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Report No: PAD1221

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$140 MILLION

TO

GEORGIA

FOR A

EAST-WEST HIGHWAY CORRIDOR IMPROVEMENT PROJECT

October 19, 2015

Global Practice Transport and ICT
Europe and Central Asia

CURRENCY EQUIVALENTS

(Exchange Rate Effective June 15, 2015)

Currency Unit = Georgian Lari (GEL)
US1.00 = 2.23 GEL
1.00 GEL = US$0.45

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AADT	Average Annual Daily Traffic	IFI	International Finance Institutions
ADB	Asian Development Bank	IFR	Interim Un-audited Financial Reports
BOQ	Bill of Quantities	IPSAS	Integrated Public Sector Accounting Software
CAS	Country Assistance Strategy	IRI	International Roughness Index
CPS	Country Partnership Strategy	ISA	International Standards on Auditing
CQS	Consultant Qualifications	IT	Information Technology
DA	Designated Account	ITS	Intelligent Transport Systems
DC	Direct Contracting	JICA	Japanese International Cooperation Agency
EIB	European Investment Bank	LCS	Least-Cost Selection
EIRR	Economic Internal Rate of Return	MESD	Ministry of Economy and Sustainable Development
EMF	Environmental Management Framework	MOF	Ministry of Finance
EMP	Environmental Management Plan	MRDI	Ministry of Regional Development and Infrastructure
EPRU	Environmental Protection and Resettlement Unit	NBG	National Bank of Georgia
ESIA	Environmental and Social Impact Assessment	NCB	National Competitive Bidding
ETC	Extended Term Consultant	NPV	Net Present Value
EU	European Union	PAD	Project Appraisal Document
EUR	Euro Currency	PBC	Performance Based Contract
EWHC	East-West Highway Corridor	PDO	Project Development Objective
EWHCIP	East-West Highway Corridor Improvement Project	QBS	Quality Based Selection
EWHIP	East-West Highway Improvement Project	QCBS	Quality and Cost Based Selection
EWHIP-4	Fourth East-West Highway Improvement Project	RAMS	Road Asset Management System
FA	Fixed Assets	RAP	Resettlement Action Plan
FBS	Fixed-Budget Selection	RD	Roads Department
FDI	Foreign Direct Investments	REA	Regional Environmental Assessment
FEWHIP	First East-West Highway Improvement Project	ROW	Right of Way
FIDIC	International Federation of Consulting Engineers	RPF	Resettlement Policy Framework
FM	Financial Management	SEWHIP	Second East-West Highway Improvement Project
FMM	Financial Management Manual	SH	Shopping
FPU	Foreign Projects Unit	SLRP-II	Second Secondary and Local Roads Project
GDP	Gross Domestic Product	SOE	Statement of Expenses
GIS	Geographical Information System	SORT	Systematic Operations Risk- Rating Tool

GOG	Government of Georgia	SSS	Single Source Selections
IBRD	International Bank for Reconstruction and Development	SW	Staff Weeks
IC	Individual Consultants	TEM	Trans-European Motorway
ICB	International Competitive Bidding	TEWHIP	Third East-West Highway Improvement Project
ICT	Information and Communications Technology	TEWHIP AF	Third East-West Highway Improvement Project Additional Financing
IDA	International Development Association	TOR	Terms of Reference
IFAC	International Federation of Accountants	TRRC	Investment Center of Eurasian Transport Corridor

Regional Vice President:	Cyril E. Muller
Country Director:	Mercy Miyang Tembon
Senior Global Practice Director:	Pierre Guislain
Practice Manager:	Juan Gaviria
Task Team Leader:	Mustapha Benmaamar

GEORGIA
East-West Highway Corridor Improvement Project

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PAD DATA SHEET

Georgia

East-West Highway Corridor Improvement (P149952)

PROJECT APPRAISAL DOCUMENT

EUROPE AND CENTRAL ASIA

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Report No.: PAD1221

Basic Information			
Project ID P149952	EA Category A - Full Assessment		Team Leader(s) Mustapha Benmaamar
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [ ]		
Project Implementation Start Date 04-Dec-2015	Project Implementation End Date 31-Dec-2020		
Expected Effectiveness Date 31-Dec-2015	Expected Closing Date 31-Dec-2020		
Joint IFC No			
Practice Manager/Manager Juan Gaviria	Senior Global Practice Director Pierre Guislain	Country Director Mercy Miyang Tembon	Regional Vice President Cyril E Muller

Borrower: Georgia			
Responsible Agency: Roads Department of the Ministry of Regional Development and Infrastructure (RDMRDI)			
Contact:	Nugzar Gasviani	Title:	First Deputy Chairman
Telephone No.:	(995-32) 237-5068	Email:	info@georoad.ge

Project Financing Data(in USD Million)					
[X]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[ ]	Credit	[ ]	Grant	[ ]	Other

Total Project Cost:	164.00	Total Bank Financing:	140.00
Financing Gap:	0.00		

Financing Source	Amount
Borrower	24.00
International Bank for Reconstruction and Development	140.00
Total	164.00

Expected Disbursements (in USD Million)

Fiscal Year	2015	2016	2017	2018	2019	2020	2021	0000	0000	0000
Annual	0.00	20.00	30.00	30.00	30.00	30.00	0.00	0.00	0.00	0.00
Cumulative	0.00	20.00	50.00	80.00	110.00	140.00	140.00	0.00	0.00	0.00

Institutional Data

Practice Area (Lead)

Transport & ICT

Contributing Practice Areas

Cross Cutting Topics

[ ] Climate Change

[ ] Fragile, Conflict & Violence

[X] Gender

[ ] Jobs

[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Public Administration, Law, and Justice	Public administration-Transportation	4		
Transportation	Rural and Inter-Urban Roads and Highways	96		
Total		100		

☑ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%

Public sector governance	Other public sector governance	3
Trade and integration	Regional integration	48
Trade and integration	Trade facilitation and market access	49
Total		100

Proposed Development Objective(s)

The proposed PDOs are to: (i) reduce road user costs along the East-West Highway Corridor section upgraded under the project; and (ii) strengthen the capacity of the Roads Department and the Ministry of Economy and Sustainable Development to respectively manage the road network and provide an enabling environment to improve logistics services.

Components

Component Name	**Cost (USD Millions)**
Component 1: Corridor Improvement	158.50
Component 2: Institutional strengthening	2.00
Component 3: Project management support	0.50
Component 4: Preparation of designs and supporting studies for future projects for the development of the East-West Highway	3.00

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	High
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate
7. Environment and Social	Moderate
8. Stakeholders	Low
9. Other	
OVERALL	Substantial

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ] No [X]
Does the project require any waivers of Bank policies?	Yes [ ] No [X]
Have these been approved by Bank management?	Yes [ ] No [X]

Is approval for any policy waiver sought from the Board?	Yes [ ] No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X] No [ ]

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36	X	
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants

Name	Recurrent	Due Date	Frequency
Loan Agreement Schedule 2, Section I, C	X		CONTINUOUS

Description of Covenant

For purposes of coordinating the implementation of the Project, MESD, RD (under MRDI), and TRRC shall enter into a Project Implementation Agreement, satisfactory to the Bank, which shall include, inter alia, the obligations set forth under this Schedule as applicable to RD, MESD and TRRC, respectively.

Name	Recurrent	Due Date	Frequency
Loan Agreement Schedule 2, Section I, E. 4	X		CONTINUOUS

Description of Covenant

The Borrower through RD, shall: (a) maintain satisfactory terms of reference in respect of any consultancy in connection with the Project following the Bank's review thereof and; (b) ensure that such terms of reference duly incorporate the requirements of the Bank's Safeguards Policies then in force, as applied to the advice conveyed through such technical assistance.

Name	Recurrent	Due Date	Frequency
Loan Agreement Schedule 2, Section I, E. 5	X		CONTINUOUS

Description of Covenant

If determined that Resettlement is involved on the section of the road from km 0 (Zemo Osiauri) to km 5.8, the Borrower shall: (i) prior to the carrying out of civil works, furnish to the Bank, a RAP consistent with the RPF acceptable to the Bank; (ii) disclose and carry out consultations for said RAP; and (iii) implement said RAP in accordance with its terms and in a manner acceptable to the Bank.

Conditions		
Source Of Fund	**Name**	**Type**
IBRD	Project Operations Manual	Effectiveness
Description of Condition		
The Borrower, through RD, has submitted to the Bank the Project Operations Manual in form and substance acceptable to the Bank.		
Source Of Fund	**Name**	**Type**
IBRD	Project Implementation Agreement	Effectiveness
Description of Condition		
The Project Implementation Agreement between MESD, RD (under MRDI), and TRRC has been executed by the parties thereto in a manner acceptable to the Bank.		
Source Of Fund	**Name**	**Type**
IBRD	Condition for Retroactive Financing	Disbursement
Description of Condition		
No withdrawal shall be made for payments made prior to the date of the legal agreement, except that withdrawals up to an aggregate amount not to exceed 20 percent of the total Loan amount may be made for payments made prior to said date but on or after July 1, 2015, for Eligible Expenditures under the Project.		

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Mustapha Benmaamar	Team Leader (ADM Responsible)	Sr Transport. Spec.	Sr. Transport Specialist	GTIDR
Sandro Nozadze	Procurement Specialist	Procurement Specialist		GGODR
Galina Alagardova	Financial Management Specialist	Financial Management Specialist		GGODR
Ari Johannes Kalliokoski	Team Member	E T Consultant	Transport Specialist	GTIDR
Darejan Kapanadze	Environmental Specialist	Senior Environmental Specialist		GENDR
Jose C. Janeiro	Team Member	Senior Finance Officer		WFALA
Marie Antoinette Laygo	Team Member	Program Assistant		GTIDR
Militsa Khoshtaria	Team Member	Program Assistant		ECCGE
Natalya Stankevich	Team Member	Transport Specialist	Transport Specialist	GTIDR
Oceane Keou	Team Member	E T Consultant	Transport Specialist	GTIDR

Ramiro Ignacio Jauregui-Zabalaga	Counsel	Senior Counsel		LEGLE
Vera Dugandzic	Safeguards Specialist	Senior Operations Officer		GSURR

Extended Team

Name	Title	Office Phone	Location

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Georgia	Shida Kartli	Zemo Osiauri	**X**		
Georgia	T'bilisi	Tbilisi	**X**		
Georgia	Shida Kartli	Chumateleti	**X**		

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required?	Consulting services to be determined

I. STRATEGIC CONTEXT

A. Country Context

1. **After modest output expansion recovered to 4.8 percent in 2014, GDP grew by 5.9 percent during the first 9 months of 2014 and then moderated to 1.8 percent in the last quarter.** The growth performance in 2014 can largely be explained by the pick-up in private investment, the increase in public consumption, the negative impact of regional tensions and the base effect because of the growth slowdown in 2013. The increase in investment and consumption was supported by greater policy certainty and the signing of the Association Agreement (AA) with the European Union (EU). However, the spillover effects from the slowdown in Russia and anemic growth in the EU had an adverse impact on the Georgian economy in the fourth quarter of 2014. With a slowdown in most of Georgia's trading partners, export demand and remittances fell significantly and the current account deficit widened to 9.7 percent of GDP. Nearly two-thirds of the current account deficit was financed by FDI which is estimated at 6.6 percent of GDP in 2014. With a decline in external performance, the Lari came under pressure. Between November 2014 and June 2015, the nominal exchange rate depreciated by 35 percent against the appreciating US Dollar. Inflation has however remained under check, at 2.7 percent in May 2015 year-on-year, in part because of the decline in oil prices. Fiscal performance was boosted by higher revenue collections which exceeded 2013 collections by 9.4 percent. This was coupled with an underrun on capital expenditures which resulted in a fiscal deficit of 3 percent of GDP, lower than the budgeted 3.7 percent. Economic growth is projected to average 3.6 percent a year over the medium-term but downside risks to growth remain.

2. **Although still registering one of the highest poverty rates in ECA, poverty in Georgia fell steadily between 2010 and 2013, descending to 36 percent in 2013 from 47 percent in 2010 ($2.5/day poverty line).** The trend observed since 2010 suggests the emergence of a new model in which aggregate growth translates into poverty reduction, in contrast to the stagnation in poverty reduction observed between 2006 and 2010. In the 2010-2013 period, labor income became a stronger vehicle for reducing poverty, especially in urban areas. Social transfers and private transfers still remained important for poverty reduction, especially social assistance in rural areas. Employment creation, in contrast, remained weak during the 2010-2013 period and did not play a significant role in poverty reduction. Consistent with the observed reduction in poverty, the bottom 40 enjoyed a consumption growth of 8.5 percent per year, considerably above the 5.4 observed for the top 60 percent. Inequality decreased, as well, falling from a Gini coefficient of 42 in 2010 to 40 in 2013. Indicators of poverty severity also showed improvements in the same period. The average poverty gap indicator (FGT1) fell from 19 to 13 points, while the squared poverty gap (FGT2) also fell from 11 to 7 points. Moving forward, expanding employment creation will be crucial for sustained poverty reduction. Currently, two thirds of workers from poor households are employed in the agricultural sector, posing a challenge for maintaining the pace of poverty reduction. New employment opportunities will have to absorb the unemployed in urban areas and the underemployed that hold low productivity agricultural jobs in rural areas.

B. Sector and Institutional Context

3. **Responsibility for road infrastructure policy and planning in Georgia lies with the Ministry of Regional Development and Infrastructure (MRDI), while management of the**

international/national/secondary and local roads is the responsibility of the Roads Department (RD) and the Municipalities respectively. Secondary and local roads remain in poor condition. Road density in Georgia is lower than in several EU-15 member countries, but compares favorably to densities in Southern Caucasus and Central Asia countries. The main road network includes 22,010 km, which consists of 1,564 km of national/international roads (including the East-West corridor). The secondary and local road networks include 5,446 km and 15,000 km respectively. While most of the international roads (76 percent) in Georgia are in good or fair condition, most of the secondary roads (45 percent) and local roads (85 percent) are in a deteriorated state and lack maintenance funding.

4. **The government continues to be strongly committed to infrastructure improvement. MRDI has developed an Action Plan in 2014 which allocated roughly GEL875 million for infrastructure development, including GEL500 million for road improvements**. Investment and management of ports are now undertaken by private operators under concession agreements, or as full owners of facilities. Transport services have been liberalized in the railway sector and the Georgian Railways operates as a semi-autonomous entity. Georgian Railways' sound financial basis is the result of the profitable transport of oil products transiting from Azerbaijan to the Black Sea. Government investments have therefore focused on the road sector, with rail and port sectors financed largely by the private sector. The continuation of funding for the East-West Highway corridor improvement is one of the priorities of the Action Plan. This is well aligned with the recently signed AA with the EU that will open significantly George to the global market.

5. **Georgia aspires to becoming a regional transport-transit hub, it offers significant opportunities through its renovated and expanded transportation infrastructure.** This is well aligned with the objective to increase the competitively of the Caucasus Transit Corridor (CTC) which is a key transit route between Western Europe and Central Asia for transportation of oil and gas as well as dry cargo. CTC is part of the international and regional corridor TRACECA. The TRACECA corridor is the shortest route between Europe and the Caucasus and Central Asian countries through the Black sea ports. TRACECA is an alternative to the north corridor running through the Russian Federation and Belarus and the southern corridor running through Turkey and Iran, the latter has become less competitive due to international sanctions imposed on Iran. This puts a particular onus on improving logistics and transport services within Georgia but also cross-borders along the CTC.

6. **The East-West Highway carries over 60 percent of the total foreign trade and is seen as a central piece in the Government's strategy of transforming Georgia into a transport and logistics hub for trade between Central Asia and the Far East on the one hand and Turkey and Europe on the other hand.** In Georgia, the East-West Highway Corridor (around 410 km) comprises: (i) the E-60[1] which runs from the Red Bridge's location (border with Azerbaijan) to Poti and (ii) the E-70 which runs from Poti to Sarpi (border with Turkey).[2] It represents 2 percent of the Georgian road network length, and approximately a quarter of the international road network, with an average traffic of around 8,000 vehicles per day. The East West Highway

[1] The European route E-60 is the second longest E-road running from Brest, France (on the Atlantic coast), to Irkeshtam, Kyrgyzstan (on the border with People's Republic of China).

[2] The E-60 and E-70 highways are defined in the European Agreement on Main International Traffic Arteries (AGR) done at Geneva on November 15, 1975.

accounts for 23 percent of the vehicle utilization in Georgian roads, which represents 47 percent of vehicle utilization of Georgian international roads. The 2014 Enabling Trade Index (ETI) ranks Georgia 56th out 138 countries for the availability and quality of transport infrastructure. The improvement of the East West Highway Corridor will improve connectivity between the Caspian and Black Sea, lower cost of transport and logistics and improve Georgia's ranking and connection to global markets.

7. **The government is committed to completing the East West Highway Corridor project by 2020.** The Government has in recent years accorded high priority to completing the upgrading of the East West Highway (392 km) to international motorway standards (2x2 lanes). The Government has deliberately opted to financing this important project using its own budget and a significant support of the International Financing Institutions (IFIs). The World Bank has financed four road improvement projects along the East-West Highway to complement the Government's initial investment from Tbilisi, and assistance is also being provided by other IFIs. Approximately 112 kilometers of the East-West highway corridor have already been upgraded of which 52 km were funded by the World Bank through the first three highway improvement projects (Highway Improvement Project 1, 2 and 3). Works are on-going to complete an additional 142 km by 2019 with the support of the World Bank (39 km), the Asian Development Bank (ADB) (21 km), the European Investment Bank (EIB) (57 km), and the Japanese International Cooperation Agency (JICA) (25 km).

8. **The remaining road sections (85 km) of the East-West Highway corridor between Zemo-Osiauri and Argveta are located along a very difficult terrain and land slide prone areas which will require high level of expertise and innovation**. A feasibility study of the remaining road sections including the detailed engineering design of the Zemo Osiauri and Chumateleti section (around 14 km), which forms the civil works component of the proposed project, will be completed by November 2015. The feasibility study covers three distinct but simultaneous activities (i) alternative alignment analysis and feasibility study of Zemo Osiauri and Argveta; establishing the feasibility of the project and selecting from various alternatives the preferred alignment; (ii) Detailed Engineering Design of Zemo Osiauri and Chumateleti, which is linked to the main civil works component of the proposed project and (iii) Value for Money Analysis and development of an optimal financing strategy for each of the sections between Zemo Osiauri and Argveta. The findings of the feasibility study were presented and discussed at a donors' conference on June 25, 2015.

9. **Road safety has shown significant improvement in Georgia over the last few years with the fatality rate dropping from 16 people per 100,000 in 2006 to 11 in 2013[3] despite high traffic growth.** This was achieved following a combination of a new policy (that resulted, inter alia, in the first National Traffic Safety Strategy and Action Plan), treatment of accident black spots, and improved enforcement of traffic laws. RD has a Road Safety Unit in its Maintenance Division that carries out, with the Patrol Police, road safety audits and inspections of planned road rehabilitation and construction activities. This Unit has continued to implement road safety engineering improvements which, together with road safety campaigns by Non-governmental Organizations (NGOs) and stricter enforcement of some traffic rules (front seatbelt use) by the Patrol Police, have contributed to the observed reduction in road crashes and related fatalities. A

[3] Source: Road Safety Unit of RD

Road Safety Working Group was recently established (December 2014) to develop a new Road Safety Strategy and an Action Plan to be approved in 2015.

10. **Along with major country reforms to improve the business climate and governance, Georgia has successfully implemented a series of fundamental reforms and interventions in the transportation and logistics sector over the last 10 years.** The country has radically improved its value proposition as a transit country, modernizing its transport infrastructure, improving border clearance procedures, and liberalizing the provision of services in many key sectors that ensure better international connectivity with global markets. Despite these achievements, many challenges remain.

11. **Despite recent achievements, the road sector still faces a number of challenges**: (i) over the past decade, the level of investment in national roads and expressways has not kept pace with increasing demand and growth; (ii) a high number of road fatalities requires the need to develop a coordinated road safety strategy and a plan of actions (i.e. a sub-component of the on-going Fourth East West Highway Improvement Project (EWHIP-4)); and (iii) road condition has improved for international roads, but the rest of the network faces significant challenges, as part of the secondary road network and a large part of the local road network are in poor condition. This is primarily due to the insufficient funding of routine and periodic maintenance and to the existence of a significant road rehabilitation backlog. Public expenditure for capital investment (construction/rehabilitation) in the road sector increased by 13 percent per year over the 2007-2014 period but budget allocations to road maintenance works (routine and winter maintenance) remained erratic and have increased only by 6 percent per year during the same period. Georgia has only recently started considering the use of modern road design standards and efficient contracting methods (i.e. Performance Based Contracts (PBC)) which are piloted under the on-going Secondary and Local Roads Projects funded by the World Bank. This is a long process but one that will bring efficiencies to the road sector.

12. **There is a need to consolidate good road asset management practices and move towards modern expressway network development and management.** Highway Improvement Projects have contributed to improving primary roads condition and building technical and management capacity of RD using road asset management approach. Georgia now needs to consolidate the experience gained in the last 10 years and to leverage and efficiently utilize funding to preserve its road asset. MRDI's long term vision is to complete its expressway network by developing the North-South highway corridor, develop adequate institutional and management capacity to manage an expressway network to ensure consistency with modern European standards and practices.

13. **There is a need to capitalize on the road safety gains and enhance RD's capacity to provide real time information to improve mobility and traffic safety. RD has started using modern technologies to provide timely information to road users and to the general public about traffic safety and mobility on roads.** RD has an Intelligent Transport System (ITS) Unit consisting of 5 staff. The Unit's primary responsibility is to timely inform the public about the situation on roads, including weather condition, traffic information or roads condition. The ITS Unit also operates a hotline to respond to public enquiries. Considering a high increase of traffic intensity along the international roads, there is a need to increase the technical and management

capacity of the ITS Unit to increase its responsiveness in emergency situations (i.e. response to road accidents, traffic congestion, inclement weather conditions, flooding, landslides). This will not only help arrange timely emergency services but also reduce incident duration time and prevent secondary incidents. In addition, it will also enable Police and RD to analyze the causes of road accidents and other incidents and develop appropriate enforcement or engineering measures to further strengthen these agencies' efforts in improving safety and supporting the declining trend in fatalities on this corridor. Additional emphasis will be placed on the facilitation of interagency teamwork, coordination and communication (between RD's ITS Unit, Police, Emergency Services, Ambulance Services).

14. **In the freight transport and logistics sector, significant achievements have been made, however many challenges remain to position Georgia as a transit hub.** When breaking down the Georgia's infrastructure index in the 2014 ETI, the availability and quality of transport infrastructure is ranked much higher (56th out of 138 countries) than transport services (99th), with a particularly low ranking for ease and affordability of shipments and logistics. The Government is committed to developing the transport infrastructure (i.e. complete the East-West Highway by 2020). Besides, improving the CTC competiveness will enable Georgia to fulfill its aspiration to becoming a regional transport and logistics hub and reach the LPIs of the neighboring Turkey (regional leader) and of Poland.

15. **There is a need to develop a logistics strategy to optimize the benefits of the large investment in transport infrastructure**. The strategy will provide an enabling environment to enhance private sector participation, eliminate non-tariff barriers and provide a conducive regulatory framework to support trade and attract transit traffic. The strategy will cover three main areas (i) infrastructure and logistics services; (ii) supply chain management; and, (iii) corridor development and cross-border management.

C. Higher Level Objectives to which the Project Contributes

16. **The completion of the East-West Highway corridor is a central piece in the Government's strategy of transforming Georgia into a transport and logistics hub.** Once completed, the East-West highway will provide direct access to about 2.2 million persons or around half of the population of Georgia and will reduce their travel time by 40 percent. The completion of the East-West highway project will also contribute to improving Georgia's LPI and therefore help Georgia in its aspiration to become a regional transport hub.

17. **The East West Highway Corridor has wider development impacts.** A study[4] was carried out during project preparation to provide an analytical foundation to assess the economy wide benefits of investment in the East West Highway Corridor (EWHC), including the assessment of the indirect impacts of cumulative investments along the corridor. The study uses a Computable General Equilibrium (CGE) model. The results show that Real GDP is estimated to increase by 1.3 percent in the comparative static formulation of the model and by 3.9 percent in the steady state formulation. Total output, exports and imports are expected to grow. The works on the EWHC

[4] GEORGIA: Assessing Economy Wide Indirect Impacts of East-West Highway Corridor Investments through CGE Modelling, The World Bank, June 2015

and associated fall in transportation cost will positively affect all types of households, and in particular the two lowest quintiles. The reduction in transportation costs will be more beneficial for the rural population, as the former are much more reliant on transportation and thus much more sensitive to price changes. More details on the study approach and on the results are provided in Annex 5.

18. **This project is in line with the strategic directions identified in the current 2014-2017 Country Partnership Strategy (CPS).** The CPS identifies two strategic pillars: (i) strengthening public service delivery to promote inclusive growth; and (ii) enabling private sector led job creation through improved competitiveness. The project will contribute to both strategic pillars through (i) strengthening the capacity and accountability of RD and MRDI in road infrastructure management and maintenance, and (ii) providing infrastructure to facilitate transit and growth.

19. **The East West Highway Corridor Improvement Project (EWHCIP) will enhance transport connectivity, access to markets and improve transit by reducing travel time as well as transport costs, which directly contributes to the CPS second pillar of improved competitiveness**. The benefits expected from the completion of the East West road corridor will accrue to low-income groups through: (i) improvement in travel conditions via lower travel times, (ii) enhanced trip comfort, particularly for public transport users, and (iii) provide easier and more reliable accessibility to urban centers where most employment and economic activity takes place. Moreover, the highway and its network of feeder roads connecting towns and villages will bring about important developments at the regional and local levels, particularly through more dynamic labor and product markets, expanded employment opportunities particularly in non-farm activities, higher agricultural productivity, more competitive commodity prices, and resource-efficient land use patterns.

20. **The World Bank support goes beyond project financing.** The completion of the East-West Highway Development Corridor requires around US$2.6 billion and constitutes the largest infrastructure project in Georgia**.** This requires financing and significant technical support to help the Government of Georgia (GoG) take decisions on sound technical and economic basis. The Bank provides technical support to RD to supervise and review the feasibility studies necessary to identify an optimal alignment, appropriate design standards and cost effective technical solutions addressing challenging technical and economic constraints which are being addressed during project preparation.

21. **First major upgrading of the East West Highway was completed in 2008 and the Government intends to complete the whole corridor by 2022**. The completion of the sections of the East West Highway Corridor west of the Rikoti tunnel and beyond Argveta, are currently under construction with support from development partners (i.e., JICA, EIB and ADB). The World Bank support focuses on the completion of the sections east of the Rikoti Tunnel, starting from Aghaiani to Zemo-Osiauri. This Project consists of the upgrading of the section between Zemo-Osiauri – km 5.8 to Chumateleti/Rikoti (8 km). The first 5.8 kilometers going westwards starting from Zemo-Osiauri will be financed by EIB. Table 1 presents the current status of the East West Highway corridor development.

Table 1: Status of the East West Highway Corridor Development Program

Road Section	Length (km)	Cost Estimate (US$ million)	Unit cost (US$ m/km)	Financier	Completion date
Rustavi – Red Bridge	36	110.0	3	Project under consideration	
Rustavi – Tbilisi, lot 1and 3	11	50.0	4.5	GoG-ADB	Ongoing, 2015
Rustavi – Tbilisi, lot 2	6.4	55.0	8.6	GoG-ADB	Ongoing, 2017
Tbilisi – Natakhtari	11	N/A	N/A	GoG	Completed, 1980s
Natakhtari – Aghaiani	16	37.5	2.3	GoG	Completed, 2008
Aghaiani – Ruisi	52	240.0	4.6	GoG-World Bank	Completed, 2012
Ruisi – Agara	19	43.0	2.3	GoG-World Bank	Ongoing, 2015
Agara – Zemo Osiauri	12	55.0	4.6	GoG-World Bank	Ongoing, 2016
Zemo Osiauri – Zemo Osiauri-km 5.8	**5.8**	**49.0**	8.4	**GoG-EIB**	**Current Phase, 2018**
Zemo Osiauri-km 5.8 – Chumateleti	**8**	**153.0**	19.1	**GoG-World Bank**	**Current Phase, 2019**
Chumateleti – Argveta	**54**	800.0	14.8	**TBD**	**Future Phases, 2020**
Argveta – Samtredia	57	212.0	3.7	GoG-JICA	Ongoing, 2015
Samtredia – Grigoleti	51	260.0	5.1	GoG-EIB	Ongoing, 2017
Grigoleti – Choloki	14	70.0	5.0	TBD	Future Phases, 2020
Choloki – Kobuleti bypass	33	197.0	6.0	GoG-ADB	Ongoing, 2018
Kobuleti bypass – Sarpi	26	300.0	11.5	TBD	Future Phases, 2022
Entire highway	412.2	2,632 (*)	6.6 (*)		Expected 2022

(*) Estimated while excluding the Tbilisi – Natakhtari section, which was completed in 1980s.

22. **Findings from the recently completed feasibility study for the next phases between Rikoti and Argveta were presented at a donors meeting on June 25, 2015.** The preliminary findings support the development of a highway (2x2 lanes) with an alignment that will follow for the most part the existing alignment with a design speed of 80 km/h, a minimum horizontal radius of 250 m and a maximum gradient of 6 percent. The total length of the remaining sections will be around 54 km involving a distance savings of around 7 km compared to the existing itinerary. The alignment will require around 9 km of bridges and 12 km of tunnels with a total estimated cost of around US$800 million. The next phases will most probably be broken into four sections of 13 km average length. The average cost estimate of each section will be around US$180-200 million. The completion of the future phases will require a significant financing effort from the GoG and development partners. The feasibility study includes a Value for Money analysis which will also explore ways to attract private sector participation (i.e. Public-Private Partnership (PPP) for Operation and Maintenance).

II. PROJECT DEVELOPMENT OBJECTIVES (PDOs)

A. PDO

23. The proposed PDOs are to: (i) reduce road user costs along the East-West Highway Corridor section upgraded under the project; and, (ii) strengthen the capacity of the Roads Department and the Ministry of Economy and Sustainable Development to respectively manage the road network and provide an enabling environment to improve logistics services.

B. Project Beneficiaries

24. **The primary project beneficiaries are the road users**. Road-users are expected to benefit from the upgrading and planned road safety improvements from: (i) better road quality and level of serviceability; (ii) avoiding or deferring costly congestion expected on the basis of mid-term traffic projections; (iii) better road safety through new alignments and city bypasses which allow users to avoid hazardous crossing of urban areas by heavy transit traffic; (iv) less pollution in urban areas; and (v) savings derived from shorter travel times. The Project will directly contribute to economic development by reducing transportation costs and linking communities to Tbilisi, a center for employment, and an outlet for agricultural products and commercial goods. Road safety improvements will also reduce the huge annual economic losses associated with road accidents. The East-West Highway from Tbilisi to Batumi via Poti will provide direct access to 2.2 million people or around half of the total population of Georgia (2012). The Implementation Completion and Results Reports of the first two sections of the motorway show a gain in travel time and vehicle Operating Costs of 40 percent and 10 percent, respectively. The completed motorway project will reduce the travel time from Tbilisi to Batumi by at least 90 minutes to below 4 hours. The 392 km project will, once completed, yield a Net Present Value (NPV) of around US$1.0 billion.

25. **The secondary group of beneficiaries will include the Roads Department (RD) and the Ministry of Economy and Sustainable Development (MESD).** Specifically, (i) RD will receive support in strengthening its traffic and road safety management capacity and (ii) the Transport Policy Department of MESD will benefit from building its capacity to develop a logistics strategy and enact on selected key measures to provide an enabling environment to enhance logistics services.

C. PDO Level Results Indicators

26. **The Project indicators follow the same approach used in the past EWHIP projects with a focus on improvements to transit and vehicle operating costs for the road section that is funded under the project, and a particular focus on logistics**. The indicators capturing the first and second parts of the PDO and proposed core indicators are as stated below. The indicator 'asset value of the East West highway corridor from Tbilisi to Sarpi' is aimed at capturing the outcome of activities to achieve the planned upgrading of the corridor. This indicator will allow to measure success in the development and management of the East West Highway corridor as a whole.

PDO Indicators

First part:

(a) Travel time from Zemo Osiauri – km 5.8 to Chumateleti (mins);

(b) Vehicle Operating Costs from Zemo Osiauri – km 5.8 to Chumateleti (cars in US$/km);
(c) Vehicle Operating Costs from Zemo Osiauri – km 5.8 to Chumateleti (trucks in US$/km).

Second part:

(d) Asset value of the East West Highway corridor from Tbilisi to Sarpi (GEL Million);
(e) National Logistics Program adopted by MESD.

Core indicator

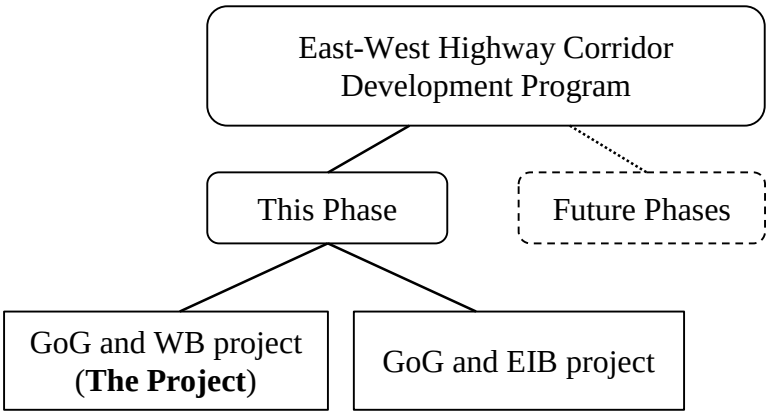
(f) Roads constructed, non-rural

III. PROJECT DESCRIPTION

27. **The East-West Highway Corridor Improvement Project (EWHCIP or 'the Project') is a part of a larger IFI coordinated effort to support the GoG in completing the East-West Highway Corridor Program.** Section C above on "Higher Level Objectives to which the Project Contributes and Table 1 on "East-West Highway Corridor Development Program" elaborates more on the completed, on-going and planned phases of East West Highway Development Program and the role of the IFIs.

28. **This phase consists of the upgrading of existing 2-lane East-West Highway from Zemo-Osiauri to Chumateleti, totaling 13.8 km (Figure 1).** EWHCIP refers to the project co-financed by GoG and the Bank. The EIB will finance in parallel the upgrading of the first 5.8 km from Zemo Osiauri to Zemo Osiauri – km 5.8 to a 2-lane dual carriageway road, including 4 bridges. (Total cost estimate US$48.9 million, including US$39.1 million EIB financing and US$9.8 million from GoG co-financing). The World Bank (the Project) will finance the remaining 8.0 km from Zemo Osiauri – km 5.8 to Chumateleti.

Figure 1: Current phase of the highway development program



A. Project Description and Components – World Bank

29. **The proposed EWHCIP will finance the upgrading of existing 2-lane East-West Highway from Zemo Osiauri-Km 5.8 to Chumateleti (8.0 km)** to a 2-lane dual carriageway road, including 7 bridges and 3 tunnels. This project will also build on the on-going institutional strengthening activities financed under the on-going highway project (i.e. road safety, ITS and road sector financing studies; identification of the optimal alignment for the remaining sections of the East-West Highway). The project supports the strengthening of RD's ITS Unit and complements road safety activities by providing real time information to improve mobility and traffic safety along the corridor. The project will also provide technical support to MESD to develop and implement a logistics strategy. The proposed EWHCIP will consist of three components totaling US$164.0 million, including US$140 million IBRD financing and US$24.0 million GoG co-financing.

30. **Component 1: Improvement and asset management of the East-West Highway Corridor** (Cost estimate: US$158.5 million)

(a) ***Sub-component 1.1. Civil works*** (Estimated Cost: US$153.0 million). The objective of this sub-component is to finance the upgrading of existing 2-lane East-West Highway from Zemo Osiauri-Km 5.8 to Chumateleti to a 2-lane dual carriageway road. The section to be upgraded is approximately 8.0 km long and runs through hilly and mountainous terrain, thus requiring many structural works including 3 tunnels and 7 bridges. The upgrading of the road requires traffic capacity expansion, a dual carriageway including man-made structures in difficult topographic and geological conditions. The carriageway will be of concrete pavement.

(b) ***Sub-component 1.2. Construction supervision and quality assurance services*** (Estimated Cost: US$5.5 million). This sub-component will finance supervision services of the civil works contracts implemented under the proposed project and under the EIB project.

31. **Component 2: Institutional strengthening** (Estimated Cost: US$2.0 million). The objective of this component is to strengthen the capacity of RD's ITS Unit in setting up and managing ITS systems applications to improve traffic control and road safety, and timely communication with road users along the East-West highway corridor, and RD's Monitoring Unit to assess and inform the general public and beneficiaries about the impacts of improving the East West highway Corridor. The services provided by the ITS Unit will also be useful for RD's Maintenance and Supervision Division and Road Safety Unit, Police and Emergency Services. This component will also provide technical support to MESD to develop and implement a logistics strategy. The support will involve:

(a) ***Sub-component 2.1. ITS Capacity Strengthening*** (Estimated Cost: US$1.0 million)**.** The objective of this sub-component is to strengthen the capacity of the ITS Unit to identify and manage ITS systems applications to enhance the Unit's capacity to monitor traffic and road conditions along the corridor and those sections of regional roads with higher traffic intensity and provide real-time information to road users and public through RD's website and other communication channels. This sub-component will build on the first ITS Strategy

that is under preparation under the Fourth EWHIP financing and provide relevant trainings for ITS Unit staff to manage and operate newly ITS systems. It will also support the development of annual road users' satisfaction surveys (in a gender disaggregated manner), including specific questions to measure the level of road users satisfaction related to ITS services provided by RD.

(b) Sub-component 2.2. Technical support to MESD to develop and implement a logistics strategy (Estimated Cost: US$1.0 million)**.** There is a need to develop a logistics strategy to optimize the large investment in transport infrastructure. This sub-component will finance:

a. The consolidation and further development of a National Logistics Strategy/Program. The strategy will provide an enabling environment to enhance private sector participation, eliminate non-tariff barriers and provide a conducive regulatory framework to support trade and attract transit traffic.
b. The creation of a Public/Private Steering Committee, to develop a sustainable working relationship between the Government of Georgia and the private sector. This Committee shall provide a forum to discuss the long-term development and business needs in the said sector and shall advise on activities to be implemented.
c. The implementation of key activities recommended by the strategy and/or by the Committee, including inter alia a feasibility study to identify priority logistics sites and the elaboration of relevant studies for the development and construction of logistics centers on the identified priority sites.
d. Capacity building for MESD (and relevant government units, including targeted units of the Ministry of Finance, or any other state or private organizations involved in logistics), in relation to logistics activities and project management.

32. **Component 3: Project management support** (Estimated Cost: US$0.5 million). Considering the technical complexity of the project, this component will finance the mobilization of relevant technical expertise (i.e. project management; bridge, tunnel and geotechnical engineering) to support RD/FPU Management during project implementation. This component will also contribute to building the technical capacity of RD.

33. **Component 4: Preparation of future investments** (Estimated Cost: US$3.0 million). The objective of this component is to finance the preparation of designs and supporting studies for future investments for the development of the road network.

B. Project Financing

Lending Instrument

34. **The Bank will finance the proposed Project through an IBRD Investment Project Financing Loan of US$140 million**. The Project will be implemented over a five-year period from December 2015 to 2020.

Project Cost and Financing

35. **The Project's total cost is estimated at US$164.0 million**. This amount will be financed by IBRD, and the government; the latter will provide 15 percent counterpart financing. The government is committed to finance all expenditures incurred through the project after full disbursement of the Loan funds, if necessary.

36. The Project indicative cost breakdown is presented in Table 2 below.

Table 2: Project Cost and Financing

Project Components	**Project cost, (IBRD and GoG) (US$ million)**	**IBRD Financing, (US$ million)** *Indicative*
1. Improvement and asset management of the East-West Highway Corridor	158.5	135.25
2. Institutional strengthening	2.0	1.6
3. Project management support	0.5	0.4
4. Preparation of future projects	3.0	2.4
Total Project Costs	**164.0**	**139.65**
Front-end fees		0.35
Total Financing Required	**164.0**	**140.0**

Retroactive Financing

37. The Bank will provide retroactive financing under the Loan in the amount of up to US$28.0 million (20 percent of the Loan). The retroactive financing can cover eligible expenses for which payments have been made prior to the signing date of the Loan Agreement but on or after July 1, 2015. These expenses have to be incurred in accordance with the World Bank procurement rules and other applicable guidelines.

C. Lessons Learned and Reflected in the Project Design

38. **Achievements**: The proposed Project builds on the past and on-going East West Highway Improvement and Secondary and Local Roads Projects funded by the World Bank since 2004 including positive evaluations by the Independent Evaluation Group (IEG). RD has gained significant experience in developing a road asset management system and managing complex road projects, including tunnel design and safety requirements. The previous projects have, in a

sequential manner commensurate with resources available, made substantial contribution to strengthening RD's project management and technical capacity. RD has established a road database, a Geographic Information System (GIS) and a Road Asset Management System (RAMS-HDM-4) which is actively used for cost-benefit analyses during planning, preparation of new and evaluation of completed projects. Road Safety Audits are systematically incorporated in roads engineering design; RD's Road Safety Unit has been active in carrying out road safety audits and inspections, and implementation of engineering counter-measures. RD is now familiar with modern road design standards and is currently piloting efficient procurement methods using Design and Build and Performance Based contracts. RD has developed and strengthened its capacity in environmental and social safeguards management and established a stand-alone Environmental and Resettlement Division in April 2013. This demonstrates MRDI's and RD's recognition of the importance of complying with safeguards policies and mainstreaming safeguards in all projects regardless their source of financing.

39. **A phased approach should be applied to complex highway construction projects**. This lesson was identified during the start of the East-West Highway program (2005) and was incorporated in the preparation of the follow up projects, and remains highly relevant for the proposed project. RD is implementing a phased approach to road and tunnel construction due to the complexity of the project, and thus, avoiding substantial cost and time overruns. Each phase is supported by an interactive process in designing alignment alternatives, assessing technical, environmental and social impacts and cross-validation of design results with engineering firms, RD's in-house additional experts (which were hired after the completion of the second highway project) and international experts mobilized with the World Bank support.

40. **Involvement of local consultants in taking up higher engineering standards and efficiency management practices is key**. This lesson was drawn from experiences of the two activities under first two highway improvement projects: (i) preparation of a new road law and (ii) preparation of standards for design and bidding documents for maintenance, rehabilitation, and construction of roads, including technical assistance to improve contractual arrangements. Local consultants have better understanding of their country's practices and standards; hence the importance of their local knowledge in any activities aiming at introducing revisions and/or new management practices.

41. **Strengthening the institutional capacity of the road sector is timely**. Previous attempts to introduce structural re-organization of the sector proved to be premature. Technical assistance activities related to modernization of human resource (HR) management are likely to be implemented if they are linked to the on-going reform in the agency. RD is currently in the midst of a modernization process and a set of institutional components under EWHIP-4 are under implementation (i.e. road sector financing and institutional strategy, Development of a communication, ITS and a road safety strategy). The proposed project will build on the findings of this sector works and support RD in implementing some of the activities (i.e. implementation of the ITS strategy).

42. **A corridor and framework approach should continue to be applied in the preparation and implementation of projects for the upgrading of successive sections of the same road**. This approach is especially valuable to ensuring application of similar geometric design standards and technical specifications and reflection in new projects of lessons learnt in the preparation and

implementation of successive sections of the road. In addition, safeguard-related frameworks developed under one project can be used for the next project. This approach is reflected in the present Project through the realization that as progress is made in the completion of the upgrading of the East West Highway, attention of RD needs to begin to shift from 'development' to 'management' of the corridor. In recognition of this, the proposed Project contains activities such as the development and implementation of intelligent transport systems along the East West Highway to provide RD with the framework and tools for managing the East West Highway corridor. In addition, the Resettlement Policy Framework (RPF) developed under the previous and on-going projects has been updated and will serve as a guiding instrument for managing involuntary resettlement for new donor and government funded road projects managed by RD. The corridor and framework approach also facilitates institutional capacity building as experiences gained from one project can be directly applied to the new project taking into account any lessons learnt.

43. **This proposed project will put more emphasis on building the management capacity of RD and MESD to develop and manage an expressway network and provide a conducive environment to improve logistics services**. This will consist of implementing a set of activities including, the implementation of the ITS to provide better services to the road users and development of a logistics strategy to optimize the benefits of large investment to complete the East-West highway corridor.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

44. **The proposed Project will be implemented mainly by RD of MRDI, which has been implementing several World Bank funded projects since 1996.** RD has vested project management functions with one of the Department's Deputy Chairmen, supported by the Foreign Projects Unit (FPU) for Procurement and Monitoring and Evaluation. Financial Management is provided by the Investment Center of Eurasian Transport Corridor (TRRC), a specific body designated for financial management of foreign-funded road projects under MRDI. Specific units in RD are in charge of environmental management and monitoring, road safety, and land acquisition and resettlement. As the on-going East West Highway Projects and Secondary and Local Roads projects demonstrate, these implementation arrangements have been generally satisfactory. Application of environmental safeguards remains dependent to much extent on consultant services being procured to supplement in-house capacity of RD.

45. **RD through its ITS Unit will be responsible for the implementation of the ITS Capacity Strengthening sub-component**. However, during the development of the Terms of Reference (TORs) for the ITS Unit and identification of its needs in Information and Communications Technology (ICT) systems, this Division will work in close collaboration with Police, Emergency Services, Ambulance Services (under the Ministry of Health), RD's Road Safety Unit and Maintenance and Supervision Division to better align the role of RD's ITS Unit in the interagency communication and coordination during traffic monitoring and incidence response on the East-West Highway Corridor. RD's Road Safety Unit will take the lead in the implementation of the road safety sub-component. It will collaborate closely with Police to analyze the collected data

through ICT systems (in addition to road accidents reports and statistics) and develop more appropriate road safety interventions on other sections of the corridor.

46. **MESD will implement part of the project institutional strengthening component**. The second sub-component consists of technical assistance and advisory services to help the Transport Policy Department develop a logistics strategy and support to implement key policy measures to provide an enabling environment to improve logistics services in Georgia. These activities will be implemented in close cooperation with RD and MRDI. Indeed, RD will be responsible for the procurement and FM supervision of all services related to this sub-component.

47. **Sufficient procurement capacity exists within RD particularly for large contracts**. To ensure adequate project and contract management capacity within RD relative to the size of the investment program it is implementing, RD has recruited local consultants as project/contract managers to manage some of its projects augmented by local technical assistance. High staff turnover has sometimes been experienced with local technical assistance due to a conjunction of the small pool of available personnel in the local market and difficulty to incorporate them in RD organizational structure.

48. **TRRC will assist RD and MESD in implementation of the proposed Project with responsibilities for financial management**. The financial management arrangements include the Project's system of budgeting, accounting, internal controls, funds flow, financial reporting, and auditing. TRRC has experience in managing Bank projects having implemented several Bank-financed transport or transport related projects. TRRC will work with both the Ministry of Finance and the Treasury Service in the administration of the Project Designated Account (DA), and with RD and MESD for implementation of this Project. MESD, RD and TRRC will sign an implementation agreement spelling out their respective responsibilities under the Project. The Bank will monitor any changes to the structure in the implementing agency that will require agreement with the Bank.

B. Results Monitoring and Evaluation

49. **The Project will continue to use the agreed Bank-financed monitoring and evaluation arrangements.** RD, through FPU, will be responsible for monitoring, evaluating and reporting on Project results. FPU has a dedicated Monitoring and Evaluation sub-unit with a staff of three, who have been effectively monitoring projects and preparing reports in a timely manner. FPU will retain adequate staff (a unit head plus two others) to continue monitoring results.

50. **The project will monitor beneficiary feedback through (i) annual road users' satisfaction surveys designed by RD and carried out by the Supervision Consultant when necessary and (ii) grievance redress mechanisms.** The road users' satisfaction surveys are designed to collect information from road users, including users who are likely to be low-income population or/and females. Road users' satisfaction surveys will be carried out online and/or on site on an annual basis. They will capture public opinion on quality, safety and reliability of (i) highway road sections and (ii) services provided along the highway. The project will also continue to monitor beneficiary feedback through grievance redress mechanism. A robust system of grievance redress mechanisms is already in place under the on-going roads projects. It will support the implementation of RPF/Resettlement Action Plans (RAPs)/ Environmental Management

Framework (EMF) and also communicate systematic information on the objectives and implementation progress of the project. Assistance will be provided to the beneficiaries/project affected peoples as well as to the general public through focal points in local administrations as well as by RD/FPU.

51. **A mid-term review of the Project will take place no later than December 15, 2017**. Its principal objectives will be to: (i) review progress in the implementation of the Project; (ii) review the results framework for the Project and make necessary adjustments; (iii) review overall progress with the development and management of the East West corridor; and (iv) review the outputs, in particular recommendations to develop and enabling environment to enhance logistics. For each of these objectives, RD/MRDI/MESD will prepare reports and/or policy papers as appropriate to guide discussions during the mid-term review. The mid-term review will inter alia help inform the World Bank's decision to play a further role in supporting GoG in the implementation of its National Program for the Development of the entire Corridor.

C. Sustainability

52. **Project sustainability will largely depend on the continued availability of resources and the commitment and ability of RD to effectively use the resources allocated for the road sector**. Efforts in this area will include institutional changes and efficiency improvements in managing the road network. A study to develop a road sector financing strategy is on-going under EWHIP-4. The on-going Value for Money analysis to identify optimal financing strategies of the remaining sections of East West Highway corridor will also include the feasibility of operating and maintaining the whole East-West Highway corridor, once completed, by private sector participation under a PPP scheme.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

53. **The overall project implementation risk is rated as "Substantial".** This is mainly due to the high risk associated with the technical complexity of the proposed project section and the capacity of RD to manage a large highway investment program. All other risks are rated either low or moderate due to the robust mitigation measures developed (i.e. Governance, Sustainability and Stakeholders).

B. Overall Explanation of Key Risk

54. **There is a risk associated with the technical complexity of the proposed project section and with the capacity of RD to manage a growing and a complex highway investment program.** The risk of road alignment, technical design and cost-effective solutions are being mitigated by close oversight by the Bank team of the feasibility study and work of the design consultants. RD has also hired an international tunnel and a bridge engineers to review the design and provide targeted support during project implementation. Supervision of the works will be done by an international firm in order to reduce administrative demands and ensure construction quality. In addition, an independent technical audit consultant will be hired under one of the on-going

highway project. The independent technical audit consultants review the work done by the contractor, the supervision engineer and RD to ascertain the quality of the road works. In order to develop the capacity of RD, the project monitoring team within RD will also be involved in this oversight activity and will be provided with relevant training.

VI. APPRAISAL SUMMARY

A. Economic Analysis

55. **Alternative alignment analysis.** Considering the impact assessment, topographical and geological analyses, four different alignments were initially considered during the feasibility study. Alternative 4 was discarded due to its negative environment and social impacts as it traverses a high value forest land and a cemetery. The first 10 km of Alternative 3 go through a high risk landslides area and was also dropped. Further analysis was carried out to compare the remaining two alternatives (Alternative 1 and Alternative 2). The total road length of Alternative 1 and 2 is 13.8 km and 14.2 km respectively. Alternative 1 and Alternative 2 share the same alignment along the first 10 km, including around 2.5 km of bridges. The last 4 km of Alternative 1 would require the construction of 3 tunnels totaling 2.6 km. The last 4 km of Alternative 2 join the existing road, along the river, leading to the entrance of the Rikoti Tunnel. Alternative 2 would require the construction of one tunnel of 1.5 km. Alternative 2 is the least cost option. However, it has environmental impact on river water quality. Therefore Alternative 1 was selected as the preferred option. Details about the site characteristics and the alternative alignment analysis are provided in Annex 5.

56. **Project Traffic.** Most of the traffic that will use the project road will go through the Rikoti tunnel. Therefore, based on the project traffic survey conducted during October and November 2014, the surveyed and adjusted traffic of 9,570 (AADT 2014) at the entrance of the Rikoti tunnel was used to estimate the expected traffic on the project road. The traffic at the entrance of the Rikoti tunnel increased on average by 10 percent per year from 2005 to 2014 and is estimated to reach 13,314 vehicles per day in 2019, assuming an annual growth rate of 5.5 percent per year from 2014 to 2017 for passenger cars and 5.25 percent for other vehicles (Table 3). The normal traffic growth rates are presented in Table 4. The World Bank estimates that Georgia's GDP per capita will grow at 3.6 percent per year from 2015 to 2018.

Table 3: Rikoti Tunnel Traffic

Year(vehicles/day)Period	AADT	Traffic Annual Growth Period	%/year
2005	4,036	2005-2010	7%
2006	5,083	2010-2014	14%
2007	6,140	2005-2014	10%
2008	5,831		
2009	5,505		
2010	5,664		
2014	9,570		
2019*	13,314		

* Estimated Rikoti Tunnel traffic at opening of the project road

Table 4: Estimated Annual Traffic Growth

Period	Traffic Annual Growth (%)	Estimated GDP per Capita Annual Growth
2015-2020	5.40%	3.6% (2015-2018)
2021-2025	4.90%	
2026-2035	3.80%	
2031-2040	3.40%	

57. **The current road from Zemo Osiauri to Chumateleti is 17.6 km long and goes across the town of Khashuri. It is a 2-lane Asphalt Concrete road with an average roughness of 3.5 IRI, m/km. The upgraded road will bypass Khashuri and reduce the distance by around 3.8 km.** It is a dual 2-lane carriageway with cement concrete pavement. The estimated financial investment cost is US$202.0 million, including taxes and contingencies. Economic investment costs, net of taxes and price contingencies, were estimated at 80 percent of the financial costs. The construction period is three years, and the expressway is expected to be opened to traffic in 2019. The EIB will finance the construction of the first 5.8km and the World Bank will finance the remaining 8km. The economic analysis was done using the Highway Development and Management Model (HDM-4). The overall 13.8 km section (EIB and WB) yields an Economic Internal Rate of Return (EIRR) of 15.3 percent and a Net Present Value (NPV) of US$47.70 million, at a discount rate of 12 percent. The project section (km 5.8 to km 13.8), financed with IBRD funds, yields an EIRR of 12.3 percent and a NPV of US$3.26 million.

58. **A sensitivity analysis was carried out to assess the robustness of the economic evaluation results of the project** to possible variations in key project parameters, which in this case were identified as construction costs and the forecasted traffic at opening of the project road. A severe worst case scenario with construction costs increased by 15 percent and traffic at the opening of the project road decreased by 15 percent shows a marginal return for the project with an EIRR of 11.7 percent. The case of reducing the value of passenger time costs in half yields an EIRR of 12.4 percent. The case of having no generated traffic yields an EIRR of 14.7 percent. The economic analysis sensitivity results are presented in Table 5 below. The detailed economic analysis of the project is presented in Annex 5.

Table 5: EIRR Sensitivity Analysis (%)

Base Case	15.3%
Construction Costs + 15%	13.6%
Traffic at Opening - 15%	13.1%
Construction Costs + 15% and Traffic at Opening -15%	11.7%
Half Passenger Time Cost	12.4%
No Generated Traffic	14.7%

59. **Rationale for public sector provision/financing.** Public sector financing is the appropriate vehicle for financing the upgrading of the project road because of the large initial cost. Public investment in road infrastructure is a key tool for the GoG for promoting the country's development, including for the development of the private sector. Road network development in Georgia at present can only be accomplished through government actions, but opportunities to attract and involve the private sector and private operators in developing, operating and

maintaining the infrastructure are analyzed under EWHIP-4. A large part of the East West Highway Corridor is along a mountainous terrain and the construction of some the sections are technically challenging and costly. In addition to the complexity of the terrain the traffic levels in mountainous areas may not be high enough to attract private sector participation.

60. **Value added of Bank's support**. The Bank's support is intended to complement and contribute to RD's efforts under the program or those of its development partners by providing new knowledge based on international experience. This will be instrumental for helping to ensure (i) the quality of the engineering design and of physical construction, (ii) the presence of a sustainable setup for management, operation and maintenance of the highway, (iii) integrating the highway in Georgia's overall transport planning, (iv) the use of adequate environmental and social risk management and safeguards procedures, and (v) the use of adequate procurement and financial management procedures. More specifically, the Bank will provide support by mobilizing adequate expertise to review the proposed road alignment alternative for this project road section for the remaining sections till Argveta. The World Bank Group will draw from its global experience and provide support for the bridge and tunnel engineering design. The Bank will also coordinate with the Government and other development partners (ADB, EIB, and JICA) to identify the strategic prioritization of investments for the East West highway by sharing the findings of the on-going feasibility study on the alternative alignment analysis and on the identification of the optimal financing strategy.

B. Technical

61. **The proposed project consists of upgrading the existing 2-lane from Zemo Osiauri to Chumateleti to a 2-lane dual carriageway road.** The carriageway will be made of concrete pavement. Previous sections (from Natakhtari to Zemo Osiauri) are characterized by a flat terrain and a standard design speed of 120 km/h. The section to be upgraded under this Project is 13.8 km long, including 5.8 km which will be financed in parallel by EIB, and runs through hilly and mountainous terrain, thus requiring many structural works including several tunnels and bridges. Considering the difficult topographic and geological conditions around the Rikoti tunnel area, design characteristics and geometric standards of this project road section had to be adapted to a design speed of 80km/h, affecting gradient, curves and the cross sections. The proposed expressway will consist of (i) a roadbed up to 26.50 meters wide (with variations considering the need to decrease, safely and in conformity with international standards, the design speed from 120 km/h to 100 km/h to 80 km/h) and (ii) a reduced central reserve (4 meters including inside shoulders, compared to 6 m for previous sections) with two westbound and two eastbound lanes. Annex 5 elaborates more on the technical description of the road section.

C. Financial Management

62. **The Financial Management (FM) arrangements of the TRRC have been reviewed periodically as part of the on-going projects' implementation support missions,** as well as during the FM assessment of the Project in January 2015, **and have been found satisfactory.** The FM arrangements of the project are going to be the same as for the Secondary and Local Roads Improvement Project II (SLRP-II), Kakheti Regional Roads Improvement Project (KRRIP), EWHIP-3 and -4 implemented by TRRC, which are acceptable to the Bank.

63. **The proposed Project will rely on the existing FM system, which includes**: (i) significant experience of TRRC FM staff in implementing Bank-financed projects for the past several years; (ii) adequate accounting software utilized by the TRRC; (iii) FM arrangements similar to the on-going projects currently being implemented by the TRRC and found to be adequate; and (iv) the unmodified audit reports and management letters with no major issues found by the auditors on the projects financial statements. Depending on the TRRC financial team's workload they might need to hire an additional disbursement specialist. It has been agreed that prior to project effectiveness the TRRC will update the on-going projects' Financial Management Manual (FMM) to reflect the activities of this Project. This is a capacity building action and not a condition.

64. **A Treasury's foreign currency account at the National Bank of Georgia (NBG)** will also be used for holding the project's DA. In addition, the country's budget system will be used for this project. For all other FM elements the TRRC's respective systems are going to be used for this particular project**.** These FM arrangements are satisfactory and will remain in place during the project implementation.

D. Procurement

65. **The Project will finance one large value civil works contract estimated to cost around US$150 million which will finance construction of 8 km of E-60 Highway between Zemo Osiauri-Km 5.8 and Chumateleti.** EIB is financing the upgrading of existing 2-lane East-West Highway section from Zemo Osiauri to Km 5.8 at a 2-lane dual carriageway road in the amount of around US$40 million. EIB agreed to follow the Bank's procurement procedures and applicable standard bidding/pre-qualification documents with minor revisions for their section only. An agreement has thus been reached between RD, the Bank and EIB, to tender out both packages together under 2 lots: there will be one procurement package but separate civil works contracts for the EIB and World Bank sections. RD will exercise due diligence with regard to documentation provided by the winning bidder including the pre- qualification documentations. RD has requested to proceed with post qualification, however considering the high contract value and complexity of the proposed section, pre-qualification will be applicable.

66. **The Project will also finance assignments including but not limited to**: supervision of civil works, institutional strengthening activities, as well as activities to support the implementation of the road sector financing and road sector institutional study. A summary of the project procurement activities are provided in draft Procurement Plan (PP) dated 20 May 2015 and which has been cleared by the Bank.

67. **A separate procurement capacity assessment has not been undertaken yet as the implementation arrangements remain unchanged from EWHIP-4 and SLRP III**. The latest PRAMS was updated for SLRP III in May 2014 and will be updated for EWHCIP after the negotiations, planned in early July 2015.

68. **Decision making structure of RD has not changed**. The Bank staff conducted three training programs on bidding documents and bid evaluation process. A representative from the FPU has attended an advanced procurement training held in Tashkent (Uzbekistan) in spring 2014 as well as subsequent trainings in using E-Procurement System under the World Bank financed projects in July 2014 and using NCB (National Competitive Bidding) bidding documents in December

2014. The Head of the procurement unit recently attended a regional procurement training in Dushanbe, Tajikistan in April 2015.

69. **Procurement will be carried out according to the World Bank's Guidelines**: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants, January 2011 – Revised July 2014 and the Guidelines: Selection and Employment of Consultants under IBRD Loans & IDA Credits & Grants by World Bank Borrowers, January 2011 – Revised July 2014; and the provisions stipulated in the Loan Agreement.

E. Social (including Safeguards)

70. **Based on the results achieved under the past and ongoing EWHIPs, the EWHCIP activities are expected to make a positive impact on poverty alleviation** as improved transport service would expand access to markets, employment and social services and ensure road users to travel more safely with reduced travel costs and time. The highway upgrade will directly benefit the population of six municipalities - Gori, Kaspi, Kareli, Khashuri, Tskhinvali and Java (the latter two being currently out of the jurisdiction of Georgia). It is expected that economic and social conditions of local people will be greatly improved through better transport connectivity and accessibility, in these municipalities that were severely impacted by the August 2008 conflict.

71. **The Project triggers OP/BP 4.12 on Involuntary Resettlement.** The selection of the most suitable alignment of highway section from Zemo Osiauri to Chumateleti does minimize potential adverse social impact. The potential social impact that construction works may entail in terms of land acquisition and resettlement is considered to be moderate. Indeed, though no land survey work or mapping has been initiated yet, based on desk review of available cadaster data, it is estimated that some 500 land plots and around 1000 persons in 350 households will be affected. No major physical or economic displacement is expected under the Project. Early estimates show that land acquisition costs, financed from the state budget, could amount to GEL 1.3 million. To minimize the environment and social impacts of the project, RD had to carry out additional analysis to determine the optimal alignment. Thus, the Detailed Design is expected to be completed by November 2015 and the RAP is expected to be disclosed by November 15, 2015.

72. **The RPF has been developed, approved and disclosed on RD's website on May 18, 2015 and InfoShop on May 26, 2015.** The RAP, expected to be approved and disclosed by November 15, 2015, will provide a detailed description of compensation and rehabilitation measures in compliance with policies and measures set out in the RPF document. Both the RPF and RAP cover the EIB and World Bank sections, i.e. the entire road section between Zemo Osiauri and Chumateleti. There is an agreement between EIB, WB and GoG that these documents prepared following OP/BP 4.01, as well as the Bank's safeguard policies in general, will apply to all civil works to be undertaken in this section including those supported by the World Bank and by the EIB.

73. **Public consultations were held during the preparation and development of both the Environmental and Social Impact Assessment (ESIA) and RPF documents and will continue during the preparation, development and implementation of the RAP.** As was the case with all EWHIPs, consultations meetings took into account the views of both men and women enabling them to express their transport needs, constraints and preferences. Findings of the meetings and

consultations held to date and consultation to be held during the RAP development along with resulting mitigation measures will be incorporated in the RAP as to restore PAPs livelihoods**.** Activities aimed at citizen engagement and beneficiary feedback will be further mainstreamed during the project implementation and evaluation mainly through the RAP implementation and monitoring. Additionally, the grievance redress mechanism is in place to address any potential complaints by the PAPs.

74. **Gender Dimension**. During project consultations special attention will be given to the gender aspect of the project to enable broad participation of both women and men. Findings from the consultations and resulting mitigation measures will be incorporated in the resettlement plan. However, no major gender-related constraints are expected under the project activities, as these will rather generate positive impact and benefits in terms of accessibility and connectivity for both women and men with their livelihood improved. Lastly, during RAP implementation, special attention will be given to women and other vulnerable groups who will receive special assistance for their livelihood restoration.

75. **Citizen Engagement.** As noted earlier, beneficiary feedback will be monitored through (i) annual road users' satisfaction surveys and (ii) grievance redress mechanisms.

F. Environment (including Safeguards)

76. **The Project will finance the extension and new construction of a major transport infrastructure, which may have significant and irreversible impacts**. It triggers OP/BP 4.01 Environmental Assessment, and is classified as environmental Category A. The Zemo Osiauri – Chumateleti section is covered by the previously conducted Regional Environmental Assessment (REA), which assessed multiple environmental implications of upgrading the highway along the entire transport corridor between Sveneti and Rikoti Tunnel. An EMF was also developed as part of the REA to outline the main types of environmental risks and issues, and to suggest basic approaches to their mitigation. Drawing from the REA, the feasibility assessment, and the design documents for the highway section between Zemo Osiauri and Chumateleti, RD carried out an ESIA for the construction works in this section and prepared an EMP. The draft ESIA report, reviewed and approved by the Bank, was disclosed on May 15, 2015. After consultation, the finalized ESIA report was re-disclosed in-country and through the Bank's electronic database on June 18, 2015. The ESIA report, including Environmental Management Plan (EMP), covers the entire section between Zemo Osiauri and Chumateleti. There is an agreement between EIB, WB and GoG that these documents prepared following OP/BP 4.01, as well as the Bank's safeguard policies in general, will apply to all civil works to be undertaken in this section including those supported by the World Bank and by the EIB.

77. **The Zemo Osiauri – Chumateleti section of the highway passes mostly through already significantly transformed landscape**, away from protected areas and biodiversity hotspots. However this section is a new construction in a corridor almost entirely deviated from the existing two-lane expressway section and traverses a difficult terrain comprised of hills, gorges, and a small river Suramula. Environmental impacts of the construction phase will come from preparatory activities, including clearing of the right-of-way (RoW), drilling of tunnels, large scale earth works, works in the waterways, establishment / operation of work camps and temporary access roads, operation / servicing of construction machinery, and sourcing of construction materials.

78. **Effective mitigation of the potential negative environmental impacts of the EWHCIP is possible** through (i) the application of the measures prescribed by EMP; (ii) timely development of and adherence to the waste management plans and landscape reinstatement plans by contractors; and (iii) accurate monitoring of environmental performance of contractors. Overall responsibility for undertaking these actions or causing contractors to undertake them is with RD - the Project implementing entity. RD will exercise the function of applying environmental and social safeguards to EWHCIP-financed works through its existing Environment and Resettlement Unit and a highly qualified supervision consultant to be hired prior to commencement of works with the TOR acceptable to the Bank. Similarly, RD will exercise the function of applying the World Bank environmental and social safeguards to EIB-financed works, as agreed with EIB.

G. Other Safeguards Policies Triggered

79. **ESIA concluded that works to be undertaken under the Project will have no direct or indirect impact on any known cultural monuments**. Nonetheless, EWHCIP triggers OP/BP 4.11 Physical Cultural Resources because earth works, especially those required for the construction along the new alignment, carry high likelihood of encountering chance finds. Although there are no known archaeological sites along the RoW, the experience with previously implemented projects for the East-West Highway improvement carries full justification for triggering OP/BP 4.11. The ESIA report and the EMP developed for EWHCIP carry a detailed outline of steps and action to be taken in the event of archaeological relics are found and the project implementing entity has good experience of handling such occurrences.

80. **Minimizing impacts on forests was an important criterion for the selection of an alignment for the new section of the highway**. Construction of operation of the highway in the chosen RoW will not cause fragmentation or other significant damage to natural forest ecosystems. Impact on an artificial coniferous plantation is also minimal as it does not touch parts of the stand which are valued for recreation. OP/BP 4.36 is triggered, because construction of the highway will require de-listing of some area from the State Forest Fund. Compensatory tree planting plan will be developed and implemented based on the ratio of three planted trees for each one removed.

H. World Bank Grievance Redress

81. **Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS)**. The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

Annex 1: Results Framework and Monitoring

GEORGIA: East-West Highway Corridor Improvement Project

A) Results Framework

Project Development Objectives

PDO Statement

The proposed PDOs are to: (i) reduce road user costs along the section upgraded under the project; and (ii) strengthen the capacity of the Roads Department and the Ministry of Economy and Sustainable Development to respectively manage the road network and provide an enabling environment to improve logistics services.

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR1	YR2	YR3	YR4	End Target YR5			
1. Travel time from Zemo Osiauri – km 5.8 to Chumateleti	☐	Minutes	12	12	12	10	6	6	Annually	Semi-annual progress report	RD
2.Vehicle Operating Costs from Zemo Osiauri – km 5.8 to Chumateleti (cars)	☐	US$/km	0.24	0.24	0.24	0.23	0.21	0.21	Annually	Semi-annual progress report	RD
3.Vehicle Operating Costs from Zemo Osiauri – km 5.8 to Chumateleti (trucks)	☐	US$/km	0.63	0.63	0.63	0.58	0.50	0.50	Annually	Semi-annual progress report	RD
4. Asset value of the East West Highway corridor from Tbilisi	☐	GEL million	812	1,247	1,587	1,587	2,771	4,880	Semi-annual	Semi-annual progress report	RD

to Sarpi (GEL Million)											
5. National Logistics Program adopted by MESD			No	Yes	Yes	Yes	Yes	Yes	Annually	Annual progress report	MESD

Intermediate Results Indicators											
Indicator Name	Core	Unit of Measure	Baseline	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR1	YR2	YR3	YR4	End Target YR5			
Intermediate Result 1: Improvements to the East-West Highway Corridor											
1. Roads constructed, non-rural	☒	Kilometers	0	0	0	6	8	8	Annually	Semi-annual progress report	RD
Intermediate Result 2: Strengthening Institutional Capacity											
2. RD/ITS staff (5) staff trained in ITS services management and monitoring		Number	0	0	2	3	4	5	Annually	Semi-annual progress report	RD
3. Key ITS equipment installed on selected and prioritized East-West Highway locations		Percentage	0	0	0	50%	75%	100%	Annually	Semi-annual progress report	RD

4. Road users satisfied with quality of road and services provided along the highway		Percentage	To be determined the first year	-	40%	50%	60%	80%	Annually	Annual progress report	RD
5. Public/Private Steering Committee created and operational			No	Yes	Yes	Yes	Yes	Yes	Annually	Annual progress report	MESD
6. Key legislation/measures to provide an enabling environment to enhance logistics services drafted			No	No	No	No	Yes	Yes	Annually	Annual progress report	MESD
7. Studies to support logistics sector development completed			No	No	No	Yes	Yes	Yes	Annually	Annual progress report	MESD
8. MESD staff (8) trained in relevant areas in logistics		Number	0	0	2	3	5	8	Annually	Annual progress report	MESD

B) Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Remarks
Travel time measured by a proxy variable - average vehicle speed, km/hour	Road user costs are measured by travel time savings that are function of the average vehicle speed on the project roads.	
Vehicle operating costs for cars, US$/km	Road user costs are measured by vehicles operating costs for cars on the project roads. The indicator includes the costs of car usage, including fuel, tires, maintenance, repairs and depreciation costs.	
Vehicle operating cost for trucks, US$/km	Road user costs are measured by vehicles operating costs for trucks on the project roads. The indicator includes the costs of truck usage, including fuel, tires, maintenance, repairs and depreciation costs.	
Asset value of the entire East West Highway corridor	The asset value is measured by calculating the increases in asset value by section from 2015 (baseline) to 2020, based on the highway network status in 2020 (target). Cf. below section C/ “Basis for calculation of the asset value”	
National Logistics Program adopted by MESD	The Program will identify key priority actions to be developed and implemented in Georgia in the freight transport and logistics sector, based on the results from all existing relevant studies. This Program will be adopted by MESD.	

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Remarks
Length of constructed roads	No description provided.	
RD/ITS staff (5) staff trained in ITS services management and monitoring	Number of staff from RD who received adequate training in ITS services management and monitoring.	
Key ITS equipment installed on selected and prioritized East-West Highway locations	The percentage of equipment installed on selected and prioritized locations of the East West Highway, based on the ITS action plan developed under EWHIP-4. This action plan will provide recommendations on specific equipment to be deployed along the highway in different phases. EWHCIP will support the first phase of the action plan.	

Road users satisfied with quality of road and services provided along the highway (from Tbilisi to Sarpi)	The percentage of respondents who are satisfied with the quality of highway road sections and services provided. The level of satisfaction of road users will be assessed through road users' satisfaction surveys to be carried out annually (in a gender disaggregated manner). The survey will be performed online and/or on site, and will include specific questions to measure the level of road users satisfaction related to ITS services provided by RD. The baseline indicator will be obtained from the first road users' satisfaction survey to be completed by the end of the first year of implementation.	
Public/Private Steering Committee created and operational	No description provided.	
Key legislation/measures to provide an enabling environment to enhance logistics services drafted	No description provided.	
Studies to support logistics sector development completed	No description provided.	
MESD staff (8) trained in relevant areas in logistics	Number of staff from MESD who received adequate training in logistics.	

C) Basis for calculation of the asset value

1. To determine the increase in asset value the following steps were taken:
   (i) Determine current (baseline) asset value for each road section
   (ii) Describe highway network status at year 2020 (Map 1.1)
   (iii) Estimate Target Value based on 2020 highway network status.

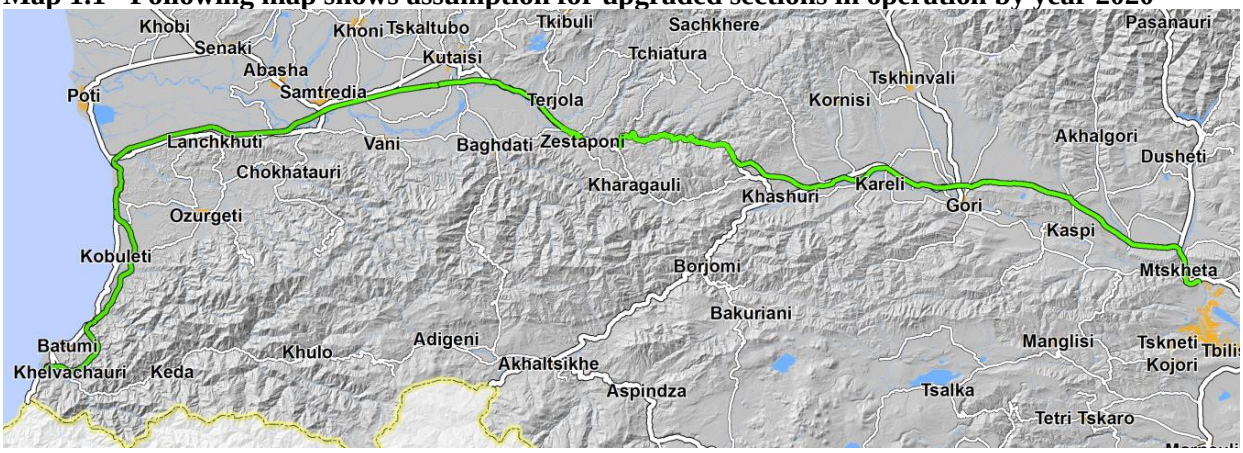
Table 1.1 Total asset value of all 3 road sections in GEL (million)

Road ID	Road Section	Asset Value	Length	1km Value
s01*	Tbilisi - Senaki - Leselidze	215.5	525.0	0.41
s12	Samtredia - Grigoleti	26.5	57.0	0.46
s02	Senaki - Poti - Sarpi	36.0	119.0	0.30

Source: RD, financial division
** s01 asset value does not include upgrade costs.*

2. The one km values were considered as an average asset value of a two lane asphalt pavement. Based on this assumption, the current asset value of non-upgraded road sections were estimated and those of upgraded sections were based on the final contract price. The following map shows the road sections which are expected to have been upgraded and be operational by year 2020.

Map 1.1 - Following map shows assumption for upgraded sections in operation by year 2020



3. The following table shows the increase in asset value for the individual road sections along the East-West Highway corridor based on the assumption that upgraded sections will be completed by year 2020.

Table 1.2 Calculated increases in asset value by section (GEL million).

Section	Length km	No. of Lanes (2015)	Baseline (2012) GEL (mln)	Target (2020) GEL (mln)	Assumed Completion Year
Tbilisi – Natakhtari*	11	4	9.8	9.8	Completed
Natakhtari - Ruisi	68	4	549.0	560.0	Completed
Ruisi - Agara	19	4	7.8	70.7	2015
Agara - Zemo Osiauri	12	4	4.5	105.0	2016
Zemo Osiauri - Rikoti	15	2	6.1	450.0	2019
Rikoti Tunnel Rehabilitation	-	2	61.4	61.4	Completed
Rikoti - Zestaponi	54	2	24.2	1800	2020
Zestaponi - Samtredia	57	2	26.2	360.0	2015
Samtredia - Grigoleti	51	2	26.5	650.0	2017
Grigoleti - Choloqi	14	2	3.9	120.0	2020
Choloqi - Kobuleti Bypass	33	2	9.5	350.5	2018
Kobuleti Bypass - Batumi Bypass	16	2	4.9	338.4	2020
Batumi Bypass - Sarpi	11	2	3.4	4.5	2022

** Tbilisi – Natakhtari section baseline value is multiplied by two as it is a 4 lane road*

4. From the above table, the baseline asset value is estimated to be GEL 748 million in 2012 and the target asset value is GEL 4,880 million for 2020. The calculated annual target asset values are shown in the following table:

Table 1.3 Asset Value in GEL (million)

Section	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tbilisi - Natakhtari	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
Natakhtari - Ruisi	549.0	560.0	560.0	560.0	560.0	560.0	560.0	560.0	560.0
Ruisi - Agara	7.8	7.8	7.8	70.7	70.7	70.7	70.7	70.7	70.7
Agara - Zemo Osiauri	4.5	4.5	4.5	4.5	105.0	105.0	105.0	105.0	105.0
Zemo Osiauri - Rikoti	6.1	6.1	6.1	6.1	6.1	6.1	6.1	450.0	450.0
Rikoti Tunnel Rehabilitation	61.4	61.4	61.4	61.4	61.4	61.4	61.4	61.4	61.4
Rikoti - Zestaponi	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	1800
Zestaponi - Samtredia	26.2	26.2	26.2	26.2	360.0	360.0	360.0	360.0	360.0
Samtredia - Grigoleti	26.5	26.5	26.5	26.5	26.5	26.5	26.5	650.0	650.0
Grigoleti - Choloqi	3.9	3.9	3.9	3.9	3.9	3.9	3.9	120.0	120.0
Choloqi - Kobuleti Bypass	9.5	9.5	9.5	9.5	9.5	350.5	350.5	350.5	350.5
Kobuleti Bypass - Batumi Bypass	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	338.4
Batumi Bypass - Sarpi	3.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5

Total	2012	2013	2014	2015	2016	2017	2018	2019	2020
Asset Value in mln. GEL	748	749	749	**812**	**1,247**	**1,587**	**1,587**	**2,771**	**4,880**

5. **The key assumptions are that** completion of the East West Highway corridor remains a key priority of the government; promised external financial assistance is realized and no major financial and or economic crisis occurs that would prevent the government from being able to meet its financial obligations.

Annex 2: Detailed Project Description

GEORGIA: East-West Highway Corridor Improvement Project

1. The proposed EWHCIP will complement on-going and planned improvements by the government, with the assistance of its development partners, in the upgrading of the East West Highway from Tbilisi to the Turkey Border as outlined in the table below which shows progress to date.

Progress in Upgrading of East West Highway from Tbilisi to Turkey Border

Item	Section (km)	Planned Upgrading	External Partner	Estimated Cost (US$ Million)	Completion Date	Status
1	Natakhtari to Aghaiani (16)	2-lane dual carriageway	None	37.50	Completed	Government financed
2	Aghaiani to Ruisi (50)	2-lane dual carriageway	WB/FEWHIP WB/SEWHIP WB/TEWHIP	240.00	Completed	Multi-year maintenance & environmental improvement measures under EWHIP-4
3	Ruisi to Agara (19)	2-lane dual carriageway	WB/TEWHIP/ AF	43.00	2015	Construction ongoing
4	Agara to Zemo Osiauri (12)	2-lane dual carriageway	WB/EWHIP-4	55.00	2016	Construction ongoing
5	Zemo Osiauri to Zemo Osiauri-KM5.8 (6)	2-lane dual carriageway	EIB (project preparation ongoing)	49.00	2018	Detailed design under EWHIP-4 planned for completion November 2015
6	Zemo Osiauri-KM5.8 to Chumateleti/Rikoti (8)	2-lane dual carriageway	WB (project preparation ongoing)	153.00	2019	
7	New Rikoti Tunnel (2)	Provide two additional lanes	WB (for studies and tentatively for construction)	60.00	2018	Detailed design planned under EWHIP-4
8	Chumateleti to Argveta (54)	2-lane dual carriageway.	WB, EIB and other donors being considered	800.00	2020	Update of existing feasibility studies ongoing under EWHIP-4 for completion November 2015
9	Argveta to Samtredia inc. Kutaisi bypass (57)	2-lane dual carriageway to Kutaisi bypass then 2-lane c/w to Samtredia	JICA	212.00	2015	Construction ongoing

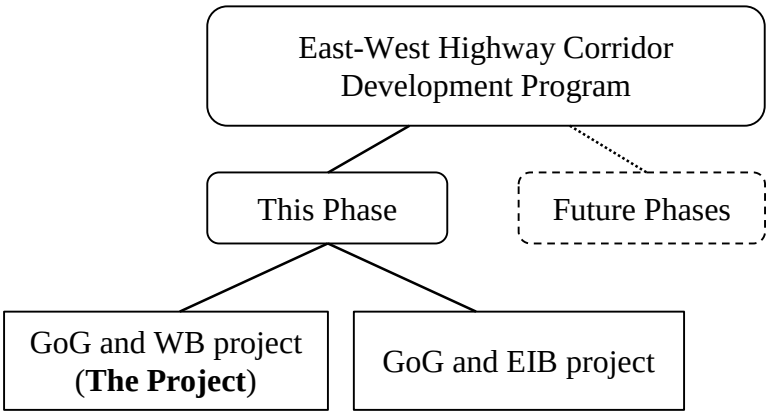
Item	Section (km)	Planned Upgrading	External Partner	Estimated Cost (US$ Million)	Completion Date	Status
10	Samtredia to Grigoleti (51)	2-lane dual carriageway new construction and rehabilitation of 2-lane dual carriageway	EIB	260.00	2017	Construction ongoing
11	Choloki to Kobuleti bypass (33)	2-lane single carriageway	ADB	197.00	2018	Construction ongoing

Project Description:

2. The East-West Highway Corridor Improvement Project (EWHCIP = 'the Project') is a part of a larger IFI coordinated effort to support the GoG in completing the East-West Highway Corridor Program. Section C above on "Higher Level Objectives to which the Project Contributes and Table 1 on "East-West Highway Corridor Development Program" elaborates more on the completed, on-going and planned phases of East West Highway Development Program and the role of the IFIs.

3. This phase (Figure below) consists of the upgrading of existing 2-lane East-West Highway from Zemo-Osiauri to Chumateleti, totaling 13.8 km. EWHCIP refers to the project co-financed by GoG and WB. The EIB will finance in parallel the upgrading of the first 5.8 km from Zemo Osiauri to Zemo Osiauri – km 5.8 to a 2-lane dual carriageway road, including 4 bridges. (Total cost estimate US$48.9 million, including US$39.1 million EIB financing and US$9.8 million from GoG co-financing). The World Bank (the Project) will finance the remaining 8.0 km from Zemo Osiauri – km 5.8 to Chumateleti.

Current phase of the highway development program



3. The EIB project will consist of the upgrading of existing 2-lane East-West Highway from Zemo Osiauri to Km 5.8 a 2-lane dual carriageway road. This section includes 4 bridges. (Total cost estimate US$48.9 million, including US$39.1 million EIB financing and US$9.8 million from GoG co-financing)

Project Description and Components – World Bank

4. The proposed East-West Highway Corridor Improvement Project (EWHCIP) would finance the upgrading of existing 2-lane East-West Highway from Zemo Osiauri-Km 5.8 to Chumateleti (8.0 km) to a 2-lane dual carriageway road, including 7 bridges and 3 tunnels. This project will also build on the on-going institutional strengthening activities financed under the on-going highway project (i.e. road safety, ITS and road sector financing studies; identification of the optimal alignment for the remaining sections of the East-West Highway…). This project will provide support to strengthen RD's ITS Unit and complement the road safety activities by providing real time information to improve mobility and traffic safety along the corridor. The project will also provide technical support to MESD to develop and implement a logistics strategy.

5. The proposed EWHCIP will consist of three components totaling US$164.0 million, including US$140 million IBRD financing and US$24.0 million GoG co-financing.

Component 1: Improvement of the East-West Highway Corridor (Cost estimate: US$158.5 million).

Sub-component 1.1. Civil works (Estimated Cost: US$153.0 million).

6. The objective of this sub-component is to finance the upgrading of existing 2-lane East-West Highway from Zemo Osiauri-Km 5.8 to Chumateleti to a 2-lane dual carriageway road. The section to be upgraded is approximately 8.0 km long and runs through hilly and mountainous terrain, thus requiring many structural works including 3 tunnels and 7 bridges. The upgrading of the road requires traffic capacity expansion, a dual carriageway including man-made structures in difficult topographic and geological conditions. The carriageway will be of concrete pavement. Civil works will be carried out under one lots

Sub-component 1.2. Construction supervision and quality assurance services (Estimated Cost: US$5.5 million).

7. This sub-component will finance supervision services of the civil works contracts implemented under the proposed project and under the EIB project.

Component 2: Institutional strengthening (Estimated Cost: US$2.0 million). The objective of this component is to provide support to:

(i) Improve RD's ITS Unit capacity to oversee and improve ITS services; and
(ii) Support the Transport Policy Department of MESD to undertake relevant studies and activities to provide a conducive environment to improve logistics services.

Sub-Component 2.1. Improving ITS services (Estimated Cost US$1.0 million).

8. Road users expect a high level of service of the East –West Highway and RD needs to improve its capacity to meet this growing demand. A Transport Traffic Regulation and ITS Unit was established within RD however it is currently understaffed and has a limited capacity. ITS development in Georgia will enable RD to provide timely information to road users, increase efficiency of operations and enhance road safety on the existing and future sections of the East-West Highway Corridor**.** To that extent, RD is currently preparing an ITS needs assessment to develop an ITS Strategy and an action plan including preparation of technical specifications to install priority ITS equipment. The objectives of this sub-component are to (i) build the capacity of the ITS Unit, carry out relevant activities to improve ITS services and (ii) the installation of priority ITS equipment.

- **Capacity building for the ITS Unit (Estimates Cost US$0.3 million).** The objective of this sub-component is to strengthen the capacity of the ITS Unit to identify and manage ITS systems applications to enhance the Unit's capacity to monitor traffic and road conditions along the corridor and those sections of regional roads with higher traffic intensity and provide real-time information to road users and public through RD's website and other communication channels. This sub-component will build on the first ITS Strategy that is under preparation and somewhat on the Communication Strategy completed under the Fourth EWHIP financing. This sub-component will also provide relevant trainings for ITS Unit staff to manage and operate newly ITS systems.

- **Installation of ITS equipment (Estimated Cost US$0.7 million).** This sub-component would finance the design and installation of ITS equipment along critical locations of the East West Highway including Variable Message Signs (VMS), Weigh-In-Motion scales (WIM), Automated Vehicle Identification (AVI), Dynamic Message Signs (DMS), Video Incident Detection Systems, Fixed Automated Spray Technology (FAST), Road Weather Information System (RWIS), and other ITS technologies.

9. Additionally, this sub-component will support the development of annual road users' satisfaction surveys (in a gender disaggregated manner). These surveys will be performed online and/or on site, and will include specific questions to measure the level of road users satisfaction related to ITS services provided by RD.

Sub-Component 2.2. Development and Implementation of Logistics Strategy (Estimated Cost 1.0 million).

10. Significant achievements have been made in the freight transport and logistics sector, however many challenges remain to position Georgia as a transit hub. When breaking down the Georgia's infrastructure index in the 2014 Enabling Trade Index (ETI), the availability and quality of transport infrastructure is ranked much higher (56th out of 138 countries) than transport services (99th), with a particularly low ranking for ease and affordability of shipments and logistics. The Government is committed to developing the transport infrastructure (i.e. Complete the East-West Highway by 2020). This puts a particular onus on improving logistics and transport services within Georgia but also cross-borders along the CTC. Improving the CTC competiveness will enable

Georgia to fulfill its aspiration to becoming a regional transport and logistics hub and reach the LPIs of the neighboring Turkey (regional leader) and of Poland.

11. There is a need to develop a logistics strategy to optimize the benefits of the large investment in transport infrastructure. The strategy will provide an enabling environment to enhance private sector participation, eliminate non-tariff barriers and provide a conducive regulatory framework to support trade and attract transit traffic. The strategy will cover three main areas: (i) infrastructure and logistics services, (ii) supply chain management and (iii) corridor development and cross-border management.

12. This sub-component will build on the ongoing studies financed by the World Bank (Green Freight Transport and Logistics Strategy) and the Asian Development Bank (National Transport Policy) to identify priority areas for support including improving intermodal connections (access railways at major seaports; terminal facilities for trucks on rail and container transportation); developing information technologies to support cargo tracking/consolidation and transit traffic management; enforcing bi-national agreements/public-private dialogue and capacity building. This sub-component will thus finance/support:

- **(i) The consolidation and further development of a National Logistics Strategy/Program,** taking stock of all previous studies (Estimated Cost US$0.05 million);

- **(ii) The creation of a Public/Private Steering Committee**, to develop a sustainable working relationship between the Government of Georgia and the private sector/logistics industry. This Committee shall provide a forum for stakeholders to discuss the long-term development and business needs in the freight transport and logistics sector and shall advise on key activities to be implemented.

13. During the course of the project, this sub-component will then support:

- **(iii) The implementation of key activities** (Estimated Cost US$0.75 million)**,** recommended by the Steering Committee and/or identified in the National Logistics Program, including inter alia a feasibility study to identify priority logistics sites and the elaboration of relevant studies for the development and construction of logistics centers on the identified priority sites. Other activities can be considered, for example:

    - *Study on transit traffic and provision of high value-added logistics services.* This sub-component would finance a study laying down the appropriate measures to: (i) attract more transit traffic, (ii) yield revenues from transit traffic; while (iii) developing high-quality logistics services/clusters. The critical aspect of this assignment will be to find the right timing for the execution of the proposed measures (legislative reforms, fiscal incentives, development of new services, etc.). This study should also analyze the level of connectivity along the East-West Highway Corridor in Georgia and propose a clear measure of connectivity for the regions along the highway (based on a network connectivity analysis if necessary).

- *Study to identify suitable PPP schemes to develop multimodal logistics platforms/operations.* This sub-component would finance a study to identify an optimal PPP model to develop a multimodal logistics platform near Tbilisi (or other relevant location). The key objectives of the study would include for example: undertaking a market assessment in coordination with interested actors in the rail, road, and airport sectors; identifying activities to be carried out; developing a financing/investment plan and analyzing the extent of private-sector participation, etc. To ensure that there is an actual demand for such investments, this study could be based on a proposal from a private firm selected on a competitive basis.

- **(iv) Capacity building activities for MESD and other relevant organizations involved in logistics** (Estimated Cost US$0.2 million): (a) provision of adequate trainings to MESD staff and relevant government staff, including targeted units of the Ministry of Finance, or any other state or private organizations involved in logistics; (b) improvement of capacity within MESD for project management (including technical assistance during the Expression of Interest (EOI) phase) and monitoring for the duration of the project, if deemed necessary.

Component 3: Project management support (Estimated Cost: US$0.5 million).

14. Considering the technical complexity of the project, this component will finance the mobilization of relevant technical expertise (i.e. project management; bridge, tunnel and geotechnical engineering) to support RD/FPU Management during project implementation. This component will also contribute to building the technical capacity of RD.

Component 4: Preparation of future investments (Estimated Cost: US$3.0 million).

15. The objective of this component is to finance the preparation of designs and supporting studies for future investments for the development of the road network.

Annex 3: Implementation Arrangements

GEORGIA: East-West Highway Corridor Improvement Project

Project Institutional and Implementation Arrangements

Project administration mechanisms

1. The proposed Project will be implemented mainly by the Roads Department (RD) of the MRDI, which has been implementing several World Bank funded projects since 1996. RD has vested Project management functions with one of the Department's Deputy Chairmen, supported by the Foreign Projects Unit (FPU) for Procurement and Monitoring and Evaluation. Financial Management is provided by the TRRC, a specific body designated for financial management of foreign-funded road projects under MRDI. Specific units in RD are in charge of environmental management and monitoring, road safety, and land acquisition and resettlement. As the on-going East West Highway Projects and Secondary and Local Roads projects demonstrate, these implementation arrangements have been generally satisfactory. Application of environmental safeguards remains dependent to much extent on consultant services being procured to supplement in-house capacity of RD.

2. RD through its ITS Unit will be responsible for the implementation of the ITS Capacity Strengthening sub-component. However, during the development of the TORs for ITS Unit and identification of its needs in ICT systems, this Unit will work in close collaboration with Police, RD's Road Safety Unit and Maintenance and Supervision Division to better understand its role in the contribution to the performance of these other parties' roles in road safety, traffic management and corridor maintenance. RD's Road Safety Unit will take the lead in the implementation of the road safety sub-component. It will collaborate closely with Police to analyze the collected data through ICT systems (in addition to road accidents reports and statistics) and develop more appropriate road safety interventions on other sections of the corridor.

3. MESD will implement part of the project institutional strengthening component. The second sub-component consists of technical assistance and advisory services to help the Transport Policy Department develop a logistics strategy and support to implement key policy measures to provide an enabling environment to improve logistics services in Georgia. These activities will be implemented in close cooperation with RD and MRDI. Indeed, RD will be responsible for the procurement of all services related to this sub-component.

4. Sufficient procurement capacity exists within RD particularly for large contracts. To ensure adequate project and contract management capacity within RD relative to the size of the investment program it is implementing, RD has recruited local consultants as project/contract managers to manage some of its projects augmented by local technical assistance. High staff turnover has sometimes been experienced with local technical assistance due to a conjunction of the small pool of available personnel in the local market and difficulty to incorporate them in RD organizational structure.

5. TRRC will assist RD in implementation of the proposed Project with responsibilities for financial management. The financial management arrangements include the Project's system of budgeting, accounting, internal controls, funds flow, financial reporting, and auditing. TRRC has experience in managing Bank projects having implemented several Bank-financed transport or transport related projects. TRRC will work with both the Ministry of Finance and the Treasury Service in the administration of the Project Designated Account (DA), and with RD and MESD for implementation of this Project. MESD, RD and TRRC will sign an implementation agreement spelling out their respective responsibilities under the Project. The Bank will monitor any changes to the structure in the implementing agency that will require agreement with the Bank.

Financial Management, Disbursements and Procurement

Financial Management

6. The FM function of the project will be handled by RD and MESD through the TRRC, which will be responsible for the flow of funds, accounting, planning and budgeting, financial reporting, internal controls, and auditing. The TRRC has been involved in implementation of several Bank-financed transport or transport related projects. The TRRC will work with both the Ministry of Finance and the Treasury Service in the administration of the Project Designated Account (DA), and with RD and MESD for implementation of this Project. MESD, RD and TRRC will sign an implementation agreement spelling out their respective responsibilities under the Project. The Bank will monitor any changes to the structure in the implementing agency that will require agreement with the Bank.

7. The FM arrangements of the TRRC have been reviewed periodically as part of the on-going projects implementation support, as well as during the FM assessment of the project (January 2015), and have been found satisfactory**.** It has been agreed that the FM arrangements of the Project are going to be the same as for the SLRP-II, KRRIP, EWHIP-3 and EWHIP -4 projects implemented by TRRC, which are acceptable to the Bank. It has been agreed that the TRRC will update the on-going projects' FM Manual to reflect the activities of this Project prior to project effectiveness.

8. The overall FM risk for the Project before and after mitigation measures is Moderate, with Inherent and the Control Risks of the Project before and after mitigation measures also rated as Moderate.

9. Overall TRRC has acceptable planning and budgeting capacity in place. The TRRC is capable of preparing relevant budgets. TRRC has been preparing annual budgets for on-going projects based on procurement plans. The budgets form the basis for allocating funds to project activities, for requesting funds from the Government for counterpart contribution and for payments via Treasury system as appropriate. The Financial Manager of the TRRC and Head of procurement at Foreign Projects Unit of RD are responsible for budget preparation, which is approved by RD and agreed with the Bank.

10. The TRRC has overall adequate FM staffing capacity. The FM staff is comprised of a financial manager, a financial specialist, an accountant, a small value contracts manager, and a disbursement

specialist (mostly involved with an ADB project). However, due to the gradually increasing workload the given capacity might be non-sufficient to implement all ongoing and pipeline (that will become effective soon) Bank-financed projects so that the TRRC might need to hire additional disbursement specialist to cover the proposed project as well as upcoming *Secondary Road Asset Management Project*. So that, after effectiveness of the pipeline projects, the TRRC staffing arrangements will be regularly reviewed and the need for hiring an additional accounting staff will be considered (factored by a number of then active projects and possible extensions). The financial manager will have primary responsibility for the Interim Un-audited Financial Reports (IFRs) and will prepare the annual financial statements for audit.

11. The TRRC utilizes Oris accounting software, which is used by most of the Bank-financed projects in Georgia and was found to be adequate for accounting and reporting purposes. The software automatically generates IFRs, which are finalized in Excel spreadsheets. The budget data is entered into the accounting software. The accounting books and records of the TRRC will be maintained on a cash basis adjusted for the project, and project financial statements, including IFRs, are going to be presented in US dollars. For reporting Cash Basis Integrated Public Sector Accounting Software (IPSAS) will be used. The FMM will be updated to reflect the new activities of the Project.

12. Generally, there are adequate internal control procedures established over FM and disbursement arrangements at the TRRC. There are neither petty cash nor specific director's expenses at the TRRC. All the payments are made via Treasury transfer. The Fixed Assets (FA) register is maintained in Excel spreadsheets. The stocktaking is conducted annually. The inventory cards are properly maintained. Each FA item is assigned to the relevant staff who signs the relevant inventory card. The FAs have inventory tags attached. Monthly back-ups of the accounting data are made on two external back-up drives and on a streamer (at IT office). The Financial Manager keeps one copy of the external drive at the office and the other one at home. The TRRC has no internal audit function and none is considered necessary given the small size of the organization.

13. The TRRC will be responsible for FM arrangements under the MESD led sub-component. In particular, the FM staff will monitor all the payments made against contracts ensuring that there are no overpayments or outstanding amounts under the contract. TRRC will make payments under the contracts once all supporting documents such as acceptance acts, etc. are approved by the designated officials of the MESD.

14. Project management-oriented Interim Un-audited Financial Reports (IFRs) will be used for the project monitoring and implementation support and the indicative formats of these are included in the TRRC FM Manual. The format of IFRs has been confirmed during assessment and includes: (i) Project Sources and Uses of Funds; (ii) Uses of Funds by Project Activity; (iii) Designated Account Statements; (iv) A Statement on Financial Position; and (v) SOE Withdrawal Schedule. The TRRC will be producing a full set of IFRs every calendar semester throughout the life of the Project. These financial reports will be submitted to Bank within 45 days of the end of each calendar semester. The first semester IFRs will be submitted after the end of the first full semester following the initial disbursement.

15. The audit of the proposed project will be conducted (i) by independent private auditors acceptable to the Bank, on terms of reference (TOR) acceptable to the Bank, and (ii) according to

the International Standards on Auditing (ISA) issued by the International Auditing and Assurance Standards Board of the International Federation of Accountants (IFAC). The TRRC's current auditing arrangements and findings are satisfactory to the Bank. Thus, it is to be discussed during project appraisal that similar audit arrangements will be adopted for the proposed project. Particularly, the sample audit TOR agreed with the Bank will be attached to the FM Manual, and the annual audited project financial statements will be provided to the Bank within six months of the end of each fiscal year and also at the closing of the Project. If the period from the date of effectiveness of the credit/loan to the end of the Recipient/Borrower's fiscal year is no more than six months, the first audit report may cover financial statements for the period from effectiveness to the end of the second fiscal year.

16. The terms of reference will include activities involving (i) audits of financial statements, (ii) assessments of the accounting system, and (iii) a review of the internal control mechanisms. The following table identifies the required audit reports that will be submitted by the TRRC together with the due date for submission.

Audit Report	**Due date**
Project Financial Statements The Project Financial Statements include Project Balance Sheet, Sources and Uses of Funds, Uses of Funds by project activities, Statement of Expenditures Withdrawal Schedule, Designated Account Statement, Notes to the financial statements, and Reconciliation Statement	Within 6 months of the end of each fiscal year and also at the closing of the project

17. The Borrower has agreed to disclose through MRDI/RD the audit reports for the Project within one month of their receipt from the auditors, by posting the reports on the website of RD (www.georoad.ge), or the TRRC (www.trrc.ge) or by publishing in a national newspaper. Following the Bank's formal receipt of these reports from the Recipient/Borrower, the Bank will make them publicly available according to World Bank Policy on Access to Information. The contract for the audit awarded during the first year of project implementation may be extended from year-to-year with the same auditor, subject to satisfactory performance. The cost of the audit will be financed from the proceeds of the credit/loan.

Disbursement

18. The TRRC will establish a DA in US dollars and maintain it until the Project completion. The DA will be opened as a Treasury's foreign currency account at the National Bank of Georgia (NBG) (where almost all DAs for ongoing Bank-financed projects in Georgia are held), and on terms and conditions acceptable to the Bank. The DA will be drawn upon to meet payments to contractors, suppliers and consultants under the project. The DA Statement will be audited in conjunction with the annual audit of the project. Detailed instructions on withdrawal of IBRD Loan proceeds will be provided in the Disbursement Letter.

19. Project funds will flow from: (i) the Bank, either (a) via the DA to be maintained in the Treasury, which will be replenished on the basis of SOEs or full documentation or (b) on the basis

of direct payment withdrawal applications and/or special commitments, received from the TRRC; and (ii) the Government, via the Treasury through normal budget allocation procedures initiated by the implementing agency in accordance with standard Georgian Treasury and Budget execution regulations. Those funds will be used to finance eligible expenditures under the Project. Withdrawal applications documenting funds utilized from the DA will be sent to the Bank at least every three months.

20. The following disbursement methods may be used under the Project: Reimbursement, Advance, Direct Payment, and Special Commitment. The DA ceiling is proposed to be established at US$10 million, which will be finalized and reflected in the Disbursement Letter, where the detailed instructions on withdrawal of IBRD Loan proceeds are provided.

Procurement

21. *Country and sector level risks.* The latest country level risk assessment for public procurement was carried out during the preparation of the Country Procurement Assessment Report (CPAR) in 2009. It was conducted on the basis of the OECD-DAC/World Bank four pillars for public procurement. The conclusion was that all four Pillars needed improvements in order for the system to meet the international standards and best practices. A three year action plan was prepared and Georgia is making slow progress towards fulfilling the proposed actions. One important completed step was the introduction and implementation of an electronic procurement system of Georgia for all government contracts. The Bank's team has recently completed assessment of Georgian E Government-Procurement (Ge-GP) system and is currently used under the Bank's projects. The assessment identified those improvements and modifications required to the e-procurement system to meet the multilateral development banks' requirements for procurement of civil works and goods. The SPA undertook these modifications and currently the Ge-GP is used under the Bank's projects using National Competitive Bidding method with estimated contract price below US$10 million equivalent for civil works and US$1 million equivalent for goods, and also for procurement of simple goods and simple works following shopping procedures can be used in when the estimated contract price is below US$100,000 and US$200,000 equivalent respectively. Therefore any contract with estimated contract price and method indicated above will be procured using Ge-GP.

22. *Implementation arrangements.* RD through FPU will be responsible for all procurement functions under the project. The Bank team concluded that the core FPU staff has adequate experience to conduct procurement activities, however certain oversights have been observed beginning of year. It is also noted that the procurement consultant has pursued Master's Degree in Public Procurement in ITC/ILO and has completed the course and rejoined FPU. Procurement consultant's contract expired at the end of July and RD/FPU has approached the Bank with the request to extend the same only for three months, while past and current practice has shown that all other similar contracts with consultants have been extended for at least one year to fully support project implementation needs. RD/FPU has not been able to provide official response pertaining to the reason for short term extension. This poses a risk for current, as well as other ongoing projects and has been reflected in the risk assessment below. The Bank has cleared conditionally,

RD/FPUs request for three months extension as the procurement consultant has been disposing of her obligations without a valid contract.

23. The current FPU staff and Procurement Consultant of FPU are familiar with Bank procurement guidelines and procedures as they have been involved in similar projects – completed FEWHIP, SEWHIP and ongoing TEWHIP and AF as well as EWHIP-4 – and gained substantial knowledge and experience during, the implementation of the abovementioned projects, however certain risks remain as outlined below.

24. ***Procurement Capacity Assessment*.** Proposed project is a follow up project of the ongoing TEWHIP AF and EWHIP-4. A separate assessment has not been yet done, as the implementation arrangements remain unchanged. The latest procurement capacity assessment of FPU under RD was undertaken in May 2014. RD and MRDI have gone through a leadership changes. A new Minister was appointed in April 2015, the first Deputy-Chairman is currently the acting Chairman until official position of Chairman is filled. This has not affected the procurement risk rating but there is a risk that this will if mitigations measures are not put in place. Procurement risk rating as of August, 2015 is "moderate" subject to mitigation measures proposed below.

25. Considerable risks still remain and mitigation measures proposed are as follows :

(a) Appointment of RD Chairman to fill the leadership gap;
(b) Need in improvement in oversight on procurement transactions. The organizational system of FPU shall be improved to better monitor each transaction under the project. An experienced procurement specialist shall be assigned to exercise overall management and inspection of procurement related transactions to minimize the time required for the Bank's review and risk associated with compromised quality in procurement;
(c) Fill the procurement capacity gap by hiring and retaining long term consultants;
(d) Need in further and continuous capacity building of the relevant staff;
(e) Need to enhance RD's contract management capacity to improve project contract management.

26. *Procurement*. Procurement for the project will be carried out according to the World Bank's "Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants, January 2011, Revised July 2014" the "Guidelines: Selection and Employment of Consultants under IBRD Loans & IDA Credits & Grants by World Bank Borrowers, January 2011, revised July 2014 and the provisions stipulated in the Loan Agreement.

27. The Bank's anti-corruption norms ("Guidelines on Preventing and Combating Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants") of October 15, 2006 revised January 2011 will be applied.

28. *Procurement Plan and Arrangements*. RD has developed a draft procurement plan dated 20 May 2015 which has been cleared by the Bank and will be available shortly at the Bank's external website as well as website of RD/MRDI. PP which will be further improved during project negotiations for implementation during the first 18 months, and will provide the basis for the procurement methods to be adopted. Contracts are grouped in bid packages as much as possible

to promote competition. RD has requested to proceed with post qualification, however considering the high contract value and the technical complexity of civil works, pre-qualification will be applicable. The procurement plan will be updated annually, in agreement with the Bank, or as required to reflect actual project implementation needs and improvements in institutional capacity. Contracts not subject to Bank prior review will be reviewed afterwards by the Bank's procurement specialist together with officials from State Audit Office as part of capacity building process. Such reviews will be made annually. General Procurement Notice (GPN) has not yet been published by RD and the same shall be processed as soon as applicable, as no specific procurement notice shall be published prior to the issuance of the GPN.

29. *Documents.* RD will maintain complete records for each activity, which will include all procurement documents for each contract, including bidding documents, RFPs, advertisements, bids received, bid evaluations, no objections, letters of acceptance, contract agreements, bid securities, advance payment guarantees, performance securities, photocopies of invoices and payments, and related correspondence. Contract award information will be promptly recorded and contract rosters maintained.

30. *Procurement of goods and non-consulting services*. Goods and non-consulting services estimated to cost US$1 million equivalent and more will be procured through ICB. Goods, and non-consulting services estimated to cost less than US$1 million may be procured through NCB, and less than US$100,000 through shopping. (NCB and SH using Georgian E-Government Procurement System)

31. *Procurement of works*. Works contracts estimated to cost more than US$10 million equivalent will be procured through ICB. Those estimated to cost US$10 million or less may be procured though NCB, and less than US$200,000 through shopping. (NCB and SH using Georgian E-Government Procurement System)

32. *Selection of consultants*. Consulting services will be procured according to the Bank's Consultant Guidelines mentioned above the Bank's Standard RFP (revised in October 2011) will be used to select all consulting firms. Consultant selection methods will include Quality and Cost-Based Selections (QCBS), Fixed-Budget Selection (FBS), Consultant Qualifications (CQS), Least-Cost Selection (LCS), Single-Source Selection (SSS) and Individual Consultants (IC). The latter will be selected according to Section V of the Consultant Guidelines. This method will require comparing at least three qualified and available candidates.

33. Short lists composed entirely of national consultants. Short lists of consultants for services estimated to cost less than US$300,000 equivalent per contract may be composed entirely of national consultants, according to the provisions of paragraph 2.7 of the Consultant Guidelines.

Prior Review Threshold for goods and works and services other than consulting services:

Expenditure Category	**Method**	**Prior Review Thresholds**
1. Goods	ICB	All contracts
-"-	NCB	As agreed in PP
-"-	SH	As agreed in PP

-"-	DC	As agreed in PP and justified per Procurement Guidelines para 3.7 (a)-(f)
2. Works	ICB	All contracts
-"-	NCB	As agreed in PP
-"-	SH	As agreed in PP
-"-	DC	As agreed in PP

For consulting services:

Expenditure Category	**Method**	**Procurement Method Thresholds**	**Prior Review Thresholds**
3. Cons. Services firms	QCBS		As agreed in PP
	FBS		As agreed in PP
	QBS		As agreed in PP
	LCS		As agreed in PP
	CQS	≤ $300 K	As agreed in PP
	SSS		As agreed in PP
4. Cons. Services individuals	IC		As agreed in PP
	SSS		As agreed in PP and justified per Consultants Guidelines para 3.9 (a)-(d)

34. Incremental Operating Costs, or operation costs is a reasonable and necessary incremental expenses towards recurrent expenditure, incurred by the Recipient with respect to Project implementation, management and monitoring, including the costs of staff salaries (excluding salaries of the Recipient's civil service staff), communication, editing, printing and publication, translation, vehicle operation and maintenance, bank charges, local travel costs and field trip expenses, office rentals, utilities, equipment and supplies.

35. *Project Operational Manual*: RD shall prepare manual which shall be provided for the Bank's review prior to effectiveness.

36. To ensure economy, efficiency, transparency and broad consistency with the Guidelines, the national competitive bidding (NCB) shall comply with the procedures recommended in the April 2009 Country Procurement Assessment Report for Georgia (CPAR) as listed below:

(i) "Open competitive procedures" (i.e. "public tender"") shall be the default rule. A single envelope procedure shall be used for the submission of goods, works, or **non-consulting services.**

(ii) Invitations to bid shall be advertised in at least one widely circulated national daily newspaper allowing a minimum of thirty (30) days for the preparation and submission of bids. Advertisements published in foreign language newspapers shall be in compliance with such a 30-day-minimum in number of days for bids preparation and submission.

(iii) Bidding shall not be restricted to pre-registered firms. If registration is required, it shall not be denied to eligible bidders for reasons unrelated to their capacity and resources to successfully perform the contract (e.g., mandatory membership in professional organizations, classification, etc.). Post-qualification shall be conducted to verify that the bidder has the capability and resources to successfully perform the contract.

(iv) Government-owned enterprises in Georgia shall be eligible to participate in bidding only if they can establish that they are legally and financially autonomous, operate under commercial law and are not a dependent agency of the Government. Government-owned enterprises will be subject to the same bid and performance security requirements as other bidders.

(v) Procuring entities shall use the appropriate Association's sample bidding documents, including pre-qualification documents, for the procurement of goods, works, **or technical services (other than consultants' services)**, and such documents shall contain draft contract and conditions of contract including clauses on fraud and corruption, audit and publication of award, all acceptable to the Association.

(vi) Bids shall be opened in public, immediately after the deadline for submission of bids. Bidder's representatives shall be permitted to attend the bid opening.

(vii) Extension of bid validity shall be allowed once only for not more than thirty (30) days. No further extensions should be requested without the prior approval of the Association.

(viii) Evaluation of bids shall be based on quantifiable criteria expressed in monetary terms as defined in the bidding documents, no merit point system and no domestic preference shall be used in the evaluation of bids. Contracts shall be awarded to qualified bidders having submitted the lowest evaluated substantially responsive bid and no negotiations shall be carried out prior to contract award.

(ix) Civil works contracts of long duration (e.g. more than eighteen (18) months) shall contain an appropriate price adjustment clause.

(x) No bid shall be rejected purely on the basis that the bid price is higher than the estimated budget for that procurement. All bids shall not be rejected and new bids solicited without the Association's prior concurrence.

Summary of the Procurement Packages planned during the first 18 months after project effectiveness (including those that are subject to retroactive financing and advanced procurement)

1	2	3	4	5	6	7
Ref. No.	**Description**	**Estimated Cost US$ million**	**Packages**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Comments**
	Summary of the ICB (Works)	152.4	1 or 2	N/A	Prior	
	Summary of the ICB (Goods)					
	Summary of the NCB (Works)					
	Summary of SH Works					
	Summary of the NCB (Goods)					
	Shopping Goods					
	Summary of the ICB (Non-Consultant Services)					

1	2	3	4	5	6
Ref. No.	**Description of Assignment**	**Estimated Cost** US$ million	**Packages**	**Review by Bank (Prior / Post)**	**Comments**
	Summary of number of contracts that will be let under QCBS	(9.5) 5.5 for Supervision 3 for Design of future sections And 1 for TA to MESD	3	prior	Construction Supervision and Design for Future Sections
	Summary of number of contracts that will be let under other methods	0.3		post	ITS

Environmental and Social (including safeguards)

Environment

37. *Overview*: The EWHCIP will support the construction of an 8 km two-lane dual carriageway new section of the East West Highway Corridor between Zemo Osiauri and Chumateleti settlements. The proposed works may have significant and irreversible impacts. The Project is classified as environmental Category A. Environmental risks are high, because the highway alignment passes through a difficult terrain comprising of steep hills, deep gorges, and a small river Suramula. Selected alternative of the highway alignment avoids most valuable forest stands of the area with an acknowledged recreational function however several kilometers will pass through non-commercial coniferous forest plantation and will require removal of trees. It is expected that the main environmental impacts at the construction phase will come from clearing of the RoW; establishment/operation of work camps and temporary access roads; massive earth works, works in the waterway, and extraction of material. Temporary and final disposal of excess material and waste in a proper manner will take much effort. Operation phase impacts are likely to include increased noise levels and subsequent disturbance of local population and fauna as well as generation of a potentially polluted runoff from the carriageway.

38. *Expected Impacts and Mitigation*: Most severe possible environmental and social impacts of road construction were avoided at the conceptual design stage by selecting an alignment with the least environmental footprint, the least possible need for land take and a minimal scope of physical relocation. Remaining potential environmental impacts will be reduced to the possible extent by adjusting the detailed design (e.g. exact delineation of road, arrangement of drainage systems, etc.), and keeping construction practice compliant with EMP as well as with waste disposal and site reinstatement plants to be produced by contractor.

39. Environmental impacts of the construction phase will come from cleaning of the RoW, establishment / operation of works camps and temporary access roads, operation/servicing of construction vehicles and machinery, earth works, works in the waterway and sourcing of construction materials. The results of the ESIA show that majority of the potential environmental impacts of the EWHCIP can be effectively mitigated through adherence to good construction practice and the measures prescribed in the EMP.

- ***Impact on vegetative cover:*** Clearing of RoW along the new alignment of the bypass will imply de-listing of some forested land from the State Forest Fund and removal of vegetation, including cutting of trees. OP/BP 4.36 is therefore triggered. Loss of vegetation will be kept to the possible minimum. Precise record of removed trees will be kept based on an inventory to be produced as part of de-listing procedure and compensatory tree planting will be implemented at a ratio of 1:3 within the highway corridor. Selection of species for planting will be based on the natural composition of local flora.
- ***Disturbance of local communities:*** Movement of construction machinery, location of the temporary work camps, and temporary storage of construction materials and waste will be planned to avoid or minimize barriers for free movement of the local population. Deterioration of the air quality near populated areas will be controlled through monitoring of the technical condition of construction machinery.

- ***Operation and works camps and access roads:*** Work camps will be organized to have designated areas for storage of materials and waste, and will be equipped with septic tanks for the primary treatment of waste water. Areas designated for fueling/servicing of vehicles and machinery, and for storing of hazardous substances will be provided with ground lining and barriers preventing release of spillage.
- ***Operation of construction machinery:*** The construction machinery will be insured and its technical condition will be checked on regular basis to minimize air pollution from exhausts and soil/water pollution from leakage of fuel. The risk of operation and emergency spills of fueled and lubricants will be mitigated by designation of special parking and servicing sites, to be located away from waterways and other sensitive environmental receptors.
- ***Earth works:*** Prior to excavation, top soil will be removed and stored separately for later reinstatement of the area. Landscape restoration will be carried out to ensure stabilization of slopes. This would include seeding or grass and planting trees.
- ***Accumulation of construction waste:*** Temporary storage of waste will be organized to separate access material, construction debris, household solid waste, and hazardous waste. The latter will be kept in a closed and isolated storage and handed over, to the extent possible, to specialized companies licensed for its deactivation and recycling/disposal. Permissions for the final disposal of access material and other solid waste will be obtained from local authorities.
- ***Operation of quarries and borrow pits:*** Purchase of inert construction materials will be allowed only from licensed legal and/or physical bodies. Extraction of these materials will also be allowed on the grounds of a special license. Opening of new borrow pits will be avoided if those already in operation can be used instead. Borrowing gravel from river beds and reinstatement of utilized quarries will be closely monitored by the Project implementing entity, as the national regulatory mechanism and enforcement are weak in this field.
- ***Historical, cultural, and archaeological sites:*** All known historical and cultural monuments along the RoW were identified and mapped during the ESIA. The highway alignment will not cause physical damage to these monuments. OP/BP 4.11 is triggered through, because there is a likelihood of chance finds during earth works. EMP carries provisions for their handling which include clear instructions on the course of action and responsibilities of various parties involved.
- ***Occupational health and safety:*** Work camps will be established and operated to provide for the maintenance of adequate hygiene and sanitation. Workers and other personnel involved in the construction will be provided with personal protection equipment and gear. They will receive training on the safety rules and emergency action. First aid medical kits and basic firefighting tools will be provided at the works site and camps.

40. Environmental impacts of the operation phase include erosion of the cut slopes and the constructed embankment. Strict adherence to the design parameters are expected to be sufficient for preventing major erosion that may influence safety of the highway operation. Based on the experience from the implementation of previous EWHIPs, landscaping, compacting, and stabilizing of slopes shall be included in the bill of quantities and performing of these tasks should be closely monitored by technical supervisor of works. Threats of surface water pollution from carriageway drainage as well as from road accidents involving liquid and powder cargo vehicles will be addressed to the extent possible through engineering solutions. Provision of adequate road safety measures is included in the EWHCIP.

41. *Environmental Due Diligence*: The initial environmental overview of the EWHCIP was carried out at the early stage of its preparation. The project stakeholders were consulted on the scope of the ESIA and its methodology. The consultation meeting was held on December 11, 2014 and was attended by the representatives of the local government and the project-affected communities. The second round of consultations was held after disclosure of the draft ESIA report. One of the consultations was held in RD's office in Tbilisi on May 25, 2015 and the second meeting was held on May 27, 2015 in Khashuri municipality to ensure meaningful participation of local stakeholders and project-affected people. Upon incorporation of the received feedback, the ESIA report was finalized and the minutes of both consultation meetings were attached to it prior to re-disclosure. Thus the requirements of OP/BP 4.01 for Category A projects were fully met. The main milestones of the disclosure and consultation processes are shown below:

Table 3.1: ESIA disclosure and consultation milestones

Action	Date
Primary consultation on ESIA process	12/11/2014
Disclosure of draft ESIA report in-country	05/15/2015
Disclosure of draft ESIA report through InfoShop	05/15/2015
Submission of ESIA executive summary to the Board	05/15/2015
Consultation on the draft final ESIA report	05/25/2015 and 05/27/2015
Re-disclosure of the final ESIA report in-country	06/18/2015
Re-disclosure of the final ESIA report through InfoShop	06/18/2015

42. *Institutional Arrangements*: MRDI through RD carried out environmental studies required for the EWHCIP and will be responsible for ensuring environmental compliance during the project implementation. Specifically, RD will ensure that: (i) national legislation and the Bank policies on environmental protection are adhered to; (ii) consultation with the public, as needed, takes place; (iii) information is disclosed to the public, as needed; and (iv) information on environmental issues which may arise in the course of project implementation are shared with the Bank. The Environment and Resettlement Unit (ERU) within RD will be responsible for all safeguards issues related to highway development and operation. Staffing and capacity building of this unit is ongoing and will receive technical assistance from ongoing Bank-financed operations. ERU staffing meets basic requirement for RD's in-house capacity for managing environmental and social aspects of its operation, however ensuring due application of safeguards during large-scale construction works like those to be financed from the proceeds of EWHCIP will require supplemental effort to be provided through highly qualified international consultant services. As the case had been with the past EWHIPs, RD will hire a supervision company to undertake technical oversight of works, including environmental monitoring. TOR is such consultant services will be shared and agreed with the Bank.

43. *EMP compliance framework:* To facilitate administration of the EMP and create leverage for enforcing its implementation the EMP, civil works contracts concluded under EWHCIP will have EMP included as an integral part into the contract and appropriate provisions to retain money in the event of non-compliance will be specified in contracts.

Social

44. Based on the results achieved under the past and ongoing EWHIPs, the EWHCIP activities are expected to make a positive impact on poverty alleviation as improved transport service would expand access to markets, employment and social services and ensure road users to travel more safely with reduced travel costs and time. The highway upgrade will directly benefit the population of six municipalities - Gori, Kaspi, Kareli, Khashuri, Tskhinvali and Java (the latter two being currently out of the jurisdiction of Georgia). The economic and social situation in these municipalities has deteriorated considerably as a result of August 2008 conflict as local residents have had to cope with the loss of their homes, livestock, agricultural equipment, land as well as access to transport service. The area is also characterized by large number of internally displaced people (IDPs) so it is expected that economic and social conditions of local people will be greatly improved through better transport connectivity and accessibility.

45. *Project triggers OP/BP 4.12 on Involuntary Resettlement:* The selection of the most suitable alignment of highway section from Zemo Osiauri to Chumateleti does minimize potential adverse social impact. As stated, the route selected would not affect big local cemetery thus preventing potential resistance on the part of local community. The potential social impact that construction works may entail in terms of land acquisition and resettlement is considered to be moderate**.** The assessment is based on the findings of feasibility studies, detailed design which is underway, field visit and discussions held. Given delays with completion of detailed design, the RAP is expected to be disclosed in country and on InfoShop (after consultation) by November 15, 2015. The consulting firm, working on the preparation of RAP, has already done some work and preliminary data on the potential land take and affected people is available.

46. Based on desk review of available cadaster data, it is estimated that some 500 land plots (400 private and 100 state-owned) will be affected. The Project would affect 1000 persons in 350 households for the loss of agricultural land (90 households could be severely affected with more that 10 percent of their land taken). No physical or economic displacement is expected under the Project. It is likely that four summer/vacation houses will be affected but not a single business will be affected. Early estimates show that land acquisition costs could amount to GEL 1.3 million and it will be financed from counterpart funds.

47. To minimize the environment and social impacts of the project, RD had to carry out additional analysis to determine the optimal alignment. This is to avoid landslides areas, negative impact on river ecosystem, and to avoid damage to high value forest. Hence, adjustments were required during the preparation of the detailed engineering design. Therefore, the precise resettlement action plan is still under preparation. However, the general scope, magnitude and nature of expected resettlement is well known and already reflected in the RPF. The RPF is the instrument through which the Borrower will be able to prepare the RAP as and when required during project implementation, in compliance with OP 4.12. As an additional requirement is for the RAP to be prepared (including consultations and disclosure) and fully implemented prior to any resettlement (as said term is defined under OP 4.12). The Detailed Engineering Design is expected to be ready by November 2015 and RAP is expected to be disclosed in country and on InfoShop (after consultation) by November 15, 2015. The Bank has followed the approach described herein given that the preparation of the RAP depends on knowing the affected land, and this depends on the design having been completed.

48. Resettlement Policy Framework (RPF) has been developed, approved and disclosed on RD's website on May 18, 2015 and InfoShop on May 26, 2015. Joint ESIA and RPF public consultations were held in Khashuri on May 25, 2015 and Tbilisi on May 27, 2015. The RPF document will serve as a guiding instrument in implementing involuntary resettlement. It sets out objectives; principles; compensation entitlements; legal framework; consultation procedures; grievance redress mechanisms; monitoring and financing provisions. Subsequently, the RAP will provide a detailed description of compensation and rehabilitation measures in compliance with policies and measures set out in the RPF document.

49. Public consultations were held during the preparation and development of both ESIA and RPF documents and will continue during the preparation, development and implementation of the RAP. As was the case with all EWHIPs, consultations meetings took into account the views of both men and women enabling them to express their transport needs, constraints and preferences. Extensive consultations were held with road vendors along Surami-Rikoti section who might be negatively affected due to traffic diversion. The outcome of the consultations held is that it is not expected that any major negative impact is to be expected. The existing road will continue to be actively used by the residents of 20 villages along the Chumateleti-Dzirula alignment and tourists during summer season so no adverse disruption to business of road vendors is expected as their main income is generated during summer season (10 times more than during winter time when majority of vendors are closed). Also, the planned rehabilitation works on the road section are expected to maintain reasonable traffic thus contributing to reducing indirect negative impact on livelihoods of road vendors.

50. Findings of the meetings and consultations held to date and consultation to be held during the RAP development along with resulting mitigation measures will be incorporated in the RAP as to restore PAPs livelihoods. Activities aimed at citizen engagement and beneficiary feedback will be further mainstreamed during the project implementation and evaluation mainly through the RAP implementation and monitoring. Additionally, the grievance redress mechanism is in place to address any potential complaints by the PAPs.

51. *Gender Dimension:* During project consultations special attention will be paid to the gender aspect of the project to enable broad participation of both women and men. This will allow them to express freely their needs, constraints and preferences in regard to the planned rehabilitation, improvement and construction road works to be done in their respective locations. Participation of women will be especially encouraged to account for their needs as to avoid any negative gender impacts. Based on the meetings and consultations held with the affected people, the findings and resulting mitigation measures will be incorporated in the resettlement plan. However, it is likely that no gender-related constraints are expected under the project activities, as these will rather generate positive impact and benefits for both women and men with their livelihood improved. Overall, expectations are that the highway upgrade would reduce travel times; enable users to travel more safely; enhance users' access to health service and schooling; enable easier access to markets; and improve general connectivity. Finally, during RAP implementation, special attention will be given to women and other vulnerable groups who will receive special assistance for their livelihood restoration.

52. *Citizen Engagement:* The project will continue to monitor beneficiary feedback through grievance redress mechanism. A robust system of grievance redress mechanisms is already in place under the on-going roads projects. It will support the implementation of RPF/RAPs/EMF and also communicate systematic information on the objectives and implementation progress of the project. Assistance will be provided to the beneficiaries/project affected peoples as well as to the general public through focal points in local administrations as well as by RD/PFU.

Monitoring & Evaluation

53. RD will be responsible for the monitoring of the results achieved under the Project. This will be done through its Monitoring and Evaluation Unit within the FPU which is discharging responsibilities for ongoing Bank supported projects. In the case of road safety data, necessary information will be collected by the Road Safety Unit within RD in coordination with the Patrol Police. Information and data to be generated in the course of the development of the National Road Safety and Action Plan will facilitate the availability of relevant road safety information.

54. Beneficiary feedback will be monitored through (i) annual road users' satisfaction surveys designed by RD and carried out by the Supervision Consultant when necessary and (ii) grievance redress mechanisms. The road users' satisfaction surveys are designed to collect information from road users, including users who are likely to be low-income population or/and females. Road users' satisfaction surveys will be carried out online and/or on site on an annual basis. They will capture public opinion on quality, safety and reliability of (i) highway road sections and (ii) services provided along the highway. Beneficiary feedback will also be monitored through grievance redress mechanism as detailed above.

55. A mid-term review of the Project will take place no later than December 2017. Its principal objectives will be to: (i) review progress in the implementation of the Project; (ii) review the results framework for the Project and make necessary adjustments; (iii) review overall progress with the development and management of the East West corridor; and (iv) receive the draft policy proposals for the road sector particularly its management and financing based on the findings of the various relevant studies carried out under the Project. For each of these objectives, MRDI will prepare reports and policy papers as appropriate to guide discussions during the mid-term review.

Annex 4: Implementation Support Plan

Georgia: East-West Highway Corridor Improvement Project

Strategy and Approach for Implementation Support

Focus of Supervision

1. The Implementation Support Plan is informed by the risks identified in the SORT and tailored to the specific needs of the Project. As the main objective of the Project depends on the quality of infrastructure constructed and on the satisfactory completion of several major technical studies, implementation support will focus on actions aimed at ensuring quality of works, timely award of contracts, timely review and decision making on consultants' reports by both RD and MESD, and adherence to the implementation schedule.

2. Supervision also needs to monitor compliance with World Bank fiduciary, environmental and social safeguards requirements. Emphasis will be put on upstream reporting, auditing and accountability, and technical compliance measures to ensure early detection and remedy of problems.

3. As the Project also has a substantial institutional development component, the Project implementation support will also put a specific emphasis on timely adoption of recommended modern practices and on monitoring increase in capacity of both institutions and on providing technical advice on these matters.

4. Key members of the Bank's team are based in the region or the country office in Georgia. This should allow almost continuous supervision of the Project in a cost effective manner. This would also allow early detection and remedy of problems that arise during implementation.

Implementation Support Plan

5. On a quarterly basis, RD will submit to the Bank, a detailed consolidated project implementation progress report which will provide the status of the Project activities and identify all implementation issues facing the Project. These reports combined with site visits will be used as the basis for undertaking substantive reviews of implementation progress and reaching agreement with the client on: (i) the outcome of the reviews; (ii) decisions on consultant studies, and planning of learning events under the Project; (iii) for the resolution of implementation issues facing the Project; and (iv) revising the implementation schedule and verifying consistency between the Project activities as planned and the financing plan (once major contracts have been procured).

6. In the case of *procurement documents* subject to prior review, these will be carefully reviewed by both the technical expert(s) and the Senior Procurement Specialist on the team to ensure that they comply with the project's technical requirements and the Bank's procurement and consultants guidelines. The team through the same experts will also provide guidance on *contract management,* and also build capacity of the project/contracts manager in charge of the Project.

7. The Bank will conduct risk-based financial management implementation support and supervision mission within a year of project effectiveness, and then at appropriate intervals. In addition, the regular IFRs and annual project audit reports will be reviewed by the Bank. As required, a Bank-accredited Financial Management Specialist will assist in the implementation support and supervision process including carrying out periodic reviews of RD's and TRRC's financial management systems and controls and where necessary will conduct reviews of statements of expenditure and monitor the availability and adequacy of the counterpart (co-financing) funds as reported in the quarterly IFRs. These reviews will be utilized for improving RD's and TRRC's systems and performance as necessary.

8. For *civil works contracts*, during implementation, there will be speedy review of project implementation progress reports prepared by the engineering supervision firms that will perform the day to day independent certification of the quality of work, payment certificates and compliance with contract terms. Technical specialists from the team will also review the quality of the design reviews and external technical audits carried out on major contracts under the Project

9. For *major technical studies* related to feasibility and design of future infrastructure, specific specialists (tunnels, structures) may be hired on an ad hoc basis to confirm the quality of the studies produced for RD and MESD and a detailed review will be carried out at the end of each critical phase.

10. *Environmental and Social Safeguards reviews* will be carried out at least twice a year, and every quarter at the beginning of the civil works under the main contract. The Environmental and Social Safeguards Specialists of the team will provide both desk review of documents produced (such as compliance reports on RAP implementation and Consultant's Reports) and provide on the job capacity building to the staff of the EPRU. Through on-the-job training they will also support the EPRU on its review of the Environmental and Social Impact Assessment(s) carried out under the project for future sections of the East West Highway.

11. *Institutional Development* activities will be supported directly by the core task team together with Institutional Development Specialists locally and internationally if applicable. This support will be through review of outputs of the Project, but also through organization and contribution to learning events and workshops, potentially bringing outside expertise to inform the strategic policy decisions to be taken by the government with support from the Project.

Mode of Supervision

12. The Task Team will supervise the Project as follows:

(a) Provide technical, environmental and social safeguards, procurement and financial management support to the Project's implementers from the country and region based team as necessary and on a continuous basis;

(b) Conduct quarterly supervision reviews including visits to the Project sites. The review teams will comprise a core team of specialists in highway engineering (twice a year), logistics, procurement, financial management, environmental and social safeguards, and the Task Team Leader supplemented by other specialists as may be needed. During the first two

years of implementation, at least semi-annually, the Bank team will include an expert with a focus on institutional development aspects of the Project; and

(c) During at least the first two years of Project implementation, the Bank team will include a communication specialist to assist the RD and MRDI implement aspects of the Project relating to the RD's development and implementation of a communication strategy and improving its outreach activities to road users as part of the Road Strategy and the Road Safety Strategy.

Monitoring and Evaluation

13. The Monitoring and Evaluation function for the Project is embedded in the responsibilities of the FPU. The Project Implementation Team will however review the availability of data and the Results Framework of the project twice a year.

Resources Needed

Resource Estimate

Time	Focus	Skills Needed	Resource Estimate
0-12 months	Technical review of the bidding documents Civil Works	Road Engineers	8 SWs (*)
	Review of Terms of Reference and Procurement Documents (Major Technical Studies)	Road Engineer	4 SWs
	Start of the ITS component	ITS Specialist	1 SW
	Procurement review of the bidding documents	Sr. Procurement Specialist	6 SWs
	Financial management and disbursements	Sr. Financial Management Specialist	3 SWs
	Environmental supervision	Sr. Environmental Specialist	3 SWs
	Social supervision	Sr. Social Specialist	3 SWs
	Road Safety content	Road Safety Specialist	3 SW
	Institutional Development component start	Inst. Dev. Specialist	4 SW
	Support with project supervision and coordination	Sr. Transport Specialist, TTL	8 SWs
	Project implementation monitoring	Operations Officer	6 SWs
	Communication	Com. Specialist	2 SWs
12-48 months	Technical Supervision of Civil Works	Road Engineer (local)	22 SWs
	Technical Supervision of Civil Works and Review of Technical Studies	Road Engineers (including specific specialists) (international)	16 SW
	Transport and Logistics policy	Trade and Transport Specialist	3 SW

Time	Focus	Skills Needed	Resource Estimate
	Supervision of ITS component	ITS Specialist	4 SW
	Contribution to institutional development	Inst. Dev Spec and various experts	10 SW
	Environmental supervision (monitoring of works+ review of Environmental Studies)	Sr. Environmental Specialist	12 SWs
	Social supervision	Sr. Social Development Specialist	8 SWs
	Support with project supervision coordination	Operations Analyst	10 SWs
	Financial management and disbursements	Sr. Financial Management Specialist	6 SWs
	Review of procurement documents	Sr. Procurement Specialist	8 SWs
	Project implementation monitoring	Operations Officer	14 SWs
	Task management and Institutional Development leadership	Sr. Transport Specialist	24 SWs

(*) SWs = Staff Weeks

Skills mix required

Skills needed	Number of Trips	Comments/Location
Team Leadership	Twelve	Washington
Specialist Engineers (tunnels, structures, design)	4	Washington and other international locations
Program Team Leadership	Regional trips as required	Brussels
Highway Engineer International (s)	Field trips as required	Georgia/Azerbaijan Country Office
Operational Support	Ditto	Country Office
Environmental Specialist	Ditto	Ditto
Road Engineer	STC or ETC Local	Ditto
Transport Specialist/Analyst	6	Washington
Social Development Specialist	4	Croatia Country Office
Financial Management Specialist	As required	Armenia Country Office
Procurement Specialist	As required	Regional/Country Office
Logistics Specialist	3	STC international
Intelligent Transport Specialist	3	Belgrade Country Office
Institutional Specialist		STC local
Communication Specialist		STC or Communication Officer local
Program Assistant		

Annex 5: Economic and Financial Analysis

Georgia: East West Highway Corridor Improvement Project

Introduction

1. This construction phase will support the construction a new dual carriageway 13.8 km highway section that starts at the end of the current road section being upgraded to dual carriageway under the Fourth East West Highway Project at Zemo Osiauri and ends at the entrance of the Rikoti Tunnel at Chumateleti. The upgraded road bypasses the town of Khashuri to facilitate the traffic using the East-West highway that connects Tbilisi with the Port of Batumi. The Project (8km) will thus bring direct benefits to road users arising from a reduction in vehicle operating costs, passenger time and CO2 emissions costs as a consequence of shortened trip distance, improved ride quality and relief of road congestion. The Project will also have a positive impact on communities living in the vicinity of the project road through stimulation of economic activity in the region and provision of better access employment opportunities, local markets and basic social services. However, these benefits were not included in the economic analysis because they are difficult to quantify in monetary terms.

2. The economic analysis was conducted using the Highway Development and Management Tool (HDM-4), which simulates life-cycle predictions of road deterioration, road works effects and their costs and road user costs and CO2 emission costs, and provides economic decision criteria for road construction and maintenance works. The HDM-4 analyzes projects by computing present values, at a given discount rate, of costs and benefits of different investment options in terms of savings in road maintenance costs, vehicle operating costs and travel time costs. The comparison is done between the "do something" scenario (project case) and the "do minimum" scenario (without project case) over the analysis period. The "do minimum" scenario incorporates an assessment of what would happen to the road infrastructure and road users if the project was not undertaken. The project scenario consists of the project construction works followed by proper maintenance works over the analysis period. The evaluation considered a 12 percent discount rate and a 25 year evaluation period.

Main Assumptions

3. The current road from Zemo Osiauri to Chumateleti is a 17.6 km 2-lane Asphalt Concrete road with an average roughness of 3.5 IRI, m/km. The upgraded road will be a dual 2-lane carriageway with Cement Concrete pavement. The estimated financial investment cost is US$202.0 million, including taxes and contingencies, corresponding to US$14.64 million per km. Economic investment costs, net of taxes and price contingencies, were estimated at 80 percent of the financial costs. The construction period is three years, and the expressway is expected to be opened to traffic at the end of 2019. The project will be implemented under two sections with financing from EIB and IBRD. Table 5.1 presents the basic project characteristics.

Table 5.1: Basic Characteristics

Road Section	Length (km)	Cost (US$ million)	Cost (US$ million/km)	Financing
Section 1 (km 0 - km 5.8)	5.8	49.0	8.45	EIB
Section 2 (km 5.8 - km 13.8)	8.0	153.0	19.13	IBRD
Total	13.8	202.0	14.64	

4. A comparison in journey distance between the existing road and proposed new road shows a very high distance savings of 22 percent (3.8 kilometers). The current journey time on the existing road, which goes through the city of Kashuri, is around 21 minutes by car (average journey speed of about 50 km per hour). Whereas, on the proposed project road, an average journey speed of 80 km per hour is expected, translating into an average journey time of about 10 minutes. Hence, a time saving of some 11 minutes per trip could be achieved as a result of the project. The travel time on section 2 financed with IBRD funds is 12 minutes without project and 6 minutes with project, representing 6 minutes of travel time savings.

Project Traffic

5. Most of the traffic that will use the project road will go through the Rikoti tunnel; thus, its traffic was used to estimate the expected traffic on the project road (see Table 5.2).

Table 5.2: Rikoti Tunnel Traffic

Year	AADT (vehicles/day)	Traffic Annual Growth	
		Period	%/year
2005	4,036	2005-2010	7%
2006	5,083	2010-2014	14%
2007	6,140	2005-2014	10%
2008	5,831		
2009	5,505		
2010	5,664		
2014	9,570		
2019*	13,314*		

* Estimated Rikoti Tunnel traffic at opening of the project road

6. The Rikoti tunnel traffic increased on average by 10 percent per year from 2005 to 2014 and is estimated to reach 13,314 vehicles per day in 2019, assuming an annual growth rate of 5.5 percent per year from 2014 to 2017 for passenger cars and 5.25 percent for other vehicles. The estimated normal traffic growth rates are presented table below. The World Bank estimates that Georgia's GDP per capita will grow at 3.6 percent per year from 2015 to 2018.

Table 5.3: Estimated Annual Traffic Growth

Period	Traffic Annual Growth (%)	Estimated GDP per Capita Annual Growth
2015-2020	5.40%	3.6% (2015-2018)
2021-2025	4.90%	
2026-2035	3.80%	
2031-2040	3.40%	

7. Based on origin destination surveys done in 2014, it is estimated that 85 percent of the Rikoti tunnel traffic will use the project road in 2019. In addition, generated traffic was assumed to reach 10.0 percent of the normal traffic five years after the new road will be opened. The table below presents the estimated traffic on the project road.[5]

Table 5.4: Normal and Generated Traffic

year	Normal Traffic	Generated Traffic	Total Traffic
2019	10,631	0	10,631
2025	14,247	1,425	15,672
2030	17,168	1,717	18,884
2035	20,687	2,069	22,756
2040	24,451	2,445	26,896

8. The proposed project will have positive impact on the existing road local traffic, as there would be a reduction in traffic volume on the existing road with the proposed project. However, for a conservative evaluation, the economic analysis did not consider the benefits to the remainder traffic on the existing road

Road User Costs

9. The working time cost per bus passenger was assumed to be US$2.55 per hour, based on the 2015 average monthly income per capita of Georgia.[6] The cost of non-working time was assumed to be 30 percent of the working time cost. The cars passenger's time costs were assumed to be one and a half the bus passenger costs. Road user costs savings, however, are not to be confined to journey time alone, other distance related savings would include fuel cost and other vehicle operating costs such as vehicle wear and tear and vehicle repairs and maintenance costs. The table below presents the vehicle fleet characteristics and economic unit costs adopted on the economic analysis and the estimated traffic composition on the project road, which shows the majority of the traffic is composed of cars and vans (70 percent), while trucks account only for 18 percent of the traffic. In addition, the social cost of CO2 emissions was included on the economic analysis, estimated at US$30 per ton of CO2 emissions.[7]

[5] Normal traffic is the expected traffic on the project area with or without the project. Generated traffic is the additional traffic that will occur due to reduction in transport cost and the economic development it will produce on the project area.

[6] The average monthly income per capita in Georgia increased from GEL 92.3 per month in 2005 to GEL 246.6 in 2013 as reported by the National Statistics Office of Georgia.

[7] Guidance of the SDNCE/CCGCE Guidance note on social value of carbon in project appraisal, July 14, 2014.

Table 5.5: Vehicle Fleet Basic Characteristics and Economic Unit Costs

	Car	Vans	Minibus	Bus	2 Axles Truck	3 Axles Truck	4+ Axles Truck
Economic Unit Costs							
New Vehicle Cost (US$/vehicle)	20,454	22,727	22,727	65,909	29,545	38,636	100,000
New Tire Cost (US$/tire)	55	273	91	341	182	273	364
Fuel Cost (US$/liter)	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Lubricant Cost (US$/liter)	6.18	6.18	6.18	6.18	6.18	6.18	6.18
Maintenance Labor Cost (US$/hour)	0.72	1.64	1.64	1.64	2.10	2.10	3.00
Crew Cost (US$/hour)	0.00	2.55	2.55	2.55	2.55	2.55	2.55
Overhead (US$/year)	640	720	640	1280	860	1060	1280
Interest Rate (%)	12	12	12	12	12	12	12
Passenger Working Time (US$/hour)	3.83	3.83	2.55	2.55	0.00	0.00	0.00
Passenger Non-Working Time (US$/hour)	1.13	1.13	0.75	0.75	0.00	0.00	0.00
Cargo Time (US$/hour)	0.00	0.00	0.00	0.00	1.79	2.68	4.02
Basic Characteristics							
Kilometers Driven per Year (km)	23000	30000	40000	80000	60000	80000	120000
Hours Driven per Year (hr)	550	1300	750	1750	1300	1200	2050
Service Life (years)	10	8	8	12	8	12	14
Percent Private Use (%)	100	0	0	0	0	0	0
Number of Passengers (#)	2.35	0.00	15.00	40.00	0.00	0.00	0.00
Work Related Passenger-Trips (%)	75	100	75	75	100	100	100
Gross Vehicle Weight (tons)	1.20	1.50	2.20	10.00	2.00	7.50	28.00
Equivalent Standard Axels (ESA)	0.02	0.14	0.02	1.51	0.84	2.50	3.50
Traffic Composition (%)	59%	11%	11%	1%	2%	2%	14%

10. The unit road user costs of a car and 3 axles truck with the project, in US$ per vehicle-km, will be 26 and 25 percent respectively less than without the project due to the improved ride quality, distance savings and reduced travel time (see Table below). The unit vehicle operating costs of a car will reduce from 0.24 US$ per vehicle-km without the project to 0.21 US$ per vehicle-km with the project. The unit vehicle operating costs of a 3 axle truck will reduce from 0.63 US$ per vehicle-km without the project to 0.50 US$ per vehicle-km with the project. At the year of the opening of the project road, it is estimated that the project traffic will emit 19,393 tons of CO2, which represents a 23 percent reduction of CO2 emissions compared with the case of the same traffic using the existing road (25,239 tons). Over the entire 25 years evaluation period, the total CO2 emissions are expected to decrease by 21 percent due to the shortened travel distance and reduced congestion brought about by the project.

Table 5.6: Unit Road User Costs (US$ per vehicle-km)

		Car	Van	Minibus	Bus	2 Axles Truck	3 Axles Truck	4+ Axles Truck
Without Project	Vehicle Operating Costs	0.24	0.37	0.34	0.47	0.41	0.63	1.11
	Travel Time Costs	0.17	0.00	0.75	1.83	0.05	0.09	0.11
	Road User Costs	0.42	0.37	1.09	2.29	0.46	0.72	1.22
With Project	Vehicle Operating Costs	0.21	0.30	0.29	0.41	0.34	0.50	0.94
	Travel Time Costs	0.10	0.00	0.42	1.19	0.02	0.03	0.05
	Road User Costs	0.31	0.30	0.71	1.59	0.36	0.54	0.99

Economic Analysis Results

11. The return on the investments of the overall project is satisfactory with an Economic Internal Rate of Return (EIRR) of 15.3 percent, Net Present Value (NPV) of US$47.70 million, at a discount rate of 12 percent, and Benefit Cost Ratio of 1.35. The Switching values analysis shows that construction costs would have to increase by 33 percent for the project EIRR be reduced to 12 percent. The section 2 (km 5.8 to km 13.8), financed with IBRD funds, yields an EIRR of 12.3 percent and a NPV of US$3.26 million. The economic indicators for section 2 are lower than for section 1 because section 2 has more than double construction cost per km. The results of the economic analysis are presented in the table below.

Table 5.7: Economic Analysis Results

	Section 1 (EIB)	Section 2 (IBRD)	Overall Project
Economic Internal Rate of Return, EIRR (%)	23.0%	12.3%	15.3%
Net Present Value, NPV (US$ million)	44.44	3.26	47.70
Present Value of Benefits (US$ million)	78.0	106.2	182.8
Present Value of Costs (US$ million)	33.5	102.9	135.1
Benefit Cost Ratio	2.32	1.03	1.35

12. Most of the project benefits (95.3 percent) derive from road user costs savings (vehicle operating costs plus travel time costs) of the normal traffic, while generated traffic accounts for 3.9 percent of the benefits. Travel time costs savings account for 45.1 percent of the project benefits, while vehicle operating costs for 54.1 percent (see Table below).

Table 5.8: Distribution of Project Benefits Present Value

Source	(US$ M)	(%)
Normal Traffic Benefits	174.2	95.3%
Generated Traffic Benefits	7.2	3.9%
CO2 Emission Benefits	1.5	0.8%
Total Benefits	182.8	100.0%
Vehicle Operating Costs Benefits	99.0	54.1%
Travel Time Benefits	82.4	45.1%
CO2 Emission Benefits	1.5	0.8%
Total Benefits	182.8	100.0%

13. A sensitivity analysis was carried out to assess the robustness of the results to possible variations in key project parameters, which in this case were identified as construction costs and the forecasted traffic at opening of the project road. A severe worst case scenario with construction costs increased by 15 percent and traffic at the opening of the project road decreased by 15 percent shows a marginal return for the project with an EIRR of 11.7 percent. The case of reducing the value of passenger time costs in half yields an EIRR of 12.4 percent. The case of having no generated traffic yields an EIRR of 14.7 percent. The economic analysis sensitivity results are presented in the table below.

Table 5.9: EIRR Sensitivity Analysis (%)

Base Case	15.3%
Construction Costs + 15%	13.6%
Traffic at Opening - 15%	13.1%
Construction Costs + 15% and Traffic at Opening -15%	11.7%
Half Passenger Time Cost	12.4%
No Generated Traffic	14.7%

East-West Highway Corridor Impacts on Georgia's Economy

14. To assess the wider development impact of the East West Highway Corridor on Georgia's economy, a study was carried out during project preparation. In order to assess the medium and long term economy-wide benefits of the EWHC this study has used a computable general equilibrium (CGE) model, which simulates indirect benefits associated with the completion of the upgraded road corridor. In their most basic form, CGE models characterize a target economy (in this case, Georgia) using detailed consumption and production functions, together with a depiction of the market prices and price distortions (e.g., taxes or regulatory controls), providing a depiction of the economy "as is" in a static framework and then applying a shock. Such a depiction is contained in the Social Accounting Matrix (SAM), a comprehensive, economy-wide data table which represents how the different sectors of the economy interact.

15. Table 5.10 shows how real GDP increases over the medium and long-term, as a result of the EWHC project presents macroeconomic of the simulations results stemming from the reduction of transportation costs associated with the construction of the EWHC. These results clearly indicate the importance of indirect project costs. Real GDP is assessed to increase by 1.3 percent over medium-term horizon (the comparative static formulation of the model) and 3.9 percent over a long-term horizon (steady-state). Steady-state results should be taken with caution as they represent an upper bound of the potential impact of reduction in transport costs. Real consumption of households will increase thanks to lower expenditures on transportation, due to both expansion of domestic production and, in the long-term, imports, while government consumption will also increase but at lower rate. Both exports and imports are expected to expand in the long-run, with exports growing on average a somewhat faster in the long-run due to the strong expansion of the manufacturing sector, accounting for the largest share of exports. In the medium-term, trade volumes will reduce against the background of reduced output in transpiration.

Table 5.10: Indirect Macroeconomic Impact, Cumulative Percentage Change from 2013 Baseline

	Medium-Term (static)	Long-term (steady-state)
Real GDP	1.3	3.9
Real household consumption	1.3	4.2
Real government consumption	0.6	0.9
Real exports	-0.4	2.8
Real imports	-0.3	2.6
Unemployment	-1.3	-3.2

Sources: World Bank, ISET Policy Institute.

16. In the comparative static formulation of the model, the first two quintiles with the lowest income—the bottom 40 percent with annual income up to GEL 1000 (USD 602)—gain relatively less than other household groups (Table 5.11). In the comparative steady-state formulation of the model, this effect is reinforced, most likely because households with higher level of income tend to own more capital, the stock of which increases in the steady-state formulation of the model. The reduction in unemployment in long-term as the expansion of capital stock allows involvement of previously unused labor stock into production is not sufficient to counteract this effect. There are several transmission mechanisms allowing households to gain income in case of transport cost reduction. First, the expansion of production results in higher demand for primary factors and thus household income. It should be noted that this effect partly overcomes the impact of a reduction in demand, and thus price, for primary factors generated by the transportation sector.

Table 5.11: Distributional Impacts on Welfare, Cumulative Percentage Change from 2013 Baseline

Quintile	Level of income, GEL	Medium-Term (static)	Long-term (steady-state)
Household income quintile 1	0-500	1.8	2.9
Household income quintile 2	500-1000	2.1	3.6
Household income quintile 3	1000-1500	2.4	4.2
Household income quintile 4	1500-3000	2.6	4.5
Household income quintile 5	more than 3000	2.9	5.0

Source: World Bank, ISET Policy Institute.

17. Table 5.12 shows that wages increases for both the self-employed and hired labor. Second, higher households' income results also increase households' consumption (Table 5.10).

Table 5.12: Household wages, Cumulative Percentage Change from 2013 Baseline

	Medium-Term (static)	Long-term (steady-state)
Self-employed labor force	0.8	3.0
Hired labor force	0.8	3.0

Sources: World Bank, ISET Policy Institute.

18. The welfare-increasing effect of construction of the EWHC is expected to be detected for people leaving in various regions of Georgia (12). On average, rural households are expected to gain more than urban households, in line with a priori expectations, as rural households' income is more affected by transportation costs as they need to purchase and deliver goods on longer distances both for consumption and for sale. Rural Tbilisi is expected to gain the most from the reduction in transportation costs.

Table 5.13: Regional Household Welfare Impact Change, Percentage Cumulative Change from 2013 Baseline

	Urban		Rural	
	Medium-Term (static)	Long-term (steady-state)	Medium-Term (static)	Long-term (steady-state)
Kakheti	2.00	4.37	2.15	4.17
Tbilisi	2.43	5.47	3.42	5.83
Shida Kartli	1.91	4.65	2.31	4.83
Kvemo_Kartli	2.27	4.76	2.26	4.88

	Urban		Rural	
	Medium-Term (static)	Long-term (steady-state)	Medium-Term (static)	Long-term (steady-state)
Samtskhe	1.84	4.46	2.29	4.73
Adjara	2.13	5.14	2.57	5.35
Guria	1.71	3.61	2.27	4.66
Samegrelo	1.99	4.38	2.31	5.12
Imereti	2.21	4.92	2.44	4.78
Mtskheta	3.33	6.11	2.47	4.70
Urban	2.15	4.74	N/A	N/A
Rural	N/A	N/A	2.43	4.89

Note: Welfare as proxied by household consumption.
Sources: World Bank, ISET Policy Institute.

Rationale for Public Financing and Value Added of Bank's Support

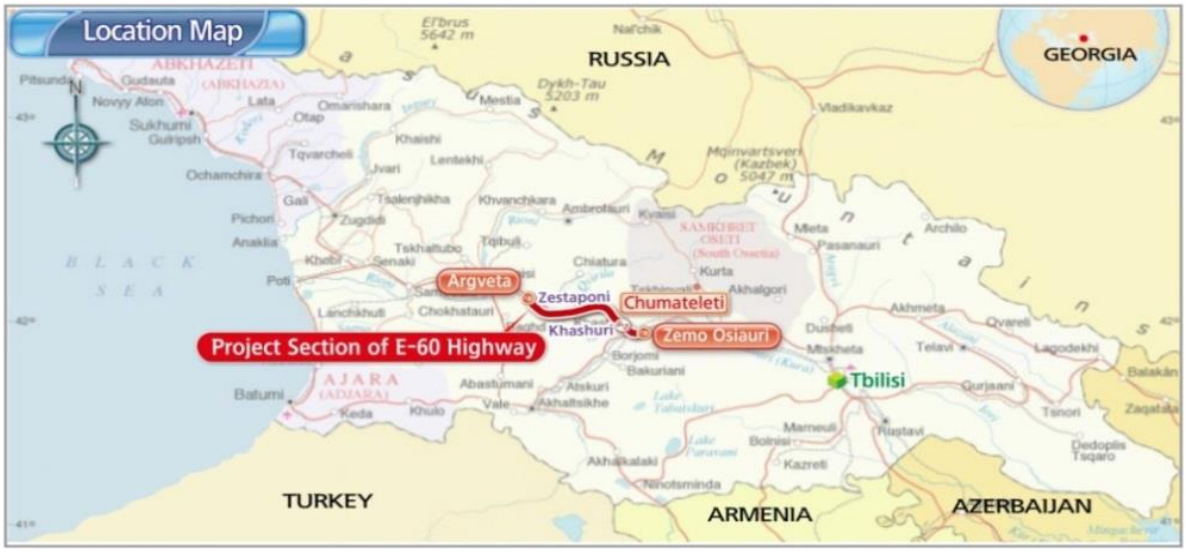
19. Rationale for public sector provision/financing: Public sector financing is the appropriate vehicle for financing the upgrading of the project road because of the large initial cost. Public investment in road infrastructure is a key tool for the GoG for promoting the country's development, including for the development of the private sector. Road network development in Georgia at present can only be accomplished through government actions, but opportunities to attract and involve the private sector and private operators in developing, operating and maintaining the infrastructure are analyzed under EWHIP-4.

20. Value added of Bank's support: The Bank's support is intended to complement and contribute to RD's efforts under the program or those of its development partners by providing new knowledge based on international experience. This will be instrumental for helping to ensure (i) the quality of the engineering design and of physical construction, (ii) the presence of a sustainable setup for management, operation and maintenance of the highway, (iii) integrating the highway in Georgia's overall transport planning, (iv) the use of adequate environmental and social risk management and safeguards procedures, (v) the use of adequate procurement and financial management procedures. More specifically, the Bank will provide support by mobilizing adequate expertise to review the proposed road alignment alternative for this project road section for the remaining sections till Argveta. The World Bank Group will draw from its global experience and provide support for the bridge and tunnel engineering design. The Bank will also coordinate with the Government and other development partners (ADB, EIB, and JICA) to identify the strategic prioritization of investments for the East West highway by sharing the findings of the on-going feasibility study on the alternative alignment analysis and on the identification of the optimal financing strategy.

Annex 6: Technical Analysis

GEORGIA: East-West Highway Corridor Improvement Project

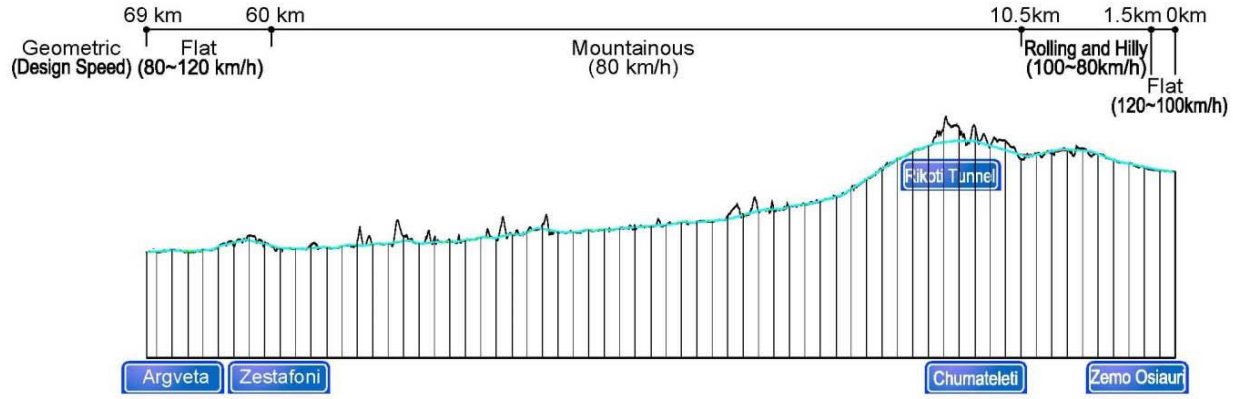
1. The upgrading of the 392 km East West Highway Corridor to a 2-lane dual carriageway is expected to be completed by end of 2020. Civil works to upgrade the section from Ruisi to Agara are ongoing (expected to be completed by end 2015) and the works on the section from Agara to Zemo Osiauri have recently started. This annex addresses **technical design considerations and alternative alignments considered during the feasibility study for the proposed project to upgrade the existing 2-lane East-West Highway from Zemo Osiauri to Chumateleti to a 2-lane dual carriageway road.**



2. **Existing facilities and proposed improvements**. As the E-60 highway connects the Black Sea coast to the capital city of Tbilisi, it passes through mountainous areas with elevations of 600 to 850 m above the sea level for some sections between Zemo Osiauri to Argveta including the Rikoti Tunnel. The section to be upgraded during the current phase (as defined on Figure 1 page 9) is approximately 14 km between Zemo Osiauri, eastern part of Khashuri, and Chumateleti, at the entrance of the Rikoti tunnel. The proposed alignment will bypass the urban area of Khashuri and then traverses the Chumateleti Valley, running through hilly and mountainous terrain thus requiring many structure works including tunnels and bridges. The carriageway comprised of a reduced central reserve with two westbound and two eastbound lanes, will be made of concrete pavement.

3. **Project Traffic.** The base year (2014) AADT is estimated at 9,570 vehicle /day. The majority of the traffic is composed of car and heavy traffic is estimated at 18 percent of total traffic. The traffic at the entrance of the Rikoti tunnel increased on average by 10 percent per year from 2005 to 2014 and is estimated to reach 11,398 vehicles per day in 2017, assuming an annual growth rate of 6 percent per year from 2014 to 2017. The normal traffic is estimated to grow at 6.0 percent per year from 2014 to 2024 and to 4.0 percent per year thereafter. The World Bank estimates that Georgia's GDP per capita will grow at 3.6 percent per year from 2015 to 2018.

4. **Design characteristics**. Previous sections (from Natakhtari to Zemo Osiauri) are characterized by a flat terrain. Considering the difficult topographic and geological conditions in the proposed project area, design characteristics and geometric standards have to be adapted to a design speed of 80km/h, affecting gradient, curves and the cross sections. *Design Speed*. In accordance with Georgian Design Standards for roads of international importance with daily traffic of more than 8,000 vehicles, following design speeds are anticipated (i) Flat terrain: 120 km/h; (ii) Hilly terrain: 100 km/h and (iii) Mountainous terrain: 80 km/h. The longitudinal profile of the area from Zemo Osiauri to Chumateleti is shown below.



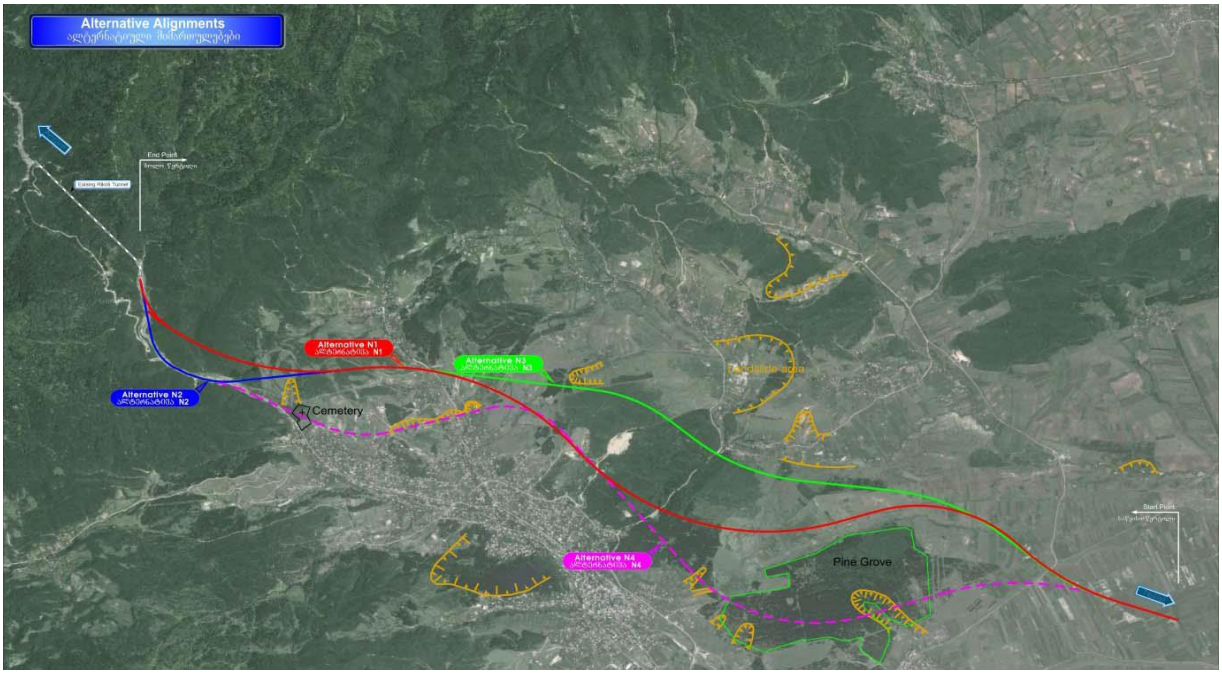
5. **Horizontal and Vertical Alignment Parameter.** Horizontal and vertical alignments are the primary controlling elements for highway design. It is important to coordinate these two elements with design speed, drainage, intersection design, and aesthetic principles in the early stage of design. The project highway should be generally designed for high-volume and high-speed operation, but the design should be carefully adapted depending on the conditions. Proper combinations of flat curvature, gentle grades and separate roadway elevations to enhance the safety and aesthetic aspects of the motorway should be considered. The main horizontal and vertical design parameters for the desired design speeds are presented in the table below.[8]

Design Speed	120 km/h		100 km/h		80 km/h	
Design Standard	TEM	Georgian	TEM	Georgian	TEM	Georgian
Min. Horizontal Radius	650 m	700 m	450 m	450 m	240 m	250 m
Max. Super elevation	7%	7%	7%	7%	7%	7%
Normal Cross-Falls on curves greater than	3,500 m	3,300 m	2,500 m	2,300 m	2,000 m	1,200 m
Minimum of Horizontal	4)	4)	4)	4)	4)	4)

[8] Notes:
1) For stopping sight distance;
2) For level and straight conditions;
3) Concave curves should be calculated that the vertical acceleration is not more than 0.25 m/sec;
4) Tangent length of the element should be more than 700 m if design speed exceeds 60km/h.

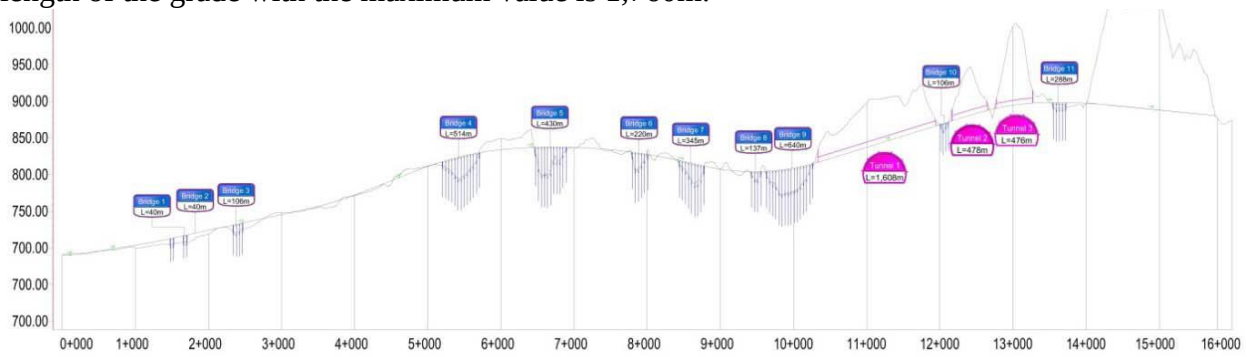
Curve Length						
Maximum Grade (gradient)	4%	4%	5%	5%	6%	6%
Min Vertical Crest Curve	[3]	22,600 m [1]	[3]	10,000 m [1]	[3]	5,000 m [1]
Min. Vertical Sag Curve	12,000 m	7,700 m [1]	6,000 m	4,900 m [1]	3,000 m	3,200 m [1]
Min. Stopping Sight Distance	200 m [2]	250 m	150 m [2]	200 m	100 m [2]	140 m

6. **Alternative alignment analysis.** Considering the impact assessment, topographical and geological analyses, four different alignments were initially considered during the feasibility study carried out in preparation of this proposed project. Four alternative alignments were analyzed including the alternative (Alternative 4) suggested in the previous feasibility study (2009). The latter was discarded due to its negative environment and social impacts as it traverses a high value forest land and a cemetery. The first 10 km of Alternative 3 go through a high risk landslide area and was also dropped. Further analysis was carried out to compare the remaining two alternatives (Alternative 1 and Alternative 2). The total road length of Alternative 1 and 2 is 13.8 km and 14.2 km respectively. Alternative 1 and Alternative 2 share the same alignment along the first 10 km, including around 2.5 km of bridges. The last 4 km of Alternative 1 will require the construction of 3 tunnels totaling 2.6 km. The last 4 km of Alternative 2 join the existing road, along the river (implying higher risk of river invasion), leading to the entrance of the Rikoti Tunnel. Alternative 2 will require the construction of one tunnel of 1.5 km.

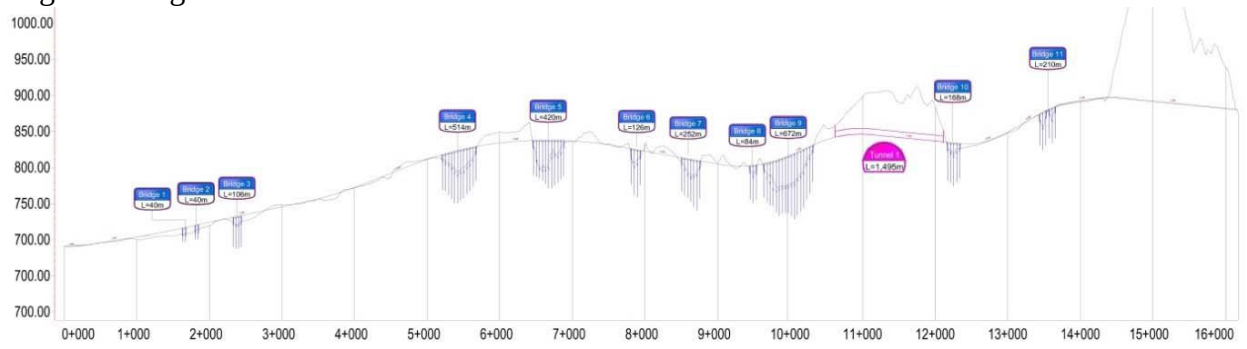


7. **Technical description of the two preferred alternatives at the feasibility study stage**:

Alternative 1: This alternative mainly consists of road (L=8,372m), 11 bridges (L=2,866m) and 3 tunnels (L=2,562m) whose total length is 13.80km. The maximum gradient is 3.95 percent and the length of the grade with the maximum value is 1,760m.



Alternative 2: This alternative mainly consists of road (L=10,053m), 11 bridges (L=2,632m) and 1 tunnel (L=1,495m) whose total length is 14.18km. The maximum gradient is 5.8 percent and the length of the grade with maximum value is 770m.



8. **Selected alternative**. Despite a higher construction cost, alternative 1 was selected considering the negative environmental impacts of alternative 2.

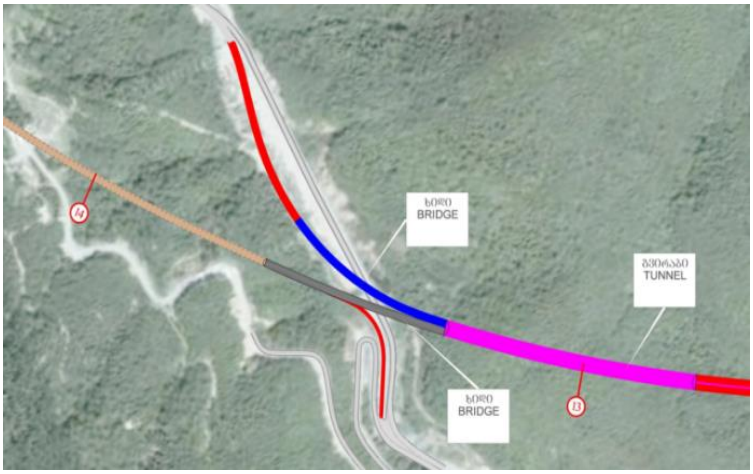
9. At the detailed design stage, the section characteristics were refined. The total road length is 14 km (outbound)/13 km (inbound), with a lane width of 3.75m and 3.50m. It mainly consists of road (L=8,638m), 11 bridges (L=2,866m) and 3 tunnels (L=2,562m).

Alternative alignment 1 - Structures

	Length (m)		**Length (m)**
Bridges			
Bridge # 1	40	Bridge # 7	345
Bridge # 2	40	Bridge # 8	137
Bridge # 3	106	Bridge # 9	640
Bridge # 4	514	Bridge # 10	106
Bridge # 5	430	Bridge # 11 (2 lanes/outbound)	288
Bridge # 6	220		
Tunnels			
Tunnel # 1	1608	Tunnel #3 (2 lanes/outbound)	476
Tunnel # 2	478		

Connection to the existing road (entrance of Rikoti tunnel)

10. At the end of tunnel #3, the 4-lane highway will split into two different carriageways. The outbound lane will join the existing road in front of the east portal of the Rikoti tunnel. The inbound lane will run through the new Rikoti tunnel.



Connection to the existing road

13.8 km road section divided in 2 lots

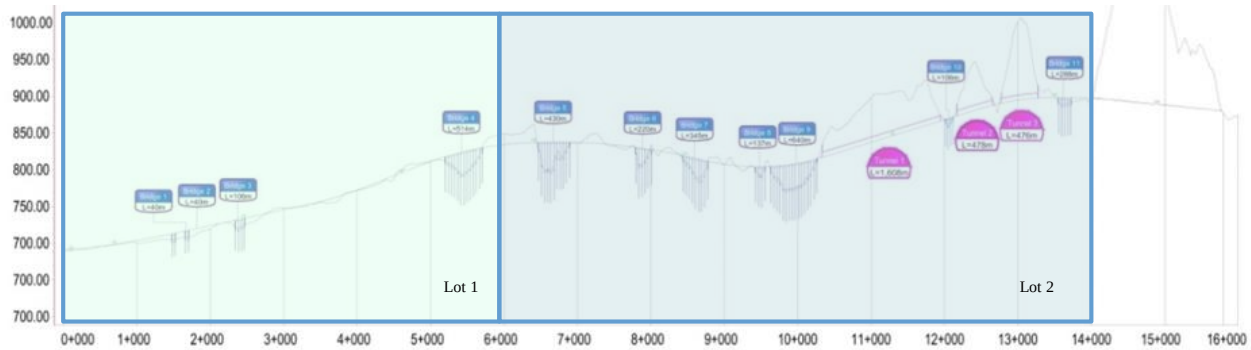
11. The 13.8 km road section to be upgraded during the current phase (as defined on Figure 1 page 9) will be divided in 2 lots. The following is proposed:

- First lot – 'Zemo Osiauri' to 'Zemo Osiauri – Km5.8': This section of 5.8 kilometers includes 4 bridges and will be financed by EIB.
- Second lot – 'Zemo Osiauri – Km5.8' to 'Chumateleti': This section of 8 kilometers includes 7 bridges and 3 tunnels and will be financed by IBRD.

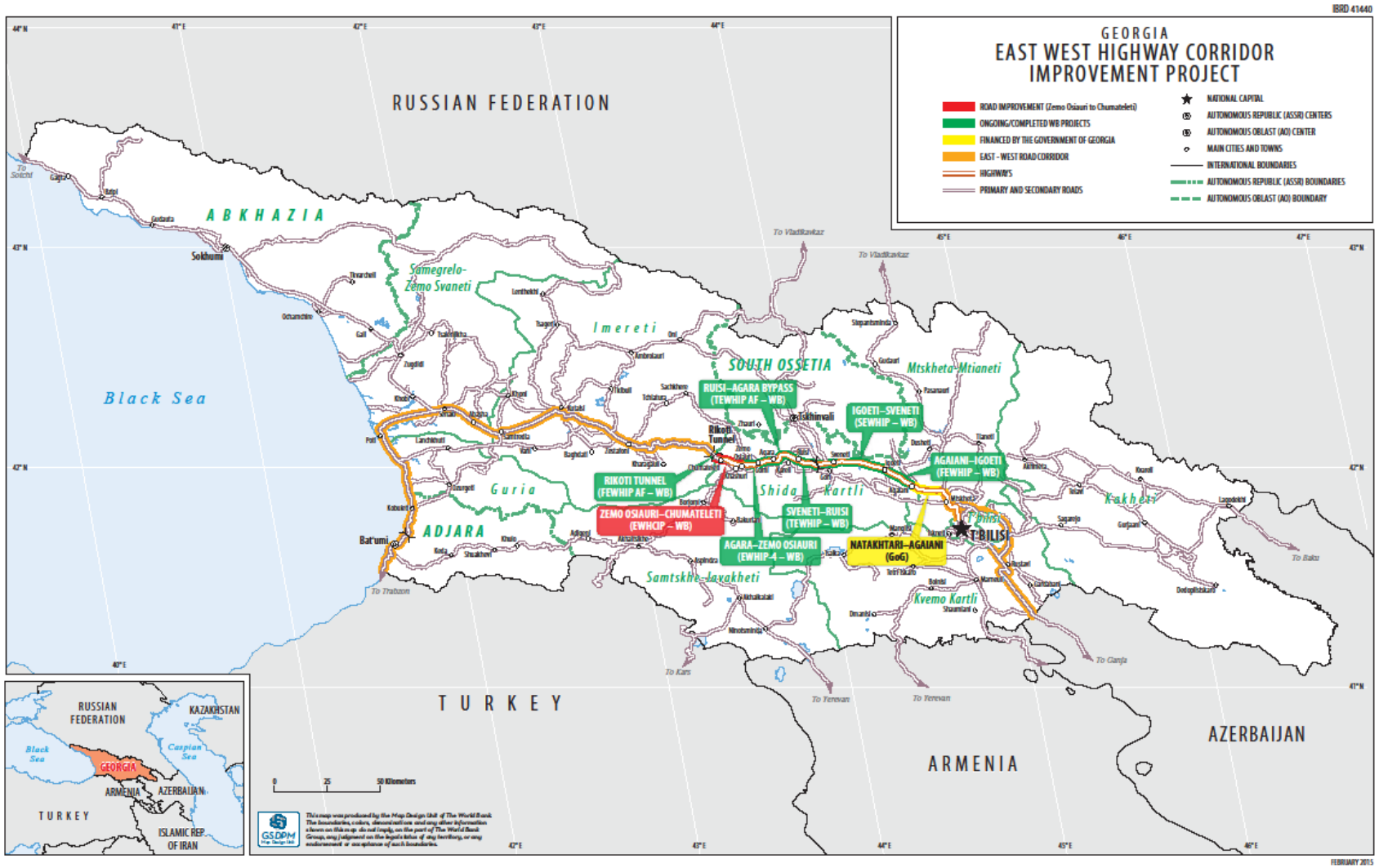
13.8 km road section cost and financing

Project lots	Estimated cost, US$ million	EIB Financing		IBRD Financing		GoG Financing	
		US$ million	% Financing	US$ million	% Financing	US$ million	% Financing
Lot 1 (KM 0 - KM 5.8)	48.9	39.1	80%	0	-	9.8	20%
Lot 2 (KM 5.8 - KM 13.8)	158.5	0	-	135.25	85%	23.25	15%
Total Costs	**207.4**	**39.1**	**19%**	**135.25**	**65%**	**33.05**	**16%**

13.8 km road section - graph



Annex 7: Map


IBRD 41440
GEORGIA
EAST WEST HIGHWAY CORRIDOR
IMPROVEMENT PROJECT
ROAD IMPROVEMENT (Zemo Osiauri to Chumateleti)
ONGOING/COMPLETED WB PROJECTS
FINANCED BY THE GOVERNMENT OF GEORGIA
EAST - WEST ROAD CORRIDOR
HIGHWAYS
PRIMARY AND SECONDARY ROADS
NATIONAL CAPITAL
AUTONOMOUS REPUBLIC (ASSR) CENTERS
AUTONOMOUS OBLAST (AO) CENTER
MAIN CITIES AND TOWNS
INTERNATIONAL BOUNDARIES
AUTONOMOUS REPUBLIC (ASSR) BOUNDARIES
AUTONOMOUS OBLAST (AO) BOUNDARY
RUSSIAN FEDERATION
ABKHAZIA
Black Sea
Samegrelo-Zemo Svaneti
Imereti
SOUTH OSSETIA
Mtskheta-Mtianeti
Guria
Shida Kartli
Kakheti
ADJARA
Samtskhe-Javakheti
Kvemo Kartli
RUISI–AGARA BYPASS (TEWHIP AF – WB)
IGOETI–SVENETI (SEWHIP – WB)
AGAIANI–IGOETI (FEWHIP – WB)
RIKOTI TUNNEL (FEWHIP AF – WB)
ZEMO OSIAURI–CHUMATELETI (EWHCIP – WB)
SVENETI–RUISI (TEWHIP – WB)
AGARA–ZEMO OSIAURI (EWHIP-4 – WB)
NATAKHTARI–AGAIANI (GoG)
T.BILISI
TURKEY
ARMENIA
AZERBAIJAN
RUSSIAN FEDERATION
KAZAKHSTAN
Black Sea
Caspian Sea
GEORGIA
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