Environmental Assessment Report

Environmental Review and Categorisation of Kutaisi Alternative Urban Transport Development
Project Number: P42414
March 2010

Proposed Multitranche Financing Facility
Georgia: Sustainable Urban Transport Investment Program

ABBREVIATIONS

ADB	-	Asian Development Bank
EA	-	Executing Agency
EIA	-	Environmental Impact Assessment
ESMS	-	Environmental and Social Management System
FI	-	Financial Intermediary
FS	-	Feasibility Study
IA	-	Implementing Agency
IEE	-	Initial Environmental Examination
MDF	-	Municipal Development Fund
MFF	-	Multi-tranche Financing Facility
REA	-	Rapid Environmental Assessment
RoW	-	Right of Way

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I. INTRODUCTION

1. Georgia's transportation system suffered from under-investment at the end of Soviet rule and this continued as the economy struggled in the early years of independence. Maintenance was inadequate so the quality of infrastructure declined, and there was little modernisation or expansion to serve the increasing demands brought by the economic recovery of the late 1990's. This was exacerbated by Georgia's position at the crossroads between east and west, which brought increased numbers of heavy vehicles and transit traffic as markets became available in surrounding countries. The capital Tbilisi has additional problems resulting from the large population and numerous daily commuter journeys, combined with the hilly topography and historical old town with its myriad of narrow streets and old buildings.

2. To begin addressing these issues, the Government of Georgia requested assistance from the Asian Development Bank (ADB) in developing a strategy for an integrated and sustainable transportation system in Tbilisi, and funding priority projects throughout the country. The resulting Georgia Sustainable Urban Transport Investment Program began in January 2010 and will be funded by a Multi-tranche Financing Facility (MFF) from ADB, which enables suitable identified projects to be fast tracked, whilst allowing time to prepare others for future tranches.

3. Three projects are currently identified for funding in the first tranche of the program, scheduled to begin construction in early 2011:

- Tbilisi urban environment improvement and Gorgasali Road reconstruction;
- Tbilisi University Metro extension; and
- Kutaisi alternative urban transport development: bicycle lanes.

4. The Executing Agency (EA) for the program will be the Municipal Development Fund of Georgia (MDF), which was established by the government to mobilise and manage financial resources from donors for investments in infrastructure and services. Project Implementation Units (PIU) will manage each construction process, and these will be established from existing government resources, supplemented by consultants and new appointments where necessary.

II. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

A. National law

5. Georgia's system of environmental assessment and the requirement for new projects to obtain approval from the government environmental regulator were established by laws in the 1990's, which have been updated in the past few years. The current system is prescribed by the *Law on Licenses and Permits* (2005), the *Law on Environmental Impact Permits* (2008) and the *Law on Ecological Expertise* (2008).

6. Under the present system, the proponent of major new projects (both public and privately-funded) is required to apply for an Environmental Permit from the Ministry of Environmental Protection and Natural Resources (MoE) or a Construction Permit from the Ministry of Regional Development and Infrastructure (MRDI). The applicant completes a form providing information about the project and supports this with design drawings and other documents, including analyses of the project's likely environmental impacts.

7. The *Law on Environmental Impact Permit* specifies 21 types of development for which an Environmental Impact Assessment (EIA) is compulsory, and this comprises major projects, including construction of roads and railways of national and international importance, construction of an underground railway, oil and gas pipelines and processing plants, etc. All projects subject to EIA are required to hold a public hearing in the project area, which is advertised in regional and national newspapers. The meeting is attended by invited institutional stakeholders and is open to all citizens, who can discuss their views at the meeting and raise any objections or suggestions in writing. The minutes of the meeting and a description of how each point was addressed in the design and the EIA should accompany the permit application.

8. Each permit application is subject to Environmental Expertise, which is a review of the EIA or other environmental documents by an expert committee set up by the MoE. A positive Environmental Expertise Conclusion (EEC) is required before a Permit is issued, and any recommendations of the EEC are normally attached as permit conditions.

9. The main differences between the Georgian EIA and environmental permitting systems and ADB policy are that Georgian law:

(i) Requires EIA only for specified major projects (roughly equivalent to ADB category A) and includes no lesser level of assessment (like IEE or environmental review);
(ii) Does not involve formal project screening or EIA scoping by the environmental regulator, although MoE will advise informally if requested;
(iii) Requires only one public consultation meeting for a project requiring EIA;
(iv) Exempts projects that are of paramount state importance, but does not specify project types, which allows certain government agencies to circumvent the EIA process.

B. ADB policy

10. ADB operates safeguard policies, which seek to avoid or reduce to acceptable levels adverse environmental and social impacts of projects, and to protect the rights of those likely to be affected or marginalized by the development process. Specific requirements are defined by ADB's *Safeguard Policy Statement* (2009) and cover environment, involuntary resettlement and indigenous peoples. Requirements differ according to the nature and scale of a project's effects, and projects are screened to identify their impacts and significance. Direct, indirect, cumulative and induced impacts are considered, and a project is classified according to the category of its most sensitive component. In environment the project is assigned to one of four categories:

Category A: Projects likely to have significant adverse environmental impacts, which are irreversible, diverse or unprecedented and may affect an area larger than the location subject to physical works. An Environmental Impact Assessment (EIA) is required.

Category B: Projects with adverse environmental impacts that are less significant than those of category A projects, are site-specific, generally not irreversible, and in most cases can be mitigated more readily than for category A projects. An Initial Environmental Examination (IEE) is required.

Category C: Projects likely to have minimal or no adverse environmental impacts. No environmental assessment is required, although environmental implications are reviewed.

Category FI: Projects that involve investment of ADB funds to or through a Financial Intermediary (FI). The FI is required to establish an environmental and social management system (ESMS) commensurate with the level of environmental or social risk, or if ADB is satisfied that the investment will have minimal or no risk, it is treated as category C.

11. The first two tranche 1 projects (Gorgasali road reconstruction and Tbilisi metro extension) were both classified as category B as their environmental and social impacts should be mainly beneficial, and the few negative impacts will be mitigated by fairly straightforward measures. The third project (Kutaisi bicycle lanes) involves small-scale construction that should not cause significant negative impacts and when completed will provide environmental and social benefits by reducing vehicle traffic and promoting the use of low cost alternative transport. It is therefore expected to be classified as category C and this document reviews its environmental implications and the proposed categorisation.

III. APPROACH

12. ADB screens projects using Rapid Environmental Assessment (REA) Checklists, provided in the *Environmental Assessment Guidelines* (2003). These examine the potential impacts of projects in a particular sector (eg irrigation, sewage treatment, airports) by means of a series of questions on the location and effects of the project. The checklists are based on ADB experience in the sector and cover most of the potential major impacts. The impacts of the project are revealed in the answers to the questions, and these are used by ADB to determine the project category, using the criteria listed above.

13. The REA material includes a checklist for roads and highways, so this was used in this report as the means of identifying the potential environmental and social impacts of the Kutaisi bicycle lanes project and to examine its classification. As indicated in the guidelines, the checklist was completed on the basis of the "without mitigation" situation, in order to identify potential impacts. The "remarks" column is used to discuss potential mitigation and thus the likelihood of a particular impact occurring. Conclusions regarding the impacts of the project and the suggested classification are given in the final section of the report.

IV. DESCRIPTION OF THE PROJECT

14. The proposal to provide bicycle lanes alongside some of the streets in Kutaisi has been developed by the City Mayor's Office, and is aimed at encouraging a greater use of bicycles than is evident in the city at present, particularly in the less affluent parts of the city. If successful the project is expected to provide additional environmental and social benefits, including: reductions in vehicular traffic with consequent improvements in air quality and reductions in noise and traffic congestion; improved public health; and socio-economic benefits if employment opportunities become available over a wider area to disadvantaged sectors of society.

15. The project proposes to construct 26 km of bicycle lanes alongside roads, mainly in the suburbs in the north-west and south of the city (Figure 1). Locations have been carefully chosen to satisfy certain criteria, intended to reduce the scale of the project and the construction process, thus reducing its cost and any potential negative environmental and social impacts. As far as possible cycle lanes:

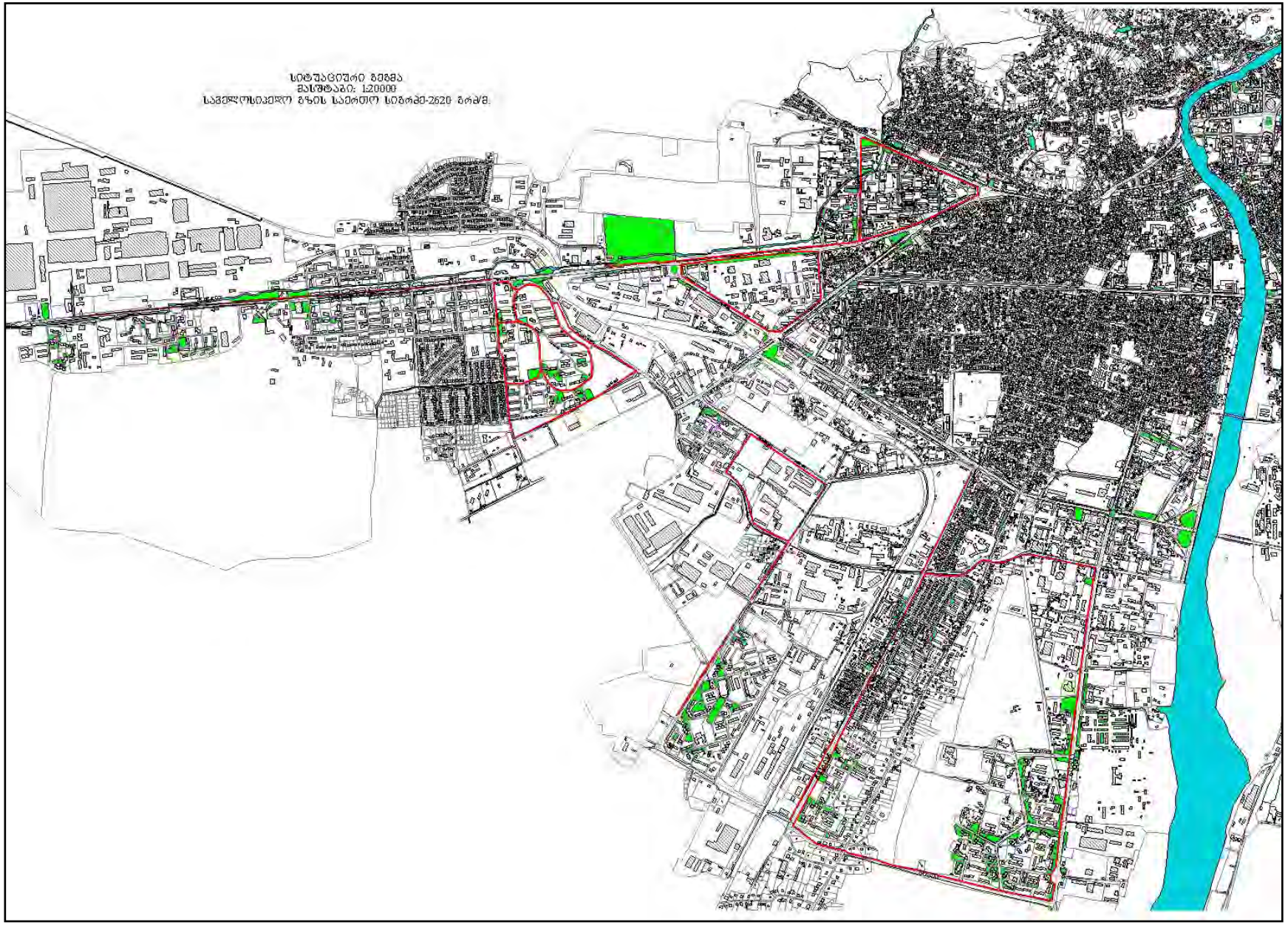


Figure 1: Map of Kutaisi showing proposed locations of bicycle lane routes (red)

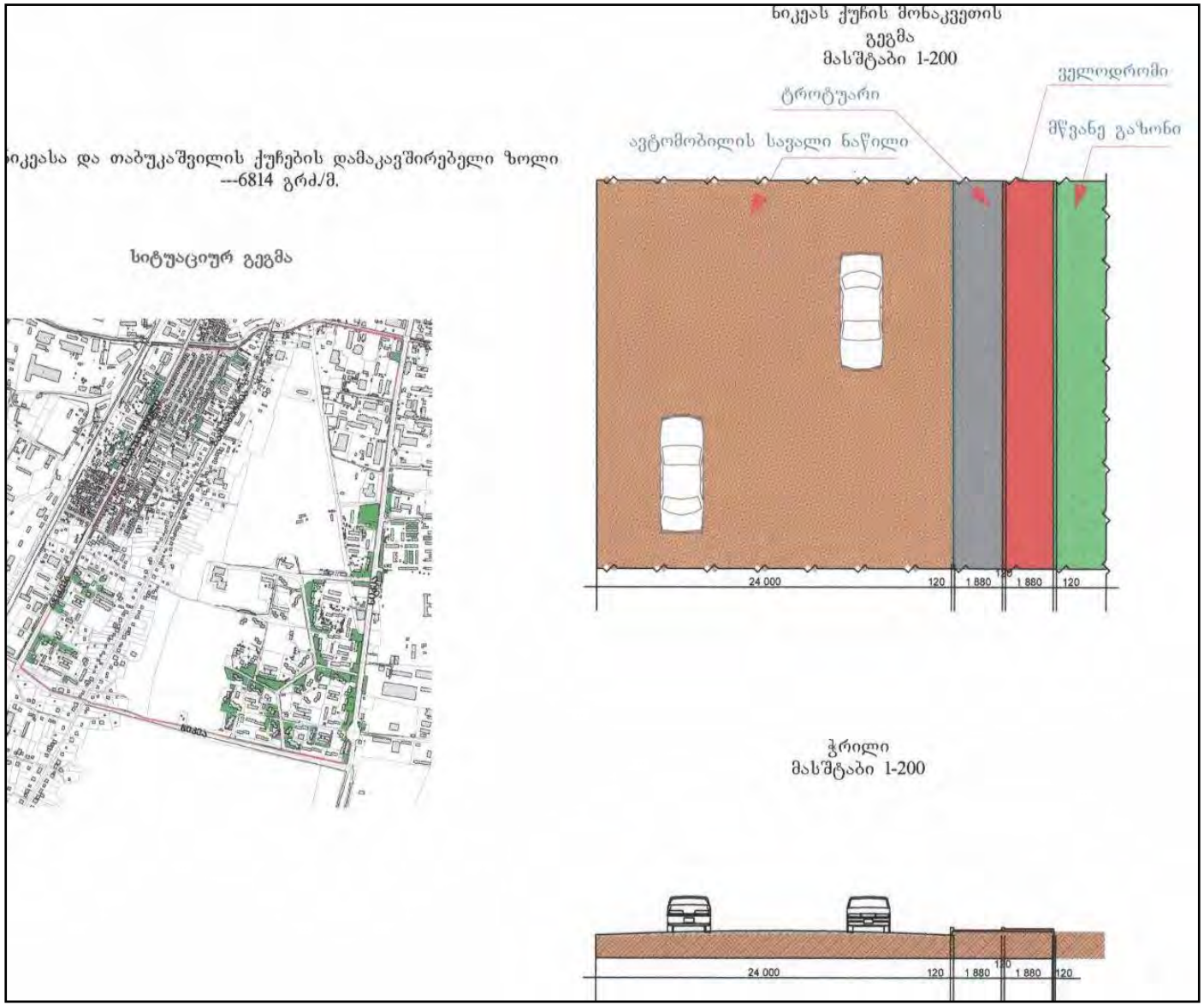


Figure 2: Preliminary design of cycle lanes (grey) and pedestrian walkways (red)

- Are located alongside wide roads, where a reduction in width to provide the bicycle lanes can be accommodated without compromising driver convenience or traffic safety (Photo 1);
- Can be constructed within the footprint of the existing road and pedestrian footpath and do not involve acquisition of privately-owned land.

16. Generally two lanes will be provided, each 2 m wide, comprising a pedestrian lane and a bicycle lane, with the latter being adjacent to the road and separated from it by a metal barrier, probably of the type installed alongside motorway reservations (Figure 2 and Appendix 1). Pedestrian lanes will probably be paved with pre-cast concrete slabs or paving stones and the bicycle lanes will be covered with a rubberised asphalt-type surface to provide protection from injury if the cyclist falls. This will be coloured and provided with signs indicating its use by bicycles only.

17. At each location construction will be small in scale, conducted by a small team of labourers (say 5-10 persons), supported by a single backhoe digger, a small roller vehicle and an asphalting machine (Photo 2), plus possibly two trucks to deliver aggregate, kerbstones and other materials and remove waste for disposal. Construction will generally involve the following:

- Breaking of the existing paved surface (or the road and pedestrian walkway) by backhoe digger, with the dug material being loaded onto a truck for disposal, if it cannot be re-used as base material (Photo 3);
- Application of an aggregate sub-base, tipped from a truck and spread by hand and/or via a small bulldozer, followed by compaction by roller (Photo 4); this process is repeated until the layer reaches the design height and depth;
- Excavation of small voids alongside the road for the metal posts holding the safety barriers, which are cemented into place, after which the metal cross-pieces are bolted on by hand;
- Hand placement and positioning of paving slabs and kerbstones, which are held in place by mortar, applied by hand;
- The bitumen and rubberised material is applied by the asphalting machine and by hand-working (Photo 2);
- Signs are then erected and lines are painted, by hand, and using machinery where appropriate.

18. Two or more construction teams may work in different parts of the city and it is expected that the entire project should be completed in 6-9 months.

V. DESCRIPTION OF THE ENVIRONMENT

A. Physical and Ecological Resources

19. Located in western Georgia, 220 km from Tbilisi, Kutaisi is Georgia's second largest city and is the capital of the western region of Imereti. The city lies at an elevation of 125-300 m above sea level and straddles the River Rioni, covering an area of 70 km^2. It is bordered by mountainous areas in the north and west (the Samgurali Range and the Imereti Foothills respectively), while in the south and west the topography falls gradually onto the Colchis plain leading down to the Black Sea coast.

Photo 1: One of the proposed cycle lane locations in Kutaisi

Photo 2: Team constructing a road using a small asphalting machine

Photo 3: Backhoe digger

Photo 4: Roller vehicle being used in road construction

20. Like most of western Georgia the climate of Kutaisi is humid subtropical, with hot and relatively dry summers (June-August) and cool and wet winters (December-February). Average air temperature reaches a maximum of around 23 °C in July and a minimum of around 5 °C in January. Rainfall is abundant, with an annual average of over 1500 mm, and the heaviest rain generally occurs in spring and autumn. Snowfall is less frequent than in eastern Georgia, but can still be heavy at times, reaching depths of 30 cm or more in a single event. Wind direction is mainly easterly in the summer, blowing from the warmer land towards the cooler Black Sea, and the direction reverses in spring and autumn, bringing the heavier rainfall.

21. There is no natural habitat in the city, although outside the inhabited area, in the north-east and north-west are quite extensive deciduous woodlands, supporting a variety of trees including beech, European chestnut, Caucasian hornbeam, Georgian oak, and a varied ground flora and fauna. The low-lying areas to the south and west present a mainly agricultural landscape, from which the woodland was removed several centuries ago. The city is quite well provided with artificially planted parkland and green areas and there are planes, maples and other trees alongside many of the roads in the city.

B. Economic and Socio-cultural Resources

22. Kutaisi is one of the oldest cities in the world and has been inhabited for almost 4,000 years. It was one of the main cities of ancient Colchis from the 2nd century BC and came to prominence again in the 8th century AD when the king of Abkhazia, Leon II established his capital there. David the builder was crowned Georgian king in Kutaisi in 1089 and the city continued as the political, economic and cultural centre of the country until 1122 when David liberated Tbilisi from Arab rule. Kutaisi resumed as capital of the western region when Georgia was re-divided in the 15th century after invasion by the Mongols and Timur/Tamerlane. It then suffered a 101-year Ottoman occupation from 1669 and was recaptured by Georgian and Russian forces in 1770. It then grew as an industrial centre under the Soviet regime.

23. The main industry and employer was the 'KAZ' truck factory and there were other processing plants and support services, particularly in the agriculture, mining and timber sectors. Exports included tea, wine and soft drinks. Because of its integration with markets in other Soviet republics, Kutaisi suffered disproportionately in the economic downturn of the 1990's, when industries closed and many citizens left to seek work abroad. Today small scale trading is the main economic activity, with retail and agrarian markets being a particular feature of the city. There is also some food processing and light industry; and the well-developed commercial, retail and banking sectors are also important employers.

24. According to census results, the population of Kutaisi declined from 233,000 in 1989 to 186,000 in 2002; that is a fall of 20% in 13 years, which is greater than reductions elsewhere in Georgia. The present population is estimated at around 170,000, of whom the vast majority are native Georgians, and only around 2% are Russian or Ossetian. There are around 10,000 Internally Displaced Persons (IDP), who are settled in various locations, including Imereti kindergarten, Gumati school, and the hotels Tbilisi, Zeskho and Mtis Broli. The housing stock in the city is around 60,000, of which around a third is individual houses and the remainder apartment blocks, many of which are in a poor state of repair. Average household size is 3.8 in houses and 2.7 in apartments.

25. Kutaisi has a long history in science and education, dating from the 12th century when King David IV established the Gelati Academy of Sciences there. Today the city continues to house institutes of the Academy, and there are also three state universities, including Akaki

Tsereteli University, established in 1930, which is one of the most important educational centres in the country. There are 46 state general educational schools, 5 classic schools, 9 lyceums, 21 private schools and one professional retraining centre. There are almost 30,000 pupils enrolled in the public schools and over 10,000 students at the universities and other higher education institutes.

26. Kutaisi also has a relatively good healthcare network, which includes 5 outpatient polyclinics for adults and 4 for children; and 9 hospitals providing both general and specialist inpatient care (including maternity, obstetrics and gynaecology services, a pathology and infections centre and an oncology hospital). Public health is broadly indicative of difficult socio-economic circumstances, with intestinal infections from water-borne agents being the most common complaint.

27. The long history of Kutaisi has left a number of important historical and architectural buildings and monuments, of which the ruins of the 11th century Bagrati Cathedral on Ukimerioni Hill in the north of the city is the most well-known. The palace-citadel nearby dates from the 6th century, and there are also Gelati and Motsameta churches, and ancient caves outside the city at Sataplia and Navenakhevi. Those at Sataplia are the most noteworthy as they lie within a 354 ha protected area 9 km north-west of Kutaisi and contain picturesque underground rivers and dinosaur footprints, which, along with Bagrati cathedral are significant tourist attractions.

VI. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

28. Table 1 shows the completed REA checklist for this project. This indicates that, as expected, the project should have very few negative impacts during the construction stage; and once the scheme is operating, environmental and social impacts should be almost entirely beneficial. The lack of major impacts during construction is the result of a number of factors, of which the most important are that:

- Outline designs of the project (and subsequent detailed designs) will ensure that all work is conducted within the footprint of government-owned roads and pedestrian walkways, so there should be no need to acquire land or relocate people or businesses, and there will therefore be no impacts related to involuntary resettlement;
- Although construction will affect 26 km of roads in a busy urban area over a period of 6-9 months, at each location the process will be small in scale and short in duration, conducted by a small team of workers over a period of 2-3 days. Impacts of noise, dust, interrupted access, etc, will therefore be short-lived and of little significance;
- The work is very straightforward and involves simple techniques, so the few impacts that could occur can be mitigated by actions that are common aspects of urban construction, and most contractors should be very familiar with the recommended measures;
- The proposed cycle routes have been planned carefully so that the new lanes will be installed alongside mainly wide roads, where traffic can continue to use the road without impediment and with little risk to safety during both construction and operation of the scheme.

Table 1: Completed REA Checklist for Kutaisi bicycle lanes

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project siting: Is the project area adjacent to or within any of the following environmentally sensitive areas?			
• Cultural Heritage site		✓	There are no areas in Kutaisi that are protected for nature conservation reasons. The River Rioni is the only semi-natural aquatic habitat in the city and Figure 1 shows that none of the proposed cycle lanes are located nearby. There are some sites that are of historical and cultural importance in the city, but these are mainly in the north, or on the east bank of the river, where there are no proposed cycle lanes. It is unlikely therefore that any cultural heritage sites will be affected by the construction work.
• Protected Area		✓	
• Wetland		✓	
• Mangrove		✓	
• Estuary		✓	
• Buffer zone of protected area		✓	
• Special area for protecting biodiversity		✓	
B. Potential Environmental Impacts: Will the project cause:			
• Encroachment on historical/ cultural areas, disfiguration of landscape by road embankments, cuts fills and quarries?		✓	As noted above, most of the important historical/cultural areas are in the north and east of the city, where no cycle lanes are proposed. There will also be no disfiguration of the landscape as the construction work will be small in scale. When completed the cycle lanes and pedestrian walkways should improve the local urban landscape by repairing and replacing pavements that are presently dilapidated in many places (see Photo 1).
• Encroachment on precious ecology (eg sensitive or protected areas)?		✓	There are no natural habitats or ecologically important or protected areas in the city. There are however roadside trees in many areas where cycle routes are proposed (see Appendix) so designs should be adjusted to retain trees wherever possible.
• Alteration of surface water hydrology of waterways, resulting in increased sediment in streams affected by increased soil erosion at construction site?		✓	Construction will be very small in scale and none of the proposed sites are in the vicinity of the river so hydrology should not be affected. There should also be no significant risk of erosion/sediment production at construction sites as these will be small in scale, and construction in each area will be completed before moving on to the next adjacent site, so excavated areas will not be left uncovered for long periods. Construction will however be conducted at the edges of existing roads, where surface water drains are located, so detailed designs will need to ensure that these remain in operation during construction and when the work has been completed.
• Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		✓	There will not be any labour camps as workers will be employed locally. Silt runoff should also not be a problem as construction sites will be small and soil will not be left uncovered for long periods. Chemicals are used in producing asphalt, so precautions will be needed to prevent runoff into surface water drains. Construction contracts should therefore: a) prohibit working during rainfall; and b) require contractors to store all chemicals offsite, in leak-proof containers.
• Increased local air pollution due to rock crushing, cutting and filling works and chemicals from asphalt processing?		✓	Aggregate and sand will probably be obtained from local quarries so rock crushing should not be required. Construction work should also not be a major source of dust as worksites will be small and soil will only be uncovered for short periods. Asphalt will be produced in small quantities at each construction

			site, and application of the asphalt will probably be completed in a few hours, so this should also not be a significant nuisance.
• Noise and vibration due to blasting and other civil works?		✓	Construction will be small in scale, and will not involve any blasting. Work will be conducted by backhoe digger, small roller vehicle and trucks loading and unloading materials, and a fair proportion of the work will be done by hand (see Photos 2 and 4). There will be some noise and vibration from the vehicles and machinery but this will be short in duration and should not be excessive, so this is also unlikely to be a major impact
• Dislocation or involuntary resettlement of people?		✓	All work will be conducted within the footprint of existing roads and pedestrian walkways, and there will be no need to acquire new land, so there will be no dislocation or physical or economic displacement.
• Other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		✓	Construction at any one site will to be completed within 2-3 days, so exposure to any dust produced by construction work will be short lived and therefore not significant. Any exposed soil at each site will be covered by aggregate or paving slabs quite quickly, further reducing the likelihood of dust production. Dust could be blown from trucks carrying sand and gravel to site, so to reduce this, contractors should be required to cover all loose material with tarpaulins when carried on trucks or stored on site.
• Hazardous driving conditions where construction interferes with pre-existing roads?	✓		Most roads where cycle lanes will be provided are wide, so construction should not impede traffic or make driving more hazardous. Contractors should nonetheless be required to implement routine precautions to maintain safety, including erecting signs warning motorists of the work, installing safety fences and traffic bollards around the site, and providing training to ensure that workers and drivers of works vehicles are aware of safety risks at all times, and behave accordingly. A small number of roads are narrower, so construction work at these locations could make driving more hazardous. Contractors should therefore be required to liaise with the municipal transport authority to ensure that additional safety precautions are taken at these sites, including closure of roads whilst work is conducted if necessary.
• Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		✓	Workers will be employed locally so there will be no labour camps and no risk of transmitting communicable diseases. Contractors should be required to provide adequate toilet and washing facilities for workers at each site and to ensure that waste is disposed of in a sanitary manner.
• Creation of temporary breeding habitats for mosquito vectors of disease?		✓	There is no malaria in Georgia and no other human disease that is transmitted by mosquito. Construction will be small in scale and should not create significant areas of standing water.
• Dislocation and compulsory resettlement of people living in right-of-way?		✓	Construction will not extend beyond the footprint of existing roads and pedestrian walkways so there will be no physical displacement of people.
• Accident risks associated with increased vehicular traffic leading to accidental spills of toxic materials and loss of life?	✓		Most roads in which cycle lanes are proposed are very wide, so accident risks during construction will be reduced by normal precautions for this type of work, including erection of signs and bollards and raising worker awareness of safety issues by training. Special precautions (such as road closure) will be adopted in the few locations where affected roads are narrower. There is also a risk of accidents once the bicycle lanes are in operation, as this will be the first time that this type of facility has been provided in Kutaisi, so local drivers (and cyclists) will not be familiar with their usage. The municipality should therefore

			inform the public about the project well in advance, and should distribute pamphlets providing guidance on the basic rules for using the lanes and adjacent roadways, including speed limits, rights of way, priorities, safety precautions, etc.
• Increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		✓	There are no emissions from bicycles and no risk of spillages once the cycle lanes are in operation. It is expected that an indirect benefit of the scheme will be a general improvement in air quality in the city as an increased usage of bicycles reduces the numbers of cars on the roads.

29. Table 1 also identifies a small number of mitigation measures, which should be implemented in order to avoid or mitigate the few impacts that could occur.

30. In the detailed design stage the design consultant should ensure that:

- Existing roadside drains are integrated into the designs for new cycle lanes and pedestrian walkways, and drains are kept functioning during and after construction;
- Existing roadside trees are incorporated into designs and retained undamaged wherever possible.

31. During construction, contractors appointed to build the schemes should be required to:

- Cease work during heavy rainfall to prevent chemicals washing from newly-applied asphalt into surface water drains and polluting the River Rioni;
- Store all chemicals used in asphalt production or for other purposes, away from the construction sites in leak-proof containers;
- Ensure that all loose material carried to or from construction sites or stored on site is covered with secure tarpaulins;
- Erect signs, safety fences and bollards around construction sites to warn motorists of the work and to protect workers from passing vehicles;
- Provide training to workers to raise awareness of the dangers of working in and alongside roads and to familiarise them with the appropriate safety precautions;
- Consult the municipal transport authority regarding the few sites located on narrower roads to arrange for additional safety measures, including road closure if necessary;
- Provide adequate toilet and washing facilities for workers at each site and dispose of waste in a sanitary manner according to the appropriate legal standards.

32. The municipal authority (responsible for implementation of the scheme) should:

- Inform the public about the project before construction begins;
- Distribute pamphlets towards the end of the construction period, providing guidance on the basic rules for using the cycle lanes and adjacent roadways, including speed limits, rights of way, priorities, safety precautions, etc;
- Arrange for the city police to observe the cycle lane routes and enforce these rules at least in the early stages of operating the scheme.

33. If these simple precautions are applied there should be no significant negative environmental impacts during construction or operation of the project and the long-term impacts of operating the bicycle lanes should be beneficial as the scheme will:

- Increase the mobility of less affluent people and allow them access to employment opportunities that are more distant from their place of residence;
- Increase bicycle use amongst the Kutaisi public and reduce the usage of motor vehicles, thus reducing traffic congestion and improving air quality;
- Improve public health by encouraging people to increase the amount of exercise they take;
- Enhance the tourism potential of the city by providing an activity for visitors to participate in, which could be linked to other attractions in the city.

VII. CONCLUSION AND RECOMMENDATION

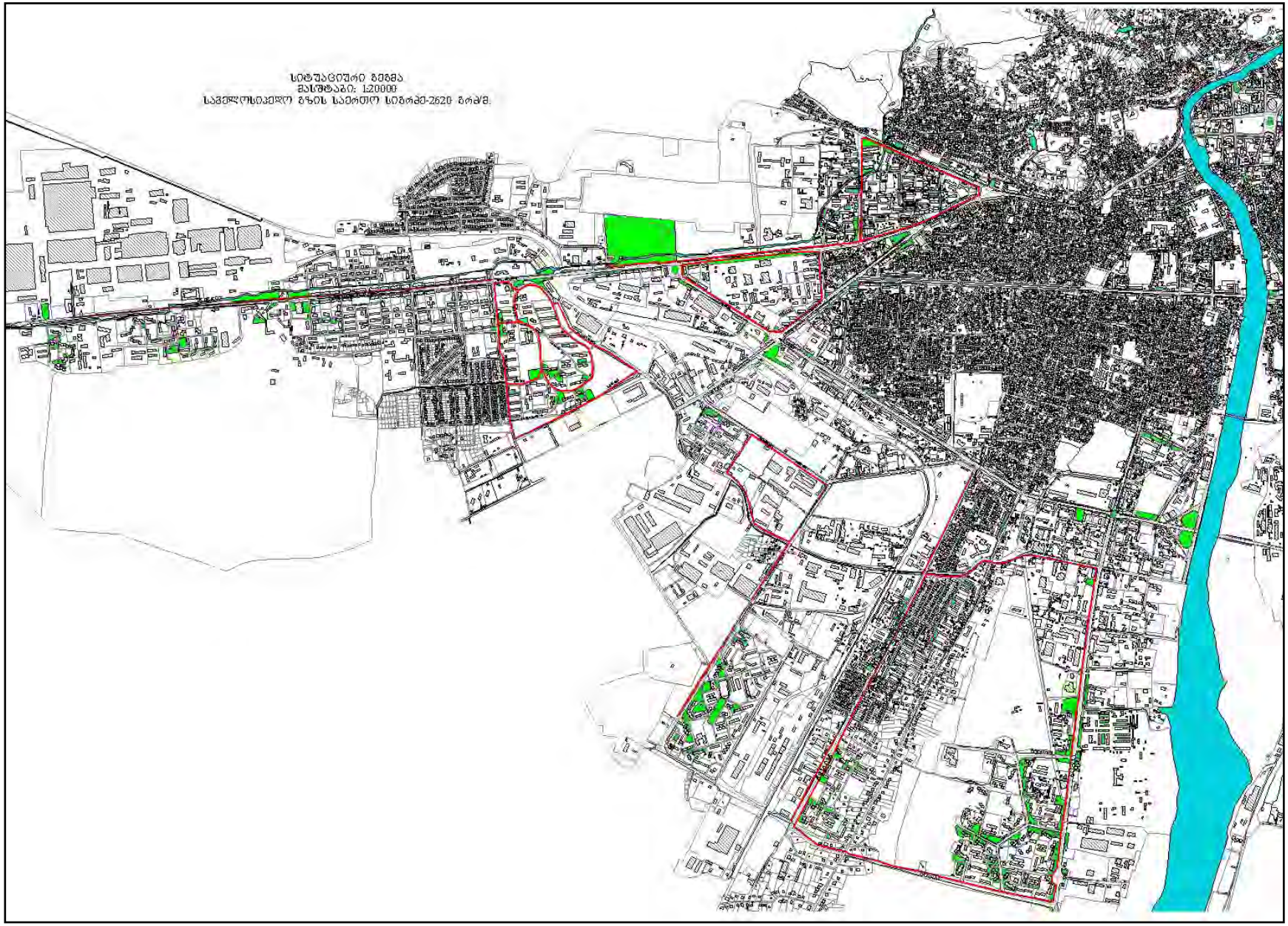
34. This document has reviewed the environmental implications of the Kutaisi Alternative Urban Transport Development Project, which proposes to provide bicycle lanes and new pedestrian walkways alongside 26 km of roads in the city, with the aim of promoting increased bicycle usage, particularly amongst less affluent people. The environmental implications of constructing and operating the scheme were reviewed by means of the REA checklist for roads and highways, which is used by ADB in screening such projects to identify their main potential impacts and to determine the project's environmental assessment category.

35. The review indicated that the project is unlikely to cause significant negative impacts during construction, mainly because the scheme will be built in consecutive short lengths by small teams of workers, so at any one location work will be small in scale and short in duration. Careful project design and site selection should avoid the need to acquire land or relocate people or businesses, so there should be no physical or economic displacement and no impacts related to involuntary resettlement. The few impacts that could occur (dust, pollution from runoff of chemicals, safety risks) can be mitigated by straightforward measures that are commonly used at construction sites in urban areas, which contractors should already be familiar with.

36. When the scheme is operating, its long term impacts should be beneficial, providing cyclists and motorists obey simple rules to ensure safe and effective co-existence. The municipal authority should therefore distribute leaflets publicising these rules in advance and should arrange for enforcement by the police authority in the early stages. If this is done the scheme should have its intended impacts of encouraging greater use of bicycles, particularly amongst less affluent people, whose socio-economic status may then improve if they are able to seek employment farther afield. Increased bicycle usage should also improve public health and improve the city environment by reducing road traffic.

37. The conclusion to this review is therefore that the proposed scheme should have minimal negative impacts during construction, and the few impacts that could occur can be mitigated by straightforward measures that are part of normal site practice for an experienced contractor. Once the scheme is operating its impacts should be entirely beneficial, providing the rules of using the cycle lanes and adjacent roadway are effectively publicised and policed. Because negative impacts will be minimal and can be avoided or mitigated by straightforward measures, Category C is the appropriate classification for this project. This environmental review has identified its potential impacts and proposed appropriate mitigation (in Paragraphs 30-32) so no further environmental assessment is required.

APPENDIX: OUTLINE DESIGNS OF THE PROPOSED CYCLE LANES AND PEDESTRIAN WALKWAYS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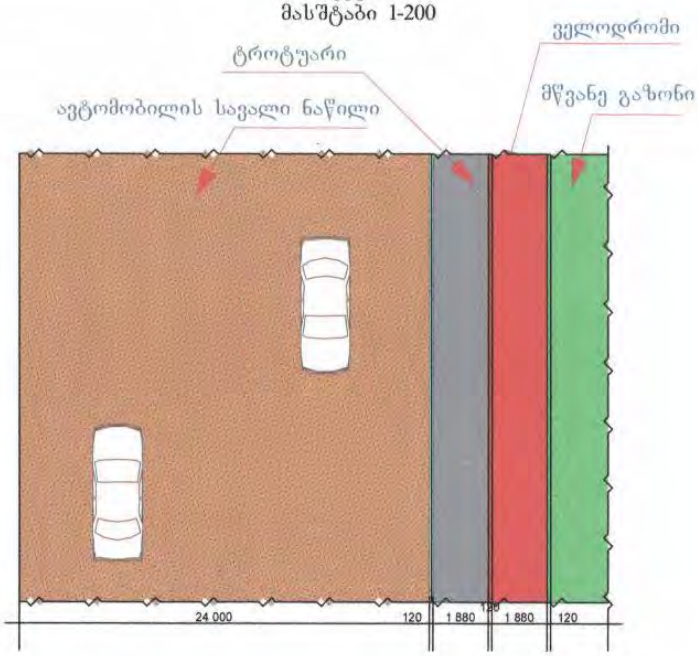
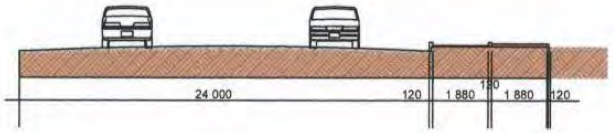


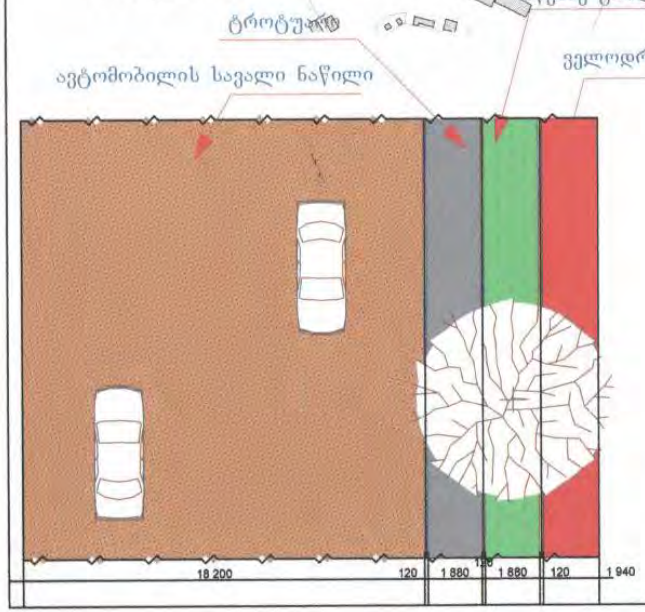
ჭრილი
მასშტაბი 1-200



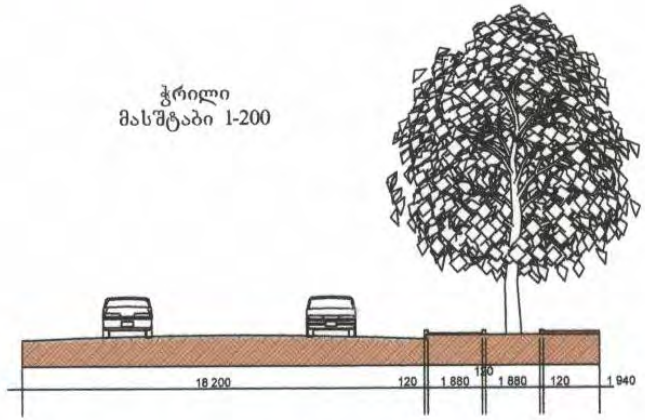
ზ.გამსახურდიას,9 აპრილის,აბაშიძისა და შარტავას ქუჩების
დამაკავშირებელი ხოლი –-2306 გრძ/მ.

სიტუაციურ გეგმა

ზ.გამსახურდიას ქუჩის მონაკვეთის
გეგმა
მას'შტაბი 1-200



ჭრილი
მას'შტაბი 1-200

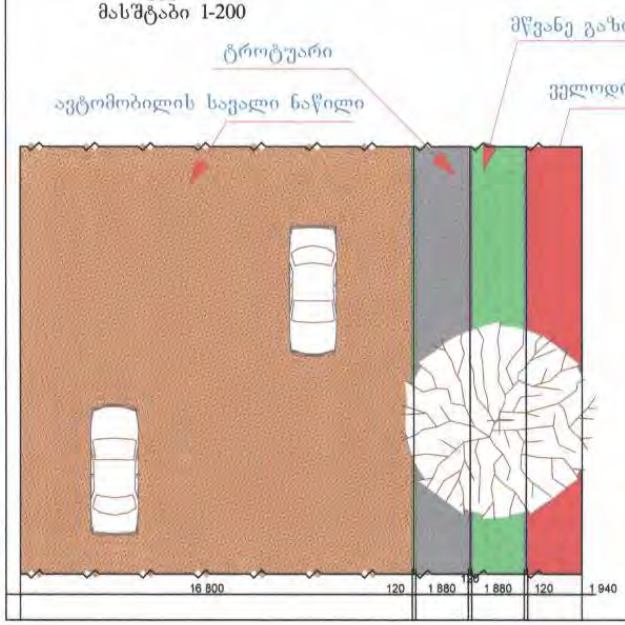


ავტომშენებლის ქუჩა ---2648 გრძ/მ.

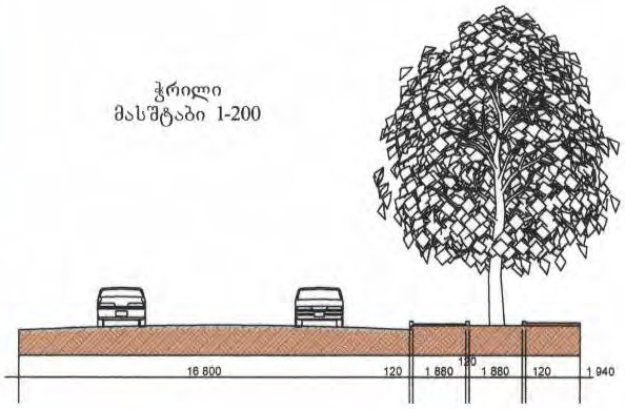
სიტუაციურ გეგმა

ავტომშენებლის ქუჩის მონაკვეთის

გეგმა
მასშტაბი 1-200

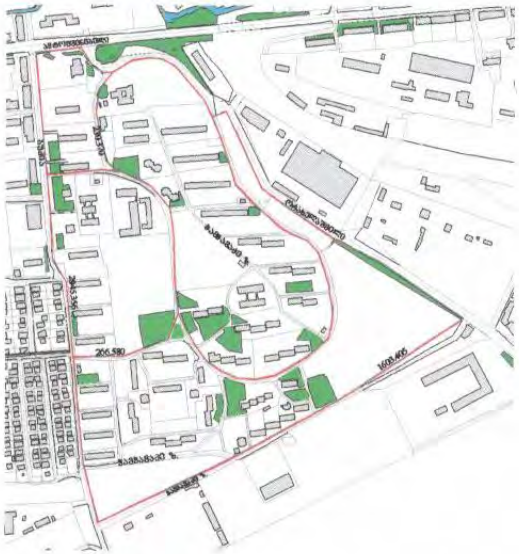


ჭრილი
მასშტაბი 1-200

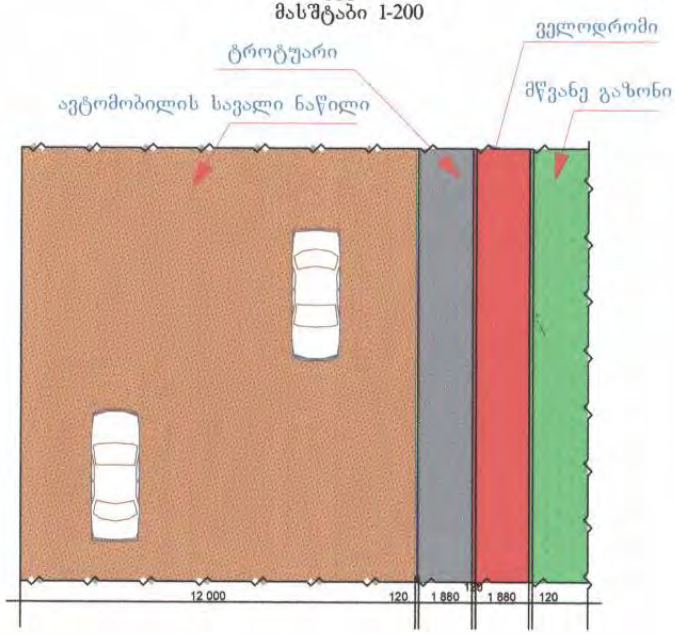


ზ.ჭავჭავაძის,ორახელაშვილის და ბუკიას ქუჩების
დამაკავშირებელი ზოლი --- 5045 გრძ/მ.

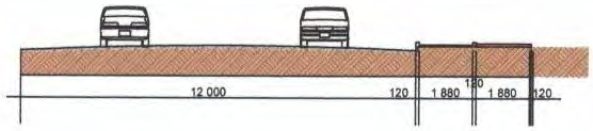
სიტუაციურ გეგმა



ზ.ჭავჭავაძის ქუჩის მონაკვეთის
გეგმა
მასშტაბი 1-200



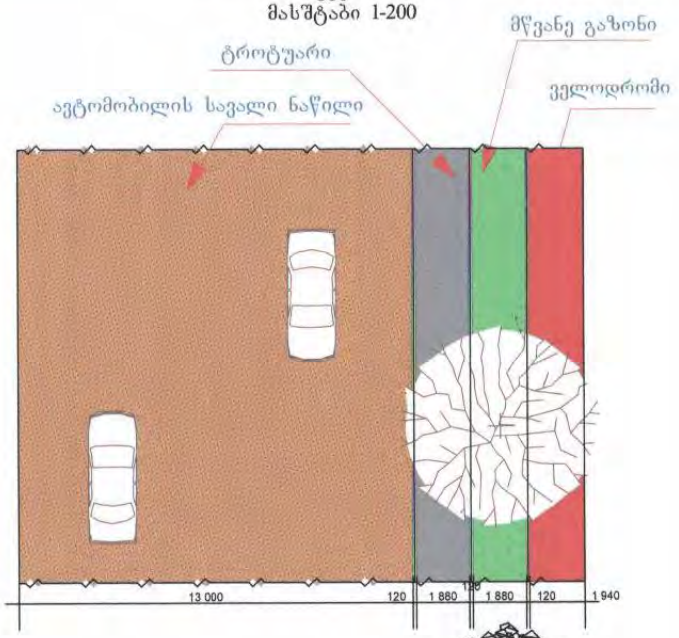
ჭრილი
მასშტაბი 1-200



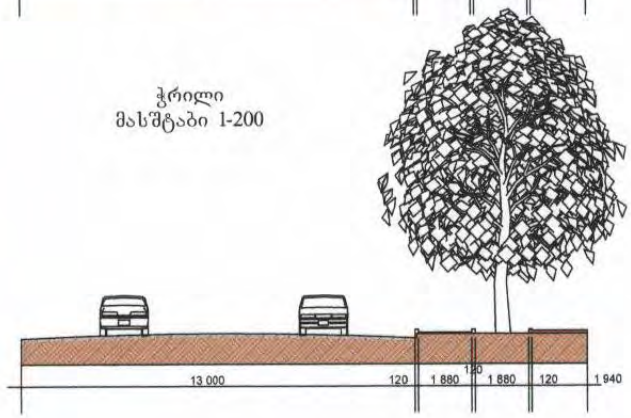
ახალგაზრდობის გამზ. --- 1480 გრძ/მ.

გუგუნავას ქუჩა
სიტუაციურ გეგმა

გუგუნავას ქუჩის მონაკვეთის
გეგმა
მასშტაბი 1-200



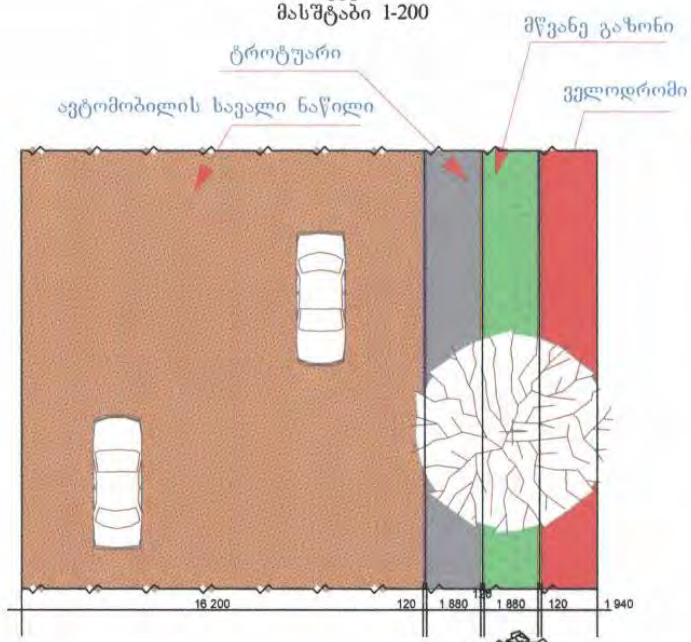
ჭრილი
მასშტაბი 1-200



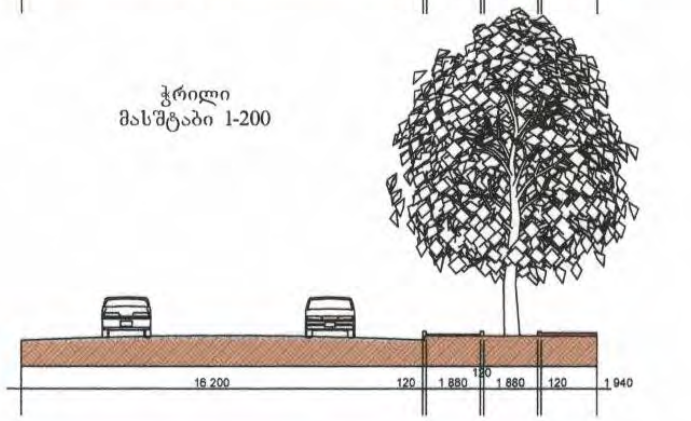
ახალგაზრდობის გამზ. --- 1122 გრძ/მ.

ახალგაზრდობის გამზ.
სიტუაციურ გეგმა

ახალგაზრდობის გამზ.-ის მონაკვეთის
გეგმა
მასშტაბი 1-200

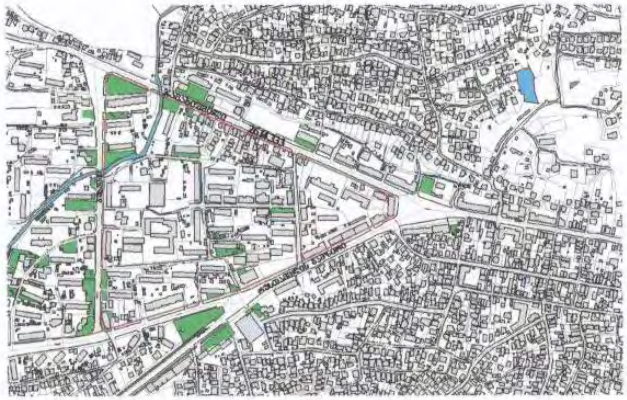


ჭრილი
მასშტაბი 1-200

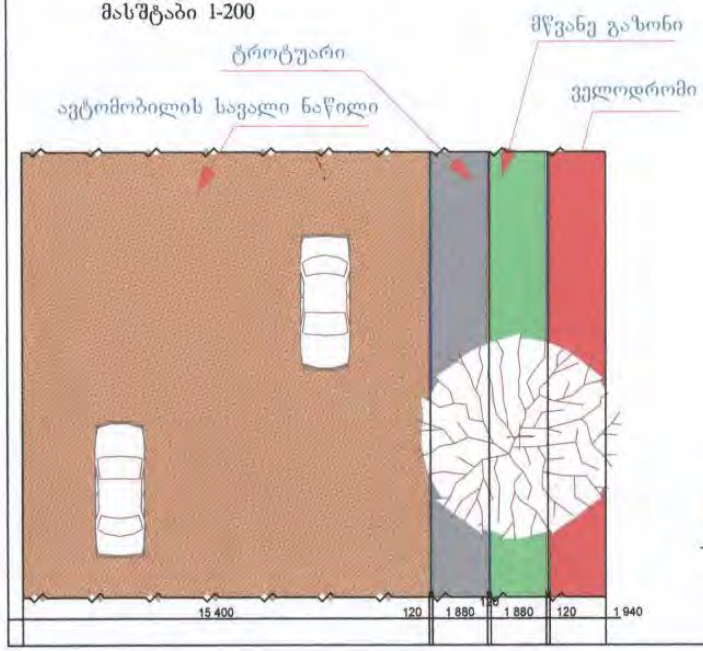


აბაშიძის,ბუხაიძის,რუსთაველისა და ჯავახიშვილის ქუჩების
დამაკავშირებელი ზოლი ---2614 გრძ/მ.

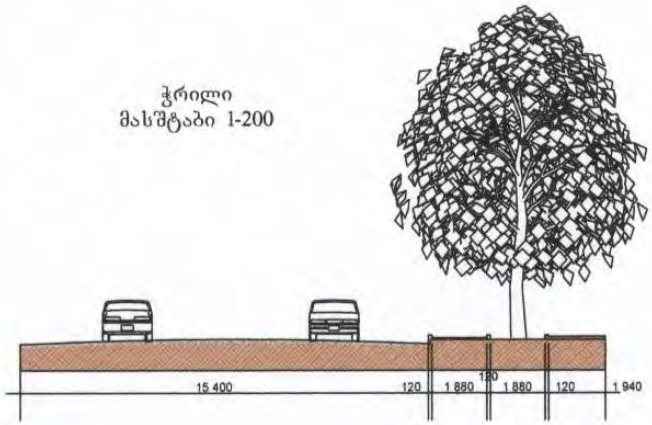
სიტუაციურ გეგმა



რუსთაველის გამზირის მონაკვეთის
გეგმა
მასშტაბი 1-200



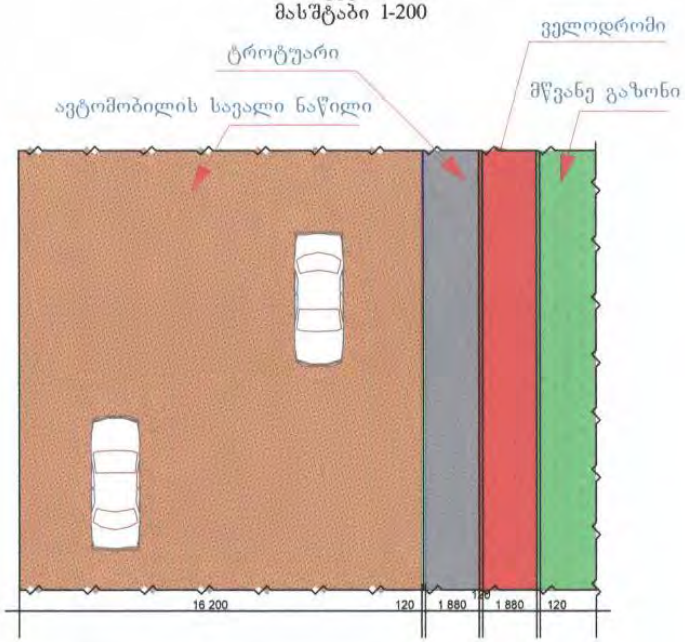
ჭრილი
მასშტაბი 1-200



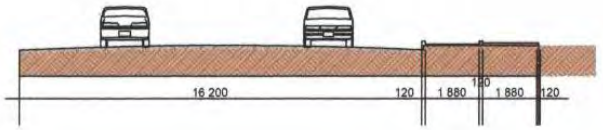
ი. აბაშიძის ქ. --- 1360 გრძ/მ.

ი.აბაშიძის ქ.
სიტუაციურ გეგმა

ახალგაზრდობის გამზ.-ის მონაკვეთის
გეგმა
მასშტაბი 1-200

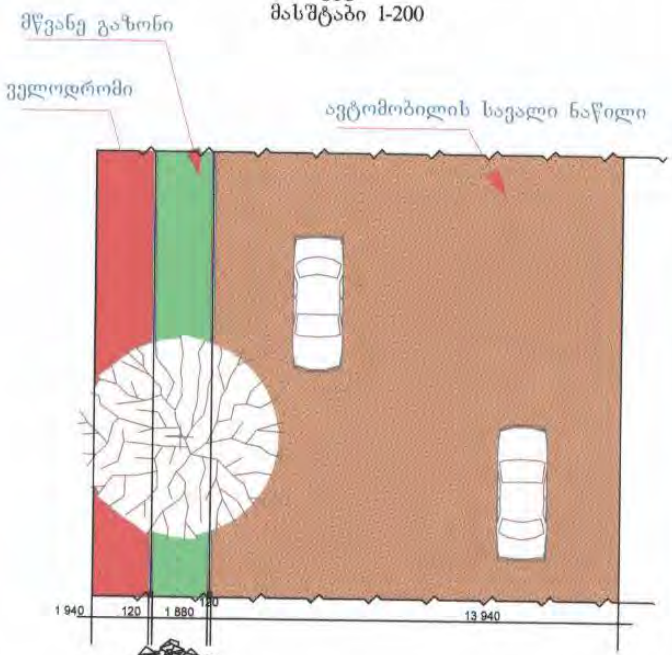


ჭრილი
მასშტაბი 1-200

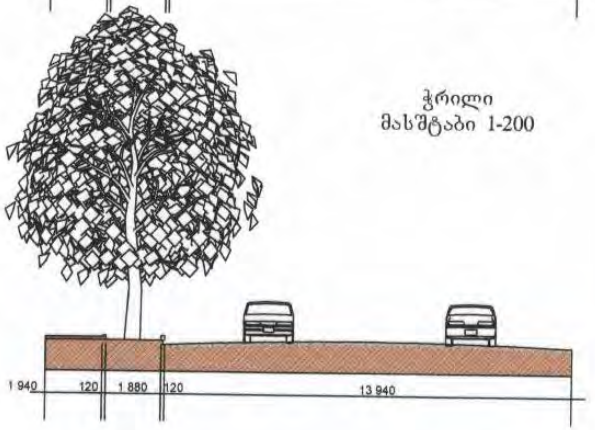


სულხან-საბას ქ. — 1560 გრძ./მ.

სულხან-საბას ქ.-ის მონაკვეთის
გეგმა
მასშტაბი 1-200

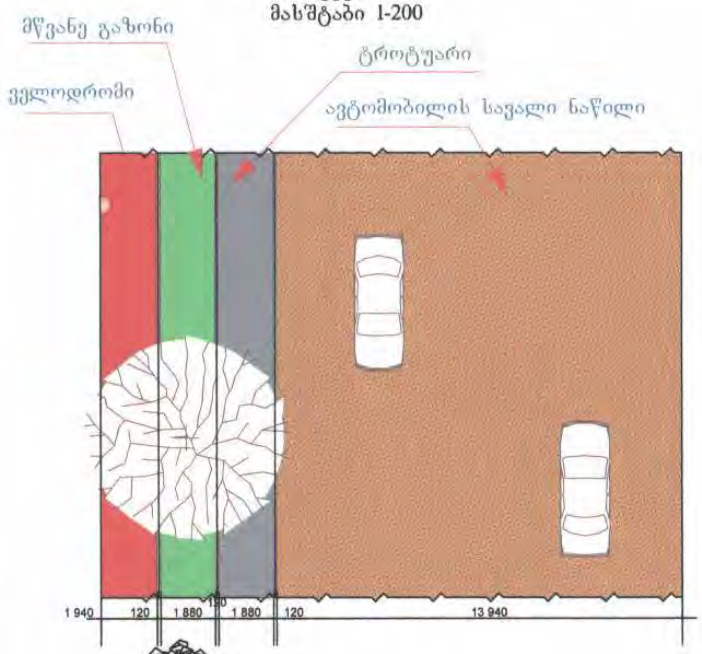


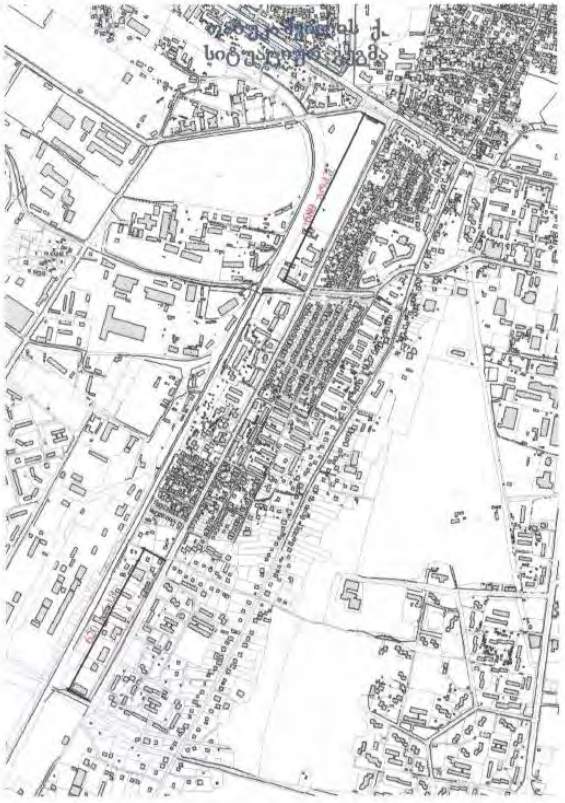
ჭრილი
მასშტაბი 1-200



თაბუკაშვილის ქ. — 1300 გრძ/მ.

თაბუკაშვილის ქ-ის მონაკვეთის
გეგმა
მასშტაბი 1-200





ჭრილი
მასშტაბი 1-200