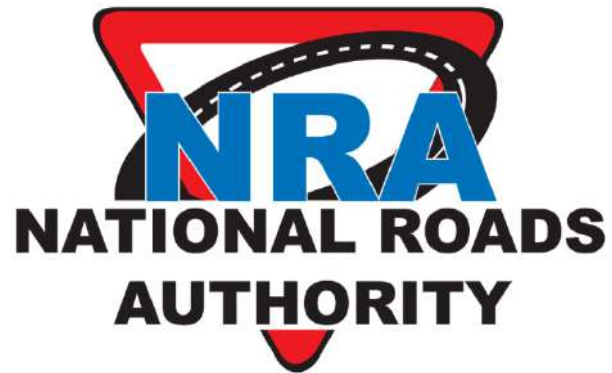


# 2018

## Annual Report for National Roads Authority



**For the 2018 Financial Year**  
(Jan 1, 2018 to Dec 31, 2018)



National Roads Authority

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## Section 1 – Foreword

This annual report is for the National Roads Authority of the Cayman Islands ('The NRA'). The report outlines the NRA's performance during the **2018** fiscal year and compares it to the budgeted performance for the corresponding period.

The requirement for an annual report is prescribed under Section 52 of the Public Management and Finance Law (2013 Revision) (PMFL) Section 52 states:

*In respect of each financial year, each statutory authority and government company shall prepare an annual report. An annual report shall report the performance of the authority and compare it with that proposed in the ownership agreement for that financial year and shall include:-*

A summary of the nature and scope of the activities of the authority or company during that financial year;

A summary of the extent to which the strategic goals and objectives of the authority or company described in the annual ownership agreement were achieved;

A summary of the extent to which the ownership performance targets set out in the authority's or company's annual ownership agreement for that financial year have been achieved in that financial year;

The amount of any **equity investment** made by the Governor in Cabinet in the authority or company during the financial year;

The amount of any **capital withdrawals** made by the Governor in Cabinet from the authority or company during the financial year;

The amount of any **dividends or profit distributions** paid by the authority or company during the financial year;

The amount of any **loans** to the authority or company by the Governor in Cabinet during the financial year; and

Details of any **guarantees** relating to the authority or company made by the Governor in Cabinet during the financial year.

The financial statements referred to in subsection 2(d) shall be prepared within two months of the end of the financial year. The financial statements referred to in subsection 2(d) (ii) shall be submitted to the Auditor General for auditing, and the Auditor General shall express and opinion within two months of receipt of the financial statements.

The annual report shall be presented to the Governor in Cabinet by the relevant minister or official member no later than four months after the end of the financial year.

This annual report complies with the requirements of the PMFL and covers three main areas;

1. Service delivery
2. Financial performance
3. Governance

The service delivery section outlines the contributions made by the NRA in furtherance of the Government's policy outcome goals. It also provides commentary which explains material variances in performance when compared to budget.



The financial performance section shows the financial resources the NRA was afforded in the 2018 budget and the inputs purchased to provide services.

The financial performance is presented in the form of financial statements prepared in accordance with the Public Sector Accounting Standards (IPSAS) and the

supporting notes to those financial statements.

The report also includes a section on Governance which outlines the NRA's efforts in the areas of risk management, and compliance with various statutory requirements.



## *Message from the Minister*

The NRA is a key policy instrument of this administration's goal to build modern smart infrastructure. I am therefore pleased to present this 2018 annual report which outlines the Authority's achievements during the year; and provide an account for its use of public funds.

The Government has galvanized its commitment to continued investment in improving Grand Cayman roads by earmarking some \$50M in revenue for the five year period 2015 to 2020.

Infrastructure investments which facilitate trade and interconnectivity are a key component of a thriving economy; indeed, the role of the road network as the backbone of commerce is more evident in the Cayman Islands than in many other countries.

Our roads connect our children to schools; workers to their jobs; and efficiently moves goods and services across the Island. It facilitates our power, water and tele-communication infrastructures while providing hundreds of jobs through its continual maintenance and expansion.

Through road infrastructure investment, opportunities are created for new communities, economic development, a more efficient workforce and a greater sense of well-being among the Islands' population. The road network is the single largest, and



most valuable man-made asset owned by the people of the Cayman Islands.

It therefore gives me great comfort to have a team of highly skilled, committed and capable individuals at the helm managing this important asset and delivering this important work.

Through our policy framework, the Government will continue to support the creation of modern, smart infrastructure as a key to future growth and prosperity.

Yours sincerely,

---

**Hon. Joseph Xavier Hew, JP, MLA**  
Minister for Commerce, Planning & Infrastructure

## *Message from the Chairman*

2018 was a challenging but successful year for the NRA. The Board's main focus during the period was to ensure stability, focus, and direction as the organization delivered on its legislative mandate while supporting the Government's policy outcome goals. An unfortunate suspension of the Managing Director in the first quarter prompted the Board's appointment of Mr. Edward Howard as the interim Director. Howard has functioned as Deputy Managing Director since 2004 and has ably served as interim Director on previous occasions.

Working with management and staff, the Board hopes to continue to support the NRA as it seeks to adhere to the goals and targets established in the recently developed Corporate Strategic Plan.

The Board during 2018 continued to support a capital investment plan aimed at modernizing the NRA's fleet, machinery, and tools. The investment in asset replacements ensures that the NRA will be able to fulfill one of its goals of enhancing service delivery capabilities and operational efficiency.

We firmly endorse the NRA's proactive strategy for the management of the road network. The development of a long range (25 to 30 year) road corridor map along with a 3-year roads development programme stipulated by the NRA Law ensures that the NRA makes sound strategic planning and investments in projects that will ensure sustainable development in these islands for decades to come. Another area that the Board is intently focused on is the maintenance programme for the road network. As we build more roads we inevitably have more



to maintain. The Board is elated that the NRA already has a fully developed pavement management system that catalogues and forecasts future maintenance requirements both time-wise and budget-wise. The pavement management system is most effective in helping Government to reduce future road maintenance costs by proactively forecasting repair needs and recommending repair strategies or countermeasures for key sections of the network before they reach the point of critical failure.

The Board is grateful to our private sector partners and to the management and staff of the NRA for the excellent work carried out in 2018 which made possible the achievements highlighted in this report. We would also like to recognize the support of the Government in providing the policy framework and resources necessary to do our work. The Board remains committed to the continued development of the NRA, and reaffirm its support for the organization and its efforts to deliver the best transportation infrastructure to the people of the Cayman Islands.

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**Donovan Ebanks**

Chairman, NRA Board of Directors

## Message from the Acting Managing Director

I am pleased to present the National Roads Authority (NRA) Annual Report 2018. I would also like to thank the Board and Minister for the confidence entrusted in me to lead the Authority during this challenging year.

This report highlights the NRA's accomplishments via the NRA Law (2016 Revision) as well as the goals and priorities set by the Board and Cabinet via the Ownership Agreement.

There is no doubt that roads contribute greatly to the economic stability of the country by providing both access and mobility options for all of us whether it be for housing, work, recreation and commerce. The NRA charge specifically under the NRA Law is to plan, design, construct and maintain Grand Cayman's public road network.

NRA's continued success in this endeavor is largely dependent on the Authority being adequately funded both in the area of new capital development projects (via Cabinet) but also in the area of recurrent revenue (via the Road Fund)

Given the pace of land development and the growth in vehicles there has never been a more critical time than now for the Government to develop a sustainable long range ground transportation plan that offers multi-pronged solutions to the ground transportation needs of this country for decades to come.

The NRA's Corporate Strategic Plan is structured upon these core business areas: Maintain, Manage Trips, Build, and Enable.



Safer Roads by Design has become a major focus of the NRA. We have taken advantage of our partnership with the International Road Federation (IRF) and increased our involvements with public and private stakeholders in highlighting the Five E's of Road Safety.

In 2018 we continued implementation of a 3-year capital roads development programme aimed at providing short term and quick win solutions to traffic congestion experienced at peak hour. The expansion of the Linford Pierson Highway, Hurley Merren Blvd and minor improvements to other connecting roadways is aimed at offering additional lane capacity and reduced travel times particularly for motorists travelling to and from the eastern districts.

We intend to focus more acutely on customer satisfaction by optimizing the experience of their daily travel on the road network. As we deliver on these commitments, we will keep all vested parties engaged by increasing our communication with our stakeholders and providing more information to the motoring public on our plans, and progress towards improvement of the road network.

I look forward to working with my colleagues and stakeholder partners to deliver these commitments for the people of the Cayman Islands.

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**Edward Howard**  
Acting Managing Director

## Section 2 - Nature and Scope of Activities

The NRA's primary function is the provision of a safe and efficient network of public roads. It has overall responsibility for the planning, construction, and maintenance of public roads. In addition, the NRA has a number of specific functions under the National Roads Authority Law 2004, including:

- Provision of medium to long term plans for road development referred to as a National Roads Plan to be updated every four years.
- Implementation of a management system for planning, organizing, directing and controlling routine and periodic maintenance activities performed by employees of the Authority or through independent contractors.
- Carrying out of construction improvements and maintenance works on national roads.
- Carrying out necessary engineering, traffic, and economic studies that it may consider necessary for the maintenance and improvement of public roads.
- Training, research, or testing activities in relation to any of its functions.
- Additionally, the National Roads Authority provides support services to:
  - Public Works Department to enable that Department to provide an appropriate response to Hurricanes and other national emergencies, and
  - Planning Department for the review of planning applications involving storm water and road related matters and site inspections of constructed projects.

### **Mission of the National Roads Authority**

To provide sustainable transport and promote land development in the Cayman Islands for all stakeholders while having regard to the delivery of the Roads element of the National Development Plan.

### **Vision of the National Roads Authority**

Commitment to our mission will enhance the quality of life, promote economic prosperity, and improve access and mobility for all residents and visitors of the Cayman Islands. We will be a recognized leader in the Caribbean for providing high quality roads and transport related infrastructure.

### **Customers and Location of Activities**

Road users are the primary customers of the National Roads Authority. Income is generated by providing engineering, construction, and maintenance services for fund-holding Government Agencies, approved private sector clients, and any other entity that the Authority agrees to provide services to. Services are provided only in the Cayman Islands.



### **Compliance during the Year**

The NRA operated in general compliance with the Nature and Scope of Activities specified in the 2018 Ownership Agreement for the year.



## Section 3 - Strategic Goals and Objectives

### **3.1 Approved Strategic Goals and Objectives**

The key strategic goals and objectives for The National Roads Authority for the 2018 financial year as stated in the Ownership Agreement were as follows:

1. Continue establishment of the Authority, develop and implement effective administrative, financial and information management systems,
2. Identify and seek approval for strategies for financing future road development,
3. Continue the Traffic Improvement and Roads Development Programmes.

### **3.2 Compliance with Strategic Goals and Objectives**

During the fiscal year 2018 the NRA complied with the above approved strategic goals and objectives with the completion of one major construction project along the Linford Pierson Highway, as well as continued preliminary planning and design work for a new connector road between CNB Roundabout and Mango Tree Restaurant.

Total Expenditure for FY2018 budget cycle (Jan 1 2018 to Dec 31 2018) was approximately \$16M. Capital projects (Executive Assets) accounted for \$6.0M and \$10M came from the Road Fund as Recurrent Revenue that was used for the day to day operations and routine road maintenance of the NRA over the 12 month period.

**Goal 1: Continue establishment of the Authority, develop and implement effective administrative, financial and information management systems.**

The NRA Management team supported by the Board continue to strive for betterment in the areas of administrative, financial and management information systems.

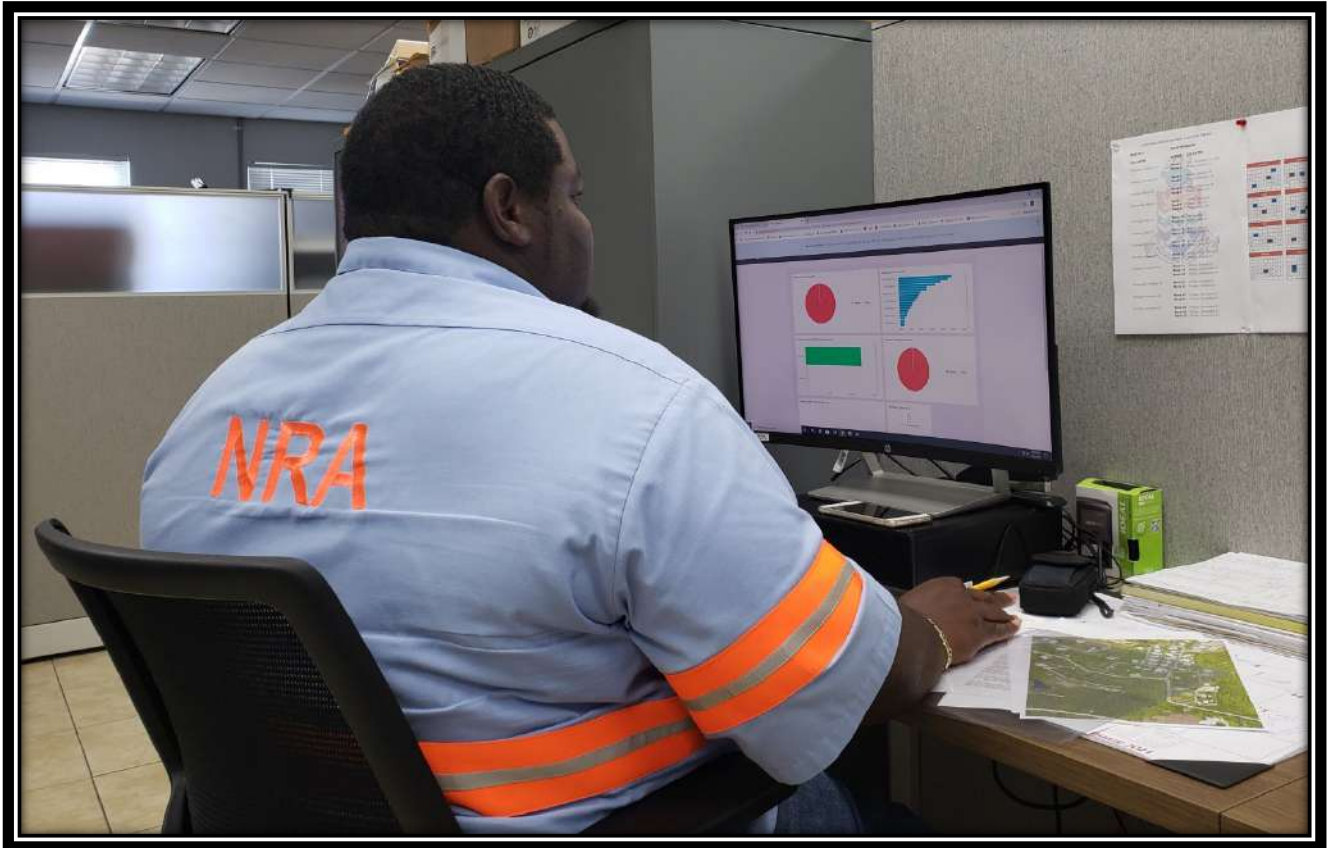
Sound administration is important as it functions as a connecting link between the senior management and the employees. To that end the NRA continues to strive to provide adequate administrative staffing levels along with the tools and techniques required to ensure that the administrative arm of the Authority is able to carry out its role in achieving a high level of workplace productivity and efficiency. NRA management began in 2018 actively seeking firms to provide solutions for automating the current paper-based leave tracking system. NRA is also planning to implement a new electronic time recording system (TRS)

On the finance side the NRA plans to upgrade or replace the current accounting software package which does not fully serve the needs of the Authority in several key areas. The current system has several shortfalls which result in unnecessary manual time consuming production of financials and forecasts.



Another important information system that the NRA seeks to implement is a GPS fleet tracking system. The advantages to having such a system include:

- Helps to reduce insurance costs
- Helps to locate vehicles at any given time.
- Tracks driver behavior and vehicle performance
- Helps to improve safety of vehicle and operator



## **HUMAN RESOURCES**

The NRA boasts an all Caymanian staff complement of 90 employees. The average employee length of service with the NRA is 15 years.

Six percent of staff is educated to a graduate level, a further six percent hold undergraduate degrees, and 87% are educated to a high school diploma level. 93% of all employees have been with the authority for at least 6 years, with 65% having a tenure of 11 years or more. Average annual take home pay for NRA employees is approximately \$42,000, however, the average total annual compensation cost for each employee is approximately \$59,000. This reflects the fact that over 19% of the average employee emoluments go towards healthcare premiums.



## ***Management Team Profile***



Name: Paul Parchment

Title: Managing Director

Qualifications: Bachelor's Degree in Engineering- Florida A&M University; Masters Degree in Roads Management & Engineering- University of Birmingham UK



Name: Edward Howard

Title: Deputy Managing Director

Qualifications: Bachelors in Civil Engineering - Howard University; Masters in Civil Engineering (Transportation) – University of Illinois Urbana Champaign; MBA (Corporate Finance) – University of Leicester, UK. More than twenty (20) years of educational experience and practical know-how in urban and regional planning, transportation engineering.



Name: Olsen Bush

Title: Chief Financial Officer

Qualifications: Masters in Business Administration- International Collage of the Cayman Islands  
More than 30 years of financial experience in the private and public sector.



Name: Shena Ebanks

Title: Chief Human Resources Officer

Qualifications: Masters in Human Resource Management- University College of the Cayman Islands

Over 10 years of Human Resources experience, Shena holds the dual role of HR and Office Manager.



Name: Brian Chin Yee

Title: Works Manager, Engineering & Operations

Qualifications: Bachelors in Electrical Engineering B.Sc. – Florida Institute of Technology University (1993 -1997)

20 years of engineering experience.



Name: Denis Thibeault

Title: Assistant Director, Transportation & Planning

Qualifications: Bachelor of Environmental Studies in Urban & Regional Planning - University of Waterloo

Over 20 years experience in transportation and planning

**Goal 2: Identify and seek approval for strategies for financing future road development.**

Accomplishments:

The revenue and resources of the Authority comprise of the following:

Monies directed by Law to the Roads Fund, as well as services purchased by Cabinet for the purposes of capital roads improvements. Other revenue sources may include:

- Road user charges collected by the Authority;
- Gifts or bequests received by the Authority;
- Other monies paid and property provided to the Authority by way of grants, rent, interest and other income derived from the investment of the Authority's funds.

Appropriation made by the Government for capital road improvement projects is based on service based budgeting. The Minister of Commerce, Planning and Infrastructure (CP&I) will purchase the services of the Authority (called executive assets) as agreed upon in the Purchase Agreements. The service of the Authority is not only measured in terms of input cost but also in quantity, quality, timeliness and location.

**Goal 3: Continue the Traffic Improvement and Roads Development Programme**

The achievements in this area are highlighted in Section 3.3 which follows:

**3.3 Transportation Planning Activities:**

3.3.1 Transportation Planning Activities: The NRA employs a small core of transportation engineering and planning professionals who report to the Deputy Managing Director and Managing Director and advise on all matters relating to transportation planning, traffic, and roads development and funding.

One of the main tasks of the NRA's transportation unit is to assist in the development of a long term (20-25 yr) national roads plan. From the long term plan a short term plan is developed; this short term plan consists of roads and roads improvements that are deemed as critical within 3 to 5 years.

3.3.2 Recurrent Activities – Some of the main activities of the transportation unit for FY2018 (covering the period of January 1, 2018 to December 31, 2018) were as follows:

- i. In addition to numerous meetings and correspondence with various land developers to advise them on roads and drainage requirements, the transportation unit prepared assessments and provided commentary to the Central Planning Authority on two hundred and fourteen (214) planning applications during 2018.

- ii. The following table provides a breakdown by quarter for the current Fiscal Year:

Quarter	Month	Plan Reviews	SWM/ Drainage Plan Reviews	Inspections
1	January	13	3	6
	February	12	16	5
	March	13	2	15
<b>Sub-Total</b>		<b>38</b>	<b>21</b>	<b>26</b>
2	April	18	6	2
	May	19	4	7
	June	18	7	3
<b>Sub-Total</b>		<b>55</b>	<b>17</b>	<b>12</b>
3	July	16	10	5
	August	17	8	7
	September	13	8	4
<b>Sub-Total</b>		<b>46</b>	<b>26</b>	<b>16</b>
4	October	33	6	4
	November	27	15	7
	December	15	6	2
<b>Sub-Total</b>		<b>75</b>	<b>27</b>	<b>13</b>
<b>Total</b>		<b>214</b>	<b>91</b>	<b>67</b>





- iii. The following table provides a breakdown of the type of developments since July 2018.

<b>Development Type</b>	<b>Plan Reviews</b>	<b>SWM/ Drainage Plan Reviews</b>	<b>Inspections</b>
<b>Commercial</b>	30	12	8
<b>Government</b>	9	3	
<b>Hotel</b>	5		
<b>Industrial</b>	7	5	8
<b>Institutional</b>	6	4	1
<b>Residential</b>	72	52	33
<b>Subdivisions/ Road Base</b>	51	15	16
<b>Mixed-Used Development</b>	3		1
<b>Miscellaneous</b>	31		
<b>Running Total</b>	<b>214</b>	<b>91</b>	<b>67</b>

- iv. Sixty one (61) due diligence letters were written in response to enquiries from attorneys and real estate agents dealing with land purchases;

3.3.3 Road Gazette Plans (Roads Law 2005R) were either started and/or completed for the following:

- Gazette scheme for Olympic Way extension to Walkers Road;
- Gazettal of a public road on Block 66A Parcel 79 from High Rock Drive to land parcel 66A/37 (proposed Long Term Mental Health Facility);
- Gazette scheme to extend Godfrey Nixon Way from Eastern Avenue to North Church Street
- Gazette scheme to formalize section of roadway by the Public Beach as a public road ;
- Gazette scheme to formalize Bonita Drive (Cayman Brac) as a public road.
- Gazette scheme to delineate and formalize the roads in 'Swamp' as public roads. These in particular are; Greenwood Drive, Woodlake Drive, Heather Lane, Brushy Avenue, Kennedy Drive, Woodpecker Close, and Cypros Road.

- g) Gazette scheme to delineate and formalize the last 1,600ft of Further Road, North Side.
- h) Section 14 (Roads Law Close and Vest) – an old footpath off Anglin Road that connects to Stadium Drive, West Bay
- i) Section 14 (Roads Law Close and Vest) – portion of West Bay Road north of Raleigh Quay per the signed 'Dart/NRA Agreement'

### 3.3.4 Travel Demand Model and Traffic Operation Analysis Model

The National Roads Authority at the beginning of the fiscal year (July 2015) began the process of developing a traffic model for the island of Grand Cayman. Such a model is necessary to:

- Substantiate the NRA's current and long term planning efforts made under the National Roads Plan;
- Assess the merits of future road network proposals, and,
- Assess the traffic impact of future development proposals.

The National Roads Plan (NRP) is a strategic plan consisting of three parts:-

1. A 25-year road corridor plan (Section 26, Roads Law (2005)). This should be updated every five years.
2. A transportation management strategic document that highlights the NRA's short to long term focus on access management, road safety, mobility, interconnectivity, smart growth, etc.
3. NRA funding mechanisms – this includes focus on the structure of NRA through a look at business process re-engineering, a road financing plan (for both maintenance and new construction); alternative revenue streams, etc.

The traffic model is a key assessment tool in the development of items 2 & 3 of the NRP. The traffic model is comprised of two distinct computerized models; the first being a travel demand model (macro level) and the second being a traffic operations model/simulation package (micro level).

The travel demand model will be used to predict travel requirements for a future time period (as much as 30 years) based on a set of socio-economic trends and assumptions. The travel demand model predictions guide policy and investment in roads and road related infrastructure. The 2010 Census and subsequent employment and labour surveys provide the bulk of the input data needed for this model. Current traffic counts and other related data will help to refine or calibrate the predictive capabilities of the travel demand model.

The purpose of the Travel Demand Model (TDM) and Traffic Operational Analysis Model (TOAM) is to assist the NRA in developing key assessment tools in creating transportation management strategies for Grand Cayman's short to long-term, focusing on access management, road safety, improved mobility and growth and for providing strategic information on policies to generate a sustainable road financing plan for the long-term.

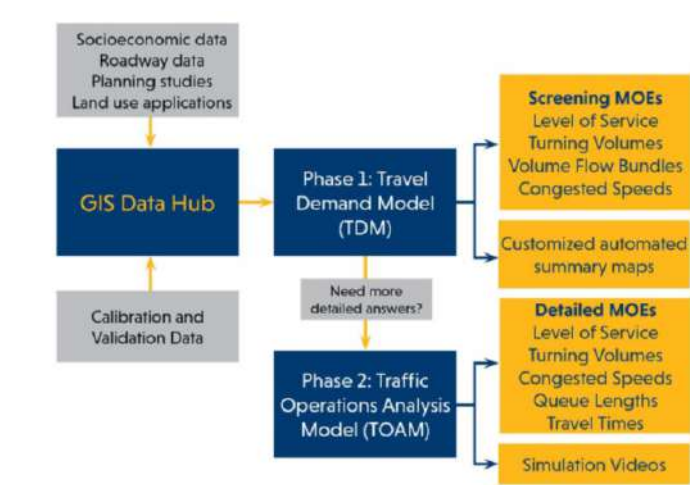


The TDM will be used to predict travel requirements for a future time period (as much as 30 years) based on a set of socio-economic trends and land development assumptions. The travel demand model predictions will guide policy and investment in roads and road related infrastructure. The 2010 Census and subsequent employment and labour surveys provided the bulk of the input data needed for this model. Land development data from 2010 to 2015 provided from the Planning Department was also utilized. Current traffic counts and other related data helped in refining or calibrating the predictive capabilities of the travel demand model.

The TOAM will be used to analyze and predict current and future traffic behaviour and characteristics on sub-areas of the entire road network of Grand Cayman. The operational model will be used for example, to analyze the performance of a single particular intersection or a whole network of intersections simultaneously. Network areas such as the Central business district (CBD) or the ETH & E-W arterial corridors can also be analyzed to determine current performance as well as future performance based on future traffic volume predictions. The model can also test various improvement alternatives such as lane expansion, intersection upgrades, bypass roads, new corridor alignments.

Summary of the work undertaken towards the development of the Traffic Model in 2018 is as follows:

As the successful bidder for the tendering project of developing and implementing the above-noted models in mid-2017, the consulting firm of Whitman Requardt & Associates (WRA) focused its activities on designing and implementing an integrated model structure as depicted below.



Such integrated model structure can provide the NRA multiple output options with built-in quality control procedures that is customizable to our current and future data needs (as they become available), offer the ability to identify and meet future road network capacity needs as Grand Cayman's economy and population grows, and provide the NRA with the ability to communicate from high-level information to technical details

### Developing the Framework of a TDM and TOAM

The structure adopted for developing the TDM on Grand Cayman is based a four-step model structure that includes trip generation, trip distribution, mode choice / time of day, and traffic assignment. In addition to the standard TDM outputs, the TDM is subsequently

also used to feed the necessary parameters to run a TOAM under various development scenarios for various road network improvement options to be tested. As such, the building blocks for developing the framework of either the TDM or the TOAM are dependent on the provision of substantial data of various types from varied sources. The following table summarizes the Travel Demand Model input requirements:

Category	Data Element	Specific Elements
Demand – Input	Zonal Attribute Table	<ul style="list-style-type: none"> <li>- Household Characteristics: Households, Population, Workers, Students, Autos Owned, Income</li> <li>- Enrollment by school and grades of location</li> <li>- Parking: Quantity and Cost</li> <li>- Land Use: Gross Floor Area of Retail, General Commercial, Industrial, Office, Tourism</li> <li>- Visitor Accommodations: Units</li> <li>- Tourism: Annual visitation by site</li> <li>- Truck: Port Activity, Processing Location, Warehousing</li> </ul>
Supply – Input	Transit Database	<ul style="list-style-type: none"> <li>- Route Attributes: Headway, Period Operations, Capacity per Vehicle, Fare</li> <li>- Stop locations</li> </ul>
	Network Database	<ul style="list-style-type: none"> <li>- Link Attributes for Supply Calculations: number of lanes, roadway facility type, posted speed, median type, parking, transit service, count data linkage, pedestrian/cycling quality, freight corridor.</li> <li>- Node Attributes for Supply Calculations: traffic control type, traffic control characteristics, count data, centroid identification</li> </ul>
Calibration	Household Disaggregation	<ul style="list-style-type: none"> <li>- Household stratification data, including</li> <li>- households by size, income, students, auto ownership, workers</li> </ul>
	Trip Generation	<ul style="list-style-type: none"> <li>- Trips per household by purpose</li> <li>- Attraction rates by land use</li> <li>- School trips</li> <li>- Tourism attractors</li> </ul>
	Trip Distribution	<ul style="list-style-type: none"> <li>- District to district trip flows</li> <li>- Average trip lengths by purpose</li> <li>- Barriers to travel</li> <li>- Tourism trip behavior</li> </ul>
	Mode Choice / Time of Day	<ul style="list-style-type: none"> <li>- Mode shares by purpose</li> <li>- Distribution of travel by time of day</li> <li>- Peak hour</li> <li>- Tourism mode options and time of day behavior</li> </ul>
	Traffic Assignment	<ul style="list-style-type: none"> <li>- Free flow speed and volume delay relationship</li> <li>- Capacity inputs</li> <li>- Intersection control delay such as signal, stop, and roundabout</li> </ul>

The data needed to accurately build and calibrate the Traffic Operational Analysis Model is listed as follows:

- Network characteristics;
- Volume – both vehicular and pedestrian/cyclist count data;
- Travel times;

- Queue observations;
- Traffic control;
- Signal timings, phasing, and locations;
- Roundabout locations and their configuration;
- Transit ridership observations;
- School observations;

Given the data needs to build both models, WRA was provided with the following data for the respective models:

Data Supplied	Use in Model			
	Input	Calibration	Validation	Model Step
Road Centreline from 911 system	X			Network
Enumeration Areas (2010)	X			Zones
ESO Demographic Data at the Enumeration Area Level	X	X		Socioeconomic Data, Zones, Calibration
Employment Data for CIG and NRA with District of Residence	X			Socioeconomic Data
Preliminary Traffic Area Zones (2015)				Reference
Planning Zones (2015)	X			Zones
Building Inventory from 911 System	X			Socioeconomic Data, Zones
School locations & attendance (2015-2016) on Grand Cayman	X			Socioeconomic Data, Zones
Cargo & Cruise Passenger Stats (2008-2017)	X			Special Generator/ Tourist, Calibration
Air Arrivals (Nov 2015-Oct 2016)	X			Special Generator/ Tourist, Calibration
Tourist Accommodation (Oct 2015)	X			Special Generator/ Tourist, Calibration
Recreation Areas	X			Socioeconomic Data
VISUM Model (2008)				Reference
Aerial Photography	X	X		Zones
Traffic Count Data			X	Validation
Transit Ridership			X	Validation

### Traffic Operational Analysis Model Data

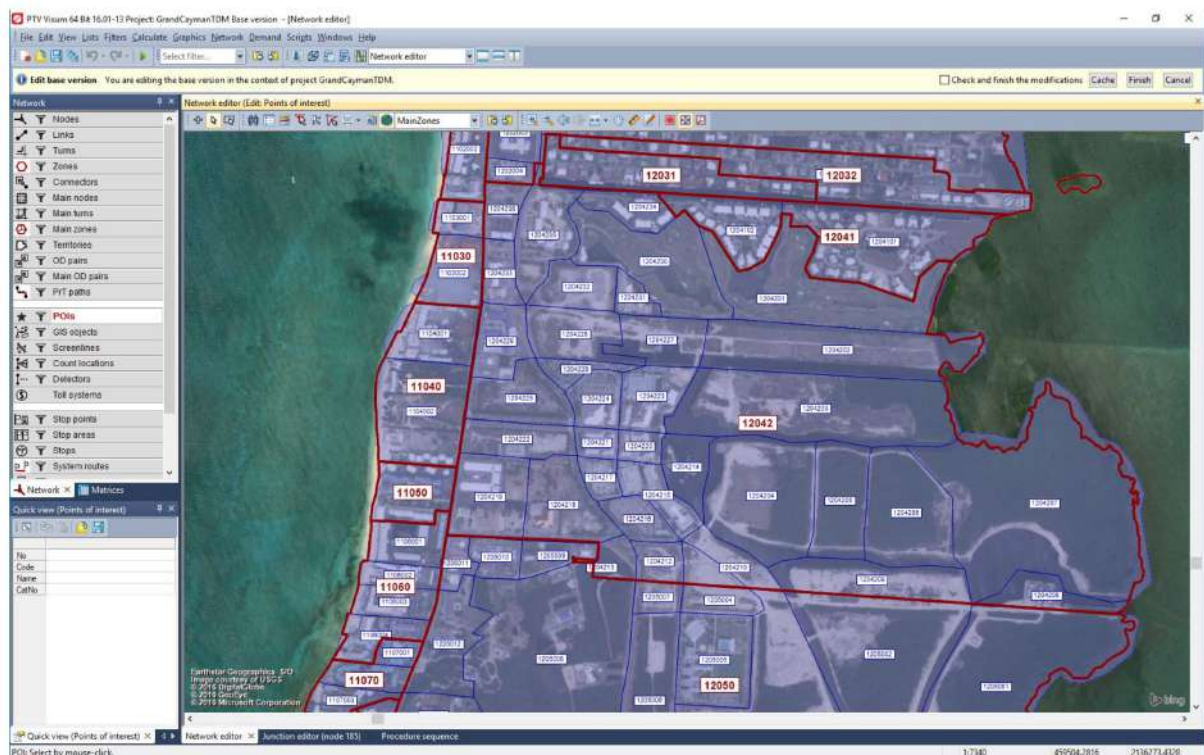
Data Supplied	Use in Model
High Resolution Aerial Photography	Background imagery for maps/graphics, reference for network coding
Traffic Count Data	Balanced traffic volume network input into travel demand model for trip generation/distribution to create traffic assignments for operational model via static routing or dynamic assignment (DTA) through trip table matrices – calibration parameter for both travel demand and operational analysis models
Transit Ridership	Mode choice traffic assignment, generate appropriate congestion and delay, influence travel patterns
Pedestrian and/or Cyclist Counts	Mode choice traffic assignment, generate appropriate congestion and delay, influence travel patterns
Signal Timing Data & Crosswalk Locations	Model input to generate appropriate congestion and delay, influence travel patterns
Prior Transportation or Land Use Study Data, Traffic Impact Studies	Development of zonal data and future forecasted traffic volumes to evaluate future scenarios, including improvement alternatives
Prior VISSIM, VISWALK, and Synchro Files	Reference and understanding of prior analyses and needs

Additionally, in order to better understand local driving behavior, the nature of experienced traffic congestion and traffic patterns on Grand Cayman road network, and more specifically in and around George Town, an active data collection program was carried out which included the following:

- Radar speed measurements on arterial and collector roadways, saturation flow rate and control delay observation to assess queuing lengths at keys intersections of the road network,
- Riding some of the main transit routes as passengers,
- Vehicle occupancy survey to count number of occupants of each passing vehicle,
- Windshield roadway video inventory, crosswalk observations and pedestrian counts at intersections in the downtown during cruise-ship days and near schools.

## Building Block of the TDM

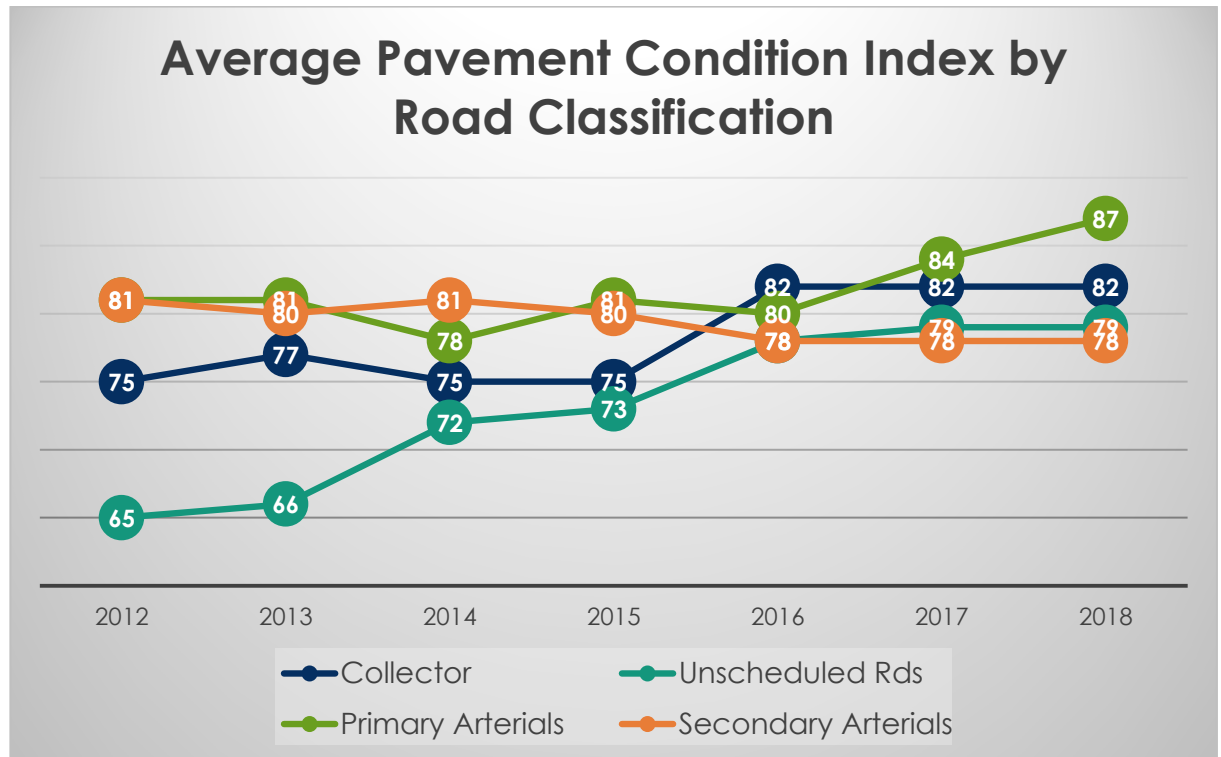
The model network is built around the concept of Traffic Analysis Zones (TAZ) which are areas of consistency based on the 2010 Census Enumeration Areas (EA), considers barriers to travel and would be homogeneous in terms of land use and accessibility to the transportation system, and can support future land development projects. Variables considered important for each TAZ include total population and household, households with and without children, population in households with and without children, auto-ownership in households with and without children in each EA; and then reallocated to their smaller TAZ. The following figure illustrates the model resolution from the TAZ upward to the EA.



The Land Use component was also derived from the square footage of the building layer of the 911 system, supplemented by data from the Planning Department – this was utilized to assess and develop a building inventory breakdown down by employment sector: industrial, commercial, retail, service-related industries as well as education. This building inventory was used to develop trip rates for trip producing and trip attractions to generate travel flows between the TAZ. Essentially, the developed attributes of the TAZ represent the demand of travel across the island and can provide an educated estimate on 1) How many trips are made? 2) Where people go? 3) What mode of travel they use for each trip? and 4) What routes are used for these trips?

### 3.4 Pavement Management:

The aim of the NRA's pavement management programme is to monitor and to prescribe maintenance strategies to pavements of varying classifications in the Grand Cayman road network. Primary Arterials are those main roads which carry the majority of roadway traffic throughout the island and as such are prescribed a higher maintenance protocol.

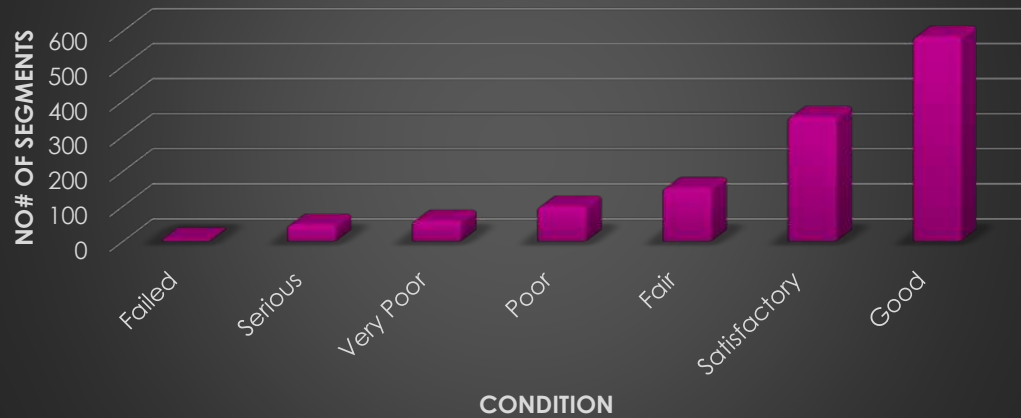


The above chart shows that at the end of FY 2018 all pavement types on Grand Cayman are in an overall 'good' to 'very good' condition. The goal for primary and secondary pavements is that of an average PCI of no less than 80.

Since 2012 the NRA has concentrated on local privately built subdivision roads in an effort to raise the pavement condition index (PCI) from an unsatisfactory level of 65 to above 75 which is representative of 'good' condition. In essence, concentrated efforts on subdivision roads has been effective in raising the average PCI level of these roads from fair to good. The term local private road, however, is a bit misleading as under the Roads Law these roads (with the exception of a few) do not involve restriction of access to the public as a right.



## Condition of Grand Cayman Road Network in 2018



Overall condition rating of the Grand Cayman Road Network in 2018

In 2018 a total of 1308 road segments in the network had condition ratings as follows:

Condition Category	No# of Segments
Failed	6
Serious	48
Very Poor	60
Poor	100
Fair	153
Satisfactory	356
Good	585

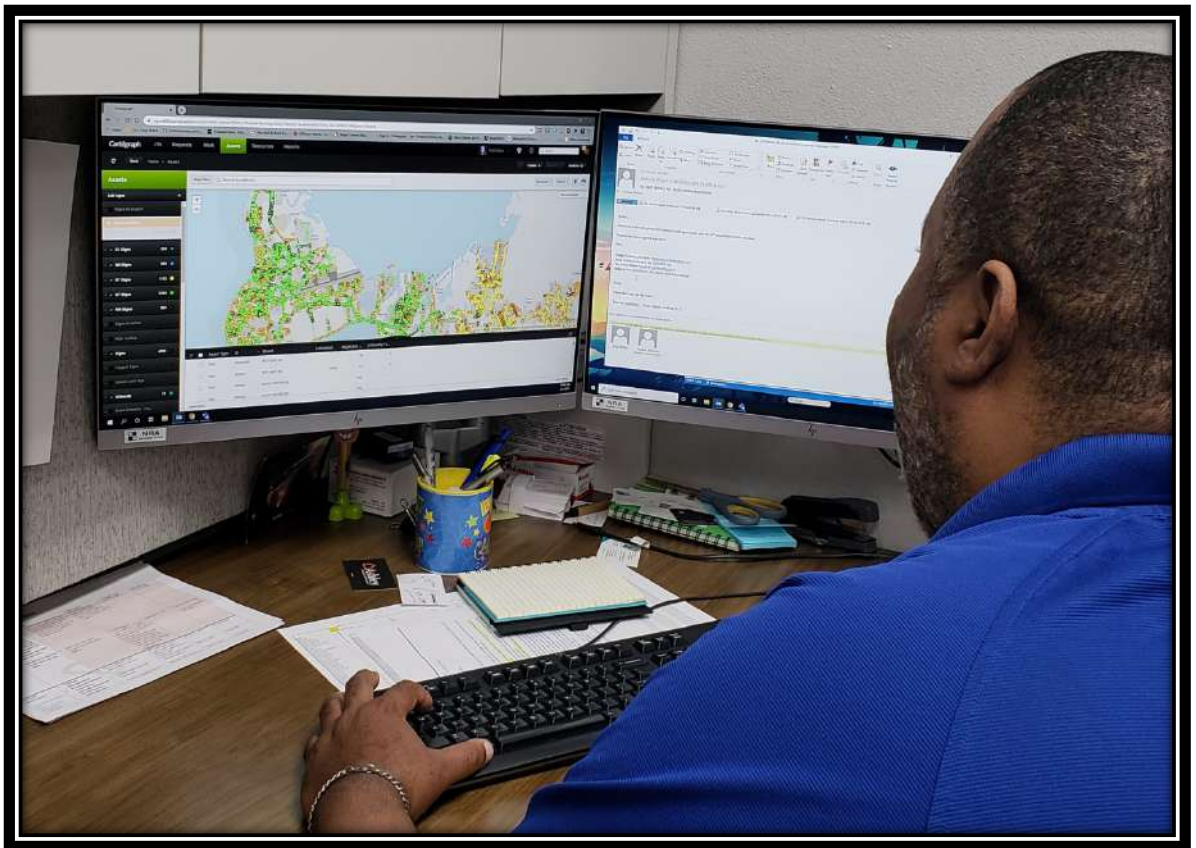
The majority of subdivision roads built by private developers in Cayman offer unrestricted public access, however, the official ownership of the developed roadway is often not 'transferred' to the Crown; the NRA prefers to classify these not as private roads but as 'unscheduled public roads'. It is important to add this brief explanation because the distinction between public roads and private roads have been blurred by actions of the Government who over the years has cleaned, repaired, installed streetlights, speed humps, and other street furniture without regard to their status. The challenge going forward is to keep the average PCI of private (unscheduled) roads at fair and good levels.



### **3.5 Engineering and Operations Activities:**

Three engineers, two superintendents, and a fleet controller make up the management staff of the Engineering and Operations unit. They are responsible for engineering design; project budgeting, resource reporting, project costing, fleet operations, and completion of all road construction projects and maintenance undertaken by the NRA. They utilize an equipment fleet worth over \$2 million. Capabilities include sign making and pavement markings, traffic signal maintenance, survey crews with GPS and total station equipment, and computer aided design and drafting (CADD).

In addition to their road construction and maintenance responsibilities, they regulate the importation, transportation, and use of explosives in the Cayman Islands on behalf of the Managing Director in accordance with the Explosives Law and Regulations.



### **3.6 Executive Assets: Capital Works & Road Surface Upgrades**

New Capital Works and rehabilitation of roads surfaces on major arterials are systematically funded via Cabinet as “Executive Assets”. This year’s list of major EA’s funded via Cabinet include:

### **3.6.1 Linford Pierson Highway Phase 1 Expansion to 4 lanes (~\$1.7M)**

Work continued on the Linford Pierson Highway Widening Project. The project's total cost is just under \$8.0M and work was completed over two budget cycles (FY 16/17 and FY 2018).

Phase 1 of the widening has is just slightly over (1) mile in length and runs from the Silver Oaks Roundabout (near to the First Assembly of God Church) to the intersection with Agnes Way. The scope of works for the project mainly involved widening the road from two (2) lanes to four (4) lanes and also included the installation of a median.

A roundabout was constructed at the Agnes Way Intersection and at Alamo Drive. Street lighting and drainage were improved. The works also included the relocation of major utility infrastructure such as CUC poles, and Water Authority mains.

Phase 2 of the LPH widening is expected to cost approximately \$12M and will extend from Agnes Roundabout Outpost Street. Phase 2 will also include widening of Bobby Thompson Way.



### **3.6.2 Improvements at Smith Road and Crewe Road Intersection (~\$800K)**

The Mango Tree Connector is approximately ¼ mile in length and runs from the existing Elgin Avenue Roundabout to the NAPA junction. The main scope of the project was to provide an optional route for motorists coming to and from the Industrial Park area. The project includes a re-haul of the NAPA junction, one small roundabout at Printers Way and two lanes in either direction with a central median.



### **3.6.3 NRA District Roads Rehabilitation Programme**

NRA completed spray 'n' chip upgrades on 64 road segments across all five districts for approximately \$1.7M

Spray n Chip is used extensively by road agencies worldwide as:

1. A semi-permanent surface for minor roads, and
2. A preventative maintenance (surface treatment) for existing paved roads.

Typically roads having low daily traffic volumes (less than 5,000 ADT) will be prime candidates for spray n chip. Some jurisdictions however have experimented with spray n chip (aka Chip Seal) on roads with daily volumes of up to 20,000 ADT.

The most significant benefit of spray n chip is that is between 20% to 25% of the cost of hot mix asphalt so governments are able to get more roads done utilizing spray n chip methods. If done correctly and/or if good quality gravel



('chips') can be sourced then spray n chip roads can last between 5 to 7 years.

The following district roads were reconstructed and/or resurfaced with surface treatments under this programme. The MicroPAVER pavement management database was used to select the roads to be worked on and what type of work would be performed. Explanations of the abbreviations are given below:

Abbreviations:      R&R = Rip and Relay (Reconstruct the Road Base)  
                             Reconst = Reconstruction  
                             SC = Spray and Chip (Surface Treatment)  
                             2<sup>nd</sup> App = Second Application of Spray and Chip  
                             (Surface Treatment)



The NRA's policy is to apply spray n chip surfacing to local access/subdivision roads with low traffic and posted speeds of no more than 25 mph. Spray n Chip application may be applied to primary arterial roads but only as a temporary measure during major construction.

Planned expenditure on District Roads for 2018 was as follows:

East End	\$150,000
Northside	\$225,000
Bodden Town	\$525,000
George Town	\$300,000
West Bay	\$400,000

## Planned versus Actual Expenditure on District Roads in 2018

DISTRICT	Budget	Invoiced (year end FY18)
East End	150,000	<b>445,166</b>
Northside	225,000	222,448
Bodden Town	525,000	685,909
George Town	300,000	291,215
West Bay	400,000	12,322
<b>TOTAL</b>	<b>1,600,000</b>	<b>1,657,060</b>

The total amount spent on district roads in FY 2018 was approximately \$1.6M. Break down of road works completed in 2018 by Constituency is as follows:

<b>EAST End (Budgeted 150,000)</b>		
NRA2EE040 Turnpipe Ln	EastEnd	13,640.67
NRA2EE041 Gumby Rd	EastEnd	18,049.50
NRA2EE008 Sunnyfield Rd	EastEnd	205,611.63
NRA2EE043 William James Cl	EastEnd	2,922.95
NRA2EE042 Outerland Rd	EastEnd	4,758.54
NRA2EE030 HIGH ROCK DR - Section	EastEnd	9,357.11
NRA2EE045 Off John Mclean 435 x 14ft; 75A356	EastEnd	14,822.68
NRA2EE044 Off Sunny Field by Antenna 115 x 14ft; 73A90	EastEnd	2,833.87
NRA2EE046 Off Austin Conolly Drive 74A93; 846 x 14ft	EastEnd	24,683.98
NRA2EE002-Queens Highway minor works	EastEnd	2,512.49
NRA2EE001-Sea View Road patching & minor works	EastEnd	972.60
<b>Total</b>		<b>300,166</b>

***The NRA largely overspent in the district of East End in 2018. In addition to the \$300,166 in district roads the NRA also completed approximately \$145K in hot mix reinstatement to the main road (Seaview Road) bringing the total 2018 spend in East End to approx. \$445K.***

<b>North Side (Budgeted 225,000)</b>		
NRA2NS023-ARLINGTON RD - Phase 1	NorthSide	57,594.31
NRA2NS039-SERENITY LN	NorthSide	21,041.46
NRA2NS020-TIDYMAN LN	NorthSide	4,823.29
NRA2NS053-BOTANIC RD - Phase 1	NorthSide	36,915.70
NRA2NS054 WATERGATE ST	NorthSide	9,626.64
NRA2NS055 ROSEBUD DR	NorthSide	36,224.90
NRA2NS019 CAMP DR	NorthSide	41,423.46
NRA2NS056-SANCOLA CL	NorthSide	12,339.60
NRA2NS005-Cayman Kai Road	NorthSide	2,458.37
<b>Total</b>		<b>222,447.71</b>

<b>Bodden Town (Budgeted 200,000)</b>		
NRA2BT029-NASHE ST	BTE	47,192.39
NRA2BT253-BELFORD DR	BTE	65,170.04
NRA2BT252-HARDY ST	BTE	45,384.94
NRA2BT003-Bodden Town Road minor works	BTE	12,586.57
NRA2BT246-Cumber Avenue Retention pond	BTE	7,277.36
NRA2BT153-Condor	BTE	1,250.00
NRA2BT241-FREDERICK CL	BTW	42,195.33
NRA2BT028-CHAMPS FLEUR DR	NEWLANDS	12,134.59
NRA2BT249-ARNOLD AVE	NEWLANDS	28,088.01
NRA2BT245-GRAPE SEED ST	NEWLANDS	13,009.11
NRA2BT243-JAMES ST	NEWLANDS	23,998.26
NRA2BT250-HURLSTONE ST	NEWLANDS	21,435.70
NRA2BT251-TREVOR CL	NEWLANDS	41,023.19
NRA2BT244-PEPI ST	NEWLANDS	11,756.03
NRA2BT032-TRINITY WAY	NEWLANDS	67,378.07
NRA2BT242-RINA DR (w/Drain)	NEWLANDS	80,875.76
NRA2BT002- Leeward Drive	NEWLANDS	563.84
NRA2BT023- Sndy Ground Drive (cleaning & clearing)	SAVANNAH	6,194.27
NRA2BT038- Pedro St. James	SAVANNAH	19,567.55
EA36BT013- Sandy Ground Drive S/C	SAVANNAH	138,828.38
<b>Total</b>		<b>685,909.35</b>

<b>West Bay (Budgeted 400,000)</b>		
NRA2WB200-Leona Lane	WB Central	4,106.20
NRA2WB006-Batabano Road Shoulder	WB South	7,305.86
NRA2WB072-Ebanks Road	WB West	910.14
<b>Total</b>		<b>12,322.20</b>

<b>George Town (Budgeted \$300,000)</b>		
NRA2GT167-Breezy Way	GT Central	4,193.40
EA36GT040- Huldah Ave by Cricket Pitch	GT Central	3,926.21
EA36GT048-Avacado Ln	GT Central	5,208.42
EA36GT049-Grapevine Cl	GT Central	4,454.42
EA36GT043-Music Close	GT East	11,574.11
EA36GT046-Our Haven Way	GT East	6,512.20
NRA2GT234-Woodpecker Close	GT North	1,564.74
EA36GT045-Shadow Ln	GT North	16,587.15
EA36GT051-Watlers Road (Dog City)	GT North	3,034.64
NRA2GT336-Stonewall Road	GT South	1,688.82
EA36GT034-Shoulder by Paradise Condos (South Sound)	GT South	10,395.30
EA36GT041- Walkers Road/South Sound junction	GT South	5,236.55
EA36GT042- South Church St	GT South	4,128.87
EA36GT044-Pebbles Way	GT West	38,524.15
EA36GT047-Templewood St	GT West	11,815.64
NRA2GT068-Patricks Avenue	Prospect	2,544.81
EA36GT039-Buttonwood Ave	Prospect	69,822.16
NRA2GT073-PROSPECT DR	RED BAY	71,583.75
NRA2GT150-Bamboo Street	RED BAY	7,679.91
NRA2GT287-Whirlwind Drive	RED BAY	4,874.37
EA36GT050-Oxford Ct	RED BAY	5,865.33
<b>Total</b>		<b>291,214.93</b>



## Section 4 – Future Goals and Economic Outlook

The future goals of the NRA are not just concerned with continued compliance with the requirements of the PMFL but also with developing strategies for organizational growth going forward.

Through the development of a corporate strategic plan, the NRA can be able to identify the roads infrastructure needs that are most important to these islands. A strategic plan would also allow us to look ahead and make provisions for the necessary investments that will ensure adequate and steady source of funding and other resources necessary to achieve a sustainable road network. The local and tourism economy remain vibrant and the nation's roadways play an important part in maintaining safe and efficient movement of people, goods and services.

The NRA Board of Directors remains committed to the continued development of the NRA and to its efforts to deliver the best roads and road related infrastructure to the people of the Cayman Islands.

Key strategies for ensuring a stronger and better NRA for the foreseeable future include:

- Necessary amendments to the NRA Law and Roads Law;
- Adaptation of the organizational structure to meet future demands;
- Development of effective administrative, financial and management systems

- Attraction of young professional and technical employees that will pursue career development with the NRA;
- Dedicated funding stream for recurrent road maintenance activities;
- Commitment from Cabinet for continued investment in necessary capital road improvements (particularly roads in and around the Central Business District and roads providing mainline access between the CBD and eastern districts).



Through the development of its long range corridors plan and the strategies above NRA will be poised to deliver sustainable, reliable, safe and efficient roads for future generations of Caymanians.

## Section 5 – Executive Assets & Output Accounts

A summary of the Executive Asset and Output accounts as recorded at the fiscal year ending December 31<sup>st</sup>, 2018 were as shown below:

**NATIONAL ROADS AUTHORITY  
FUNDS AVAILABLE  
FOR THE TWELVE MONTHS ENDED 31 DECEMBER 2018**

	Services to be provided from NRA Road Fund	Budget 2018 \$	Amount Invoiced B/F \$	Amount Invoiced This Month \$	Total Invoiced To Date C/F \$	Funds Available \$
Planning & Development of New Public Roads	NRA 5	600,000	219,890	50,156	270,046	329,954
Grand Cayman District Roads Programme	NRA 6	1,600,000	1,135,782	-	1,135,782	464,218
Policy Advice on Road Related Matters	NRA 7	62,500	8,748	2,167	10,915	51,585
Storm Water Drain Wells	NRA 8	87,500	144,828	-	144,828	(57,328)
Routine Maintenance of Public Roads	NRA 9	4,617,960	4,721,447	470,431	5,191,878	(573,918)
Government Street Lighting Programme	NRA 10	1,175,000	1,063,174	97,682	1,160,856	14,144
Pavement Mangt. & Other Roads Asset Mangt. Programmes	NRA 11	100,000	79,349	-	79,349	20,651
Road Safety & Roadside Guard Rail Installation Programme	NRA 12	237,500	275,285	-	275,285	(37,785)
Explosive & Blasting Management	NRA 13	20,000	22,517	1,115	23,633	(3,633)
Arterial Road Surface Rehabilitation	NRA 14	616,135	207,429	-	207,429	408,706
Provisions for Other Costs	NRA 15	883,405	1,125,000	375,000	1,500,000	(616,595)
		<u>10,000,000</u>	<u>9,003,448</u>	<u>996,552</u>	<u>10,000,000</u>	<u>-</u>
	Executive Assets	Budget Approved 2014/2015 \$	Amount Invoiced B/F \$	Amount Invoiced This Month \$	Invoiced To Date C/F \$	Funds Available \$
	<b>EA's</b>					
Miscellaneous Road Surface Upgrades	EA36	-	-	-	-	
Various District Roads hot mix overlay		2,050,000	-	-	-	
EA36GT031 Crew Rd Trop.Gdns/Navis Close			626,355	2,119	628,474	
EA36PEDEX Crosswalks smith/truth for youth			52,325	-	52,325	
EA36 MISC.EXEC.ASSET ROADWORKS			488,644	278,578	767,222	
EA36CAPITAL DRAINS PROJECT			65,970	18,942	84,912	517,067
Asphalt Paving in Cayman Brac - (Minsitry DAT&T) 42062	EA55	120,000	132,750	11,318	144,067	(24,067)
New Collector & Arterial Roads	EA142	450,000	-	-	-	
			-	-	-	450,000
EA148 Major Road Works - expansion Projects	EA148	6,750,000				
EA148BT Miscellaneous Road Surface Upgrades			154,001	-	154,001	
EA148GT01 SHAMROCK/HIRST RD			447,228	30,417	477,645	
EA148GT02 NORTH CHURCH ST			152,312	-	152,312	
EA148GT05 CNB RAB to Mango Tree connector			746,826	88,128	834,954	
EA148GT04-Linford Pearson Highway widening			1,653,398	15,483	1,668,881	
						3,462,207
	EA147	500,000	-	-	-	
EA147GT03 HSA Parking Lot Area			131,571	-	131,571	
EA147GT04-Minor District Projects (NICE project)			87,677	119,149	206,826	161,603
		<u>9,870,000</u>	<u>4,739,056</u>	<u>564,134</u>	<u>5,303,190</u>	<u>4,566,810</u>

**Balance Sheet**

31-Dec-18

	<b><u>2018</u></b>	<b><u>2016/17</u></b> (18 months)
<b>ASSETS</b>		
<b>Current Assets</b>		
Cash and cash equivalents	3,912,597	3,639,860
Accounts receivable and prepayments	2,200,053	1,221,730
Inventories	95,160	66,751
<b>Total Current Assets</b>	<b><u>6,207,810</u></b>	<b><u>4,928,341</u></b>
<b>Non-Current Assets</b>		
Property, plant and equipment	2,658,220	2,876,708
<b>Total Assets</b>	<b><u>8,866,030</u></b>	<b><u>7,805,049</u></b>
<b>LIABILITIES AND EQUITIES</b>		
<b>Current Liabilities</b>		
Accounts Payable and accrued liabilities	1,252,609	1,711,188
Employment entitlements	64,603	47,361
<b>Total Current Liabilities</b>	<b><u>1,317,212</u></b>	<b><u>1,758,549</u></b>
<b>Non-Current Liabilities</b>		
Pension Liability	912,000	1,151,000
Post-retirement health liability	15,545,000	16,510,000
<b>Total Non-Current Liabilities</b>	<b><u>16,457,000</u></b>	<b><u>17,661,000</u></b>
<b>Total Liabilities</b>	<b><u>17,774,212</u></b>	<b><u>19,419,549</u></b>
<b>Net Assets</b>	<b><u>-8,908,182</u></b>	<b><u>-11,614,500</u></b>
<b>Net Worth</b>		
Contributed Capital	4,653,535	4,541,535
Accumulated Deficits	-13,531,717	-16,156,035
<b>Total Net Worth</b>	<b><u>-8,908,182</u></b>	<b><u>-11,614,500</u></b>

**National Roads Authority**  
**Operating Statement**  
**31-Dec-18**

		<u><b>2018</b></u>	<u><b>2016/17 (18 months)</b></u>
<b>SALES</b>			
	Sales of services to Cabinet	5,285,730	7,506,994
	Sales of services to other government agencies	437,792	330,427
	Sales of services to third parties	10,064,312	15,392,521
		<u><b>15,787,834</b></u>	<u><b>23,229,942</b></u>
<b>COST OF GOODS SOLD</b>			
	Labor	2,328,871	3,461,395
	Materials	1,516,264	3,842,000
	Subcontractors	4,008,034	6,443,326
	Hired Equipment	0	53,908
<b>Total Cost of Sales</b>		<u><b>7,853,169</b></u>	<u><b>13,800,629</b></u>
<b>NET REVENUE</b>		<u><b>7,934,665</b></u>	<u><b>9,429,313</b></u>
<b>OPERATING EXPENSES</b>			
	Personnel Costs	3,757,283	5,207,828
	Post Retirement health liability	1,869,028	2,704,000
	Utilities	1,224,110	1,693,715
	Motor Vehicles Expenses (including insurance)	610,963	834,568
	Depreciation	557,771	745,466
	Past service pension	255,000	611,000
	Computer maintenance and fees	95,682	189,263
	Professional Fees	142,427	184,951
	Building maintenance	61,015	90,965
	Telephone	38,166	54,833
	Supplies and consumables	29,211	42,270
	Advertising and promotion	11,243	27,313
	Bank Charges	8,863	26,012
	Insurance	8,585	21,560
	Travel & Subsistence	0	10,231
<b>Total Operating Expenses</b>		<u><b>8,669,347</b></u>	<u><b>12,443,975</b></u>
<b>DEFICIT</b>		<u><b>-734,682</b></u>	<u><b>-3,014,662</b></u>

**NATIONAL ROADS AUTHORITY**  
**CASH FLOW STATEMENT**  
**FOR THE TWELVE MONTHS ENDED 31 DECEMBER 2018**

	<b>31/12/2018</b>	<b>Year Ended 31 December 2017</b>
	<b>\$</b>	<b>\$</b>
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>		
Net profit/(loss) for the period	(734,682)	(3,014,662)
Adjustment for non cash transactions:		
Past-service pension - defined benefit cost	327,000	734,000
Post-retirement health liability - defined benefit cost	1,948,000	2,765,000
Bad debts	-	-
Gain/(loss) on sale of fixed assets	(10,200)	(185,497)
Depreciation	557,771	745,466
	<u>2,087,889</u>	<u>1,044,307</u>
Net change in working capital		
(Increase)/decrease in receivable	(866,324)	387,200
Decrease/(increase) in inventory	(28,408)	(20,800)
(Decrease)/increase in accounts payable	(441,337)	227,505
Post-retirement health liability - employer contributions	(78,000)	(61,000)
Past-service pension - employer contribution	(72,000)	(123,000)
Net cash used by operating activities	<u>601,820</u>	<u>1,454,212</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>		
Purchase of fixed assets	(339,283)	(1,887,523)
Proceeds from disposal of property, plant & equipment	10,200	185,181
Net cash used by investing activities	<u>(329,083)</u>	<u>(1,702,342)</u>
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>		
Equity investment	-	-
Net cash provided by financing activities	<u>-</u>	<u>-</u>
Net increase/(decrease) in cash and cash equivalents	272,737	(248,050)
Cash and cash equivalents at beginning of period	3,639,860	3,887,910
Cash and cash equivalents at end of period	<u>3,912,597</u>	<u>3,639,860</u>

### Capital Maintenance

Human Capital Measures	2018 Actual
Total full time equivalent staff	90
Staff turnover (%)	-
Average length of service (Number)	
Senior management	14.33(3)
Professional staff	14.71(28)
Administrative staff	13.22(50)
Significant changes to personnel management system	None

Note 1: Length of service is calculated based on time of employment with NRA and formerly with PWD.

Physical Capital Measures	2018 Actual \$
Value of total assets	2,658,220
Asset replacements: total assets	Nil
Book value of depreciated assets: initial cost of those assets	
Depreciation: Cash flow on asset purchases	557,771
Changes to asset management policies	None

### Risk Management:

Key risks	Change in status from previous year	Actions to manage risk	Financial value of risk
Work related injuries to persons	No change	Introduction, training and implementation of safety standards for heavy equipment machinery and workforce personnel.	Undefined: depends on extent of injury
Accidents related to the operation of vehicles and heavy equipment	No change	Implement driver-training courses. HOD to exercise appropriate disciplinary action for each offence or repeating offender, such as loss of authority to drive or financial contribution by driver. Appropriate training in operation of vehicle to reduce operational misuse of the vehicle.	Undefined: depends on extent of damage



## Section 6 - Summarised Financial Statements

*A full set of audited financial statements for The National Roads Authority is provided in the Appendix to this Annual Report.*

A summary of those is as follows.

<b>Operating Statement</b>	<b>2018 Actual \$</b>
Revenue	15,787,834
Operating Expenses	16,522,516
Net Surplus(Deficit)	(734,682)

<b>Balance Sheet</b>	<b>2018 Actual \$</b>
Assets	8,866,030
Liabilities	17,774,212
Net Worth	(8,908,182)

<b>Statement of Cash Flows</b>	<b>2018 Actual \$</b>
Net cash flows from operating activities	601,820
Net cash flows from investing activities	(329,083)
Net cash flows from financing activities	—

### a) Equity Investments

<b>Transaction</b>	<b>2018 Actual \$</b>
EI 8: Equity Investments into National Roads Authority	Nil

### b) Capital Withdrawals

<b>Transaction</b>	<b>2018 Actual \$</b>
Capital Withdrawals from National Roads Authority.	Nil

### c) Dividends or Profit Distributions

Transaction	2018 Actual \$
Dividend or Profit Distributions to be made by National Roads Authority.	Nil

### d) Loans

Transaction	2018 Actual \$
Government Loans to be made to National Roads Authority.	Nil

### e) Guarantees

Transaction	2018 Actual \$
Government Guarantees to be issued in relation to National Roads Authority.	Nil

### f) Other Financial Information

Detailed below is information about specific financial transaction required to be included in the Ownership Agreement by the Public Management and Finance Law (2005 Revision).

Related Party Payments (Non Remuneration) made to Key Management Personnel	Nil
Remuneration Payments made to Key Management Personnel	944,737
Remuneration Payments made to Senior Management	437,056
No of Key Management Personnel	14
No of Senior Management	3

Key management includes all of the senior management plus the Board of Directors.

Senior management posts include: Managing Director, Deputy Managing Director, and Chief Financial Officer.



## **National Road Authority**

### **Audited Financial Statements**

**December 31, 2018**

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National Roads Authority  
Financial Statements  
31 December 2018

STATEMENT OF RESPONSIBILITY FOR THE FINANCIAL STATEMENTS

These financial statements have been prepared by the National Roads Authority in accordance with the provisions of the *Public Management and Finance Law (2018 Revision)* and referenced to Section 26 (1b) of the *National Roads Authority (2016 Revision)*.

We accept responsibility for the accuracy and integrity of the financial information in these financial statements and their compliance with the *Public Management and Finance Law (2018 Revision)*.

As Chairman and Acting Managing Director, we are responsible for establishing; and have established and maintain a system of internal controls designed to provide reasonable assurance that the transactions recorded in the financial statements are authorised by law, and properly record the financial transactions of the National Roads Authority.

As Chairman and Acting Managing Director we are responsible for the preparation of the National Roads Authority financial statements and for the judgements made in them.

The financial statements fairly present the statement of financial position, statement of financial performance, statement of cash flows and statement of changes in net worth for the year ended 31 December 2018.

To the best of our knowledge we represent that these financial statements:

- (a) completely and reliably reflect the financial transactions of National Roads Authority for the year ended 31 December 2018;
- (b) fairly reflect the financial position as at 31 December 2018 and performance for the year ended 31 December 2018; and
- (c) comply with International Financial Reporting Standards under the responsibility of the International Public Sector Accounting Board. Where guidance is not available, the financial statements comply with International Accounting Standards issued by the International Accounting Standards Committee or accounting practice that is generally accepted in the United Kingdom as appropriate for reporting in the public sector.

The Office of the Auditor General conducts an independent audit and expresses an opinion on the accompanying financial statements. The Office of the Auditor General has been provided access to all the information necessary to conduct an audit in accordance with International Standards on Auditing.



Donovan Ebanks  
Chairman  
National Roads Authority

29 April 2019



Edward Howard  
Acting Managing Director  
National Roads Authority

29 April 2019

## **AUDITOR GENERAL'S REPORT**

### **To the Board of Directors of the National Roads Authority**

#### **Opinion**

I have audited the financial statements of the National Roads Authority (the "Authority"), which comprise the statement of financial position as at 31 December 2018 and the statement of financial performance, statement of changes in net worth and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies as set out on pages 8 to 34.

In my opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Authority as at 31 December 2018 and its financial performance and its cash flows for the year then ended in accordance with International Public Sector Accounting Standards.

#### **Basis for Opinion**

I conducted my audit in accordance with International Standards on Auditing (ISAs). My responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of my report. I am independent of the Authority in accordance with the International Ethics Standards Board for Accountants' *Code of Ethics for Professional Accountants (IESBA Code)*, together with the ethical requirements that are relevant to my audit of the financial statements in the Cayman Islands, and I have fulfilled my other ethical responsibilities in accordance with these requirements and the IESBA Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

#### **Emphasis of Matter**

As outlined in note 21 of the financial statements, the Cabinet of Ministers authorized a reallocation of appropriations of \$112,000 from the Ministry of Commerce, Planning and Infrastructure to the Authority for exceptional circumstances in accordance with section 11 (5) of the Public Management and Finance Law (2018 Revision) ("PMFL"). As at the date of this report, a Supplementary Appropriation Bill for the reallocation has not been passed into Law by the Legislative Assembly as required by section 11(6) of the PMFL. My opinion is not qualified with respect to this matter.

#### **Responsibilities of Management and Those Charged with Governance for the Financial Statements**

Management is responsible for the preparation and fair presentation of the financial statements in accordance with International Public Sector Accounting Standards and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Authority's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Authority or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Authority's financial reporting process.



## AUDITOR GENERAL'S REPORT (continued)


### Auditor's Responsibilities for the Audit of the Financial Statements

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Authority's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Authority to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I have undertaken the audit in accordance with the provisions of section 60(1)(a) of the Public Management and Finance Law (2018 revision). I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

  
Sue Winspear, CPFA  
Auditor General

29 April 2019  
Cayman Islands




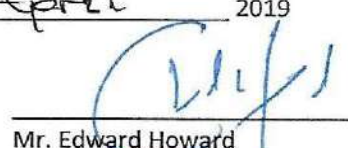
**National Roads Authority**  
**Statement of Financial Position**  
**As at 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

	Note	2018 \$	2016/17 (18 months) \$
<b>ASSETS</b>			
<b>Current Assets</b>			
Cash and cash equivalents	3	3,912,597	3,639,860
Accounts receivable and prepayments	4	2,200,053	1,221,730
Inventories	5	95,160	66,751
<b>Total Current Assets</b>		<b>6,207,810</b>	<b>4,928,341</b>
<b>Non-Current Assets</b>			
Property, plant and equipment	6	2,658,220	2,876,708
<b>Total Assets</b>		<b>8,866,030</b>	<b>7,805,049</b>
<b>LIABILITIES AND EQUITY</b>			
<b>Current Liabilities</b>			
Accounts payable and accrued liabilities	7	1,252,609	1,711,188
Employee entitlements	8	64,603	47,361
<b>Total Current Liabilities</b>		<b>1,317,212</b>	<b>1,758,549</b>
<b>Non-Current Liability</b>			
Pension liability	11	912,000	1,151,000
Post-retirement health liability	12	15,545,000	16,510,000
<b>Total Non-Current Liabilities</b>		<b>16,457,000</b>	<b>17,661,000</b>
<b>Total Liabilities</b>		<b>17,774,212</b>	<b>19,419,549</b>
<b>Net Assets</b>		<b>(8,908,182)</b>	<b>(11,614,500)</b>
<b>Net Worth</b>			
Contributed capital	9	4,653,535	4,541,535
Accumulated Deficits		(13,561,717)	(16,156,035)
<b>Total Net Worth</b>		<b>(8,908,182)</b>	<b>(11,614,500)</b>

The accompanying notes on pages 8 - 34 form an integral part of these financial statements.

Approved on behalf of the Board on the 29<sup>th</sup> of April 2019

  
Donovan Ebanks  
Chairman

  
Mr. Edward Howard  
Acting Managing Director



**National Roads Authority**  
**Statement of Financial Performance**  
**For the year ended 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

	Note	2018 \$	2016/17 (18 months) \$
<b>REVENUE</b>	14	<b>15,787,834</b>	<b>23,229,942</b>
<b>COST OF GOODS SOLD</b>			
Subcontractors		4,008,034	6,443,326
Materials		1,516,264	3,842,000
Labour		2,328,871	3,461,395
Hired equipment		-	53,908
<b>Total Cost of Sales</b>		<b>7,853,169</b>	<b>13,800,629</b>
<b>NET REVENUE</b>		<b>7,934,665</b>	<b>9,429,313</b>
<b>OPERATING EXPENSES</b>			
Personnel costs	10	3,757,283	5,207,828
Post- retirement health liability	12	1,869,028	2,704,000
Utilities		1,224,110	1,693,715
Motor vehicle expenses (including insurance)		610,963	834,568
Depreciation	6	557,771	745,466
Past service pension	11	255,000	611,000
Computer maintenance and fees		95,682	189,263
Professional fees		142,427	184,951
Building maintenance		61,015	90,965
Telephone		38,166	54,833
Supplies and consumables		29,211	42,270
Advertising and promotion		11,243	27,313
Bank charges		8,863	26,012
Insurance		8,585	21,560
Travel & Subsistence		-	10,231
<b>Total Operating Expenses</b>		<b>8,669,347</b>	<b>12,443,975</b>
<b>DEFICIT</b>		<b>(734,682)</b>	<b>(3,014,662)</b>

The accompanying notes on pages 8 - 34 form an integral part of these financial statements



**National Roads Authority**  
**Statement of Changes in Net Worth**  
**For the year ended 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

	Note	Accumulated Surplus (deficits) \$	Contributed Capital \$	Total \$
<b>Balance at 30 June 2016</b>		<b>(16,704,373)</b>	<b>4,541,535</b>	<b>(12,162,838)</b>
16/17 deficit		(3,014,662)	-	(3,014,662)
Remeasurement of employment benefit obligation		2,330,000	-	2,330,000
Remeasurement of post-retirement health obligation		1,233,000	-	1,233,000
<b>Balance at 31 December 2017</b>		<b>(16,156,035)</b>	<b>4,541,535</b>	<b>(11,614,500)</b>
Capital Contribution		-	112,000	112,000
2018 deficit		(734,682)	-	(734,682)
Remeasurement of employment benefit obligation	11	494,000	-	494,000
Remeasurement of post-retirement health obligation	12	2,835,000	-	2,835,000
<b>Balance at 31 December 2018</b>		<b>(13,561,717)</b>	<b>4,653,535</b>	<b>(8,908,182)</b>

The accompanying notes on pages 8 - 34 form an integral part of these financial statements.



**National Roads Authority**  
**Statement of Cash Flows**  
**For the year ended 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

	Note	2018 \$	Restated 2016/17 (18 months) \$
<b>CASH FLOWS USED IN OPERATING ACTIVITIES</b>			
<b>Deficit</b>		<b>(734,682)</b>	<b>(3,014,662)</b>
Adjustment for non-cash transactions:			
Depreciation	6	557,771	745,466
Doubtful debts		-	-
Post-retirement health liability – Defined benefit cost		1,948,000	2,765,000
Past service pension – Defined benefit cost		327,000	734,000
Gain on disposal of property, plant & equipment		(10,200)	(185,497)
Total		2,087,889	1,044,307
Net change in working capital			
Decrease /(increase) in accounts receivable and prepayments		(866,324)	387,280
(Increase)/decrease in inventories		(28,408)	(20,800)
Increase/(decrease) in accounts payable and accrued liabilities		(441,337)	227,505
Post-retirement health liability – Employer contributions		(78,000)	(61,000)
Past service pension – – Employer contributions		(72,000)	(123,000)
<b>Net cash flows (used in)/ from operating activities</b>		<b>601,820</b>	<b>1,454,292</b>
<b>CASH FLOWS USED IN INVESTING ACTIVITIES</b>			
Purchase of property, plant & equipment	6	(339,283)	(1,887,523)
Proceeds on sale of property, plant & equipment		10,200	185,181
<b>Net cash flows used in investing activities</b>		<b>(329,083)</b>	<b>(1,702,342)</b>
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>			
Equity Investment		-	-
<b>Net cash flows from financing activities</b>		<b>-</b>	<b>-</b>
Net decrease in cash and cash equivalents during the year		272,737	(248,050)
Cash and cash equivalents at the beginning of the year		3,639,860	3,887,910
<b>CASH AND CASH EQUIVALENTS AT END OF YEAR</b>	<b>3</b>	<b>3,912,597</b>	<b>3,639,860</b>

The accompanying notes on pages 8 - 34 form an integral part of these financial statements.



**1. Establishment and Principal Activity**

The National Roads Authority (“NRA” or “Authority”) is an independent Statutory Authority which was created on 1 July 2004 by the National Roads Authority Law, 2004. The Authority reports on its operations to the Ministry of Commerce, Planning & Infrastructure of the Cayman Islands Government.

The NRA was created to administer, manage, control, develop and maintain the Island’s public roads and related facilities, such as signals, storm water facilities, roadway lighting, and roadway directional signage. The scope of activities of the NRA include providing policy advice, publication of a National Roads Plan, provision of project and construction management services for the delivery of new road-works and the maintenance and management of the existing road infrastructure.

Section 19 of the *NRA Law 2006 Revision* was repealed effective on July 1, 2014 to make provision for the Authority to be funded from the Roads Fund. The substitution to the section of the law makes way for the Cabinet to authorize the transfer of revenue, not exceeding ten million dollars, to the Authority, via the Road Fund, for the purpose of funding the Authority’s annual operating costs, in particular, the construction, upgrading, rehabilitation and maintenance of public roads.

As at 31 December 2018, the NRA had 90 employees (31 December 2017: 90 employees). The NRA is located at 342B Dorcy Drive, P.O. Box 10426, Grand Cayman KY1-1004, Cayman Islands.

**2. Significant Accounting Policies**

*(a) Basis of preparation*

These financial statements have been prepared in accordance with International Public Sector Accounting Standards (IPSAS) issued by the International Federation of Accountants and its International Accounting Standards Board using the accrual basis of accounting. Where additional guidance is required, International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board are used.

Certain new accounting standards have been published that are not mandatory for the 31 December 2018 reporting period and have not been early adopted by the Authority. The Authority’s assessment of the impact of these new standards is set out below:

*IPSAS 41, Financial Instruments* was issued in August 2018 and shall be applied for financial statements covering periods beginning on or after 1 January 2022. IPSAS 41 establishes new requirements for classifying, recognizing and measuring financial instruments to replace those in IPSAS 29, Financial Instruments: Recognition and Measurement. It is anticipated that IPSAS 41 will not have a significant impact on the Authority’s financial statements. This will be assessed more fully closer to the effective date of adoption.

**National Roads Authority**  
**Notes to the Financial Statements**  
**For the year ended 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

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**2. Significant Accounting Policies (continued)**

*(a) Basis of preparation (continued)*

The financial statements have been prepared on a going concern basis and the accounting policies set out below have been applied consistently to all periods presented. The financial statements of the Authority are presented in Cayman Island dollars and are prepared on the accrual basis under the historical cost convention.

Corresponding amounts

The corresponding amounts are the audited amounts for the eighteen-month period ended 31 December 2017. Consequently, the financial statements for the year ended 31 December 2018 are not entirely comparable with those for the eighteen-month period ended 31 December 2017.

When presentation or classification of items in the financial statements is amended or accounting policies are changed, comparative figures are restated to ensure consistency with the current year unless it is impracticable to do so.

The significant accounting policies adopted by the NRA in these financial statements are as follows:

*(b) Cash and cash equivalents*

This comprises cash at bank and short term investments with maturity at inception of three months or less.

*(c) Foreign currency translation*

All assets and liabilities denominated in foreign currency are translated to Cayman Islands Dollars at exchange rates in effect at the financial position date. Revenue and expense transactions denominated in foreign currency are translated to Cayman Islands Dollars at exchange rates ruling at the date of those transactions. Gains and losses arising on translation are included in the statement of financial performance.

*(d) Property, plant and equipment/depreciation*

Property, plant and equipment include motor vehicles, heavy equipment, dump trucks, furniture and fixtures and computer hardware and software are stated at cost less accumulated depreciation and impairment losses. Depreciation is calculated on a straight-line basis at annual rates estimated to write off the carrying value of each asset over the period of its expected useful life.

Annual rates are as follows:

Vehicles and Heavy Equipment	4 - 12 Years
Furniture and Fixtures	3 - 15 Years
Computer Hardware and Software	3 - 6 Years
Other Plant and Equipment	3 - 20 Years

**National Roads Authority**  
**Notes to the Financial Statements**  
**For the year ended 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

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**2. Significant Accounting Policies (continued)**

*(e) Accounts receivables*

Receivables are stated at original invoice amounts less provision for doubtful debts.

*(f) Allowance for bad debts*

The allowance for bad debts is established through a provision for bad debts charged to expenses. Accounts receivable are written off against the allowance when management believes that the collectability of the amount is unlikely. The allowance is an amount that management believes will be adequate to cover any bad debts, based on an evaluation of collectability and prior bad debts experience.

*(g) Inventory*

Inventory is valued at the lower of net realizable value or cost, on an average basis.

*(h) Accounts Payable and accrued liabilities*

Accounts payable are recorded at the amount owing after allowing for credit notes and other adjustments.

*(i) Employee entitlements*

*Pension Plans*

The Authority makes pension contributions for its eligible employees to the Public Service Pensions Fund, which is administered by the Public Service Pensions Board. The Fund has both a defined benefit and a defined contribution element.

Under defined contribution plans, the Authority pays fixed contributions and has no obligation to pay further contributions if the fund does not have sufficient assets to pay employee benefits relating to employee service in the current and prior periods. The Authority recognises contributions to a defined contribution plan when an employee has rendered services in exchange for those contributions.

A defined benefit plan is one that defines an amount of benefit to be provided, usually as a function of one or more factors such as age, years of service or compensation. The asset or liability in respect of defined benefit plans is the difference between the present value of the defined benefit obligation at the financial position date and the fair value of plan assets, adjusted for unrecognised actuarial gains/losses and past service cost. Where a pension asset arises, the amount recognised is limited to the net total of any cumulative unrecognised net actuarial losses and past service cost and the present value of any economic benefits available in the form of refunds from the plan or reduction in future contributions to the plan. The pension costs are assessed using the Projected Unit Credit Method. Under this method the cost of providing pensions is charged in the statement of financial performance so as to spread the regular cost over the service lives of employees in accordance with advice of the actuary, (who is due to carry out a full valuation of the plans every year). The pension obligation is measured at the present value of the estimated future cash outflows using discount estimated rates based on market yields on high quality corporate bonds at the time of the accounting date which have terms to maturity approximating the terms of the related liability.

**National Roads Authority**  
**Notes to the Financial Statements**  
**For the year ended 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

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**2. Significant Accounting Policies (continued)**

*(i) Employee entitlements (continued)*

Obligations for contributions to defined contribution and defined benefits pension plans are recognized as an expense in the statement of financial performance as incurred. (See also Note 11).

Amounts incurred but not paid at the end of the reporting period are accrued. Annual leave due, but not taken, is recognized as a liability.

*(j) Revenue recognition*

Revenue from sale of services to other government agencies is recognised when it is earned (see also Related Party Note 14). Unearned revenue comprises amounts paid to the Authority in advance of work performed and amounts which the Authority has invoiced for in advance of work performed. These unearned amounts are recognized as revenue in the statement of financial performance as work is performed related to the amounts received or billed in advance. Investment revenue is recognised in the period in which it is earned. Donations are recognised at fair value at the time of receipt.

*(k) Expense recognition*

Expenses are recognised when incurred.

*(l) Financial Instruments*

*(i) Classification*

A financial asset is classified as any asset that is cash, a contractual right to receive cash or another financial asset, exchange financial instruments under conditions that are potentially favourable or an equity instrument of another enterprise. Financial assets comprise of cash and cash equivalents and accounts receivable and prepayments.

A financial liability is any liability that is a contractual obligation to deliver cash or another financial instrument or to exchange financial instruments with another enterprise under conditions that are potentially unfavourable. Financial liabilities comprise of accounts payable, unearned revenue and employee entitlements.

*(ii) Recognition*

The Authority recognises financial assets and financial liabilities on the date it becomes party to the contractual provisions of the instrument. From this date, any gains and losses arising from changes in fair value of the assets or liabilities are recognised in the statement of financial performance.

*(iii) Measurement*

Financial instruments are measured initially at cost which is the fair value of the consideration given or received. Subsequent to initial recognition all financial assets are recorded at historical cost, which is considered to approximate fair value due to the short-term or immediate nature of these instruments.

**National Roads Authority**  
**Notes to the Financial Statements**  
**For the year ended 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

**2. Significant Accounting Policies (continued)**

*(i) Financial Instruments (continued)*

*(iv) Derecognition*

A financial asset is derecognised when the Authority realises the rights to the benefits specified in the contract or loses control over any right that comprise that asset. A financial liability is derecognised when it is extinguished, that is when the obligation is discharged, cancelled, or expired.

*(v) Credit Risk*

Cash and short term investments are held with substantial financial institutions. Receivables are short term and settled after the year-end.

*(vi) Interest Rate Risk*

The Authority's income and operating cash flows are substantially independent of changes in market interest rates.

**3. Cash and Cash Equivalents**

	<b>2018</b>	<b>2016/17 (18 months)</b>
	<b>\$</b>	<b>\$</b>
Bank accounts	2,036,624	3,639,860
Short term deposits	1,875,973	-
<b>Total Cash and Cash Equivalents</b>	<b><u>3,912,597</u></b>	<b><u>3,639,860</u></b>

The Board of Directors resolved to fund the post-retirement health liability with \$375k in 2016/17 and \$1.5M in 2018. NRA holds the funds approved in a term deposit account held with RBC Royal Bank (Cayman Islands) that is renewed every month. The short term deposits do not qualify as an asset to be recorded against the post-retirement healthcare liabilities because the money is not restricted or held separately by an entity other than NRA.

**4. Accounts Receivable and Prepayments**

	<b>2018</b>	<b>2016/17 (18 months)</b>
	<b>\$</b>	<b>\$</b>
Receivables from Core Government	1,945,077	1,060,004
Receivables from other government agencies	104,081	9,079
Other accounts receivable and prepayments	148,065	149,498
Staff loans	2,830	3,149
<b>Total Accounts Receivable</b>	<b><u>2,200,053</u></b>	<b><u>1,221,730</u></b>

Receivables from core government include \$167,379 relating to retentions on road construction contracts.



**National Roads Authority**  
**Notes to the Financial Statements**  
**For the year ended 31 December 2018**  
**(Stated in Cayman Islands Dollars)**

**5. Inventories**

	<b>2018</b>	<b>2016/17</b>
	<b>\$</b>	<b>(18 months)</b>
	<b>\$</b>	<b>\$</b>
Finished Goods - Cayman Rock	307	1
Finished Goods - AE60	52,326	19,316
Finished Goods - Crusher Run	19,492	27,863
Finished Goods - 3/8 Washed Chips	7,723	11,481
Finished Goods – Sand	541	399
Finished Goods – Concrete Stone	14,771	7,691
<b>Total Inventories</b>	<b>95,160</b>	<b>66,751</b>

**6. Property, Plant and Equipment**

	<b>Vehicles &amp; Heavy Equipment</b>	<b>Furniture &amp; Fixtures &amp; Office Equipment</b>	<b>IT Equipment</b>	<b>Other Plant &amp; Equipment</b>	<b>Leasehold Improvement</b>	<b>Total</b>
<b>Cost</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
Opening 2015/16	3,302,367	165,062	349,242	2,117,115	273,837	6,207,623
Additions 2016/17	780,733	15,071	6,111	1,085,608	-	1,887,523
Disposals 2015/16	(608,282)	-	(92,964)	-	-	(701,246)
As at 2016/17	3,474,818	180,133	262,389	3,202,723	273,837	7,393,900
Additions 2018	251,544	838	52,215	34,686	-	339,283
Disposals 2018	(22,500)	-	-	(432,242)	-	(454,742)
As at 2018	3,703,862	180,971	314,604	2,805,167	273,837	7,278,441
<b>Accumulated Depreciation</b>						
Opening 2015/16	2,572,083	144,391	317,281	1,188,431	251,101	4,473,287
Depreciation 2016/17	344,323	7,247	17,753	353,407	22,736	745,466
Depreciation on Disposal 2016/17	(608,120)	-	(93,441)	-	-	(701,561)
As at 2016/17	2,308,286	151,638	241,593	1,541,838	273,837	4,517,192
Depreciation 2018	273,216	5,256	9,348	269,951	-	557,771
Depreciation on Disposal 2018	(22,500)	-	-	(432,242)	-	(454,742)
As at 2018	2,559,002	156,894	250,941	1,379,547	273,837	4,620,221
<b>Net Book Value - 2017</b>	<b>1,166,532</b>	<b>28,495</b>	<b>20,796</b>	<b>1,660,885</b>	<b>-</b>	<b>2,876,708</b>
<b>Net Book Value - 2018</b>	<b>1,144,860</b>	<b>24,077</b>	<b>63,663</b>	<b>1,425,620</b>	<b>-</b>	<b>2,658,220</b>

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**7. Accounts Payable and Accrued Liabilities**

	<b>2018</b>	<b>2016/17 (18 months)</b>
	<b>\$</b>	<b>\$</b>
Trade creditors	1,135,975	1,557,589
Wages payable	116,634	153,599
<b>Total Accounts Payable and Accrued Liabilities</b>	<b>1,252,609</b>	<b>1,711,188</b>

Trade creditors include \$167,379 relating to retentions on road construction contracts. The retentions are generally payable to sub-contractors 6 months after road construction works are completed to the Authority's satisfaction and defects in materials and workmanship, if any, have been corrected.

**8. Employee Entitlements**

The leave entitlements are calculated based on current salary paid to those employees who are eligible for this benefit. During the year, accrued vacation leave amounted to \$64,603 (2017: \$47,361).

**9. Contributed Capital**

During the year, the Authority received equity injections in the amount of \$112,000 (2017: Nil).

**10. Personnel Costs**

	<b>2018</b>	<b>2016/17 (18 months)</b>
	<b>\$</b>	<b>\$</b>
Salaries and wages	2,107,365	2,978,449
Health Insurance	1,316,787	1,797,578
Employer and Employee pension expenses	225,835	359,295
Vacation due	17,242	(86,423)
Other personnel costs	90,054	158,929
<b>Total Personnel Costs</b>	<b>3,757,283</b>	<b>5,207,828</b>

**11. Pensions**

Pension contributions for eligible employees of the Authority are paid to the Public Service Pensions Fund (the "Fund"). The Fund is administered by the Public Service Pensions Board ("the Pensions Board") and is operated as a multi-employer plan. Prior to 1 January 2000 the scheme underlying the Fund was a defined benefit scheme. With effect from 1 January 2000 the Fund had both a defined benefit and a defined contribution element, with participants joining after 1 January 2000 becoming members of the defined contribution element only.

Benefit obligations are estimated using the Projected Unit Credit method. Under this method, each participant's benefits under the plan are attributed to years of service, taking into consideration future salary increases and the plan's benefit allocation formula. Thus, the estimated total pension to which each participant is expected to become entitled at retirement is broken down into units, each associated with a year of past or future credited service.

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**11. Pensions (continued)**

The Fund has been valued by the Actuary (Mercer) to the Pensions Board. The defined contribution part of the Fund is not subject to the special actuarial valuations due to the nature of the benefits provided therein.

The Authority paid both the employee and employers contributions. The actual amount of pension expense relating to the defined benefits for staff also includes the effect of the changes in the actuarial determined liability.

In March 2005, the Financial Secretary of the Cayman Islands Government informed the Authority that the decision to keep the unfunded past service liability a central liability of the Government had been reversed and the Authority recognizes the unfunded past service liability as a liability in its financial statements.

*The amounts recognized in the statement of financial position is as follows:*

	<b>2018</b>	<b>2016/17 (18 months)</b>
	<b>\$000</b>	<b>\$000</b>
Defined benefit obligation	4,759	5,130
Fair value of plan assets	3,847	3,979
Funded status	912	1,151
Net liability (asset)	912	1,151

*The change in defined benefit obligation is as follows:*

	<b>2018</b>	<b>2016/17 (18 months)</b>
	<b>\$000</b>	<b>\$000</b>
Defined benefit obligation at end of prior year	5,130	6,259
Service Cost	290	595
Interest expense	180	319
Cash flows	(39)	(236)
Remeasurements	(802)	(1,807)
Defined benefit obligation at end of year	4,759	5,130

*The change in fair value of plan assets is as follows:*

	<b>2018</b>	<b>2016/17 (18 months)</b>
	<b>\$000</b>	<b>\$000</b>
Fair value of plan assets at end of prior year	3,979	3,389
Interest Income	143	180
Cash flows – employer and participant contributions	33	(113)
Remeasurements	(308)	523
Fair value of plan assets at end of year	3,847	3,979

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**11. Pensions (continued)**

*The net defined benefit liability (asset) reconciliation:*

	<b>2018</b>	<b>2016/17</b>
	<b>\$000</b>	<b>(18 months)</b>
	<b>\$000</b>	<b>\$000</b>
Net defined benefit liability as of beginning of year	1,151	2,870
Defined benefit cost included in the Profit & Loss	327	734
Total remeasurements included in the Statement of Changes in Net Worth	(494)	(2,330)
Cash flows	(72)	(123)
Net defined benefit liability as of end of year	912	1,151

*The components of defined benefit cost are as follows:*

	<b>2018</b>	<b>2016/17</b>
	<b>\$000</b>	<b>(18 months)</b>
	<b>\$000</b>	<b>\$000</b>
Service Cost	290	595
Net interest cost		
Interest expense on DBO	180	319
Interest (income) on plan assets	(143)	(180)
Total net interest cost	37	139
Defined benefit cost included in Profit & Loss (P&L)	327	734
Effect of changes in demographic assumptions	(47)	(647)
Effect of changes in financial assumptions	(810)	(731)
Effect of experience adjustments	55	(429)
(Return) on plan assets (excluding interest income)	308	(523)
(Return) on reimbursement rights (excluding interest income)	-	-
Changes in asset ceiling/onerous liability (excluding interest income)	-	-
Total remeasurements included in the Statement of Changes in Net Worth (SCNW)	(494)	(2,330)
Total defined benefit cost recognized in the P&L and SCNW	(167)	(1,596)

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**11. Pensions (continued)**

*The sensitivity analysis on defined benefit obligation is shown below:*

	<b>2018</b>	<b>2016/17 (18 months)</b>
1. Discount rate		
a. Discount rate – 25 basis points	5,025	5,446
b. Discount rate + 25 basis points	4,512	4,837
2. Inflation rate		
a. Inflation rate – 25 basis points	4,519	4,835
b. Inflation rate + 25 basis points	5,016	5,447
3. Mortality		
a. Mortality - 10% of current rates	4,862	5,252
b. Mortality + 10% of current rates	4,665	5,018

*The expected cash flow for the following year is as follows:*

	<b>Amount (\$'000)</b>
Expected employer contributions	101

*The significant actuarial assumptions are presented below:*

Weighted-average assumptions to determine defined benefit obligations

	<b>2018</b>	<b>2016/17 (18 months)</b>
1. Discount rate	4.50%	3.80%
2. Rate of salary increase	2.50%	2.50%
3. Rate of price inflation	2.00%	2.00%
4. Rate of pension increases	2.00%	2.00%
5. Post-retirement mortality table	RP-2014 scaled back to 2006 using Scale MP- 2014 then generationally Projected using Scale MP-2018	RP-2014 scaled back to 2006 using Scale MP- 2014 then generationally Projected using Scale MP-2016
6. Cost Method	Projected Unit Credit	Projected Unit Credit
7. Asset valuation method	Market Value	Market Value

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**11. Pensions (continued)**

Weighted-average assumptions to determine defined benefit cost

	<b>2018</b>	<b>2016/17 (18 months)</b>
1. Effective discount rate used to determine current service cost	3.85%	4.10%
2. Effective rate used to determine interest on current service cost	3.70%	3.80%
3. Effective rate used to determine interest on defined benefit cost	3.50%	3.40%
4. Rate of salary increase	2.50%	3.50%
5. Rate of price inflation	2.00%	2.50%
6. Rate of pension increases	2.00%	2.50%
7. Post-retirement mortality table	RP-2014 scaled back to 2006 using scale MP- 2014 then generationally projected from 2006 using Scale MP-2016	RP-2014 projected on a generational basis using Scale MP- 2014

***Plan Assets***

The Defined Benefit assets as well as Defined Contribution assets of the Plan are held as part of the Public Service Pensions Fund ("the Fund") and managed by the PSPB. The assets of two other pension plans are pooled together to constitute the Fund. The assets are notionally allocated to each of the three participating pension plans through an internal accounting mechanism that tracks, for each accounting period, actual cash flows and allocates investment income and expenses in proportion to the opening value of assets allocated. Based on the data provided, the gross rate of return earned by the Fund for the fiscal 2018 was 4.13% and 13.44% for fiscal 2017. Similar internal accounting is used for developing each participating entity's share of the asset portfolio of the Fund.

The valuations are based on the draft financial statements as at 31 December 2017 as well as asset value as at 31 December 2018 provided by PSPB, along with cash flow and other supplemental asset information. The assets are held in trust by CIBC Mellon.



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**11. Pensions (continued)**

The Fund currently has investment policy with a target asset mix of 80% equities and 20% bonds. As at 31 December 2018, the Fund was invested as follows:

Plan Assets by Asset Category	2018		2016/17 (18 months)	
	(\$000)	Percentage	(\$000)	Percentage
Global equities securities	523,688	79%	547,500	80%
Debt securities	134,985	20%	129,083	19%
Real estate / Infrastructure	-	-	-	-
Cash	5,056	1%	9,000	1%
Total	663,729	100%	685,583	100%

For fiscal 2018, the Defined Contribution portion of the Fund totaled to \$361,761,700 and \$303,457,800 as at 31 December 2017 as provided by PSPB. The share of the Fund that has been notionally allocated to NRA with regards to its participation in the Defined Benefit Part of the Plan is \$3.847 million as at 31 December 2018 (2017 \$3.979 million).

*The Actuarial Assumptions*

The actuarial assumptions have been approved by the Financial Secretary, the main sponsor of the Plan. The principal financial and demographic assumptions used at 31 December 2018 and 31 December 2017 are shown in the table below. The assumptions as at the reporting date are used to determine the present value of the benefit obligation at that date and the pension expense for the period.

**Turnover Rates at sample ages:**

Age	Males	Females
20	7.5%	12.5%
25	5.0%	12.5%
30	3.5%	7.5%
35	2.5%	4.5%
40	1.5%	2.5%
45	0.5%	5.0%
50	0.0%	0.0%

**Retirement Rates:**

Age	%
Below 55	0%
55-59	8%
60	60%
61-64	8%
65	100%

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**11. Pensions (continued)**

<b>Measurement Date</b>	<b>2018</b>	<b>2016/17 (18 months)</b>
Discount rate		
- BOY disclosure and current year expense	3.80%	4.00%
- EOY disclosure	4.50%	3.80%
- Following year current service cost	4.55%	3.85%
- Rate used to determine interest on defined benefit obligation and plan assets for following year expenses	4.20%	3.50%
- Rate used to determine interest on current service cost for following year expenses	4.40%	3.70%
Increases in pensionable earnings	2.50%	2.50%
Rate of Pension Increases	2.00%	2.00%
Mortality		
BOY disclosure and current year expense	RP-2014 generationally projected using Scale MP-2014, then generationally projected from 2006 using Scale MP – 2016.	RP-2014 generationally projected using Scale MP-2014
EOY disclosure and following year expense	RP-2014 scaled back to 2006 using Scale MP-2014, then generationally projected using Scale MP-2018	RP-2014 scaled back to 2006 using Scale MP-2014, then generationally projected using Scale MP-2016
Disability	None	None
Turnover Rates	See turnover rates in table above	See turnover rates in table above
Retirement	See retirement rates in table above	See retirement rates in table above
Assumed life expectations on retirement	Retiring today (member age 57) 28.80 Retiring in 25 years (at age 57): 31.08	Retiring today (member age 57) 29.13 Retiring in 25 years (at age 57): 31.42
Liability Cost Method	Projected unit credit method	Projected unit credit method

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**11. Pensions (continued)**

<b>Measurement Date</b>	<b>2018</b>	<b>2016/17 (18 months)</b>
Asset Value Method	Market Value of Assets	Market Value of Assets
Commutation of pension	All members commute 25% at retirement	All members commute 25% at retirement

There have been no changes in actuarial assumptions since the prior valuation other than the changes to the principal assumptions shown in the table above.

**12. Defined benefit liability: Post-retirement health liability**

The National Roads Authority provides health care benefits to staff members that transferred from Public Works Department in accordance to the NRA law. The benefit is in the form of continuation of their health insurance coverage on the medical plan in force for active employees. The premiums for this health insurance coverage are paid for by the National Roads Authority for all eligible retirees until the end of their lives. This coverage falls within the definition of a defined benefit by the International Public Sector Accounting Standards and as such represents a future liability of the National Roads Authority. The National Roads Authority is required to use the actuarial valuation method to determine the present value of its health insurance benefit obligations for its former workers as well as future retirees and the related current service costs. International Public Sector Accounting Standards IPSAS 25 directs that funded or unfunded post-employment benefits must be recognized in the statement of financial position (in the case of net defined liability or asset) and the statement of financial performance (for the annual expense).

These actuarial valuations use several financial and demographic assumptions to determine the liability and current expense of the benefits which will be honoured on behalf of the retirees. Financial assumptions include, the discount rate, estimated future costs of the medical premiums, and the claims rate for the medical plans. Demographic assumptions include estimated mortality and benefits levels.

The Authority commissioned Mercer actuaries of Canada to provide this service and the results of their assessment are included hereunder. The National Roads Authority has a present value net defined benefit obligation of \$15,545,000 at the end of the financial year 31 December 2018 (2017: \$16,510,000). The details of the valuation and the assumptions used are reproduced hereunder in accordance with IPSAS 25.

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**12. Defined benefit liability: Post-retirement health liability (continued)**

The Board of Directors resolved to fund the post-retirement health liability with \$375,000 in 2016/17 and \$1,500,000 in 2018. NRA holds the funds approved by the Board in a term deposit account held with RBC Royal Bank (Cayman Islands). The funds held in the term deposit account do not qualify as a "Plan Asset" as defined by IPSAS 39, Employee Benefits, and therefore have not been offset against the year-end post-retirement health liability of \$15,545,000. Continued steps will need to be taken by the NRA to address this obligation in the coming years.

Plan Name Financial year/ period ending on:	National Roads Authority	
	31 Dec 2018	31 Dec 2017
	\$	\$
<i>Currency Information</i>		
1. Local currency		
2. Reporting currency		
<b>A. Change in defined benefit obligation</b>		
1. Defined benefit obligation at end of prior year	16,510,000	15,039,000
2. Service cost		
a. Current service cost	1,347,000	1,922,000
b. Past service cost	-	-
c. (Gain) / loss on settlements	-	-
3. Interest expense	601,000	843,000
4. Cash flows		
a. Benefit payments from plan assets	-	-
d. Benefit payments from employer	(78,000)	(61,000)
5. Other significant events		
6. Remeasurements		
a. Effect of changes in demographic assumptions	(155,000)	(2,196,000)
b. Effect of changes in financial assumptions	(2,713,000)	796,000
c. Effect of experience adjustments	33,000	167,000
7. Effect of changes in Foreign exchange rates	-	-
8. Defined benefit obligation at the end of year	<b>15,545,000</b>	<b>16,510,000</b>

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**12. Defined benefit liability: Post-retirement health liability (continued)**

Plan Name	National Roads Authority	
	31 Dec 2018	31 Dec 2017
Financial year/ period ending on:	\$	\$
<b>B. Change in fair value of plan assets</b>		
1. Fair value of plan assets at end of prior year	-	-
2. Interest income	-	-
3. Cash flows		
a. Total employer contributions		
i. Employer contributions	-	-
ii. Employer direct benefit payments	78,000	61,000
iii. Employer direct settlement payments	-	-
b. Participant contributions	-	-
c. Benefit payments from plan assets	-	-
d. Benefit payments from employers	(78,000)	(61,000)
e. Settlement payments from plan assets	-	-
f. Settlement payments from employer	-	-
g. Administrative expenses paid from plan assets	-	-
h. Taxes paid from plan assets	-	-
i. Insurance premiums for risk benefits	-	-
4. Other significant events	-	-
a. Increase / (decrease) due to effect of any business combinations/ divestures or transfers	-	-
b. Increase / (decrease) due to plan combinations	-	-
5. Remeasurements	-	-
a. Return on plan assets (excluding interest income)	-	-
6. Effect of change in foreign exchange rates	-	-
7. Fair Value of plan assets at end of year	-	-
<b>C. Amounts recognized in the statement of financial position</b>		
1. Defined benefit obligation	15,545,000	16,510,000
2. Fair value of plan assets	-	-
<b>3. Funded status</b>	<b>15,545,000</b>	<b>16,510,000</b>
4. Effect of asset ceiling/onerous liability	-	-
<b>5. Net defined benefit liability/(asset)</b>	<b>15,545,000</b>	<b>16,510,000</b>
<b>D. Components of defined benefit cost</b>		
1. Service cost	1,347,000	1,922,000
a. Current service cost	-	-
b. Reimbursement service cost	-	-
c. Past service cost	-	-
d. (Gain) / loss on settlements	-	-
e. Total service cost	<b>1,347,000</b>	<b>1,922,000</b>
2. Net interest cost		
a. Interest expense on Defined Benefit Obligation (DBO)	601,000	843,000
b. Interest /(income) on plan assets	-	-
c. Total net interest cost	<b>601,000</b>	<b>843,000</b>
3. Remeasurements of Other Long Term Benefits	-	-
4. Administrative expenses and/or taxes (not reserved within DBO)	-	-
5. Defined benefit cost included in Profit and Loss (P&L)	<b>1,948,000</b>	<b>2,765,000</b>

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**12. Defined benefit liability: Post-retirement health liability (continued)**

**D. Components of defined benefit cost (continued)**

Financial year/ period ending on:	31 Dec 2018	31 Dec 2017
	\$	\$
6. Remeasurements (recognized in the Statement of Changes in Net Worth (SCNW))	(155,000)	(2,196,000)
a. Effect of changes in demographic assumptions	(2,713,000)	796,000
b. Effect of changes in financial assumptions	33,000	167,000
c. Effect of experience adjustments	<u>(2,835,000)</u>	<u>(1,233,000)</u>
d. Total remeasurement included in the Statement of Changes in Net Worth		
7. Total defined benefit cost recognized in the P&L and SCNW	<u>(887,000)</u>	<u>1,532,000</u>

**E. Net defined benefit liability/(asset) reconciliation**

1. Net defined benefit liability/(asset)	16,510,000	15,039,000
2. Defined benefit cost included in Profit & Loss	1,948,000	2,765,000
3. Total remeasurement included in the Statement of Changes in Net Worth	(2,835,000)	(1,233,000)
4. Other significant events	-	-
a. Net transfer in/(out) (including the effect of any business combinations/divestitures)	-	-
b. Amounts recognized due to plan combinations	-	-
5. Cash Flows	-	-
a. Employer contributions	-	-
b. Employer direct benefit payments	-	-
c. Employer direct settlements payments	(78,000)	(61,000)
6. Credit to reimbursements	-	-
7. Effect of changes in Foreign exchange rates	-	-
8. Net defined benefit liability/(asset) as of end of year	<u>15,545,000</u>	<u>16,510,000</u>

**F. Define benefit obligation**

1. Defined benefit obligation by participant status		
a. Actives	14,364,000	15,357,000
b. Vested deferred	-	-
c. Retirees	<u>1,181,000</u>	<u>1,153,000</u>
d. Total	<u>15,545,000</u>	<u>16,510,000</u>

**G. Significant actuarial assumptions**

*Weighted-average assumptions to determine defined benefit obligations*

Effective discount rate	4.55%	3.85%
Health care cost trend rates		
Immediate trend rate	5.00%	5.00%
Ultimate trend rate	5.00%	5.00%
Year rate reaches ultimate trend rate	N/A	N/A
Post- retirement mortality assumption	RP-2014	RP-2014
	Projected w/MP-2018	Projected w/MP-2016



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**12. Defined benefit: Post-retirement health (continued)**

Plan Name	National Roads Authority	
Financial year/ period ending on:	31 Dec 2018	31 Dec 2017
<i>Weighted-average assumptions to determine defined benefit cost</i>		
Effective discount rate for defined benefit obligation		
Effective rate for net interest cost	3.85%	4.05%
Effective discount rate for service cost	3.65%	3.75%
Effective rate for interest on service cost	3.90%	4.20%
Health care cost trend rates	3.85%	4.24%
Immediate trend rate	5.00%	5.00%
Ultimate trend rate	5.00%	5.00%
Year rate reaches ultimate trend rate	N/A	N/A
Post- retirement mortality assumption	RP-2014 Projected w/MP 2016	RP-2014 Projected w/ MP2014
<b>H. Sensitivity analysis</b>		
<i>Present value of defined benefit obligations</i>		
Effective Discount rate - 25 basis points	953,000	1,069,000
Effective Discount rate + 25 basis points	(882,000)	(988,000)
Health care cost trend rates – 100 basis points	(3,153,000)	(3,478,000)
Health care cost trend rates + 100 basis points	4,186,000	4,656,000
Mortality assumption + 1 year life expectancy	(665,000)	(751,000)
<b>I. Expected cash flows for following year</b>		
a. Expected employer contributions	116,000	101,000
b. Expected contributions to reimbursement rights		-
c. Expected total benefit payments		
Year 1	116,000	101,000
Year 2	145,000	116,000
Year 3	176,000	145,000
Year 4	209,000	176,000
Year 5	244,000	209,000
Next 5 years	1,868,000	1,642,000

Proposed Assumptions as at 31 December 2018 and 31 Dec 2017.

Economic Assumptions	Postretirement Healthcare	Basis of Development – Accounting Specific Assumptions
Discount rate for benefit obligations (p.a)		IAS 19 para. 83 determined by reference to market yields on high quality corporate bonds (consistent with the term of the benefit obligations) at the fiscal year end date. Mercer US Above Mean Yield Curve (referencing US corporate bonds yields) used to determine discount rates due to strong economic and currency links between the US and Cayman Islands.
- 31 December 2017	3.85% per annum	
- 31 December 2018	4.55% per annum	
Discount rate for following year's service cost (p.a.)		
- 31 December 2017	3.90% per annum	
- 31 December 2018	4.60% per annum	
Administrative expenses	Included in projected premiums	
Rate of Medical Inflation (p.a)	5.00%	Based on an analysis of historical claims information and long-term medical inflation expectations.

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**12. Defined benefit: Post-retirement health (continued)**

Demographic Assumptions	Postretirement Healthcare	Basis of Development – Accounting Specific Assumptions
Current mortality rates 31 December 2017 31 December 2018	RP-2014 RP-2014 Mortality Table scaled back to 2006 using MP-2014	Recent mortality studies in the U.S. and Canada shows that people are living longer. New mortality tables have been issued by U.S. and Canada. The mortality table has been updated to better reflect actual mortality improvement rates experienced in the US over the last 20 years.
Mortality improvements 31 December 2017 31 December 2018	Scale MP-2016 Scale MP-2018	Broad consensus amongst longevity experts that mortality improvement will continue in the future. Scale MP – 2014 was released October 2014. In the U.S, the latest future mortality improvement scale issued by the Society of Actuaries is Scale MP-2018,. The prior valuation used scale MP-2016.
Turnover rates	Age & gender based rates – see below	
Disability rates	None	
Retirement Age as per Public Service Pension Plan	Age 50 with 10 years of service	Pensionable age in the Cayman Islands
Material assumption	80% married, wife 3 years younger	
Current healthcare claims cost assumption for 31 December 2017 benefit obligation and fiscal 2018 expense	Based on CIG 2015/16 premium rates Health \$9,500 per participant Dental \$1,100 per participant	The National Roads Authority provides 100% coverage for employees, spouses and dependants and also retires and retires spouses' premiums.
Healthcare coverage – future pensioners	Male 27% single, 73% family Female 50% single, 50% family	Based on CIG experience
Healthcare utilization changes due to age	Mercer standard healthcare aging assumptions for medical and dental	Based on analysis of healthcare utilization for Mercer clients in Canada and US and by reference to Society of Actuaries studies.

Proposed assumptions as at 31 Dec 2017 and 31 December 2018

**Turnover Rates**

Turnover rates at sample ages

Age	Males	Females
20-24	7.5%	12.5%
25-29	5.0%	12.5%
30-34	3.5%	7.5%
35-39	2.5%	4.5%
40-44	1.5%	2.5%
45-49	0.5%	0.5%
50 +	0.0%	0.0%

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**13. Accounting for defined benefit post-retirement health liability**

The actuarial valuation results showed that a liability of \$15,545,000 existed at 31 December 2018, represented by accumulated liability of \$16,510,000 as at 31 December 2017 and service costs and adjustments totaling (\$965,000) for the year ended 31 December 2018, resulting in a closing liability of \$15,545,000 at 31 December 2018.

**14. Related Party Transactions**

The Authority provided Services to Road Users on behalf of the Government relating to the development and maintenance of the public roads within the Cayman Islands funded through the Roads Fund which amounts to \$10 million under the Ownership Agreement (2016/17, 18 months: \$15 million). During this year, the Authority also delivered Capital Expenditure Projects of \$5.3 million to the Government for the construction of roads under the Ownership Agreement. The Authority also engages the services of other government departments of the Cayman Islands Government.

Sales to unrelated third parties (\$64,312) include services for drain wells and curbs, installation of signs, paving and trench reinstatement services.

	<b>2018</b>	<b>2016/17</b>
	<b>\$</b>	<b>(18 months)</b>
	<b>\$</b>	<b>\$</b>
Sales of services to Cabinet	5,285,730	7,506,994
Sales of services to other government agencies	437,792	330,427
Roads Fund and sales to third parties	10,064,312	15,392,521
<b>Total</b>	<b>15,787,834</b>	<b>23,229,942</b>

Upon creation of the Authority on 1 July 2004, no movable properties were vested to the Authority. Henceforth, the Public Works Department (PWD) allowed the Authority to use its vehicles and heavy equipment for road construction and maintenance free of charge. As at 31 December 2018, the Authority owes PWD the amount of \$ 14k (2016/17: \$13k) for support services extended to the latter such as office and workshop accommodation, tenant's requirements, utilities, accounting services, service parking and compound security.

During the year, the Authority purchases goods and services worth \$39k from companies partially owned or controlled by one of its Board members.

The remuneration of directors and other members of key management personnel during the year was \$1.2 million (2017: \$969k). There were 14 personnel categorized in 2018 broken down as 5 key management personnel and 9 Directors (2017: 5 key management personnel and 9 Directors).

In April 2018 the Managing Director, who is categorized as one of the 5 key management personnel, was suspended from his duties to facilitate an internal investigation regarding allegations brought against him. The Deputy Managing Director assumed the role of Managing Director effective 24 April, 2018. Subsequently as a result of an investigation by the Board of Directors, the Managing Director's employment contract with the Authority was terminated on 31<sup>st</sup> October, 2018.

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## **15. Contingencies**

Under section 28(1) of the NRA Law an annual payment to the core government may be due. At the date of these financial statements there has been no request made.

The Authority is required to comply with The Public Authorities Law, 2017, (the “PAL”). Amongst other matters, the PAL requires that where a public authority has surplus cash reserves for a period of more than ninety days, the surplus shall be paid to core government unless otherwise directed by Cabinet, after written consultation with the Board. The PAL also requires that a public authority pay dividends in accordance with the formulae established by the Minister of Finance and Economic Development (the “Ministry”) after written consultation with the Board, unless otherwise directed by Cabinet.

The Ministry has advised the Authority that it will not be required to pay a dividend out of its surplus as at 31 December 2018. Going forward, the Authority will be required to pay a dividend in accordance with Government’s policy for the payment of annual dividends by statutory authorities and Government companies unless the Authority agrees, in writing annually, with the Ministry that the Authority would be exempt from doing so under such policy.

## **16. Financial Risk Management**

The Authority is exposed to a variety of financial risks including interest rate risk, credit risk and liquidity risk. The Authority’s risk management policies are designed to identify and manage these risks, to set appropriate risk limits and controls, and to monitor the risks and adhere to limits by means of up to date and reliable information systems. These risks are managed within the parameters established by the Financial Regulations.

### *Interest Rate Risk*

The Authority is subject to interest rate risk on the cash placed with a local bank which attracts interest. No interest payments are charged to customers on late payments on accounts receivable. The Authority is exposed to interest rate risk on its short term. The total interest earned during the year ended 31 December 2018 was \$972 (2017: nil).

### *Credit Risk*

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Authority. Financial assets which potentially expose the Authority to credit risk comprise cash and cash equivalents and accounts receivable.

The Authority is exposed to potential loss that would be incurred if the counterparty to the bank balances fails to discharge its obligation to repay. All bank balances are held with one financial institution (RBC Royal Bank (Cayman Islands)) located in the Cayman Islands which management considers to be financially secure and well managed.

The Authority is also exposed to a significant concentration of credit risk in relation to accounts receivables, majority of which are due from other Government entities. No credit limits have been established and no collateral is required from the Authority’s debtors. None of these assets are impaired and management considers these debts to be recoverable in full.

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**16. Financial Risk Management (continued)**

The carrying amount of financial assets recorded in the financial statements represents the Authority's maximum exposure to credit risk.

*Liquidity Risk*

Liquidity risk is the risk that the Authority is unable to meet its payment obligations associated with its financial liabilities when they fall due. The ability of the Authority to meet its debts and obligations is dependent upon its ability to collect the debts outstanding to the Authority in a timely basis. As at 31 December 2018 and 31 Dec 2017, all of the financial liabilities were due within one month of the financial position dates.

**17. Financial Instruments- fair values**

As at 31 December 2018 and 31 Dec 2017, the carrying amount of cash deposits, accounts receivable, accounts payables and employee entitlements approximate their fair value due to their short-term maturities.

Fair values are made at specific points in time, based on market conditions and information about the financial instrument. These estimates are subjective in nature and involve uncertainties and matters of significant judgement and therefore cannot be determined with precision. Changes in assumptions, economic conditions and other factors could cause significant changes in fair value estimates.

**18. Commitments**

There are no commitments as at 31 December 2018.

**19. Events Occurring After the Reporting Date (31st December 2018)**

Management is not aware of any events after the reporting date which will have an impact on the financial statements at 31st December 2018.

**20. Restatement**

The prior year cash flow has been restated to remove non-cash items in the Statements of Financial Performance, Financial Position and Changes in Net Worth arising from the actuarial valuations for the defined benefit pension and post-retirement healthcare obligations.

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**21. Explanations of major variances against budget**

***Statement of Financial Position***

	<b>2018</b>	<b>2018 Original Budget</b>	<b>2018 Final Budget</b>	<b>Variance Original vs Actual</b>
	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
<b>ASSETS</b>				
<b>Current Assets</b>				
Cash and cash equivalents	3,912,597	3,890,516	3,890,516	(22,081)
Accounts receivable and prepayments	2,200,053	790,522	790,522	(1,409,531)
Inventories	95,160	65,950	65,950	(29,210)
<b>Total Current Assets</b>	<b>6,207,810</b>	<b>4,746,988</b>	<b>4,746,988</b>	<b>(1,460,822)</b>
<b>Non-Current Assets</b>				
Property, plant and equipment	2,658,220	2,583,657	2,583,657	(74,563)
<b>Total Assets</b>	<b>8,866,030</b>	<b>7,330,645</b>	<b>7,330,645</b>	<b>(1,535,385)</b>
<b>LIABILITIES AND EQUITY</b>				
<b>Current Liabilities</b>				
Accounts payable and accrued liabilities	1,252,609	863,176	863,176	(389,433)
Employee entitlements	64,603	50,486	50,486	(14,117)
<b>Total Current Liabilities</b>	<b>1,317,212</b>	<b>913,662</b>	<b>913,662</b>	<b>(403,550)</b>
<b>Non-Current Liability</b>				
Pension liability	912,000	3,629,990	3,629,990	2,717,990
Post-retirement health liability	15,545,000	17,664,000	17,664,000	2,119,000
<b>Total Non Current Liabilities</b>	<b>16,457,000</b>	<b>21,293,990</b>	<b>21,293,990</b>	<b>4,836,990</b>
<b>Total Liabilities</b>	<b>17,774,212</b>	<b>22,207,652</b>	<b>22,207,652</b>	<b>4,433,440</b>
<b>Net Assets</b>	<b>(8,908,182)</b>	<b>(14,877,007)</b>	<b>(14,877,007)</b>	<b>(5,968,825)</b>
<b>Net Worth</b>				
Contributed capital	4,653,535	4,541,535	4,653,535	(112,000)
Accumulated Deficits	(13,561,717)	(19,418,542)	(19,530,542)	(5,856,825)
<b>Total Net Worth</b>	<b>(8,908,182)</b>	<b>(14,877,007)</b>	<b>(14,877,007)</b>	<b>(5,968,825)</b>



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**21. Explanations of major variances against budget (continued)**

**Statement of Financial Position**

**Accounts receivable and prepayments**

The \$1.4 million variance in the actual Accounts Receivable when compared to the budget directly relates to non-budgeted billings to the Ministry of Commerce, Planning and Infrastructure (CPI) as a result of CPI's directives to complete Executive Assets (EA) works fully paid by the CPI beyond the scope of NRA's 12 month fiscal budget. The related invoices were settled timely in 2019.

**Property, plant and equipment**

Property Plant and Equipment was \$75k or 3% over the budget resulting from Board of Directors approval of the need to upgrade/acquire equipment. This decision was made subsequent to Budget preparation.

**Accounts payable and accrued liabilities**

Accounts payable were \$389k over budget primarily due to balances of payments on goods and services delivered near year end resulting from late works performed behalf of CPI. These payments to primary vendors have been settled in unison with payment receipts from CPI subsequently.

**Pension liability**

Pension liability experienced a positive shift based on changes in actuarial report assumptions resulting in a decrease of \$2.7M when compared to budget. This movement relates to OCI activity which deviated from previous trend.

**Post-retirement health liability**

Post-retirement health liability experienced a positive shift based on changes in actuarial report assumptions resulting in a decrease of \$2.1M when compared to the budget. This positive movement was driven by remeasurements recognized in OCI.

**Net worth**

On 5 December 2018, the Cabinet of Ministers authorized a reallocation of \$112k from the Ministry of Commerce, Planning and Infrastructure to the Authority as an equity injection to fund a 5% cost of living adjustment to the Authority's employee salaries. The equity investment was approved under section 11 (5) of the Public Management and Finance Law (2018 Revision). A supplementary Appropriation Bill with the proposed changes has not been introduced in the Legislative Assembly at the date the financial statements were authorized for issuance.

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**21. Explanations of major variances against budget (continued)**

***Statement of Financial Performance***

	<b>2018</b>	<b>2018 Original Budget</b>	<b>2018 Final Budget</b>	<b>Variance Original vs Actual</b>
	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
<b>REVENUE</b>	<b>15,787,834</b>	<b>10,320,184</b>	<b>10,320,184</b>	<b>(5,467,650)</b>
<b>COST OF GOODS SOLD</b>				
Subcontractors	4,008,034	900,311	900,311	(3,107,723)
Materials	1,516,264	948,530	948,530	(567,734)
Labour	2,328,871	2,260,904	2,260,904	(67,967)
Hired equipment	-	18,654	18,654	18,654
<b>Total Cost of Sales</b>	<b>7,853,169</b>	<b>4,128,399</b>	<b>4,128,399</b>	<b>(3,724,770)</b>
<b>NET REVENUE</b>	<b>7,934,665</b>	<b>6,191,785</b>	<b>6,191,785</b>	<b>(1,742,880)</b>
<b>OPERATING EXPENSES</b>				
Personnel costs	3,757,283	3,590,149	3,702,149	(167,134)
Post- retirement health liability	1,869,028	1,199,000	1,199,000	(670,028)
Utilities	1,224,110	1,210,000	1,210,000	(14,110)
Motor vehicle expenses (including insurance)	610,963	463,105	463,105	(147,858)
Depreciation	557,771	568,026	568,026	10,255
Past service pension	255,000	301,000	301,000	46,000
Computer maintenance and fees	95,682	110,000	110,000	14,318
Professional fees	142,427	105,000	105,000	(37,427)
Building maintenance	61,015	59,500	59,500	(1,515)
Telephone	38,166	38,000	38,000	(166)
Supplies and consumables	29,211	35,850	35,850	6,639
Advertising and promotion	11,243	27,500	27,500	16,257
Bank charges	8,863	15,600	15,600	6,737
Insurance	8,585	16,580	16,580	7,995
Travel & Subsistence	-	20,000	20,000	20,000
<b>Total Operating Expenses</b>	<b>8,669,347</b>	<b>7,759,310</b>	<b>7,871,310</b>	<b>(910,037)</b>
<b>DEFICIT</b>	<b>(734,682)</b>	<b>(1,567,525)</b>	<b>(1,679,525)</b>	<b>(832,843)</b>

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**21. Explanations of major variances against budget (continued)**

Several categories were presented in summary within the Ownership Agreement whilst being presented in detailed form by NRA in their Financial Statements and throughout the course of the year. The ownership agreement figures shown below represent the budget actually approved by the Legislative Assembly, compared with the detailed Financial Statement figures. Note however the total Revenue and Expenses remained the same in both formats.

**Reconciliation of Ownership Agreement and the Statement of Financial Performance**

	<b>2018 Approved Budget</b>	<b>Financial Statements 2018</b>
	<b>\$</b>	<b>\$</b>
<b>REVENUE</b>	<b>10,320,184</b>	<b>10,320,184</b>
<b>COST OF GOODS SOLD</b>		
Labour	-	900,311
Materials	-	948,530
Subcontractors	-	2,260,904
Hired equipment	-	18,654
<b>Total Cost of Sales</b>	<b>-</b>	<b>4,128,399</b>
<b>NET REVENUE</b>	<b>10,320,184</b>	<b>6,191,785</b>
<b>OPERATING EXPENSES</b>		
Personnel costs	5,851,053	3,590,149
Post- retirement health liability	1,199,000	1,199,000
Utilities	-	1,210,000
Motor vehicle expenses (including insurance)	-	463,105
Depreciation	568,026	568,026
Past service pension	301,000	301,000
Computer maintenance and fees	-	110,000
Professional fees	-	105,000
Building maintenance	-	59,500
Telephone	-	38,000
Advertising and promotion	-	27,500
Bank charges	-	15,600
Insurance	-	16,580
Travel & Subsistence	-	20,000
Supplies and consumables	3,968,630	35,850
<b>Total Operating Expenses</b>	<b>11,887,709</b>	<b>7,759,310</b>
<b>SURPLUS/ (DEFICIT)</b>	<b>(1,567,525)</b>	<b>(1,567,525)</b>

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**21. Explanations of major variances against budget (continued)**

**Statement of Financial Performance**

**Revenue**

Revenue saw a positive variance of \$5.4 million when compared to budget, the primary drivers being \$5.3 million executive asset works which were completed on the directive of the Ministry of Commerce, Planning and Infrastructure and \$152k in works performed on behalf of the Cayman Islands Airports Authority. These projects were not included in initial budgeted road works.

**Cost of Sales**

The \$3.7 million budget variance in cost of sales is primarily driven by costs incurred in completing the additional works as detailed in the revenue section above.

**Personnel costs**

The \$167k budget variance in personnel costs is mainly attributed to a cost of living adjustment to salaries/ wages awarded to all employees effective 1 July 2018.

Post-retirement healthcare liability and the defined benefit pension were based on estimates of the defined benefit cost to be charged to the income statement in 2018 hence the budget variances of \$670k and \$46k respectively.

Motor vehicles were higher than budget by \$148k due to additional fuel and maintenance expenses related to additional works performed over and above the budget (as highlighted in the revenue section above).