

Strategic Assessment for Department of Vehicle and Equipment Services

Title: *PSI01 - Exploring ways to improve efficiency and effectiveness of Light Vehicle Maintenance*

Prepared by: Richard Simms, Director DVES

Project Sponsor: Alan Jones, Chief Officer Ministry PLAHI

This Strategic Assessment has been developed using the template for the Project Future “Conceptualisation Phase”.

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All documents developed based on this template should include an appropriate acknowledgement. For further information please contact:

- Mary Rodrigues, Chief Advisor, Strategic Reforms (mary.rodrigues@gov.ky),
- Tasha Ebanks-Garcia, Deputy Chief Advisor (tasha.ebanks-garcia@gov.ky), or
- Jay Autor, Senior Advisor (jay.autor@gov.ky).

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Role	Name	Sign-Off Date
Prepared By:	Richard Simms	20-May-2016
Chief Officer:	Alan Jones	

CONTENTS

PART 1: OVERVIEW	1
1.1 Introduction.....	1
1.2 Purpose.....	1
PART 2: STRATEGIC CONTEXT	2
2.1 Organisational Overview	2
2.2 Key Drivers.....	4
2.3 Relationship to Government’s Policy Priorities.....	4
PART 3: THE CASE FOR CHANGE	5
3.1 Investment Objectives	& 9
3.2 Existing Arrangements	5 & 9
3.3 Key Business Problem(s)	6 & 10
3.4 Key Considerations 1	6 & 10
3.5 Key Constraints and External Dependencies.....	13
3.6 Conclusion	13

Title: *PSI01 - Exploring ways to improve efficiency and effectiveness of Light Vehicle Maintenance*

PART 1: OVERVIEW

1.1 Introduction

This project is concerned with the exploration of improvements to the efficiency and effectiveness of light vehicle maintenance. This service is currently carried out in-house by the Department of Vehicle and Equipment Services (DVES) on behalf of almost all other Cayman Islands Government (CIG) services.

The original proposal for this project was highlighted within the Ernst and Young Report of September 2014, (recommendation 13.1.17 – *Outsourcing and Employee Mutuals – Light Vehicle Maintenance*), and has been subsequently taken forward by Cabinet. The Ernst and Young recommendation included the exploration of the private sector providing more of the light vehicle maintenance duties currently being undertaken by the DVES.

As part of the Project Future Programme, Cabinet highlighted concerns over the current and future costs of light vehicle maintenance within DVES, as well as the quality and timeliness of services provided. The Project Definition Document (PDD) defined by Cabinet, provided the broad scope for this project, and required that investigations and analysis included the following:

- cost and quality comparisons of in-house services and outsourced solutions; and
- possible alternative means of delivering light vehicle maintenance.

The PDD determined that any strategies must seek to improve efficiency and effectiveness, reduce the size of Government where possible, and result in an increase in customer satisfaction.

1.2 Purpose

Following an analysis of the strategic issues presented by Cabinet, it has been determined that there is a persuasive case for change arising from this proposal. However, positive relevant initiatives recently introduced within DVES have achieved (and continue to achieve) the efficiencies sought by Cabinet as part of this project. Such efficiencies include:

- reductions in DVES operational costs for the maintenance of vehicles and equipment;

- achieved efficiencies in terms of reduced customer delays and Government vehicle down-time; and
- an increased use of the private sector in the light vehicle maintenance work undertaken by DVES.

The purpose of this Strategic Assessment is therefore to:-

- document the analysis undertaken; and
- recommend to Cabinet that the Department continue to work on existing improvement initiatives, outside of the Project Future Programme.

PART 2: STRATEGIC CONTEXT

2.1 Organisational Overview

Light vehicle maintenance is managed by the Department of Vehicles and Equipment Services (DVES) who fall under the Ministry of Planning, Land, Agriculture, Housing and Infrastructure (PLAH&I).

Department of Vehicles and Equipment Services

DVES emanated from the former Central Funding Scheme (CFS) which was created in 1977 as an attempt to centralise the replacement and ownership of all Government owned fleet under one Department. The Department's operations have since evolved into a centralized automotive business, with a fleet management program enabling a wide range of services to be provided to Government. In essence, vehicle maintenance/repair is a core DVES function for Government vehicles and equipment.

The key **aims/objectives** of DVES are as follows:-

- to achieve the maximum return on fleet investments (before or at the point of disposal); and
- to ensure transport and equipment are always available to conduct Government business.

The **core business functions**/activities of DVES are as follows:-

- the provision of preventative maintenance and repair to Government vehicles and equipment - including light duty vehicles such as cars and trucks, as well as heavy equipment such as garbage trucks, loaders and excavators;
- the sale and distribution of fuel to Government/Statutory Authority fleets;

- the provision of research and technical advice on vehicles and equipment to Government (including ‘fit-for-purpose - operational conditions’, maintenance requirements and training);
- the provision of assistance to Government with the acquisition/procurement and disposal of Government vehicles and equipment; and
- the provision of a disposal service for Department of Government vehicles and equipment.

The core activities of DVES are managed and operated by qualified ‘in-house’ experts. Only exceptionally technical jobs that cannot be done within the Department are outsourced to the private sector (e.g. body works), however, increasingly the repair and maintenance services of newly purchased light duty vehicles are being delivered through inclusive four (4) year private packages.

There are approximately registered 973 units currently maintained by DVES, 793 in Grand Cayman, 143 in Cayman Brac and 37 in Little Cayman. Of these units,

- 648 are light duty vehicles maintained by DVES;
- 197 are heavy duty vehicles maintained by DVES;
- 128 are heavy pieces of equipment maintained by DVES.

DVES operates in a variety of work **environments**. These include:

- extreme noise levels produced by vehicles, workshop tools and heavy equipment engines;
- exposure to dust, heat and unpleasant odour from refuse collection units, gas and diesel fumes;
- daily use of electricity, compressed air/gas and specialized tools all contributing to a potentially dangerous and hazardous work environment requiring careful consideration of health and safety;
- periodic flooding to the compound and parking areas due to rain; and
- road side service calls when vehicles are broken down. This may occur during difficult weather conditions, unsociable hours, and at awkward locations that can be dangerous (oil spills, hurricanes etc).

The **staffing and budgetary arrangements** within DVES are as follows:

- thirty six (36) full time employees as at 29th April 2016;
- CI\$5m annual budget (approximate);
- managed by a Director and Deputy Director who are responsible for the strategy and management of operations. The Fleet Manager, Shop Supervisor and 20 Mechanics are

responsible for the necessary repair and maintenance of Government vehicles, equipment and emergency generators - split between light, medium and heavy vehicles;

- supported by a Finance and Administration section, that are responsible for all financial reporting, customer billing and purchasing; and a Support Services section, service scheduling, work order processing and customer follow up.

2.2 Key Drivers

The key drivers of this project are:

External Drivers

The key external driver is the Ernst and Young Report of September 2014, recommendation 13.1.17. It was proposed that a project to investigate improvements to the efficiency and effectiveness of light vehicle maintenance at DVES be undertaken. Cabinet subsequently incorporated this project into the Project Future Programme.

2.3 Relationship to Government's Policy Priorities

The on-going strategic issues which relate to this project include:

- existing approaches (both at the Department and Ministry level) looking to reduce the volume and increase the efficiency of DVES repairs/maintenance work, resulting in financial savings and enhanced customer satisfaction. For example, the *CIG Vehicle Standardization, Procurement and Use Policy* was introduced in 2014, and this now ensures that new Government vehicles are purchased with a minimum of four (4) years maintenance package from the private sector vendor (thereby reducing DVES maintenance responsibilities and cost). This policy is described in more detail later in this Strategic Assessment; and
- the high-level investment objectives approved by Cabinet for this project:
 - (a) *Improve the efficiency and effectiveness of Government operations (by reducing costs of maintenance);*
 - (b) *Reduce the size of Government and increase business start-ups and support growth (if alternative providers are utilised);*
 - (c) *Increase customer satisfaction with public services (by reducing service problems associated with the unavailability of vehicles).*

PART 3: THE CASE FOR CHANGE

- 3.1. Investment Objectives
- 3.2. Existing Arrangements
- 3.3. Key Business Problems
- 3.4. Key Considerations

3.1. Investment Objective 1

Reduce the DVES annual costs for maintenance & repair by 10% by the end of 2016/7 financial year.

3.2. Existing Arrangements

Annual costs - monies spent on the maintenance and repair of Government vehicles and equipment broken into Labour Costs, Parts Costs and Operational Costs (spending on the purchase of external services). Up to the end of February 2016, annual costs were CI\$945,257.24 as shown in Table 1 below.

Table 1 – Annual Costs for Repairs/Maintenance from 2010 until the end February 2016 (CI\$).

Cost	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16 (to end of Feb)
Labour	\$1,012,526.25	\$810,994.25	\$505,402.70	\$531,234	\$357,280	\$243,278.75
Parts	\$1,417,611.95	\$1,548,750.44	\$1,149,547.48	\$1,100,294.86	\$780,167.11	\$539,612.49
Operational	\$236,334.58	\$1,024,133.43*	\$496,521.76	\$322,974.91	\$305,277.23	\$162,366
GRAND TOTAL	\$2,666,472.58	\$3,383,878.12	\$2,151,471.94	\$1,954,503.77	\$1,442,724.34	\$945,257.24**

* 2011/12 Operational costs demonstrate a proportionately high amount as DVES were maintaining a high number of old and dilapidated vehicles that needed replacing.

** It is estimated that the total annual costs at the end of the 2015/6 financial year will be as follows:

2015/16
\$263,000
\$583,000
\$195,000
\$1,041,000

It is estimated that the annual cost reductions shown above, reflect a reduction in the DVES repairs and maintenance services as shown in the table below.

Table 2 – Annual Repair/Maintenance Jobs from 2010 until the end of February 2016

Repair/ Maintenance	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16 (to end of Feb)*
Equipment	3220	3508	2547	2417	1796	1030
Light Duty Vehicles	2649	2457	2173	2141	1537	690
Heavy Duty Vehicles	336	1051	374	276	259	340
GRAND TOTAL	6205	7016	5094	4834	3592	2060

* It is estimated that the total annual jobs at the end of the 2015/6 financial year will be as follows:

2015/16
1110
745
368
2223

Despite the already reducing annual costs within DVES, it is recognised that further enhancements to DVES efficiencies could be realised in order to ensure further annual cost reductions. Such efficiencies could be made through:

- a) replacing older vehicles in the fleet (which require more DVES maintenance/repair);*
- b) avoiding mixed vehicle manufacturers within the fleet (which requires more/different parts and specialised maintenance and equipment); and*
- c) utilising the private sector, who can provide maintenance packages with newer vehicles (meaning that private vendors would maintain and repair such vehicles rather than DVES).*

3.3. Key Business Problems

- I. **Annual Costs** require further savings/efficiencies.

3.4. Key Considerations (relevant existing on-going initiatives)

On-going initiatives within DVES have, and continue to contribute to increased efficiency of the service – reducing the annual costs for repair/maintenance.

Annual Costs – reducing

As shown in Table 1 above, it is anticipated that at the end of the 2015/16 financial year, a 27% decrease in annual costs for DVES repair/maintenance would have been achieved (from \$1,442,724.34 to \$1,041,000.00).

Existing Initiatives – Continuing to reduce annual costs

a) Replacing older vehicles in the fleet (which require more maintenance/repair)

The *CIG Vehicle Standardisation, Procurement and Use Policy* was introduced to DVES in 2014. This included a recommended vehicle life cycle of seven (7) years, in anticipation that very old vehicles would not be retained - and thus reduce the Departmental annual costs of repair and maintenance within DVES. In addition, a *Disposal of Government Vehicles and Equipment Guide* has been introduced into the Department. Although introduced as a procedural guide, this has contributed to the reduction/retention of dilapidated vehicles and equipment.

It is estimated that these measures have, and will continue to reduce the age of the Government fleet, and thus contribute to the reduction of the DVES cost of repair/maintenance of such vehicles.

Table 3 – Older and Newer Vehicles within the Government Fleet

Unit Location	Vehicles Older than 7 Years (2012)	Vehicles Older than 7 years (2016)	Vehicles Newer than 7 years (2012)	Vehicles Newer than 7 years (2016)
Grand Cayman	437	356	403	425
Cayman Brac	118	71	54	83
Little Cayman	32	14	13	24
GRAND TOTAL	587	441	470	532

Table 3a – Current and Estimated Disposal of Older Vehicles

Older Vehicles Disposed of between 2014-16	Estimated Number of Older Vehicles being Disposed of per year
110	50

b) Avoiding mixed vehicle manufacturers within the fleet (which require more/different parts and specialised maintenance)

The *CIG Vehicle Standardisation, Procurement and Use Policy (2014)* also introduced vehicle standardisation to the Government fleet – with the fleet focusing on Chevrolet, Ford and Toyota vehicles. This has, and continues to help ensure that there are fewer makes and models within the Government fleet - thereby making parts more affordable, repairs/maintenance more manageable, and the work needed more in accordance with in-house skills and expertise. It is estimated that this approach has, and will continue to reduce the costs of vehicle parts and thus annual costs for repair and maintenance.

Table 4 – Government Fleet – Chevrolet, Ford and Toyota

Make	2011	2012	2013	2014	2015	2016
Chevrolet	70	87	88	85	78	82
Ford	203	210	178	227	250	238
Toyota	73	74	76	77	101	111

Table 4a – Cost of Parts from 2014 – 2016 (extract from Table 1)

Cost	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16 (to end of Feb)
Parts	\$1,417,611.95	\$1,548,750.44	\$1,149,547.48	\$1,100,294.86	\$780,167.11	\$539,612.49

c) Utilising the private sector maintenance packages with newer vehicle purchases (meaning that private vendors would maintain and repair such vehicles under warranty)

The *CIG Vehicle Standardisation, Procurement and Use Policy (2014)* also made it compulsory for the purchase of new Government vehicles to include maintenance packages for a minimum of four (4) years. This means that a private sector vendor will be responsible for the repair and maintenance of such new vehicles for this time, reducing the demand for DVES repair/maintenance services, and reducing overall operational costs.

Table 5 – New Vehicles Replacing Old Vehicles from 2014 (*CIG Vehicle Standardisation, Procurement and Use Policy*)

Unit Location	New Vehicles Added in 2014	New Vehicles Added in 2015	New Vehicles Added in 2016	Fleet Total
Grand Cayman	65	76	53	793
Cayman Brac	1	0	1	143
Little Cayman	0	0	0	37
GRAND TOTAL	66	76	54	973

Each new vehicle purchased comes with a four (4) year maintenance package.

The intention is to ensure that all future vehicle purchases falls in line with the current workable policy – meaning that all remaining vehicle replacements are covered by this four (4) year maintenance package. **It is anticipated that by 2020, all vehicles have a maintenance packaged provided by the private sector.**

3.1. Investment Objective 2

Reduce customer delays and vehicle down-time within light vehicle maintenance and repair by 15% by the end of the 2016/17 financial year.

3.2. Existing Arrangements

Repair & Maintenance

Light duty vehicles are currently being serviced and repaired by trained staff within the DVES. One key aim of DVES is the preventative maintenance and repair of all Government owned vehicles and equipment. This includes cars, trucks, and heavy equipment such as garbage trucks, loaders, excavators etc. The Fleet Manager, Shop Supervisor and 20 Mechanics are responsible for repairs and maintenance of Government vehicles, equipment and emergency generators, split between light, medium and heavy vehicles.

Since 2009, DVES has reduced its technical staff by 11, meaning that a number of staff have been trained and developed to undertake 'dual roles'. Light duty vehicles currently equate to approximately 70% of the repairs and maintenance.

In order to maintain and repair light duty vehicles, DVES staff follows an establish checklist, which involves work planning, purchasing and controlling of parts, personnel management and quality control. DVES has a reactive role in repairing and maintaining light duty vehicles (breakdown or corrective maintenance), and a proactive role (routine/scheduled servicing, periodic inspections, preventative replacement and condition monitoring).

Environment

The current DVES facility is over 37 years old. The current DVES operations have expanded using the original site in order to facilitate current demands for services.

Customer Delays/Backlogs - reducing

Customer delays in light vehicle maintenance can result when:

- demand for reactive services (e.g. breakdown) are high;
- the cramped conditions of the facility prove unable to cater for such high demand;
- high demand is combined with a lack of available vehicles parts (e.g. parts not available on island and have to be ordered from overseas); and
- such demand is combined with a high demand for other DVES services (e.g. heavy vehicle maintenance).

Table 6 – Estimated Customer Delays – comparison between 2012 and 2016

Year	Approx. number of repair/maintenance jobs per month	Estimated Monthly Delays (total)	Estimated Number of Delays due to weather	Estimated Number of Delays due to issues with parts
2012	130	18-22	10-15	15-20
2016	130	20 Maximum	10 - 15	5 – 10

Vehicle Down-Time

This is when a Government vehicle is waiting for repair/maintenance and is therefore unavailable for use. This occurs when there are customer delays, as detailed in Table 6 above. The results of a recent customer survey by DVES also confirms that further efficiencies could still be made to reduce customer delays:

- *“Try to reduce the waiting period. The job was well done do I am happy with the job. However the waiting period was a bit long.”* Customer feedback from Q.10. of Surveymonkey research - The result can be viewed at <https://www.surveymonkey.com/results/SM-HPF7QWLS/>

Despite the existing improvements to efficiency demonstrated within DVES, it is recognised that further enhancements could be realised in order to ensure further reductions in customer delays/backlogs and vehicle down-time. Such efficiencies could be made through:

- a) replacing older vehicles in the fleet (reducing the DVES demand for repair/maintenance and potential delays/down time);*
- b) avoiding mixed vehicle manufacturers within the fleet (reducing delays/vehicle downtime by enhanced availability of vehicle parts);*
- c) utilising the private sector, who can provide maintenance packages with newer vehicles (reducing the DVES demand for repair/maintenance and potential delays/down time);*
- d) introducing procedural improvements within DVES;*
- e) introducing improvements to technological tools used within DVES;*
- f) investigating the value of the introducing a new DVES facility; and*
- g) on-going surveying of customers.*

3.3. Key Business Problems

- II. **Customer Delays/Backlogs could be further reduced/avoided.**
- III. **Vehicle Down-Time could be further reduced.**

3.4. Key Considerations (relevant existing on-going initiatives)

Existing Initiatives – Continuing to reduce customer delays/vehicle downtime

On-going initiatives within DVES have, and continue to contribute to reduced downtime, improve efficiencies and reduce the time taken to service and repair light duty vehicles – thus reducing downtime and enhancing customer satisfaction. Please refer to Table 6 above.

a) Replacing older vehicles in the fleet (which require more maintenance/repair)

The *CIG Vehicle Standardisation, Procurement and Use Policy (2014)* and the *Disposal of Government Vehicles and Equipment Guide* have already been described above.

It is estimated that these measures have, and will continue to reduce the age of the Government fleet, and thus contribute to the reduction of the DVES demand for repair/maintenance of such vehicles. The acquisition of newer Government fleet has reduced customer delays and vehicle down times, and projected to continue in the future. Please refer to Table 3a above.

b) Avoiding mixed vehicle manufacturers within the fleet (which require more/different parts)

The *CIG Vehicle Standardisation, Procurement and Use Policy (2014)* also introduced vehicle standardisation to the Government fleet which has already proved its worth. Please see Tables 4 and 4a above.

Table 6 also demonstrates how standardisation of the Government fleet has already reduced customer delays/vehicle down-time caused by lack of/difficulty in obtaining parts for repair and maintenance. It is predicted that such efficiency benefits will continue into the future.

c) Utilising the private sector maintenance packages with newer vehicles (meaning that private vendors would maintain and repair such vehicles)

The *CIG Vehicle Standardisation, Procurement and Use Policy (2014)* also made it compulsory for the purchase of new Government vehicles to include maintenance packages for a minimum of four (4) years (as described above).

Table 7 – Current and Estimated Purchase of New Vehicles within the Government Fleet

New Vehicles from 2014-16*	Estimated Number of New Vehicles per year
196	50

** All new vehicles purchased in 2014 – 2016 were purchased with maintenance packages (warranties).*

As previously described, the goal is to ensure that all future purchases falls in line with the current workable policy – meaning that all remaining vehicle replacements are covered by this four (4) year maintenance package. **It is anticipated that by 2020, all vehicles have a maintenance packaged provided by the private sector.**

d) Procedural improvements within DVES

Additional procedural improvements to reduce time and enhance efficiency/customer service have also been introduced. These include:

- the *DVES Repair Traffic Flow Policy*. This was introduced in March 2014 and it defines the required procedures that need to be followed, from the time a vehicle is checked in for repair/maintenance, until work has been completed (and the vehicle returned to the customer). This policy has ensured that there is now a 'standard' which can be measured against/monitored when determining customer satisfaction – as previously vehicles were just dropped off and left by customers, with them not knowing the procedure that followed.
- *Inventory Guide* – This guide provides assistance to DVES on how to prepare for and conduct the inventory counts. This makes the process quicker, more comprehensive and more effective.

e) Technological improvements within DVES

Additional technological tools to reduce time and enhance efficiency/customer service have also been introduced. These include:-

- *Tools to make operations more technically proficient/quicker* - DVES has introduced new diagnostic tools - snap on verus and J-Pro commercial fleet diagnostics for heavy truck and equipment. These tools assist DVES with detecting exact faults so that repairs can be completed in less time. For example, Mechanic usually takes anywhere between 30 minutes to one hour to identify none obvious faults. With this tool all that is required is that it is plugged in the computer system of the vehicle being diagnosed and it will detect its fault within seconds. The Mechanic can then proceed to repairing the issue right away once parts are available;
- *Tools to enhance proactive/preventative measures* - the use of the DVES inventory and service maintenance database - Lankar. This database now allows the Department to maintain central repair/maintenance records, keeping track of vehicle history and setting service schedules for all CIG vehicles. This has reduced undue delays in the provision of urgent reports. Lankar keeps a track of all service for CIG vehicles such as when the vehicle was last serviced, had parts replaced, the amount of money spent on it to date, and when the vehicle was next due for service. When a service is due, an email is now automatically sent to each department representative or fleet manager reminding them in advance of the schedule service.

f) Investigating the possibility of a new DVES facility

It is also a possibility that a new DVES facility will be introduced in the future - although it is recognised that this is a separate project and not part of the scope for this report. A full analysis of the possible impact that such a facility would have on delays, downtime reduction, workload and customer satisfaction can only be speculated at this time. However, potential benefits of a new DVES facility are that it might:

- create a safer working environment in which the staff (particularly Mechanics) can work - under a properly covered facility to alleviate the added heat from the sun and rainy weather. Currently, all the working bays are insufficiently covered not protecting the staff from the elements – *this will potentially reduce customer delays/vehicle down-time currently caused by the shutting of the repair/maintenance service due to poor weather conditions.*

g) On-going surveying of customers

DVES intend to continue its practice of surveying customers. As already referred to above, the Department recently conducted a customer satisfaction survey. The results show that approximately 67% of our clients are satisfied with the services. The result can be viewed at <https://www.surveymonkey.com/results/SM-HPF7QWLS/>

3.5. Key Constraints and External Dependencies

N/A

3.6. Conclusion

In relation to further efficiencies being required within DVES, there is a case for change.

Efficiency changes should focus upon the existing arrangements detailed within the Key Considerations section(s) of this Strategic Assessment – with it remaining ‘business as usual’ in terms of the Department continuing and enhancing these ongoing improvement initiatives. These efficiency changes should remain outside of the Project Future Programme, given the likely investment required to undertake an Outline Business Case for this project, outweighs the potential benefits – and given that the initiatives/methods are already in operation and beginning to achieve the required efficiencies and customer satisfaction.

