
- D) By contrast, the bus and ferry services are more commonly used by leisure visitors from Canada and Europe, those visiting friends and relatives, and those travelling as a couple, a couple with friends or as a family, and less affluent visitors. Finally, it should be noted that the minibus service is most commonly used by business visitors, those staying in hotel accommodations, and those travelling with companions other than a couple or family.

Quality of Transportation Services:

- E) Generally, when all forms of transport are considered together, nearly 50% of visitors express complete satisfaction and just over 40% are mostly satisfied. Another 7% of visitors expressed some dissatisfaction with the quality of Bermuda's transportation. Satisfaction is highest among Canadian

visitors, those travelling for leisure and those travelling as a couple or a couple with friends, and Golden Boomers; and

- F) When considering the degree of user satisfaction with each specific mode of transportation, Bermuda's air visitors report the highest level of satisfaction with the island's ferry service. About 60% express complete satisfaction with the minibus service, motor scooter and bicycle rentals.

Value of Transportation Services:

- G) Visitors who used the various transportation services available were asked to rate their respective value. Across modes of transportation, opinions have remained largely consistent year-over-year. The ferry service continues to be deemed to offer the best value, closely followed by the bus service. To a lesser extent, users view favourably the minibus service and the rental of a motor scooter or a bicycle. As reported over the past two years, visitors are most critical of the value offered by the taxi service.

10.3. Cruise Ship Visitors – BTA Survey

Issue

- 1) In the cruise visitor category there is also a downturn in satisfaction. The majority of cruise passengers used one of Bermuda's modes of transportation and are generally satisfied with these modes of transportation.

Context

Use of On-Island Transportation:

- A) Buses are used by 18% of cruise visitors. Over the past several years, complete satisfaction with bus service has declined among both air and cruise visitors. This is due to the lack of buses in service and Bermuda providing an unreliable service;
- B) Taxis are used by 24% of cruise visitors. Over the past two years, complete satisfaction with taxi service has declined among both air and cruise visitors. Taxi service is also rated as having the lowest value amongst all types of transportation available;
- C) Bermuda's ferry service is the most frequently used mode of on-Island transportation for visitors, despite undergoing a decline in frequency in 2017. Minibus services continue to be increasingly used by cruise passengers, which is not surprising given the growing travel party size. Furthermore, cruise passengers remain fairly satisfied with Bermuda's ferry, taxi and minibus services and perceive these modes of transportation to provide good value for the cost of service; and
- D) In 2017, seven in ten cruise passengers reported themselves to have used some mode of transportation while on the Island (71% vs. 66% in 2016 and 76% in 2015). Year-over-year, the ferry service remains the most popular mode of transportation despite having seen a decline in usage in the last several years. A smaller percentage of passengers report having used the minibus and taxi services, although the usage of both increased in 2017, and fewer still indicated the use of bus services. Very few passengers indicated the use of a motorbike or a bicycle rental while on the Island.

Quality of Transportation Services:

- E) Complete satisfaction with motorbike rentals substantially increased in 2017 after experiencing a significant decrease in 2016, although this sample size is very small. The lowest levels of complete satisfaction among Bermuda's key modes of transportation are associated with Bermuda's bus service.

Value of Transportation Services:

- F) Cruise visitors were also asked to rate the perceived value of each mode of transportation. Opinions generally remain highly favourable across all modes of transportation, particularly with respect to Bermuda's ferry service. Four in ten passengers also perceive the minibus service (despite a slight decrease since last year), taxi service and motorbike rental to be extremely good values.

Ride Sharing:

- G) Some of the suggestions around improving taxi reliability merge into feedback about the lack of ride sharing apps. Indeed, tourism industry stakeholders have mentioned in the National Tourism Plan research that Bermuda visitors expect to use a ride sharing app they recognize, like Uber or Lyft, when they travel. Permitting such an effort in a regulatory controlled way would not only be an improvement for visitors but could also create income opportunities for Bermudians;
- H) In a visitor online panel study conducted by the BTA in May of 2017, 34% of respondents said they would be very likely (a score of 9 or 10 out of 10) to use a ridesharing service on their next visit if it was available. 45% of respondents already use this service when traveling on vacation to other destinations;
- I) The taxi service continues to be by far the most commonly used mode of transportation, with consistent usage over the past several years. The popularity of other modes of on-Island transportation is relatively low, including the rental of motor scooters and bicycles and the use of minibuses; and
- J) Minicars are seen as essential to growth and consumer satisfaction in the vacation rental market.

Stakeholder Comments & Thoughts

- More credit card payment options when riding in taxis – too few taxi drivers offer this option.
- Create ride sharing apps that traveler's recognize, such as Uber, Lyft, etc., which are not available in Bermuda.
- Develop more minicar rental options – only a limited inventory is available.
- Online and other non-cash payment options for bus and ferry rides.
- Using technology, enable real-time updates about bus and ferry services.
- Non-cash payment options are available only sparingly and technologic updates are slow in coming.
- More reliable taxi service out of St. George – taxis are difficult to find in the East End of the island and enforcement of existing minimum drive time regulations are not well enforced, while there has been no noticeable increase in the number of taxi licenses.

- Increase the number of taxi driver permits. Between 2015 and 2017, leisure air arrivals are up 30%, but the number of taxi driver licenses has remained static. Consumer demand is not being met.
- Consider tax incentives for taxi drivers to replace older cars with newer electric cars.
- Creative recommendations are needed to deal with the bus schedule. For example, a public-private combination of buses (especially during peak commuting time) and minibuses/taxis that are licensed to pick up people at bus stops for a shared ride and charge them the same as a bus for short trips (i.e. bus stop A to bus stop B). The use of smart-phone apps can make this even more effective for riders and providers. There are numerous examples of ride sharing approaches such as *Via* (in the US), *Taxify* in Australia, as well as others.

10.4. Cruise Ships – Cruise Lines' Feedback

In addition to the information obtained via the BTA survey, passenger satisfaction views were discussed at meetings held in Miami, Florida with management teams of the three major cruise lines that call on Bermuda on March 1 & 2, 2018: Royal Caribbean Cruises International Limited (RCCL), Norwegian Cruise Lines Limited (NCL) and Carnival Corporation LLC (CCL). As stated previously, together with their affiliated brands, these three cruise lines brought 92% of the 171 scheduled cruise ship calls (484,000 cruise ship passengers) to Bermuda in 2018.

The feedback is documented in broad terms and is based on cruise passenger comment cards. Cruise lines generally do not share hard copies of their passenger comment cards; however, cruise lines did communicate verbally their passenger satisfaction and dissatisfaction concerns with the Ministry of Transport and key service providers in Bermuda.

Issues

- 1) The transport related issues outlined by cruise line management include:
 - 1) the cost of doing business in Bermuda is expensive;
 - 2) there is a lack of reliable public bus service to meet cruise passenger demand;
 - 3) there is a decrease in passenger satisfaction indicators, particularly for RCCL and CCL passengers;
 - 4) there are not enough motorized wheelchair accessible taxis and minibuses for shore excursions;
 - 5) wait times for general transportation are too long;
 - 6) there is not enough shading at bus stops, ferry stops and the Horseshoe Bay Beach General Transportation Area;
 - 7) there are not enough sidewalks and Bermuda's roads are unsafe for walking;
 - 8) due to the lack of ground transportation available to meet demand, cruise ships could take on the burden of transporting the mass volume of passengers between the ports of Hamilton, Dockyard and St. George's; and
 - 9) Minibuses dropping cruise ship passengers off at beaches past Horseshoe Bay Beach are not returning to those beaches to help transfer those passengers to their ship.

Context

- A) The cruise lines referred to the (increased) costs as outlined below:
- a. The West End Development Corporation's fee levied on local shore excursion companies who despatch tours from the Royal Naval Dockyard introduced in 2018;
 - b. The costs of private land transportation (taxis and minibuses) and sightseeing tours are higher in Bermuda than in other destinations to our south. Due to the shortage of public buses to meet the regular schedule, DPT cannot presently offer buses for sightseeing tours. As a result, multiple smaller vehicles must be hired to provide this same service;
 - c. The Marine & Ports' uplift of port dues, pilotage dues, tugs, work boats and tender fees by 5% in 2018; and
 - d. The Government of Bermuda confirmed increase in existing taxes, and introduction of new fees, effective 1 April 2019 comprising: Passenger Departure Tax, Passenger Visitor Fee (for the BTA) and Large Ship Infrastructure Tax (Passenger Cabin Tax is being repealed).
- B) The public transportation system endured significant budget restrictions during the recession. As a result, buses and ferries suffered a lack of fleet replacement and maintenance over a number of years, which impacted service reliability. This, in turn, made it challenging to keep up with visitor demand on transport options.
- C) NCL was granted a contract between 2017 and 2022 that included provision of its own tender (456 passengers) to help bring passengers from Dockyard to St. George's, in an effort to help revitalize the Old Towne, a UNESCO World Heritage Site. Passenger satisfaction is very high with this NCL tender service, which may contribute to the NCL passenger satisfaction indicators being higher than those of RCCL and CCC LLC overall.
- D) Private minibus and taxi operators largely satisfy the demand for ground transportation that is not met by the public buses, including sightseeing tours and shuttles from Dockyard to Horseshoe Bay beach.
- E) Currently, Bermuda only has two taxis and four minibuses that can accommodate persons in motorised wheelchairs for general conveyance and tours. This is not sufficient enough lift to meet cruise ship passenger demand. Each ship call arrives in Bermuda with 10 to 50 passengers confined to motorised wheelchairs. The majority of these visitors can not join land-based tours because of the lack of accessible transport available.
- F) There is no shade at Horseshoe Bay Beach in the GTA and both passengers and taxi and minibus drivers must wait in the sun. This deters taxis and minibuses from plying for hire at Horseshoe Bay Beach in the afternoon.
- G) The lack of sidewalks in Bermuda is mentioned throughout the Transport Green Paper as being one of the top safety issues, especially for visitors.

Stakeholder Comments & Thoughts

- Increase the number of minibuses to meet cruise passenger demand and include more minibuses with motorized wheelchair capacity.
- Increase the number of taxis with motorized wheelchair accessibility.

- Allow cruise lines to invest in a Horseshoe Bay Beach shuttle service to help decrease long queues and meet passenger demand between Dockyard and the beach.
- Increase shading at bus stops, ferry stops and install new shading at Horseshoe Bay beach General Transportation Area.
- Build more sidewalks island wide, especially in the West End.

10.5. Visitor Transport Infrastructure

Issue

- 1) Not enough reliable visitor transport to meet demand.

Context

- A) Provided throughout Sections 1, 2, 4, 8 and 10.1., 10.2. and 10.3.

Stakeholder Comments & Thoughts

- Approve and provide fringe transport options in the East and West End.
- Approve more taxi, minibus and airport limousine transport to meet visitor demand at peak times, especially in the evening, weekends and holidays.
- Approve more independent transport for hotel, vacation rental properties and neighborhoods.
- Approve more wheelchair accessible transport options.
- Approve more minicars.
- Provide a safe and reliable public bus system.
- Privatize a small bus system especially for visitors to and from hotels, restaurants and attractions.
- Provide more water transport or water taxi opportunities.
- Implement a private ride-share programme.
- Implement a pedal bike-share programme.
- Install pedal bike-racks on front of public buses.
- Fix or replace Long Bird Bridge so tour boats can access Castle Islands and beaches in the East End.
- Create a training certificate programme in customer service for Public Service Vehicle drivers.
- Ensure Bermuda's transport options offer frictionless transport experiences.

10.6. Government's Perspective on Visitor Transportation

- 10.6.1. Many of the challenges faced by our visitors are also challenges for residents: unreliable public bus service; lack of available taxis; lack of credit card payment options for transport; and, insufficient wheelchair accessibility transport options.
- 10.6.2. In other sections of this Transport Paper, it can be seen that the previous unreliability of the bus service is being addressed through a change in the bus schedule combined with investment in the fleet. Investments made already in the ferry fleet resulted in much improved reliability and this is reflected in continued good customer satisfaction indicators.
- 10.6.3. Similarly, elsewhere in this Paper it can be seen that Government is tackling the modernization of our transport fare media through an RFI/RPF process that, ultimately, will move Bermuda towards a cashless fare system and smart phone solutions.
- 10.6.4. The matter of taxis, though, appears an almost intractable problem. It is known that taxi drivers do not all ensure their taxis are on the road the mandated 16 hours per day. They do not all have second or part-time drivers to cover the 16 hour day. The take up of credit card facilities by drivers has been slow. The East and West Ends of the island, as well as the airport, can be critically short of lift capacity.
- 10.6.5. Some part of the demand has been met by minibuses (and gypsy cabs which is illegal) but the fact remains: 600 approved taxis on the road 16-hours per day should provide sufficient lift for the island's residents and visitors in conjunction with our bus and ferry services as well as minibuses.
- 10.6.6. It is recognised that, despite the costs and responsibilities associated with taxi ownership, some in the industry do have cars that are on the road as required, that accept credit cards and which do the runs that others avoid, such as short rides.
- 10.6.7. A change in culture and behaviour is needed to bring about change in the taxi industry so that the needs of the customers are being met.
- 10.6.8. As stated previously, DPT is implementing a new bus schedule which will greatly reduce, if not eliminate, bus cancellations and restore reliability and consistency to the service. In addition, Government is committed to continued investment in the bus fleet so that, in time, sightseeing tours can be reinstated.
- 10.6.9. As stated previously, the Ministry of Transport is undertaking a RFI/RFP now for a new transportation media solution for Bermuda that will include real-time updates on scheduled services. Government anticipates an interim smart phone solution being in place for the summer while vendor selection and installation takes place.
- 10.6.10. Government will expand the inventory of minicars for rent. The Transport Control Department has issued approval for 298 minicars since the America's Cup in 2017. TCD will continue to monitor the success of this initiative during the course of 2019 and consider increasing the number of minicars to a maximum of 500 to be part of livery rental service.
- 10.6.11. The Ministry of Public Works has secured shading for the Horseshoe Bay Beach GTA which will be erected by April 2019. WEDCo also secured new additional shading for the Dockyard GTA in time for the 2019 cruise ship season.
- 10.6.12. TCD will work with the taxi despatch companies and taxi owners to better monitor and

account for the operating hours of taxis, in line with the existing legislation. In the first instance, TCD will work with taxi owners to ensure all 600 approved taxis are licensed and available for use.

- 10.13. The Ministry of Transport will work with the BTA to review options for a shuttle service that operates between major hotels, attractions and St George's. It is Government's view that transport demand between Dockyard and Horseshoe Bay is satisfied by public buses on a new schedule, taxis and minibuses. Further improvements to can be accomplished through staggered docking and disembarking time.
- 10.14. The Ministry of Transport will work with the BTA to review options for a shuttle service that operates between major hotels, attractions and St George's. It is Government's view that transport demand between Dockyard and Horseshoe Bay can be satisfied by taxis and minibuses, combined with staggered docking and disembarking times. As the public bus fleet expands, additional lift out of the west end using buses can be considered.

Section 11

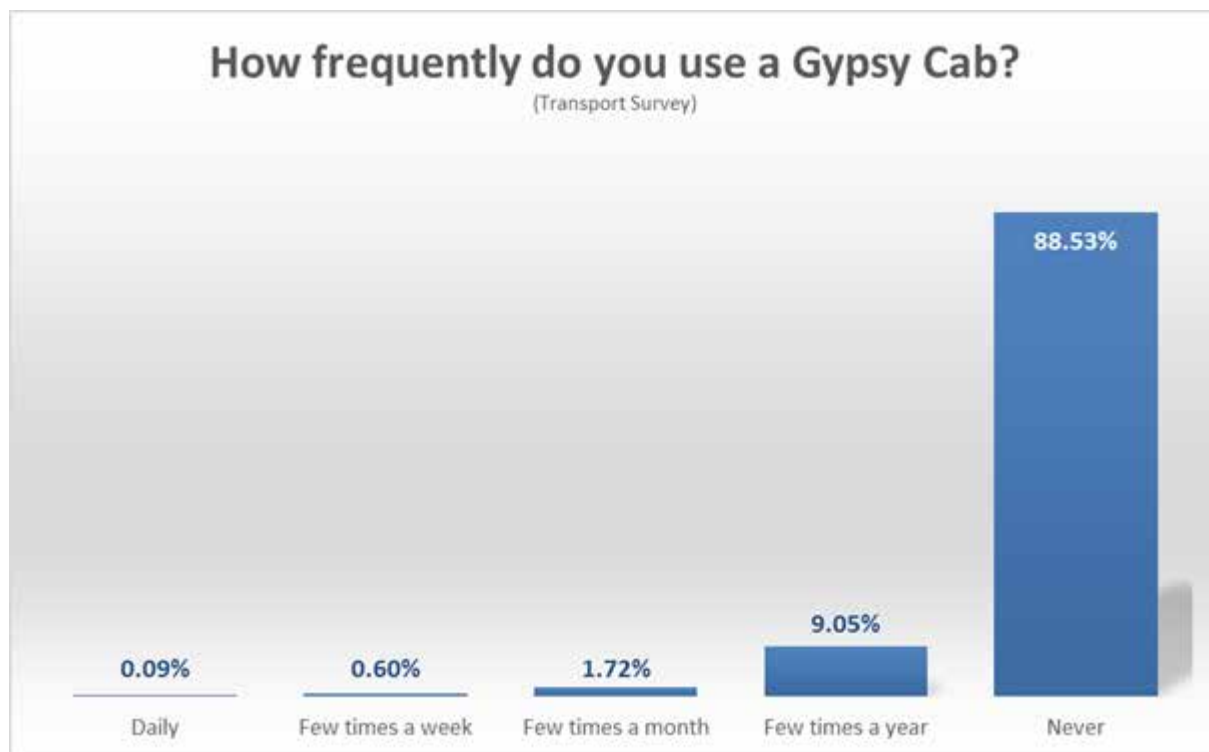
Other Transport Matters

11.1. Illegal Transportation Providers

Issues

- 1) There are illegal transportation providers who are not regulated.
- 2) There is a need for other sources of reliable land transportation, especially in outlying areas of Bermuda, where taxi service cannot be relied upon.

Graph 53



Context

- A) Gypsy cabs are illegal.
- B) Drivers do not have either the Blue Flag or Certified Tourism Ambassador training.
- C) Section 26 of the Motor Car Act 1951 – states that no person shall use or cause or allow any other person to use—any motor car other than a Public Service Vehicle for the carriage of passengers for hire or reward.
- D) Drivers are not part of a taxi despatching service and do not have a meter for rates.
- E) Drivers do not pay payroll tax or social insurance.

- F) Generally, gypsy cabs have provided a much-needed service to residents and visitors.
- G) The 2018 Public Transport Survey asked responders how frequently they use a gypsy cab, 89% said never and 9% said a few times a year.
- H) When asked if they believe that gypsy cabs provide a valuable and needed service, 72% of respondents said yes and 28% said no.

Stakeholder Comments & Thoughts

- Regulate gypsy cabs so that, at a minimum, they have appropriate public liability insurance and Blue Flag/Certified Tourism Ambassador training.
- Leave them alone and let the gypsy cabs pick up the slack of the regulated taxis, as they are needed at certain times and in certain areas.
- Gypsy cabs are illegal and Traffic Enforcement authorities should better enforce.

11.2. Water Taxis

Issues

- 1) There are not enough water taxis in service to help relieve road traffic congestion.
- 2) Poor weather conditions may make the water taxi model somewhat unreliable.
- 3) Water taxi fares are costly. Cruise lines require substantial public liability insurance to be in place before this transport option can be recommended to cruise passengers. For the operator, the revenue generated must be commensurate with the expense involved.

Context

- A) In 1999 visitors indicated strong support for water taxis with 57% saying that they agree that water taxis should be provided in Bermuda.
- B) The 2018 Public Transport Survey revealed that 68% of the responders said that if water taxis were available, they would use the service. 10.67% surveyed said no they would not use a water taxi and 21% said they were not sure.
- C) In 2018, cruise lines indicated that they would be interested in water taxis if they were regulated and if the owner/operator had sufficient public liability insurance.
- D) Water taxis have to meet all Marine Board Regulations and licensing requirements, in line with commercial tour boats. Sufficient passenger volume is needed to make the business viable.
- E) Water taxis would compete with the public ferry fare of \$4.50 pp 14-Zone Adult.

Stakeholder Comments & Thoughts

- Government should consider providing duty relief and licensing incentives to encourage this type of transport entrepreneurship to create jobs.

- Water taxis would need to meet same standards as Island Boats for inspections and licensing.
- Create a legal framework for water taxis that is similar to the Taxi Regulations.
- Establish service for commuters that links private car parking options and Hamilton.
- Better marketing of water taxi services is needed.

11.3. Government's Perspective on Gypsy Cabs and Water Taxis

- 11.3.1. Recognizing the public's support of gypsy cabs because there is lack of taxi service and affordable transport alternatives, the Government will consider the special permit taxis spoken to in section 4.3.
- 11.3.2. Although there appears to be support for water taxi services, this initiative has failed in the past because of the expense to the private company operators; and, the effort required to meet certain island boat regulations. The Government is not in a position to financially support this type of service at this time. The Marine and Ports Paget/Warwick Ferry struggles to attract ridership and the fare is only \$3.50 per adult person, each way. Government recognises that this a challenge for the private sector to make a go at it.

Section 12

Intelligent Transport

Overview

Intelligent transport is the notion of using information and technology to drive traffic efficiency, improve travel management and enhance road safety in rapid real-time. Inextricably linked to the concept of a 'smart city', it relies on sensors, information processors, communications systems, vehicle identifiers, cameras and instant GPS updates etc. for automatic data collection and analysis that feeds accurate information back to travellers. For example, a form of intelligent transport which assists with traffic efficiency is synchronised and prioritised traffic lights. This allows for the steady flow of traffic and is designed to ease congestion.

A smart city is a city with its functions facilitated or executed by advanced digital technologies. This can include artificial intelligence, robotics, blockchain and the Internet of Things. The aim is to improve the environmental, financial and social quality of urban life for residents and visitors by leveraging the connected technologies. Such systems can, for example, monitor public garbage cans and alert city officials when a garbage can is full and requires the waste disposal team.

The impetus behind the smart city movement is the knowledge that more than two-thirds of the world's population is expected to live in urbanised areas by 2050, and quality of life will be critical (as reported by the UN'S Department of Economic and Social Affairs in 2018).

Although Bermuda's capital, the City of Hamilton, is not experiencing any disproportionate population growth, it is the work destination for 53% of survey respondents. Pembroke, excluding Hamilton, is the second work destination cited by respondents at 8%. The majority of these work trips (65%) are by car; a combination of driving a car alone, being dropped off by car and carpooling.

In fact, Bermuda's 200 km of public roads and bridges must accommodate safe passage of the motorists, cyclists and pedestrians in a population of 63,779 residents and 771,000 visitors in 2018 (projected to be 826,887 in 2019). As the Government of Bermuda is committed to improved transport efficiencies and safe travel experiences for all, the installation of intelligent transport systems is a reasonable aspiration.

If intelligent transport systems were in place today, a differently abled person, when driving into the City of Hamilton (with a disabled parking permit), could know exactly what disabled parking spaces are available and where they are located, in real-time.

12.1. Intelligent Transport (Smart Cities)

Issue

- 1) Technology can shape the future of transport in Bermuda but is Bermuda ready?

Context

- A) The essential elements of an intelligent transport system are outlined below.

- i. Data collection: extensive and accurate data is needed. This can be via GPS, automatic vehicle identifiers (such as TCD's electronic vehicle registration), sensors, cameras, etc. The term 'big data' is applicable here and the data storage needs are significant.
 - ii. Data transmission: real-time communication and transmission of data is key. Data must be collected, analysed and sent out to travellers quickly, and this must be supported by reliable, fast networks.
 - iii. Data analysis: The data that is collected must be, as necessary, cleaned up and synthesised prior to analysis, making data processing key.
 - iv. Traveller information: A fully functional intelligent transport system will deliver true information, in real-time, which is useful and relevant to the traveller. This can be by way of the internet, automated text messages, an app, etc.
- B)** The consultation process of the Transport Green Paper revealed the need for greater communication between Government departments and public authorities with respect to the collection, sharing and archiving of important data.
- C)** Research for the Transport Green Paper highlighted the need for accurate data input and record keeping. For example, DPT and M&P do not have real-time accurate data on the number of passengers that pay for fares or travel for free on any public bus or ferry. Also, there is uncertainty around the exact number of mobility-challenged persons requiring transport for the disabled.
- D)** Standards for consistent reporting data month over month and year over year are critical to tracking progress and establishing intelligent transport options.
- E)** Subject to privacy protection laws and data protection standards, a smart city with fully enabled intelligent transport systems can track, facilitate and/or manage the following:
- a. the number of people flowing in and out of the city by mode of transport (including the type of vehicle) 24/7;
 - b. public transportation (bus and ferry) traffic flows to improve and better connect timetables, schedules, interruption of service messages related to transport systems;
 - c. contactless payments;
 - d. handicap accessibility areas;
 - e. private transportation (taxis and minibus) traffic flows to anticipate services;
 - f. electric vehicle charging stations and EV transportation options;
 - g. rental vehicle parking options;
 - h. car parking availability, including disabled parking spaces and mobility needs;
 - i. smart signage and (detour) directions;
 - j. parking offences and ticketing;
 - k. speed management through detection and instant ticketing;
 - l. noise and air pollution, monitoring emissions;
 - m. waste management through monitoring and disposal;
 - n. ride-hailing and bike sharing programmes;
 - o. weather related traffic patterns and cautions;

- p. reporting of maintenance and repairs;
- q. shopping patterns and shopping deals;
- r. event information and participation;
- s. employment opportunities;
- t. reporting of collisions;
- u. reporting of fires; and
- v. reporting of disturbances.

Stakeholder Comments & Thoughts

- Build an underwater tunnel between Dockyard and Hamilton.
- Build a bridge over the Great Sound from Dockyard to Hamilton (Spanish Point).
- Build a 'light rail' system throughout Bermuda, similar to the old Bermuda Railway Train (1931-1948) and operate from 6am and 12-midnight (in 1 or 2-hour intervals) like the old days when commuters, school children and freight moved about Bermuda in a safe and easy manner.
- Build a monorail along North Shore from St. George to Hamilton.
- Promote 'flying personal aircraft' to ease congestion on the roads.
- Buy two autonomous 11-seat electric buses and operate at night between 12-midnight and 4 am on Fridays and Saturdays as a novelty idea to help take party goers home, to avoid persons from drinking and driving. This could be a private/public sector initiative and run by an app.
- Purchase 120 new electric or hybrid buses. Electric buses require less maintenance and are a quieter travel experience without exhaust fumes.
- Implement an integrated and cashless public transportation, taxi and minibus system.
- Purchase five new, fuel-efficient fast ferries so as to move more people by water (east, central and west) as much as possible. Extend the current ferry schedule with earlier and later options to promote more commuter use, and support Operation Caution's road safety campaign.
- Implement a separate school bus service for students.
- Implement or subsidise a transport system for differently abled and mobility constrained.
- Install speed detection cameras, and combine with electronic ticketing and payment of fines electronically.
- Enforce a GPS-enabled taxi dispatching system similar to that used for ride-hailing services such as Uber.
- Install cameras and sensors on the Bermuda Railway Trail to enhance safety and encourage more use.
- Make the City of Hamilton, Town of St. George and the Royal Naval Dockyard smart cities.

12.2. Government's Perspective on Intelligent Transport

- 12.2.1. Bermuda may not yet have the capability of fully embracing the smart city movement, however, the Government supports the upgrade of existing intelligent transport systems and the installation of new systems for better and safer transport management, see Section 8.4. and 8.4.13. for further reference.
- 12.2.2. Commuters value highly the flexibility of door-to-door on-demand travel, hence the reliance on the car. This is not unique to Bermuda. To compete, public transportation must be reliable, frequent and available for extended hours. As a priority, Government will ensure DPT is equipped to give regular information to the daily commuters about public buses, timings, the current location of the bus, time taken to reach a particular destination and the next stop for a bus. Future improvements may enable commuters to know seat availability and the density of passengers inside the bus via an app. While the Government works to replenish the bus fleet, accurate information about bus availability and the bus schedule is helpful for residents and visitors.
- 12.2.3. With respect to public transport by ferry, Government is committed to replenishing the fleet in a phased manner, but using fast, size appropriate and fuel efficient vessels. This will enable M&P to gain flexibility in the deployment of the fleet such that it is able to consider additional stops and/or an extended schedule. The current fleet of high speed ferries is too expensive to operate with any greater flexibility. As with the buses, ferry timings, current location, etc. will be incorporated into a passenger information app.
- 12.2.4. Government is committed to upgrading TCD's electronic vehicle registration system. In the short term, this will identify unlicensed vehicles so that tickets can be issued. The Ministry will work with the Ministry of Finance to enable online fine payment.
- 12.2.5. The Ministry will work with the Ministry of National Security regarding the installation of speed cameras, as part of an enhanced road safety scheme, and work with the City of Hamilton and the Ministry of Public Works regarding the installation of traffic light CCTV cameras to better manage and enforce flow through traffic lights.
- 12.2.6. While Government is committed to introducing an integrated GPS transportation app, with cashless payment options, for public buses and ferries, the taxi and minibus operators are private sector entities. As such, the Ministry will work with those associations to ensure implementation of a comprehensive transportation app that includes GPS-enabled dispatching and cashless payment options. Payment by credit or debit card is a normal and expected feature of any transport system today, whether public or private, and Bermuda must embrace this.
- 12.2.7. The Government fully encourages and supports active transport options for residents and visitors. However, we must acknowledge the lack of sidewalks alongside our public roads that enhance pedestrian safety. The Bermuda Railway Trail, however, offers an opportunity for safe walking and cycling. Additional features that form part of an intelligent transport system, such as CCTV, could be installed to add a level of comfort. The scope to do so is somewhat limited but the Government will review the potential.

- 12.2.8. Improved technology has been the basis of improvements in transport and traffic management in recent years. Bermuda already incorporates elements of intelligent transport in its traffic management practices, however, a more connected and comprehensive system would be beneficial in aiding our road safety strategies and encouraging a shift from motor car travel to public transit options.

Conclusion:

THE FUTURE OF TRANSPORT IN BERMUDA

The Transport Green Paper consultation process was designed to stimulate debate on a range of options for strengthening the transportation sector to better plan for the future. The public was invited to comment and engage in discussion between November 2017 and December 2018, to identify and modernise transportation efficiencies and policies that are realistic, fiscally prudent and enhance transportation safety and experiences for all.

Thousands of complaints were received during the consultation period about various transport related matters and the dangerous driving behaviours of 'others'. Great lengths were taken to ensure the majority of issues are captured in Sections 1- 12.

Three arching themes emerged when correlating the issues, comments and thoughts of the responders to the consultation that centred on (i) safety, (ii) reliability and (iii) the desire for frictionless transport experiences.

Specifically, there was a high demand for more:

1. reliable public bus transportation;
2. reliable taxi service;
3. sidewalks;
4. traffic enforcement to deter bad driving behaviours;
5. enforcement of heavy trucks on the roads;
6. safe spaces to walk and cycle;
7. motorised wheelchair transport options;
8. even (safer) road surfaces;
9. regulations, e.g. training standards for Public Service Vehicle drivers; higher road traffic fines, etc.; and
10. funds to modernise transportation infrastructure and services in an energy efficient and intelligent way.

Historical data collected for the Transport Green Paper compares relevant information over 20 years. Today, Bermuda has 32,400 residential units (4,907 more) compared to 27,493 in 1999. There is roughly the same number of private cars on the road. However, the vehicles are larger, and there are more vehicles licensed in the larger categories.

There are 30 fewer public buses in inventory, 24 fewer community service vehicles and 44 fewer taxis on the road due to an assortment of reasons. There are 73,000 fewer air visitors and 364,000 more cruise ship passengers creating an overwhelming need for more taxis and minibuses to service the needs of our residents and visitors.

Differently-abled residents find it hard to get free or affordable accessible transportation to and from medical appointments.

The delay in publishing the Transport Green Paper has allowed the Government of Bermuda the time

to investigate the issues, comments, and thoughts, of all persons consulted and provide Government's Perspective at the end of each section. Draft copies of the Transport Green Paper were given to key stakeholders for confirmation of data. It allowed Government to act swiftly and concurrently on priority matters that were identified. Appendix L provides a summary of actions taken by the Government in the last 12-months.

To all the 21,567 respondents who took the time to share your thoughts with the Ministry of Tourism and Transport and the Bermuda Tourism Authority, we take this time to thank you publicly for your comments.

The Government will now focus on the future and move public policy forward in response to the Transport Green Paper consultation by modernising transportation efficiencies and enhancing transportation safety and efficiency for all.

Appendix A

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- 2014 Bermuda Royal Naval Dockyard Transportation Study, Mott MacDonald
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Appendix B

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Bermuda Airport Authority Act 2017

Bermuda Civil Aviation Authority Act 2016

Civil Airport Act 1949

Bermuda Shipping and Maritime Authority Act 2016

Merchant Shipping Act 2002

Marine Board Act 1962

Marine Board (Ferry Services Fares) Regulations 1992

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Clean Air Act 1991**Customs Tariff Act 1970**

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Passenger Ships Act 1972**Municipalities Act 1923**

Hamilton Traffic and Sidewalks Ordinance 1988
St. George's Traffic Ordinance 1967

Government Fees Amendment Regulations 2018**Bermuda Fire & Rescue Service Act 1982**

Appendix C

Top 25 Stakeholder Desired Outcomes

One hundred and thirty-seven (137) stakeholders in key business groups were interviewed for the Transport Green Paper. They were asked the following questions (i) what issues should be included in the Green Paper (ii) what 'relevant outcomes' would stakeholders like to see achieved through the Transport Green Paper and (iii) what questions should be asked in the 2018 Public Transport Survey. All those consulted are listed in (Appendix D). The top 25 desired outcomes that were proposed for the Transport Green Paper included:

- 1) put more taxis on the road at 3pm, after 5 pm and on weekends and holidays;
- 2) cap or reduce the size of all vehicles on the road;
- 3) provide more police presence to stop bad driving behaviors;
- 4) better enforce motor and traffic legislation;
- 5) provide affordable wheelchair and accessible transportation for the differently abled;
- 6) build more sidewalks;
- 7) fix or replace the ageing bus fleet;
- 8) introduce a dedicated School Bus system to ensure the safety of children;
- 9) protect bus drivers from unruly and dangerous passengers;
- 10) implement a cost effective and reliable bus schedule;
- 11) stop speeding by implementing speed camera fines by mail;
- 12) stop drinking and driving, implement roadside sobriety testing;
- 13) stop third-lane bad driving habits, create specific legislation to discourage behavior;
- 14) enforce correct usage of handicap parking bays;
- 15) fix the commuter congestion problem in and out of the City of Hamilton;
- 16) stop heavy trucks and oversized vehicles from being on the road at rush hour;
- 17) stop oversized construction vehicles from being on the road without a police escort;
- 18) fix Bermuda's road conditions; limit oversized and overweight vehicles;
- 19) focus on 'active transport' issues related to walking and cycling and provide safer roads and spaces for better health;
- 20) better enforce taxi drivers to stop preferential acceptance of types of rides, times and routes;
- 21) fix the confusion over types of taxi fares;
- 22) implement a cashless public transportation payment system;
- 23) create a trip planning "App" to navigate public and private transportation options;
- 24) increase the number of rental minicars, keep visitors safe and off mopeds; and
- 25) allow hotels to have their own minibuses for evening airport and restaurant shuttles.

Appendix D

List of Stakeholders Interviewed (137 people) between November 2017 – December 2018

- 1) Art of Hosting
- 2) Auto Solutions
- 3) BELCo
- 4) Bermuda Airport Authority (BAA)
- 5) Bermuda Bicycling Association
- 6) Bermuda College
- 7) Bermuda Chamber of Commerce
- 8) Bermuda Development Agency (BDA)
- 9) Bermuda Fire and Rescue Service (BFRS)
- 10) Bermuda Hotel Association
- 11) Bermuda Industrial Union
- 12) Bermuda Island Taxi
- 13) Bermuda Land Development Agency (BLDC)
- 14) Bermuda Road Safety Council
- 15) Bermuda Motors
- 16) Bermuda Police Service
- 17) Bermuda Public Service Union
- 18) Bermuda Public Service Vehicle Board
- 19) Bermuda Taxi Association, despatching
- 20) Bermuda Taxi Owners Association
- 21) Bermuda Tourism Authority (BTA)
- 22) Bermuda Transit Services
- 23) Cabinet Policy Unit (CPU)
- 24) CADA
- 25) Carnival Corporation
- 26) Co-Op Taxi
- 27) Corporation of Hamilton
- 28) Corporation of St. George
- 29) Cruiseport Ferry Management Ltd.
- 30) Department of Communication and Information
- 31) Department of Consumer Affairs

- 32) Department of Customs
- 33) Department of Energy
- 34) Department of Environment
- 35) Department of Health
- 36) Department of Health, Ministry Responsible for Disability Affairs
- 37) Department of Marine & Ports
- 38) Department of Parks
- 39) Department of Planning
- 40) Department of Public Transportation (DPT)
- 41) Department of Social Services
- 42) Department of Statistics
- 43) Disability Advisory Council
- 44) Dockyard Visitor Information Centre
- 45) Electric Vehicle Working Group
- 46) Fantasea Shore Excursions
- 47) Flying Colours
- 48) Hamilton Visitor Information Centre
- 49) Marine & Ports Services (M&P)
- 50) MasterCard
- 51) Meyer Agency (Freight)
- 52) Meyer Agency (Shore Ex)
- 53) Meyer Freight (Port Agents)
- 54) Minibus Associations (Bermuda Minibus Association and Somers Isle Minibus Association)
- 55) Ministry of Education
- 56) Ministry of Health, (Ministry of Disability Affairs)
- 57) Ministry of Public Works
- 58) Ministry of Tourism
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- 61) Piece of the Rock Board
- 62) Polaris Stevedoring Services
- 63) Policy Unit, Cabinet
- 64) Premier Co-op Taxi
- 65) Royal Caribbean Cruise Line
- 66) Rumbum Beach Bar, Horseshoe Bay Beach
- 67) Skyport Ltd.

- 68) Somers Isle Minibus Association
- 69) St. George Visitor Information Centre
- 70) Titan Minibus
- 71) Transport Control Department Management(TCD)
- 72) Traffic Officers, TCD
- 73) Trucks Advisory Committee
- 74) University Student
- 75) West End Development Corporation (WEDCO)
- 76) 1609 VIP Transport

Appendix E

Catalogue – 2018 Public Transport Survey Questions

1. What is your gender?
2. Which of the following categories best describes your employment status?
3. What is your age?
4. What parish do you reside in?
5. In which parish do you work?
6. How do you usually get to work?
7. Please select all types of vehicles that you own.
8. Please select all types of vehicles that you have access to.
9. How frequently do you use the public bus?
10. How reliable is the public bus system?
11. Do you agree that certain smaller public bus routes should be privatized?
(i.e. St. David's and Spanish Point)
12. If you agree, what size of bus should be used?
13. What should the frequency be?
14. How frequently do you use the Ferry?
15. How reliable is the Ferry system?
16. If available, would you use a public transportation app? (for schedules, tickets, cancellation information, etc.)
17. If our new service were available today, how likely would you be to use a credit/debit for fare payment on board public transportation?
18. Do you purchase a monthly commuter pass?
19. If there was a 'park and ride' commuter service to Hamilton, would you use it?
20. Would you be willing to carpool to work and/or school?
21. What would encourage you to use the public transportation system? (please state)
22. Are there any suggestions for improvement of the public transportation system?
23. Do you have a child or children enrolled in school locally? (please select)
24. If so, how does your child or children get to school? (please select all that apply)
25. Should students pay for public transportation (student fares)?
26. Would you be opposed to limiting student's free access to public transportation to certain times of the day?
27. Should school students have a dedicated transportation system?
28. Do you agree with an advanced mandated Graduated Licensing Programme for young drivers?
(Graduated licensing programmes provide new drivers of motor vehicles with on-the-road experience and skills through a series of steps which new drivers must pass to obtain a license.)
29. How frequently do you use a taxi?
30. Select reasons you have used a taxi? (select appropriate)

31. Are there enough taxis on the road during peak times?
32. Should the taxi industry introduce flat zone fares between popular points? E.g. The Airport to Grotto Bay and the Town of St. George, or Dockyard to Horseshoe Bay beach?
33. Would you use a credit/debit card to pay for a taxi?
34. If available would you use a water taxi service?
35. How frequently do you use a gypsy cab?
36. Do you believe gypsy cabs provide a valuable and needed service?
37. Are you in favour of introducing a private prepayment app service like Uber for Bermuda?
38. Do you agree that Bermuda's roads are properly maintained?
39. How safe are Bermuda's roads for driving?
40. If unsafe, why?
41. Should the cap on the size of cars on Bermuda's roads be increased (larger cars) decreased (smaller cars) or remain the same?
42. Do you agree that the streets of Bermuda are adequately lit at night?
43. If available, would you consider purchasing a minicar for personal use? (e.g. Twizy type vehicle)?
44. Would you be willing to forgo your family car for a minicar (e.g. Twizy type vehicle)?
45. Would you like to see more minicars in Bermuda?
46. What is the reason for your answer?
47. Should moped rentals for visitors be limited to tours and/or excursions?
48. Would you consider purchasing an electric motor cycle?
49. Would you be willing to replace your car with an electric/hybrid car?
50. Which of the following would be determining factors in choosing to purchase an Electric/Hybrid vehicle? (choose all that are applicable)
51. How safe are Bermuda's roads for walking?
52. What could be done to make you feel safer? (please state)
53. Do you use the railway trail to walk or pedal cycle?
54. Would you use the railway trail more if it were better connected across the island?
55. Would you participate in a pedal cycle 'bike share' program?
56. Do you agree with building a new cruise ship pier in the Murray's Anchorage area of St. George's?
57. Do you agree with widening and/or deepening the Town Cut to enable larger cruise ships to enter the town of St. George?
58. Do you agree with widening and/or deepening the Two Rock Passage to enable larger cruise ships to enter the city of Hamilton?
59. Would you utilize a dock at the Bermuda Airport?
60. What suggestions do you have for reducing bad driving behaviours and encouraging good driving behaviours?
61. Do you think traffic fines and the demerit point system are sufficient in reducing bad driving behaviours?
62. Should any of the fines for the habits listed below be increased?
63. What are some issues that are important to consider to moving transportation forward in Bermuda?
64. What are some recommendations that could improve transportation in Bermuda?

Appendix F

Catalogue of 2017 Visitor Survey

2017 Air Visitor Exit Survey Questions⁴⁵

- In general, how satisfied were you with the overall quality of transportation available on the Island for visitors like yourself?
 - 1 Completely satisfied
 - 2 Mostly satisfied
 - 3 Mostly dissatisfied
 - 4 Completely dissatisfied
 - 5 Neither satisfied nor dissatisfied
 - 8 Unsure

- Which of the following types of transportation did you personally make use of during your last trip to Bermuda?
 - 1 Mini-bus service
 - 2 Bus service
 - 3 Ferry service
 - 4 Taxi service
 - 5 Bicycle rental
 - 6 Motor Scooter rental
 - 7 None

- And how satisfied were you specifically with the quality of transportation used?
 - a. Bus service
 - b. Ferry service
 - c. Taxi service
 - d. Motor Scooter rental
 - e. Mini-bus service
 - f. Bicycle rental
 - 1 Completely satisfied
 - 2 Mostly satisfied
 - 3 Mostly dissatisfied
 - 4 Completely dissatisfied
 - 5 Neither satisfied nor dissatisfied
 - 8 Unsure

⁴⁵ BTA Visitor Transportation Survey by e-mail database 2017

- How would you rate the value of the following types of transportation available on the island?

	Extremely good value	Good value	Average	Poor value	Extremely poor value	No opinion
a. Mini-bus service	1	2	3	4	5	8
b. Bus service	1	2	3	4	5	8
c. Ferry service	1	2	3	4	5	8
d. Taxi service	1	2	3	4	5	8
e. Bicycle rental	1	2	3	4	5	8
f. Motor scooter rental	1	2	3	4	5	8

2017 Cruise Visitor Exit Survey Questions⁴⁶

- Which of the following types of transportation did you personally make use of while on our Island?

- 1 Bus service
- 2 Ferry service
- 3 Taxi service
- 7 Bicycle rental
- 6 Mini-bus service
- 8 Motorbike rental
- 5 None of the above

And how satisfied were you specifically with the quality of transportation used? Were you completely satisfied, mostly satisfied, mostly dissatisfied, or completely dissatisfied with.

	READ				DO NOT READ	
	Completely Satisfied	Mostly Satisfied	Mostly dissatisfied	Completely dissatisfied	Neither Satisfied nor Dissatisfied	Vol. No Opinion
a. Bus service	1	2	3	4	5	8
b. Ferry service	1	2	3	4	5	8
c. Taxi service	1	2	3	4	5	8
d. Mini-bus	1	2	3	4	5	8
e. Bicycle rental	1	2	3	4	5	8
f. Motorbike rental	1	2	3	4	5	8

- How would you rate the value of the following types of transportation available on the island?
Would you say that offers extremely good, good, average, poor, or extremely poor value?

	Extremely good value	Good value	Average value	Poor value	Extremely poor value	No opinion
a. Mini-bus service	1	2	3	4	5	8
b. Bus service	1	2	3	4	5	8
c. Ferry service	1	2	3	4	5	8
d. Taxi service	1	2	3	4	5	8
e. Bicycle rental	1	2	3	4	5	8
g. Motorbike rental	1	2	3	4	5	8
f. Overall transportation options/ experience	1	2	3	4	5	8

Appendix G

2018 - Catalog of Student Transport Survey Questions

PLEASE CIRCLE

1. Do you live in an Eastern Parish?
 - a. Yes - St. George's
 - b. Yes - Hamilton Parish
 - c. Yes - Smith's
 - d. I do not live in the East

2. Do you live in an Central Parish?
 - a. Yes - Devonshire
 - b. Yes - Pembroke
 - c. Yes - Paget
 - d. I do not live in a Central Parish

3. Do you live in a Western Parish?
 - a. Yes - Warwick
 - b. Yes - Southampton
 - c. Yes - Sandy's
 - d. I do not live in the West

4. How do you get to school? (select all that apply)
 - a. Car
 - b. Motor Cycle
 - c. Bus
 - d. Walk
 - e. Other

5. How do you get home from school? (select all that apply)
 - a. Car
 - b. Motor Cycle
 - c. Bus
 - d. Walk
 - e. Other

6. Do you participate in after school activities?
 - a. Yes
 - b. No
 - c. Sometimes

7. If yes, where do these after school activities take place? (choose all appropriate)

- a. At school
 - b. Near school
 - c. In Hamilton
 - d. Other
8. How often do you participate in these after school activities?
- a. 4 or more days per week
 - b. 3 days per week
 - c. 2 days per week
 - d. 1 days per week
 - e. Do not participate in after school activities.
9. How do you travel to and from your after school activities? (choose all appropriate)
- a. Car
 - b. Motor Cycle
 - c. Bus
 - d. Walk
 - e. Other
10. How often do you travel into the City of Hamilton during the school week?
- a. 4 or more days per week
 - b. 3 days per week
 - c. 2 days per week
 - d. 1 days per week
 - e. Do not travel into Hamilton.
11. What is the reason for going into the City of Hamilton?
- a. After School Activity/Work
 - b. Meet parents
 - c. Hang out/socialize
 - d. Transfer/take bus
 - e. Other
12. How often to you ride the designated School Bus?
- a. Daily (school days)
 - b. Few times a week
 - c. Few times a month
 - d. Not often/never
 - e. My school does not have a designated school bus
13. How often do you ride a public bus, other than a designated school bus?
- a. Daily
 - b. Few times a week

- c. Few times a month
- d. Few times a year
- e. Never

14. How reliable do you find the Public bus system? (i.e. on time, follows route etc.)

- a. Very reliable
- b. Reliable
- c. Neutral (neither reliable or unreliable)
- d. Unreliable
- e. Very unreliable

15. How safe do you think the public bus system is?

- a. Very safe
- b. Safe
- c. Neutral (neither safe or unsafe)
- d. Unsafe
- e. Very unsafe

16. Would you feel safer going to and from school on a dedicated School Bus?

- a. Yes
- b. No

17. How often do you ride a public ferry?

- a. Daily
- b. Few times a week
- c. Few times a month
- d. Few times a year
- e. Never

18. How safe do you think the public ferry system is?

- a. Very safe
- b. Safe
- c. Neutral (neither safe or unsafe)
- d. Unsafe
- e. Very Unsafe

19. Would you use a public transportation app if available?

(For schedules, cancellation information etc.)

- a. Yes
- b. No

20. Do you plan on getting a motorcycle license?

- a. Yes
- b. No
- c. Already have a motorcycle license

21. Would you participate in Project Ride?

- a. Yes I plan to take Project Ride
- b. No I don't plan to take Project Ride
- c. I have already taken Project Ride

22. How safe are Bermuda's roads for driving a motor bike?

- a. Very safe
- b. Safe
- c. Neutral (neither safe or unsafe)
- d. Unsafe
- e. Very unsafe

23. How safe do you feel walking on Bermuda's roads?

- a. Very safe
- b. Safe
- c. Neutral (neither safe or unsafe)
- d. Unsafe
- e. Very unsafe

24. If unsafe, why?

- a. Poorly maintained roadways (e.g. road conditions and overgrown trees)
- b. Lack of sidewalks and crosswalks
- c. Dangerous drivers
- d. Harassment
- e. Other
- f.

25. What is your gender?

- a. Male
- b. Female

26. What is your age?

- a. 15 or under
- b. 16
- c. 17

27. Do you attend Middle School?

- a. Yes – M1
- b. Yes – M2
- c. Yes – M3
- d. No – I attend High School

28. Do you attend High School?

- a. Yes – S1
- b. Yes – S2
- c. Yes – S3
- d. Yes – S4
- e. No – I attend Middle School

29. What School do you attend?

- a. Somersfield
- b. Mount Saint Agnes

- c. Bermuda High School
- d. Saltus
- e. Not listed

30. What School do you attend?

- a. Warwick Academy
- b. Clearwarter Middle School
- c. Dellwood Middle School
- d. T.N. Tatem middle School
- e. Not listed

31. What School do you attend?

- a. Whitney Institute Middle School
- b. Sandys Secondary School
- c. Berkeley Institute
- d. CedarBridge Academy
- e. Not listed

Appendix H

Graph List

Graph 1 – How frequently do you use the Public Bus?

Graph 2 – How often do you ride a Public Bus?

Graph 3 – How reliable is the public bus system?

Graph 4 – How reliable is the public bus system?

Graph 5 – How safe do you think the public bus system is?

Graph 6 – How frequently do you use the ferry?

Graph 7 – How frequently do you use the ferry?

Graph 8 – How reliable is the ferry?

Graph 9 – How do you travel to work?

Graph 10 – How likely would you use a credit/debit card for fare payment onboard public transportation?

Graph 11 – Would you use a public transportation app if available?

Graph 12 – If there was a 'park and ride' commuter service to Hamilton, would you use it?

Graph 13 – In which Parish do you work?

Graph 14 – In which Parish do you reside?

Graph 15 – How does your child or children get to school?

Graph 16 – How do you get to school?

Graph 17 – How do you get home from school?

Graph 18 – Do you participate in after school activities?

Graph 19 – If yes, where do these after school activities take place?

Graph 20 – How often do you participate in after school activities?

Graph 21 – How do you travel to/from after school activities?

Graph 22 – Should students pay for public transportation (student fares?)

Graph 23 – Would you be opposed to limiting student's free access to public transportation to certain times of the day?

Graph 24 – Would you feel safer going to and from school on a dedicated school bus?

Graph 25 – How often do you travel into the City of Hamilton during the school week?

Graph 26 – What is the reason for going into the City of Hamilton?

Graph 27 – Please select all the types of vehicles that you own?

Graph 28 – What type of vehicles do you have access to?

Graph 29 – If available, would you consider purchasing a minicar for personal use?

Graph 30 – How frequently do you use a taxi?

Graph 31 – Select reasons for using a taxi?

Graph 32 – Which of the following would be a determining factor in choosing to purchase an electric/hybrid vehicle?

Graph 33 – Would you consider purchasing an Electric Cycle?

Graph 34 – How safe are Bermuda's roads for driving?

Graph 35 – Do you agree that Bermuda's roads are properly maintained?

Graph 36 – How safe are Bermuda's roads for driving a motor bike?

Graph 37 – How safe do you feel walking on Bermuda's roads?

Graph 38 – Why are Bermuda's roads unsafe?

Graph 39 – Do you think traffic fines and demerit point system are sufficient in reducing bad driving behaviour?

Graph 40 – Should any of the fines for habits listed below be increased?

Graph 41 – What Parish do you reside in? (repeated graph, for section reference)

Graph 42 – In which Parish do you work? (repeated graph, for section's reference)

Graph 43 – Would you be willing to carpool to work and/or school?

Graph 44 – Do you agree that the streets of Bermuda are adequately lit at night?

Graph 45 – Do you agree with an advanced mandated graduated licensing programme for young drivers?

Graph 46 – Would you participate in Project Ride?

Graph 47 – Do you plan on getting a motorcycle?

Graph 48 – Do you use the railway trail to walk or pedal cycle?

Graph 49 – Would you use the railway trail more if it were better connected across the island?

Graph 50 – Do you agree with widening and/or deepening the Town Cut to enable larger cruise ships to enter the Town of St. George?

Graph 51 – Do you agree with building a new cruise ship pier in Murray's Anchorage in St. George's?

Graph 52 – Do you agree with widening and/or deepening the Two Rock to enable larger cruise ships to enter the City of Hamilton?

Graph 53 – How frequently do you use Gypsy cabs?

Graphs related to the 2018 Public Transport Survey ('Transport Survey') are in blue and the Student Transport Survey ('Student Survey') graphs are in green.

Appendix I

Table List

Table 1 - 2000 and 2016 Population and Housing Census, under age 19 and seniors eligible for free public transportation

Table 2 - Two Wheel and Four Wheel Vehicle Breakdown, licensed on the road between 1999 and 2018

Table 3 - All Vehicle Breakdown licensed on the road between 1999 and 2018

Table 4 - Cost Ratio to operate the public bus and ferry system in 2017

Table 5 - Revenue/Cost Ratio between 1999 vs. 2017 for public bus and ferry

Table 6 - The 2018 Public Transport Survey asked parents. How does your child or children get to school?

Table 7 - Increase fines traffic fines, from/to for Auxiliary Bicycles Act 1954

Table 8 - Increase fines traffic fines, from/to for Auxiliary Bicycles

(Construction, Equipment and Use) Regulations 1955

Table 9 - Increase fines traffic fines, from/to for Motor Cycles & Auxiliary Bicycles

(Special Measures of Control) Act 1955

Table 10 - Increase fines traffic fines, from/to for Motor Car Act 1951

Table 11 - Increase fines traffic fines, from/to for Motor Car (Examination, Licensing & Registration Regulations 1952

Table 12 - Increase fines traffic fines, from/to for Motor Car (Construction, Equipment and Use) Regulations 1952

Table 13 - Increase fines traffic fines, from/to for Motor Taxi Regulations 1952

Table 14 - Regular calling Cruise Ships to Bermuda in 2019

Table 15 - Cruise Ship Economic Impact to Bermuda's Community 2014 - 2018

Table 16 - Airlines servicing Bermuda, winter 2018/19

Appendix J

Licensed Transportation Inventory List 2014 v 2018

Vehicles on Road By Category

Calendar Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Vehicle Category	Average	Average	Average	Average	Average	Average	Average	Average	Average
Ambulance	12	12	11	11	11	13	13	14	13
Airport Limousine	9	8	7	6	7	4	4	4	4
Auxiliary Cycle	5667	5191	4874	4455	4228	4068	3956	3891	3621
Classic Cars	7	7	6	7	7	5	6	8	10
Cement Mixer	1	1	1	8	1	1	0	0	0
Construction	71	68	70	52	51	47	46	43	44
Public Carriage	23	22	23	16	17	17	9	8	8
Community Service	66	62	58	57	51	46	46	44	42
Doctors' Cars	86	87	85	81	83	83	82	85	84
Fire Fighting	34	34	29	33	33	31	31	32	34
Farm Tractor	22	22	22	25	27	28	26	25	26
Government Private	246	247	248	243	251	242	239	266	237
Hearse	3	4	4	4	3	3	3	3	3
Garbage	32	36	33	36	34	34	29	29	25
Instructional Vehicle	31	26	24	24	23	22	20	20	19
Limousine	1	1	1	2	2	4	5	10	12
Locomotive	4	4	4	4	4	4	5	5	4
Light Private	136	119	104	92	80	79	78	76	70
Loaner Vehicle Truck	3	2	2	2	2	2	1	1	1
Loaner Vehicle PC	31	33	30	31	32	35	37	41	40
Minibus	46	58	62	68	77	86	108	133	147
Motor Cycle	15176	15158	14910	14897	14983	15256	15803	16584	17184
Military	33	33	34	31	31	32	34	40	43
Omnibus	106	110	104	102	103	97	95	86	79
Private Car	22445	22099	21809	21598	21517	21543	21665	21958	22131
Police Utility	14	12	12	8	7	7	7	5	5
Rental Minicars	0	0	0	0	0	0	0	38	69
Sports Association	80	77	68	63	53	51	47	37	36
Service Utility	0	0	0	0	0	0	0	0	1
Truck	3994	3880	3763	3653	3614	3570	3586	3682	3645
Trailer	256	305	303	279	277	264	266	253	260
Tractor	14	12	9	10	12	14	9	11	10
Tractor Trailer	414	393	377	364	325	278	257	242	227
Taxi	579	568	566	561	558	545	560	559	556
All Vehicles	49642	48691	47665	46823	46504	46511	47073	48233	48690

Appendix K

Department of Statistics Technical Note, 2010 Population and Housing Census, Department of Statistics, estimated wheelchair users.

TECHNICAL NOTE

Coverage and Completion Rate

During the undertaking of every census, interviewers are dependent on household respondents to provide the correct information in response to questions asked on the questionnaire. Also, household members often respond to the census on behalf of other persons who live in the same household who are not available or are difficult to contact. In this regard, there will always be a degree of partial response, non-response or undercounting. Similar to previous censuses, the 2016 Census was susceptible to these occurrences.

2016 Census

In the 2016 Census, all households were sent letters, called and/or visited giving a 100% coverage rate. The pre-imputation completion rate was 98%, leading to 827 households that were not completed. In order to achieve a complete data set for all households, data was imputed for these missing households. In cases of partially completed households, data was also imputed for some variables.

2010 Census

After the official deadline for the 2010 Census enumeration period, persons representing 182 households contacted the DOS for members of their households to be counted. These persons responded to a minimal number of questions asked of them on behalf of 413 additional persons. Therefore, the census data will show a degree of partial or non-response for these households.

At the end of the census data collection period, a 100% coverage rate was achieved with a pre-imputation completion rate of 87%. There were roughly 4,400 households for which data had not been obtained. In alignment with statistical best practices, administrative data sources were utilized to reduce the undercount and to impute important demographic data items, such as age, sex, date of birth, Bermudian status, employment and race. As a result, census records for 1,106 households comprising 2,551 persons were imputed only for these demographic data items. The imputation reduced the undercount of outstanding households. However, data items for the remaining census questions were not imputed for 1,106 households. After the imputation, 3,321 households were not accounted for. These households comprised a combination of vacation homes, occupied and vacant dwelling units.

Limitations and Comparability

Imputations

The imputation process differed between the 2010 Census and 2016 Census resulting in lower levels of non-response in the 2016 Census. Intercensal changes reflect a combination of real change and change as a result of lower non-response for the 2016 Census. Therefore, users are cautioned not to calculate changes in absolute numbers or intercensal percentage changes of absolute numbers to compare the civilian non-institutional population and private dwelling units. Percentage point changes are recommended for comparison purposes. With the exception of population density, statistical indicators using means, medians, rates and ratios are not affected by these limitations and are comparable.

The data for the institutional, non-sheltered and group dwelling populations are comparable with the 2010 Census data as they were not subject to differing imputation methodologies. Percentage point changes were used primarily to analyse these populations due to the small numbers.

Migration

The immigration statistics on duration of residence since last return/ arrival to live in Bermuda are based on a calendar year of last return/ arrival. Therefore, the duration of residence statistics are approximations as it is unknown whether the last return/ arrival was before or after May 20 for any calendar year.



Appendix L

Summary of Immediate Transport Green Paper Actions Taken By Government In The Last 12-Months:

	Initiative	Timeline	Supporting Ministry Department and/or Public Authority	Status
1	Government implemented Road Side Sobriety testing	December 2018	Ministry of Transport Ministry of National Security Transport Control Department Bermuda Police Service Bermuda Road Safety Council	Complete
2	Launched Bermuda Road Safety Council's new Operation Caution for better road safety measures	October 2018	Ministry of Transport Ministry of National Security Transport Control Department Bermuda Police Service Bermuda Road Safety Council	Complete
3	Two Rock and Town Cut factual data collected from the public as to their support or no support for widening and deepening the two channels to accommodate larger cruise ships in Hamilton and St. George	April 2018	Ministry of Transport Corporation of St. George Corporation of Hamilton	Complete
4	The collection of data for public ferry transportation ridership usage in 2018	December 2018	Ministry of Transport Marine & Ports	Complete (on an estimated bases)
5	New public bus schedule based on 50 buses rather than 88	March 2019	Ministry of Transport Department of Public Transportation	Complete (under review)
6	Supplemental ferry service extended in October & November 2018 to meet extended cruise ship season	October 2018	Ministry of Transport Marine & Ports	Complete
7	Extended 2019 summer ferry schedule for cruise ship season through to November 3 with supplemental service when ships are in port in November	March 2019	Ministry of Transport Marine & Ports	Complete
8	Application approval for 20 minibuses with heavy motorised wheelchair accessibility for residents and visitors	April 2019	Ministry of Transport Transport Control Department	Complete
9	Taxi drivers to accept credit cards	March 2020	Ministry of Transport Transport Control Department	140 taxis now take credit cards Ongoing
10	Minibus dress code and regulations to be legislated	September 2019	Ministry of Transport Transport Control Department	September 2019

11	Parks Department to take control for traffic coordination at Horseshoe Bay Beach GTA	March 2019	Ministry of Public Works Department of Parks	Complete
12	Shading for transport operators and visitors at Horseshoe Bay Beach	April 2019	Ministry of Transport Ministry of Public Works Department of Parks	Complete (temporary shading, permanent shading quotes received)
13	Extended days of operation for lifeguards on duty at Horseshoe Bay Beach to cover the longer cruise ship season	April 2019	Ministry of Transport Ministry of Public Works Department of Parks	Complete
14	BTA's Visitor Services Centres to open in the evening when cruise ships arrive late	March 2019	Ministry of Transport Bermuda Tourism Authority	Complete
15	On-the-ground Department of Public Transportation resources in Dockyard to facilitate public transportation queues and fare validation for buses and ferries	April 2019	Ministry of Transport Department of Public Transportation Marine & Ports	Complete
16	Cruise line contract renegotiation includes a sponsorship ask for much needed transport infrastructure	October 2020	Ministry of Transport Ministry of Public Works Marine & Ports Bermuda Tourism Authority	Ongoing
17	Dedicated school bus service	March 2020	Ministry of Transport Ministry of Education Department of Public Transportation	Ongoing
18	All new ferries to accept persons in wheelchairs and accommodate motorcycles	March 2021	Ministry of Transport Ministry of Public Works Marine & Ports	Ongoing
19	A transport Trip Planning App with real-time information, Google Maps discussions have started	March 2020	Ministry of Transport Department of Public Transportation Marine & Ports	Project started
20	Project Ride Training Programme to go into primary to senior schools to promote road safety	September 2019	Ministry of Transport Transport Control Department	Project stated
21	Solutions for bright light car lights	April 2019	Ministry of Transport Transport Control Department	Ongoing, solutions found
22	Approve 300 minicar rental vehicle permissions	December 2018	Ministry of Transport Transport Control Department	Complete (a further 200 are under review for 2020)
23	The number of electric vehicles to be correctly logged by TCD as EV	April 2019	Ministry of Transport Transport Control Department	Complete (240 licensed on the road)
24	Reinstatement of the Electronic Vehicle Registration (EVR) initiative to include upgrades to the system	September 2019	Ministry of Transport Transport Control Department	Ongoing

25	New leadership at DPT	June 2018	Ministry of Transport Department of Public Transportation Human Resource Department	Complete
26	Entered into an MOU with an EV bus consultant for a public electric bus solution in 2020/21	December 2019	Ministry of Transport Department of Public Transportation	Complete (MOU)
27	Implemented a DPT Train the Trainer Customer Service programme for employees	October 2019	Ministry of Transport Department of Public Transportation	Complete
28	RFI for a digital fare media solution for public bus and ferries, to go cashless in 2020	December 2019	Ministry of Transport Department of Public Transportation Marine & Ports Accountant General's Department	Complete (RFI)
29	Extend the platform and upgrade King's Wharf to the same standards as Heritage Wharf to accommodate Quantum class ships	March 2020	Ministry of Public Works Ministry of Transport Marine & Ports WEDCO	Quotes obtained
30	Replacement of Swing Bridge and Longbird Bridge	2020	Ministry of Public Works	Ongoing
31	Government Speed Camera initiative	December 2019	Ministry of Transport Ministry of National Security Transport Control Department Bermuda Police Service	Ongoing
32	Crack down on commercial vehicle offenses	March 2019	Ministry of Transport Transport Control Department	Ongoing
33	Crack down on unauthorized and unreadable vehicle licence plates	January 2020	Ministry of Transport Ministry of National Security Transport Control Department Bermuda Police Service	Ongoing
34	Increased road traffic fines to help stop bad driving behaviors	September 2019	Ministry of Transport Ministry of National Security Transport Control Department Bermuda Police Service Attorney-General's Chambers	Permission in principle to proceed
35	Connect the Bermuda Railway Trail as much as possible	2025	Ministry of Public Works Friends of the Railway Trail	Public Works assisted the Friends of the Bermuda Railway Trail to erect the bridge; connecting Flatts Inlet at the mouth of Flatts to allow longer and safer spaces to walk and cycle, ongoing

36	Implement the 88-motor taxi special permits for 5-years under the 1970 legislation which has never been enacted	June 2019	Ministry of Transport Transport Control Department	Ongoing – decision to implement 20 as a trial is under review
37	TCD to hire a new Road Safety Officer	April 2019	Transport Control Department	Complete
38	Strategic planning to provide enough transportation for 9,500 cruise ship passengers and 3,000 air visitors on 31 October 2018	October 31 2019	Ministry of Transport CoH, CoSG, WEDCO Cruise Agent Cruise Lines All Transport & Tourism Stakeholders	Complete/Success





GOVERNMENT OF BERMUDA

Ministry of Tourism and Transport

Information accurate at time of research.

Information subject to change.

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