

North-South Road Corridor Investment Program

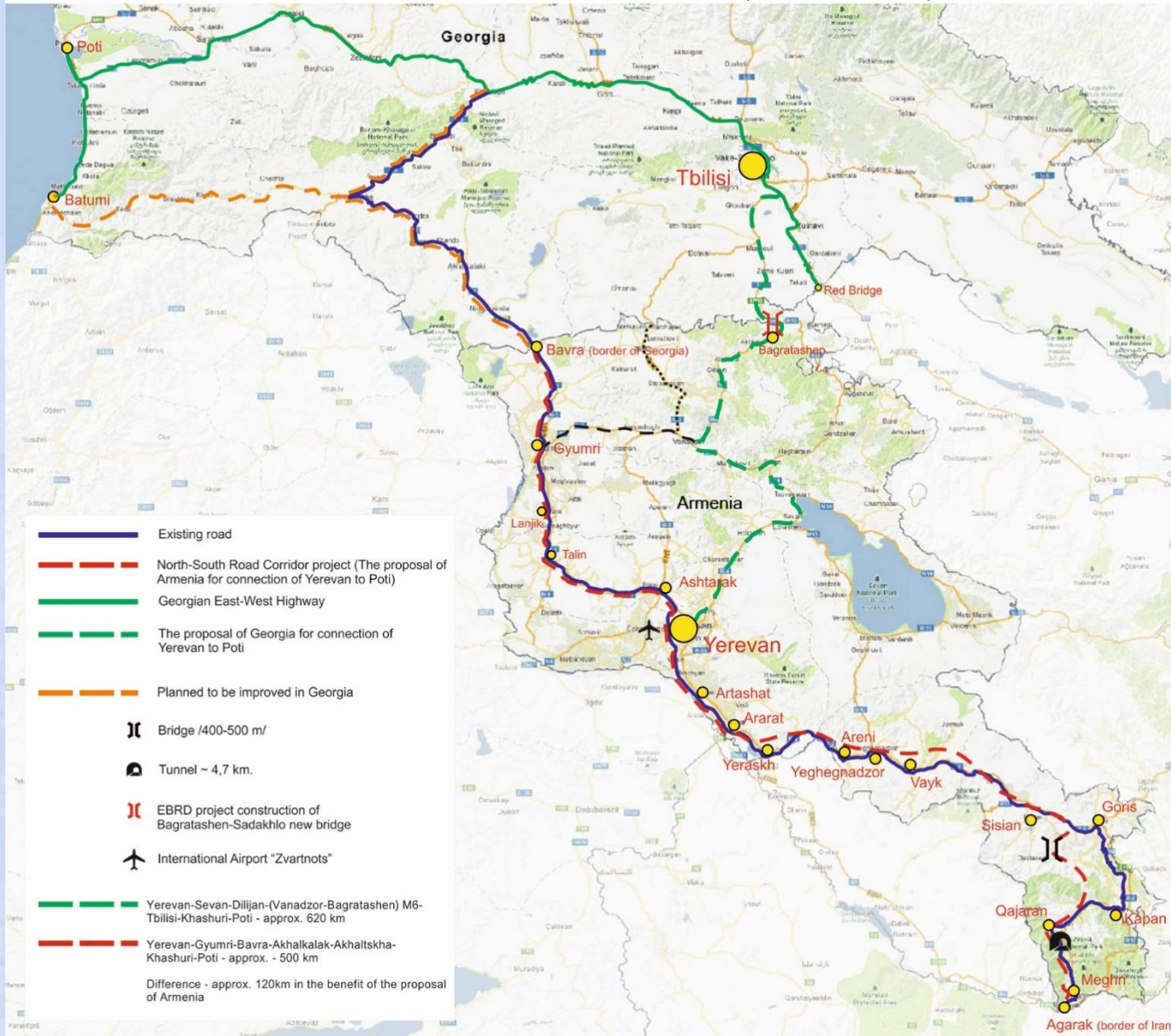


Republic of Armenia



Poti (Black Sea) – Georgia – Armenia – Iran – Bandar Abbas (Persian

North-South Road Corridor, transit (towards Poti)





Brief Introduction of North-South Road Corridor Investment Program



North-South Road Corridor construction length shall be **463km.**

Design speed-**100 km/h.**

Traffic duration- **4,5-5h.**

The length of the existing road -**556 km.**

Traffic speed- **30-90 km/h.**

Traffic duration- **9,5-10h.**

Total investments- about **2,3 billion USD** without VAT.

Existing, agreed and considered.

- ADB financing- **500 million USD.**
- EIB financing - **68 million + 136 million + 204 million USD.**
- NIF Grant - **14 million + 14 million + 36 million USD.**
- Netherlands grants - **68 million USD.**
- EDB financing -**150 million + 350 million USD.**
- Total - **1.540 million USD.**

Remaining - **760 million USD.**

Implementation period-**2010 – 2022.**



North-South Road Corridor Investment Program Sections

Reference
On North-South Road Corridor Investment Program

N	Road Section	Existing (km)	Constructed (km)	Reduction (km)	Construction cost without VAT (million USD)	Services and other costs without VAT (million USD)	Total without VAT and LARP (million USD)	Notes
A	Tranche V- Bavra (Georgian border)-End of Gyumri (EIB+ADB+PPP), from which:	57.0	57.4	-0.4	130.0	10.0	140.0	2-3 lines, 100km/h, asphalt
1	Bavra (Georgian border) - Gyumri entrance	33.6	31.2	2.4	90.0	7.0	97.0	EIB preliminary agreement for 150million USD financing
2	Gyumri bypass	23.4	26.2	-2.8	40.0	3.0	43.0	EIB preliminary agreement for 150 million USD financing, PPP is possible
B	Tranche III- Gyumri exit-Talin (EIB+ADB), from which:	42.0	41.7	0.3	125.0	45.0	170.0	4 lines, 100km/h, cement-concrete
1	Gyumri exit-Lanjik (EIB)	24.5	23.0	1.5	65.0	5.0	70.0	Sinohydro, China, Completion- 2019
2	Lanjik-Talin (ADB)	17.5	18.7	-1.2	60.0	40.0	100.0	Sinohydro, China, Completion- 2018
C	Tranche II- Talin-Ashtarak (ADB), from which:	42.7	41.9	0.8	150.0	20.0	170.0	4 lines, 100km/h, cement-concrete
1	Talin-Ashtarak	42.7	41.9	0.8	150.0	20.0	170.0	Corsan Corviam , Spain ,completion- 2018
D	Tranche I- Ashtarak-Artashat (ADB), from which:	31.0	31.0	0.0	55.0	5.0	60.0	4-6 lines, 100km/h, cement-concrete
1	Ashtarak-Yerevan entrance	11.4	11.4	0.0	20.0	2.0	22.0	Corsan Corviam , Spain ,completion- 2018
2	Yerevan exit- Artashat	19.6	19.6	0.0	35.0	3.0	38.0	Corsan Corviam , Spain , completed
E	Yerevan bypass (ADB+Yerevan Municipality)	25.3	24.0	1.3	90.0	70.0	160.0	The project is implemented by Yerevan Municipality, completion - 2020
F	Tranche IV- Artashat-Agarak (Iranian border), (ADB+EIB+EDB+PPP), from which:	358.0	267.0	91.0	1640.0	120.0	1760.0	2-4 lines, 100km/h, asphalt/cement-concrete
1	Artashat-Kajaran, from which:	304.0	225.0	79.0	1350.0	90.0	1440.0	2-4 lines, 100km/h, asphalt/cement-concrete
a	Artashat-Ararat (Ararat bridge)	24.0	24.0	0.0	70.0	5.0	75.0	It is recommended to apply for financing within the Dutch government grant.
b	Ararat (Ararat bridge)-Tigranashen (Kiarki) tunnel entry	16.0	13.0	3.0	50.0	5.0	55.0	PPP is possible, no funding yet.
c	Tigranashen (Kiarki) 3 tunnels (each tunnel about 2,5km) with approaching roads	20.0	12.0	8.0	180.0	10.0	190.0	PPP is possible, no funding yet.
d	Tigranashen (Kiarki) tunnels exit -Yeghegnadzor	37.0	33.0	4.0	130.0	10.0	140.0	PPP is possible, no funding yet.
e	Yeghegnadzor -Entry of Saravan tunnel	52.0	50.0	2.0	200.0	15.0	215.0	PPP is possible, no funding yet.
f	Saravan tunnel with its approaching roads	14.0	8.0	6.0	150.0	10.0	160.0	PPP is possible, no funding yet.
g	Exit of Saravan tunnel-Sisian	21.0	21.0	0.0	80.0	5.0	85.0	It is recommended to submit application for EU financing.
h	Sisian -Bargushat Tunnels Entry	40.0	26.8	13.2	160.0	10.0	170.0	It is recommended to submit application for EDB financing.
i	Bargushat tunnels with the approaching roads	40.0	9.5	30.5	180.0	10.0	190.0	It is recommended to submit a preliminary application for ADB's or EIB financing, simultaneously study the PPP possibility
j	Exit of Bargushat tunnels-Kajaran entrance	40.0	27.7	12.3	150.0	10.0	160.0	It is recommended to submit a preliminary application for EDB's financing
2	Kajaran-Agarak (Iranian border), from which:	54.0	42.0	12.0	290.0	30.0	320.0	2-3 lines, 100km/h, asphalt
U	Kajaran entrance- entry of Kajaran tunnel	4.5	4.0	0.5	25.0	2.0	27.0	Saving or additional funding of EDB loan of 150 million USD dollars, on condition of financing a separate Lot in the bid, end of construction - 2019
P	Kajaran tunnel with the approaching roads	18.0	6.0	12.0	130.0	13.0	143.0	It is recommended to submit a preliminary application for ADB's or EIB financing, simultaneously study the PPP possibility
Q	Exit of Kajaran tunnel-Vardanidzor	11.5	11.5	0.0	60.0	7.0	67.0	EDB 150 million USD credit fund framework, the tender is being announced, the construction completion is 2019.
Q	Vardanidzor-Meghri	15.0	15.5	-0.5	70.0	7.0	77.0	EDB 150 million USD loan framework, the bid is announced, end of construction- 2019
b	Meghri-Agarak (Iranian border)	5.0	5.0	0.0	5.0	1.0	6.0	EDB 150 million USD loan framework, the bid is announced, end of construction- 2018
Total North-yerevan-South from which		556.0	463.0	93.0	2190.0	270.0	2460.0	2-6 lines, 100km/h, asphalt/cement-concrete
Only North-South, from which		530.7	439.0	91.7	2100.0	200.0	2300.0	
Completed or in process		151.7	150.6	1.1	490.0	87.0	577.0	
Financing preliminary agreement is available		240.0	172.4	67.6	900.0	63.0	963.0	
Financing is not available		139.0	116.0	23.0	710.0	50.0	760.0	



Description of North-South Road Corridor Investment Program

The North-South Road Corridor Investment Program is aimed at reconstruction of the 2nd-3d category carriageway with a speed limit of 30-90 km/hour the length of which is 556 km from Bavra in Georgia to the border with Iran in Agarak , upgrading it up to 463 km-long 1st category high-speed carriageway section with a speed limit of 100-110 km/hour enabling to cross the mentioned section within the decreased 4.5-5 hours period instead of current 9.5-10 hours increasing the comfortability and safety by ensuring the fulfilment of the Project goal in regards of making the North-South Road a transit carriageway for passenger and cargo transportation from the East to the West within scope of TRACECA and Silk Road Projects.

The preliminary estimated cost of the construction works of North-South Road Corridor Investment Program is about 2,3 billion USD (excluding VAT and the cost of land acquisition and resettlement), 200 million USD of which shall be allocated for design, technical supervision and other consulting services, and 2,1 billion USD-for capital construction.



Tranche 1, **Yerevan-Artashat and Yerevan-Ashtarak**

Total length- **31 km.**

Construction completion– **2016, June.**

Construction cost- **70,4 million USD.**

Contractor- **ISOLUX CORSAN /Spain/.**

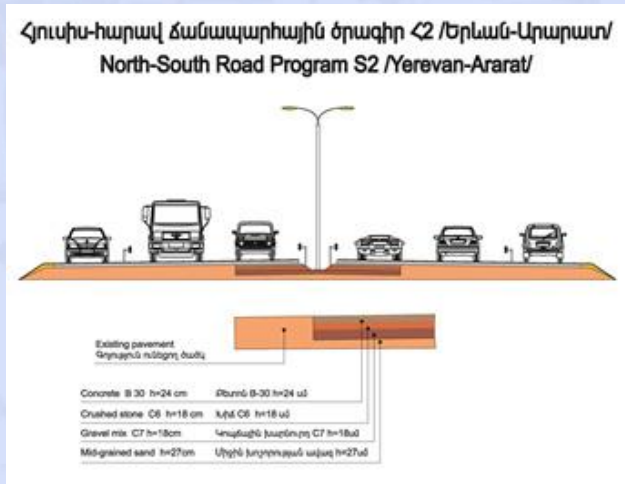
Engineer/PMC- **“Safège-Eptisa” JV /France/.**

Opened for traffic- **December, 2015.**

Put into operation – **June, 2016.**

Guarantee period– **by June 2017.**

Capital repair, reconstruction and construction of 9 overpasses and bridges are carried out in scope of the saving measures.





Tranche 2, **Ashtarak-Talin**

Section length- **41,9 km.**

Construction completion- **2018.**

Construction cost- **179,6 million USD.**

Contractor- **ISOLUX CORSAN /Spain/.**

Engineer/PMC- **“Safège-Eptisa” JV /France/.**

Issues – **LARP, Infrastructure, Archeological.**





Tranche 3, **Talin-Gyumri**

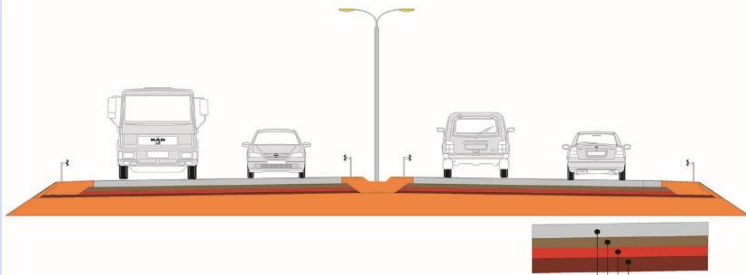


Section length-**46,2 km.**

Talin-Gyumri section is divided between **ADB and EIB:**

- **ADB – Talin-Lanjik- 18,7 km.**
- **EIB – Lanjik-Gyumri- 27,5 km.**
- **The tender was announced in June, 2015.**
- **Contracts awarded in 2015-2016.**
- **Contractor - Sinohydro Corporation LTD, China.**
- **Engineer/ technical supervision- SPEA-IRD Consortium, Italy.**
- **Contract- Talin-Lanjik, about 60 million USD.**
- **Contract-Lanjik-Gyumri, about 84 million USD.**
- **Construction completion- 2018-2019.**

Հատված Յ3 /Թալին-Գյումրի/ (section S3 Talin-Gyumri)



- Բետոն (Concrete) B30 h=26 սմ (cm)
- Խիճ հիմքի համար (Crushed stone for base) C6 h=18 սմ (cm)
- Հատիկավոր կյուբ ենթահիմքի համար (Granular material for subbase) h= 15 սմ (cm)
- Հողային պատտառի նախապատրաստում (Subgrade preparation) h=18 սմ (cm)



Tranche 4, Artashat-Agarak



The current length of Artashat-Agarak /checkpoint/ is **358km**.

The road will be reduced by approximately **91 km**.

Feasibility study is completed. The expected internal rate of income (EIRR) is **14%**.

The preliminary design for all sections and the detailed design for Sisian-Qajaran 64 km section are in process. They will be ready by **December 2016 and February 2017**.

Designer- **SPEA-IRD Consortium (Italy)**

Tender for the construction of Agarak-Qajaran section was announced in **August 2016**, and the Contract signing is envisaged in **December, 2016**.

Financing- EDB loan- **150 million USD**.

Construction completion- **2019**.

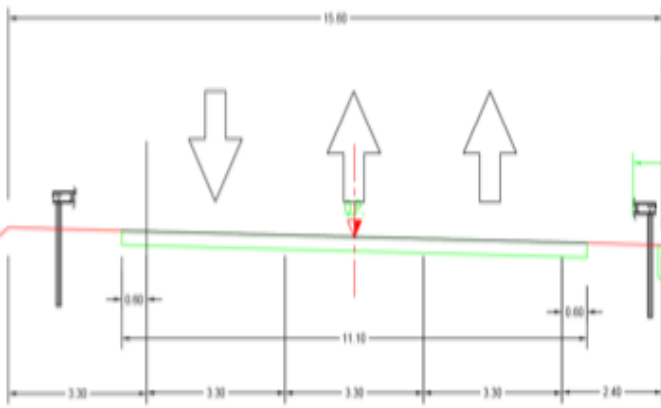
Additional fund possibility for Tranche 4.

- EDB loan- **350 million USD**.
- ADB loan-**170-200 million USD**.
- EIB loan-**170-200 million USD**.
- Possible grants- NIF and the Dutch Government – up to**100 million USD**.

(PPP) Implementation is possible, research memorandums are signed with **SINOHYDRO** and **STRABAG** companies.

Tranche 4, Artashat-Agarak, technical solutions

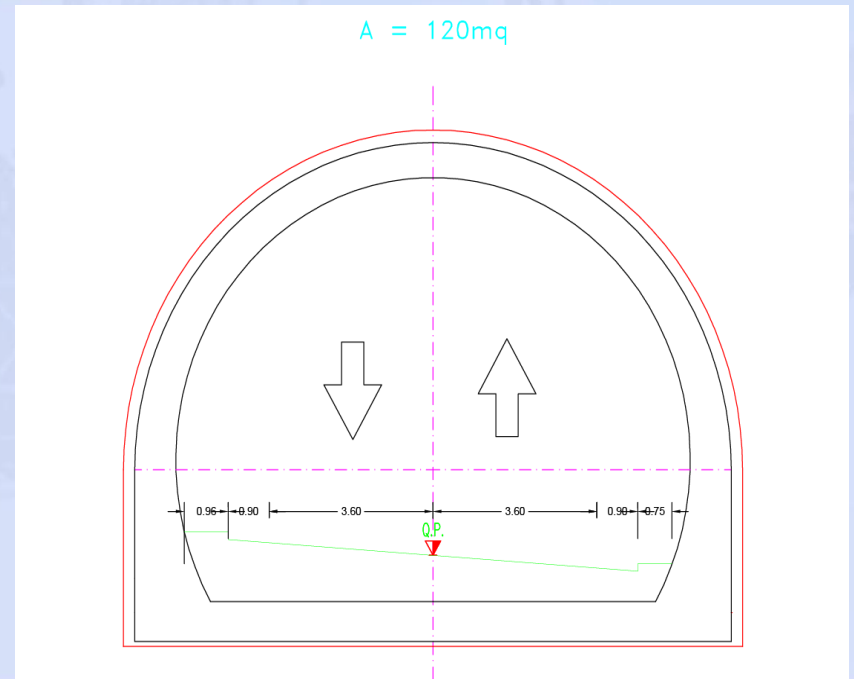
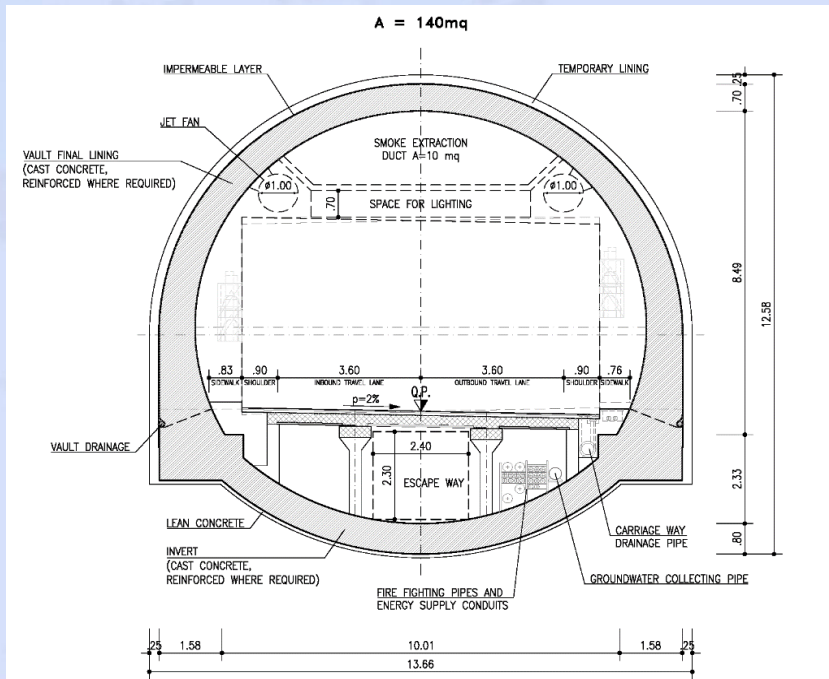
A typical longitudinal section of a two-lane carriageway section, and overtaking lane, where necessary.



Alignment and all the necessary technical indicators of the 1st category, with the possibility

A longitudinal section of tunnel with the length of more than 1km.

A longitudinal section of tunnel with the length shorter than 1km.





Investment and PPP implementation possibilities.

Feasibility study for Artashat-Agarak road section is ready. The preliminary design will be submitted at the end of 2016 and the detailed design for Sisian-Qajaran (64km) section will be submitted by January-February 2017 .

The 80% of the mentioned section can be separated and considered as project implementation in scope of concession (Investment and PPP). The existing carriageway section shall be maintained as a free alternative of toll road. The section envisages tunnels with 0.2-9km length with two directions, single-lane carriageway traffic and approximately with 30 km total length. The length of the existing road of the mentioned section is 358km which as a result shall be reduced by 91km.

Note, for example:

- 124km length of Sisian-Qajaran section shall be reduced by half and become a road with 64km length.**
- 54km length of Qajaran-Agarak section shall be reduced by 12km and become a road with 42km length. More than 72km reduction is envisaged in the mentioned subsections and the increase up to 100km/h speed which will ensure the reduction of the traffic duration by 3-4 hours.**

The estimated preliminary cost of the construction works of Artashat- Agarak section is about 1,8 billion USD (including the cost of consulting services, without VAT and the land acquisition and resettlement cost), from which the financing of Qajaran-Agarak section with 150 million USD is already being implemented by the RA through EDB funds.



Tranche 5, Gyumri-Bavra

The construction length of Gyumri-Bavra /checkpoint/ road section shall be **57,4km**.

Gyumri-Bavra section is envisaged to be implemented within EIB credit funds.

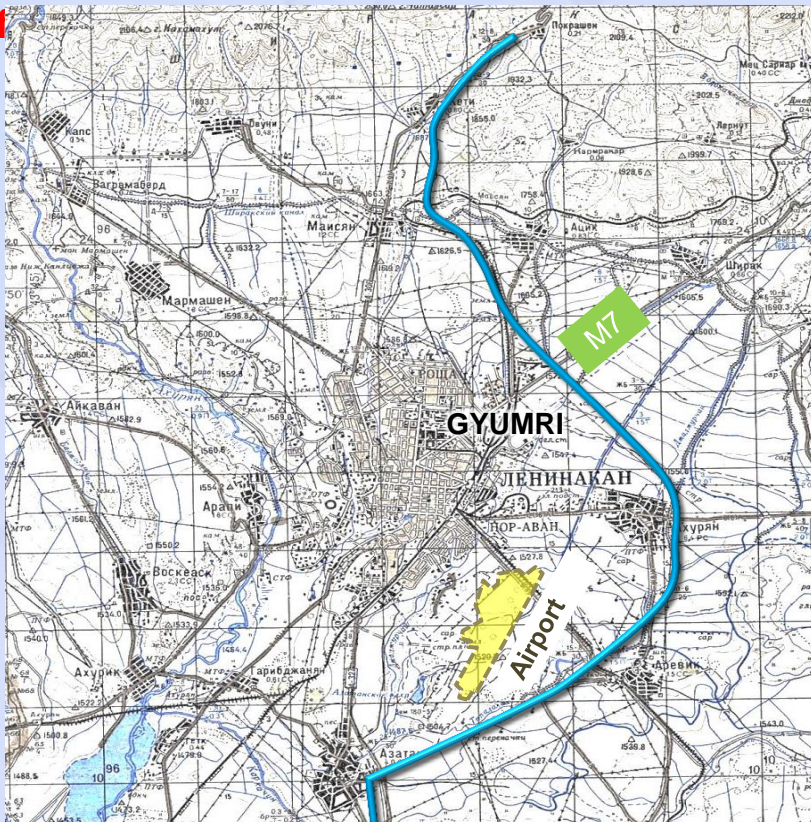
Estimated cost- about **140 million USD**.

Construction duration- **24-36 months**.

Feasibility study, preliminary and detailed designs are financed by NIF grant, the contract is signed,

Designer – **Lotti (Italy)**.

Within the scope of the current funds there is a possibility to reach **Gyumri /bypass from the end of**





PPP implementation general methods/conditions

- **State participation method and volume (Investments and PPP).**

- The government will co-finance the VAT (20%) and the cost of land acquisition and resettlement. The Government already finances more than 30% of the total program, with the involvement of loan and other funds.

- **Type of concession (Investments and PPP) , (Build-Manage-Transfer, Build-Transfer-Manage, Build-Own-Manage, Build-Own-Manage-Transfer, Buy- Build-Manage).**

The following sequence is envisaged, according to preference. Build-Own-Manage-Transfer

- Build-Manage-Transfer,
- Build-Transfer-Manage,
- Build-Own-Manage,
- Buy-Build-Manage

The mentioned options are subject to discussion and the preference shall be provided only to the companies which submitted well-grounded economic / technical / legal proposals prepared properly.

- **Other envisaged conditions of the Concession (Investments and PPP).**

- The relevant legal or contractual regulation shall define a state liability before the end of the operation regarding the refund / compensation of the possible negative difference of net investments (without the expected profit) of the envisaged actions.

Bagratashen-Sadakhlo bridge construction between Armenia and Georgia

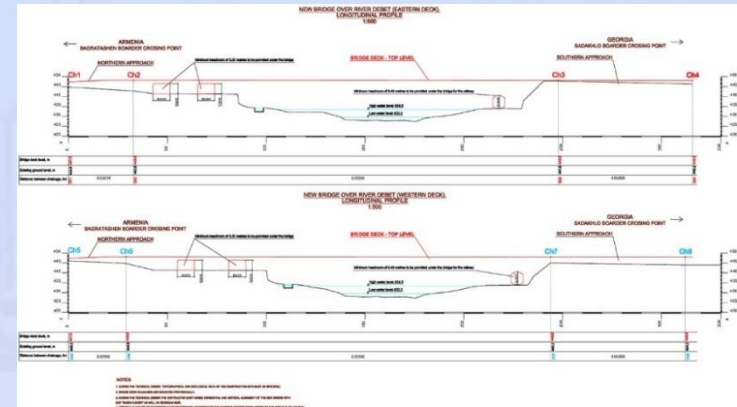
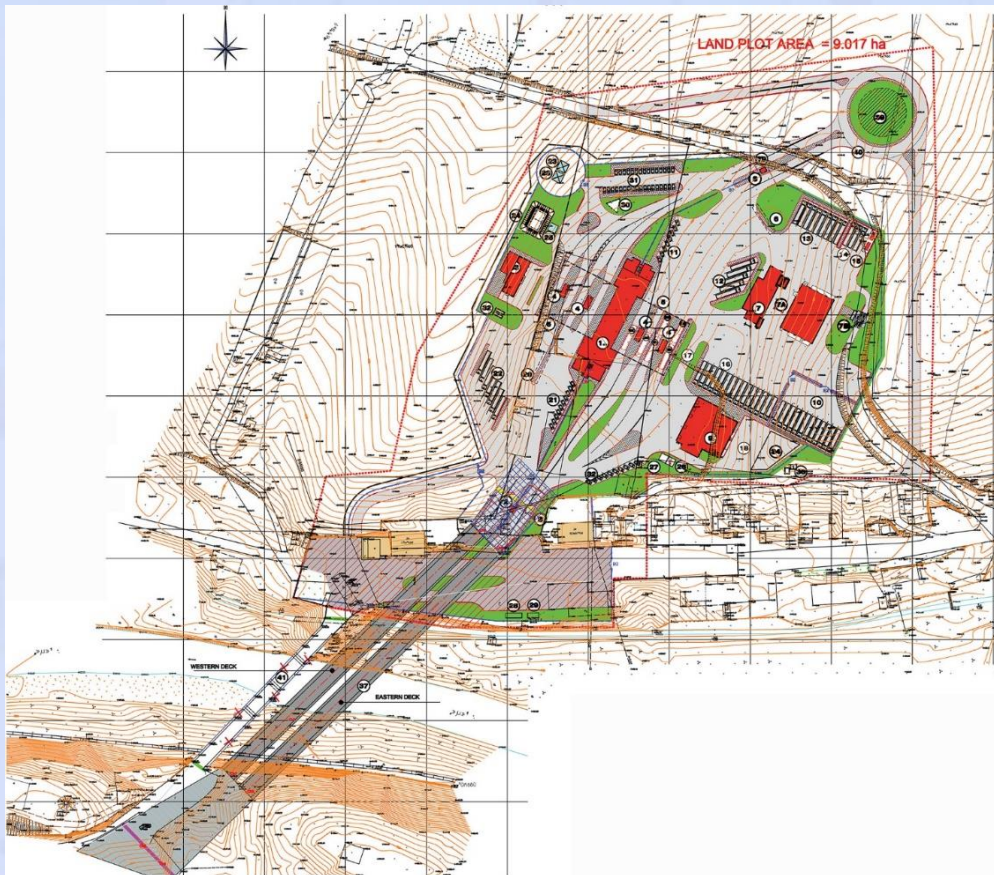
The program is implemented within the scope of **intergovernmental agreement** signed between the **Governments of Armenia and Georgia**.

The financing shall be implemented through equal investments.

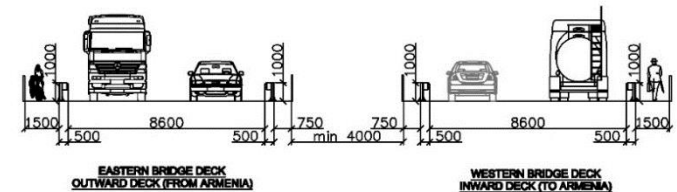
Financed by **EBRD** credit funds -about **10 million USD**.

Construction and technical supervision tenders are announced through **EBRD electronic procurement platform**. The contracts are envisaged to be signed by **December, 2016**.

The end of the works – **by the end of 2018**.



BRIDGE DECK STANDARD SECTION
1:200



Note:

Safety barriers from reinforced concrete or steel (compliant with EN 1317) shall be provided on the outer edges of the pedestrian footway and outer edges of the carriageway.



Sustainable Urban Development Program. Yerevan Municipality. Yerevan bypass

