The East-West Highway is a strategic project in the Government's effort 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.
Vision - Roads and Highways - Georgia

Implementation of major infrastructure projects

Railway Modernization

Baku-Tbilisi-Kars

East-West Highway

Development of logistic Infrastructure

Expansion of Batumi Airport

Expansion of Kutaisi Airport
Implementation of major infrastructure projects

- Anaklia Deep Sea Port
- Expansion of Poti Seaport
- Urea terminal in Batumi
- Project of PACE terminal
Vision - Roads and Highways - Georgia

**Roads Department of Georgia**

**Priorities and Main Directions:**

- Gradual integration with the EU road standards
- Ensure the safe road infrastructure
- Rational planning of the road infrastructure
- Development of improved road management system
- Improvement of monitoring functions
- Ensure competitive environment in the sector
- Environmental protection
- Improvement of social and resettlement policy
- Ensure transparency of the activities and public awareness

- Construction of the Highways
- Construction and rehabilitation of international roads
- Construction of secondary roads, rehabilitation – periodic repair;
- Construction and rehabilitation of structures
- Maintenance and operation of roads
- Working on prospective road infrastructure projects
- Ensuring riverbank and seashore protection activities
Vision - Roads and Highways - Georgia

Organizational Chart

Roads Department of Georgia
Chairman

Deputy Chairperson
- International Procurement Division
  - Legal Division
  - State Procurement Division
  - Environmental & Social Safeguards Division

Deputy Chairman
- Management of IFI Funded Construction, Modernization & Reconstruction Projects Division

Deputy Chairman
- Financial Management Division
  - Administrative Division
  - Property Management & Logistics Division
  - Human Resources Management Division

Deputy Chairman
- Division of Management of State-Funded Projects in Eastern Georgia
  - Division of Management of State Funded Projects in Western Georgia, Abkhazia & Adjara ARs

Deputy Chairman
- Division of Infrastructure Development
  - Design Division
  - Division of IFI Funded Rehabilitation and Maintenance Projects
  - Road Safety Division

Total number of staff: 238
Vision - Roads and Highways - Georgia

TEN-T Comprehensive/Core Road Network
Georgia TEN-T Comprehensive/Core Road Network
Roads department of Georgia manages all International and Secondary roads of Georgia.

Local Roads – 17,496km
Managed by local Municipalities
Vision - Roads and Highways - Georgia

Main Highway
- Completed - 216 km
- Ongoing – 128 km
- Planed - 416 km

2020
Vision - Roads and Highways - Georgia

Highway Projects

Main Highway
- Completed - 231 km
- Ongoing – 177 km
- Planed - 352 km

LEGEND
- Existing International Roads
- Completed Highway Sections
- Ongoing Highway Sections
- Planned Highway Sections
- Border Crossing Points
Vision - Roads and Highways - Georgia

Highway Projects – West Georgia
Highway Projects – East Georgia

By 2024 – All major and critical sections of EW Highway will be in operation
Vision - Roads and Highways - Georgia

Main Highway
- Completed - 407 km
- Ongoing – 170 km
- Planned - 183 km

2025
Vision - Roads and Highways - Georgia

Main Highways
Completed - 760 km

2030
Planned improvement of EW Highway increases capacity by **280%** (from 14,000 PCU to 40,000 PCU)

AADT – Annual Average Daily Traffic
PCU – Passenger Car Unit
CC – Current Capacity (in PCU)
PC – Planned Capacity (in PCU)
CVCR – Current Volume Capacity Ratio
PVCR – Planned Volume Capacity Ratio
Most challenging project on EWH highway is construction of Rikoti Pass, a mountain section dividing Georgia into its eastern and western parts. A total of 51.6 km of new 4 lane highway is being built over the Rikoti Pass, with construction works divided into four sub-sections and are financed by WB, ADB and EIB.

Project Rikoti Pass Budget: 955 mln. USD
Project Rikoti Pass Budget: 955 mln. USD

Construction works involves arrangement of 4 lane highway, complex engineering structures covering 97 bridges (PSC and Steel and Concrete composite bridges, variable from 33 m to 1360 m) and 51 tunnels (Variable from 50 m to 1800 m).
RAM - 10 Year Plan

- In addition to Highway Development, RD’s 10 year plan considers regional development to address social needs

- Stakeholder communication and data on priority indicators are key inputs for planning

- Development of long-term plan is supported by RAMS
Vision - Roads and Highways - Georgia

Budget mln. USD

<table>
<thead>
<tr>
<th>Year</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>228</td>
</tr>
<tr>
<td>2013</td>
<td>313</td>
</tr>
<tr>
<td>2014</td>
<td>313</td>
</tr>
<tr>
<td>2015</td>
<td>276</td>
</tr>
<tr>
<td>2016</td>
<td>293</td>
</tr>
<tr>
<td>2017</td>
<td>357</td>
</tr>
<tr>
<td>2018</td>
<td>485</td>
</tr>
<tr>
<td>2019</td>
<td>491</td>
</tr>
<tr>
<td>2020</td>
<td>526</td>
</tr>
<tr>
<td>2021</td>
<td>539</td>
</tr>
<tr>
<td>2022</td>
<td>639</td>
</tr>
</tbody>
</table>
### Secondary Road Network Condition

<table>
<thead>
<tr>
<th>Year</th>
<th>Good IRI &lt; 4</th>
<th>Fair 4 &lt; IRI &lt; 6</th>
<th>Poor 6 &lt; IRI &lt; 8</th>
<th>Bad IRI &gt; 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>36,4%</td>
<td>14,5%</td>
<td>8,4%</td>
<td>40,7%</td>
</tr>
<tr>
<td>2013</td>
<td>35,4%</td>
<td>16,9%</td>
<td>8,9%</td>
<td>38,8%</td>
</tr>
<tr>
<td>2014</td>
<td>34,5%</td>
<td>19,3%</td>
<td>9,4%</td>
<td>36,9%</td>
</tr>
<tr>
<td>2015</td>
<td>36,5%</td>
<td>19,3%</td>
<td>9,2%</td>
<td>35,1%</td>
</tr>
<tr>
<td>2016</td>
<td>38,5%</td>
<td>19,2%</td>
<td>9,1%</td>
<td>33,2%</td>
</tr>
<tr>
<td>2017</td>
<td>41,1%</td>
<td>19,6%</td>
<td>8,6%</td>
<td>30,7%</td>
</tr>
<tr>
<td>2018</td>
<td>40,3%</td>
<td>20,2%</td>
<td>9,1%</td>
<td>30,4%</td>
</tr>
<tr>
<td>2019</td>
<td>58,3%</td>
<td>13,5%</td>
<td>5,6%</td>
<td>22,6%</td>
</tr>
<tr>
<td>2020</td>
<td>47,3%</td>
<td>19,6%</td>
<td>9,0%</td>
<td>24,2%</td>
</tr>
<tr>
<td>2021</td>
<td>49,0%</td>
<td>18,0%</td>
<td>8,5%</td>
<td>24,5%</td>
</tr>
<tr>
<td>2022</td>
<td>54,5%</td>
<td>23,7%</td>
<td>5,1%</td>
<td>16,7%</td>
</tr>
</tbody>
</table>

**Vision - Roads and Highways - Georgia**

- Good IRI < 4
- Fair 4 < IRI < 6
- Poor 6 < IRI < 8
- Bad IRI > 8
Vision - Roads and Highways - Georgia

Budget Projection mln. USD

- 2022: 639
- 2023: 759
- 2024: 655
- 2025: 688
- 2026: 610
- 2027: 552
- 2028: 507
- 2029: 519
- 2030: 450
Vision - Roads and Highways - Georgia

**Condition of International Roads 2020 – 2025 - 2030**

- 2020: 89% Good and Fair, 7% Poor, 4% Bad
- 2025: 95% Good and Fair, 4% Poor, 1% Bad
- 2030: 97% Good and Fair, 3% Poor, 0% Bad

**Condition of Secondary Roads 2020 - 2025 - 2030**

- 2020: 67% Good and Fair, 9% Poor, 24% Bad
- 2025: 79% Good and Fair, 8% Poor, 14% Bad
- 2030: 93% Good and Fair, 3% Poor, 4% Bad
Vision - Roads and Highways - Georgia

Long Term Projection

Baseline

2025

2030
## Vision - Roads and Highways - Georgia

### KPIs

<table>
<thead>
<tr>
<th>1. Infrastructure</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 E60/E70 Cumulative construction length</td>
<td>216</td>
<td>324</td>
<td>430</td>
</tr>
<tr>
<td>1.2 E60/E70 Red Bridge – Sarpi Travel Time*</td>
<td>6 hour</td>
<td>5 hour</td>
<td>4 hour</td>
</tr>
<tr>
<td>1.3 International Roads in Good Condition % (IRI&lt;6)</td>
<td>89%</td>
<td>95%</td>
<td>97%</td>
</tr>
<tr>
<td>1.4 Secondary Roads in Good Condition %</td>
<td>67%</td>
<td>79%</td>
<td>93%*</td>
</tr>
<tr>
<td>1.5 Routine Maintenance Cost (mln. GEL)</td>
<td>85.0</td>
<td>140.0</td>
<td>170.0</td>
</tr>
</tbody>
</table>

* Remaining 7% Gravel Roads
## KPIs

### 2. Safety

<table>
<thead>
<tr>
<th>KPI</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 iRAP Cumulative length</td>
<td>500</td>
<td>1500</td>
<td>2500</td>
</tr>
<tr>
<td>2.2 Number of accredited road safety auditors in RD Safety Division</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

### 3. RAMS

<table>
<thead>
<tr>
<th>KPI</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Implementation of Weight In Motion system – Pilot Project</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>3.2 Detailed Road Asset Inventory</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>3.3 Integration of Drone technology in RAM</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>3.4 Implementation of Macro and Microscopic Traffic Modelling software solution</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>3.5 Development of web portal for Road Permits</td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

### 4. Legislative

<table>
<thead>
<tr>
<th>KPI</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 New Road Law</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>4.2 Georgian Standards and Norms</td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
Data Collection Equipment

Survey Vehicle Data
- IRI surveys on all international and secondary roads with
- 360 Degree video logs for iRAP coding and visual assessment
- Road Geometry, GPS data, Odometer chainage data.

External data:
- Accident data for Ministry of Internal Affairs
- Border crossing, transit data from customs
- Population and census data from national statistics office of Georgia
- Information from Municipalities
- Data on healthcare services, education, tourism and agriculture
**Data Collection Equipment**

- **Traffic counts** with automated radar equipment - around 300 locations.

- Individual location represents 48H continuous count of vehicle number including speed and length.

- Counts are carried out 3 times per year to account for seasonality.
**Data Collection Equipment**

**Drone equipment**

3x DJI Matrice 300 Enterprise drones equipped with H20T 20x Optical zoom camera for bridge inspection and Thermal camera for thermography

**PhaseOne Camera** for high resolution image processing, mapping and 3D Reconstruction.
Data Collection Equipment

- Bridge Inspection
- Digital Terrain Mapping
- Monitoring of construction sites
- 3D reconstructions
- Calculation of cut/fill volumes
- Emergency response
- Infrared thermal imaging for crack detection/assessing water ingress
1. ROMDAS Data collection and processing software
Collecting/Processing road GPS data, 360° Video, IRI, Geometry and iRAP Coding

2. ESRI ArcGIS with Spatial Analyst Extension
Map production, GIS Data creation/processing, spatial analysis to generate social indicators on a network scale for example population density per homogeneous road section etc.

3. HDM-4
Preparation of multi-year road program, comparisons of different maintenance alternatives, backlog estimation on network level as well as life cycle cost-benefit analysis of individual projects

4. Network Modelling Tool
Modelling 100m interval road data into homogeneous road network for HDM-4 enabling network level analysis.

5. DJI Terra
Image processing, 3D reconstruction, measurements, etc.
RAM Systems (Software)

6. GISCloud

- Real-Time Mapping
- Field data synchronization
- GIS data sharing and reporting

Demonstration at:
https://app112303.giscloud.com/
7. iRAP

The International Road Assessment Program (iRAP) is a registered charity dedicated to saving lives by eliminating high risk roads throughout the world.

- Inspect high-risk roads and develop Star Ratings, Risk Maps and Safer Roads Investment Plans
- Provide training, technology and support that will build and sustain national, regional and local capability
- Track road safety performance so that funding agencies can assess the benefits of their investments.
7. iRAP

S03 Mtskheta-Larsi (km4.8)  
Vehicle Occupant:  

- Operational Speed 70 km/h
- Straight road section
- No intersection
- Narrow (width) Paved shoulder
- Centreline Median
- Road side hazardous objects >5m away on both sided
- Delineation/Road condition - Good

Vehicle Occupant:  

Centreline Median
• Most of the tools that are used in Georgia RAMS are commercial off shelf software
• To supplement planning process we integrate field data with all available GIS datasets. (population, schools, healthcare, tourism etc.)
Guidelines for developing Multi-Year plan with RAMS

1. **Handbook for the preparation of Multi-Year Rolling Plan for road asset preservation and improvements**

Describes general approach toward multi-year planning. Defines maintenance strategies and applicable economic and social indicators identified based on data availability.

2. **Technical handbook for operation of RAMS for data processing and analysis**

Step by step technical guide for processing RAW network data into country road network model, assignment of social indicators with GIS spatial analysis tool, mapping and visualization etc.
Indicators constitute a platform for communication with stakeholders and regional representatives regarding priorities and selection of the upcoming road projects.
New initiatives

**Overload Control**

- Development of draft *Overload Control Strategy* document and action plan aligned with objectives of the pilot project.

- Based on strategy document assist Roads Department of Georgia to finalize WIM requirements for pilot project and prepare **draft TOR for implementation**.

- **Review of proposed WIM site locations** and assistance to RD in the process of viable technology selection and cost estimation.

- Review of initial **WIM system requirements** and recommendations on possible changes where necessary.
Intelligent Transport System

- With the assistance of WB, RD plans to procure a consultancy services for developing concept design, specifications and bidding documents for deployment of Road Department’s National Traffic Control Center (RDNTCC)

- Primary objective of RDNTCC is to integrate all current and planned road ITS infrastructure under centralized management.

- ITS infrastructure under ongoing major construction projects are required to be in compliance with relevant industry standards and regulations, with EU states.

- To assist in the establishment of interoperable and seamless ITS services and to promote the harmonization with the EU standards and specifications in Georgia, the Consultant when developing the specifications and requirements for NHCC shall refer to the documents of the EU policy framework such as the ITS Directive 2010/40/EU, CEN/TC 278, Reference Handbook for harmonized ITS Core Service Deployment in Europe.
New initiatives

**AI & Geospatial Video Data**

- Traditionally road pavement condition surveys are performed manually requiring extensive human and financial resources.

- Currently several AI tools are available on the market and some are under development.

- Key benefits Better data for better decisions - data in 10- or 100m resolution can be accurately classified with more than 20 categories of defects and patches to support road asset management at all levels of annual planning cycle.
The AiRAP initiative was conceived by iRAP in 2019 to help improve access to, and application of, existing and emerging data sources globally, including advances in artificial intelligence, machine learning, vision systems, LIDAR, telematics and other data sources. AiRAP stands for the ‘accelerated and intelligent’ capture of road safety-related data using automatic, repeatable and scalable methods to support road safety assessment, crash risk mapping, investment prioritization for all road users.

Research Project Ongoing:
Thank you!