GOVERNMENT OF THE VIRGIN ISLANDS
Premier's Office

VIRGIN ISLANDS
RECOVERY AND
DEVELOPMENT AGENCY

BALLAST BAY

ROAD REHABILITATION AND SLOPE STABLISATION

EVALUATING VALUE FOR MONEY

PROJECT NUMBER: RDS.02.27.180.03

Ballast Bay Road Rehabilitation and Slope Stabilisation
Roads, Slopes and Coastal Defenses
Value for Money (VfM) Assessment Report

1) INTRODUCTION

One of the core roles of the Recovery and Development Agency (RDA) is ensuring Value for Money (VfM) in the delivery of programmes and projects aimed toward recovery and development of the Virgin Islands. Section 5(2)(c) and (d) of the Virgin Islands Recovery and Development Regulations outline the value for money mandate of the RDA, specifying that:

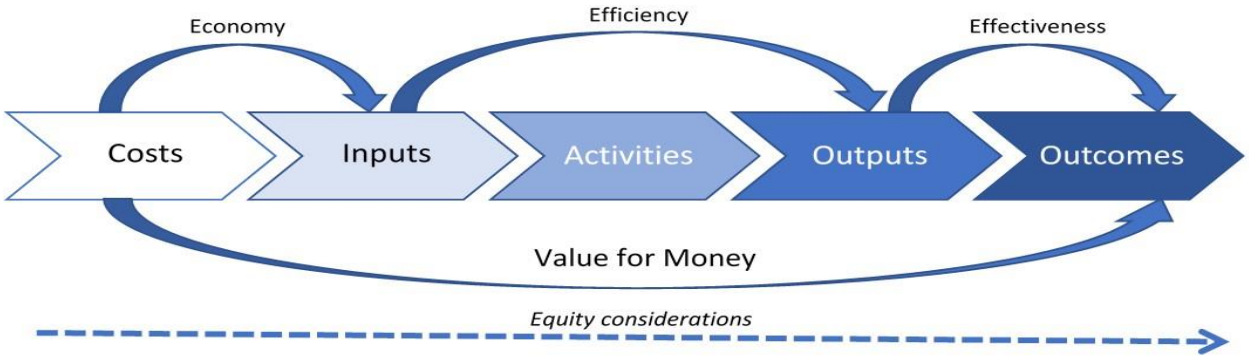
> The Agency shall be responsible for implementing the Government's Recovery and Development Plan in partnership with the Ministries and in so doing shall:
> (c) deliver the intended benefits; [and]
> (d) ensure that each project represents value for money.

To this end, the RDA has developed a Value for Money Framework and Methodology, which uses specific criteria to assess projects' Value for Money and assigns an overall VfM score for each project.

The VfM score is made up of eight indicators (listed in Table 1) within the four outlined areas of Value for Money, namely Economy, Efficiency, Effectiveness and Equity.

Table 1: Value for Money Areas within the 4Es

VALUE FOR MONEY AREA	
Economy	Economy
Efficiency	Output Cost, Output Time, Schedule
Effectiveness	Output Effectiveness, Outcome Effectiveness, Quality
Equity	Equity



This Value for Money (VfM) Assessment the Ballast Bay Road Rehabilitation and Slope Stabilisation activity which was one of eight (8) road activities implemented by the RDA under the Roads, Slopes and Coastal Defences project funded by the Caribbean Development Bank (CDB) Rehabilitation and Reconstruction Loan (RRL). This project activity involved slope stabilisation and rehabilitation works in the Ballast Bay area, which was severely damaged following passage of the 2017 hurricanes.

The Ballast Bay project activity began on the 23 September 2020 and was completed on 10 June 2021. This amounts to a total of 232 days to produce slope stabilisation and road rehabilitation outputs. The project activity aimed at stabilising sections of the Ballast Bay Road by installing retaining walls, and completing adjacent road works to make the roadway safe for passenger traffic. The specific section of the Ballast Bay Road had been subject to slope failure, having been undermined due to the flooding and hurricanes of 2017. The slope failure had deteriorated over time, resulting in significant risk to drivers and passengers traversing the area.

The scope of this project activity encompassed slope stabilisation through construction of retaining walls as well as required culverts and drainage mechanisms, curb walls and guardrails. This work has aimed at improving road safety along this stretch of road, as well as improving traffic flow which had been hindered by the narrowing of the roadway due to the worsening undermining at the site.

Over a period of 232 days, using $1,054,126, this project activity was able to deliver on planned outputs, installing retaining structures, drainage and guardrails which have improved road safety and traffic flow in the Ballast Bay area.

The following sections of this report assess the overall Value for Money of the Ballast Bay Road project activity, using the methodology outlined in the RDA's VfM Framework Guidelines for Economy, Efficiency, Effectiveness and Equity.

2) Overview of Overall VfM Score (100 out of max 100 points)

This project activity scored a perfect score across all aspects of Value for Money examined. The Ballast Bay Road project activity was able to achieve its targeted outputs, contribute to a broader outcome, and demonstrate a high level of quality, all within its estimated budget, as well as within costs and time benchmarks. This resulted in full scores across all aspects of VfM examined, namely Economy, Efficiency and Effectiveness (Equity was not scored for this activity).

Ballast Bay Road Rehabilitation and Slope Stabilisation – VfM Scoring			
Economy	Economy	10/10	10/10
Efficiency	Cost Efficiency	20/20	40/40
	Time Efficiency	10/10	
	Schedule	10/10	
Effectiveness	Output Effectiveness	20/20	45/45
	Outcome Effectiveness	15/15	
	Quality	10/10	
Equity	Equity Goals	NA/5	NA/5
Overall VfM Score			**95/95**
Total Adjusted VfM Score			**100/100**

The overall VfM score was a perfect 100 out of 100. This indicates strong performance across all aspects of Value for Money examined.

Following discussions on the importance of improving timing of RDA-implemented projects, given that efficiency is a core argument for the continued existence of the RDA in facilitating public sector recovery and development, a decision has been made to present an enhanced scoring framework for Value for Money in the RDA context, which further highlights timing. As such, the Table below presents a more time-focused assessment of VfM for the Ballast Bay project activity.

Ballast Bay – Time Focused VfM Scoring			
Economy	Economy	10/10	10/10
Efficiency	Cost Efficiency	20/20	50/50
	Time Efficiency	15/15	
	Schedule	15/15	
Effectiveness	Output Effectiveness	20/20	35/35
	Outcome Effectiveness	5/5	
	Quality	10/10	
Equity	Equity Goals	NA/5	NA/5
Overall Time Focused VfM Score			**95/95**
Total Adjusted Time Focused VfM Score			**100/100**

A focus on the time element results in an Overall Adjusted VfM Score of 100 out of 100 for this project activity. Going forward, the time focused VfM Score will be provided alongside the original VfM Scoring framework in all future VfM Reports, to further put into focus the importance of efficiency gains in RDA-implemented projects.

Figure 1: Overall Value for Money Scoring – Radar Chart

The overall Value for Money Scoring Chart (Figure 1) demonstrates the excellent scores received for all aspects of Value for Money examined, namely Economy, Cost Efficiency, Time Efficiency, Schedule, Output Effectiveness, Outcome Effectiveness and Quality. Equity was not scored for this project activity.

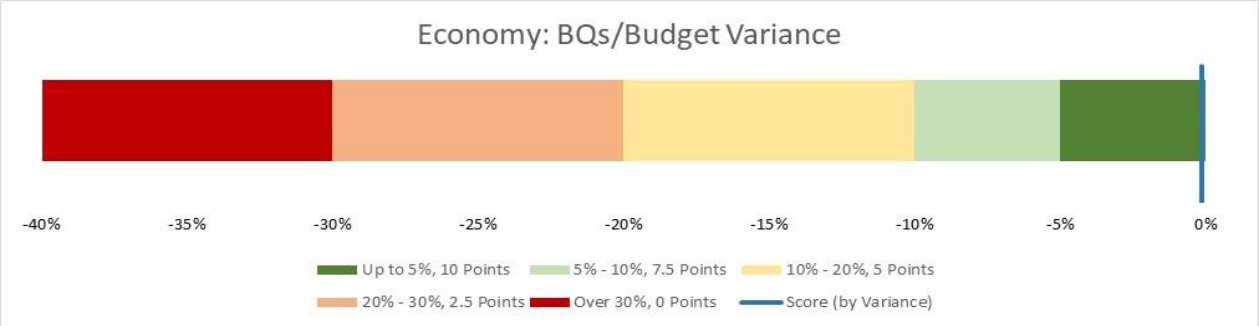
3) ECONOMY (10 out of max 10 points)

The economy of the Ballast Bay Road activity has been assessed based on the original budget anticipated for the activity. The original budget was estimated at $1,069,000 for this activity.

The total forecasted spend for the Ballast Bay Road activity as at end of April 2022 is $1,054,126, which is under the original budget amount, by 1.39%. As such, being within budget, this activity has been assigned full points in assessment of its Economy (Table 2).

Table 2: Assessment of Economy

ECONOMY ASSESSMENT: 10/10 POINTS	
Original Budget	$1,069,000.00
Actual Spend	$1,054,125.93
Variance ($)	$14,874.07
Variance (%)	1.39%
ECONOMY SCORE	**10**



4) ON BENCHMARKS USED

In calculating VfM Scores for both Cost and Time Efficiency, consideration has been given to performance against relevant benchmarks established for production of specific outputs. Giving a background of the benchmarks used, and why, provides the necessary context for comparisons made.

In the case of the Ballast Bay Road project activity, the following benchmarks for cost and time have been used to assess cost and time efficiency:

Type	Benchmark	Sources and Considerations
Cost	$4,689 per metre of road rehabilitated and slope stabilised	Based on original budget estimate divided by target metres of road rehabilitated and slope stabilised
Time	0.93 metres of road rehabilitated and slope stabilised per day	Based on target metres of road rehabilitated and slope stabilised divided by number of planned project days

Cost Benchmark

The cost benchmark has been determined based on the original budget for the project activities divided by the target metres of road rehabilitated and slope stabilised. This calculated benchmark has been used absent a more objective, independent measure, as this was not readily available. It should be noted that this cost benchmark of $4,689 per metre of road rehabilitated and slope stabilised, is significantly higher than the cost benchmark used for the Great Mountain and Ridge Road activities, the higher of which was $3,617 per metre of road rehabilitated and slope stabilised.

Time Benchmark

The time benchmark used was determined based on the target metres of road rehabilitated and slope stabilised divided by the number of planned project days. This calculated benchmark has been used absent a more objective, independent measure, as this was not readily available. It should be noted that this time benchmark of 0.93 metres of road rehabilitated and slope stabilised per day is higher in comparison to the calculated time benchmark used for assessment of Time efficiency for the Great Mountain and Ridge Road activities, the higher of which was 0.62 metres of road rehabilitated and slope stabilised per day.

5) EFFICIENCY (40 out of max 40 points)

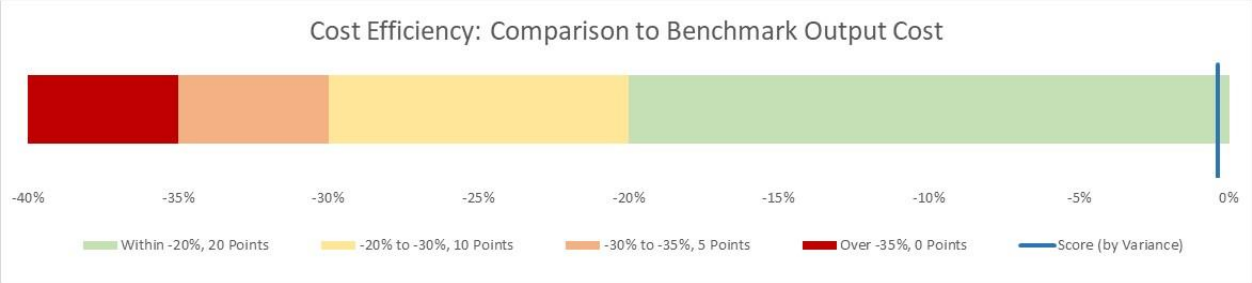
The efficiency of an intervention considers Output Cost (Cost Efficiency), Output Time (Time Efficiency) and Schedule. In terms of output cost, the Ballast Bay project activity involved construction of retaining structures and reconstruction of the adjacent roadway, drainage, curb walls and guardrails over 224 metres (200 metres of road; and 24 metres of retaining walls) at a major section of the Ballast Bay Road. This translated to an average of $4,706 per metre of road rehabilitated and slope stabilised to improve

road safety and traffic flow in the area. Based on the targeted length of road and retaining walls rehabilitated and the original budget, a benchmark indicative cost of $4,688.60 has been used.

In this way, the cost of each output for this project was in line with (namely 0.37% above) the benchmark cost, therefore a full 20 points have been assigned for cost efficiency (Table 3).

Table 3: Cost Efficiency Assessment

COST EFFICIENCY ASSESSMENT: 20/20 POINTS	
Output Unit Cost	$4,705.92 per metre of road rehabilitated and slope stabilised
Benchmark Output Unit Cost	$4,688.60 per metre of road rehabilitated and slope stabilised
Variance ($)	($17.32)
Variance (%)	-0.37%
COST EFFICIENCY SCORE	**20**



Having started on 23 September 2020, the Ballast Bay Road activity was initially slated to be completed by 21 May 2021, that is within 240 project days. The Ballast Bay Road activity was actually completed on 10 June 2021, that is in 260 days, 20 days over the planned 240 project days. The calculated output unit time was therefore an average of 0.86 metres of road rehabilitated and slope stabilised per day, whereas the benchmark output unit time was an average of 0.93 metres of road rehabilitated and slope stabilised per day.

This resulted in a full 10 points being assigned for Time Efficiency, as the actual outputs – metres of road rehabilitated and slope stabilised - produced within the timeframe (0.86 metres of road rehabilitated and slope stabilised per day) was within the threshold for full points at 7.7% below the benchmark output unit time of 0.93 metres of road rehabilitated and slope stabilised per day (Table 4).

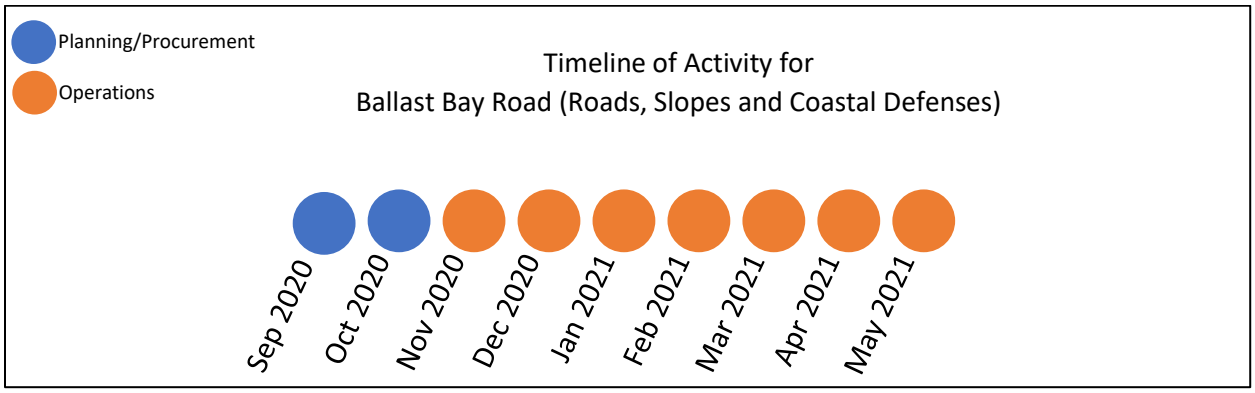
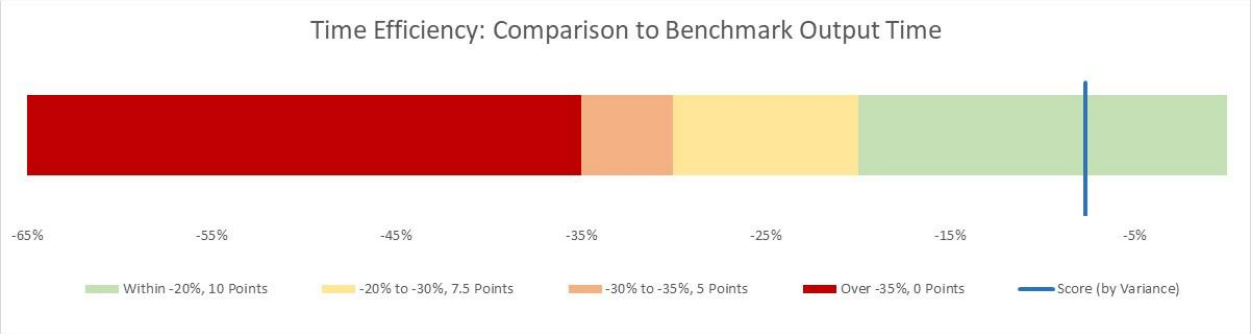


Table 4: Time Efficiency Assessment

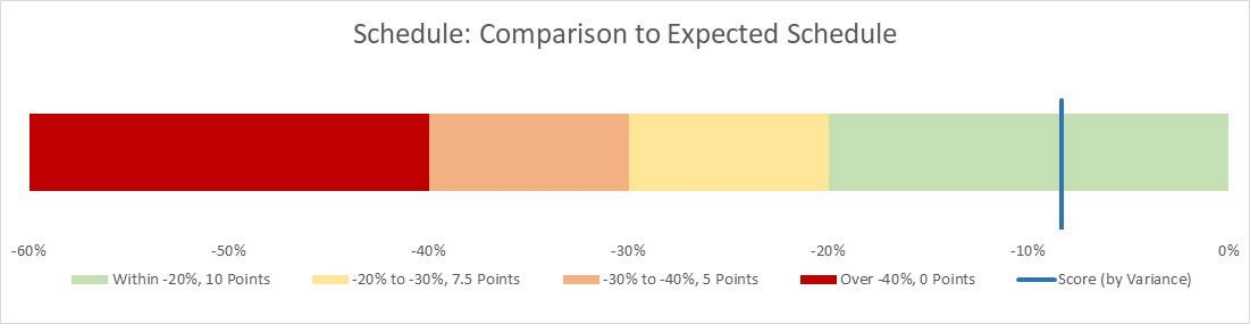
TIME EFFICIENCY ASSESSMENT: 10/10 POINTS	
Output Unit Time	Avg. 0.86 metres of road rehabilitated and slope stabilised per day
Benchmark Output Unit Time	Avg. 0.93 metres of road rehabilitated and slope stabilised per day
Variance (days)	(0.07)
Variance (%)	-7.7%
TIME EFFICIENCY SCORE	**10**



In terms of schedule performance, given that there were 240 planned project days compared to a total number of actual project days at 260, within the threshold, a full 10 points were thus awarded for the project activity's Schedule assessment (Table 5).

Table 5: Schedule Assessment

SCHEDULE ASSESSMENT: 10/10 POINTS	
Planned Project Days	240 days
Actual Project Days	260 days
Variance (days)	(20 days)
Variance (%)	-8.3%
SCHEDULE SCORE	**10**



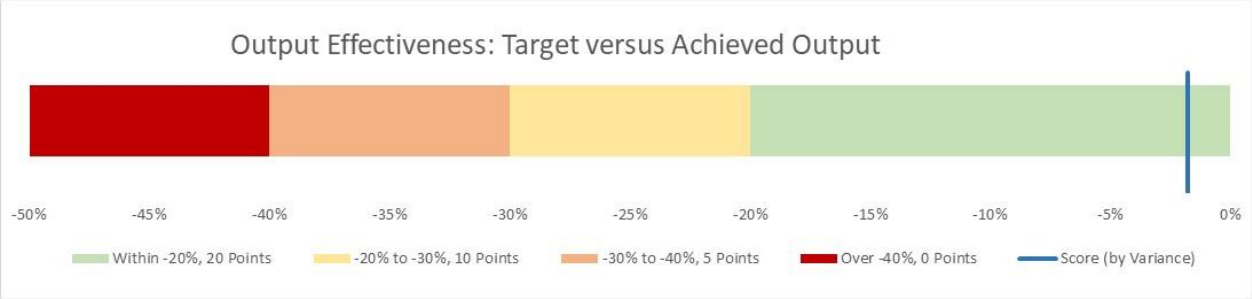
6) EFFECTIVENESS (45 out of max 45 points)

Output effectiveness

Output effectiveness is a measure which compares targeted outputs to achieved outputs, in determining whether and to what extent the project has met output expectations and produced the immediate result intended. In the case of the Ballast Bay Road project activity, the total number of metres targeted for road rehabilitation and slope stabilisation to improve road safety and traffic flow was 228 metres (205 metres of road and 23 metres of slope). The project was able to rehabilitate and stabilise 224 metres (200 metres of road and 24 metres of slope), slightly less than targeted. Since well within the threshold though, a full 20 points has been assigned for Output Effectiveness (Table 6).

Table 6: Target versus Achieved Output

OUTPUT EFFECTIVENESS ASSESSMENT: 20/20	
Targeted outputs rehabilitated and stabilised	228 metres
Achieved outputs rehabilitated and stabilised	224 metres
Variance	(4 metres)
Variance (%)	-1.8%
OUTPUT EFFECTIVENESS SCORE	**20**



Outcome effectiveness

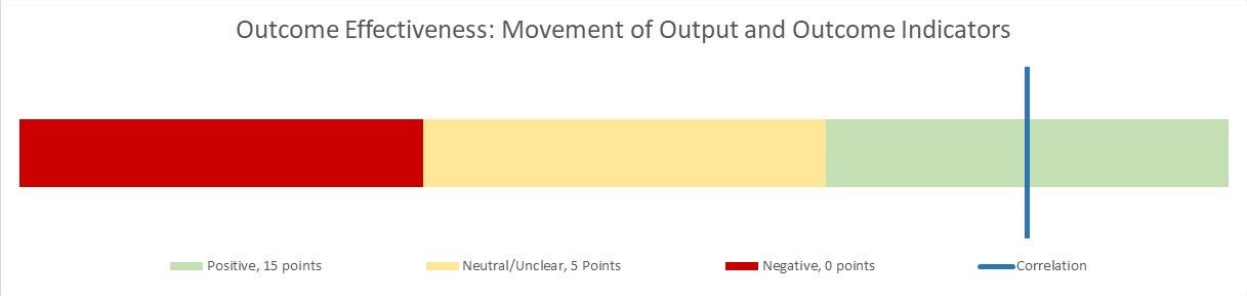
In terms of outcome effectiveness, the change relationship between the observed output and outcome has been used as a simple measure of outcome effectiveness. Using this methodology, the directional change in output is compared to the directional change in outcome. This assessment aims at determining whether execution of the project has contributed to achievement of the secondary result intended. In the case of the Ballast Bay Road project activity, both the output: metres of road rehabilitated and slope stabilised; as well as the outcome: miles of well-designed road network; moved positively due to execution of this project.

In other words, as more metres of road were rehabilitated and slopes were stabilised, more miles of the Territory's road network could be classified as well-designed. The Ballast Bay Road project activity has thus improved the quality of the road network in the Virgin Islands, thereby improving road safety and traffic flow. Assessment of improvements in road safety will require a longer time period, following which the number of accidents taking place in the area can be assessed, and the expectation is that the number of accidents taking place in the area will decrease.

The change relationship between the output and outcome has thus been deemed a positive correlation, and the maximum score of 15 points has been assigned for this project activity's outcome effectiveness (Table 7).

Table 7: Relationship between Outputs and Outcomes

OUTCOME EFFECTIVENESS ASSESSMENT: 15/15	
Output change: metres of road rehabilitated and slope stabilised	+224
Outcome change: miles of well-designed road network in the Territory	+.12
Assessment of change relationship	Positive correlation
OUTCOME EFFECTIVENESS SCORE	**15**



Quality

Assessment of quality involves evaluating to what extent the project intervention has met quality expectations and may be based on meeting industry standards, meeting user expectations, and/or having valid defects reported. In the case of the Ballast Bay Road project activity, quality has been assessed on all three bases: meeting industry standards, reports of valid defects, and user surveys.

The rehabilitation and stabilisation of the road and slopes at the Ballast Bay site involved several enhancements which have made the roadway safer and more resilient, including installation of drainage, curb walls and guardrails. These enhancements have improved the overall quality of the roadway, meeting industry standards for resilient construction. Additionally, a total of two (2) valid defects have been reported on the roadway within the defects and liabilities period of twelve months/one year, related to the lack of adequate guardrail installation. A user feedback survey was conducted in March 2022 to assess whether and to what extent specific road projects met users' expectations.

The survey was disseminated to specific stakeholders that attended relevant community meetings, as well as broadly to the general public. User responses indicated general satisfaction with the quality of work carried out on the Ballast Bay roadway. An average rating of 4.75 out of 5 was given by respondents for the quality of work done on the road. Specific feedback from survey respondents included:

> *"We are thankful that the contractors created a turnaround point closer to the ghut".*

> *"It seems good to me. I think they used signage well, the work went as quickly as could be expected and the crew used discretion where possible to facilitate the flow of traffic".*

As such, given that industry standards on resilience were met, two (2) valid defects were reported, and overall satisfaction has been indicated by survey respondents, this resulted in assignment of "Met" in the quality assessment of this project activity. A full score of 10 for Met Quality has thus been assigned for the Ballast Bay Road activity (See Table 8 below).

Table 8: Quality assessment

QUALITY ASSESSMENT: 10/10	
Industry Standards on Resilience	Met
Valid Defects Reported	2
User Survey Results	Very Satisfied
Assessment of Quality	Met
QUALITY SCORE	**10**

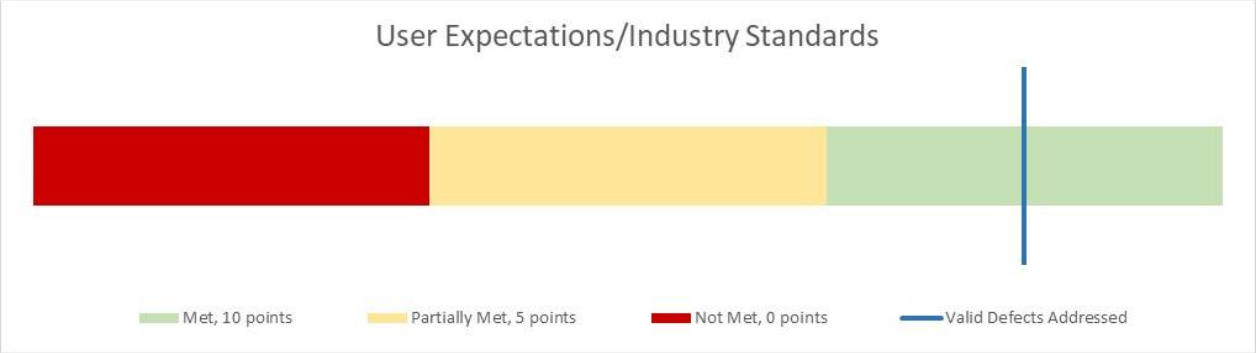
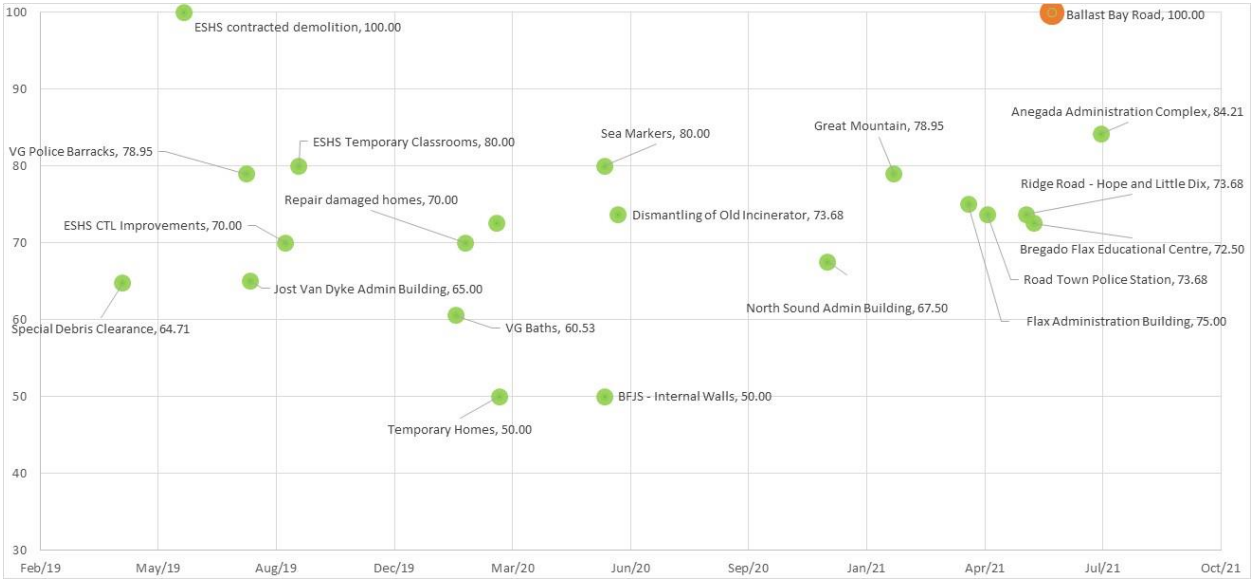


Figure 2: VfM Score Comparison with Other Completed Projects



While the Ballast Bay project activity received a full score for the aspects of Value for Money considered, the activity still required one approved variation. This variation was relatively minor however and did not affect the project activity's planned cost or planned schedule. Nonetheless, the main lesson thus identified coming out of the Ballast Bay Road project activity was:

1) Strengthening coordination between public and private sector agencies to ensure that considerations are adequately accounted for in project design and implementation, thereby reducing the possibility of requiring variations following procurement and contract signature.

7) Conclusions

This report has been prepared using the RDA's Value for Money Framework in assigning a VfM Score to the Ballast Bay project activity based on assessed Economy, Efficiency and Effectiveness of project implementation (Equity was not scored for these activities). The importance of keeping accurate, up-to-date, readily accessible information on project budgets, schedules, spending and results has once again been underlined in the process of conducting this VfM assessment. The Monitoring and Evaluation function continues to play an important role in reviewing the quality of this information, and collating data for the calculation of projects' VfM scores.

Achieving an overall full score of 100 points out of 100, the Ballast Bay project activity achieved full scores across all aspects of VfM examined, namely Economy, Cost Efficiency, Time Efficiency, Schedule, Output Effectiveness, Outcome Effectiveness and Quality. This project intervention was able to remain within budget, cost and time benchmarks, largely achieve its targeted outputs and contribute to a broader outcome at a high level of observed quality. This project activity is the second to achieve a full score using the RDA's VfM Framework, with only the smaller Contracted Demolition project at the Elmore Stoutt High School having achieved this distinction prior.