

# GREAT MOUNTAIN

(ROAD SLOPES AND COASTAL DEFENSES)



# EVALUATING VALUE FOR MONEY

PROJECT NUMBER: RDS.02.27.180.04

# Great Mountain (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:

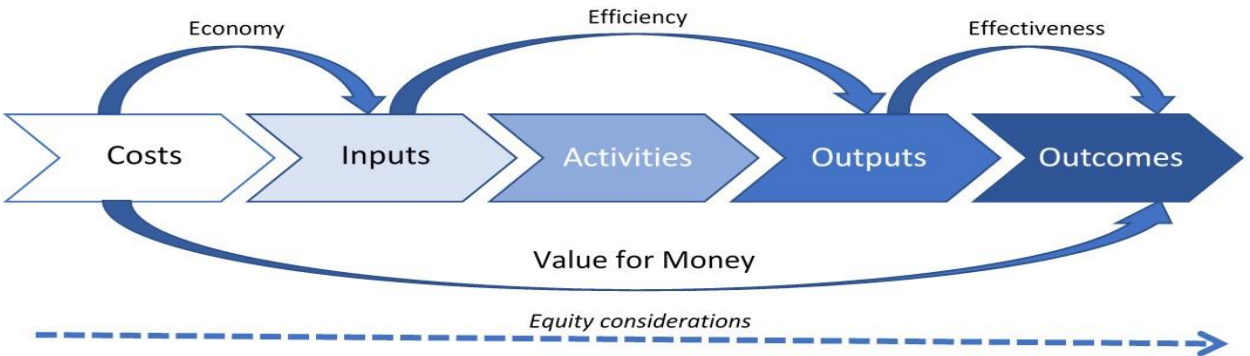
- (c) deliver the intended benefits; [and]
- (d) ensure that each project represents value for money.

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	
<b>Economy</b>	Economy
<b>Efficiency</b>	Output Cost, Output Time, Schedule
<b>Effectiveness</b>	Output Effectiveness, Outcome Effectiveness, Quality
<b>Equity</b>	Equity



Great Mountain involved two project activities (Great Mountain 1 and Great Mountain 2) which form part of the broader Roads, Slopes and Coastal Defenses project funded by the Caribbean Development Bank (CDB) Rehabilitation and Reconstruction Loan (RRL). Completion of the Great Mountain retaining walls and road works were two of the first road project activities to be completed by the RDA.

The Great Mountain 1 activity began on the 1 April 2019, and in March 2020 was delegated to the RDA for implementation along with several other CDB projects. The Great Mountain 2 activity began on the 15 June 2020 and was completed on 18 June 2021, implemented by the RDA. This amounts to a total of 979 days to produce the outputs of the two project activities. These project activities aimed at stabilising the upper and lower portions of the Great Mountain Road, installing retaining walls, and completing adjacent road works to make the roadway safe for passenger traffic. The specific sections of the Great Mountain road had been subject to slope failure, having been undermined due to the flooding and hurricanes of 2017. The slope failure deteriorated over time, resulting in significant risk to drivers and passengers traversing the area.

The scope of this project activity encompassed slope stabilization 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 both sites.

Over a period of 979 days, using \$590,912, these two project activities were able to deliver on planned outputs, installing retaining structures, drainage and guardrails which have improved road safety and traffic flow on the Great Mountain road.

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

## 2) Overview of Overall VfM Score (78.95 out of max 100 points)

The main challenge to a more successful overall VfM score for this project was the failure of the project to be within its estimated schedule as well as relevant benchmark for time, which negatively affected the Time Efficiency and Schedule scores. The project activity was able to achieve its targeted outputs and contribute to a broader outcome within its estimated budget and cost benchmark, resulting in full scores for Economy, Cost Efficiency, and Output and Outcome Effectiveness as well as Quality.

Great Mountain – VfM Scoring			
<b>Economy</b>	Economy	10/10	10/10
<b>Efficiency</b>	Cost Efficiency	20/20	20/40
	Time Efficiency	0/10	
	Schedule	0/10	
<b>Effectiveness</b>	Output Effectiveness	20/20	45/45
	Outcome Effectiveness	15/15	
	Quality	10/10	
<b>Equity</b>	Equity Goals	NA/5	NA/5
<b>Overall VfM Score</b>			<b>75/95</b>
<b>Total Adjusted VfM Score</b>			<b>78.95/100</b>

The overall VfM score was 78.95 out of 100. This indicates some scope for improving overall Value for Money of this project, specifically as it relates to efficiency assessment against benchmark time and schedule. More time was spent on the combination of these two project activities than initially envisioned, and the time spent was well-over the time benchmark used. Delays in project completion and exceeding timelines negatively affected the efficiency scores related to time.

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 Great Mountain project activity.

Great Mountain – Time Focused VfM Scoring			
<b>Economy</b>	Economy	10/10	10/10
<b>Efficiency</b>	Cost Efficiency	20/20	20/50
	Time Efficiency	0/15	
	Schedule	0/15	
<b>Effectiveness</b>	Output Effectiveness	20/20	35/35
	Outcome Effectiveness	5/5	
	Quality	10/10	
<b>Equity</b>	Equity Goals	NA/5	NA/5
<b>Overall Time Focused VfM Score</b>			<b>65/95</b>
<b>Total Adjusted Time Focused VfM Score</b>			<b>68.42/100</b>

A focus on the time element results in an Overall Adjusted VfM Score of 68.42 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.

As part of an effort to continuously improve, the RDA has implemented more in-depth planning processes in order to propel efficiency gains by improving time management later on in project execution by more adequately capturing requirements upfront.

**Figure 1: Overall Value for Money Scoring – Radar Chart**



The overall Value for Money Scoring Chart (Figure 1) demonstrates the excellent scores received for Economy, Cost Efficiency Output Effectiveness, Outcome Effectiveness and Quality; while assessment of Schedule and Time Efficiency resulted in no points being assigned for these aspects of Value for Money. Equity was not scored for these project activities.

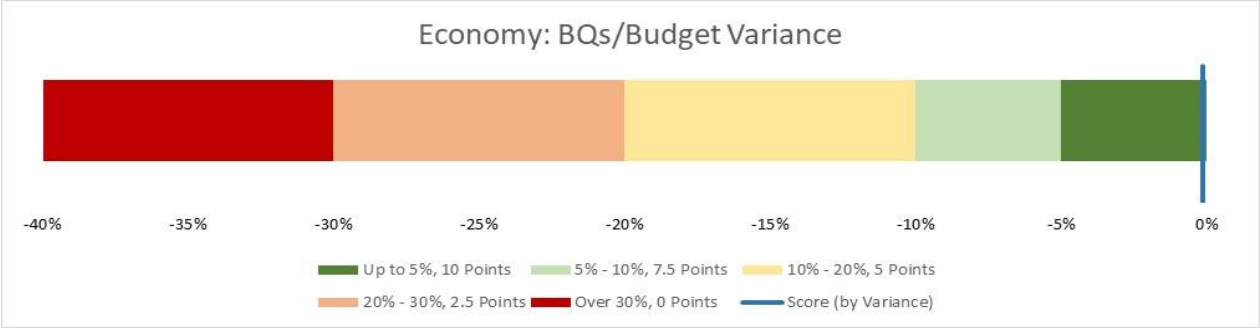
**3) ECONOMY (10 out of max 10 points)**

The economy of the Great Mountain project activities has been assessed based on the original budget anticipated for the activities, in-line with the CDB Loan Agreement. The original budget was estimated at \$220,000 for the Great Mountain 1 activity, and \$583,000 for Great Mountain 2. As such the overall original budget for these two activities was \$803,000.

The total spend for the Great Mountain 1 project activity as at end of January 2022 is \$165,877, while the total spend for the Great Mountain 2 project activity as at the same date is \$425,035 which is under the original budget amount, by 26.41%. Being well within budget, these two project activities were therefore assigned full points in assessment of Economy (Table 2).

*Table 2: Assessment of Economy*

<b>ECONOMY ASSESSMENT: 10/10 POINTS</b>	
Original Budget	\$803,000.00
Actual Spend	\$590,912.29
Variance (\$)	\$212,087,71
Variance (%)	26.41%
<b>ECONOMY SCORE</b>	<b>10</b>



**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 Great Mountain project activities, the following benchmarks for cost and time have been used to assess cost and time efficiency:

Type	Benchmark	Sources and Considerations
Cost	\$3,617 per metre of road rehabilitated and slope stabilised	Based on original budget estimate divided by target metres of road rehabilitated and slope stabilised
Time	0.59 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.

**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.

**5) EFFICIENCY (20 out of max 40 points)**

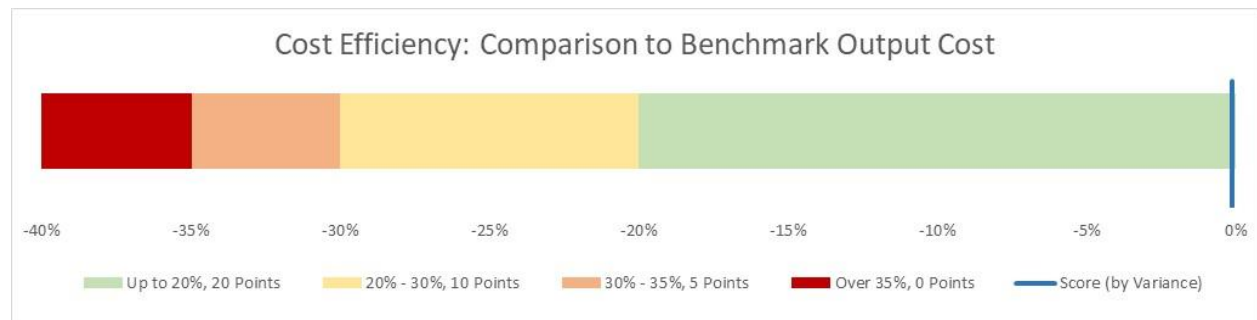
The efficiency of an intervention considers Output Cost (Cost Efficiency), Output Time (Time Efficiency) and Schedule. In terms of output cost, the project activities involved construction of retaining structures and reconstruction of the adjacent roadways, drainage, curb walls and guardrails over 222 metres (150 metres of road; and 72 metres of retaining walls) at upper and lower portions of the Great Mountain road. This translated to an average of \$2,661.77 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 \$3,617.12 has been used.

In this way, the cost of each output for this project was well within (namely 26% below) 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	\$3,617.12 per metre of road rehabilitated and slope stabilised
Benchmark Output Unit Cost	\$2,661.77 per metre of road rehabilitated and slope stabilised
Variance (\$)	\$955.35
Variance (%)	26.41%
<b>COST EFFICIENCY SCORE</b>	<b>20</b>



Having started on 1 April 2019, the Great Mountain 1 project activity was initially slated to be completed by 12 December 2019, that is within 255 project days; and the Great Mountain 2 project activity began on 15 June 2020 and was originally slated to be completed on 13 October 2020, that is within 120 days. In this way the two project activities were scheduled to be completed within a total of 375 days. The Great Mountain 1 activity was actually completed on 27 January 2021, and the Great Mountain 2 activity on 18 June 2021, with a total recorded number of project days therefore at 1,035 days. Given the mandated lockdown period in Mar/Apr 2020 of approximately 28 days, the total actual project days has been adjusted to 979 project days (minus two sets of 28 days) for the purposes of assessment of time efficiency and schedule. The calculated output unit time, using the adjusted 979 project days, was therefore an average of 0.23 metres of road rehabilitated and slope stabilised per day, whereas the benchmark output unit time was an average of 0.59 metres of road rehabilitated and slope stabilised per day.

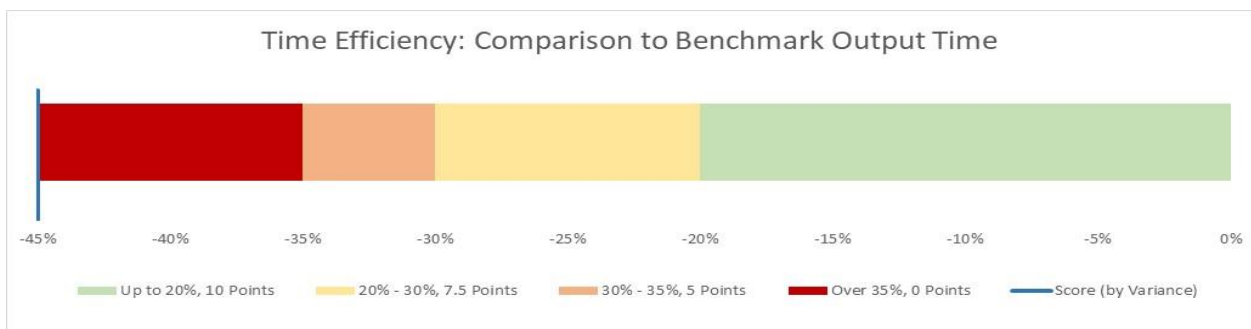
This resulted in no points being assigned for Time Efficiency, as the actual outputs – metres of road rehabilitated and slope stabilised - produced within the timeframe (0.23 metres of road rehabilitated and slope stabilised per day) was significantly less than the benchmark output unit time of 0.59 metres of road rehabilitated and slope stabilised per day (Table 4).

It is important to note that in order to facilitate vehicular traffic throughout the project lifetime, full closure of the Great Mountain roadway was rarely allowed, resulting in a longer project implementation timeline than initially anticipated, and than would have been the case if the road was allowed to be closed for longer periods of time. Additionally, the Great Mountain 2 activity required previously unanticipated blasting of boulders and the addition of a retaining wall. These variations required additional approvals which had a significant impact on the time period taken to implement the project.



Table 4: Time Efficiency Assessment

TIME EFFICIENCY ASSESSMENT: 0/10 POINTS	
Output Unit Time	Avg. 0.23 metres of road rehabilitated and slope stabilised per day
Benchmark Output Unit Time	Avg. 0.59 metres of road rehabilitated and slope stabilised per day
Variance (days)	(0.37)
Variance (%)	-62%
<b>TIME EFFICIENCY SCORE</b>	<b>0</b>

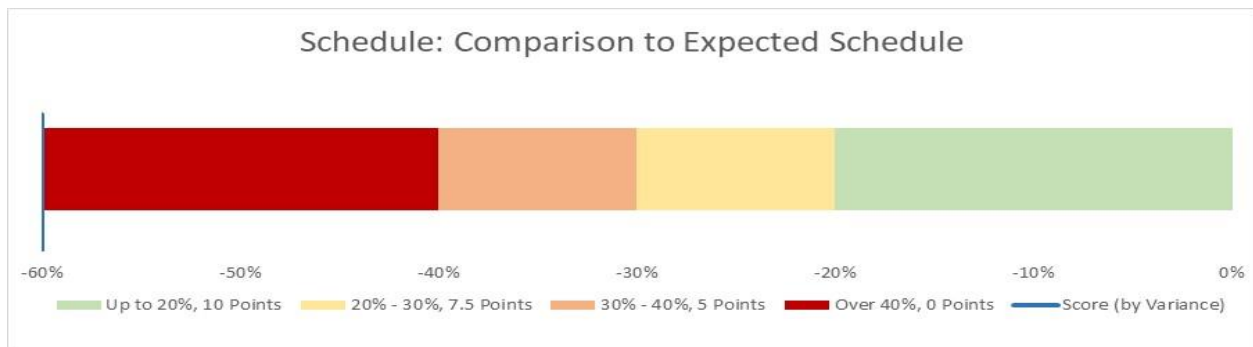




In terms of schedule performance, given that there were 375 planned project days compared to a total adjusted number of actual project days at 979, the adjusted variance of 604 days meant that the project was 161% over its scheduled timeline, with 0 points thus awarded for the project activity's Schedule assessment (Table 5).

Table 5: Schedule Assessment

<b>SCHEDULE ASSESSMENT: 0/10 POINTS</b>	
Planned Project Days	375 days
Actual Project Days	1,035 days
Adjusted Actual Project Days	979 days
Variance (days)	(660 days)
Adjusted Variance (days)	(604 days)
Variance (%)	(176.0%)
Adjusted Variance (%)	(161.1%)
<b>SCHEDULE SCORE</b>	<b>0</b>



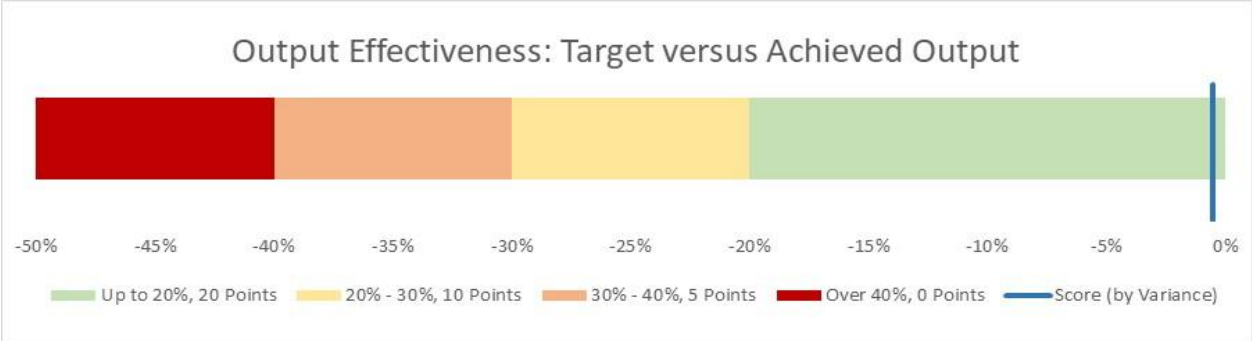
## 6) EFFECTIVENESS (45 out of max 45 points)

### 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 Great Mountain 1 and 2 project activities, the total number of metres targeted for road rehabilitation and slope stabilisation to improve road safety and traffic flow in these two activities was 222 metres (30 metres of road and 22 metres of slope for Great Mountain 1; and 120 metres of road and 50 metres of slope for Great Mountain 2). The project was able to rehabilitate and stabilise the targeted area, hence a full 20 points has been assigned for Output Effectiveness (Table 6).

Table 6: Target versus Achieved Output

<b>OUTPUT EFFECTIVENESS ASSESSMENT: 20/20</b>	
Targeted outputs rehabilitated and stabilised	222 metres
Achieved outputs rehabilitated and stabilised	222 metres
Variance	(0)
Variance (%)	(0%)
<b>OUTPUT EFFECTIVENESS SCORE</b>	<b>20</b>



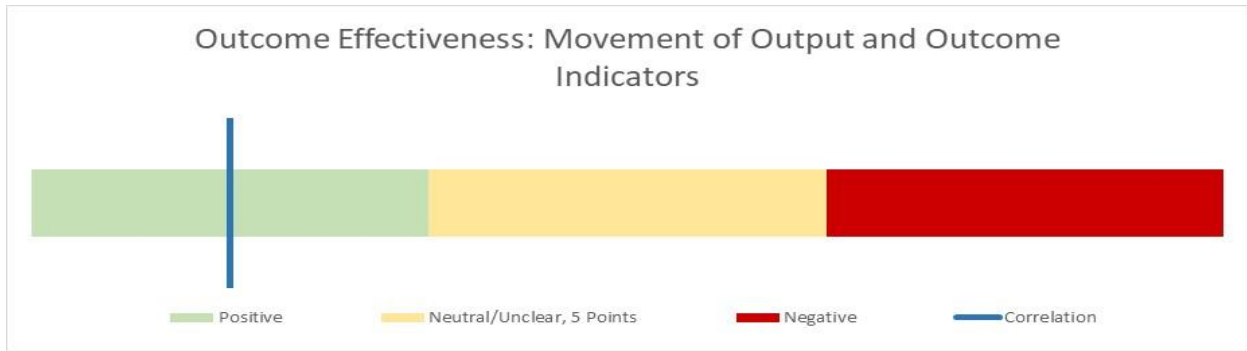
*Outcome effectiveness*

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 Great Mountain project activities, 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. In other words, the Great Mountain project activities have 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*

<b>OUTCOME EFFECTIVENESS ASSESSMENT: 15/15</b>	
Output change: metres of road rehabilitated and slope stabilised	+222
Outcome change: miles of well-designed road network in the Territory	+09
Assessment of change relationship	Positive correlation
<b>OUTCOME EFFECTIVENESS SCORE</b>	<b>15</b>



### Quality

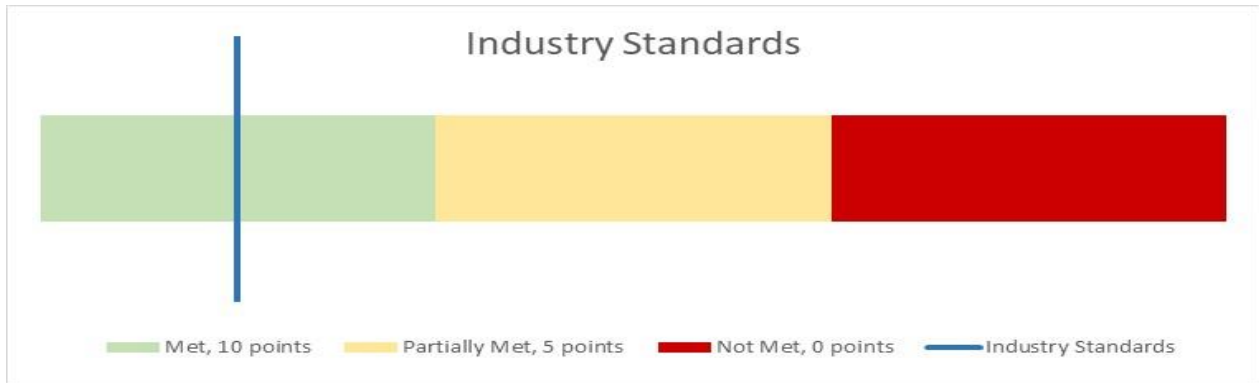
Assessment of quality involves evaluating to what extent the project intervention has met quality expectations and may be based on meeting industry standards, meeting user expectations, and/or not having any valid defects reported. In the case of the Great Mountain 1 and 2 Road project activities, quality has been assessed on all three bases: meeting industry standards, reports of valid defects, and user surveys.

The rehabilitation and stabilization of the road and slopes at the Great Mountain sites 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, no valid defects have been reported on the roadway within the defects and liabilities period of twelve months/one year. 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. Based on user responses, the quality of the Great Mountain Road improved as a result of the project activities carried out on the road. Specific feedback in response to the survey included: “[A] much better road to use now so that is a plus”, and “From all appearances it seems like a good job was done it just needs to be put to the test now”.

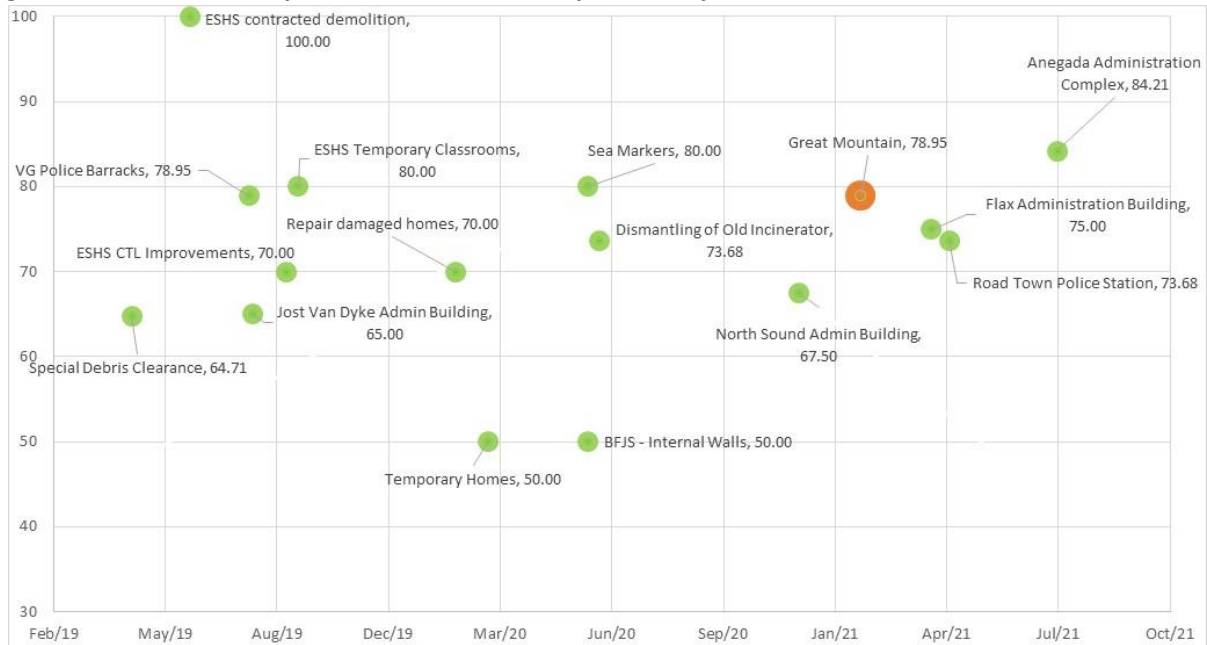
Table 8: Quality assessment

QUALITY ASSESSMENT: 10/10	
Industry Standards on Resilience	Met
Valid Defects Reported	None
User Survey Results	Improved quality
Assessment of Quality	Met
<b>QUALITY SCORE</b>	<b>10</b>



It should be noted that there were also criticisms from the community in terms of the timeframe taken to complete the Great Mountain Road rehabilitation activities, as well as concerns regarding the timeliness and accuracy of communications about road closures. The critical issue of time has been captured within both the Time Efficiency and Schedule assessment aspects of VfM within this report. Community feedback on the timing of the activities and road closures included: “The timeline given [for the project] was not even close or realistic”, and “the lack of communication made it very frustrating because when it was advertised that the road would be closed at 10 am and we leave early and arrived at 8 am only to meet it closed”.

**Figure 2: VfM Score Comparison with Other Completed Projects**



Lessons identified coming out of the Great Mountain project activities include:

- 1) Importance of managing public expectations and giving timely public notice of road closures and/or traffic diversions in order to maintain public support and engagement throughout project execution;
- 2) Ensuring that safe access to businesses and residences is maintained throughout project implementation;
- 3) Improving time management throughout project cycle to ensure that deliverables are produced in accordance with the project plan and schedule; and
- 4) Strengthening coordination between public and private sector agencies to ensure that considerations are adequately accounted for in project design and implementation.

## **7) Conclusions**

This report has been prepared using the RDA's Value for Money Framework in assigning a VfM Score to the Great Mountain 1 and Great Mountain 2 project activities based on assessed Economy, Efficiency and Effectiveness of project implementation (Equity was not scored for this project). 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 Team 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 score of 78.95 points out of 100, the Great Mountain 1 and 2 project activities' VfM could have been enhanced through improved time management. That said, the project intervention was able to remain within budget, achieve its targeted outputs, meet quality expectations, and contribute to a broader outcome. The project thus demonstrated perfect scores in Economy, Cost Efficiency, Output and Outcome Effectiveness, and Quality.