Document of the Inter-American Development Bank

**belize**

**Additional Financing for George Price Highway Rehabilitation Project**

**(BL-L1029)**

**monitoring and evaluation plan**

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Abbreviations

AASHTO: American Association of State Highway and Transportation Officials

AOP: Annual Operating Plan

ESMR: Environmental and Social Management Report

GDP: Gross Domestic Product

GOBL: Government of Belize

GPH: George Price Highway

HDM-4: Highway Development and Management Model

IDB: Inter-American Development Bank

M&E: Monitoring and Evaluation

MOW: Ministry of Works

OVE: Office of Evaluation and Oversight

PCR: Project Completion Report

PEP: Project Execution Plan

PMU: Project Management Unit

PMR: Progress Monitoring Report

POD: Proposal for Operations Development

POM: Project Operations Manual

PP: Procurement Plan

RF: Results Framework

TOR: Terms of Reference

TRRL: UK Transport and Road Research Laboratory

XPMR: Extended Progress Monitoring Report

1. **Introduction**
   1. The general objective is to contribute to the productivity and economic integration of Belize. The specific objective of the additional financing is to provide additional resources to complete the George Price Highway Rehabilitation project (3344/OC-BL), which aims to substantially improve the road connectivity within Belize’s main districts and with Central America. This will be achieved through the rehabilitation of the GPH road infrastructure between miles 47.9 in Belmopan and 67.3 in Santa Elena to national standards, thereby d. ecreasing travel time and costs, reducing road fatalities and injuries, and ensuring road accessibility by improving the Climate Change resilience of the corridor. To meet the objective, the proposed additional financing will support the completion of the following components of the Project (3344/OC-BL); consequently, the original project results framework remains unchanged (see Annex ) and the resources from the two operations will be pooled to fund the activities for the rehabilitation of the George Price Highway. Loan 3344/OC-BL and BL-L1029 will utilize the same Project Monitoring Report (PMR) since the quantity of the physical outputs are unchanged .
   2. The project corridor is significantly important for the agricultural and agro-industrial industry (12.2% of GDP),[[1]](#footnote-2) tourism (36.6% of GDP)[[2]](#footnote-3) and the social development of Belize, including fostering regional trade between Belize and Central American countries. Particularly, the corridor will serve as the main platform to support the expected growth in trade between Guatemala and Belize, especially after the entry into force of the [Partial Scope Agreement](http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38231397)[[3]](#footnote-4) in 2010.
   3. The rehabilitation of the road section is expected to generate the following results between 2014 and 2021: i) decrease the vehicle operating cost per vehicle kilometer for cars from US$0.14 to US$0.14, for buses (35+ passenger) from US$1.41 to US$1.30, for medium trucks from US$0.80 to US$0.75, for heavy trucks from US$1.12 to US$1.05, and for motorcycles from US$0.17 to US$0.16; ii) reduction in travel time along the project section for cars from 23.25 minutes to 19.94 minutes, for buses (35+ passenger) from 29.93 minutes to 28.67 minutes, for medium trucks from 29.00 minutes to 26.61 minutes, for heavy trucks from 28.37 minutes to 26.29 minutes, and for motorcycles from 22.16 minutes to 20.62 minutes; iii) improve the overall safety of the motorists who utilize the road segment by reducing the annual average number of fatalities on the project road section from 5.1 to 4.26 and the annual average number of severely injured victims from 51.4 to 42.64.
   4. The expected results will be monitored and evaluated using ex-post and ex-ante methodologies such as an ex-post cost-benefit analysis. The evaluation will be based on the use of the Highway Development and Management Model (HDM-4) to estimate the costs and benefits; and data collection of cargo and passengers at the sites of loading and unloading and transport costs to travel the project section. The ex post cost benefit analysis of the works financed by the project will replicate the model used ex ante, held as part of the technical feasibility studies. This analysis will be conducted for two scenarios: i) Measuring and updating the expected benefits and costs of the intervention, holding constant the conditions and prices considered in appraisal; this allows measurement of whether the actual costs incurred, the benefits actually realized and measured at constant prices are sufficient to justify the investment in economic terms; ii) the second scenario will consider both the benefits and the actual project costs, updated to current prices, thus obtaining an update on whether the project results are an economically worthwhile investment given the real costs and benefits. This analysis permits isolation of an exogenous increase in costs that may effect changes in the benefits achieved.
   5. In the coordination and implementation of project monitoring and evaluation, the MOW is the entity responsible for the coordination and execution of the works, along with the IDB specialists both from headquarters and the country office. It is envisaged that technical support will be provided by external specialists in the following areas: design of road works, auditing and technical assistance, socio-environmental management, and procurement, among others.
   6. **The Project.** The George Price Highway Rehabilitation Project is supported by two sources of finances, the first operation loan 3344/BL-OC was approved on November 19, 2014 and this operation which is providing additional financing to complete the original objectives of the project. The project components for the combined operation are as follows. The additional financing contributes to Components 1 and 3.
   7. **Component 1. Civil works & maintenance.** This component will finance: (i) the civil works for the rehabilitation of the GPH from mile 47.9 (Belmopan) to 67.3 (Beginning of Santa Elena Bypass); (ii) the civil works for the replacement of the Roaring Creek Bridge (mile 48);38 (iii) the supervision of the civil works; (iv) two years maintenance of the civil works once concluded; and (v) land acquisition, compensation, and utilities relocation required to execute the civil works. The civil works will include the above mentioned measure to address road safety, and climate change resiliency issues.
   8. **Component 2. Institutional strengthening.** This component will finance activities to strengthen the MOWT, and particularly the PEU and the RMU in the following areas, among others: (i) structuring of performance-based contracts for maintenance; (ii) environmental safeguards application in accordance with the Bank’s policies; (iii) utilization of national standards or another preferred highway design and testing code39 by staff and/or training/studies in other related areas; and (iv) training in the use of HDM-4.
   9. **Component 3. Engineering and administration.** This component will finance activities that support the administration of the project, including: (i) the contracting of PEU´s key personnel fully dedicated to the project which are a project manager/engineer, a financial specialist, a procurement officer, an administrative assistant; a social specialist and an environmental specialust (ii) renting and furnishing office space for the PEU; and (iii) acquisition of equipment for project execution and oversight. This component will also finance: (iv) sector studies, environmental and social studies, technical studies, and additional engineering designs related to the project; (v) monitoring and evaluation; and (vi) financial audits.

1. **Monitoring**
   1. **Implementation Structure of the Project.** The Beneficiary will be the Government of Belize, and the executing agency will be the MOW, through a PMU. The PMU will be responsible for the fulfillment of technical, administrative and financial procedures related to the execution of the Project, as well as planning, monitoring, supervision and evaluation. The PMU is constituted with, a Project Manager, a Financial Specialist, a Procurement Specialist, and an Administrative Assistant. The contracting of a Social specialist, and an environmental specialist pursuant to the terms of reference previously approved by the Bank will be a condition prior to first disbursement. The Bank and the GOBL agree to use the Results Framework (RF) and the activities defined in the PMR as the principal elements for monitoring the operation.
   2. **Project Operations Manual (POM).** The POM, which establishes standards and procedures for the EA, regarding the programming activities, procurement audits, and monitoring and evaluation, among others will govern project execution. The POM will include the definition of the role of the Project Steering Committee and the coordination mechanism between the different ministries and entities involved in the implementation of the project. Approval of the POM shall be a special contractual condition prior to the first disbursement of the financing, in order to ensure a proper interinstitutional coordination
   3. The PMU will have the following responsibilities during project implementation: (i) prepare and obtain Bank approval for all bidding documents required to hire the civil work contractors and consulting firms; (ii) carry out, control and register all administrative and accounting procedures needed; (iii) coordinate the bidding processes according to the Bank and GOBL rules; (iv) monitor the civil works and construction contracts through the supervisory consultants hired to that effect; (v) maintain adequate accounting and financial controls as well as appropriate support documentation, filing systems for verification by the Bank and the external auditing firm; (vi) prepare and submit to the Bank disbursement requests and corresponding justification of expenses; (vii) prepare and submit to the Bank semi-annual reports on project execution including annual updates of the AOP, audited financial reports, and other financial reports as required by the Bank; (viii) with the support of the supervisory consultant record and control the results of the project through the agreed indicators; and (ix) address and resolve contractor claims and address related contract adjustments. In addition, the PMU will maintain separate files for the operations of the project, and allow for financial and accounting monitoring of the Bank resources, and the local counterpart.
   4. **Monitoring Responsibilities.** The monitoring plan will be carried out during project execution in agreement with the goals and performance indicators identified in the RF. The Supervision Consultant, in addition to its role of supervision, will monitor progress against the project’s indicators, will establish a monitoring system to verify the progress and impact of the project activities and will train staff of the PMU to collect the required data. The PMU will: (i) collect periodically the information about physical progress (activities) and financial progress (available and invested funds); and (ii) keep updated and accessible the relevant information about the execution of the operation activities and its resources. The IDB, through the project team leader and members of the team, is responsible for coordinating and ensuring that the monitoring plan is carried out with the established technical quality and timeframe. In order to accomplish this, it will carry out periodic meetings with those responsible for monitoring and if needed will ask for additional reports or presentations of results. The monitoring of the plan will be carried out continuously once the operation becomes eligible until its completion, foreseen in 2022.
   5. **Collection of Monitoring Data.** The indicators and proposed means of verification optimize the use or information in the PMU. The establishment of the monitoring system will be designed and implemented by the supervision consultant who will among other things commission the equipment to collect information to determine the service level. The consultant will also train staff of the PMU to read and collect the information.
   6. Monitoring activities will include: (i) baseline data collection and analysis before project implementation and (ii) monthly data collection and analysis for the duration of the project. The monitoring process will be validated with the support of the supervision consultant, mentioned above. Accordingly, all the output indicators will be measured directly. These measures and estimates will be compared with the expected outputs and outcomes presented in the RF. The frequency of measurement is found in Tables 1 & 2 alongside the respective indicator.
   7. **Annual Operating Plan.** The PMU shall submit to the satisfaction of the Bank, within thirty (30) days prior the conclusion of each calendar year during the execution of the project, the corresponding Annual Operation Plan (AOP) for the next year. This instrument is intended to present to the Bank a proposed annual plan for the execution of both 3344/OC-BL and BL-L1029 The AOP consolidates all the activities to be implemented over a determined period of execution, by products and with a financial schedule. The PMU will submit, semi-annually, as an integral part of the semi-annual progress reports, the AOP and the Project Execution Plan (PEP) for the following two semesters, including the activities, schedules and estimated budgets for the projects funded the previous year and those proposed for the following year. The final AOP and PEP from the first year will be included in the initial report. The AOP and PEP will include at least the following elements: (i) the execution status of the project, describing in detail the status of each component; (ii) the procurement plan for the works, goods and services, as well as consulting services including budget and disbursement projections; (iii) the progress in meeting the goals and outcomes of the project; (iv) the progress in meeting output indicators for each component, in accordance with the Results Matrix and its schedule; (v) the problems encountered; (vi) the solutions implemented.
   8. **Procurement Plan (PP).** This instrument is intended to present to the Bank and to publish the details of all procurement to be made in a given period of execution of the project. The PP informs about all acquisitions and contracts that will be executed in conformance with the Policies for Procurement of goods and works financed by the Bank (GN-2349-9) and the Policies for the Selection and contracting of consultants financed by the Bank (GN-2350-9), and in accordance with the Loan Agreement. In order to be considered by the Bank, the PP should be presented with the AOP, as an integral part of the semi-annual progress reports, and should be updated annually or when necessary during the entire period of execution of the project.
   9. **Semi-annual Progress Reports.** This report is intended to present to the Bank the achieved results in the execution of the project, the AOP and PP, as well as inform about the status of execution of the contracts. The PMU will have to submit to the Bank all semi-annual progress reports, indicating the progress in each component and the overall project performance, based on the indicators in the RF. These reports will be submitted at the end of February and August of each calendar year. These results will be compared with the technical indicators established in the RF, which will be determined before, during and after the execution of the Project, and will allow the update of the Progress Monitoring Report (PMR).
   10. The semi-annual reports should be presented during the original disbursement period or any extension thereof and should include, at least: (i) the compliance with contract terms; (ii) the description and general information about activities; (iii) the progress against performance indicators and disbursement schedule agreed upon and updated schedules of execution and disbursement; (iv) progress with the collection of information on the quality of the road network and of its ancillary infrastructure (i.e. drainage), and statistics of road accidents; (v) the summary of the financial status of the project; (vi) the description of the bidding process conducted; (vii) the evaluation of the firms; (viii) a section about the socio-environmental management of the project against the Environmental and Social Management Report;(ix) a program of activities and detailed plan of execution for the two following semesters; (x) the expected future cash-flows for the following two semesters; (xi) a section identifying possible development and events that could jeopardize the execution of the project; (xii) updates of the AOP, PEP and Procurement Plan, and (xi) the status of the works and equipment included in the project. In addition, starting at the expiration of the original disbursement period or any extension thereof and up to and including the fifth (5th) year after the expiration of the original disbursement period or any extension thereof, the executing agency should present an annual maintenance report on the status of works and equipment.
   11. **Inspection Visits.** The Bank will perform biannual visits with the PMU, to discuss: (1) the progress of the activities identified in the AOP and the PEP, (2) the level of compliance with the indicators established in the RF; and (3) the AOP of the following 12 months.
   12. **Administration Mission.** The Bank will conduct an bi-annual Administration Mission to review the progress of the project and address the specific issues identified.
   13. **Indicator Measurement Frequency.** The indicators that will be followed up on are included in the RF. These indicators, in Tables 1 & 2, will be monitored and recorded in the PMR showing the number of cycles of data collection and the timing or frequency of measurement and data collection.
   14. **Monitoring, Coordination, Work Plan, and Budgets.** The monitoring work plan is presented in Table 2. The budget assigned to monitoring, is US$187,000 to be financed by the Project. The budget is broken out in Table 2.

**Table 1: Monitoring Output Indicators**

|  |  |  |  |
| --- | --- | --- | --- |
| **Output and Activities Indicators** | | **Frequency of Measurement** | **Primary Source of Verification** |
| Component #1  civil works and Maintenance  (Outputs) | Bridge constructed/rehabilitated | Semi-annually | Engineer’s payment certificates and semi-annual reports. |
| Miles of a regional integration road rehabilitated[[4]](#footnote-5) to national standards (includes the following activities ) | Semi-annually |
| Miles of road signed posted (vertical and horizontal) following international road safety standards | Semi-annually |
| Provide and install new culverts complete with end structures and upgrade existing culverts. | Semi-annually |
| Sidewalks provided in the urban areas. | Semi-annually |
| Due diligence of the intervention completed: Land acquisition and utilities relocations | Semi-annually | Report by the PMU and Engineer’s payment certificates and semi-annual reports. |
| Miles of Roads Maintained after completion of works | Semi-annually | Report by the PMU |
| Component #2  Institutional Strengthening  (Outputs) | Training events in structuring of performance based contract. | Semi-annually | Report by the MOW and the PMU |
| Training events in environmental safeguards application in accordance to IDB policies | Semi-annually |
| Training Events in AASHTO HDM4 highway design and testing codes | Semi-annually |

**Table 2. Monitoring Working Plan**

| **Monitoring Outputs/Activities** | **Year 1** | | | | **Year 2** | | | | **Year 3** | | | | **Year 4** | | | | **Responsible** | **Cost**  **(U$S)** | **Financing** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **I** | **II** | **III** | **IV** | **I** | **II** | **III** | **IV** | **I** | **II** | **III** | **IV** | **I** | **II** | **III** | **IV** |
| 1. **Civil Works (Data Collection)** |  | | | | | | | | | | | | | | | | MOW-PMU | 121.000 | IDB |
| * Meter of Bridge constructed/rehabilitated |  | X |  | X |  | X |  | X |  | X |  | X |  |  |  |  |  |  |  |
| * Kilometer of road rehabilitated |  | X |  | X |  | X |  | X |  | X |  | X |  |  |  |  |  |  |  |
| * + Provide and install new culverts complete with end structures and upgrade existing culverts. |  | X |  | X |  | X |  | X |  | X |  | X |  |  |  |  |  |  |  |
| * + Sidewalks provided in the urban areas. |  | X |  | X |  | X |  | X |  | X |  | X |  |  |  |  |  |  |  |
| * + Kilometer of road signed and marked (vertical and horizontal) following international road safety standards |  | X |  | X |  | X |  | X |  | X |  | X |  |  |  |  |  |  |  |
| * Kilometer of Roads Maintained after completion of works |  |  |  |  |  |  |  |  |  | X |  | X |  | X |  | X |  |  |  |
| 1. **Institutional Strengthening (Data Collection)** |  | | | | | | | | | | | | | | | | MOW-PMU | 53.000 | IDB |
| * Training events in structuring of performance-based contract. |  | X |  | X |  | X |  | X |  | X |  | X |  | X |  | X |  |  |  |
| * Training events in environmental safeguards application in accordance to IDB policies |  | X |  | X |  | X |  | X |  | X |  | X |  | X |  | X |  |  |  |
| * Training Events in AASHTO HDM4 highway design and testing codes |  | X |  | X |  | X |  | X |  | X |  | X |  | X |  | X |  |  |  |
| 1. **Semi-annual progress reports/PMRs** |  | X |  | X |  | X |  | X |  | X |  | X |  | X |  | X | MOW-PMU | 20.000 | IDB |
| 1. **Inspection visits/Administration missions** |  |  | X |  | X |  | X |  | X |  | X |  | X |  | X |  | IDB | 20.000 | IDB |
| 1. **Final monitoring report** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X | MOW-PMU | 33.000 | IDB |
| Cost | | | | | | | | | | | | | | | | | | 247.000 |  |

1. **Evaluation**
   1. **Main Evaluation Question.** The evaluation will attempt to answer the following questions: (i) Has travel time been reduced? (ii) Has travel cost been reduced?, (iii) Is the road corridor safer?, and (iv) Has the road’s level-of-service improved? To answer the above questions the Ministry of Works will hire an independent evaluator to conduct a final evaluation of the project. The results of this evaluation will be used by the Project team to complete the Bank’s Project Completion Report (PCR). The Bank will closely support the Ministry of Works on the definition of terms of reference and on the supervision of the study.
   2. **Project´s Ex-Ante Cost Benefits Analysis.** For the economic evaluation of the project, an ex-ante cost-benefit analysis was performed. This assessment is based on a comparison of costs and benefits, at economic prices, in situations with and without the road project. The estimation of project benefits was based on a methodology of analysis generally used in road projects (consumer surplus) and in the estimation of additional benefits due to the project’s impact on the principal production activities in the area by quantifying savings in transportation costs for normal traffic without identifying generated or diverted traffic, as well as by reducing road maintenance costs and the accident rate. The HDM-4 model was used to calculate the profitability of the project considering investment costs resulting from engineering studies that include the direct costs of mitigating social and environmental impacts, vehicle operating costs (including time) and annual maintenance costs determined for scenarios with and without the project.
   3. **Evaluation Products.** Specifically the final evaluation is to be conducted by an independent evaluator, and it is to take place after 90% of loan resources have been committed. The evaluation will assess:
   * The degree of attainment of project objectives in relation to plans and reasons for any variances. The ex-post evaluation will include an ex-post cost-benefit analysis;
   * The organization established for project execution;
   * The implementation and acceptance of procedures and systems developed through the project, including environmental and social procedures;
   * The sustainability of the activities funded under the project, lessons learned that could be applied to future public sector reform projects.
   1. The result of the final evaluation will be used as input for the PCR to be prepared by the Bank. The PMU will collect, record and maintain all the information and parameters, including semi-annual reports, annual operating plans, performance plans of the project, and procurement plan, necessary to: (i) support the Bank in preparing the PCR; and (ii) support the IDB Evaluation Office (OVE) in evaluating the impact of the operation. This report will be submitted 90 days after the justification of the last disbursement of the project and will be developed based on, but not limited to, the semi-annual progress reports, the Results Framework, the Audited Financial Statements, and the Project Evaluations. This report will include, at least: (a) the financial performance results for each component; (b) the project impacts; (c) the compliance with established goals, according to agreed outcome indicators; (d) the results and products during execution of the project; (e) the compliance with contractual commitments; (f) the bid processes and results for works, goods and services; (g) the breakdown of the costs by type of work; (h) an ex-post economic evaluation based on the methodologies developed in the ex-ante evaluation; (i) the lessons learned; and (j) the evaluation of the implementation of the works, including the socio-environmental aspects.
   2. **Ex-post Socioeconomic Evaluation Methodology.** The socioeconomic evaluation will be reflective, that is, it will try to measure the changes, which occurred in key variables before (ex-ante) and after (ex-post) the proposed intervention has taken place. The evaluation is based primarily on the use of the Highway Development and Management Model (HDM-4), which is a software application that was developed as part of an effort by the World Bank, the Asian Development Bank, the Department for International Development UK National the TRRL (Transport and Road Research Laboratory) Swedish Road Administration to assist developing countries to plan and improve the conditions of the road infrastructure.
   3. The ex post cost benefit analysis of the works financed by the project will replicate the model used ex ante, held as part of the technical feasibility studies. This analysis will be conducted for two scenarios: (i) Measuring and updating the expected benefits and costs of the intervention, holding constant the conditions and prices considered in appraisal; this allows measurement of whether the actual costs incurred, the benefits actually realized and measured at constant prices are sufficient to justify the investment in economic terms; (ii) the second scenario will consider both the benefits and the actual project costs, updated to current prices, thus obtaining an update on whether the project results are an economically worthwhile investment given the real costs and benefits. This analysis permits isolation of an exogenous increase in costs that may effect changes in the benefits achieved.
   4. To undertake the ex-post evaluation, it will be necessary to do a new traffic counts and measure the IRI at those sites used for the ex-ante analysis.
   5. Those outcomes included in the result framework which are not needed to do the ex-pot cost benefit analysis (number of days in which the road is impassible and trained public employees) will be collected at the end of the project and compared with the expected goal expressed in the result framework.
   6. **Results Information.** Upon completion of the works, the PMU will provide a Final Report on the evaluation results, which shall include the results of the Ex​​-Post Cost Benefit Analysis and its comparison with the Ex-Ante Cost Benefit Analysis. The Final Report must be approved by the IDB Team Leader.
   7. At the end of the project, the Country Office will prepare the PCR with the support of specialists from Headquarters and other specialists who are involved in the design, implementation and evaluation of works financed, or in the case of those who have knowledge about the context of the project. This report must be approved by the relevant Regional Department no later than 180 days after the date of full disbursement.
   8. **Coordination, Work Plan and Budget Assessment.** The PMU will be responsible for conducting evaluation activities, including ensuring data collection.
   9. Meanwhile the IDB, through the Project Team Leader is responsible for coordinating and ensuring that the plan meets the technical quality and schedule. To do this, he will carry out regular meetings with those responsible for the implementation of this plan and if necessary request reports or presentations of our-of-the ordinary results.
   10. Table 4 presents the work plan for the evaluation of the project, which includes the main activities and their respective products, the deadline for compliance, responsible and cost, identifying the source of funding is detailed.
   11. The outcome and impact indicators to be measured are identified in Table 3.

**Table 3. Outcome and Impact Indicators**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicator** | | **Definition** | **Frequency of Measurement** | **Primary Source of Verification** |
| Competitiveness:  (Impact) | Belize’s Quality of Roads (Level-of-Service) | The Quality of Roads as determined for the calculation of the Global Competitiveness Index by the World Economic Forum. The measure is rated on a scale of 1 to 7 with 7 being the highest quality road infrastructure. | In 2020, after the work of rehabilitation is completed | The Global Competitiveness Report – World Economic Forum |
| Levels-of-Services  (Outcome) | Number of accidents per year on the GPH project section:   * Fatalities * Severely injured victims | Number of traffic accidents occurring on the projects segments | In 2022, after the work of rehabilitation is completed | Official report from the MOW through the PMU |
| Average travel times along the GPH project section | Average travel times on the segments to be rehabilitated by the project – (minutes/veh - km) | In 2022, after the work of rehabilitation is completed | As established by the Supervision Consultant during the Ex post economic evaluation to be carried out by the Bank during the PCR |
| Vehicle operating cost – GPH project section | Vehicle Operating Cost (VOC) on road segment to be rehabilitated by the project – (US$/veh - km) | In 2022, after the work of rehabilitation is completed |
| Number of days in which the road is impassible due to a flooding event | The number of days on which flooding prevents vehicles from traversing the length of the road in one continuous journey | In 2022, after the work of rehabilitation is completed | Reports from the MOW |
| MOW strengthened in:   * Structuring of performance based contracts * Environmental safeguards application in accordance to IDB policies * AASHTO HDM4 highway design and testing codes | MOW staff trained in technical areas | In 2022, at the end of the project | Report from the MOW |

**Table 4. Evaluation Working Plan**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Impacts/Outcomes/Activities** | **Year 1** | | | | **Year 2** | | | | | **Year 3** | | | | **Year 4** | | | | | | **Responsible** | **Cost**  **(U$S)** | **Financing** |
| I | II | III | IV | I | II | III | IV | | I | II | III | IV | I | II | III | | IV | |
| 1. **The Global Competitive Annual Report. World Economic Forum** |  | | | | | | | | | | | | | | | | | | | MOW-PMU | 0 |  |
| * Belize Quality of Road Index |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |  | |  |  |  |  |
| 1. **Ex post economic evaluation of concluded civil works** |  | | | | | | | | | | | | | | | | | | | MOW-PMU | 100,000 | IDB |
| * Vehicle operating cost – GPH project section |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | X | |  |  |  |
| * Average travel times along the GPH project section |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | X | |  |
| * Reduction in the number of accidents per year on the GPH project section |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | X | |  |
| * Number of days in which the road is impassible due to a flooding event |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | X | |  |
| MOW strengthened in:   * Structuring of performance based contracts * Environmental safeguards application in accordance to IDB policies * AASHTO HDM4 highway design and testing codes |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | X | |  |
| 1. **Mid-term evaluation** |  |  |  |  |  |  |  |  | |  |  | X |  |  |  |  | |  | | MOW-PMU | 43.000 | IDB |
| 1. **Final evaluation report** |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | X | | MOW-PMU | 60,000 | IDB |
| Costos totales | | | | | | | | | | | | | | | | | | | | | 203.000 |  |

1. **Auditing**
   1. **External Audits.** Financial and project audits will be financed with the resources of the operation. An annual audit of the financial project balances will be carried out, and a six-month report will be conducted under previously agreed to procedures of the justifications of the use of advance payments made by the Bank to the PMU. The external audit will be carried out by an independent firm approved by the Bank, and under terms of reference agreed to by the Bank. The audited annual financial statements will be presented within 120 days following the closure of the fiscal year. The report of the audited final financial statements will be presented within 120 days from the date of the last disbursement.
   2. **From a financial perspective:**
2. An annual financial audit report of the project is to be submitted by MOW within 120 days of the end of each calendar year (beginning with the year in which the project was made effective);
3. A final financial audit report of the project is to be submitted by MOW within 120 days after the date of the last disbursement.

The external audits will be performed by a firm of independent auditors acceptable to the Bank, in accordance with International Accounting and Reporting Standards, and terms of reference previously approved by the Bank. MOW will be responsible for the contracting of the independent auditor, which will be selected and hired in accordance with the procedures established by the Bank. The cost of the audits will be financed with project resources. A work schedule for the audit is in Table 5.

**Table 5. Audit Working Plan**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Monitoring Outputs/Activities** | **Year 1** | | | | **Year 2** | | | | **Year 3** | | | | **Year 4** | | | | **Responsible** | **Cost**  **(U$S)** | **Financing**  **IDB** |
| I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV |
| 1. **Annual financal audit report** | X |  |  |  | X |  |  |  | X |  |  |  | X |  |  |  | MOW-PMU | 150.000 |
| 1. **Final Audit report** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X | MOW-PMU | 50.000 |
| **Costos totales** | | | | | | | | | | | | | | | | | | 200.000 |  |

1. **Project Costs**
   1. Table 6 details the project cost per component.

Table 6: Project Cost (US$’000)

| **Category** | **Approved financing** | | | | **ProposedAdditional** | **Consolidated** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **IDB** | **CIF** | **GOBL** | **TOTAL** | **IDB** | **IDB** | **CIF** | **GOBL** | **TOTAL** |
| **Component 1. Civil Works and Maintenance** | **23,954** | **5,280** | **1,528** | **30,762** | **6,600** | **30,554** | **5,280** | **1,528** | **37,362** |
| Replacement of Roaring Creek Bridge including approaches | 3,476 | 2,860 | - | 6,336 | - | 3,476 | 2,860 | - | 6,336 |
| Rehabilitation of GPH, environmental and social mitigation measures, utilities relocation | 18,522 | 2,420 | - | 20,942 | 5,825 | 24,347 | 2,420 | - | 26,767 |
| Construction Supervision | 1,800 | - | - | 1,800 | 775 | 2,575 | - | - | 2,575 |
| Two years of maintenance | 156 | - | 156 | 312 | - | 156 | - | 156 | 312 |
| Land acquisition | - | - | 1,372 | 1,372 | - | - | - | 1,372 | 1,372 |
| **Component 2. Institutional Strengthening** | **400** | **-** | **-** | **400** | **-** | **400** | **-** | **-** | **400** |
| The MOWT Strengthening | 400 | - |  | 400 | - | 400 | - |  | 400 |
| **Component 3. Engineering and Administration** | **2,646** | **220** | **-** | **2,866** | **400** | **3,046** | **220** | **-** | **3,266** |
| Administration (PEU Staff) | 1,747 | - | - | 1,747 | 200 | 1,947 | - | - | 1,947 |
| Studies and Designs | 449 | - | - | 449 | - | 449 | - | - | 449 |
| Monitoring and Evaluation | 350 | - | - | 350 | 100 | 450 | - | - | 450 |
| Communication Strategy and Financial Audits | 100 | 220 | - | 320 | 100 | 200 | 220 | - | 420 |
| **TOTAL** | **27,000** | **5,500** | **1,528** | **34,028** | **7,000** | **34,000** | **5,500** | **1,528** | **41,028** |

Table 7 shows the anticipated annual disbursements for BL-L1029 while Table 8 breaks down the cost by investment category and output. Annex 2 shows the execution plan which breaks down the cost by activity.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Total** |
| **IDB** | 1.050 | 1.050 | 1.400 | 3.500 | 7.000 |
| % | 15% | 15% | 20% | 50% | 100% |

Table 7. Estimated Schedule of Disbursement (US$ million)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 8. Annual Output By Investment Category** | | | | | |
| **Outputs** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Total** |
| **Component 1. Civil Works and Maintenance** |  |  |  |  |  |
| Category: Rehabilitation of GPH, environmental and social mitigation measures, utilities relocation (US$Million) | 1,050 | 1,050 | 1,400 | 3,100[[5]](#footnote-6) | 6,600 |
| Indicator: Kilometers of a regional integration road rehabilitated to national standards (km)[[6]](#footnote-7) | 0 | 5 | 11 | 05 | 16 |
| **Component 2. Administration and Evaluation** |  |  |  |  |  |
| PMU cost and monitoring/evaluation activities (Cost Only) (US$Million) |  |  |  | 400 | 400 |
| **TOTAL (US$Million)** | 1,050 | 1,050 | 1,400 | 3,500 | 7,000 |

**Annex 1: Results Matrix**

**Results Matrix**

|  |  |
| --- | --- |
| **Project Objective:** | The general objective is to contribute to the productivity and economic integration of Belize. The specific objective of the additional financing is to provide additional resources to complete the George Price Highway Rehabilitation project (3344/OC-BL)[[7]](#footnote-8), which aims to substantially improve the road connectivity within Belize’s main districts and with Central America. This will be achieved through the rehabilitation of the GPH road infrastructure between miles 47.9 in Belmopan and 67.3 in Santa Elena to national standards, thereby decreasing travel time and costs, reducing road fatalities and injuries, and ensuring road accessibility by improving the Climate Change resilience of the corridor. |

**Expected Impact**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Indicators** | **Unit of measure** | **Baseline** | **Baseline Year** | **Goal**  **FY 2022** | **Means of verification** | **Observations** |
| Belize´s Quality of roads[[8]](#footnote-9) | index | 3 | 2013 | 3.2[[9]](#footnote-10) | The Global Competitiveness Report – World Economic Forum | The index varies from 1 – 7  (poor – excellent). The goal was estimated by comparison with the index for the Bank’s D countries within the region |

**Expected Outcomes**

| **Indicators** | **Unit of**  **measure** | **Baseline**  **Value** | **Baseline**  **Year** | **Goal**  **FY 2022** | **Means of verification** | **Observations2** |
| --- | --- | --- | --- | --- | --- | --- |
| **Result 1. Decrease the vehicle operating cost (VOC)** | | | | | | |
| Vehicle operating cost – GPH project section | USD/km | Annual Average Vehicle Operating Cost per veh-km.   1. Car, Utilities 4WD (BEL) 0.14 2. Bus 35+ passenger (BEL) 1.41 3. Truck Med (BEL) 0.80 4. Truck Heavy (BEL) 1.12 5. Motorcycle (BEL) 0.17   Total 3.63 | 2014 | Annual Average Vehicle Operating Cost per veh-km.   1. Car, Utilities 4WD (BEL) 0.14 2. Bus 35+ passenger (BEL) 1.30 3. Truck Med (BEL) 0.75 4. Truck Heavy (BEL) 1.05 5. Motorcycle (BEL) 0.16   Total 3.41 | Ex-post economic evaluation to be carried out by the Bank during the Project Completion Report (PCR) | Highway Development and Management 4 (HDM-4) will be the tool to perform this analysis VOC – is an indicator that estimates the cost in USD that the owners of vehicles pay per kilometer to operate their vehicles based on the condition of the roads |
| **Result 2. Reduction in travel time** | | | | | | |
| Average travel times along the GPH project section | minutes | Average Travel Time   1. Car, Utilities 4WD (BEL) 23.25 2. Bus 35+ passenger (BEL) 29.93 3. Truck Med (BEL) 29 4. Truck Heavy (BEL) 28.37 5. Motorcycle (BEL) 22.16 | 2014 | Average Travel Time   1. Car, Utilities 4WD (BEL) 19.94 2. Bus 35+ passenger (BEL) 28.67 3. Truck Med (BEL) 26.61 4. Truck Heavy (BEL) 26.29 5. Motorcycle (BEL) 20.62 | Ex-post economic evaluation to be carried out by the Bank during the Project Completion Report (PCR) | Field Survey |
| **Results 3. Improve the overall safety of the motorists who utilize this road segment** | | | | | | |
| Number of accidents per year on the GPH project section:  • Fatalities  • Severely injured victims | No. of annual average Fatalities  No. of annual average Severely injured victims | 5.1  51.4 | 2014 | 4.26  42.64 | The official report from the Ministry of Works and Transport (MOWT) through the Project Execution Unit (PEU) | Baseline: National information is derived from the 2012 iRAP report. An assumption has been made that the number of fatalities and accidents on the project section is proportional to the relative length of the intervention corridor against the total trunk network |
| **Result 4. Increased accessibility** | | | | | | |
| Number of days in which the road is impassible due to a flooding event | Days per year | 3-4 | 2014 | 0-1 | Reports by the MOW | Project scope includes the improvement of the drainage system considering the effects of climate change with design allowance for a 20-year storm for the road system and 100-year storm for the Roaring Creek Bridge. |
| **Result 5. Institutional strengthening** | | | | | | |
| MOWT strengthened in:  • Structuring of performance-based contracts  •Environmental safeguards application in accordance with IDB policies  • AASHTO HDM-4 highway design and testing codes | Public employees trained | 0  0  0 | 2014 | 12  20  20 | Reports by the MOW | Funded entirely by original operation 3344/BL-OC |

**Outputs**

| **Outputs** | **Unit of measure** | **Baseline**  **Value** | **Baseline**  **Year** | **Year 1[[10]](#footnote-11)** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** | **Year 7** | **Goal EOP** | **Means of verification** | **Observations2** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Component # 1. Civil works and maintenance** | | | | | | | | | | | |
| **Bridge constructed/rehabilitated** | m | 0 | 2014 | 0 | 0 | 100 | 200 | 185 | 0 | 0 | 485 |  |  |
| **Kilometers of a regional integration road rehabilitated[[11]](#footnote-12) to national standards (includes the following milestones)** | Km | 0 | 2014 | 0 | 0 | 5 | 12 | 7 | 7 | 0 | 31 | Report from the PEU based on the certificate of completion issued by the supervision firm | The road section is part of the regional integration initiative Mesoamerican Project’s RICAM that prioritizes the most relevant road links to foster a commercial dynamic in the region and with the rest of the world ([OEL#5](http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=EZSHARE-114430752-24)) |
| a) Miles of road signed and marked (vertical and horizontal) following international road safety standards | Km | 0 | 2014 | 0 | 0 | 0 | 10 | 10 | 11 | 0 | 31 |
| b) Provide and install new culverts complete with end structures and upgrade existing culverts. | Feet | 0 | 2014 | 0 | 700 | 700 | 1,000 | 1,000 | 0 | 0 | 2,700 |
| C) Sidewalks provided in the urban areas | Square yards | 0 | 2014 | 0 | 0 | 2,000 | 2,000 | 3,800 | 2000 |  | 9,800 |
| d) Due diligence of the intervention completed: Land acquisition and utilities relocations | % | 0 | 2014 | 20 | 40 | 40 | 0 | 0 | 0 | 0 | 100 |
| Miles of Roads Maintained after completion of work | Km | 0 | 2014 | 0 | 0 | 0 | 0 | 31 | 31 | 31 | 31 |  |
|  |  |  | **Component # 2. Institutional strengthening** | | | | | | | | | | | |
| Output #1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Training events in structuring of performance-based contracts | # | 0 | 2014 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Report by the MOW | Funded entirely by original operation 3344/BL-OC |
| Training events in environmental safeguards application in accordance to IDB policies | # | 0 | 2014 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Funded entirely by original operation 3344/BL-OC |
| Training events in AASHTO HDM4 highway design and testing codes | # | 0 | 2014 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Funded entirely by original operation 3344/BL-OC |

Annex 2: Project Execution Plan



1. Belize Statistical Institute. [↑](#footnote-ref-2)
2. Includes both direct and indirect additions of tourism to the national GDP. World Travel and Tourism Council (WTTC). Belize Economic Impact, 2014. [↑](#footnote-ref-3)
3. The signed partial agreement promotes: the facilitation, promotion, diversification and expansion of trade in originating goods from the parties (Guatemala and Belize) by granting preferential margins on their tariffs, eliminating non-tariff barriers to trade, and establishing clear regulations on technical, sanitary and phyto-sanitary measures. [↑](#footnote-ref-4)
4. The rehabilitation of roads can include works such as: routine shaping and spot treatment/repair of the road surface, paving, cleaning and/or maintenance of drainage structures, vertical and horizontal alignments improvements, signaling and marking. [↑](#footnote-ref-5)
5. Construction is expected to be completed in Year 3 while final payments and release of retentions will be Year 4 as is customary with civil works contracts [↑](#footnote-ref-6)
6. Kilometer of roads corresponding to Section 3 which is approximately 16km of the 31km to be constructed by the projects [↑](#footnote-ref-7)
7. 3344/OC-BL and BL-L1029 will utilize the same Project Monitoring Report (PMR) since the quantity of the physical outputs are unchanged. The cost in the PMR for those outputs which will receive additional financing from BL-L1029 will be adjusted accordingly as part of the Kick-off Workshop. [↑](#footnote-ref-8)
8. The Global Competitiveness Report is a yearly report published by the World Economic Forum. Since 2004, the Global Competitiveness Report ranks countries based on the Global Competitiveness Index. The different aspects of competitiveness for each country are captured in 12 pillars, which compose the Global Competitiveness Index. Quality of roads index is part of the second Pillar, infrastructure. This project will contribute to the improvement of the Belize´s Quality of roads index. 13% of the total road network in Belize corresponds to major highways. This is equivalent to a total of 573 km. The upgrading of the George Price Highway for example (31.2km or 19.4 miles) would represent 5% of the primary network. [↑](#footnote-ref-9)
9. The goal was estimated by comparison with the index for the Bank’s C&D countries within Central American region: Honduras:3.4, Nicaragua:3.3, Guatemala:3.1. [↑](#footnote-ref-10)
10. The loan contract was signed on November 17, 2015, however disbursement and execution started in 2016 as such this was considered as Year 1. [↑](#footnote-ref-11)
11. The rehabilitation of roads can include works such as: routine shaping and spot treatment/repair of the road surface, paving, cleaning and/or maintenance of drainage structures, vertical and horizontal alignments improvements, signaling and marking. [↑](#footnote-ref-12)